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Statement 1999

Network Management Statement 1999

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management vision partnership

The Network Management Statement (NMS) is published annually by Railtrack PLC in accordance with Condition 7 of our Network Licence. The purpose of the Statement is to achieve a shared understanding among those involved in the industry of our plans for the management and enhancement of the network, particularly during the next Control Period from 2001–2006, and the criteria adopted to produce these plans, and to assist the Rail Regulator, train operating companies and industry-funding bodies to monitor the effectiveness of our plans. This Statement sets out our plans for the maintenance, renewal and enhancement of the network for a ten-year period, with greater detail for the first seven years of the programme. The Statement explains the processes of consultation we adopt with our industry partners – the passenger and freight operators, suppliers, the Franchising Director, Passenger Transport Executives, local authorities and other bodies – to achieve this shared understanding. The form of the Statement, and the period it covers, have been approved by the Rail Regulator.

The inclusion of any project or proposal in this Statement does not imply that it has formal investment approval by Railtrack. As plans are developed in detail, alternative proposals may be preferred. It should also be noted that any material change can be objected to by those affected by it under the track and station access agreements, and, in the event of disagreement over a proposed change, an appeal to the Rail Regulator may be necessary.

Our plans, set out in this Statement, particularly beyond 2001, are subject to the outcome of the Rail Regulator's periodic review of access charges for the period 2001–2006. Unless otherwise stated, all costs quoted in this Statement are at 1998/99 prices, and have been rounded, but not more coarsely than to the nearest £10M.

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The 12 months since publication of the 1998 Network Management Statement have been momentous for the industry.

- Passenger and freight volumes have continued to grow strongly.
- The Government's Integrated Transport Policy White Paper has set out new opportunities and direction for the rail industry.
- The Deputy Prime Minister's two Rail Summits have provided a catalyst for the industry – Railtrack and train operators – to come together to address the problem of train punctuality.
- The issue of growth and the creation of the right financial incentives to facilitate this have been placed firmly on the agenda.
- The creation of the Strategic Rail Authority has moved forward with the appointment of Sir Alastair Morton as Chairman designate.
- The Government has offered franchise renegotiation on the basis of key criteria at the second Rail Summit.
- The Channel Tunnel Rail Link has been rescued by a deal between the Government and Railtrack, and construction has begun.

Perhaps the key thing for me, however, is the growing recognition of our interdependence as players within the newly structured industry. To deliver the more reliable, faster services that the user wants, requires effective collaboration between us, train operators, and our suppliers. The adversarial approach does not work.

This 1999 Network Management Statement is primarily about growth – how we provide for the additional capacity in the network to overcome current constraints and to accommodate the future demands for passenger and freight.

The balance of our ten-year programme reflects this shift of priorities away from merely maintaining and renewing the existing network towards providing more capacity and improved capability. £11bn (40%) of our £27bn expenditure plan that we have set out in this Statement is for network enhancement. This scale of investment will allow us to accommodate a 30% growth in passenger traffic over the next ten years along with major growth in freight traffic – and thereby bring about significant benefits to society from reduced emissions, congestion and improved safety. This annual growth rate of 3% is in line with the Deputy Prime Minister's target.

These plans are underpinned by support from our customers – the train operators – and are in line with what we believe our wider stakeholders – rail users, central and local governments – want. Indeed, based on the extensive consultations that we have carried out, we see this very much as an industry plan for development of the rail network.

Over the coming months, there will be discussions with governments and the Rail Regulator, over priorities and funding requirements. Central to this is the Rail Regulator's periodic review of access charges which has to provide the right financial framework to enable delivery of the investment needed.

This is the challenge that we, in conjunction with the new Strategic Rail Authority, must now rise to. We look forward to concluding this framework so that we can get on and deliver our part of the deal.



Sir Robert Horton, Chairman



This Statement sets out an industry vision of a rail renaissance for Britain's railways

Our 1999 Network Management Statement occurs at a defining moment for the industry. It represents the rail industry's response to the Government's Integrated Transport Policy White Paper and sets out an industry vision for a rail renaissance based on an expanding railway meeting the needs of a growing number of passengers and businesses. The plan will contribute towards the Government's policy of sustainable development with reduced dependence on road transport delivering a transport system that is safe, efficient, clean and fair. Rail is particularly well-suited to this role. We demonstrate that, in environmental terms, increased use of rail can confer substantial benefits in respect of lower vehicle emissions, congestion and safety. To deliver the Plan, we also propose a new incentives framework to enable and encourage the necessary investment.

Against this background, the 1999 NMS:

- sets out plans to accommodate a 30% growth in passenger demand over the next ten years and a trebling of freight volumes.
- tackles 30 capacity bottlenecks – with work already under way on 11.
- commits to a number of major enhancements including an upgrade of the East Coast Main Line between London, Yorkshire and Edinburgh.
- includes proposals for improved rail access to and through central London together with new and improved rail connections to Heathrow and Stansted airports.
- sets out proposals for improving facilities across all our 2,500 stations, including better access to the network for the disabled.
- proposes increased access to the network for larger freight containers and the development of a third Anglo-Scottish freight corridor.
- sets out in Route Strategies a range of detailed proposals for improving the capability and capacity of the network.
- commits Railtrack to further improvements in network reliability.

Our plans involve total investment of some £27bn over the next ten years – some of which will need to be carried out in partnership with funders. This compares with the total planned investment of £17bn in the 1998 NMS.

We have proposed a programme totalling £27bn to facilitate a 30% growth in passenger kilometres and a trebling of freight by 2009

The market for rail services

Since 1995, passenger numbers have increased by 25% in what has been one of the main successes of the new rail industry. This is against the background of static passenger rail traffic over most of this century (at around 30bn passenger kilometres annually) and declining market share.

Against a momentous period of social change, through two world wars and the transformation of personal mobility through the rise of the motorcar and development of the road network, rail usage has been remarkably stable. In our view, this stability reflects an overall constraint on the network's carrying capacity. Even though the network size has diminished over the century, particularly through the Beeching closures of the 1960s, the lines that were closed rarely carried significant volumes.

There are now a number of factors supporting a shift towards long-term sustainable growth:

- aspirations by train operators to develop and grow their businesses along with powerful economic incentives for them to do so
- the Government's support for public transport and its stated intention of putting rail at the heart of its Integrated Transport Policy
- growing environmental concerns about the sustainability of increased car usage and freight on a constrained-capacity road network, combined with increasing costs of road use and slower journey times
- a trend of declining rail fares in real terms, after 20 years of price increases (our market research shows that rail fares are still the single biggest impediment to increased use of rail).

However, unless something is done to develop the network, it is very unlikely that significant growth can be realised. We have investigated a range of future growth scenarios for passenger traffic from less than 1% per annum to over 4%, and considered the investment needed to create necessary capacity to deliver that growth. In consequence, we have proposed a programme totalling £27bn to facilitate a 30% growth in passenger miles by 2009. This is in line with the Deputy Prime Minister's targets.

On freight. After decades of decline, we have seen a 40% increase in freight tonne-kilometres since 1995 and there is now a real prospect of sustainable long-term growth. Again, we have considered a range of future growth scenarios involving compound annual growth rates of up to 9%, in line with our customers' forecasts. The latter involves a trebling of rail freight within ten years – a target which the Government also endorses in its integrated transport White Paper. The plans in this NMS are designed to deliver this growth, and the costs are included in the £27bn total.

Consulting widely with customers and stakeholders

Railtrack plays a pivotal strategic planning role in the rail industry. Since the 1998 NMS, we have undertaken extensive consultation with our customers (train operators) and funders (Passenger Transport Executives, the Franchising Director and local authorities) through a structured account planning process, to understand their requirements and how these can be met. We have consulted extensively on longer-term studies of strategic options for developing individual routes and alleviating capacity bottlenecks. We have undertaken research into public and passenger opinion to ensure that our plans reflect passenger priorities. We have also carried out environmental and cost-benefit assessments of the case for developing the rail network. The resulting ten-year plan is therefore an industry – not just a Railtrack – document. It is truly collaborative.

We are now committed to a major upgrade of the East Coast Main Line between London, Yorkshire and Edinburgh at an estimated total cost of around £1bn

What the plans involve

Our plans comprise the following elements, each of which are associated with a range of deliverable outputs. They are:

Sustaining the network	Ten-year total (£bn) 1999/2000–2008/09
Maintenance and renewal expenditure	16.4
Commitments to developing the network	
New schemes from last year's NMS	1.8
New commercial projects	1.4
New partnership schemes requiring some funder support	3.6
Contractor schemes undertaken on behalf of the Strategic Rail Authority or Passenger Transport Executives (including station improvements)	2.7
Other enhancement	1.2
Total enhancement spend over ten years	10.7
Total network investment	27.1

These plans compare with the £17bn (ten year) investment plan set out in the 1998 NMS.

Among major commercial projects to which we are now committed is a major upgrade of the East Coast Main Line between London, Yorkshire and Edinburgh, at an estimated total cost of around £1bn. This provides increased capacity to meet passenger and freight growth, allows for the operation of tilting trains and offers significant reductions in journey times. Railtrack is willing to take demand risk and sell the additional paths created, on a commercial basis.

In London, in addition to the Thameslink 2000 project, we will develop a new direct southern access to Heathrow Airport to further increase the quality of rail access to our major international airport. We are also proposing integration of the subsurface lines of the London Underground with the surface lines which would allow, for the first time, through services from Heathrow to the City.

Our commitments include plans to relieve all of the 30 capacity bottlenecks identified in the 1998 Network Management Statement. Of these, 11 are already being implemented either through capital or timetabling solutions. We make firm commitments on 13 more, including three as part of the East Coast Main Line project. Proposals are included for the remainder to which Railtrack is willing to commit to partnership-based solutions.

Our plans include a whole range of improvements across the network – the provision of new stations, disabled access facilities, improved airport links, new metro services and additional capacity. We will upgrade our stock of 2,500 stations to ensure they meet customer aspirations for the 21st century.

We have included a chapter which outlines our plans and commitments on freight where we expect to be able to meet our customers' forecast freight figures for the next five years without major new investment. For the longer term, we are looking to develop a third major route between London and Scotland and to raise the loading gauge on a network of key routes. We have also submitted a funding proposal to the Department of the Environment, Transport and the Regions (DETR) to clear two routes between the Channel Tunnel and London to handle higher gauge traffic. Specific chapters deal with our plans and commitments to develop the rail network in London, Scotland and Wales.

The Rail Regulator indicated a way out of this dilemma... to grow our business through commercial partnerships with customers and Government

What the plans deliver

The major deliverable from these plans is the capacity to accommodate a 30% growth in passenger kilometres and a 200% growth in freight volumes over ten years.

The effect of our plans will be to produce a range of other improvements to the capacity and capability of the network. In addition to the targets we have set for improvements to delays per train movement of 7.5% and 5% respectively for the next two years (1999/2000 and 2000/01) our renewal plans involve further annual reductions averaging 2.5% over the next Control Period. By 2005/06, the cumulative reductions in delays per train movement attributable to Railtrack will have reached nearly 60% against 1995/96 levels. We are also currently evaluating the cost implications of an alternative option of achieving 5% annual performance improvements post 2001 which we shall be discussing with the Franchising Director.

Following commitments made to the Rail Regulator, we have started to implement a track-quality improvement programme which, by April 2001, should deliver the highest levels of track quality ever recorded.

Our plans will also produce improvements in journey times, improved station facilities on a range of dimensions, and an increased freight loading gauge for a proportion of the network, to enable large containers to be carried.

The funding challenge – financing the rail renaissance

This £27bn programme is the largest upgrade of infrastructure since the railways were first built. Delivery of a programme of this scale involves a massive challenge which can only be met through an effective partnership between the public and private sectors.

Railtrack is already committed to funding much of this investment through its own borrowing. Our previous programme of £17bn will already lead to us being one of Britain's biggest borrowers with an expected debt of around £4bn by 2003/04. The additional financing required to fund this investment can only be sustained if Railtrack and other interested parties have the right financial framework which provides an appropriate return on investment – both debt and equity.

The Rail Regulator is currently reviewing our financial framework as part of his periodic review of access charges. In December, he published his initial conclusions on the financial framework, following the broad approach adopted for other utilities, such as water. But as a low-risk/low-return 'contractor' and with a regulatory asset base defined in terms of the original, heavily discounted, flotation value, our future revenues would be reduced and our funding capacity would be significantly curtailed.

Our current rate of renewal spend (£1.4bn annually) is double the level three years ago and by 2001 we shall have spent £1.25bn more than the Rail Regulator allowed on renewals when the current level of access charges was set in 1994 – although he has so far been unwilling to allow a return on this additional spend. The tight financial framework outlined in the Rail Regulator's December document will not enable the proposed programme to be delivered.

However, the Regulator indicated a way out of this dilemma. This was for us to grow our business through commercial partnerships with customers and Government, taking additional risk but securing additional rewards. That is what we have sought to do through this NMS.

With accelerated or new investment being one of the Government's published criteria for franchise renegotiation, we anticipate working with train operators to assist them in this process.

Delivery of these plans provides a challenge to Railtrack, the Rail Regulator, the Strategic Rail Authority and to the Government to develop the right financial framework and balance of risk between the public and private sectors. Rail investment has the potential to produce benefits which go much wider than the industry and ultimately affect the quality of life in this country. For this reason, it requires a true public-private partnership.

This is the industry vision, outstanding service quality, punctuality, clean, modern rolling stock and station facilities

Wider incentives framework

The current incentives framework for the industry involves strong commercial growth incentives for train operators but much weaker incentives for Railtrack, with a system of access charges under which 91% of its passenger franchise income is fixed.

Work has been under way to review the current system of charging for use of the network, and the Rail Regulator will be publishing a paper on charging options in the spring. Our proposals include a larger variable component of charges, perhaps in the order of 30%, reflecting more accurately the costs incurred by running additional trains on the network, together with a volume incentive, so that we and the train operators share the benefit of traffic growth.

Such a regime would extend the principle of revenue sharing, as agreed between Virgin Trains and Railtrack for the West Coast Main Line, to the whole network. Getting the right charging structure is important in providing the right economic signals, aligning growth incentives between Railtrack and train operators, while making it easier to finance necessary enhancement. One option would be to strengthen these incentives through Strategic Rail Authority top-up payments in respect of the additional social benefits which accrue from traffic growth.

A further change to incentives is required on performance. There may be scope for mechanisms to recycle a proportion of Railtrack efficiency gains back to train operators based on their performance. Together with a volume incentive, this would mean the industry sharing the benefits of growth and improved efficiency, to the benefit of rail users.

Having the investment plans needed to provide for growth in use of the network is only the first step. The delivery mechanism is a revised economic architecture which aligns the interests of the parties, forces collaborative working, transfers risk to those best able to bear it, and so enables the investment to get funded. It represents a new approach. Anything less radical will not deliver the scale of the changes now required.

Industry vision

'This is the industry vision: outstanding service quality, punctuality, clean, modern rolling stock and station facilities, the renaissance achieved, the growth we forecast realised, an incentives framework which enables and encourages it, a host of new projects, the Government objectives of a safer network – commercially funded – and the Deputy Prime Minister's policy of truly integrated transport realised.' – Gerald Corbett, National Rail Summit, February 1999.

Privatisation of the rail industry has produced many successes. Investment has increased, safety has improved and, after years of stagnation and decline, the industry has grown dramatically in passenger and freight volumes

Progress since the 1998 NMS

The time since our 1998 Network Management Statement has been a period of intensive activity for Railtrack. We have developed a new more systematic approach to the management of train performance, based on budgets, action plans which focus on key route sections and assets, and accountability for delivery with Area Delivery Groups. We have adopted a more collaborative approach to working with our customers – the train operators – based on a Ten-Point Plan for improving train performance. The Government's Rail Summits provided a catalyst for this approach.

We have also changed the way we work with our maintenance contractors, moving to a more collaborative approach with an 'open-book' policy, and have let the first four new-style contracts.

We have rebalanced our investment programme towards enhancement and introduced new techniques for managing the maintenance/renewal trade-off. We have now completed half the Station Regeneration Programme and have made solid progress on safety, introduced new collaborative approaches to timetabling, and started upgrading the West Coast Main Line. We have also helped the Government save the Channel Tunnel Rail Link. We shall meet our financial targets for the year and be close to achieving the 7.5% overall performance target (for train delays) that we agreed with the Rail Regulator in July last year.

The industry record

Privatisation of the rail industry has produced many successes. Investment has increased, safety has improved and, after years of stagnation and decline, the industry has grown dramatically in passenger and freight volumes. Passenger numbers since 1995 have increased by 25% and freight tonne-kilometres by nearly 40%.

Since 1996, our own investment programme has doubled to £1.45bn per annum, most of it on renewing the infrastructure (track and signalling etc) and making good the backlog of public sector underinvestment, particularly on stations. Nearly one half of our 2,500 stations have now benefited from the Station Regeneration Programme which is on course for completion in 2001.

However, success has also raised new issues. After a significant early improvement, industry performance (measured in delays per train movement) has recently deteriorated, with train operators performance (defined as attributed minutes' delay) worsening and Railtrack's overall performance showing only minimal improvements after 40% gain achieved in the last three years. Performance among operators and Railtrack's Zones has been uneven. Some have improved, others have worsened.

The potential scale of these problems is compounded by the projected growth in passenger and freight traffic. Industry models of congestion show that a 1% increase in passenger train miles leads to a 2.5% increase in delays to trains. A growth of 40% in train miles over the next ten years – all other things being equal – would lead to a doubling in the total amount of train delays, a result which is clearly unacceptable.

A number of solutions present themselves; in the short term more systematic management and a more collaborative approach will help. But a full solution requires investment to expand capacity together with an improved incentive regime for a new era which will deliver the desired outputs.

introduction

1 Introduction and context of plan

- 1.1 Introduction
- 1.2 Strategic planning role
- 1.3 Structure of the Statement and the form of publication
- 1.4 Context
- 1.5 Economic incentives framework
- 1.6 Institutional context
- 1.7 Financing the Plan



In this section, we set out the structure of the NMS and place it in the context of the Rail Regulator's periodic review of Railtrack's access charges. We describe the existing incentives framework for the industry and how we believe this should change to facilitate growth. Finally, we outline the institutional context for the NMS – the Government's Integrated Transport Policy and the proposed Strategic Rail Authority, links with regional and local governments, and European Union proposals for pricing and technical harmonisation.



We have a unique position
at the heart of the rail
industry that enables us
to take a strategic and
co-ordinated view in
developing and delivering
an industry vision

1.1 Introduction

Railtrack owns and operates the rail infrastructure of Great Britain. We are responsible for maintaining, renewing and developing the network to meet the needs of train operators and users, within the context of the Government's Integrated Transport Policy objectives.

Our assets include 32,000 kilometres of track and associated signalling and electrical control equipment providing a network of more than 16,000 route kilometres, 40,000 bridges, tunnels and viaducts, 9,000 level crossings, 2,500 stations, 90 light maintenance depots and connections to over 1,000 freight terminals. With the exception of 14 major stations, which we operate, all stations and depots are leased to train operating companies.

Safety of the network is of paramount importance and we oversee safety matters relating to contractors and train and station operators. We formulate and monitor mandatory network-wide safety standards and have established the industry Safety Management System, including processes for the acceptance and monitoring of train company safety arrangements.

1.2 Strategic planning role

We have a unique position at the heart of the rail industry that enables us to take a strategic and co-ordinated view in developing and delivering an industry vision with our customers and funders designed to satisfy their needs and expectations.

1.3 Structure of the Statement and the form of publication

We publish a Great Britain (GB) Statement, and a Scottish Statement which provides a more detailed focus on our network in Scotland.

Both Statements set out national plans for the maintenance, renewal and development of the network together with the analyses, planning and processes that underpin these plans.

Our national plan is disaggregated into 45 Route Strategies which are also set out in the Statement. Each route strategy is derived from an assessment of the transport markets served by that route, our customers' requirements identified through our Account Planning process, the maintenance and renewal needs on the route

and a joint vision of the long-term development of the route. These Route Strategies ensure that the railway infrastructure can deliver the level and quality of service which our customers require to meet current and foreseen market needs.

For each customer we also have an Account Plan which records their business needs and agreed plans to meet these requirements.

The Statement shows the financial inputs to our plans, and the physical performance and quality outputs that we expect to achieve as a result of this level of expenditure both in the remaining two years of the current Control Period and during the five years of the next Control Period. The effect on the capability, quality and performance of the rail network and stations will then be tracked over time in future Statements to show that the expected expenditure benefits have been delivered.

These measures, and how we expect them to change over time, can be found in Section 5.

Various editions of this NMS are available:

- GB NMS
- Scotland NMS
- Summary edition
- Welsh language extract
- Website
- Tape version
- PC disk version.

For further information, contact the Railtrack Helpline on 0345 114141 or see our website <http://www.railtrack.co.uk>

The more track access charges are reduced, the less our ability to fund a growing programme of investment

1.4 Context

The periodic review of Railtrack's access charges

The Rail Regulator has a statutory duty 'not to make it unduly difficult' for Railtrack to finance its activities. In turn, we must ensure that we meet the reasonable requirements of our customers and funders and satisfy our stewardship obligations for the network.

This is our fourth Network Management Statement and the second produced under Licence Condition 7. Although the NMS is produced annually, the context of the 1999 NMS is rather different. It represents a Strategic Business Plan on which the Rail Regulator is to make decisions on access charges for the five years from April 2001.

The periodic review involves key decisions on future track access income and investment. Broadly, the more track access charges are reduced, the less our ability to fund a growing programme of investment. Uniquely among regulated utilities, reductions in access charges (through the 'RPI-X' formula) do not affect our direct customers (train operators), or end users (passengers) but are passed back to the Franchising Director, and can either be used to reduce overall Government support for the industry or be reinvested in network development.

We will follow up the NMS with a submission on detailed projections of capital and operating-cost expenditures, together with income forecasts. These will be used to inform the Rail Regulator's decisions on allowed revenue and access charges for the next Control Period.

It will be up to the Franchising Director and the Shadow Strategic Rail Authority, in light of the NMS, to advise the Government on national priorities for development of the network and the prioritisation of schemes for support on social grounds.

Our aspirations for the periodic review can be summarised as:

- alignment of growth and performance incentives between Railtrack and its customers.
- a financial framework with incentives for Railtrack to take greater commercial risk in developing the network.
- an agreed framework for remunerating different types of enhancement projects which allows us to initiate such schemes to develop the network to meet customer and funder requirements.
- a well-specified regulatory contract which focuses on the outputs to be delivered for the period 2001–06.

The Rail Regulator expects to reach provisional conclusions in December 1999, and finalise these in summer 2000. The 2000 NMS will set out the implications of the Regulator's draft conclusions for investment and outputs to be delivered over the ten years from 2001. It will be important to ensure that the outcome of the review provides flexibility to accommodate enhancement proposals that emerge from Account Plans and the development of Route Strategies during the next Control Period.

We are keen to have stronger volume incentives... either through revenue sharing... or an incentives element within track access charges

1.5 Economic incentives framework

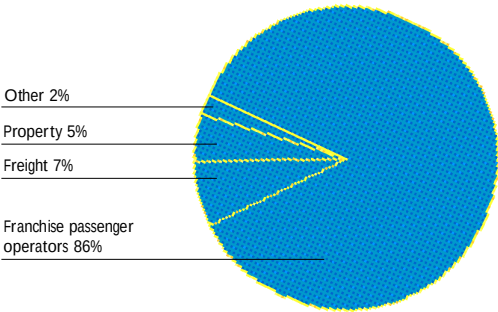
Our income is derived from a number of sources: track access charges paid by train operators, stations and depots access charges, and property rentals and disposals.

We operate under a single-till arrangement. Under this, the Rail Regulator calculates an overall total revenue requirement for the Control Period. From this is deducted expected income from freight and property to give a revenue requirement from passenger franchise operators. This is then divided between track access charges and station charges.

The effect of the single till is to allow income from property and other non-franchise sources to reduce the amount that needs to be raised from passenger franchise operators for using the network. Because the Government provides financial support to franchise train operators, the effect of the single till is to reduce the amount of Government subsidy required.

The relative magnitude of the different components of Railtrack's income is shown below:

Components of Railtrack's income
Source: Railtrack Annual Accounts 1997/98

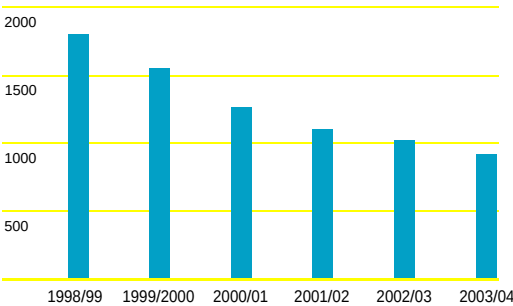


Government support to passenger franchise operators is expected to fall from £1.6bn (1998/99) to £900M (in 2003/04). Over this period, most long-distance train operators are expected to become profitable and then pay contributions to the Franchising Director. Almost all of the remaining subsidy will be directed at services in Scotland, Wales and the English regions including the Passenger

Transport Executive (PTE) areas, with that in Scotland under the aegis of the devolved Parliament.

The current framework of access charges was established at a time when there was little expectation of traffic growth. It is ill-suited to the situation that the industry now faces. While train operators have strong financial incentives to grow traffic volumes, we currently receive little benefit from traffic growth on the network because 91% of track access income is fixed. Recent work suggests that a much higher proportion of our usage costs, both passenger and freight, vary with traffic volume, suggesting figures broadly in line with a recent European Union study across all member states. We are now exploring the implications of this with our customers and the Rail Regulator. In this Statement we assume that our charges in the next Control Period are set at a level that at least covers our marginal costs. In addition, we are keen to have stronger volume incentives – either through specific revenue sharing arrangements with train operators, or through an incentives element within track access charges.

Subsidy to the rail industry is declining
Subsidies to rail industry (£M)



However, our ability to invest depends ultimately on the financial framework which is set out by the Rail Regulator. In his December document*, he set out the challenge for us – whether we wanted to be a low-risk utility essentially acting as a contractor for Government or the Shadow Strategic Rail Authority, or a commercial organisation willing to take demand risk through innovative approaches to network development.

*The periodic review of Railtrack's access charges: the Rail Regulator's conclusions on the Financial Framework (Third Paper) December 1998.

Where it is not possible to undertake an investment and network enhancement commercially, we propose a partnership approach

We firmly believe that risk is best borne by those who are closest to the market. We are, therefore, keen to take on more risk – both in project construction and market demand – in undertaking network development. As long as we can be fairly rewarded for this, we believe the scope for it will increase over the next few years, as the subsidy falls and as more of the network becomes viable.

The key challenge facing the industry is the scale of investment funding required. We have a strong balance sheet, but our previous £17bn programme takes our debt to over £4bn by 2003/04. To accommodate the passenger growth rate of 30% over the next ten years that we have projected in this Statement, the network will require an additional £5bn–£10bn to provide the appropriate capacity. If long-term growth projections of 70% or more are to be allowed for, a further £13bn–£24bn investment would be needed.

However, rewards must be proportionate to the risks involved; we have to be able to attract sufficient capital. We have concerns about the Rail Regulator's approach to our cost of capital and the additional regulatory risk implicit in the five-yearly review cycle. This is in the context of major schemes which have a 4–5 year gestation, and the sheer scale of the investment required. We shall therefore be putting forward alternative proposals to address these issues. For commercial upgrades, we shall want to explore alternative approaches to selling additional train paths and discuss methods of ring fencing returns with the Regulator.

Where it is not possible to undertake an investment and network enhancement commercially, we propose a partnership approach. The Government's proposals for new infrastructure funding sources available to the Shadow Strategic Rail Authority are welcomed, along with the development of freight facilities grants. Beyond that, we suggest that additional funding for a partnership approach to network development can come from only two sources.

- Retaining the benefit of reductions in access charges arising from the review within the industry – in effect, recycling the benefits of efficiency savings into enhancement.
- New sources of local funding through the powers given to local authorities to introduce road-user charging. Over time, this is estimated to produce a major new source of revenue available for reinvesting into public transport improvements.

We also believe that more of the present Government support should be linked explicitly to the delivery of agreed social outputs such as reduced traffic congestion and environmental benefit.

Our plans in this Statement are, therefore, based upon the successful resolution of the above issues, such that we are then able to finance our ambitious programme to expand the network, and to deliver both the industry's and society's expectations of the rail network.

1.6 Institutional context

The Strategic Rail Authority

We have welcomed the Government's proposals to establish a Strategic Rail Authority (and the setting up of a Shadow Strategic Rail Authority pending legislation,) to concentrate on strategic planning issues – which include establishing the right incentive structure and funding arrangements for the industry. This should complement the planning that is already undertaken through the Account Plan and Route Strategy arrangements that we have in place. We also welcome the key role that the Strategic Rail Authority will play in franchise extension negotiations. The Government's decision to take a flexible approach to franchise extension renegotiation should help to unlock further investment and growth in the rail system.

We note that many of the key decisions affecting the future of the railways – in particular, over the criteria for franchise extension (or renewal) and the level of Railtrack's access charges in the period from April 2001 – will have to be taken using existing agencies and their powers before the Shadow Strategic Rail Authority has statutory authority.

We welcome the objective of devolving more decision-making and power to regional bodies and local authorities. The Shadow Strategic Rail Authority will need to be sensitive in developing its strategic role while more decisions are being taken in the regions.

We continue to work with the UK Government to understand how we can most effectively work towards achieving its Integrated Transport Policy objectives

UK Government

We continue to work with the UK Government to understand how we can most effectively work towards achieving its Integrated Transport Policy objectives. Our position at the heart of the railway industry enables us to co-ordinate responses and actions from all industry parties and provide a focal point for national Government. Examples of this have been the two recent national rail industry summits on train service performance and the action plans (and achievements) flowing from them. They have acted as catalysts for more collaborative cross-industry responses on performance and related issues.

Regional and local government

We are building strong links with the new organisation of the Scottish Parliament and Welsh Assembly, and look forward to creating similar strong links with the elected members as they take office.

We believe that they will be key focal points for developing and implementing the national framework for Integrated Transport Policy in Scotland and Wales to meet the specific needs of these communities.

Our Zonal structure will also enable us to forge effective links with emerging English regional planning forums so that we can again provide an industry focus to understand and meet regional community needs and priorities.

The Greater London Authority and mayor of London will provide a long-needed focus for us and the rail industry to develop and implement twenty-first century rail facilities to serve London. In Section 8, we set out our vision to achieve this.

We continue to work with Passenger Transport Executive and local authorities to understand and deliver a rail network that meets their needs. We work in partnership with local authorities to secure project funding from the EU's structural funds and from other sources. The EU is currently reviewing availability of structural funds for the period 2000–2005, and we expect to see further opportunities arise from the redesignation of 'Objective 1' areas in the UK. However, pressure on EU funding will mean that an increased emphasis on defining and quantifying benefits will be needed in applying for grant funding.

European Union

1999 will see the continuation of technical and legislative reforms to the European railway environment. In the summer of 1998, the European Commission published a draft directive which seeks to achieve community-wide standards on train path allocation and on access charging. Further proposals were also made on introducing greater railway market liberalisation. In addition, proposals were made to tackle the complex issues of both ensuring fair intermodal competition, and the incorporation of external costs (for example, pollution and congestion) into the charges paid by the users of transport infrastructure.

These issues will now be the focus of intense debate within European institutions. We expect to see a general endorsement of UK rail industry processes, although we will need to give careful consideration to the implications arising from the proposals to base infrastructure charging on marginal cost principles.

Proposals for the technical harmonisation of the standards for the development and operation on new and upgraded high-speed passenger lines are due to come into force in the UK during April 1999. The directive applies to our plans for upgrading and building the routes which are designated as Trans-European Networks (TENs) high-speed lines, including the West Coast Main Line, East Coast Main Line, Great Western Main Line and Channel Tunnel Rail Link. Laying down minimum specification necessary to achieve European interoperability, we expect to see this legislation have an increasing impact on our development activities.

1999 will also see further debate on the availability of European funding to the regions of the United Kingdom and, in particular, the rail transport sector. We can expect to see changes being proposed to the TENs' guidelines for transportation projects, in addition to alterations to the regions of the United Kingdom which will be eligible for future external funding. Our European Affairs Directorate is working closely with UK and European institutions to ensure that the rail network is eligible to benefit from funding which is currently available and will be in place in the future.

The rail industry has welcomed the emergence of an Integrated Transport Policy

Integrated transport

In the past 12 months, the Government has published its White Papers *A New Deal for Transport: Better for Everyone* and *Travel Choices for Scotland* together with a number of supporting documents setting out more detailed policies. Among these were the response to the Environment, Transport and Regional Affairs Committee Report on the Proposed Strategic Rail Authority and Railway Regulation which set out the Government's plans for the rail industry in more detail.

The rail industry has welcomed the emergence of an Integrated Transport Policy and is working actively towards the achievement of its objectives and contributing positively to policy development.

The following are planned or have already been delivered against Government objectives.

- More and better train services – an increase of 14% in passenger kilometres over the past two years – and an increase of 5% in train kilometres in 1998/99 compared to the previous year.
- Better information – We control the national rail timetable and have made it available on the Internet – on average 850,000 Internet enquiries are successfully answered a week.
- Better security – We and train operators are investing in improved security. Customer security staff have been recruited by train operators.
- Easier access – Pilot schemes to make available secure bicycle storage and hire facilities are under way at main line rail stations. New services have opened connecting Heathrow with central London. There are other plans under development.
- Growth in train services of up to 30% over the next ten years.
- The further development and integration of information systems. We are playing a full part in the feasibility studies for national information systems. The railway industry is also developing the integration of its different information systems to bring together timetables, fares and real-time train-running information.
- We are working closely with the Highways Agency and Scottish Office to develop and exploit opportunities for managing transport corridors cross-modally.

1.7 Financing the Plan

Maintenance and renewal. Train operators enter into track access agreements with us which set out the terms, including the access charges payable, on which they are permitted to run trains on specified parts of the network. Under these agreements, we are required to ensure that the network is maintained and operated to a standard which permits our customers to deliver their obligations.

When the Rail Regulator determined the overall level of charges to be paid by passenger franchise train operators for track access for the period to April 2001, he took into account the extent of our proposed asset renewal programme and income earned from commercial development or sales of our property. This means that we will fund the maintenance and renewal expenditure set out in this Statement primarily from the income we receive from our customers under these access contracts.

Some projects are not simply renewals but involve elements – new techniques, European harmonisation, or renewal of historic structures in a manner in keeping with the original design – which may attract grant funding.

Enhancement. Our investment in commercial projects with an appropriate rate of return which enhance the network will usually be recovered from additional access charges which we negotiate with our customers who benefit from the investment. In most cases we would be taking market risk through a revenue sharing deal. This is our preferred approach.

For partnership projects, we would be prepared to finance part but not all of the capital cost including earning an appropriate rate of return and would look for grant funding to cover the balance. Such a grant would be paid in return for the benefits to the community such as reduced traffic congestion. Existing public grant mechanisms allow for this via grants to passenger operators to pay additional access charges or by direct grant funding of assets by the Franchising Director, local authorities and PTEs. For freight schemes, freight facilities grants may be available. Again, we would wish to take the market risk.

For contractor projects we would again be prepared to fund the costs of construction either wholly or in partnership but we would not take any commercial risk and would only recover our costs and standard rate of return through access charges.

2 Consultation

- 2.1 Consultation on the 1998 NMS
- 2.2 Consultation with our customers, funders and passengers
 - Table A – Analysis of customer requirements received and proposals for action
- 2.3 Stations – Customer research
 - Table B – Satisfaction with station facilities
 - Table C – Changes in standard of station facilities
- 2.4 Feedback on this Statement



The Network Management Statement is a broadly based plan. In this section, we report on our consultations on last year's Statement and how these have been incorporated into this document. We describe the structured processes we have used for establishing our customers' and funders' requirements, agreeing their reasonableness, and feeding them through into Account Plans and Route Strategies. We also present the results of our research of the perceptions of the industry held by both rail users and the public, their priorities for improvements and how these are built into our plans. Lastly, we outline our process for consulting on this edition.



We need to develop and share an industry vision

2.1 Consultation on the 1998 NMS

Following publication of our last year's Statement on 25 March 1998, we held discussions with most of our customers and funders during April and May. We also received many written responses, and held a series of regional workshops during summer 1998 to feed back the results of our consultation and our proposed actions to address the issues raised.

The key conclusions from these consultations on our 1998 Statement were:

- the new layout with 45 Route Strategies was welcomed.
- we need to develop and share an industry vision.
- the 1998 Statement was seen as risk averse with too few commitments and targets.
- our growth forecasts were too pessimistic.
- more detail on individual routes and policies was needed.
- we should clarify our plans for bottlenecks and journey-time reductions.
- we should show more clearly how schemes are funded and give credit to funding bodies.
- we should define more clearly our policy on renewals.
- we should improve consultation and links to customer Account Plans.
- we should demonstrate more clearly the benefit from investment schemes.

This Statement is designed to answer these concerns while building upon the positive aspects of the 1998 Statement.

The Rail Regulator conducted his own consultation on the 1998 Statement to see whether it fulfilled the requirement of Condition 7 of our Network Licence.

Following this review we have agreed:

- To aim to reduce the delay per train movement during 1998/99 by 7.5% – rather than the 3% set out in the 1998 NMS – following more detailed analysis.
- To pursue an improvement programme to ensure that by 31 March 2001 track quality would at least meet the standard achieved on 1 April 1994.
- To complete a process with our customers and funders to ascertain their reasonable requirements and put in place actions to deliver them.
- To provide the Rail Regulator with a study of the capacity bottlenecks highlighted in the 1998 NMS.

Discussions have also been held with the Franchising Director to understand his requirements for changes to the output of the network

2.2 Consultation with our customers, funders and passengers

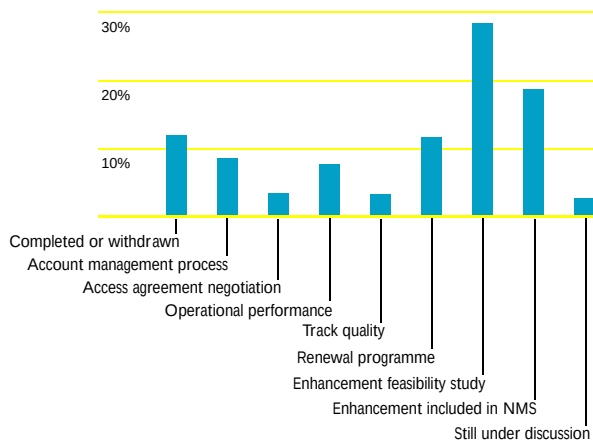
Last year, we strengthened our account planning through a structured exercise to agree with each of our train operating customers – and with each of the Passenger Transport Executives (PTEs) – a statement of their reasonable requirements. Customers and funders were invited to set out their requirements, which resulted in over 2,000 individual proposals varying widely in both scale and type. Each was discussed with the customer or funder to agree output deliverables.

We have taken forward those requirements which:

- represent ways of delivering an output for which we are already funded (eg in meeting our criteria for maintenance and renewal of the network, including renewal in modern equivalent form); or
- relate to enhancement of the capability or capacity of the network (or are for additional train services where no access agreement currently exists) where the requirement is consistent with the relevant Route Strategy. In these cases, we will examine how risks and benefits might be shared.

Table A Analysis of customer requirements received and proposals for action

Source: Railtrack analysis



A summary of the types of requirements received from customers and funders is shown in Table A.

Further information is given in Appendix 4.

Requirements relating to enhancement of the network are also referred to in each Route Strategy of this document.

The agreed outcome of each reasonable requirement relating to development of the network is shown in the relevant Route Strategy, including the impact on options for solving capacity constraints. Significant requirements, and the agreed way forward, are also set out in the relevant descriptions of Route Strategies in this NMS. Where the requirements relate to performance or track quality, these have been considered as part of the network-wide commitments that we have given. Requirements concerning our renewals programme, including incremental improvement options where possible, are being discussed with each customer. At the time that this NMS went to press, a small number of requirements (2%) were still being discussed with customers to agree a way forward.

Action plans have been agreed either to implement each reasonable requirement, or to carry out the next stage of feasibility or development work. These are now incorporated into the Account Plans, whether or not details of the proposal are published in this NMS, and will be used to monitor and report progress. Where new or modified requirements arise in future, these will be treated in the same way.

Discussions have also been held with the Franchising Director to understand his requirements for changes to the output of the network. Those requirements related to the capacity and capability of routes, such as frequencies or journey times, have been considered within the relevant Route Strategies.

There is widespread demand for increased investment in both local and long-distance rail services

Customer and public research

In addition to Government and transport industry requirements of the rail network, we have also researched passenger and society expectations. This research shows strong support from both existing and potential rail passengers for our approach to the significant network development that we are planning to deliver.

Public attitudes towards investment

MORI undertook a research study for us in January 1999 to investigate attitudes towards, and perceived requirements for, investment in the railway network (see note below). The most important areas that would encourage greater rail use are a reduction in the cost of tickets (mentioned by 49%), greater reliability (35%) and frequency of services (31%). Access to stations, safety and comfort of stations and access to information all featured as important secondary factors.

Investment priorities followed a similar pattern with cost of tickets (57%) and reliability and frequency of services (48% and 40%) again receiving the top number of mentions. Investment in security at stations was again an important secondary factor (19%). There is widespread demand (over 70% of respondents) for increased investment in both local and long-distance rail services.

2.3 Stations – customer research

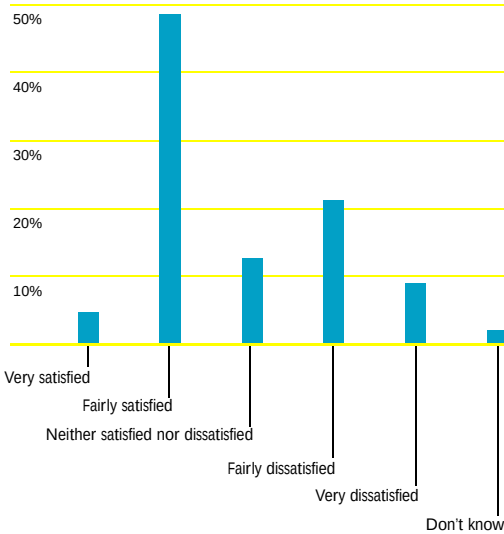
Our qualitative research examining the station experience among passengers has shown travellers want to:

- be made to feel welcome and cared for
- be reassured about the status of their train services
- feel secure from any threat
- feel proud of their station
- feel help is available if needed (luggage, steep steps etc)
- be able to use their time at the station productively (newspapers, cashpoints, cafés).

We commissioned MORI to carry out research among users of railway stations to identify whether they are satisfied with the standard of facilities, and whether they consider them to be improving. Encouragingly, a majority of respondents were satisfied and felt that standards are getting better, as illustrated below.

Table B Satisfaction with station facilities

Source: all rail users in Britain (753). Fieldwork Sept & Dec 1998 MORI/Railtrack
Customers were asked how satisfied or dissatisfied they were with the facilities provided at railway stations.



Note: The research was conducted using MORI's General Public Omnibus, a national survey of 1,996 adults representative of the population of Great Britain aged 15 and over in terms of sex, age, social class, working status and geographic spread. Fieldwork was carried out between 22–25 January 1999 across 163 enumeration districts.

The consultation forums in each of our Zones will be held during June and July 1999

Of those who were satisfied, the most important reasons given were:

Cleanliness	30%
Eating and drinking facilities	22%
Stations improved generally	21%
Access to information	20%

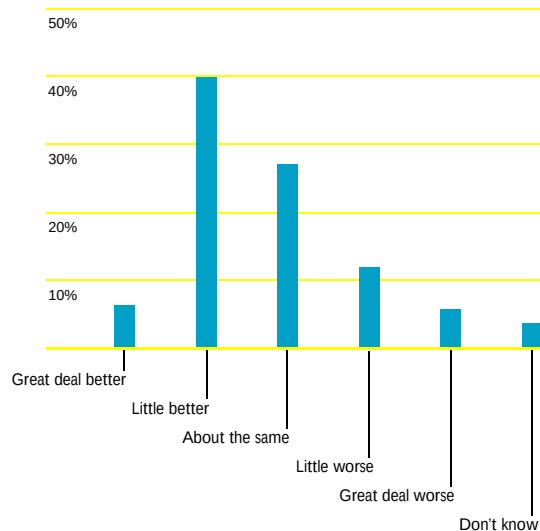
Of those who were dissatisfied, the most important reasons given were:

Cleanliness	54%
Toilets	45%
Comfort/waiting facilities	44%
Access to information	27%

These results reflect the current variability of the levels of facility and condition of the stations.

Table C Changes in standard of station facilities

Source: all rail users in Britain (753). Fieldwork Sept & Dec 1998 MORI/Railtrack
Customers were asked to consider whether they thought facilities at railway stations have got better, got worse, or stayed about the same over the past few years.



2.4 Feedback on this Statement

We would again like to receive comments on both format and content of the NMS. We will use a number of mechanisms to achieve this.

- Formal, written consultation with our customers through our Account Executives on both this Statement and our Route Strategies.
- Formal consultation with the Franchising Director, PTEs and other funders.
- Informal consultation with our suppliers.
- Written responses from other interested parties.
- Consultation forums in each of our Zones with the opportunity to discuss the NMS with our appropriate key managers.

We would like to receive written responses by 1 June 1999, and we will conclude formal written consultations by the same date. The consultation forums in each of our Zones will be held during June and July 1999.

For immediate response, a tear-off, postage-paid response form is included on the last page of this document.

Written responses should be sent to:

Paul Prescott
Strategy Director
DP 10/82
Railtrack House
Euston Square
London NW1 2EE

3 Progress

- 3.1 Summary
- 3.2 Operational performance
- 3.3 Track quality
- 3.4 Infrastructure support
- 3.5 Year 2000 compliance and information technology
- 3.6 Rebalancing our investment programme
- 3.7 Renewal of network
- 3.8 Station regeneration programme
- 3.9 Enhancement investment



We report on the substantial progress we have made since the 1998 NMS, the commitments we made, and what we have achieved. Against this report our future plans, and our implementation of them, can be judged.



Over the past 12 months, we have delivered on all the key objectives set out in last year's NMS

3.1 Summary

In the 1998 Statement we set out our Plan which involved expenditure of over £2bn in 1998/99 to sustain the network, improve network outputs and deliver specific investment schemes. Following consultation on, and review of the 1998 NMS, we provided further commitments in a number of areas including performance, track quality and consultation with customers and funders on their reasonable requirements.

In summary, over the past 12 months, we have delivered on all the key objectives set out in last year's NMS – train performance, track quality, new consultative processes with our customers and funders, new approaches to managing maintenance contractors, progress on the Station Regeneration Programme, renewal and enhancement of the network and resolving the Year 2000 issue.

3.2 Operational performance

Delays attributable to our contractors and to ourselves have fallen, but despite substantial progress we are likely to just fall short of delivering our overall target of 7.5% year-on-year improvement. The main reasons for this are weather related (particularly flooding) and poor performance in our Great Western Zone. Increasingly, effective management processes, together with development and implementation of joint schemes with customers, have yielded positive results eg a 27% reduction in minutes delay for Merseyrail Electrics, compared with the previous year, achieved through targeted investment and maintenance of key assets, and aiming for continued and consistent performance improvement across their operating area.

We have changed the approach to the management of our maintenance contractors, making more use of key performance indicators and adopting a more collaborative approach. The performance of the contractors in the year has been varied but the programme to focus on key assets and route sections is beginning to pay dividends.

3.3 Track quality

During the course of 1998, we have prepared a track-quality improvement programme for the two years to March 2001. This programme sets out our objectives to reduce the level of track not meeting our 100% standard to the maximum reasonably practicable. It also sets out our commitment to ensure that the proportion of track achieving the 50% and 90% standards is no lower than the levels achieved at 1 April 1994.

3.4 Infrastructure support

We have ordered 25 multipurpose vehicles costing a total of £33M to counter the effects that bad weather has on our performance. These vehicles clean the rail-head with a high-pressure water spray and lay a gel to help trains avoid slipping during the leaf-fall season. They are also fitted with adjustable, miniature snowploughs. Additionally, a number of the multipurpose vehicles will be able to undertake weed-spraying, fire-damping and de-icing activities. The first two vehicles are due for delivery for testing in summer this year, with the remainder delivered between autumn 1999 and the end of 2000.

In the past year, we have refurbished 22 snowploughs and 15 breakdown-and-recovery support vehicles. We have let a contract for the overhaul of our fleet of five telescopic-jib 75-tonne breakdown-and-recovery cranes, which will be completed in July 1999.

We have bought eight stoneblowers to improve the maintenance and renewal of track, and have a further three on order for delivery in the coming year. We are continuing the development and implementation of our high-output rebalasting system. Our contracting strategy for plain line track-renewals delivery has enabled a supplier to announce plans to procure a high-output track-relaying train.

We are developing remote condition monitoring for plant equipment, and new specifications for mechanical and electrical services at stations and depots.

In consultation with customers, we altered our spend profile from £1.21bn on renewals and £130M on enhancements to £1.14bn and £310M respectively

3.5 Year 2000 compliance and information technology

We are working with the rest of the rail industry to implement a plan to achieve Year 2000 compliance on critical systems, the first stage of which has been successfully implemented. Between April and December 1998, we made 52 critical information systems compliant, with the remaining 53 planned for adjustment between January and August 1999. During the same period, 5,200 types of equipment, potentially susceptible to the 'millennium bug' have been investigated, though few have been shown to be non-compliant. Remedial work on non-compliant equipment is under way, and planned for completion by the summer of 1999. Up until December 1998, we spent £41.8M on achieving Year 2000 compliance for critical systems. We are now confident that all critical systems will be compliant in time for the new millennium.

In the past year, we have introduced a new, integrated national train-planning system to streamline and speed up the process of handling bids for train paths from train operating customers and making offers of train paths to them. We have also introduced a new corporate financial management system to improve handling of suppliers' accounts and our accounting processes.

We have made provision in our financial plan for the replacement of inherited IT systems in the medium term.

3.6 Rebalancing our investment programme

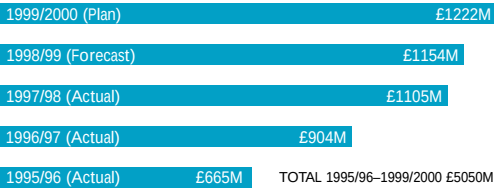
One of the early reactions to our 1998 NMS was that the expenditure on enhancements was disappointing and did not address sufficiently the needs of our customers. We responded swiftly to that by rebalancing our investment programme for 1998/99. In consultation with customers, we altered our spend profile from £1.21bn on renewals and £130M on enhancements to £1.14bn and £310M respectively. We report on pages 30 and 31 and in the Route Strategies on our progress against this modified programme, rather than the original.

We have invested over £300M in our stations and depots over the last year, including substantial works on our major stations

3.7 Renewal of network

We have continued to invest significant sums in the track, structures and signalling systems throughout the rail network. We have developed our processes to ensure that we invest wisely in those parts of the network that require it. Our aim is to maintain and improve performance and safety, to facilitate opportunities in the rail market and to improve customer end-products. We have instigated a number of initiatives and techniques to reduce unit costs. Value management initiatives and partnerships with our contractors are showing positive results in reducing costs, improving efficiencies and identifying priorities.

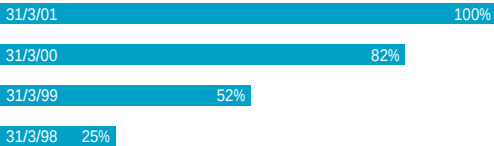
Railtrack expenditure on renewals



3.8 Station regeneration programme

Our commitment to complete the nationwide SRP by 2001 is well on course and over half has now been completed. We have invested over £300M in our stations and depots over the last year, including substantial works on our major stations such as Manchester Piccadilly, Glasgow Central and Birmingham New Street.

Station SRP scheme completion targets

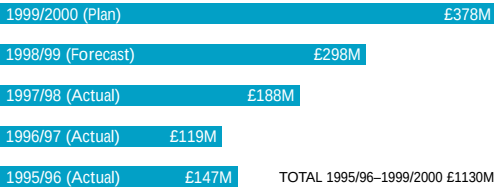


The chart opposite shows our achievements to date and our forecast for the next two years.

3.9 Enhancement investment

The chart opposite shows the significant growth in our expenditure on network development and enhancement over the past few years.

Railtrack expenditure on enhancements



Note: All expenditure is at 1998/99 prices including non-railway infrastructure expenditure.

Examples of significant work

Woking–Surbiton area resignalling. Work on renewal of signalling equipment and track-layout changes will be completed during 1999.

Manchester Victoria. The renewal of infrastructure at Manchester Victoria, including state-of-the-art signalling, remodelling of the track layout and reconstruction works on five bridge structures, was completed during 1998. The modernisation of the layout has significantly improved the operational efficiency of the Manchester north network.

LTS route overhead-line renewal. The refurbishment of the overhead-line equipment on the LTS route was completed during 1998. New engineering solutions were introduced in the project which reduced the time required to undertake the work.

Yorkshire signalling renewals. Work was completed in 1998 on this project of signalling rationalisation to increase signal-box efficiency by concentrating activities in fewer upgraded locations.

Forth Bridge. We remain committed to the significant maintenance required to this historic bridge. We have greatly increased the volume of repairs and painting work to bring the bridge up to a condition that will allow a more efficient steady-state maintenance regime to be carried out thereafter.

Stations completed

Aberdeen. Roof repairs at Aberdeen have now been completed.

Folkestone Central. A major programme of station refurbishment, track and platform rationalisation was completed in 1998.

Stirling. Work was completed on installing lifts to improve station access. The station received an Ian Allan Heritage Highly Recommended Award.

Manchester Oxford Road. Regeneration work at this station has recently been completed.

Stations in progress

Brighton. The three-year multimillion pound programme to refurbish this station is proceeding according to plan.

Newcastle. Work is well progressed to refurbish the station roof and buildings.

Birmingham New Street. The £19M package of station improvements, including enhanced platform ambience, disabled access and fire and safety precautions is progressing according to plan.

Manchester Piccadilly. Work is ongoing on the £27M project to enhance the lighting and reroof the main trainshed.

Schemes completed

Chiltern Route improvements. The double track between Princes Risborough and Bicester has now been reinstated which has enabled Chiltern Trains to expand its timetable.

Robin Hood Line Phase 3. Work is complete and services started in June 1998.

Track layout at Manchester Piccadilly. Remodelling work completed at Christmas/New Year has increased to 12 the number of operational platforms in the main part of the station.

Leeds–area infrastructure. Ahead of the major resignalling and capacity enhancements set out in this NMS, a new platform has been constructed to increase capacity.

Merseyrail stations. Two new stations sponsored by Merseytravel have opened at Conway Park, an underground station serving an area of urban renewal in Birkenhead and Brunswick.

Taff Vale resignalling. Phases 1 and 2 are complete. Renewal of signalling between Radyr and Pontypridd has delivered capacity and linespeed improvements. A turnback facility at Taff Wells has been completed.

Schemes in progress

West Coast Main Line Route modernisation. An ongoing programme to deliver the core investment plan, and the enhancements required for the passenger service upgrades (PUG 1 and 2) is now under way.

Thameslink 2000. Preparatory statutory planning and development of commercial arrangements have been undertaken.

Dartford resignalling. Signalling renewal and track-layout changes to facilitate eventual operation of 12-vehicle trains is being undertaken. The scheme will be substantially complete in 2001.

Guildford resignalling. Work continues to renew the signalling equipment, rationalise control and improve the track layout. The scheme is due to be completed later this year.

Scottish signalling renewals. This is driven by the need to renew signalling equipment and enhance capacity covering Glasgow Queen Street–Greenhill via Lenzie and Cumbernauld and Cowairs–Maryhill. Completion is planned for this summer.

Ipswich–Felixstowe. An upgrade of route capacity to handle more frequent train movements is under way and will be completed in 1999.

Luton Airport Station. A major new station also creating a park-and-ride facility within 2km of the M1 is nearing completion.

4 Sustaining the network

- 4.1 Criteria
- 4.2 Expenditure summary
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In this section, we set out what needs to be done to sustain the network. This includes our criteria, policies and processes for maintaining and renewing each type of asset and the expenditure to achieve this. We also include safety and environmental issues and how we will deliver against our commitments and objectives.



We have reduced delays caused by infrastructure-related failures or our management of the network by more than 40%

4.1 Criteria

Our actions to sustain the network form a central part of our Plan. Section 5 sets out the outputs we plan to achieve. This section discusses our criteria and policies for maintaining and renewing the network, including stations and light maintenance depots (LMDs).

In addition to ensuring that we can continue to deliver services at current output levels, these plans will result in improved reliability of the network and other benefits. We have already reduced delays caused by infrastructure-related failures or our management of the network by more than 40%. Through our plans, we intend to continue to improve on this key measure of performance.

We also plan to further improve station facilities as they are renewed.

Key criteria and objectives. In later parts of this section, we define the philosophies which underpin each component of expenditure. Our criteria for investment in maintenance and renewal of the network are that we will:

Comply with statute. Improvements in safety and environmental impacts associated with rail travel flow in part from the development of legislation. While no single major compliance issue dominates the foreseeable future, we do forecast a number of additional requirements, and delivery of these has been provided for in this Plan.

Comply with other binding commitments that we have given in contracts with train operators and funders. We have established with each of our customers a process for reviewing our plans. Where we are able to modify any maintenance or renewal activity in order to help a customer better achieve their goals, then we try to do so. Where a requirement is included within a binding agreement, then its delivery is treated as a firm commitment.

Comply with commitments given in our NMS.

As noted in the next section, the performance improvement targets represented in this NMS are considerable. In addition, there are commitments to improvements in asset quality, station facilities and other network outputs. Significantly, these improvements will be delivered against a background of increasing growth in train and passenger kilometres. We confirm that the maintenance and renewal plans and expenditures allow for achievement of these objectives.

Minimise whole-life costs. The output of the network for use by train services arises from the combination of different types of route asset operating together, rather than the quality and capability of individual asset types in isolation. Consequently, our objective in assessing maintenance and renewal is to minimise whole-life costs for each route, while seeking to maintain an improving trend in route reliability, capability and other outputs. Where the route strategy is still being evolved, then we may need to optimise the whole-life costs for each asset group. A key element of the reductions in costs is the successful packaging of work activities along route sections (see also Section 4.4).

Impact on customers. We will work with our contractors and customers to ensure that our maintenance and renewal programmes are carried out in such a way as to minimise the impact on train services. We cover this in more detail in Section 6.8.

Enhance and develop the network to provide customer and funder benefits. Full details of the customer consultation process and the development proposals which have resulted are described in other sections of this document. These enhancements will be delivered in conjunction with ongoing maintenance and renewal activities, and the efficient interaction of all types of construction activity is an important consideration. We confirm that the plans have been prepared on an integrated basis even though the expenditure plans have been presented separately.

A significant portion of our infrastructure costs are related to the volume of traffic carried on the network

4.2 Expenditure summary

The maintenance and renewal expenditure proposals within this NMS are generally higher than the values in the 1998 Statement. There are three main reasons for this.

- 1 A significant portion of our infrastructure costs are related to the volume of traffic carried on the network. Since the traffic volume has grown significantly in the past four years, and a higher level of growth is predicted to occur in the future, the variable component of the maintenance and renewal costs is greater than previously stated.
- 2 The performance targets and other key outputs which are committed to within this NMS represent considerable advances compared to current standards, and where there are costs associated with these improvements, these have been included.
- 3 In the past year, we have undertaken a major exercise to determine how much we need to spend each year to sustain the network. This study, carried out with the assistance of engineering consultants, draws on the experience of the three years since our flotation.

Our forecast expenditure to sustain the network is given in the table below. All figures are at constant unit prices. These expenditures provide for delivery of the growth in passenger and freight traffic and for delivery of other output targets.

Table A Expenditure to sustain the network (EM – 1998/99 prices)

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
MAINTENANCE	710	670	650	640	630	620	610	620	610	610	600
RENEWALS											
TYPE OF ASSET											
Track	330	290	270	280	280	290	290	290	280	290	290
Structures	150	130	140	160	155	150	150	145	140	140	140
Signalling	200	270	330	420	370	330	230	310	290	260	230
Electrification	35	60	70	60	40	30	40	50	45	40	35
Plant & Machinery	80	70	35	40	40	40	30	15	10	10	10
Telecoms	40	55	60	50	50	40	30	20	20	15	25
Stations	275	270	200	130	120	120	130	120	105	95	100
Depots	25	30	15	30	30	30	30	30	20	20	20
Other	5	5	10	10	5	0	0	0	0	0	0
RENEWALS TOTAL	1140	1180	1130	1180	1090	1030	930	980	910	870	850
TOTAL	1850	1850	1780	1820	1720	1650	1540	1600	1520	1480	1450
LAST YEAR'S NMS	1930	1850	1650	1390	1260	1240	1220	1100	1090	1130	n/a

The new generation contracts will focus more on efforts to improve the train performance delivery of the network

4.3 Maintenance policy

Our infrastructure maintenance contracts ensure that all operational assets are maintained to provide consistent and reliable train paths to our customers.

The scope of the contracts covers all inspection and maintenance of:

- permanent way
- signalling
- electrification assets
- operational telecoms
- lineside assets.

In addition, the maintenance contractors provide a comprehensive faulting and rapid-response service.

There are currently 35 contracts with six infrastructure maintenance companies (IMCs). The contracts started in 1994 and were let for five, six or seven years. The new infrastructure maintenance contracts (IMC2) are being competitively tendered to start during 1999, 2000 or 2001. The awards for the first four IMC2s have recently been made.

As part of the competitive tendering exercise, we are rationalising the number of contract areas. We expect that, ultimately, the number of contracts will be reduced to about 15.

The maintenance contracts will remain geographically based, with contractors taking the overall responsibility for keeping the railway operational and maintaining assets in accordance with the relevant Standards.

The new generation contracts will focus more on efforts to improve the train performance delivery of the network. There will be further emphasis on the co-ordination of our and the IMCs' efforts to deliver a more reliable network, in particular in identifying optimal frequencies for the inspection and maintenance of assets, and in identifying the optimal timing of renewals.

The new contracts contain more precise mechanisms for monitoring the performance of contractors. They build on recent work to identify and communicate variations in the quality of delivery against agreed performance indicators. This will assist the spread of best practice between contractors. The scope of the contract has been revised to improve the way in which IMCs interface with renewal works, and to provide incentives for better train performance, to enhance contract standards for track quality, and to develop better asset-condition monitoring systems.

In addition, they will be 'open-book' so that we can develop a better understanding of the relationship between inputs and outputs, through a more collaborative partnering approach.

We have developed techniques to enable us to target renewals at those 200 or so critical locations that have the greatest impact on train performance

4.4 Renewals policy

We have worked hard in the past year to target our renewals expenditure on those assets and locations that will have the greatest positive impact on train performance – eliminating temporary speed restrictions, raising track quality, and reducing the number of broken rails.

Our work has identified improved asset-management regimes for most of our major assets. We have identified opportunities to inspect and maintain assets more effectively so that we can target subsystem renewals, with the result that complete asset renewal is required less often. We have also developed techniques to enable us to target renewals at those 200 or so critical locations that have the greatest impact on train performance.

In all cases we will renew assets with the most appropriate, contemporary equipment available that minimises whole-life costs and minimises the disruption caused by installing the equipment.

We continue to work with suppliers to ensure that the work they plan reflects these priorities, so that the benefits for passengers are captured.

We also continue to develop further measures to enable us to identify the condition of each asset, the impact of inspection, maintenance and renewal options on asset condition, and the end impact of that condition on the journey experience by passengers. This work is reflected in the new measures of the output of our signalling and electrification assets included in this NMS. We have not made the progress we had hoped on developing detailed systems for measuring asset condition due to the resources required by the Year 2000 project.

Track renewals. We have developed track asset-management processes to help us target track renewals at those locations where they will have the most impact on the quality of the track and on train-running performance. We assess potential sites for track renewals against financial and asset-condition criteria to ensure that the optimum decision is made between continued maintenance and partial or complete renewal.

Renewals specifications reflect current best practice and normally use continuous welded rail on concrete, steel or hardwood sleepers. This provides greater reliability and the ability to carry heavy axle-weight vehicles, while reducing disturbance from the effects of noise and reducing the

maintenance requirements compared with older track comprising jointed rail and softwood sleepers. Where rebalasting is carried out, we ensure that any underlying drainage or formation problems are dealt with to provide a long-life and low-maintenance track structure. Renewals of switches and crossings are now carried out in fully welded form, and we have introduced some modern continental practices giving improved ride quality, reliability and reduced maintenance.

We are working with our suppliers to ensure that we gain the benefits of stoneblower, on-track flash-butt welding and high-output renewal technologies. We have also improved the efficiency of our engineering materials haulage and ballast delivery process to improve its efficiency. These improve the economics of track asset management.

Planned renewal volumes reflect our current understanding of future traffic volumes and flows. Significant increases in volumes or shifts in flows will affect the track renewals required for optimum asset management.

We are continually looking at developments in track management and are partners in various European research projects to improve track asset performance.

Structures renewals. Structures are identified for renewal where maintenance of the network operation is impracticable for technical or economic reasons.

Given the diversity of structures owned by Railtrack, it is necessary to appraise the condition of each structure individually and to define site-specific actions. This means that the renewal activity performed on two structures which are superficially similar can differ in scale and scope. Consequently, it is not easy to identify specific trends in the nature of materials used and the technologies applied.

To ensure that renewals evaluation is both rigorous and consistent, we have developed new asset condition modelling techniques for our masonry and metallic bridge stock. Effectiveness of our renewals investment will continue to improve as this approach is applied to renewal decisions during 1999.

One consequence of this process is that renewals activity on heavily loaded lines will be more extensive and will have a longer design life than that on lightly loaded lines, where piecemeal activity is often more cost-effective. Other structural types will be subject to this process during 1999.

We have concluded from our analysis that whole-life costs of signalling assets are optimised through targeted renewals rather than renewal of entire installations

Renewals work is carried out in accordance with Standards, to provide W10 gauge and 25.4-tonne axle-weight capacity. These standards are regularly updated to reflect best practice and to take into account developments in other industries. An important means of improving the effectiveness with which structures renewal work is performed is to combine packages of structures work together with renewal and repair activities performed on other assets.

We are pursuing various opportunities to reduce the whole-life cost of renewal. Among them are standardised designs which can be constructed more cheaply, and the use of polymers both as structural members and as corrosion protection. We are intensifying our pursuit of lower-cost solutions.

Signalling renewals. Our policy and strategy on signalling equipment renewals have developed over the past three years. We have concluded from our analysis that whole-life costs of signalling assets are optimised through targeted renewals rather than renewal of entire installations. We are working, therefore, to reduce signalling renewals costs significantly by ensuring that the scope of the renewals work is optimal and fully justified.

We use a structured and numerate means of assessing asset condition, together with a national expert review process which ensures that our renewal plans are robust, justifiable, and nationally consistent. We are refining the processes by which we determine the appropriate and precise scope of the work in each case. This will enable us to target renewals of individual components or complete installations as appropriate, thus avoiding premature renewal of parts of installations, and ensuring that existing assets are used to the fullest possible extent.

This emphasis is likely to lead to smaller and less costly renewal schemes targeted at those parts of the system that are approaching the end of their useful life. Many of the technology changes that we are already implementing as part of our overall signalling strategy are well suited to this type of work, particularly for extending the life of many of the installations of the 1960s and 1970s which are prone to localised degradation.

There will still be cases, however, where the best option is a conventional wholesale renewal. This might be justified where we are able to enhance the network simultaneously by, for example, increasing capacity or reducing journey times, or reducing maintenance costs through the introduction of modern technology.

We are working closely with our signalling suppliers to optimise our maintenance and renewal activities. Closer relationships are producing opportunities for innovation to drive productivity up and costs down.

Long-term signalling strategy and Network Management Centres (NMCs). We are developing the new Train Control System (TCS) for initial application on the West Coast Main Line (WCML) in partnership with Alstom Signalling. The TCS will enable higher speeds, greater route capacity and better reliability at a lower whole-life cost than conventional signalling. The TCS is based on the European Rail Traffic Management System specifications being developed as the European standard for interoperable routes.

The TCS comprises control centre computers which communicate continuously with trainborne computers via digital radio. Each train determines its position by a combination of odometry and fixed beacons (balises) mounted in the track. The central computer is aware of the locations of all the trains in its area, and computes safe limits for a train's movements, which are then transmitted to the train and displayed to the driver. If the driver fails to react correctly to the instructions, the inherent Automatic Train Protection (ATP) system intervenes and applies the brakes.

After the WCML, we are considering the deployment of the TCS on the East Coast Main Line and the Great Western Main Line – the next two longest-distance and highest-speed routes. We have also been able to demonstrate its potential for subsequent cost-effective application to some other routes. The strategy for rollout of the TCS across the network will be refined as the unit costs of implementation become clearer, and as we gain experience with the installation and operation of this new system. Our renewal activities, in the meantime, will aim to maximise the potential for future large-scale TCS installation by life-extending some current equipment where practicable so that the largest possible geographic and route area

We are introducing computer-based control systems to renew secondary route signalling and level crossings at lower cost than with our established technologies

becomes due for total renewal at the same time, thus increasing the opportunities to use TCS technology.

The TCS will be inappropriate for many high-capacity suburban routes where very large train fleets operate, due to the costs of fitting rolling stock with the necessary equipment. In these cases, conventional colour-light signalling remains the best option. However, there are still significant opportunities to improve the cost-effectiveness and performance of this type of signalling, and to extend its use to parts of the network previously served by traditional mechanical installations. We are achieving this by introducing systems and equipment in use on other railways where they have a proven track record.

Network Management Centres (NMCs) will provide the tools and environment for every activity associated with the delivery of train paths, from timetable planning, to setting routes and clearing signals, to real-time management of incidents and the gathering of performance data. We have reviewed our strategy for the construction of NMCs, and have concluded that they are most attractive when a large area of railway requires renewal at once, for example a route modernisation. We are evaluating the options for their further deployment across the network.

Modern axle-counters are an extremely reliable and economical means of providing train detection. They can be applied on a diverse range of routes from high-speed, high-density through to rural lines. We are proposing to introduce new axle-counter systems during 1999 at a number of locations.

We are also introducing small computer-based control systems which will enable us to renew secondary route signalling and level crossings at lower cost than with our established technologies. The first implementation will be on the Norwich–Cromer route in 1999.

At the other end of the scale, we are working with our suppliers on the introduction of high-speed computer-based systems for the renewal of signalling in large and complex areas such as our major stations and junctions where the use of current systems could restrict throughput.

We are also working on our control-centre technology, to ensure that we have an appropriate set of options for control in areas which do not justify an NMC.

In summary, our signalling strategy is to:

- implement TCS on main-line routes starting with the WCML from 2002. Other routes are planned to follow, but there are many routes for which TCS does not appear to be economical.
- develop more cost-effective solutions for the renewal of conventional signalling where TCS is not cost-effective over the remainder of the network – urban, main-line and secondary routes.
- ensure that the existing signalling assets are maintained, and renewed as required. This will generally involve targeted renewals, rather than renewal of the entire installation.

Telecoms renewals. Our telecoms strategy is to optimise whole-life costs while renewing equipment to maximise reliability and minimise obsolescence and reliance on bespoke systems. Our strategy is also to ensure that we derive the maximum benefit from the commercial liberalisation of telecoms services.

We are using the opportunity of the forthcoming expiry of the leases for many of our long-distance cable routes to create new telecoms services and improve reliability of equipment. A trial of such equipment will take place this year on the Brighton–Havant route.

The coming year will also see the introduction of new proprietary operational telephone systems at Ashford, Birmingham, Leicester, London Bridge, Swindon, London Victoria and Walsall.

With work completed at over 50% of stations and with a further 200 with works currently under way, this major programme is due for completion in 2001

Electrification renewals. We are working with European-wide suppliers and partners to evaluate alternative designs of key infrastructure components and to develop innovative solutions to commonly shared problems. We are also developing software-based tools for optimising maintenance and inspection periodicity for our electrification assets with industry partners in Great Britain.

We are continuing to fund and install innovative infrastructure equipment, more of which will be commissioned this year to check the correct operation of train pantographs, and have developed a system fitted to service trains to check for poor quality in the overhead wire contact system. In both cases, these have reduced delays caused by pantograph and overhead-line problems which benefit operators as well as us.

We have developed a solid-state regulator to improve the reliability of signalling back-up supplies, currently on trial at Long Buckby, and a maintenance-free 25kV circuit breaker to improve performance reliability and flexibility, and to reduce both capital and whole-life costs.

There are plans for power-supply enhancement for the West Coast Route Modernisation, East Coast Main Line upgrade and Thameslink 2000 projects to renew equipment, to enable more services to operate, and to increase speeds.

4.5 Stations

There are 2,499 stations on the rail network.

Our stations provide the visible and physical interface with the rail network and, as such, influence the experience of every rail passenger. It is, therefore, of considerable importance to us and our customers that stations provide necessary facilities in a condition suitable for a modern railway.

Many of our stations fall short of this ideal owing to a legacy of underinvestment, and changes in customer and passenger expectations. We are rectifying this situation through major investment programmes and, while we are replacing defective and out-of-date facilities in modern form, wherever practicable we are also working with our customers to develop stations in line with their passengers' emerging requirements. Details of enhancements we propose are given in Section 6.

Station regeneration programme. The Station Regeneration Programme (SRP) is now beginning its fourth year and has made considerable progress in remedying the legacy of inherited defects. With work completed at over 50% of stations and with a further 200 with works currently under way, this major programme is due for completion in 2001.

The experience gained and the innovations made in the very early stages of the programme have continued throughout the past year, with on-site solutions to common problems, greater use of IT and new procurement initiatives all helping to deliver the programme in the most cost-effective manner.

While the programme's primary objective was to remedy inherited defects, close communication with our customers has led to many instances of improved facilities, providing a timely upgrade for numerous stations.

Recognition for the achievements of this programme has come in numerous award nominations for station regeneration with Aviemore, Grange-over-Sands and Braintree receiving National Railway Heritage Awards, Stirling, a Certificate of Commendation, and Wrexham a Civic Society Award.

The assistance of the Railway Heritage Trust has been of great value during this process ensuring the best fit solution for many historic structures.

Continued improvement. The completion of the regeneration works is only the first step in providing and maintaining our stations to the standards required. We are ensuring that the processes are in place to enable the continued improvement of facilities and to guarantee that a satisfactory condition is maintained.

Throughout the year, we have been working with our partners and suppliers to create effective regimes for inspection and collection of condition data to enable a greater accuracy in planning future maintenance and renewals. This has been piloted in an area of the North West and is now being implemented in our other Zones.

The process enables maintenance plans, over 20 years, to be generated efficiently and updated through annual inspections. Any defects discovered through these inspections are programmed for either immediate remedial works or planned maintenance and renewal, depending on their condition.

This procedure will ensure that the improvements and innovations made through the SRP are sustained and, additionally, provide an annual update of the condition of our stations against which we can target and monitor further improvements.

In addition, we have continued with our commitments to improve the quality of station facilities where possible through renewals. Examples include station access for disabled passengers, information systems, CCTV, fencing and lighting to improve customer confidence and safety.

4.6 Depots

There are currently 88 LMDs on the rail network, providing the facilities to undertake necessary train maintenance.

Depot regeneration programme. The depot regeneration programme continues apace, rectifying the inherited defects at existing depots. Works range from small scale targeted repairs at some locations to major reroofing at others, such as Ilford and East Ham.

This five-year programme is now entering its fourth year and work has begun on over 50% of sites, with a further 25% planned for the coming year. This major programme of works will be completed, as planned, by 2001.

Carriage washers. Surveys undertaken between May 1995 and October 1996 highlighted a need for investment in carriage-washer plants, with much of the existing plants inadequate to meet our customers' aspirations.

Since this time, we have invested to ensure that this service is provided to an expected standard and quality. Our progress to date is indicated in Table E of Section 5.3. We are introducing the first all-weather carriage-washing plant in Great Britain at Leeds Neville Hill depot.

This year's Railway Group Safety Plan sets a ten-year objective to further halve the level of risk on the rail network by 2009

4.7 Safety developments

In the past ten years, safety on the GB rail network has improved significantly under most measures (see charts opposite). Figures recently published by the European Transport Safety Council (ETSC) show that, for the EU as a whole, rail is now 27 times safer than road, and twice as safe as air per passenger kilometre, and 16 times safer than road and 18 times safer than air per hour exposed (which ETSC believes to be the best method for mode-to-mode comparisons even when many trespasser casualties are included within the rail figures).

This year's Railway Group Safety Plan sets a ten-year objective to further halve the level of risk on the rail network by 2009. Integral to achievement of the overall Plan objective is a requirement that infrastructure renewal and enhancement is progressed in a way which delivers the maximum affordable improvements in safety performance. This is implicit within all investment schemes detailed in this NMS.

Technical development of the Train Protection Warning System (TPWS), which provides a significant improvement in performance over that available through the Automatic Warning System (AWS) that is already fitted to most of the network, continues to plan.

Early in 1998, the functionality of the TPWS was demonstrated to the Health and Safety Commission; their Executive has also been party to the field trials of the TPWS on the Thameslink route which have been successfully concluded. The reliability of both the infrastructure and on-train elements of the TPWS has been demonstrated. We can now complete the TPWS installation on the Thameslink Corridor and the Tonbridge–Hastings route to validate installation methodology and costs before roll-out across the network.

In parallel, negotiations are continuing with Her Majesty's Railway Inspectorate (HMRI) to finalise agreement on the fitment criteria and installation programme by which we will comply with the Railway Safety Regulations 1999, under which a train protection system is required network-wide by the beginning of 2004. Definitive agreement with HMRI must be concluded by mid-1999 to achieve the already tight implementation deadline without unreasonably inflating costs.

We have been fully supportive of the Regulations which mandate adoption of our TPWS as the baseline route to

enhanced train protection. The infrastructure fitment costs, estimated at £140M, are a fraction of what we believe it would cost to fit the network with ATP which would also take significantly longer to install, and deliver very limited further safety benefits. The introduction of TPWS is seen as particularly important given the levels of growth now being seen which inevitably lead to trains encountering more red signals.

Alternative train protection arrangements already in place will be retained, except where the proportion of 'captive' train operation is low and dual-fitting with the TPWS would be required under the Regulations.

Once the TPWS installation is complete, the risk arising from trains passing red signals will be substantially reduced.

ATP functionality is integral to the design of the TCS under development for application on the WCML to increase linespeeds to a maximum of 140mph by 2005.

The TCS, for which Alstom has been contracted to complete development, is more fully described under our signalling strategy on page 38.

The adoption of new TCSs, tilting trains and higher speeds on the WCML, and potentially on other corridors requires development of a portfolio of risk-based Railway Group Standards (RGS). An holistic, system-level approach has been pursued to the stage that 'proposals in principle' were issued for stakeholder review in January 1999. This process is also taking account of the emerging technical standards for interoperability which will underpin delivery of the EU interoperability directive expected to come into force in spring 1999.

The progress made within the SRP to address defective roofs, platforms and other station facilities will deliver safety benefits through reducing the numbers of 'trips, slips and falls'.

The safety of our workforce, and of our contractors' staff, is of equal importance to that of passengers. After an 18-month period without a fatality, five fatalities in 1998 in the workforce contracted to Railtrack highlight the importance of initiatives to reduce the risk to those exposed to moving trains when maintaining and renewing the infrastructure. Achievements of particular significance in 1998 were the approvals for deployment of rigid safety barriers and the first portable automated track safety warning system

We have developed action plans to address known 'black spots' to secure safety and performance improvement

on the network. These safety improvements will increase production by enhancing separation and providing more effective warnings of approaching trains.

Antisocial public behaviour incurs significant risk to the network through level-crossing abuse, trespass and vandalism. Our response is a combination of enhanced physical controls and programmes to change behaviours through education.

Following a systematic risk assessment of automatic level crossings, a programme of works to improve their safety performance to meet a Railway Group Safety Plan objective will be completed by 31 March 2000. The residual programme embraces about 80 level crossings.

The 1999/2000 Railway Group Safety Plan requires a qualitative assessment of risk at all user-worked level crossings to be completed by the end of December 2000. The programme of necessary works is currently scheduled for completion by 31 March 2004. The programme will be reviewed in summer 1999 when the results of the early risk assessments have been evaluated.

Some 60% of train accidents are attributed to malicious action; accordingly, targeted initiatives to counter vandalism are a high priority. We have developed action plans to address known 'black spots' to secure safety and performance improvement. Enhanced physical controls and educational initiatives to counter the linked issues of vandalism and trespass will be implemented in 1999/2000.

We support the establishment of an independent transport accident investigation body for all transport modes. This body would interface with our Safety & Standards Directorate (S&SD) and take over some of the accident investigation duties from S&SD and those of HMRI, the Railway branch of the HSE. Such a body would not only give confidence that accidents were being impartially investigated, but could look at all modes for good practice. Sensible models can be found in a number of other EU states, the Netherlands being the most recently established.



We are determined to seize this opportunity to improve the quality of life for travellers and non-travellers in the UK

4.8 Environment

Environmental vision

This NMS is the first in a new era for the railways. It is an opportunity for us to explain how we will take forward the exciting new challenges of the White Paper *A New Deal for Transport: Better for Everyone*, which describes 'the potential for a railway renaissance'. The NMS maps out investments which will be crucial to delivery of sustainable mobility in GB. We are determined to seize this opportunity to improve the quality of life for travellers, and non-travellers, in the UK.

Achieving a sustainable transport network presents a serious challenge. In 1998, the Royal Commission on Environmental Pollution reported that, in the 1980s alone, an area of 10,500 hectares, equivalent to the size of Bristol, was taken for road-building and parking. Furthermore, the Government has published figures which show that up to 24,000 vulnerable people are estimated to die prematurely each year because of exposure to air pollution, much of which is due to road traffic. This is in addition to the 120 deaths and injuries which occurred every day in accidents on UK roads in 1997. These figures are unsustainable. In contrast, the railways offer efficient transport at much lower environmental and social cost.

For example, freight tonne-kilometres have increased by 30% in the past two years and passenger kilometres on rail have increased by 15% over the same period. Had these increases been on the road network, this growth would have resulted in the emission of an extra 1.5M tonnes of carbon dioxide. If other impacts, including reductions in air pollution, accidents, congestion and noise are calculated using standard unit values, the benefit delivered by the railways relative to the roads, for this passenger and freight growth alone, was approximately £470M. Furthermore, we have estimated that, by 2011, growth of passenger and freight traffic could be worth £4.6bn annually in social and environmental benefits.

Given that demand for transport in the UK is growing rapidly, and that the UK's fastest-growing contributor to climate change is through carbon dioxide emissions, the savings achievable through a modal shift from road to rail will be key to the Government achieving its objectives for environmental protection. The Government has described traffic growth as 'the greatest global threat facing the international community'. The rail network can provide a

major part of the solution to these environmental problems. At the Rail Summit on 25 February 1999, John Prescott said, 'I believe most of the industry shares my vision for a modern railway . . . playing its part in an integrated transport system and contributing to a sustainable society'.

The opportunity for the rail industry is tremendous. For example, while more than 80% of domestic freight currently travels by road, we now have support from a government which wants to see a real increase in freight movement by rail. Our investment plans have been geared to deliver environmental benefits. The Deputy Prime Minister has been actively looking for companies prepared to join the Government in shaping 'a new future for sustainable transport'. We have taken up that challenge.

The Government has backed these demands with firm financial commitments. It will boost the take-up of freight grants, and put more money into support for new investment proposals that produce wider benefits for both integration of the transport network and shifting traffic from road to rail. The Shadow Strategic Rail Authority will also be a key player. It is likely to have a responsibility to oversee rail's contribution to sustainable development objectives.

We are fostering a more productive relationship with the Environment Agency, by seeking the Agency's advice to help us prevent adverse environmental impacts. Last year, we signed the first-ever memorandum of understanding with the Environment Agency, putting our relationship on a clear and open footing.

We now look forward to constructive regulatory support at the highest level. In return, we can offer commitments and action in six areas which are outlined below.

This work puts us at the heart of both UK and international efforts to achieve... real progress towards sustainability and high standards of environmental protection

Environmental commitments

First, over the coming year, we will be expanding upon opportunities to improve and underpin the integration of transport with the bus operators, local authorities, the Highways Agency, airport authorities and passenger groups, and we look forward to support from the Shadow Strategic Rail Authority in delivering the benefits.

Second, we are evaluating various approaches to identify and quantify social and environmental benefits of investment proposals. These have been applied, on a preliminary basis, to some of the investments put forward in Section 6.

Third, much of our investment has environmental impacts in terms of land use, the raw materials it consumes, the waste it produces, and the disruption it causes while the work is in progress. We are seeking to identify these factors and limit them, both at this early planning stage, and in the later construction and operation phases. An example of this is the West Coast Route Modernisation, where environmental issues have been considered from the outset. The project will continue to be assessed through environmental impact studies and extensive consultation exercises.

Fourth, we are enhancing our stewardship activities as one of the largest landowners and largest private sector investors in Britain through setting, monitoring and reporting on environmental targets annually. Following on from last year's Corporate Responsibility Review, we will report publicly on our progress and new objectives in the summer.

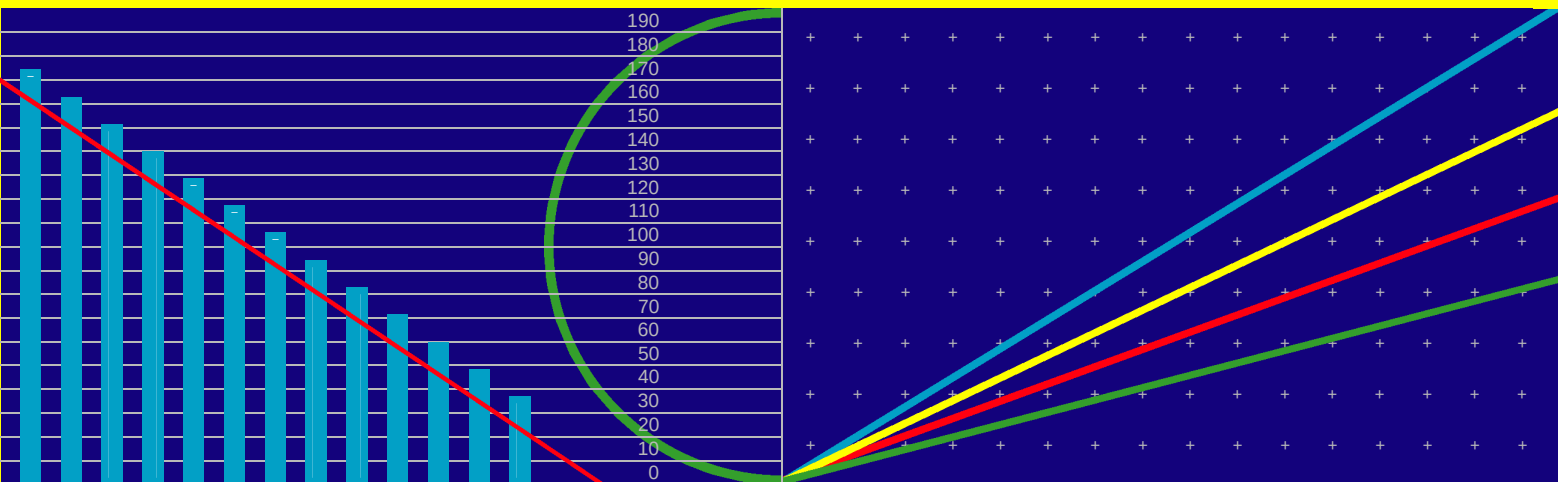
Fifth, we are integrating environmental management into the day-to-day operation of the business, incorporating our environmental targets into business planning. Targets include increasing environmental awareness among our staff, and improving control in supply chain management.

Last, we are entering into partnerships with our stakeholders to promote environmental improvement. For example, we have joined forces with the Tidy Britain Group to identify best practice in limiting the visual impact of the lineside. We are also introducing a joint initiative with English Welsh & Scottish Railway in April, to minimise the emission of carbon dioxide from stationary locomotives.

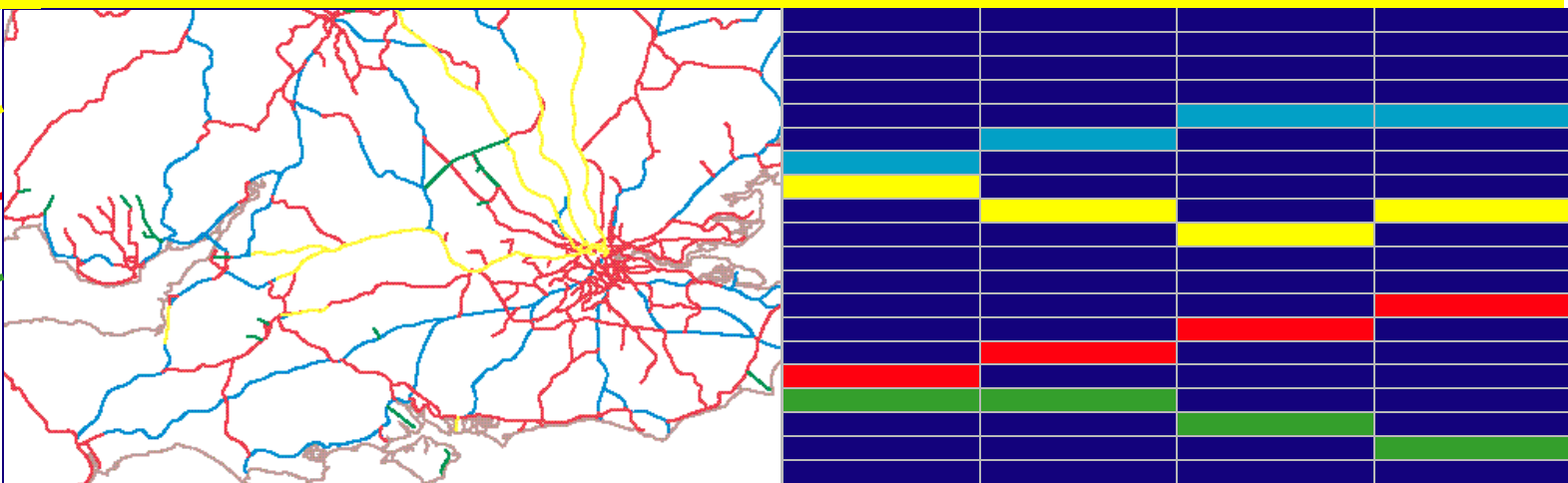
At the same time, we have looked for opportunities to deliver environmental benefits to our customers and the public where our investment can promote a shift from road to rail for passengers and freight. This work puts us at the heart of both UK and international efforts to achieve what society is now demanding – real progress towards sustainability and high standards of environmental protection.

5 Outputs

- 5.1 Performance and reliability
 - Table A – Delays to train services
- 5.2 Station facilities
 - Table B – Station facilities measures
- 5.3 Asset condition
 - Table C – Average condition of stations
 - Table D – Distribution of stations between the five condition ratings
 - Table E – Quality of carriage washing at depots
 - Table F – Asset condition
 - Table G – Renewal of network
 - Table H – Track quality
- 5.4 Network utilisation
 - Map – Capacity utilisation
- 5.5 Network capability
 - Map – Journey times and linespeeds
 - Map – Loading gauge
 - Map – Permitted axle weights
 - Map – Electrification



This section describes the impact of our proposals for the maintenance and renewal of the network, and for improvements in network performance and reliability. It presents output measures to assess the facilities available at stations and the condition of our assets, together with forecast rates of renewals. It also contains forecast improvements to network capability arising from the totality of our investment plans, both in renewal and development.



We are planning to deliver further improvements of 2.5% per year in delays per train movement for 2001/02–2005/06

5.1 Performance and reliability

Since 1995/96, the year prior to flotation, we have reduced the total direct delays that we cause to operators' trains by over 40%, despite an increase in train movements of around 10% over this period.

At the start of 1998, we embarked on a new phase of our performance management including rigorous new continuous improvement processes. This approach focuses on an enhanced understanding of the root causes of delay, down to individual asset and component level, and the identification of the critical locations and 'golden assets' where improved infrastructure reliability is particularly important. Such analysis allows prioritisation of improvement projects to these locations and assets.

Over the past year, this approach has been bolstered by our Process for Performance Improvement, creating accountability for delays across the operational management of the company. Local managers are involved in generating initiatives to reduce delays, and hold 'budgets' of improvements for which they are held accountable. Local Area Delivery Groups have been established as cross-functional teams with access to investment funds and to a current best-practice toolkit of techniques. Across the company, managers seek to work closely with all of our customers and suppliers to ensure close co-operation on the selection and delivery of initiatives.

We have completed the second year of this performance budgeting process, and significant enhancements are in place to both processes and the supporting information systems.

The success of this initiative in 1998/99 has contributed to an expected overall improvement of around 7% in the delay per train movement attributable to factors within our control. This has benefited both passenger services and freight, although the improvement for the latter was particularly marked. The last year would have seen

a larger improvement in performance had it not been one of the worst years for flooding in some parts of the country. This has occurred despite faster-than-expected growth in train kilometres although this growth also caused us to fall short of some of our track asset condition measures forecast over the past year.

More recently, we played our part in establishing the National Performance Task Force, which works on cross-industry initiatives with train operators to find joint solutions to some of the complex problems on the network. We have taken the lead on the transfer of industry best practice, on the identification of national delay 'hot spots', and in working with train operators to build enhanced recovery plans to mitigate the impact of major incidents.

On 15 January, we published our new targets of a further 7.5% improvement in delays per train movement for 1999/2000 with a further 5% reduction planned for the following year (see Table A).

We are planning to deliver further improvements of 2.5% per year in delays per train movement for the years 2001/02–2005/06. While some of these improvements can be achieved from pursuing continuous improvement in our planning and operation of the network, these targets will also require a significant contribution from our maintenance contractors. We have already set enhanced targets for performance improvement in the maintenance contracts recently let, and will be discussing similar improvements with bidders for contracts being let over the next two years.

With some parts of the network operating at close to full capacity, each additional train movement can lead to a disproportionately large impact on delays. The actual impact on average delays to trains will depend on the location and nature of this growth and our ability to put in place additional route capacity to enhance the robustness of the network.

Future growth in the level of train movements represents a significant influence on overall performance, and we support the principle of enhanced train services both in terms of frequency and reliability.

Building on our recognised success in performance improvement, we are committed to playing our part, working closely with industry partners, in delivering a high-quality railway service for the future.

The Franchising Director has requested that we look at the potential for an improvement of 5% per year in delays per train movement for the years 2001/02–2005/06. Our initial view is that we would be prepared to commit to agreed performance levels on a route-by-route basis, although this may well require additional funding, which we will discuss with the Franchising Director in the coming months.

Table A Delays to train services

RAILTRACK-CAUSED DELAYS (PER TRAIN MOVEMENT)	1997/98 (ACTUAL) (SECONDS)	1998/99 (FORECAST) (SECONDS)	1999/2000 (TARGET*)	2000/01 (TARGET*)	2001/02–2005/06 (TARGET*)	2006/07–2008/09 (FORECAST*)
Passenger trains	70	68	-7.5%	-5.0%	-2.5%	-2.0%
Freight trains	285	239	-7.5%	-5.0%	-2.5%	-2.0%
Average delay	85	80	-7.5%	-5.0%	-2.5%	-2.0%

RAILTRACK DELAYS BY CAUSE (PER TRAIN MOVEMENT)

Infrastructure (track & structures)	35	34	-9.0%	-6.0%	n/a	n/a
Power supply	3	2	-9.0%	-6.0%	n/a	n/a
Control system failures	18	16	-8.5%	-5.5%	n/a	n/a
Other external (eg vandalism)	6	5	-6.5%	-4.5%	n/a	n/a
Maintenance & renewal-related causes	62	58	-8.6%	-5.7%	n/a	n/a
Other Railtrack causes	23	22	-4.5%	-3.0%	n/a	n/a
Total Railtrack delays	85	80	-7.5%	-5.0%	-2.5%	-2.0%

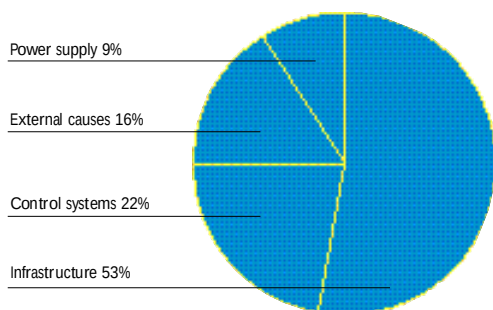
* compound annual growth rate

Notes:

1. The above delay seconds per train movement are based on all delays recorded for attribution, divided by total train movements. The delay data differs from that used to calculate the 1998 NMS figures, which excluded those delays recorded for attribution of fewer than three minutes.
2. The 1997/98 figures above reflect the actual delay and train movement data and updates the forecasts used in the 1998 NMS.

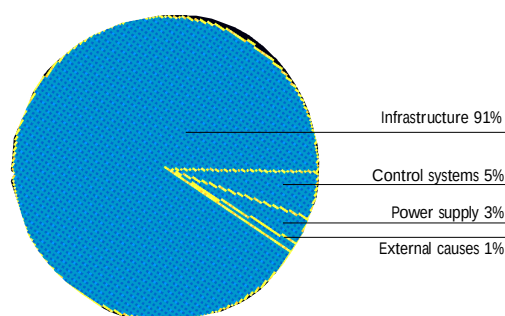
Causes of passenger train cancellations due to maintenance and renewal activities

This represents 0.3% of scheduled train movements



Causes of freight train cancellations due to maintenance and renewal activities

This represents 0.2% of scheduled train movements



5.2 Station facilities

During the past year, we have developed, in collaboration with our customers, the Rail Regulator and other stakeholders, a categorisation of stations and a specification for each category that the industry aspires to achieve (see the list below). The output measures indicate the extent to which each category of station reaches the ideal in a

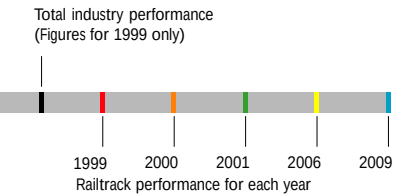
number of areas. A score of 100% would imply that all stations in the relevant category met the ideal. However, because some facilities are the responsibility of others within the industry, we have presented the performance of both the industry as a whole, including Railtrack, and for those facilities which Railtrack is responsible for providing.

Table B Station facilities measures

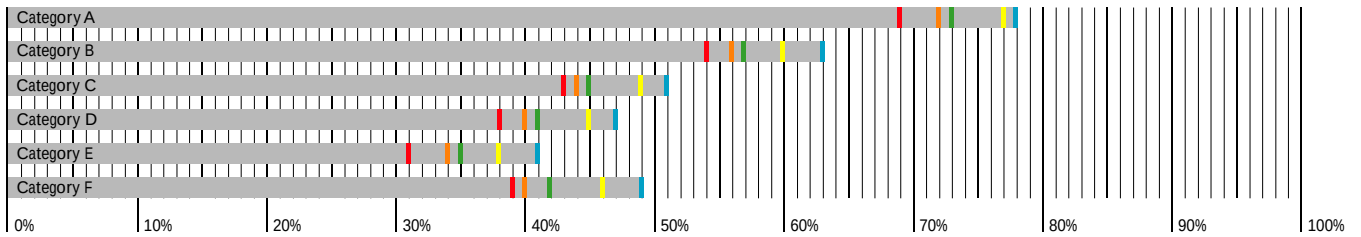
The chart opposite shows planned progress over the next ten years for each of the station facilities measures. Improvements arise through the action of Railtrack and station operators in maintaining and renewing existing facilities at stations. The provision of new facilities through enhancement investment is not included. The station development proposals described in Section 6 will have the effect of fully achieving these station facility standards so far as reasonably practical.

THE CATEGORIES ARE AS FOLLOWS:		EXAMPLES
A	National hub	Birmingham New Street, Glasgow Central, London Waterloo
B	Regional hub	Darlington, Newport, Watford Junction
C	Important feeder	Manchester Oxford Road, Motherwell, Southend Victoria
D	Medium, staffed	Caerphilly, Lichfield Trent Valley, Sydenham
E	Small, staffed	Gospel Oak, Llandudno Junction, Lockerbie
F	Small, unstaffed	Bishop Auckland, Cromer, Tywyn

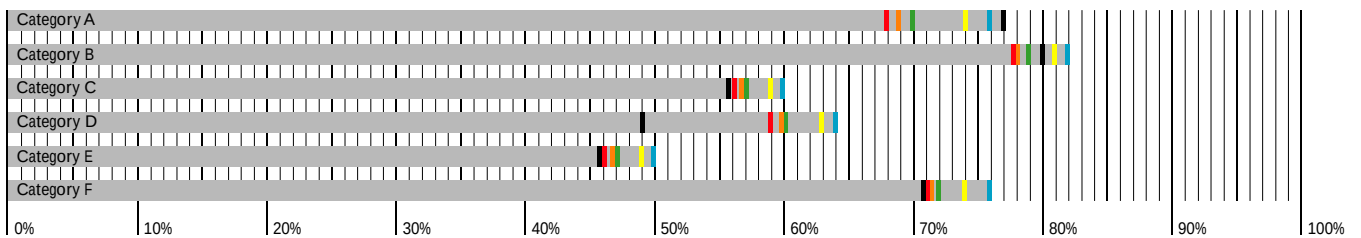
WE HAVE AGREED FIVE THEMES FOR MEASURING STATION FACILITIES	
Accessibility	Unassisted disabled access to all platforms, platform length, disabled toilets
Comfort and convenience	Sheltered waiting accommodation, waiting rooms, toilets
Integrated transport	Car parking, bus and light-rail interchanges, taxi ranks and cycle racks
Information and communications	Customer-information systems, public address, help points and pay phones
Safety and security	CCTV coverage, lighting, antislip floors and handrails in subways and on footbridges



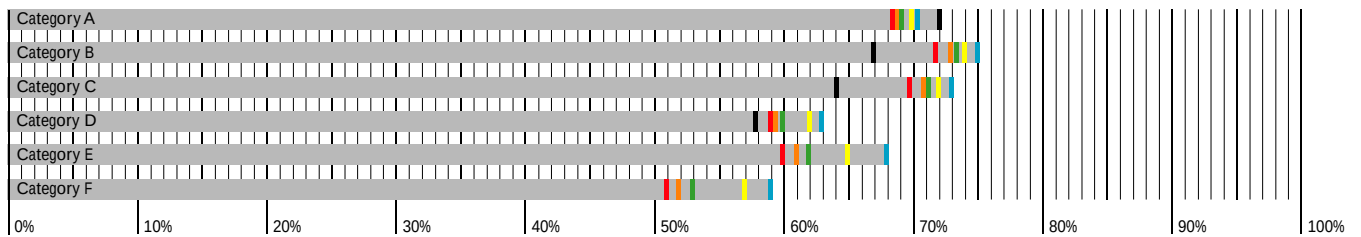
Accessibility



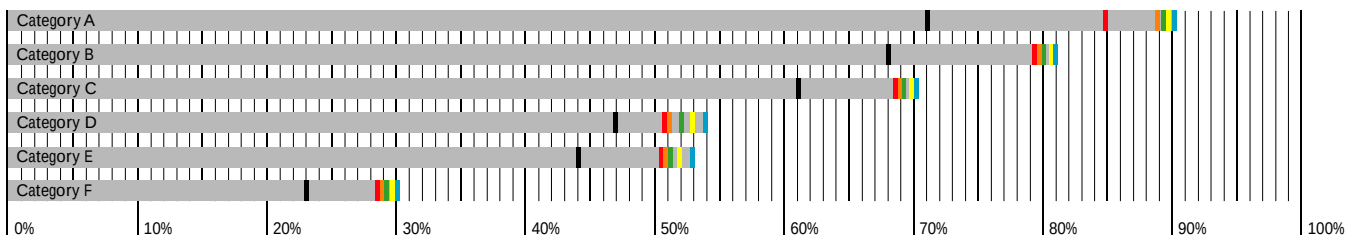
Comfort and convenience



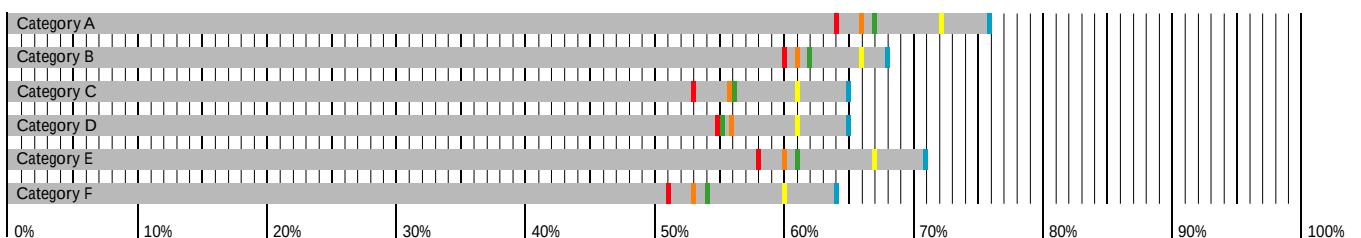
Integrated transport



Information and communications



Safety and security



5.3 Asset condition

Table C Average condition of stations

STATION CATEGORY	1994	1998/99	1999/2000	2000/01	2005/06	2008/09
A	2.6	2.2	2.2	2.2	2.2	2.2
B	2.6	2.3	2.2	2.2	2.2	2.2
C	2.6	2.3	2.3	2.3	2.3	2.3
D	2.6	2.2	2.2	2.2	2.2	2.2
E	2.7	2.2	2.2	2.2	2.2	2.2
F	2.8	2.3	2.2	2.1	2.1	2.1
All stations	2.7	2.3	2.2	2.2	2.2	2.2

The station condition scores reflect the average condition of stations within each station category, defined on the previous page. 1 is the highest possible condition and 5 is the lowest. Sensible management of maintenance and renewals would suggest that the average station condition score should be around 2.2–2.3 (although many stations will outperform that). The score predictions in this table are based on the maintenance and renewal expenditure set out in this NMS.

Table D Distribution of stations between the five condition ratings

STATION CATEGORY	CONDITION 1	CONDITION 2	CONDITION 3	CONDITION 4	CONDITION 5	TOTAL
A 1994	0	12	16	1	0	29
1999	5	19	5	0	0	29
B 1994	0	28	36	0	0	64
1999	0	41	23	0	0	64
C 1994	0	96	148	0	0	244
1999	13	142	89	0	0	244
D 1994	1	119	171	3	0	295
1999	29	164	102	0	0	295
E 1994	1	197	456	22	0	676
1999	36	468	175	0	0	679
F 1994	23	284	732	139	3	1181
1999	70	660	435	23	0	1188
All stations 1994	25	737	1560	165	3	2489
1999	153	1494	829	23	0	2499

Table E Quality of carriage washing at depots

QUALITY OF CARRIAGE WASHING AT DEPOTS	1998/99	1999/2000	2000/01	2005/06	2008/09
No. of light maintenance depots	88	86	85	85	85
No. of carriage washers	75	74	74	74	74
Quality of carriage wash provided (%)	51	52	53	57	59

The score we published in the 1998 NMS was 37%. The data for this was collected during 1995 and 1996. We are pleased to report the much improved result which reflects the investment we have made in renewing the equipment. We believe it is important that the output of carriage washers is measured, and to do this we commission survey reports on the quality of wash provided by each of the carriage washers on the network. The results of these surveys, which are compiled by an independent consultancy, were used as the data source for the derivation of the quality index included in the table above. It should be noted that the results of these surveys are heavily influenced by the manner in which equipment is operated, and also by the speed at which vehicles are driven through the washer. We are committed to enhancing the performance of the carriage washers on the network. We therefore plan to resurvey all carriage washers using the same methodology during 1999, and to publish these results in the 2000 NMS.

The score predictions in this table are based on the maintenance and renewal expenditure set out in this NMS.

Table F Asset condition

SPEED RESTRICTIONS	1998/99	1999/2000	2000/01	2005/06	2008/09
No. of temporary speed restrictions in operation for more than three months*	187	147	122	98	86
TRACK					
No. of broken rails	836	770	700	560	510
No. of condition of track temporary speed restrictions*	184	145	118	95	85
STRUCTURES					
No. of condition of structure temporary speed restrictions*	49	29	22	18	16
ELECTRIFICATION**					
No. of OLE wire alignment exceedance	1,813	n/a	n/a	n/a	n/a
SIGNALLING†					
No. of repeat failures	8,752	n/a	n/a	n/a	n/a

* Outside Rules of the Route

** Overhead electrification lines are surveyed periodically by means of train-mounted measuring equipment. This demonstrates that the number of exceedances from Railtrack standards reduced by more than 20% in 1998 compared with 1997. Effective maintenance of targeted renewals are expected to lead to further improvements in future years.

† During 1998 the number of repeat failures associated with the main signalling components, namely track circuits, points and signals, decreased by approximately 10%. Through targeted renewals and effective maintenance, this improving trend is expected to continue in future years.

The forecasts set out in this table are based on the maintenance and renewal expenditure set out in this NMS.

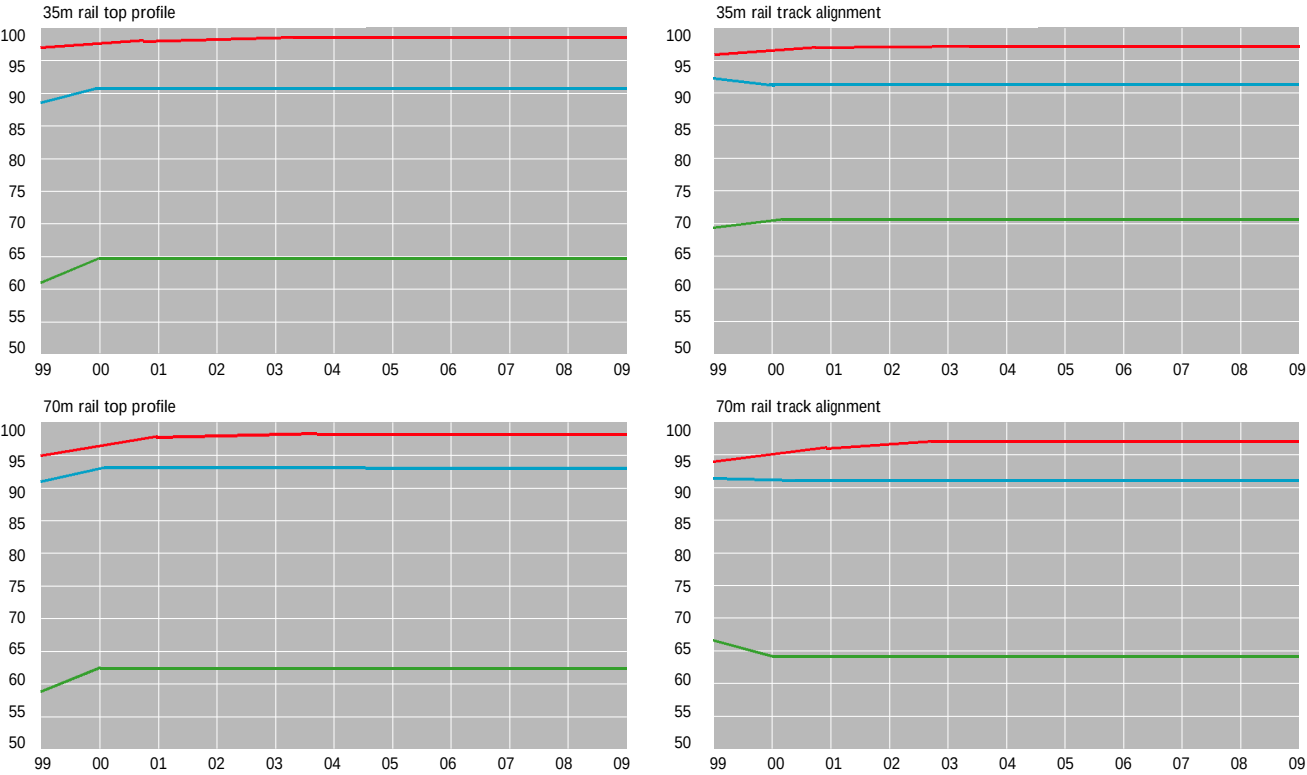
Table G Renewal of network

RENEWAL	1998/99	1999/2000	2000/01	2005/06	2008/09
Rail renewed (km per year)	524	350	390	210	210
Sleepers renewed (km per year)	474	388	343	379	379
Ballast renewed (km per year)	571	470	469	560	560
Signals renewed (km per year)	333	471	577	657	349
Structures renewed (no. of structures)	84	49	58	98	98

The forecasts set out in this table are based on the maintenance and renewal expenditure set out in this NMS.

Table H Track quality

Track quality is monitored by measuring vertical and horizontal alignment over distances of 35m and 70m. We have three standards. We aim for 50% of track to meet the highest standard,90% to meet the second standard,and 100% to meet the third standard. We aim to move further towards meeting these standards.For track which does not meet the required standard,we have a programme in place for appropriate renewal and maintenance work.The targets we have included in this table are based on the maintenance and renewal expenditure set out in this NMS.



The area below each line shows the proportion of track on our network that meets the relevant standard.



5.4 Network utilisation

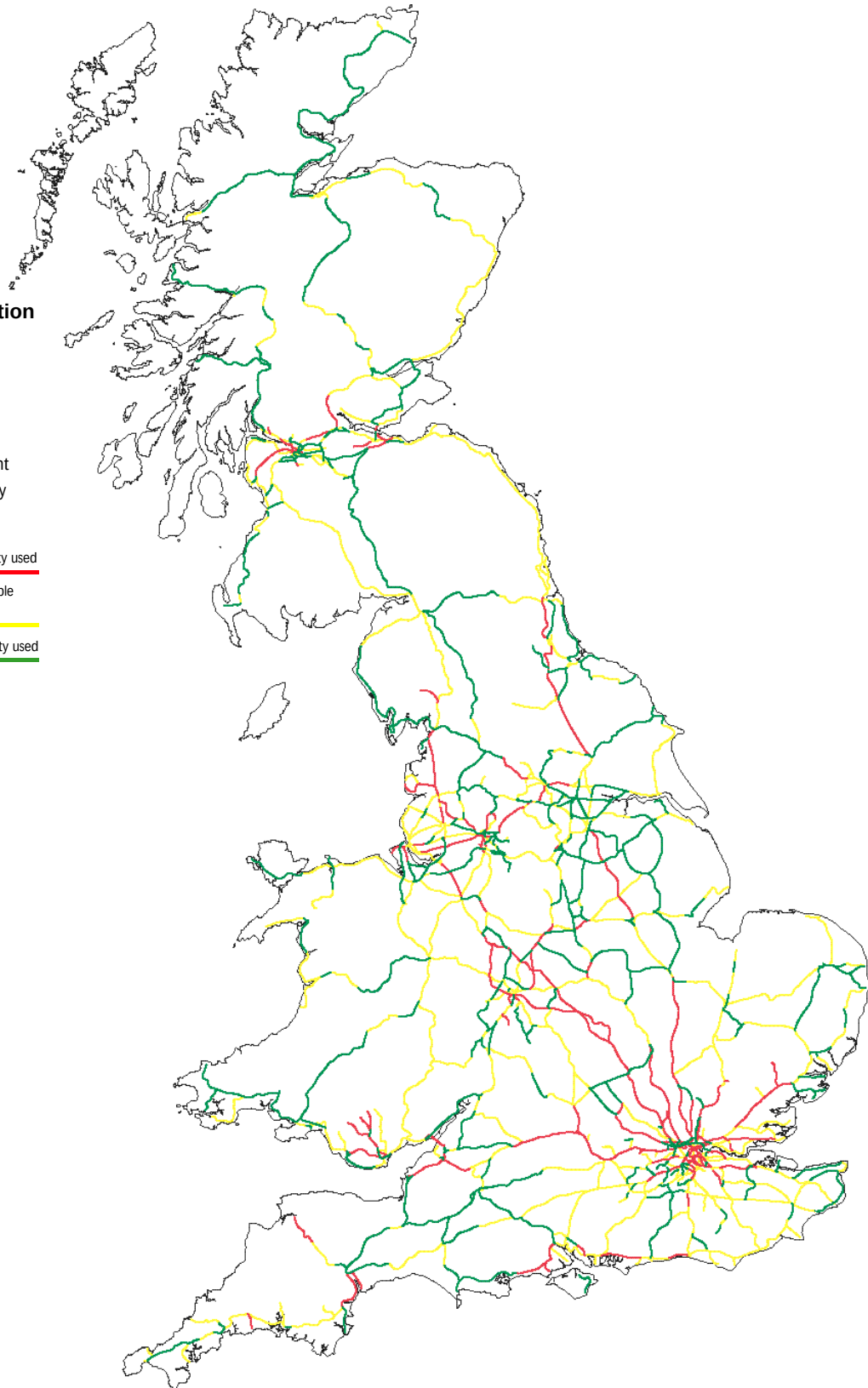
Capacity utilisation

This map shows the current use of the available capacity of the rail network.

70% or more of available capacity used

between 30% and 69% of available capacity used

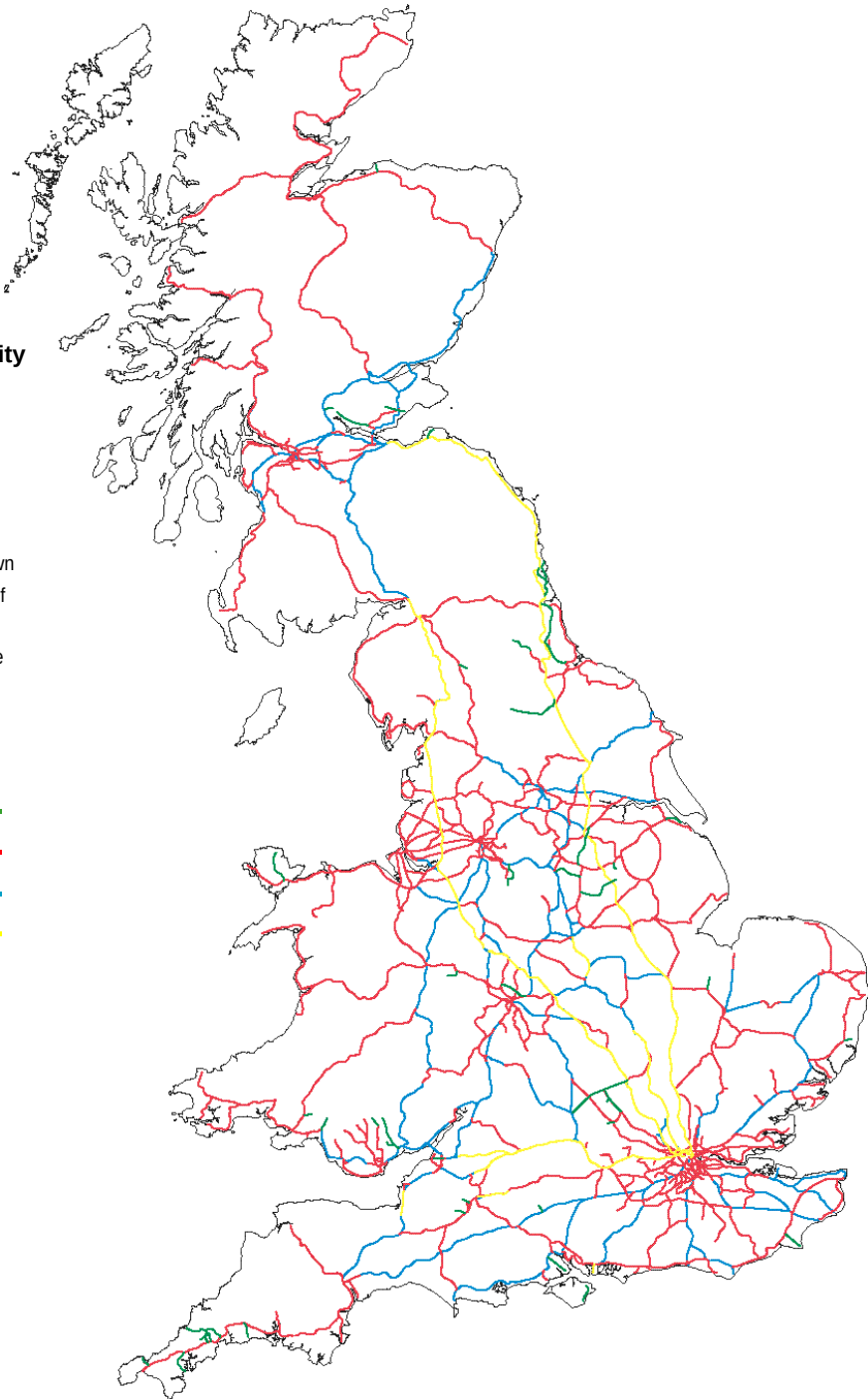
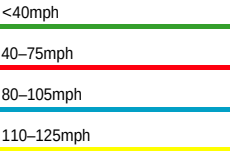
less than 30% of available capacity used



5.5 Network capability

Journey times and linespeeds

The current linespeeds shown on the map and the types of train currently in operation, together with their timetable and stopping patterns produce the actual journey times for rail services



SPEED	1998/99	1999/2000	2000/01	2005/06	2008/09
km of track up to 35mph	3598	3598	3596	3598	3589
km of track 40 to 75mph	17236	17143	16884	16888	16842
km of track 80 to 105mph	7459	7552	7200	7145	7177
km of track 110 to 125mph	2553	2553	3142	2839	2887
km of track for speeds over 125mph	0	0	0	391	391
TOTAL	30846	30846	30822	30862	30887

Note: The data shown in the table differs from that we published in the 1998 NMS and is more accurate. The forecasts in this table are based upon both the maintenance and renewal expenditure and the completion of enhancement schemes set out in this NMS.

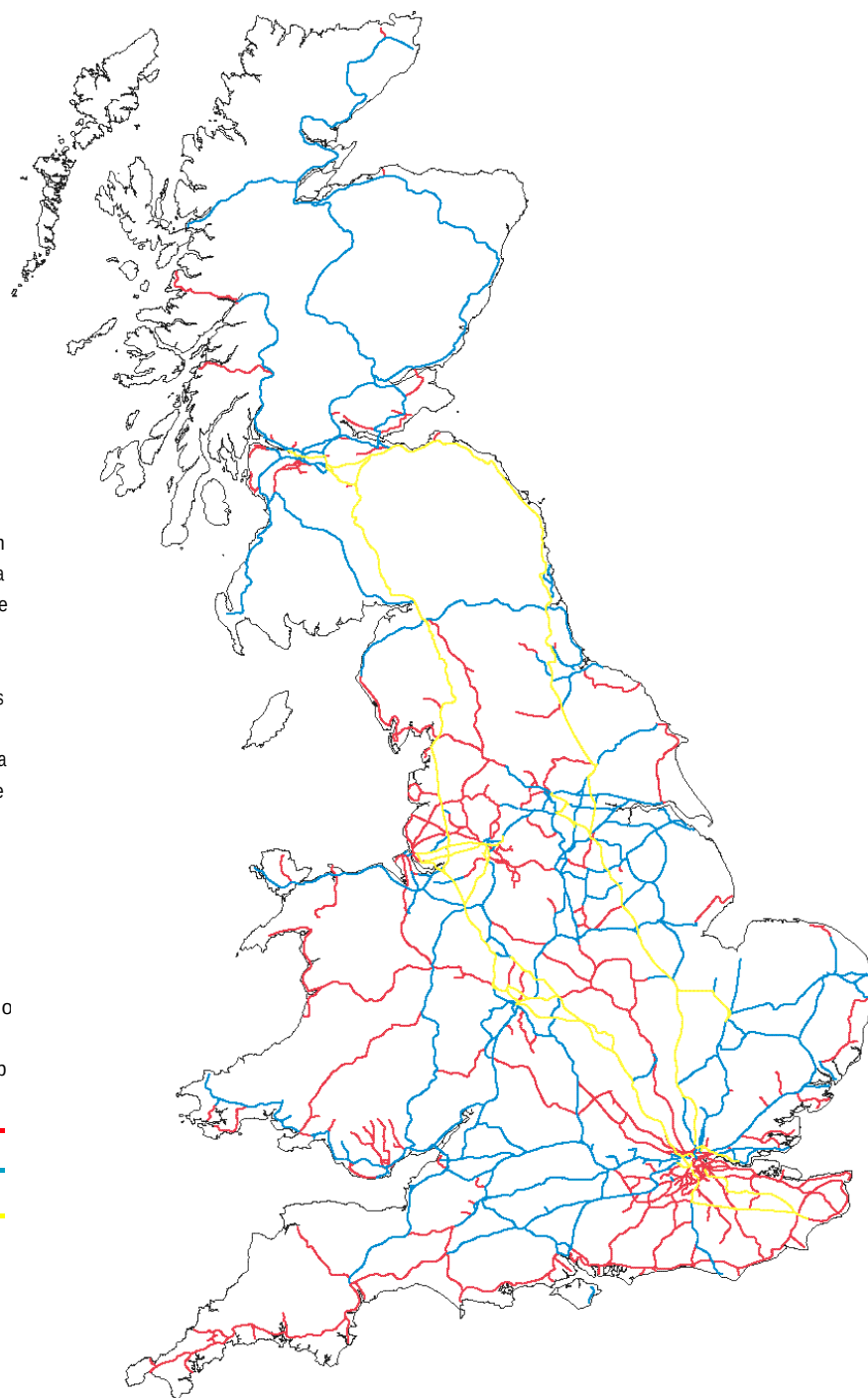
Loading gauge

This stipulates the maximum height, length and width of a vehicle that can travel on the network. The size varies by route primarily because of bridge and tunnel clearances. All passenger-carrying vehicles are constructed to a similar height and width. The primary variable is the length, at 20m or 23m. Generally there are few restrictions on passenger vehicles but for freight vehicles the capability of the network in ascending order of size (as set out in the key below) is shown on the map.

W6A Standard freight vehicles

W8

W9



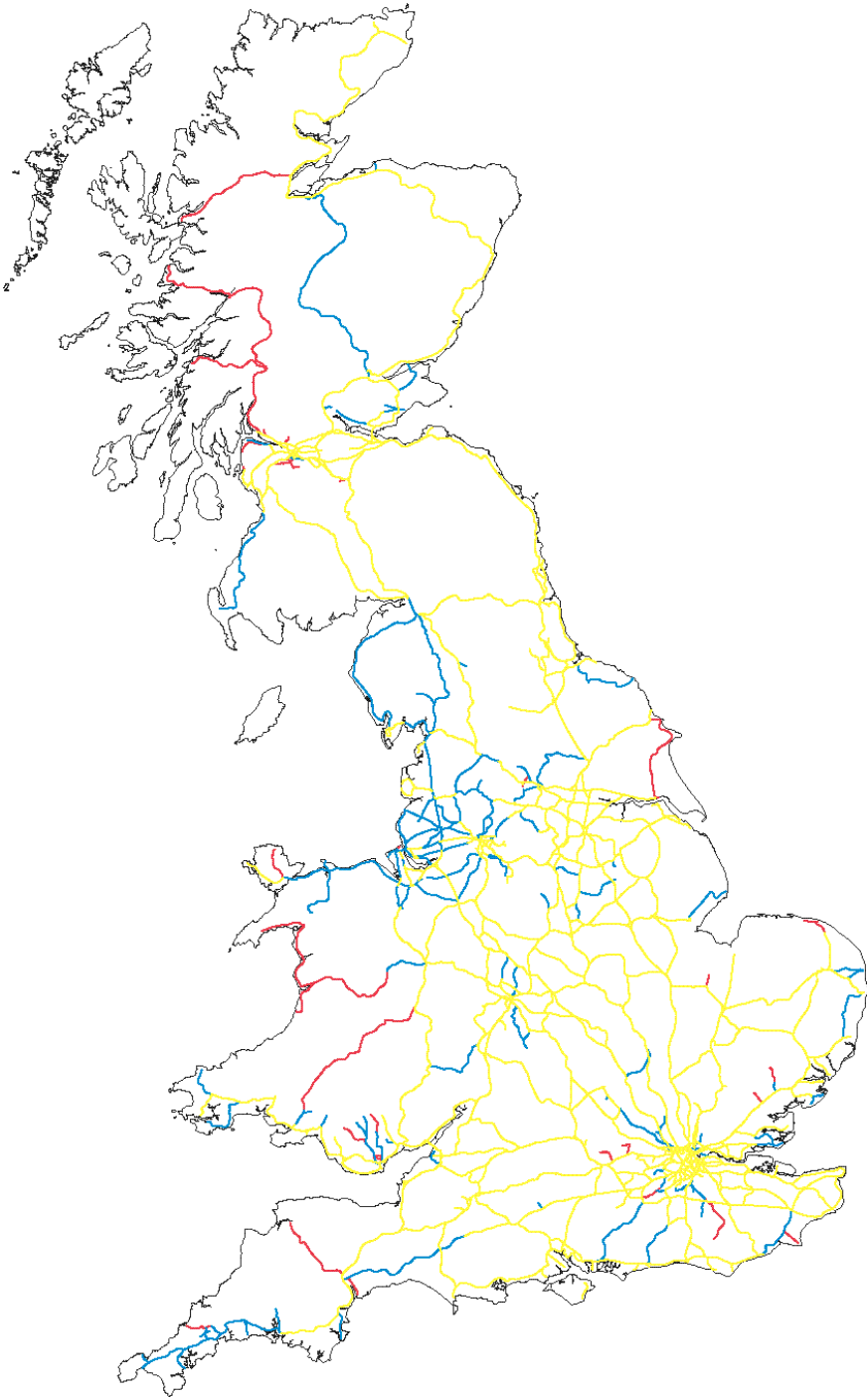
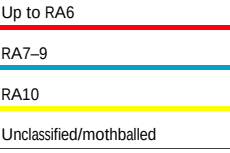
GAUGE	1998/99	1999/2000	2000/01	2005/06	2008/09
km of route W6A	16522	16522	16514	16559	16574
km of route W7	13097	13097	13144	13134	13149
km of route W8	10233	10233	10289	10404	10412
km of route W9	1525	1561	1602	2702	2702
km of route W10	0	675	675	2147	2147

Full gauging analysis undertaken*

* At the time of publication we are unable to give firm timescales for this analysis work to be undertaken. Note: The data shown in this table differs from that published in the 1998 NMS and is more accurate. The forecasts in this table are based upon both the maintenance and renewal expenditure and the completion of enhancement schemes set out in this NMS.

Permitted axle weights

The maximum axle weights that the current network can carry vary according to the engineering characteristics of each route particularly of the underline bridge and viaduct structuresAxle-weight limits are classified into Route Availability (RA) values between 1 and 10,of which the key groupings are:
RA 1–6 up to 20.3 tonnes
RA 7–9 up to 23.4 tonnes
RA 10 up to 25.4 tonnes
The current network availability for these axle weights is shown here



AXLE WEIGHTS	1998/99	1999/2000	20001/01	2005/06	2008/09
km of track up to 20.3 tonnes	2725	2725	2727	2729	2729
km of track 20.4 to 23.4 tonnes	14729	14729	14695	14617	14617
km of track 23.5 to 25.4 tonnes	13392	13392	13400	13516	13541
TOTAL	30846	30846	30822	30862	30887

Note: The data shown in the table differs from that which we published in the 1998 NMS and is more accurate. The forecasts in this table are based upon both the maintenance and renewal expenditure and the completion of enhancement schemes set out in this NMS.

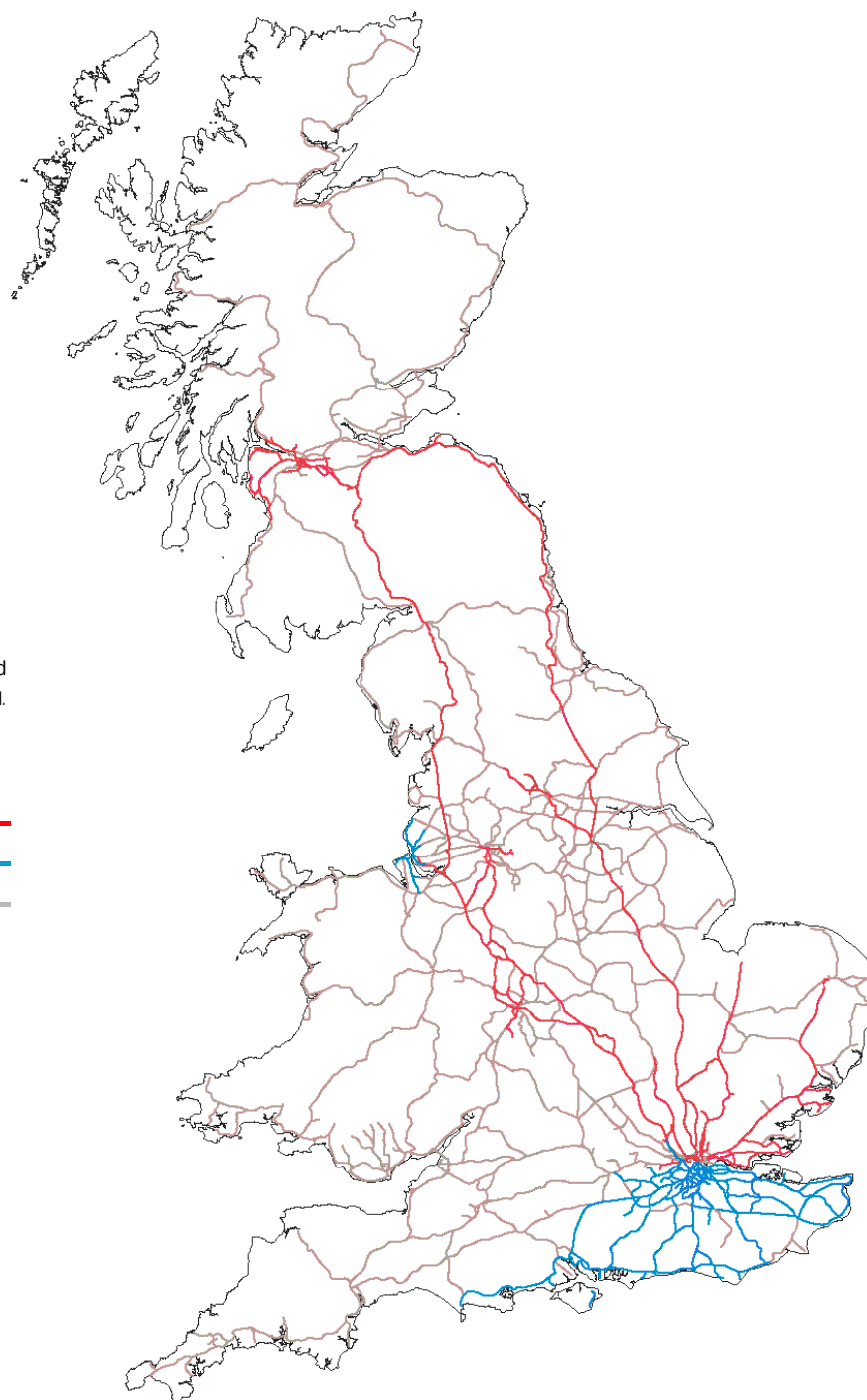
Electrification

38% of the rail network is currently equipped with electrification. Two systems are used: 25kV AC overhead line and 750V DC third rail. Their coverage is shown in the map.

25kV AC overhead

750V DC third rail

Non-electrified



ELECTRIFICATION	1998/99	1999/2000	2000/01	2005/06	2008/09
km of 25kV AC overhead line	7576	7576	7582	7639	7639
km of 750V DC third rail	4285	4285	4285	4269	4269

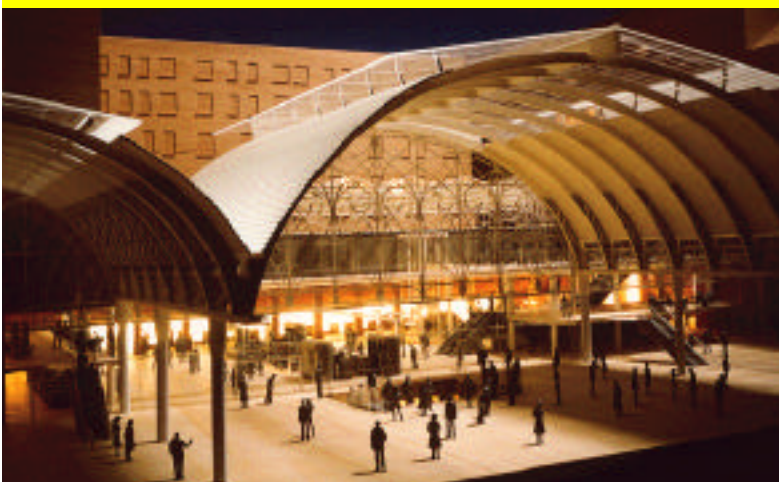
Note: The data shown in the table differs from that which we published in the 1998 NMS and is more accurate. The forecasts in this table are based upon both the maintenance and renewal expenditure and the completion of enhancement schemes set out in this NMS.

6 Developing the network

- 6.1 Passenger markets
- 6.2 Passenger market growth
- 6.3 Freight markets and growth
- 6.4 Capacity bottlenecks
- 6.5 New vehicles
- 6.6 Stations and depots
- 6.7 Social and environmental benefits
- 6.8 Timetabling
- 6.9 Investment packages
 - Table A – Enhancement expenditure
 - Table B – Network development packages
- 6.10 Summary of investment proposals and principal schemes
- 6.11 Schemes being developed



This section sets out our ambitious and expansive plans to develop the rail network, to meet customer and funder requirements, and also the Government's Integrated Transport Policy objectives. We include our assessment of current market position, future growth opportunities, and the importance of network capacity to deliver growth aspirations. Our plans include major increases in capacity to remove the bottlenecks set out in our 1998 Statement, provide for the development of high-speed passenger services, urban network enhancements, and the creation of stations for the 21st century. We set out those schemes to which we are already committed, along with new commitments and the market risks that we wish to take. In addition, we present a portfolio of schemes which require elements of public support, but in which we also wish to share market risk.



There is a core commercial network of long-distance passenger services for which growth can be accommodated through investment that has a commercial return

6.1 Passenger markets

The passenger market can be categorised broadly into:

- Long distance services
- Urban services
- Rural services
- Access to airports and ports.

Long distance services

There is a core commercial network of long-distance passenger services for which growth can be accommodated through investment that has a commercial return. This is supported by our customers' own plans to meet growing demand. Our strategy is to work with our customers to develop their businesses and to increase the number of passengers travelling on their services. Our main contribution is usually the investment necessary to reduce journey times and to ensure that there is sufficient network capacity to handle increased frequencies. In addition, the radical timetable restructuring that is necessary is being promoted through a new collaborative approach involving all operators – both passenger and freight – with the objective of the highest possible level of network use.

Access to London

Public transport accounts for around 80% of central London journeys to work and almost 50% of these use national rail as the main mode of travel. Most independent forecasts suggest that employment in central London will continue to grow steadily, putting increasing strain on our network. On most major corridors, the railway is already operating at, or close to, maximum peak capacity and we are devoting considerable energy to the development of enhancements that will enable rail to cope with traffic increases well into the next millennium.

These enhancements generally need to be developed in partnership with public bodies, both because of the planning issues involved and because the schemes are not economically viable without taking account of the social benefits they bring.

Urban network development – Scotland, Wales and the English regions

The economic and social development of cities in Scotland, Wales and the English regions provides one of the strongest challenges to turn the concept of integrated transport into reality. Choices exist both in the short and long term as to how to optimise the economic benefits of integrating good highway planning and commercial land-use developments, particularly on the edge of existing conurbations, while sustaining the viability and cohesiveness of the established business, shopping, leisure and residential core of inner and central city areas. For the same reasons as in London, partnership with public bodies is essential. Planning authorities have recognised that the core attributes for public transport in a good policy on integrated transport are likely to include physical accessibility, clarity of, and access to, information and ticketing, and safety and comfort in the travel and waiting environments.

Rural services

Population densities in rural areas are relatively low, and high levels of public sector support are normally required to fund public transport services. The rail network often provides a vital means of social accessibility for those in local communities who either do not have access to a vehicle, or prefer not to drive. Prospects for economically viable growth strategies based on infrastructure enhancement are limited but there are many initiatives where we work with local public sector agencies to continue to promote the development of train travel.

Access to airports and ports

Growing demand for international travel, for both business and leisure, is putting pressure on surface access to airports and ports. We are working with a number of operators of such facilities to develop high-quality rail access. Examples include:

London airports. Gatwick Airport has, for a number of years, enjoyed high-quality rail links to central London. Capacity improvements for additional services, including those provided by long-distance operators, is being considered for the Brighton Main Line.

The starting point for developing and enhancing the network is the ability to forecast demand and to understand how train operators would react to this demand

Heathrow Express commenced services to and from London Paddington in 1998 and we are currently working with a number of parties to develop infrastructure for access from St Pancras, and to provide a new southern link. In 1998, a regular hourly service was introduced from Stansted Airport to Cambridge and the Midlands, while additional peak services and services calling at intermediate stations were introduced from London's Liverpool Street Station.

At Luton, we are currently building a new station that will fulfil a dual role as both a parkway station and a facility for easy access to the airport. Much of the infrastructure works are now complete. We expect services to commence during the second half of 1999.

Manchester Airport. The rail link to Manchester Airport has developed business successfully since its opening in 1993. Manchester Airport's second runway is now under construction. We are addressing options for how future growth can best be met as part of our overall strategy to improve capacity in and around Manchester, which we set out later in this section.

Glasgow Airport. We are working with Strathclyde Passenger Transport Executive (PTE) to assess the options for providing a rail link from the airport to Paisley and central Glasgow.

Birmingham Airport. We are working with a number of parties including Birmingham International Airport, Birmingham City Council, the National Exhibition Centre and West Midlands Passenger Transport Authority (Centro) on plans to radically improve the facilities focused around Birmingham International Station.

Irish sea ports. The development of faster and higher capacity ferries has helped to stimulate demand for rail/sea journeys between Ireland and Great Britain. At Holyhead, we are completing the station regeneration works to complement the new terminal facilities provided by the port.

Channel Tunnel Rail Link

We have begun construction of the new high-speed link between London and the Channel Tunnel. More information is given in Route Strategies 6 and 18.

The starting point for developing and enhancing the network is the ability to forecast demand and to understand how train operators would react to this demand. Possible reactions to demand growth include increasing the number of seats filled on existing trains, lengthening existing trains or running more trains.

We have four principal sources of information on which to base our forecasts of market growth.

- First, we place considerable weight on what we learn from passenger and freight operating companies. The recent customer-reasonable requirements process has helped with this. Our customers are carrying the risks of the short-term end-market demand in their own business plans, with the Franchising Director taking the long-term demand risk. Revenue sharing arrangements such as those we have with Virgin Rail Group and Chiltern Railways bring us closer to a shared understanding of some end markets.

Our market growth assumptions include the effects of additional train services resulting from the implementation of Moderation of Competition (Stage 2) provisions in so far as our customers have discussed their plans with us.

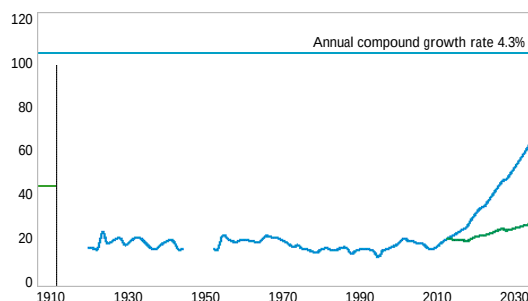
- Second, as an operator of 14 major stations, we carry out independent market research among customers and listen to the needs of our retailing partners at these locations. The output of this research feeds into the development plans described in the relevant route sections of this document.
- Third, we have developed our own passenger-demand forecasting tools to assist with modelling future demand, and to anticipate likely changes required in network capacity and capability. An equilibrium econometric model of the Great Britain passenger transport market developed for us by the Centre for Economic and Business Research is the centrepiece of this.
- Fourth, we have begun to assess the implications of the Government's Integrated Transport Policy for changes in demand for capacity which might be brought about either directly by the public sector through reprioritisation of investment expenditure, or through the market responding to changes in the structure of charges for the use of different modes of transport.

Rail has been losing market share for much of the 20th

We believe that this growth is not merely a reflection of the current phase of the economic cycle, but heralds a trend which is potentially capable of being sustained...

Passenger growth (billion passenger kilometres)

Source: Transport statistics Great Britain 1998; Railtrack demand models



century and, in particular, since the 1950s. Its share has been under 6% since the early 1990s. However, since 1910, the absolute level of passenger rail volume, while fluctuating with economic cycles, has remained remarkably constant as the graph above indicates. This has happened through periods of immense social change, two world wars, and the transformation of personal transport through the motorcar.

Such stability against such a background is strongly suggestive of other factors. In our opinion, it results from an overall capacity constraint on the rail network, for although it is true that network size has been reduced, the portions that have been closed actually carried very little traffic. The Beeching cuts of the 1960s are scarcely noticeable on the graph.

In the two years since privatisation was completed, passenger kilometres have risen by 15%. However, the resulting traffic volumes have not exceeded the parameters of the recent past.

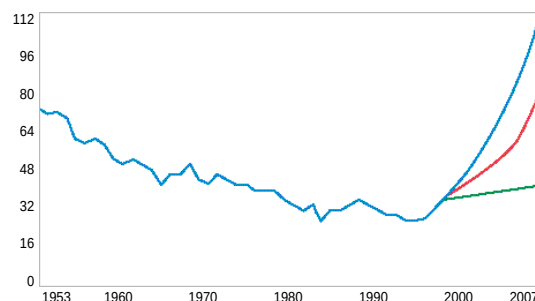
We believe that this growth is not merely a reflection of the current phase of the economic cycle, but heralds a trend which is potentially capable of being sustained. But unless the century-long capacity constraint is tackled, such growth cannot continue.

We set out in this section plans to create this extra capacity. Many of the schemes are fully commercially viable, and we are committed to them. Others require a partnership approach and a proportion of public funding, and we are also prepared to commit to these.

Together, these plans provide capacity to enable passenger traffic growth of around 30% over the next ten years, and involve total expenditure of around £27bn (compared to £17bn in last year's NMS). Nevertheless, even

Freight growth (billion gross tonne-kilometres)

Source: Transport statistics Great Britain 1998; Railtrack analysis and freight operators' forecasts



this level of growth, although unprecedented this century, is at the lower end of the range that some of our train company customers aspire to achieve.

6.3 Freight markets and growth

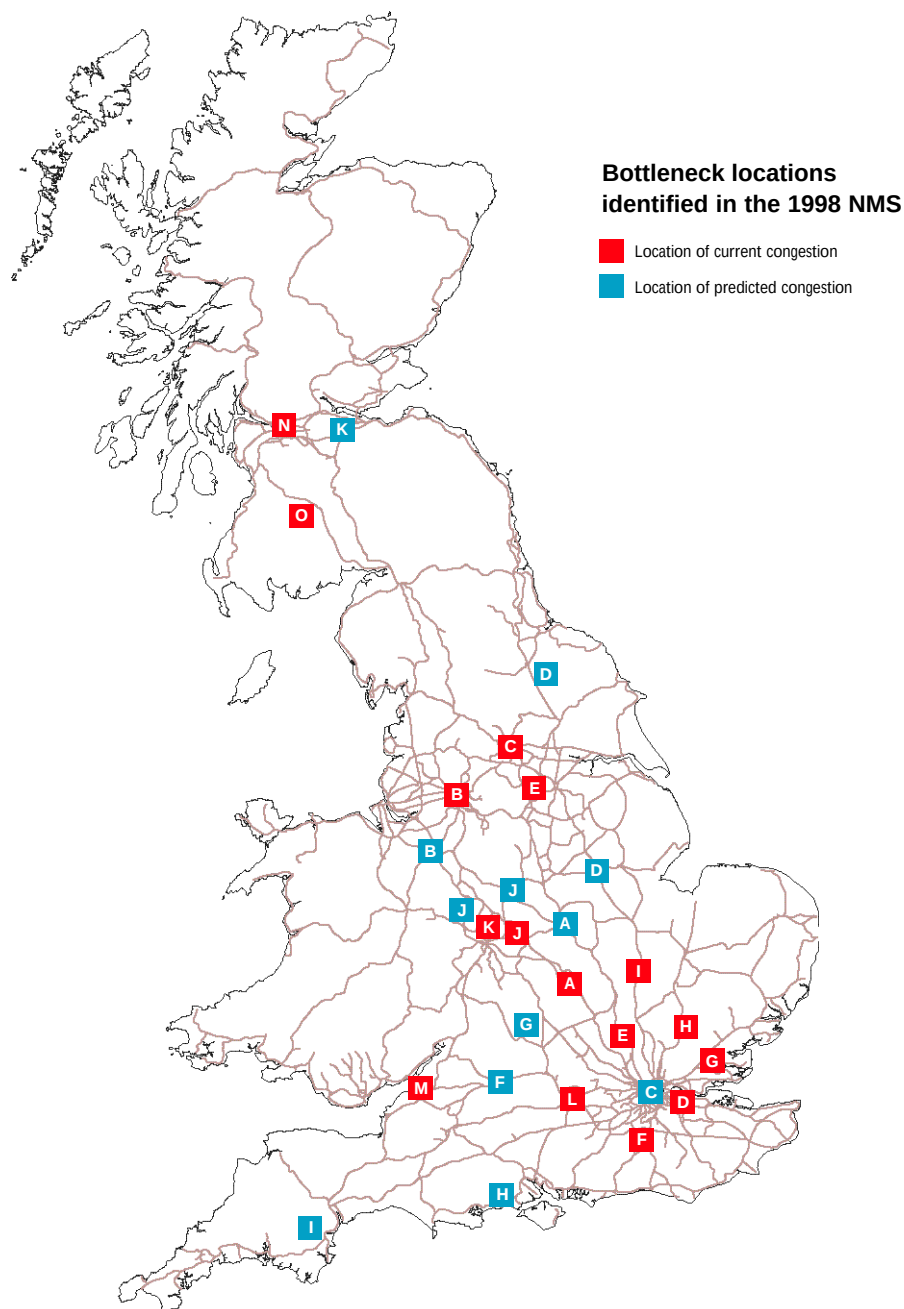
Our freight growth assumptions are driven principally by working with our existing customers and understanding how their own businesses need to develop if they are to successfully capture market share. We have also developed a freight demand model, and continue to discuss new business opportunities with prospective customers. The results of this analysis have led us to develop the freight strategy set out in Section 7. The graph above indicates the range of possible growth scenarios.

6.4 Capacity bottlenecks

The 1998 NMS identified locations on the network with current and predicted congestion. These locations were identified through a systematic evaluation of capacity across the whole network, which established current and predicted train-path use and capacity indicators for all key terminals, junctions and plain line sections. Utilisation percentages were then derived by dividing actual or forecast train paths by the maximum number allowed. The locations identified in the 1998 NMS were all those with current or predicted use, measured at 90% or above, together with a small number of other locations at which use is slightly below this level but which have high levels of reactionary delays.

Railtrack has evaluated the technical options for alleviating the current and potential congestion problems identified at these locations. These technical options have

...but, unless the century-long capacity constraint is tackled, such growth cannot continue



been discussed with customers, funders and the Rail Regulator as part of the development of our Route Strategies. Our conclusions are set out in the relevant route sections later in this document. At some locations, the effects of high use have not resulted in significant congestion-related delays. Similarly, in a number of locations identified with predicted congestion, either our utilisation forecasts have

been revised or we believe we will be able to manage future train path demand without creating any noticeable additional disruption.

The tables overleaf summarise the proposals for each location indicated on the map above.

SUMMARIES OF KEY LOCATIONS IDENTIFIED IN THE 1998 NETWORK MANAGEMENT STATEMENT WITH CURRENT CONGESTION

	LOCATION AND POSSIBLE SOLUTIONS TO CONGESTION	STATUS	COMPLETION DATE
A	West Coast Main Line: Euston–Rugby. The West Coast Main Line upgrade will provide additional capacity on the fast and slow lines in 2005. This will provide sufficient capacity to meet existing and known future contractual requirements. It will also allow for an increase in paths by 42 per day in each direction, which could be used for additional freight traffic.	Solution being implemented.	2005
B	West Coast Main Line/North Trans-Pennine: Slade Lane Junction Piccadilly–Deansgate. The track layout at Manchester Piccadilly was remodelled in December 1998 and the capacity of the main station trainshed was restored to 12 fully operational platforms. Strategic options for further capacity enhancements will be discussed with train operators and GMPTE. The results will be reflected in the 2000 NMS.	We are currently developing options.	2002
C	North Trans-Pennine: Leeds Station area. A major remodelling and resignalling of Leeds West End Junction to increase capacity by 50% and a minor remodelling of the east end of the station.	Solution being implemented.	2002
D	Channel Tunnel Routes: Charing Cross–Hither Green–Orpington. The Thameslink 2000 project will double the capacity on the Metropolitan Junction–Borough Market Junction section. Capacity issues on other sections have been identified and are being discussed with the Rail Regulator.	Solutions partially identified and to be implemented. Further solutions being developed.	2006 partially
E	Midland Main Line: Kentish Town–Luton. The solution involves retimetabling and reinstatement of a platform at London St Pancras. The Thameslink 2000 project includes lengthening of platforms to enable 12-vehicle trains to operate.	Solution being implemented. Part of Thameslink 2000 scheme.	1999–2006
F	Brighton Main Line: Victoria–East Croydon–Haywards Heath. A range of solutions has been analysed. They vary from a short-term timetable solution to accommodate Virgin's requirements through renewing rolling stock to increase seating capacity and improve journey times to a comprehensive increase in route capacity to enable more trains to run.	Solution identified and under discussion.	–
G	Great Eastern Main Line: Liverpool St–Gidea Park. The solution involves enhancing capacity of the Gospel Oak–Barking Line to remove some freight trains from the route.	Solution being implemented.	Spring 1999
H	West Anglia Main Line: Clapton Junction–Broxbourne Junction. We have identified a potential timetabling solution to allow additional trains to operate to Stansted Airport in 2000. In conjunction with planned signalling renewals, we have identified longer-term capacity enhancements to satisfy customer requirements.	Solution being progressed.	2000–04
I	East Coast Main Line: Finsbury Park–Peterborough. We have committed to a phased increase in capacity to reflect emerging market and customer demands as part of the ECML upgrade.	Preferred solutions to be identified in 1999.	2003–09
J	Derby–Bristol and Didcot via Birmingham: Leamington–Coventry. We propose to implement a timetabling solution.	Solution identified. Implementation dependent on customer negotiations.	2000
J	Derby–Bristol & Didcot via Birmingham: Coventry–Birmingham. A partial timetabling solution has been identified, and agreed with our customers for delivery in 2005. In order to meet all customer market needs, we have identified a solution to four-track this corridor.	Partial solution to be implemented. Implementation of further solution dependent on customer negotiations.	2005 partially
K	Derby–Bristol & Didcot via Birmingham: Birmingham New Street–Kings Norton. A timetabling solution has been identified which has customer support subject to contractual negotiations.	Solution identified. Implementation dependent on customer negotiations.	2003
L	Great Western Main Line: Paddington–Reading & Reading–Basingstoke. A phased approach has been identified which involves progressively more platform capacity at Reading in the short term; additional track capacity between Acton and Airport Junction in the medium term; and additional platform capacity at Paddington.	Solution identified and partial implementation to start in 1999.	2000–09
M	Great Western Main Line: Bath–Bristol–Severn Tunnel Junction. We are implementing an infrastructure solution according to a phased timescale to meet customer requirements.	Solution being implemented.	2003
N	West Coast Main Line: Glasgow Central approaches. Further analysis suggests that the current layout is not operating at capacity and that known operator aspirations can be met.	No solution required.	n/a
O	South West Scotland: Kilmarnock–Gretna Green. Introduction of 24-hour-a-day operation will allow more trains to be pathed during less busy hours. We have committed to add a passing loop in 2000.	Solution to be implemented in 2000.	2000

6.5 New vehicles

SUMMARIES OF KEY LOCATIONS IDENTIFIED IN THE 1998 NETWORK MANAGEMENT STATEMENT WITH PREDICTED CONGESTION

We are committed to working with our customers to ensure that their new vehicles can be introduced on

	LOCATION AND POSSIBLE SOLUTIONS TO CONGESTION	STATUS	COMPLETION DATE
A	Midland Main Line: Leicester area. We are already increasing capacity at Wigston North Junction. We are examining whether additional capacity would be required if Felixstowe–Midlands–North West freight trains are rerouted by Leicester.	Short-term solution being implemented.	1999
B	West Coast Main Line: Rugby–Carlisle. The West Coast Main Line modernisation project will provide additional paths, limiting growth of freight paths to the minimum agreed with the Rail Regulator. Our position is that it is not economical for the industry to provide paths for freight beyond 84 per day.	Solutions being implemented.	2005
B	West Coast Main Line: Crewe and Colwich–Manchester (Slade Lane Junction). The West Coast Main Line modernisation project commits Railtrack to providing additional capacity to meet existing and future contractual commitments. Complete renewal of the signalling between Slade Lane and Cheadle Hulme will begin in 2000/01 and this will incorporate capacity enhancements to accommodate the additional PUG 2 services. We are currently determining the scope of the layout and signalling changes required between Cheadle Hulme and Crewe.	Design and development authority for Cheadle Hulme and Slade Lane being progressed.	2002–05
C	North London Line: Stratford–Richmond. The options for this route, which links the key radial routes from London, can now be identified as our strategies on the radial routes has been finalised.	We are currently developing options.	n/a
C	West London Line: Willesden Junction–Clapham Junction. We have examined a number of solutions involving increasing the linespeed over Chelsea River Bridge, the examination of the prevailing linespeed to provide a smoother profile, resignalling, the transfer of AC/DC electrification interface to a station stop, possible rerouting of freight and/or other passenger paths, and buying out of paths. The Chelsea River Bridge linespeed solution has been proposed as the most appropriate short-term solution to reflect emerging market and customer needs.	Partial solution has been proposed. Other solutions being identified for longer term.	2001
D	East Coast Main Line: Peterborough–Newcastle. We have committed to phased increase in capacity.	Preferred solution identified.	2003–09
E	Midland Main Line: Sheffield area. We are undertaking a timetabling exercise to ascertain the scope of infrastructure works necessary. Possible solutions include the doubling of the line between Dore Station Junction and Dore West stations.	Options being identified.	2003
F	Great Western Main Line: Didcot–Swindon. We will implement proposals depending on emerging growth in traffic. These include upgrading facilities for looping freight trains, increasing platform capacity at Swindon, and enhancing the signalling system.	Options identified. Selection and implementation subject to traffic growth.	2006
G	Derby–Bristol and Didcot via Birmingham: Didcot–Leamington Spa. Known customer and market requirements can be met by existing infrastructure except between Banbury and Fenny Compton. Additional signalling between these locations will provide the necessary capacity.	Solution identified.	2003
H	London–Portsmouth and Weymouth: Southampton–Bournemouth. Further analysis suggests that train-path demand will not exceed capacity during the planning period. However, planned signalling renewals work will marginally increase capacity.	No solution currently required.	n/a
I	Reading and Bristol–Penzance: Exeter–Plymouth. Further analysis demonstrates that known customer and market requirements can be met by existing infrastructure.	No solution required.	n/a
J	Derby–Bristol and Didcot via Birmingham: Derby–Birmingham. Retimetabling, increasing capacity through additional infrastructure. Our analysis shows that the present information can accommodate known market and customer requirements.	Options identified. Implementation subject to traffic growth.	n/a
J	West Coast Main Line: Birmingham–Wolverhampton. Further analysis demonstrates it would not be cost-effective to increase capacity on this route. Consequently, one customer's aspirations will not be met. This position has been agreed with the industry.	Solution implemented.	Implemented
K	West Coast Main Line: Edinburgh: (Haymarket East Junction–Midcalder). Further analysis suggests that present infrastructure can accommodate all existing and known future customer demands.	No track capacity solution required (but overhead-line power supply analysis continuing).	n/a

Railtrack is actively working with its partners throughout the European rail industry to ensure that the technical standards adopted match the interests of the UK rail industry

appropriate routes of the network.

As part of our Safety Case, we must formally accept and certify new or modified vehicles and locomotives before they can operate on the network. This process is jointly undertaken by us and train operators through our Rolling Stock Acceptance Board. Introduced in 1997 to address previous problems in this area, the Rolling Stock Acceptance Board successfully accepted the following new vehicles into service in 1998.

- Heathrow Express Class 332 electric unit
- Chiltern Railways Class 168 diesel unit
- EWS Class 66 freight locomotive
- Midland Main Line Class 170/1 diesel unit
- A range of freight wagons.

Staged programmes of work are continuing to ensure the timely acceptance of many other vehicles over the Plan period.

The main new vehicles planned for acceptance in the next three years are shown below.

Entry into service

- 1999** Eurostar North of London – Electric
Central Trains – Diesel
Anglia Railways – Diesel
ScotRail – Diesel
ScotRail – Electric
Connex South Eastern – Electric
LTS – Electric
South West Trains – Electric
Gatwick Express – Electric
EWS – Freight Electric (Route extension)
Freightliner – Diesel conversion
EWS – Freight Diesel (Class 67)
Railtrack – Multipurpose vehicles.

- 2000** First North Western – Diesel
First North Western – High-speed diesel
First Great Western – High-speed diesel
Northern Spirit – Electric
Railtrack – High-speed track relaying machine.

- 2001** Virgin CrossCountry – High-speed diesel
Virgin West Coast – High-speed electric tilting.

Interoperability

In July 1996, Directive 96/48/EC on high-speed interoperability was issued to facilitate the improved passage of rail traffic between member states of the European Union. The provisions of this directive will be introduced into UK legislation this year. All new and upgraded high-speed passenger lines and rolling stock will have to comply with European specifications, subject to certain derogations. Railtrack is actively working with its partners throughout the European rail industry to ensure that the technical standards adopted match the interests of the UK rail industry.

Discussion with our partners has confirmed that there is a strong common desire to enhance the level of facilities at stations throughout the network

6.6 Stations and depots

Discussion with our partners has confirmed that there is a strong common desire to enhance the level of facilities at stations throughout the network. Previous sections have indicated how we propose to progress our maintenance and renewal responsibilities, both at those major stations which we operate, and at those stations which are leased to customers. This section sets out how we plan to progress enhancements.

Following pilot exercises with Central Trains and Great North Eastern Railway (GNER), and widespread consultation with all stakeholders, we have published a specification for Modern Facilities at Stations. This allows allocation of stations to one of six categories according to size and function. It indicates the level of facilities that we aspire to provide. Where an existing facility is to be renewed (such as a life-expired lift), we will ensure that its renewal (paid for from existing access charges) conforms to the relevant specification (in this example, a passenger-operated lift). Our plans for upgrading stations in this way through renewal are set out in Section 4.

However, many stations do not currently have the full range of facilities which are set out in the specification and so cannot reach the specification through renewal alone. To fund the investment to provide such facilities, it will be necessary to negotiate and agree new financing arrangements. The same comment applies for an accelerated renewal of existing facilities that are not yet life-expired.

In some cases, the current station operator can develop a commercial case to fund the enhancement because the increases in revenue resulting from improved product quality will provide sufficient payback. A number of schemes are progressing on this basis, notably with GNER and Virgin Trains for passenger-waiting environments, and with a number of operators for car-park extensions. In many cases, the economic life of the enhancement extends beyond the life of the current franchise operator, and we have assumed that the additional income necessary to give a fair return on our investment will continue to be provided in future station charges.

To cover other cases, we propose an option for discussion with the Franchising Director, the Shadow Strategic Rail Authority and the Rail Regulator whereby we would commit to deliver the output specifications, in whole or part, to provide a step change in the level of facilities by the end of the next Control Period in 2006. To assess the likely cost implications, we have undertaken modelling work which takes account of the current levels of facilities, and the unit costs of delivering those facilities necessary to bridge the gap to the output specification. The costs are, therefore, a broad approximation and will need to be validated on a detailed basis if the option is to proceed.

Platform stepping distance and length policy

A number of important issues have a bearing on the maximum stepping distance that passengers need to negotiate when entering and exiting from trains, and the length of the platform over which this distance is maintained.

These include:

- the variety of existing passenger and freight vehicles
- introduction of new vehicles onto the network
- gauging of passenger and freight vehicles
- track renewals
- access for disabled people
- European interoperability.

These issues, when considered together, present a complex background against which we seek to set a consistent stepping distance and platform length policy.

We have established a project group which will be consulting broadly with our industry partners, having first evaluated a number of options for future platform and train standards with a view to developing a policy by mid-1999 for inclusion in the 2000 NMS. We also intend to develop a funding strategy, in partnership with external agencies where appropriate, and an understanding of the timescales over which the policy could be implemented as an integral part of our Modern Facilities at Stations initiative.

We have assessed the cost of achieving full compliance with the standard on platform gauge and length to be in the order of £900M.

The costs of delivering all of the 'Modern Facilities at Stations' specifications with accelerated renewal are approximately £2.5bn

Disabled access

We have improved access for disabled passengers at stations this year, achieving the targets set in the 1998 NMS. By 31 March 1999, there will be an additional 119 stations (plus the new stations built this year) across the network with unassisted wheelchair access from the street, and a further 17 accessible toilets. In addition, many improvements have been made for disabled passengers who do not use wheelchairs, including induction loops, platform-edge tactile paving, and better handrailing.

Most importantly we have been consulting this year on our strategy for providing access for disabled people across the whole network. Two consultation phases are complete and the feedback has been very encouraging.

- 330 respondents expressed views in a number of areas.
- The majority expected the network to be accessible within 10–20 years.
- Fewer than 10% of respondents disagreed with any of the objectives in the consultation document.
- A lot of valuable suggestions were made by respondents about implementation of policies – these will be subject to further examination.
- Respondents thought that the highest priority should be given to large stations (33%), to prevalence of impairment (23%) and to localities where there was no alternative accessible transport (15%).

We will conclude a more sophisticated methodology for setting priorities incorporating the above feedback that will be included in our forthcoming policy statement to be issued in the middle of 1999. This will set out our policy to deliver the Rail Regulator's Code of Practice, reasonable outputs from the policy, and the costs for and timescales to implement the policy.

This coming year major plans will come to fruition for lift access at Birmingham New Street and Paisley Gilmour Street stations, the latter with partnership funding from Strathclyde PTE.

Another important area is research to find better, cheaper solutions to our access problems across the network. Topics this year include platform-edge tactile paving for people with visual impairments and lifts that can be used safely at unstaffed stations.

Making the rail network accessible is a substantial task that will take many years, but we have every confidence that, together with our customers (and their investment in on-train facilities), partners in government and the public, we will be able to achieve it.

Investment costs

The costs of delivering all of the 'Modern Facilities at Stations' specifications with accelerated renewal of existing facilities are approximately £2.5bn.

This figure includes £900M for platform-stepping distance, and £300M for disabled access facilities. This latter figure may be further refined in discussions with funders early this summer.

Railways have a significant contribution to make to achieve Government policy and commitments on protecting the environment

Major stations

Last year, we reported in very general terms on our work in preparing development control plans for each of our major stations. These plans have now been progressed as part of our dialogue with customers and other stakeholders. A description of significant initiatives on a station-by-station basis is given in the relevant route section of this document.

New stations

We continue to evaluate the possibility of constructing new stations on the network, often in conjunction with funders. Since 1995, we have developed and opened 24 new stations. With the increase in rail passengers and the need to service growing communities, this trend is set to continue. Possible new stations include East Midlands Parkway, Edinburgh Park, Dysart (Fife), Theale (near Reading) and a number of parkway stations on the East Coast Main Line near Edinburgh, the M18 and M25 motorways.

Depots

We anticipated that 1998/99 would be a significant year in the future of development of light maintenance depots (LMDs), with our customers beginning to address their long-term needs in terms of both the location of and services provided at LMDs.

This forecast has been confirmed over the past year and we have seen evidence of changes in approach adopted by train operators to deliver their train maintenance activity.

Certain train operators are contracting out the role of depot facility owner, while others have established subsidiary companies for this purpose. Coupled with the investment in new trains and major advances in maintenance technology such as computerised diagnostics, train maintenance is an area of considerable change.

Undoubtedly, major investment in maintenance, be it enhancing facilities or developing new depots, will be required. We are in detailed discussion with our industry partners to establish how our planned investment in LMDs can be best used to realise this objective.

6.7 Social and environmental benefits

The benefits of upgrading the rail network are felt by many others as well as rail passengers and freight shippers. Railways have a significant contribution to make to achieve Government policy and commitments on protecting the environment.

Increasing the capacity and efficiency of the rail network attracts passengers and freight currently using roads, and can therefore alleviate some of the impact of future growth on the road system. For those who live and work near roads, the benefits mainly accrue from reduced noise and air pollution, which affect health and the local environment. In addition, for those who switch from road to rail, the benefits include faster journey times as well as leading to a reduction in the cost of congestion and accidents. Consequently, society will benefit from our contribution towards reducing local pollution and mitigating climate change, since a rail transport solution offers savings in greenhouse gas emissions and noise relative to roads. All these factors are part of the cost-benefit equation for rail investment projects.

We are using the results of rail transport and environment studies to assess the relief which investment projects will bring to the environmental and social costs of transport incurred by the public, or paid for out of the public purse. We recognise that this is a complex task because decisions to stimulate the use of rail travel cannot be made in isolation from other transport policy decisions (such as road pricing). It is important that methodologies are aligned with those used for Government decision-making. However, we have taken some early steps to assess the value of social benefits that could be gained through avoiding road journeys. Two schemes which are not viable on a commercial basis but which we have assessed are briefly described overleaf. Further information is available on Railtrack's website. We welcome debate and discussion on our approach.

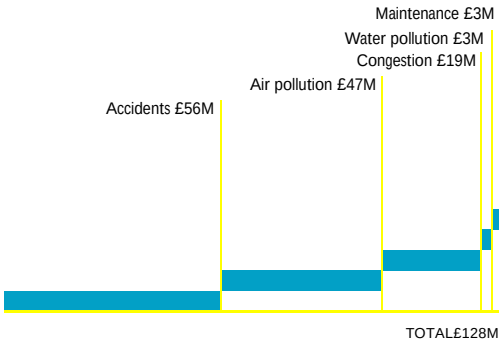
The Brighton Main Line is one of the major commuter routes, carrying approximately 10% of the total rail-borne peak-morning traffic into London

Brighton Main Line

The Brighton Main Line is one of the major commuter routes,carrying approximately 10% of the total rail-borne peak-morning traffic into London. We propose, in this NMS, an enhancement scheme that focuses on the capacity and network performance constraints which currently limit growth at peak times.The project is complicated by the density of the rail network in this region and, therefore, requires substantial partnership investment.The financial case for investing in increased capacity and reduced journey times is strengthened by the environmental benefits of shifting the forecast increase in commuter traffic. Savings are apparent on congestion costs, reducing the health impacts and damage to the local environment caused by air pollution. Moreover, rail is safer than road travel. Switching to rail reduces the risk of serious injury and death, thereby saving society accident costs. The table below gives an indicative value of non-user benefits that might be created given that capacity enhancements would shift the projected increased traffic to rail.

**Brighton Main Line.
Quantification of potential non-user benefits**

Source:Analysis by OXERA Environmental Ltd

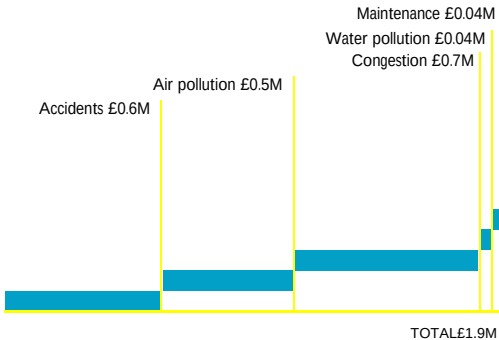


Walsall–Rugeley Electrification Scheme

Centro has proposed the electrification of the line between Walsall and Rugeley.This enhancement project will reduce journey times and allow increased passenger services. Central Trains wishes to provide services for a growing market along this route, although this requires infrastructure improvements.The costs of capacity expansion through electrification and resignalling will be partly recovered through increased revenues, but this will still leave a financial shortfall.The environmental benefits of transporting the increase in passenger miles by rail instead of road will offset this shortfall.In this example, the main savings are reduced accident,congestion and air pollution costs.The table below gives an indicative value of non-user benefits that might be reflected given the capacity enhancements that would be created.

**Walsall–Rugeley Electrification Scheme.
Quantification of potential non-user benefits**

Source:Analysis by OXERA Environmental Ltd



We will move towards a more collaborative approach starting with a National Train Planning Conference

6.8 Timetabling

With an increasing demand for use of the network, we must ensure that the existing, and future, capacity is efficiently allocated through an effective timetabling process. The Rail Regulator has recently approved our proposals for change to Access Condition D which governs this.

With the development of the May 2000 timetable planned for this year, we move away from the potentially combative bid and offer process where train operators' bids are kept secret until the last minute. In the past this gave us a limited window to assess the implications for identifying optimal solutions and the true performance impact of options available.

Instead, we will move towards a more collaborative approach starting with a National Train Planning Conference which will operate along the lines of the International Air Transport Association airline-slot allocation meeting. Over a period of three days, train operators will discuss with us their aspirations for the following year. We have also developed a code of practice detailing the mechanism for the handling of requests for access rights prior to the commencement of the timetabling process.

At the Conference, all of our Zones will be represented. We plan to convene multi-Zone line of route discussions with train operators in order that we can identify, at a very early stage, likely 'hot spots'. The teams will then jointly develop a plan to produce a fully operable 'draft' timetable over the following 14 weeks. At agreed milestone dates, we will present standard-hour models to demonstrate how the development work is progressing. In the case of new services, this will be accompanied by appropriate results from network congestion models.

This new collaborative approach will enable operational planning teams to develop a range of timetabling options rather than the present one solution, offering more optimal paths and potentially reduced journey times including the impact of scheduled engineering work on the availability of the network for train services and assesses the true performance impact of the whole timetable package. Our aim will be to minimise both the impact of engineering work on our customers' services and minimise the performance risk of the timetable. During the 14-week drafting stage, our Area Delivery Groups will be involved in reviewing the timetable options, and account teams in agreeing with customers commercial terms for any new access rights.

6.9 Investment packages

How this Plan is structured to meet industry vision and needs

The ten-year plan set out in this Statement is structured to meet our vision, and that of our customers, funders and other partners. It provides a bold agenda to deliver step changes in the capacity and capability of the network. It sets out our funding assumptions, and provides a summary of the main schemes which we propose. More details of the schemes, and how they have been set within the context of customer-reasonable requirements and the Route Strategies, are then set out in the route sections of this document.

Risk and return

As part of his current periodic review, the Regulator has provided a challenge to Railtrack to indicate not only what we believe the right strategic plans are for developing the industry, but also how we could share more of the demand risk involved. We welcome this opportunity. This Network Development Plan sets out our proposals in the investment area.

All investments involve various types of risk.

- Construction risk – the risk that the costs of the project will exceed the budget and/or forecast completion date.
- Counter-party risk – the risk that the party funding the project will not be able to meet its obligations for reasons not related to the project.
- Functionality risk – the risk that, even though completed, the investment is incapable of delivering its intended outputs.
- Demand risk – risk that the demand generated by the project will not meet forecast levels.
- Regulatory risk – risk as to how the investment will be treated by the Rail Regulator at future reviews of access charges.

We are ready to invest the significant capital needed to deliver the outputs, and to take on the associated market risks

In establishing a categorisation of schemes for discussion with partners and other stakeholders, we have considered two fundamental issues.

- Whether we expect to be sufficiently in control of the sale of outputs, with the value of sales linked to end-user demand.

If so, we propose that the arrangements we enter into with the user should be capable of reflecting a transfer of an appropriate amount of the demand risk to us, and that we should be able to earn a corresponding higher return on the capital invested, subject to the overall success of the scheme. Where this is not possible, either because the transaction costs of establishing a satisfactory risk transfer outweigh the benefits of such an arrangement, or because of the nature of the outputs is such that it is difficult for us to effectively control their use, we propose a 'contractor' model in which we continue to invest and retain construction risk, but recognise that we would earn a standard rate of return.

- Whether we and our customers are likely to be able to establish a financially viable business case for each investment without public sector funding.

Where we believe this to be the case, this Plan assumes that we will conclude an agreement based on the features described in the paragraph above. We plan to deliver such schemes without the need for agreements with public sector funders to provide additional financial support. Where a viable business case cannot be established on this basis, but the proposal provides outputs which enhance the capability or capacity of the network to meet our forecasts of underlying volume growth potential and/or customer- and funder-reasonable requirements, we will need to agree the funding of the commercial deficit. However, the need for additional funding does not of itself lead to a position where we could not take demand risk. On a scheme-by-scheme basis, the features described under the first criteria will still apply to varying degrees and the partnership arrangement involved in each case will be established to allocate appropriate shares of risk.

Explaining the packages

On the following page, we give a summary of the enhancement proposals that we intend to deliver to achieve our vision. These represent a significant increase in investment, compared to our previously published plans. These schemes, and the public sector implications, require us to conclude arrangements with the Government and the Regulator about the framework which allows us to share more in long-term demand risk and which also reflects the choice of options for network enhancement that require additional funding. We look forward to its completion during 1999 so the results can be reported in the 2000 NMS.

The costs set out in this Plan are our current best view but will be subject to refinement during the detailed scheme development stages.

To simplify presentation, we have categorised proposed schemes as described opposite. These categories represent our view of how each sits against the criteria of risk-sharing and funding requirements. The categories are carried through into the relevant part of the routes section of this document.

Way forward

We believe all of the enhancements set out in this Plan are a part of the total necessary to deliver our vision and our customer- and funder-reasonable requirements. Further schemes for later years of the ten-year plan will be developed as our understanding of the growth profile emerges.

We are ready to invest the significant capital needed to deliver the outputs, and to take on the associated market risks.

We shall work with the Shadow Strategic Rail Authority and the Rail Regulator to devise the frameworks necessary to allow this all to happen.

Table A Enhancement expenditure (£M – 1998/99 prices)

TYPE OF ASSET	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Track	40	70	150	510	360	420	260	180	180	170	120
Structures	30	40	50	260	460	390	180	130	180	160	130
Signalling	30	45	80	230	350	290	240	180	150	130	140
Electrification	10	60	60	120	120	130	80	25	20	35	55
Plant & Machinery	5	20	10	10	10	10	10	0	0	0	0
Telecoms	10	10	5	0	10	10	0	0	0	0	0
Stations	160	170	135	390	420	440	380	525	425	320	320
Depots	20	20	5	10	15	0	0	0	0	0	0
Other	5	5	5	10	15	20	10	0	0	5	5
TOTAL	310	440	500	1540	1760	1710	1160	1040	955	820	770
1998 NMS	130	220	530	430	530	420	320	180	210	220	n/a

Table B Network development packages (1999/2000–2008/09)

Feasibility, third-party and other unspecified or minor schemes

Package 3 – Contractor

These schemes are generally unsuitable for us to take any demand risk, although we would take appropriate construction risk. Many of these projects are station schemes

Package 2 – Partnership

These are also schemes where we wish to take demand risk but they require agreement with a funder for 'pump priming' investment before they can proceed.

Package 1 – Commercial

These are schemes that do not require public sector funding and in which we have sufficient control of the outputs to be able to take long-term demand risk. They require no up-front agreement with any public sector body – other than understanding of their treatment for regulatory purposes

Committed in last year's NMS

These are schemes that have yet to be completed but which were firmly committed in last year's NMS.

Renewals expenditure

Maintenance expenditure

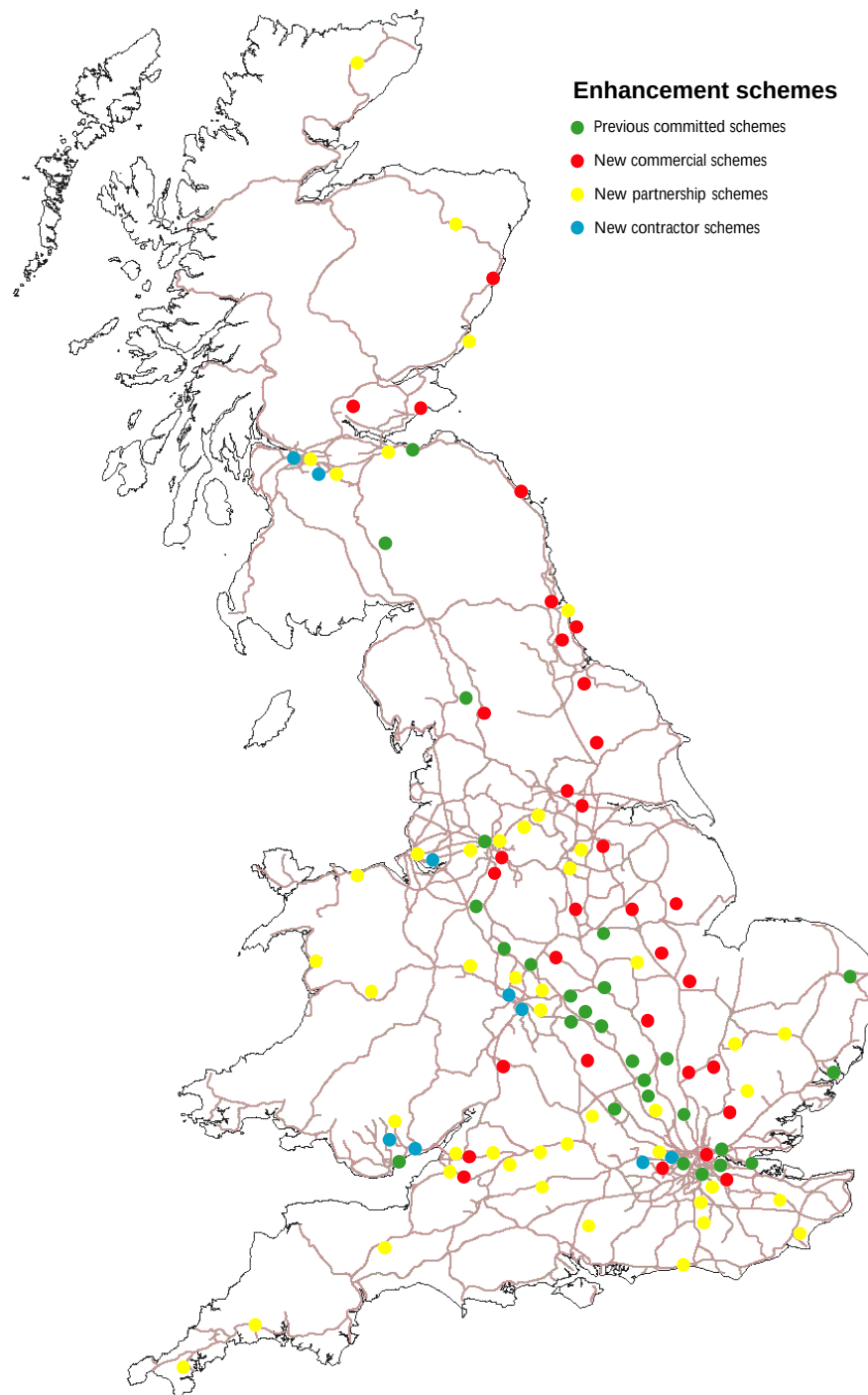


6.10 Network development – summary of investment proposals and principal schemes (enhancement expenditure 1999/2000–2008/09)

TYPE OF SCHEME	ESTIMATED CAPITAL COST (£M)*
In last year's NMS	
● Thameslink 2000	800
● WCRM PUG 1 and PUG 2	675
● Paddington Station enhancements	80
● Waterloo Station enhancements	22
● Freight enhancements	16
● Edinburgh Station enhancements	16
● London Victoria Station enhancements	11
● Luton Parkway new station	8
● Dartford resignalling	7
● Cardiff Central Station enhancements	5
● Other	127
TOTAL	1767
Commercial	
● East Coast Main Line upgrade	750
● London–Stansted upgrade	130
● Southern link to Heathrow	100
● Manchester to Crewe capacity	100
● Virgin Trains CrossCountry journey-time and capacity	80
● Waterloo to Fawkham Junction enhancements for CTRL	65
● Manchester Piccadilly Station enhancements	21
● Freight routeing: Settle–Carlisle	15
● New freight depot Aberdeen (Raithes Farm)	8
● Midland Main Line journey-time improvements Phase 1	5
● Other	134
TOTAL	1408

* These cost estimates vary in accuracy from firm prices through detailed design estimates to indicative feasibility assessments. The cost of each scheme will be refined as it is progressed. Total enhancement spend is based on a top-down estimate of the investment required to deliver 30% growth in passenger miles and a tripling of freight traffic by 2008/09. The schemes identified are those currently envisaged to deliver the majority of that growth. However, we would not expect the inclusion or exclusion of a specific scheme to affect the total enhancement required.

TYPE OF SCHEME	ESTIMATED CAPITAL COST (£M)*
Partnership	
● Northern access to Heathrow	450
● Freight routeing strategy	400
● East West Rail Link	240
● London commuter area capacity	200
● Freight gauging improvements	200
● Coventry–Birmingham capacity	200
● Brighton Main Line capacity	160
● Oldham Loop LRT	120
● Sheffield area capacity	100
● Central Manchester capacity	100
● Nuneaton–Walsall/Birmingham electrification	100
● Great Western Main Line journey-time improvements	70
● Glasgow Airport rail link	50
● North Trans-Pennine capacity	40
● ScotRail Express journey-time improvements	37
● Walsall–Rugeley electrification	35
● Tyne & Wear Metro extension to Sunderland	31
● West of England journey-time improvements	25
● Larkhall–Milngavie new service	24
● Manchester Airport capacity and interchange	23
● Merseyside electrification extension	15
● Rhymney Valley capacity	12
● Barmouth Viaduct weight limits	10
● Other	914
TOTAL	3556
Contractor	
● Modern Facilities at Stations	1300
● Platform-stepping distance	900
● Disabled access improvements	300
● West Midlands reopening closed routes	75
● Colnbrook Euroterminal	22
● Merseyrail underground stations	19
● Old Oak Common depot enhancements	19
● Barrhead–Kilmarnock capacity	7
● Other	82
TOTAL	2724
Feasibility	100
Third-party and unspecified or minor schemes	1145
TOTAL	10700



6.11 Schemes being developed

NAME AND DESCRIPTION OF SCHEME	TIMESCALE	COST (£M)*	ROUTE STRATEGY
East Coast Main Line upgrade Provision of additional capacity throughout the route and through upgrading and reopening parallel routes. Increased line speeds and changes to infrastructure to accommodate tilt trains. Renewal of signalling equipment	Phase 1 (Leeds) 2001 Phase 2 2004 Phase 3 2009	1000	2
Northern access to Heathrow Capacity increases Airport Junction–Paddington–St Pancras services–Hayes Hub	200	561	3 26
Freight routing strategy and gauge enhancement We are clearing the WCML to W10 gauge and have submitted a proposal to the Department of Environment, Transport and the Regions (DETR) to extend this from London the Channel Tunnel. Further proposals will be developed later this year.	Up to 2005	In a range from 100 to 500	Various
Great Western routes Train Signalling A strategy to extend the life of existing installations until the TCS can be introduced to provide additional facilities to meet to meet customers' needs, improve performance and reduce maintenance costs. Targeted renewals in the interim will improve performance and ensure that safety standards are maintained. Phase 1 Slough–Bristol–Oxford; Phase 2 Bristol–Swansea–Gloucester	Phase 1 Completion currently planned for 2008/09 Phase 2 Completion currently planned beyond 2008/09	Currently assessed at: Phase 1 — 175 Phase 2 — 160	3 7
East–West Rail The East–West Rail project involves reopening the route between Cambridge and Oxford via Letchworth, Sandy, Bedford and Bletchley. This will make many new rail journeys possible without the need to travel via London. We have been developing the scheme with 25 local authorities. Grant funding will be a key issue in the development of this project. Phase 1 is likely to be Bristol–Oxford–Bletchley–Bedford.	Phase 1 2004	240	27
London–Stansted upgrade Renewal of signalling equipment at the south end of the West Anglia network improving line capacity, speeds and track layouts to enable additional services to operate	1999–2004	237	15
London Bridge area signalling and track renewals Driven by the Thameslink 2000 project, an opportunity exists to renew substantial parts of the London Bridge signalling centre, co-ordinated with Thameslink 2000 works in the area	2006	222	6 19
Midlands urban network Increase in Coventry–Birmingham capacity	2006	200	1
London commuter-area capacity Network changes to accommodate longer and potentially double-decker trains	2003–09	200	6 18 19 21 23
Linespeed improvements Scottish Express Great Western Main Line Midland Main Line West of England	2002–08 2003 2001–06 2003	37 72 25 25	14 3 5 4
Brighton Main Line capacity Infrastructure enhancement to increase capacity at Clapham Junction, East Croydon and Gatwick Airport	2004	156	10
Manchester Piccadilly–Cheadle Hulme Renewal of signalling equipment and increased capacity	2004	150	1

* Total cost including renewal and enhancement expenditure

NAME AND DESCRIPTION OF SCHEME	TIMESCALE	COST (£M)*	ROUTE STRATEGY
Paddington Station Various enhancements to the station concourse and retail areas	2003	122	3
Oldham Loop Conversion to Metrolink operation	2001	120	33
King's Cross Station Mezzanine retail development	2007	101	2
Sheffield-area capacity Increases in capacity between Dore Junction, Sheffield Station and Swinton	2009	100	13
Southern access to Heathrow Provide southern access to Heathrow	2007	100	23
Central Manchester capacity Increased capacity to reflect emerging customer and market needs	2005	100	32
CrossCountry capacity and journey-time improvements Infrastructure alterations to increase speeds and to permit operation of tilt trains	2005	80	7
Reopening of closed routes Provide new services in the West Midlands area	2006	75	30
North Trans-Pennine Route linespeed and capacity increases These improvements will be through staged timetable changes in 1999, 2000 and 2002. Opportunities to facilitate further journey-time reductions may be explored as part of a later phase of infrastructure enhancements by 2008.	1999–2008	55	8
East Kent Renewal of signalling in North and East Kent with opportunities for improving capacity	2009	50	18
Glasgow Airport link New rail link from Paisley to the airport	2005	50	39
Leeds Station Major enhancement to station facilities including roof, footbridge, car park, subway and new platforms	2001	35	8
Walsall–Rugeley electrification Extension of electrification to this route and alterations to signalling equipment	2005	35	30
Glasgow Central signalling equipment renewal Renewal of signalling equipment. This will improve reliability and increase flexibility of the existing track layout	2003	31	1 39
Sunderland–Tyne & Wear Metro extension Extension of the Metro network from Pelaw to South Hylton along eight miles of our infrastructure. The scheme will be undertaken with NEXUS and a European Regional Development Fund (ERDF) grant	2002	31	37

* Total cost including renewal and enhancement expenditure

NAME AND DESCRIPTION OF SCHEME	TIMESCALE	COST (£M)*	ROUTE STRATEGY
Portsmouth area Renewal of signalling equipment	2006	27	1
North London Line Renewal of signalling equipment	2007	25	26
Colchester–Clacton Renewal of signalling equipment	2005	24	16
Larkhall–Milngavie new service Possible new train service over reopened branch line south of Hamilton providing increased frequency of service through central Glasgow to Milngavie	2001	24	39
Manchester Airport Increased capacity and multimodal interchange facilities	2002	23	1
Basingstoke–Farnborough resignalling Renewal and life extension of signalling equipment in the Basingstoke-Farnborough area	2008	20	1
Alton Line Renewal of signalling equipment	2009	19	21
Glasgow–Gourock–Weymass Bay route renewals Renewal and enhancement of infrastructure on the route, driven by the condition of signalling, overhead cables and telecoms equipment. Capacity improvements and junction rationalisation are being undertaken	2005	19	39
Colnbrook Euroterminal New rail freight facility close to Heathrow Airport	2004	19	3
Dorset coast resignalling Renewal or life extension of signalling equipment in the Bournemouth area	2002	15	21
Merseyside electrification extensions Possible extension of Merseyrail electrified networks Bidston–Woodchurch	2005	15	12
Rhymney Valley capacity enhancement Resignalling, remodelling and track improvements to improve journey times and capacity, subject to external funding. The scheme is subject evaluation	2004	14	28
Cardiff Central Major station refurbishment programme, additional platform and improvement to the station approach	1999	13	3
Tay Bridge Refurbishment to protect and capacity over the 85 individual structures which together form the Tay Bridge. We are also evaluating options for further work to enhance freight train capacity	2006	12	14
Horsham resignalling Renewal of signalling equipment	2003	12	19
Camden–Dalston Electrification scheme	2006	12	26
East Midlands Parkway Station Major new parkway station close to M1 and East Midlands Airport	2002	11	5

* Total cost including renewal and enhancement expenditure

NAME AND DESCRIPTION OF SCHEME	TIMESCALE	COST (£M)*	ROUTE STRATEGY
Victoria Station Ticket barrier, retail and airline check-in	2006	11	19
Barmouth Viaduct Renewal works and reopening of the viaduct to loco-hauled trains	2002	10	11
Allerton interchange station Proposed new interchange station linking Merseyrail with long-distance train services	2001	9	1
Peterborough Station development Station redevelopment and improved car parking	2003	8	2
York Station and car park Provision of enhanced facilities at the station and of additional car park	2003	8	2
Medway Valley resignalling Renewals of signalling equipment	2007	8	18
Stockport Station Development of station	2003	5	1
Feltham–Wokingham-area resignalling Renewal or life extension of signalling equipment, in line with the emerging strategy for South West access to Heathrow Airport	Beyond 2009	5	23

* Total cost including renewal and enhancement expenditure

7 Developing freight services

- 7.1 Progress in 1998
 - Table A – Review of customer requirements
 - Table B – Trends in freight activity
- 7.2 Customer requirements
- 7.3 Market growth
- 7.4 Routeing strategy
- 7.5 Gauge enhancement
- 7.6 Terminals and mothballed routes
 - Table C – Loading gauge classification
 - Table D – Programme for gauge enhancement
 - Table E – Progress with gauge enhancement
 - Table F – Potential routes for reopening
 - Table G – Freight volume, income and costs
- 7.7 Progress with our Ten-Point Plan
- 7.8 Environmental benefits
- 7.9 Summary
 - Table H – Summary of freight specific enhancement investments



This section describes our plans for the development of freight services. We set out the results of our work to understand our customers' requirements and accommodate their forecast demands – a threefold increase in freight traffic over ten years. We describe the work we have done on the freight route strategy, including the evaluation of alternative routes between London and Scotland. We set out our strategy for gauge enhancements including development of a higher W10 gauge on a network of key routes which mirror the motorway network. We have submitted an application to the Department of Environment, Transport and the Regions (DETR) to fund introducing this gauge between London and the Channel Tunnel.



Volume overall...
grew by 12% last
year and we expect
a similar increase
this year

7.1 Progress in 1998

In last year's NMS, we challenged ourselves and our partners in the freight industry to increase rail in the freight market and freight in the rail market. Early results are encouraging. Volume overall, when measured in gross tonne-kilometres, grew by 12% last year and we expect a similar increase this year. Our customers have begun to introduce new locomotives and wagons, increase their share of traditional rail freight markets and develop new ones. Together we are developing new freight terminals and bringing disused facilities back into use.

In addition, we welcome the recent publication of the Sustainable Distribution document by DETR. It contains a number of important developments which will help set the scene for the further growth of the rail industry.

We are pleased to be part of this renaissance in rail freight. We have started to increase the loading gauge on certain key routes so that the industry can address more of the intermodal market. We have streamlined the processes for developing projects and are introducing new equipment to make it easier for our customers to introduce more innovative services. In the last year, more than 100 certificates for freight equipment have been approved by our Rolling Stock Approvals Board, with the introduction of the Class 66 locomotive and the UK-built steel-coil wagon by English, Welsh & Scottish Railway (EWS), and the Class 57 locomotive and new intermodal wagons by Freightliner being particular highlights.

We have reduced the number of delays that we cause to freight trains by over 10% and have developed extra paths on the network whose departure, arrival and transit times more readily meet the market's future requirements. We have become more flexible in meeting customers' requirements by modifying our timetabling procedures to allow them to run more trains at short notice. Over the past two years, the number of freight trains run on short-term schedules has risen by 50% and is now more than half of the total, with a particular increase in trains run at less than 48 hours' notice.

These developments have been achieved largely within the current capacity and capability of the network. Spare capacity remains, for the time being, on most routes and we have identified a number of additional paths on key freight corridors. But, if our customers' market forecasts are to be

achieved, we will need to continue to invest in the infrastructure in anticipation of market demand as well as seek timetabling solutions to accommodate growth in both passenger and freight traffic.

However, in assessing the future, we must sound a note of caution. Some of the recent growth has been in traditional rail freight markets where the increase has been in distance rather than tonnage. Growth in the net tonnes carried has been more modest. The rail industry has not yet made significant advances into the core road freight markets. And, together with other industry parties, we have more work to do in developing a mechanism to keep our track access charges affordable and above our avoidable costs, while simultaneously investing to meet the longer-term market requirements.

7.2 Customer requirements

Over the past six months, we have been working closely with our customers to develop the rail freight market.

This work has included:

- a joint understanding of the market potential. We have used our customers' forecasts in this NMS to assess the potential demand for additional capacity and for improvements in capability of the network.
- a review of the economics of carrying rail freight on the network today which we have shared with key stakeholders.
- reviewing a wide range of operating and development issues. From this work, we have identified a number of areas where we can make further improvements and have agreed targets with our customers to measure our progress.

Overall, our customers have formally identified 194 requirements. We have agreed a way forward on 161. Of the outstanding issues, 14 will be covered by the standard industry processes, or by us providing further information to support our views, eg indicative timetables of future capacity on particular routes. We are developing plans for the remaining 19, having discussed them further with our customers and the Rail Regulator. We have referred to the key points in Table A opposite.

Our customers currently operate around 1,600 freight trains a day on our network for more than 500 individual traffic flows

Table A Review of customer requirements

REQUIREMENT	AGREED	BEING DEVELOPED
Completed	6	0
Process improvements	35	9
Performance	26	2
Track quality	3	1
Track access	9	0
Renewals	5	0
Enhancement feasibility	69	20
Enhancement commitment	8	1
TOTAL	161	33

Table B Trends in freight activity by commodity (millions of gross tonne-kilometres)

COMMODITY	1994/95 ACTUAL	1995/96 ACTUAL	1996/97 ACTUAL	1997/98 ACTUAL	1998/99 FORECAST	GROWTH % PA LAST TWO YEARS	GROWTH % PA NEXT FIVE YEARS	GROWTH % PA NEXT TEN YEARS
Coal	6899	6840	6711	8117	9931	22	0	0
Metals	3625	3722	4193	4531	4420	3	17	6
Construction	3709	3467	3004	3389	3871	14	10	6
Oil & Petroleum	3492	3331	3199	3265	3316	2	12	2
International	1183	2037	2311	2829	2801	10	41	15
Domestic intermodal	5009	5974	6294	7144	9088	20	15	9
Other	7713	6346	6909	7281	9915	20	39	17
TOTAL	31630	31717	32621	36556	43342	15	18	10

Source: Actual – Railtrack/Freightliner Forecast – DRSEWS
See freight growth graph in Section 6.3

7.3 Market growth

Our customers currently operate around 1,600 freight trains a day on our network for more than 500 individual traffic flows, many of which run at least once a day.

The background assumptions on market growth that we made last year remain valid. These include service improvements and cost reductions by Railtrack and the freight operators, some policy encouragement from the Government to shift freight to rail and no fundamental changes to the industry's structure.

The short-term results are in line with expectations. As shown in Table B above, a smaller volume of (imported) coal is being moved over longer distances and remains the largest rail freight activity; international and intermodal traffic are increasing rapidly and there has been good progress in other areas.

We have used our customers' forecasts for the next ten years, supported by the recent policy initiatives from the DETR, in planning the requirements to develop the network. These are also included in Table B and are about three times greater than the most recent industry-wide forecasts produced on behalf of the Rail Regulator in 1997. From this work, we have confirmed that the industry could achieve further annual growth in overall volume of at least 15% over the next five years. This growth could come, for example, from an increase of up to 200% in some current markets and from more than 200 new flows coming onto the network.

We can accommodate all forecast demand for at least the next five years

This forecast would represent a tripling of rail freight activity by 2009 from the base level in 1996, against a background of sustained decline since the war.

Of the forecast:

- international traffic is expected to more than triple and become 10% of all rail freight activity.
- deep-sea intermodal is set to increase by 150% to 20% of the total market.
- new business yet to be won to rail needs to increase fivefold and become 40% of the total.
- about 10% of the increase would result from an improvement in the network's capability with three-quarters of that due to improvements in the loading gauge.

However, achieving this growth will require a reappraisal of the economics of operating and investing in rail freight. We do not expect customers to be able to commit to using current or new capacity well in advance of them securing additional traffic. It would meet the Government's policy objectives if we could keep our track access charges low, to encourage more freight by rail. This was the essence of the track access contract that we developed with EWS in 1997. Since then, rail freight volumes have increased by 12% a year while our income has grown at 2% and, in line with the policy set by the Rail Regulator in 1996, our freight business has recovered its avoidable costs in aggregate.

Committing large sums of money to capacity which is needed a long time in the future, based on high-growth forecasts, is imprudent, particularly when the economics are unattractive to the investor.

We are discussing this major issue with the industry's stakeholders, especially in the light of the proposals outlined in the Sustainable Distribution policy document (see Section 1.6). For planning purposes, we have assumed that current track-access rates will continue.

7.4 Routeing strategy

Together with our customers, we have analysed their expected increase in demand by source and destination, route section, speed band and time of day, including the benefits of improvements in the network's capability. We have then compared this demand with the current capacity and capability of individual routes and the anticipated growth in passenger traffic.

We have confirmed that we can accommodate this forecast demand for at least the next five years across the network. Looking ahead ten years, we have committed to our customers that we can carry their forecast volumes of freight together with all declared passenger requirements within our existing capacity and planned investments on 38 of our 45 routes. In total, these cover 60% of current and half of future traffic volume. We are now developing detailed timetabling solutions to confirm this conclusion.

The remaining seven routes carry significant existing freight, and the majority of the growth. So, we have looked in more detail at:

- growth on the key, longer-distance routes which handle the majority of traffic. These are the West Coast Main Line (WCML) including its connecting branches, the East Coast Main Line (ECML), the Great Western Main Line (GWML), the North London Line, the Glasgow and South Western Line (G&SW), the Midland Main Line (MML), routes between London and the Channel Tunnel, connections between Southampton and the WCML and routes via Birmingham connecting Derby to Reading and Bristol.
- a number of key multiroute flows which account for around 40% of current volume, 60% of the forecast increase and, therefore, more than half of the volume expected in 2009. These flows include Scotland to East Midlands coal, traffic via the Channel Tunnel, the development of the Enterprise network, the Royal Mail business, deep-sea container traffic, domestic intermodal business, and steel traffic within and to and from South Wales and the North East.

- the impact of these flows on several key locations on the network including Leeds, Manchester, Leicester, the West Midlands, Reading, the North London Line and the West London Line.
- the effect on our existing routes of the construction of the Channel Tunnel Rail Link (CTRL) and the opportunities to use it for freight.

From this work, we expect to be able to carry our customers' forecast freight volumes on these seven routes for the next five years, together with all declared passenger requirements. We are now producing indicative timetables for our customers to confirm this conclusion, although, inevitably, forecasting five-year timetables cannot be done with certainty.

To accommodate the highest growth forecasts on these routes for all ten years, we propose the following:

WCML corridor

Under the PUG 2 agreement, we committed to providing an additional 42 paths for passenger and freight. In the past two years, the number of freight paths used on the WCML has stayed static at around 40, while our freight customers are forecasting a demand for more than 150 on some sections by 2009. The West Coast Route modernisation works include, at the south end, the provision for an increase in train length by around 40% which will help accommodate some of this extra demand. To provide a robust solution, we have to finalise one of three options.

- Further investment in the WCML to accommodate all customer requirements which would involve substantial extra track work at a cost of at least £400M. We do not expect the traffic to be able to support this investment; it would have to come from grant funding.
- Displacing some of freight's requirements to other routes such as the MML or an orbital route that avoids London. Some further investment would then be required on those routes.
- Further restructuring of the timetable for all the lines and all operators at the south end of the WCML which could release further capacity for freight.

We will have finalised our proposals with customers and other stakeholders by July 1999, not just for the WCML but also for parallel routes such as those in Route 38.

Additional capacity along the ECML Corridor

Freight operator requirements – in terms of capacity, capability and funding – are being incorporated into the upgrade of the main route. This will include the provision of a mainly four-track corridor from London to Newcastle. To achieve this, we will use some parallel routes and reopen the Leamside Line in Durham. At a number of locations, we will create grade-separated junctions to minimise conflicts between train movements. Full details are set out in Route Strategy 2.

Felixstowe Port traffic

We propose to transfer port traffic to a cross-country route via Peterborough and Leicester to the WCML at Nuneaton by 2004 to reduce volume on the Great Eastern (Route 16) and North London Line (Route 26). We also intend to enhance the gauge of this new route. We expect to have proposals by July 1999. They will require grant funding.

London-area capacity

We shall create additional capacity between the eastern end of the GWML (Route 3) and between Acton and Cricklewood along the west end of the North London Line. This would accommodate freight requirements, together with a possible increase in passenger traffic. We will evaluate options with all our customers during this year.

Southampton Dibden Bay Container Port

If the Dibden Bay development proceeds in 2004, we may not be able to accommodate all train-movement forecasts in the Southampton area (Route 21) and at Reading (Routes 3 and 4). We will carry out feasibility work later this year to assess whether the projected train movements can be accommodated and, if not, what would be required to accommodate them.

These plans will include the creation of a third major route between London and Scotland

Channel Tunnel–London

We shall finalise the options for freight traffic between the Tunnel and London during the construction phases of CTRL.

While we have begun to identify the nature of this enhancement investment on these key freight routes, and in several cases started further feasibility work, we are not yet able to meet our customers' requirements to commit to all of them in detail at this stage.

In addition to this work on the key routes, we will also increase the capability of particular routes to improve the competitive position and operating performance of the traffic that they are expected to handle, for example, by enabling them to handle longer, heavier and faster trains. We are launching 'Project Elephant' jointly with EWS to assess the opportunities for customers to run heavier freight vehicles on parts of the network.

Priority freight routes

These plans will provide the needed capacity for freight on existing long-distance routes for several years. However, we would like to do more by developing a network of primary routes for freight traffic and by reopening some important freight links to the network. These plans will include gauge enhancement of a network of routes, the creation of a third major route between London and Scotland, and the reopening of several freight branch lines. We will also be bringing forward plans for developing rail freight within and through the West Midlands conurbation.

Our plans for a third Anglo-Scottish route are based on the GSW (Route 38), the Settle and Carlisle Line (S&CL) (Route 36), the MML (Route 5) and the existing route to the Channel Tunnel via Maidstone (Route 6) which will be a primary freight route when the Eurostar service is transferred to the CTRL. We are currently working on options for the two key gaps in this route which are between the MML and the S&CL and around London. We have made good progress in examining, with Derbyshire County Council and its partners, the options to reopen the section of route between Matlock and Buxton to provide an alternative route between London, the Midlands and North West England.

7.5 Gauge enhancement

The current capability of the network is shown in Section 5.5. During the last year, we have continued to raise the gauge of a number of individual route sections and started a programme to assess the potential of the network to accommodate higher-gauge traffic. More than 300 route kilometres have been moved to higher-gauge categories (details are set out in Table E on page 91).

We have also begun to implement our plans to raise the loading gauge further on a network of key routes.

These include:

- the WCML from London to Glasgow including connections to Birmingham, Manchester and Liverpool.
- two routes from the Channel Tunnel to London.
- routes from the major container ports of Southampton and Felixstowe to join the WCML in the Midlands.
- the GWML from Cardiff to London making a connection to the Channel Tunnel.
- a Trans-Pennine route.
- in addition to developing our upgrade scheme for the ECML, we plan to increase the main-line gauge of both freight primary routes to W10.

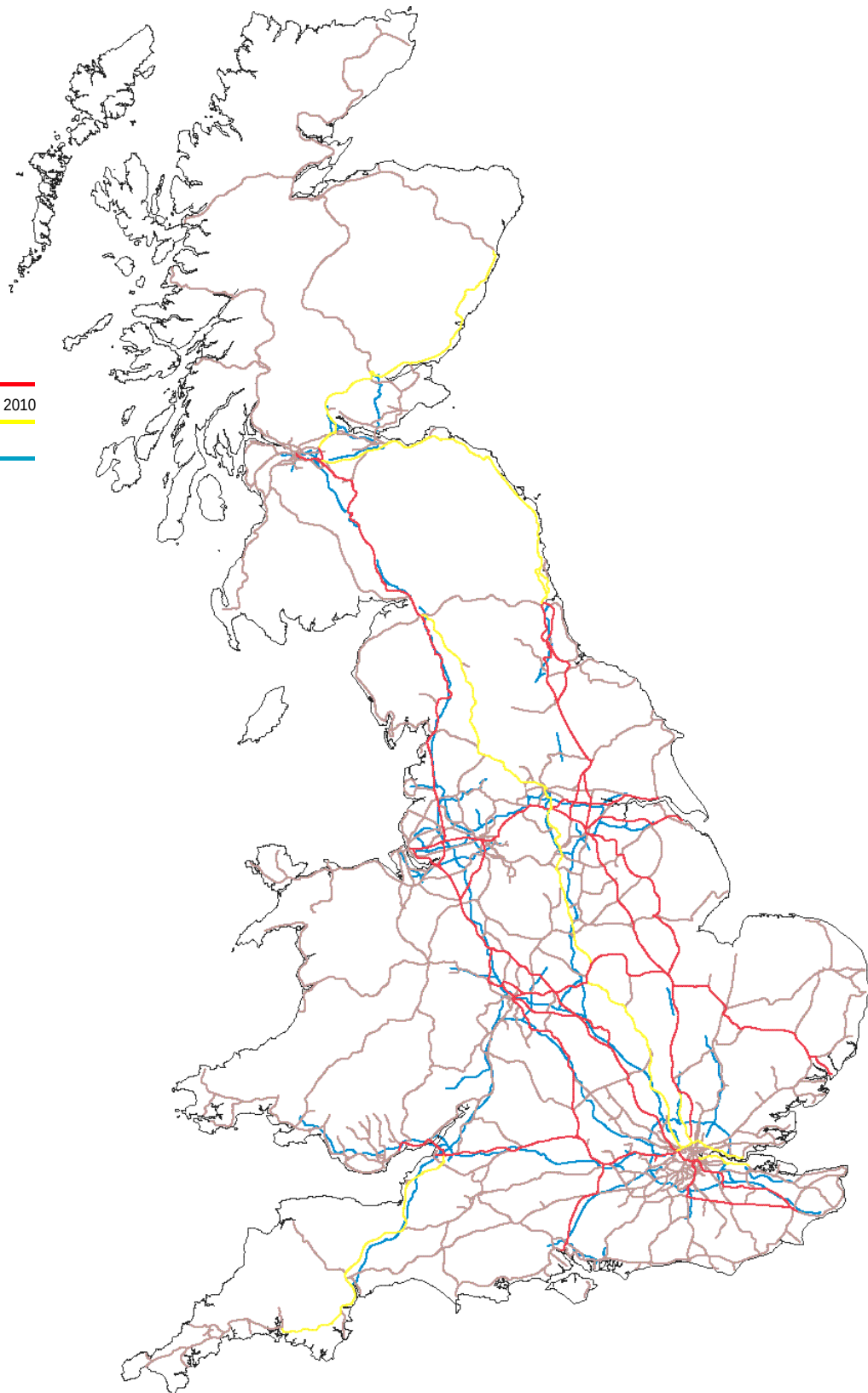
Our objective is to clear these routes initially to accommodate 2.5m-wide loads and to a height greater than UIC A gauge, the commonest gauge in Europe and 25cm higher than the W6A exception gauges for which 60% of our network is currently cleared. These increases would accommodate all the current intermodal W9 market on existing wagon designs and also allow the industry to address more of the road haulage market in piggyback mode with the new wagon designs that are now being introduced. However, where it is necessary to alter a structure, we will seek to clear it to accommodate 2.6m-wide refrigerated units and to a height equivalent to more than UIC B gauge which would allow specially adapted road trailers up to 4m high to be carried on new wagon designs. This will pave the way for the later development of this higher gauge on specific route corridors such as between the Channel Tunnel and Scotland.

**Proposed gauge
enhancements**

W10 gauge by 2005

Additional enhancements by 2010

Motorways



We will have completed the core WCML clearance to W10 gauge without grant funding by December 1999 with the first phase from Daventry–Scotland available from July 1999

At the same time, we are tidying up the nomenclature used to describe the loading gauge (see Table C opposite).

We will have completed the core WCML clearance to W10 gauge without grant funding by December 1999 with the first phase from Daventry–Scotland available from July 1999. We have submitted a funding proposal to the Department of Environment, Transport and the Regions (DETR) to clear two routes between the Tunnel and London to W10 gauge by 2004 with the affected structures moved to W11w gauge in anticipation of the later development of a W11 gauge. This will include a joint programme of work with Union Railways to clear sections of the route between Ashford and the Channel Tunnel to W11w gauge in parallel with the development of the CTRL.

Completing the rest of the programme is dependent on our agreeing further partnership arrangements with DETR. Our proposed programme is set out in Table D (opposite).

We are now reviewing the timescales to see how we can deliver the W10 network much more quickly including extension of the network to include the ECML.

When we have finished this programme, at least 1,892km of the network will be available at W10 gauge as shown in the map on page 89.

Elsewhere, we will continue to clear individual route sections for particular traffic flows in response to customers' requests. To speed up this process, we have launched a nationwide project to assess in greater detail all routes, and the 400,000 structures over them, and to ensure that clearances of more restricted structures are maintained.

7.6 Terminals and mothballed routes

We are continuing to work with a number of parties to develop more freight terminals and to reinstate disused facilities. We have also secured a number of sites and mothballed route sections that are likely to be of benefit to rail freight in the future. Last year, the number of active freight terminals was increased by 20 to 1,055. Particular features have been:

- for the Royal Mail, the completion of the core Railnet network with the opening of new terminals in Warrington and Shieldmuir and the commencement of work at Bristol Parkway. We have also started to develop plans at Peterborough.
- the reopening of the Gedling, Heathfield and East Leake branches to freight traffic.
- the return of rail freight for the first time in years to locations such as Pembroke Dock, Paignton, Hicks Lodge, Rawdon, Renishaw Park, Brynteg, Broomhill, Rhymney, Lowestoft, Carmarthen, Newton Abbot, Plymouth Friary and Grantham.
- working with developers of major new intermodal terminals at Colnbrook, Tyne Dock, Swindon, Cardiff, Bristol, Aberdeen and Southampton.
- the acquisition of 11 sites from the BRB's property portfolio. Together with our customers, we will continue to highlight this issue.
- the acquisition of a further four sites including the 113-hectare former colliery at Parkside near Wigan and adjacent to the WCML, North Trans-Pennine Route, M6 and M62.
- the publication of the third edition of our Freight Connections Guide, which included, for the first time, contact details of local authorities who have identified locations for the future development of rail freight.

Unfortunately, due to changes in market conditions it is unlikely that we will see any traffic in the short term from some 15 other schemes that we have been involved in developing recently, ie Corkickle, Buxton, Agecroft, Tilbury, Clitheroe, Burntisland, Brandon, Saltley Gasworks, Castle Donington, Walsall Tasker Street, Shrewsbury, Swindon scrap sidings, Darlaston, Northampton, Nuneaton. This illustrates the nature of risks involved in the freight market.

When we have finished this programme, at least 1,892km of the network will be available at W10 gauge

Table C Loading gauge classification

RT NOMENCLATURE CURRENT	FUTURE	UIC HEIGHT EQUIVALENT	ROUTE km		STATIC GAUGE		MAX W9 HT		MAX TRAILER HT 330MM ARL***
			CURRENT	FUTURE	HEIGHT ARL*	WIDTH	MULTIFRET**	MEGAFRET**	
<W6	same		3426	3425			n/a	n/a	n/a
W6	W6				3.320	2.700	2.380	2.500	3.190
W6A 8'	W7		2864	2730	3.448	2.500	2.500	2.630	3.320
W6A 8'6"	W8		8708	7702	3.600	2.500	2.660	2.780	3.470
SB1c	W9		1524	555	3.715	2.600	2.770	2.900	3.590
n/a	W10	> UCI A	0	2147	3.896	2.500	2.910	3.030	3.770
n/a	W10w	> UCI A	-	-	3.896	2.600	2.910	3.030	3.770
n/a	W11	> UCI B	-	-	4.130	2.500	3.140	3.260	4.000
n/a	W11w	> UCI B	-	-	4.130	2.600	3.140	3.260	4.000
TOTAL			16522	16559					

* above rail level

** wagon type. Multifret @ 945mm ARL,Megafret @ 825mm ARL

*** with specially adapted suspension

Table D Programme for gauge enhancement

ROUTE	km	TO W10 OR UIC A EQUIVALENT HEIGHT			TO W11 OR UIC B EQUIVALENT HEIGHT		
		KEY STRUCTURES	COST	TIMESCALE	KEY STRUCTURES	COST*	TIMESCALE
WCML north	522	3	1.5	1999	3	66.1	2004
WCML south	120	2	0.5	1999	9	99.0	2004
WCML connections	100	3	15.0	2004	3	25.5	2004
Channel Tunnel London	133	4	29.0	2005	7	73.8	2005
Southampton–Midlands	275	4	27.0	2004			
Felixstowe–Midlands	327	1	50.0	2004			
Cardiff–London	240	3	25.0	2005			
Trans-Pennine	175	6	45.0	2005			
TOTAL	1892	26	193.0		22	264.1	

* to 2.5m wide only

Table E Progress with gauge enhancement during 1998

The following routes have been cleared to W9 (SBI) gauge: Parkeston Quay–Forest Gate, (WCML to Mossend via Shotts and Carstairs) Newcastle–Holytown Junction via the ECML,Millerhill and Carfin, Warrington–Ditton via Widnes,Trafford Park–Allerton,(Golborne–Ordsall), Fawley–Marchwood,(Ardwick–Diggle via Guide Bridge), Peterborough–Ely, Coatbridge–Hillington,(Earlestown to Edgehill)

W8 (W6A8'6") gauge has been provided on Mossend–Grangemouth and to Kyle of Lochalsh via Inverness and Dingwall, Weston-super-Mare–Exeter (Farrington Curve–Clitheroe and Hall Royd Junction),Carlisle–Corkickle for certain wagons.

Table F Potential routes for reopening

Railtrack owned: Grimethorpe, Stirling–Cambus–Alloa–Kincardine, Caldon Low, Leamside, Claydon LNE Junction–Bletchley, Rugby–Rugby cement works, Seaham Harbour, Pensnett,Rock Ferry–Canning St,Bootle Junction–Aintree.

Not Railtrack owned: Nuneaton avoiding line, Rugby cement works–Long Itchington,Dumfries–Maxwelltown,Greenock Princes Pier branch, Cambus–Menstrie, Lichfield–Walsall,Stratford–Honeybourne–Cheltenham.

We are building on the opportunities that we have identified to improve the transfer of freight between road and rail

We have identified a further 17 route sections from our own and other property portfolios that we may reopen in the next few years (see Table F). Protecting disused sites and terminals is a vital challenge to everyone involved in the rail freight industry. As the Sustainable Distribution document notes it is particularly important that the relevant planning guidance recognises the need to retain locations where there is a realistic prospect of future traffic.

From the first phase of our work with the Highways Agency in England and the National Roads Directorate in Scotland, we are building on the opportunities that we have identified to improve the transfer of freight between road and rail. We support the policy of a national framework for major freight interchanges. Our role is to secure suitable locations, facilitate their connection to our network and the agencies trunk road network, and to develop them provided that there is a sensible commercial opportunity and to the extent that others do not take the lead on individual projects.

To underpin this development work and to enable local authorities to contribute further to the development of rail freight opportunities, we will be shortly publishing a new Rail Freight Reference Book in partnership with representatives of local authorities and the freight operators.

7.7 Progress with our Ten-Point Plan

In April 1997, we summarised our initial plans to develop rail freight in a Ten-Point Plan. Since then, the industry has made enormous progress. As we have set out below, some of the issues we identified in the Plan have been addressed, while new challenges have arisen.

1. Reduction in costs

On the basis that we have previously measured our costs, we have continued to make progress in reducing them. Our unit prices to freight customers fell by 7.9% last year while our unit costs fell by 9.7% (see Table G opposite).

However, during the year, we have reviewed in more detail the composition of the fixed and variable costs that we incur in handling particular types of rail freight traffic on certain routes. Although the overall totals of prices and costs

are in line with each other, and our pricing structures are consistent with the Rail Regulator policies, we may need to restructure future track access arrangements to better reflect our new understanding of cost causation. This shows that the variability of our costs as a result of changes in the volume of traffic over the network, is much higher than the current access charges assume. We are discussing this issue with industry stakeholders who share our concern that any necessary increase in our marginal prices to reflect costs, might affect anticipated growth (see also Section 1.5).

2. Better routes for freight

In publishing the route directory in CD-ROM format and on the Internet (www.freight.commercial.co.uk), we completed the first stage of documenting the current characteristics of the network. Since then, we have begun work on assessing the network's potential capability and have set out how we want to improve it further in our freight route strategy. We have also introduced the 'Freightway' concept, a domestic version of the Trans-European Freight Freeways promoted by the EU, to identify existing capacity on the network in anticipation of market demand. The first phase of this work highlighted 27 return, long-distance paths on five key freight routes with departure, arrival and transit times that are competitive with road. EWS has since taken up two of these paths.

3. Service improvements – reduction in delays

Freight customers have also benefited from the improvements in Railtrack's service performance. In the Ten-Point Plan, we set ourselves a target reduction of 5%. Total-minutes delay in 1997/98 were reduced by 21% while the number of trains increased by 5%. Delays per train fell to less than five minutes on average. We expect these trends to continue. We have not yet been able to provide specific information about the performance of our freight-only lines but expect to have fulfilled this customer requirement by July 1999.

We have met our commitments to streamline our processes for developing rail freight-related projects

Table G Freight volume, income and costs

ITEM	1994/95	1995/96	1996/97	1997/98	% CHG 98/97
Volume (mgtkm)	31630	31717	32621	36556	12.1
Track access income (£M)	191	159	159	164	3.1
Freight income (£M)	151	148	147	148	0.7
Unit income (£M/000gtkm)	6.04	5.05	4.93	4.54	-7.9
Unit costs (£M/000gtkm)	4.77	4.67	4.49	4.06	-9.7

4. Service improvements – reduction in transit times

Two years ago, nearly 90% of the trains using our network were restricted to 60mph, often because of the rolling stock. We set ourselves the target of providing up to 20 new paths at 75mph or greater a year. Since then, our customers have introduced 25 new trains at such higher speeds and we have identified a further 22 additional return paths.

5. Development of freight terminals

As promised, we have provided more information on how to develop terminals and to protect sites. We have acquired additional sites and introduced and updated regularly the Freight Connections Guide with the latest edition including details of potential sites provided by local authorities.

6. Piggyback project

With the launch of services for Parcellforce (EWS) and Tankfreight (Freightliner), piggyback traffic is now in operation. As described, we have now started to implement a gauge enhancement programme for the widespread introduction of more higher-gauge traffic. Further development is dependent on grant funding.

7. Improved project management

We have met our commitments to streamline our processes for developing rail freight-related projects. We have simplified our project management requirements, opened up the market to new contractors and methods and improved accountability for delivery. Detailed market research has indicated that we have made a marked improvement in our ability to produce cost estimates more quickly and to complete projects to time and budget, but we are aware that this was from a low base and we still have room for improvement.

Our project portfolio includes 346 projects for delivery over the next two years, of which 51 have been generated in the last year, compared to our target of 20.

8. Open access

We have had 30 enquiries from organisations who are considering entering various aspects of rail freight operations and we are continuing to work with several parties. We will continue to minimise the commercial, technical and operational barriers for new entrants.

9. Systems development

Most of our work is focused on the Year 2000 issue. Nevertheless, we have been able to improve our systems and operations for planning access to the network to give our customers more flexibility and shorter lead times. We have also introduced new invoicing systems and are working with EWS on its introduction of its new Train Control System to support the development of wagon-load traffic. We are now starting detailed work on improved, real-time tracking systems to monitor the location and condition of consignments using satellite tracking systems.

10. Code of practice

After discussion with a wide range of parties, we introduced a Code of Practice in September 1997. A review with the key industry parties a year later did not identify any necessary changes.

The potential social value of rail freight compared to road transport could be £3.1bn per annum

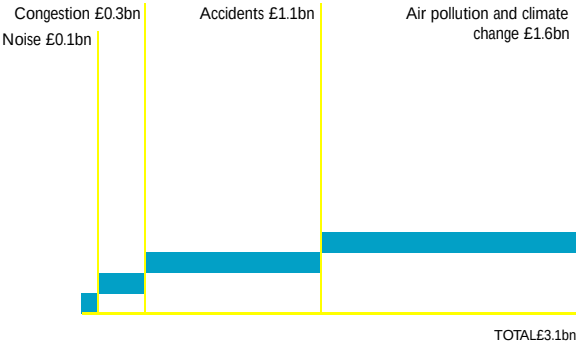
7.8 Environmental benefits

In Section 6.7, we describe the environmental and social benefits of increased use of the rail network. This is particularly so in freight, where diversion of road traffic to rail transport has a significant benefit.

If forecast annual freight growth is 9.1% until 2011, the potential social value of rail freight compared to road transport could be £3.1bn over the same period.

Growth in freight train volume – environmental impact in 2011

Source: analysis by OXERA Environmental Ltd.



7.9 Summary

The rail freight market continues to grow and we are playing our part in achieving that growth. The investments that we are planning to make in the network in the areas of track renewals and capacity over the next few years will benefit both freight and passenger operations. As a result, we are confident that we have the capacity to accommodate potential rail freight growth for at least the next five years. Now that we have our customers' detailed ten-year plans, we have started work on the additional investment required to accommodate a tripling of rail freight in ten years.

The levels of investment that are solely for local freight enhancement operations are set out in Table H.

The major investment required is in gauge enhancement to produce a W10 network, for which we need DETR support, and in further route development, some of which may be funded on the back of major route upgrades and therefore not be freight specific. In most investment in the network, we would expect to take the market and construction risks upfront and be reimbursed by external parties. These figures exclude the substantial freight share of network-wide investment in maintenance, renewal and enhancement, such as the ECML upgrade. As we move through the Plan period, we would expect more investment by us and external parties in the development of terminals; current plans are focused on the next few years only.

These forecasts do not include any additional investment that we will need to make to accommodate the longer-term capacity requirements for freight, to produce a W11w capability on certain routes, or to resolve all the outstanding requirements of our customers. We will, therefore, be bringing forward further plans during 1999.

Now that we have our customers' detailed plans for ten years, we have started work on the additional investment required to accommodate that demand which would result in a tripling of rail freight in ten years

Table H Summary of freight specific enhancement investments

RAILTRACK FUNDING	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	TOTAL
Committed												
Terminal connection <i>etc</i>	5.87	10.84	7.25	5.00								28.96
Specific gauge enhancement schemes	1.36	0.99	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	3.25
Subject to further feasibility work												
Route development	1.37	3.09	3.94	6.86	5.73	4.00	3.05	2.90	5.91	2.56	2.62	42.01
Total Railtrack funding	8.60	14.92	11.29	11.96	5.83	4.10	3.15	3.00	6.01	2.66	2.72	74.22
EXTERNAL FUNDING												
Committed												
Terminals <i>etc</i>	1.20	11.85	2.00									15.05
Grant funding not yet secured												
Gauge enhancement		4.41	22.34	62.43	53.35	38.39	10.10					191.03
Route development				1.73	0.74							2.46
Subject to further feasibility work												
Terminals <i>etc</i>		2.98	2.47	16.28	6.67	4.10						32.50
Route development	0.60	8.50	15.10	9.99	1.40	1.11		0.50		1.25		38.49
Total external funding	1.80	27.74	41.91	90.43	62.15	43.60	10.10	0.50		1.25		279.53
TOTAL FUNDING	10.40	42.66	53.20	102.39	67.99	47.74	13.25	3.50	6.01	3.91	2.72	353.75

Note: Freight trains are approximately 10% of all train movements. Freight share in over £1.45bn of asset-related investment in 1998/99 and £710M in maintenance are excluded from the table.

8 London area

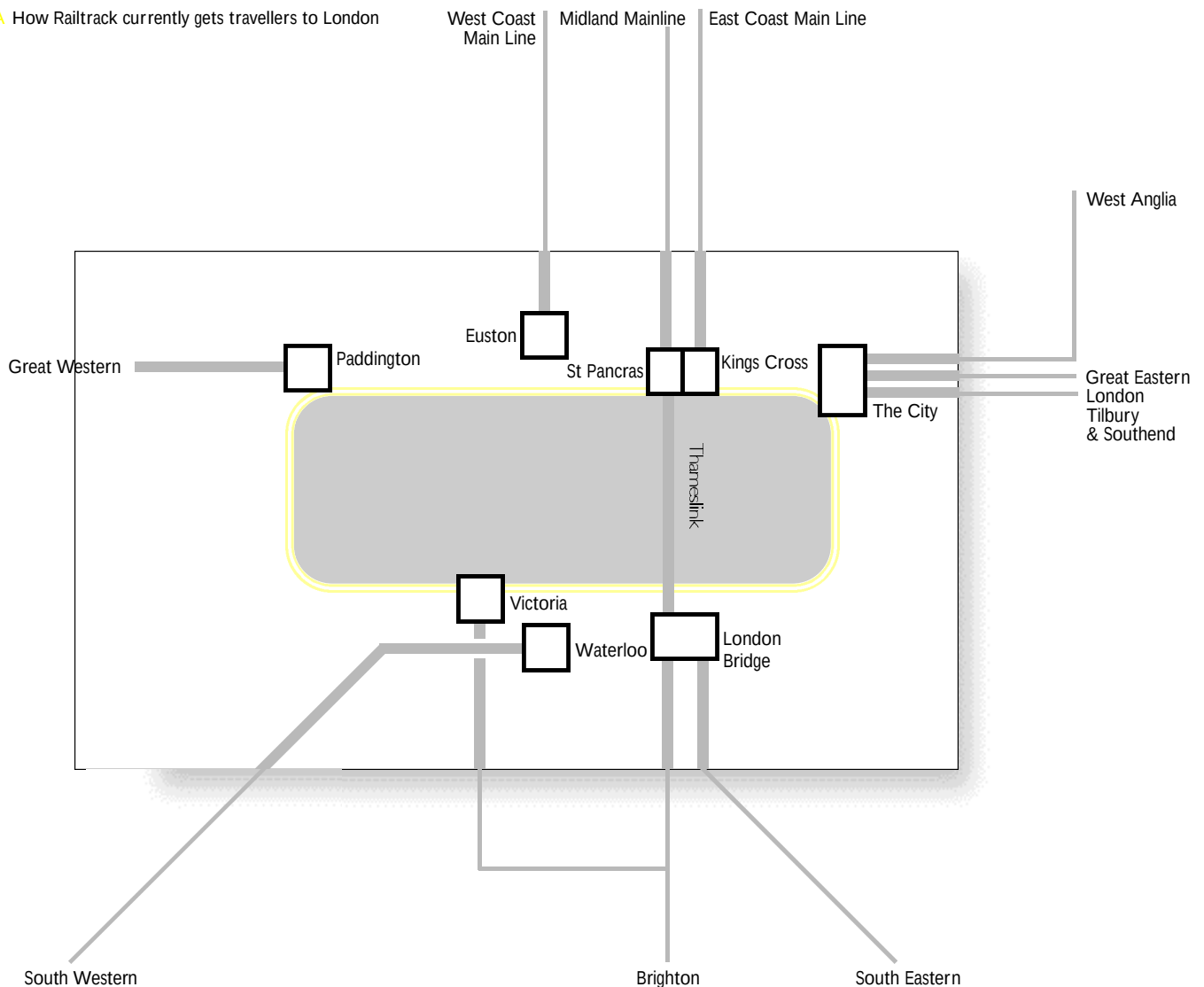
- 8.1 The opportunity
- 8.2 Our vision
- 8.3 London Underground integration
- 8.4 London airports access
- 8.5 Thameslink 2000
- 8.6 Other cross-London routes
- 8.7 Other developments



In this section, we show in more detail our vision for rail transport in the London area, and how this can be achieved through such major developments as Thameslink 2000, integration of London Underground's routes into the Railtrack network, and access to Heathrow. This plan forms a key input to an overall transport policy for a future London mayor to consider.



A How Railtrack currently gets travellers to London

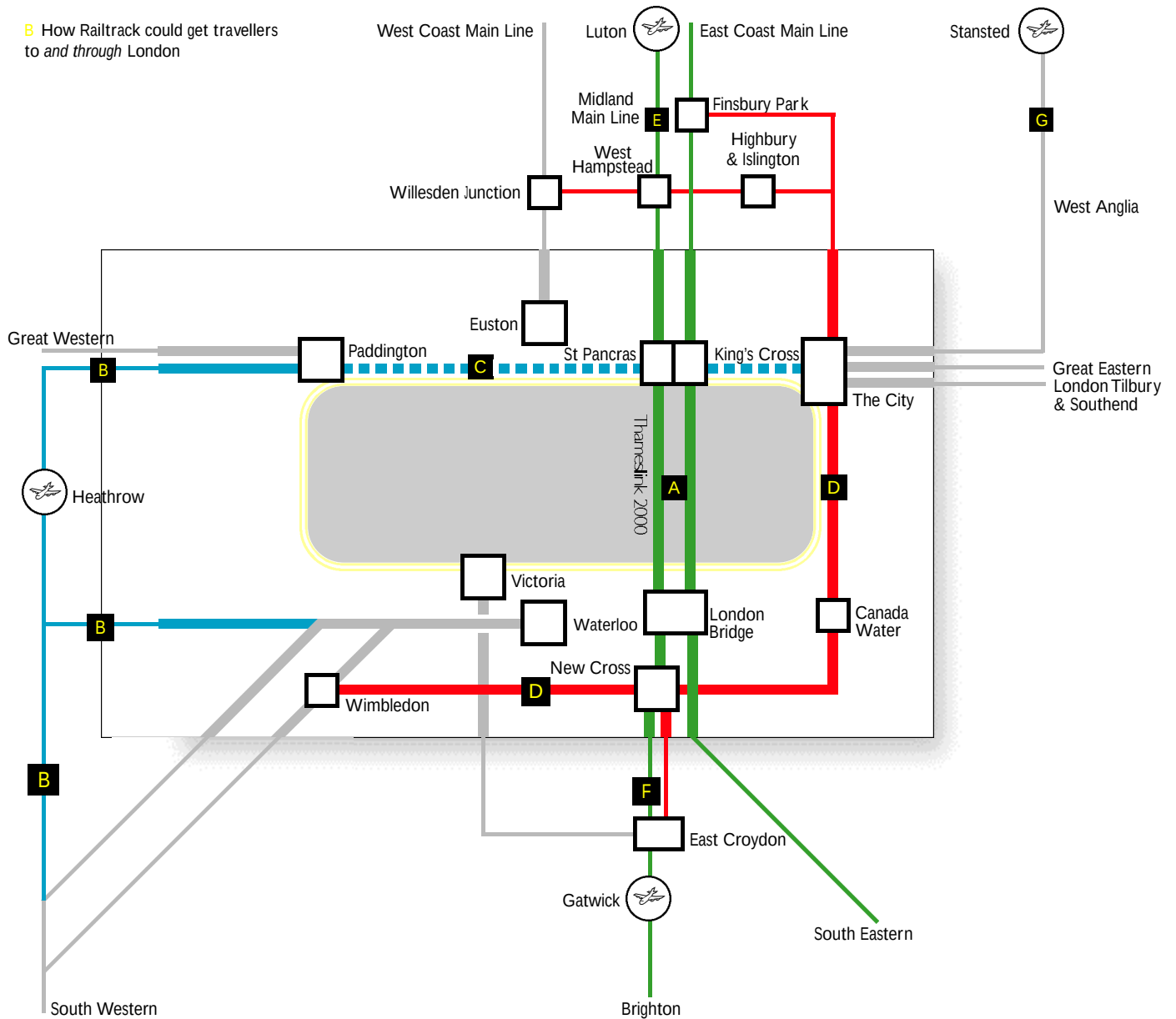


8.1 The opportunity

London's public transport is at an exciting stage in its history. The election of a mayor with substantial transport planning powers, and a reassessment of the extent to which we can continue to allow pollution of urban centres by car exhaust emissions create the opportunity for rail to assume an increasing role in the movement of people into, through and around the capital.

As a result, we are developing new schemes as well as updating those that have long remained on planners' top shelves. We will develop these schemes where possible in partnership with others as we are determined to play our part in bringing about the long-awaited improvements which are now more possible than at any time in the recent past.

B How Railtrack could get travellers to and through London



8.2 Our vision

London's radial rail routes deliver passengers to the fringe of central London and onto the London Underground network within the Circle Line (see Diagram A above). With the exception of the existing limited Thameslink and West London Line services, which make possible direct journeys between Bedford and Brighton, Rugby and Gatwick, there are no through routes which allow passengers to make cross-London rail journeys without a change of transport mode.

- A** North-South Thameslink service
- B** Heathrow services
- C** Possible new direct service from Heathrow to the City
- D** East London Line: new North-South service via the City
- E** Improved services to Luton Airport
- F** Thameslink 2000 service to Gatwick Airport and Brighton
- G** Improved service to Stansted Airport on existing routes
- Existing national rail services
- London Underground Circle Line

Our proposals will enable Heathrow–Paddington services to be extended around the northern side of the Circle Line to the City

Our plan would change this (see Diagram B above). It includes:

- further improvements to the Thameslink route, permitting increased frequency from eight to 24 trains per hour in each direction and providing direct services to many more stations.
- possible integration of London Underground's surface lines with Railtrack's network with the option of direct access between the current overground network and the City.
- creating a new southern link to Heathrow Airport. The Airtrack development would open up the possibility of increasing the number of trains serving the airport from 4 to 16 per hour.
- development of the East London Line to offer new cross-London opportunities.
- completion of Phase 2 of the Channel Tunnel Rail Link (CTRL).
- developing major integrated public transport hubs in and around London with advanced customer facilities including airline check-in and luggage-handling where appropriate, including London Waterloo, Victoria, Clapham Junction, Watford Junction and Woking.
- enabling Heathrow–Paddington services to be extended around the northern side of the Circle Line to the City and beyond.
- using the northern half of the Circle Line to link East and West London suburban services to provide through journeys such as Barking–Reading.
- in the longer term, using the southern half of the Circle Line to link Essex and South West London suburban services. This would provide such through services as Southend–Woking.
- integrating Underground and suburban network services over the East London Line to create journey opportunities such as East Croydon to the City, and Wimbledon to the North London Line.

8.3 London Underground integration

The Government has indicated that it wishes to see private capital invested in London Underground. The first moves have already been made towards a public–private partnership (PPP). The PPP is intended to establish a clear split in responsibilities between London Underground, who will operate the train service, and three infrastructure units, who will be responsible for delivering to the operator the physical infrastructure on which the trains will run.

We have made it clear that we believe that there are major advantages in integrating certain areas of the underground operation with national rail services to increase dramatically the number of passengers who can reach their destination in London without changing trains.

The diagram on page 99 illustrates how this might be achieved. The key elements to our proposals are:

The proposed new southern link to Heathrow would run from a point near Staines via the proposed Heathrow Terminal 5 to connect with BAA's existing route

We have suggested to the Government that a better integrated and more efficient system would be possible if we controlled the signalling operation of the surface lines and were able to make decisions between maintenance and renewal. In January, the Government commissioned a report, carried out by the Franchising Director and his consultants, into the ideas for integration. As a result, we are continuing to develop these ideas.

East London Line (ELL)

We plan, with London Underground, to link the East London Line with our network both north and south, offering an exciting range of new journey opportunities. London Underground's existing powers will extend the northern end of the line from Whitechapel to Dalston Junction with new intermediate stations at Bishopsgate, Hoxton and Haggerston. It is proposed that East London Line trains will run along the North London Line to Highbury and Islington to provide interchange with both North London and Victoria Line services. New connections at the southern end of the line will enable local services to run to Wimbledon via Streatham and West Croydon via Forest Hill, as well as opening up the possible use for other new services. Possible service levels are currently under discussion with both London Underground and the Franchising Director.

Although the line will be operated by standard network trains, many issues remain to be resolved, including train length. Some London Underground stations on the ELL including the new Canada Water Station, are unable to accept more than four-vehicle trains, and it is clear that potential demand in the peak may cause serious overcrowding problems.

8.4 London airports access

Heathrow

Heathrow Airport remains one of London's best opportunities to improve rail-market penetration. At present, despite the excellence of BAA's Heathrow Express to Paddington, Heathrow remains poorly served by rail. It is BAA's aim to increase public transport's share of surface access to 50%, and we will work with them and other partners to help achieve that objective.

Developments over the past 12 months

The full four-trains-per-hour Heathrow Express service, operated by BAA, came into operation in the summer of 1998.

Developments over the next 12 months

A new rail-bus interchange at Feltham Station will open in summer 1999, providing improved access to all four Heathrow passenger terminals. The scheme is being jointly funded by Railtrack, BAA, South West Trains, London Transport and the London Borough of Hillingdon.

Medium-term developments

We are reviewing existing studies with BAA which seek to further improve rail access to the airport and, in particular, those which permit operation of trains between destinations north and south of the airport.

In the meantime, we are planning an additional direct service to St Pancras with BAA, calling at Hayes and Harlington, Ealing Broadway and either West Hampstead Thameslink or Cricklewood. This will complement BAA's Heathrow Express and provide new connections:

- at Hayes and Harlington for passengers from the west
- at Ealing Broadway for passengers from the Underground and bus networks
- at West Hampstead Thameslink for passengers from Jubilee, North London and Thameslink services, or
- at Cricklewood for Thameslink services and a new park and ride.

We shall complete the construction of the new station serving Luton Airport later this year

We expect to have a two-trains-per-hour service running by 2002. We believe that sufficient capacity exists on the GWML to achieve this, though it may be necessary to substitute some existing services. On this basis, we are encouraging our customers to launch an interim service between Heathrow and Paddington calling at Hayes and Harlington and Ealing Broadway for summer 2000.

The St Pancras scheme involves electrification, resignalling and upgrading of the line between Acton and West Hampstead and an enhanced junction at Acton Wells. However, the increasing success of operators on the GWML means that they now require additional paths and, in consequence, it is likely that more infrastructure enhancements will be needed before even more Heathrow trains could be introduced. The work necessary to meet the further needs for the airport and our other customers is detailed in the GWML route strategy (Route 3).

Longer-term developments

The proposed new southern link to Heathrow would run from a point near Staines via the proposed Heathrow Terminal 5 to connect with BAA's existing route. This potentially provides new connections from Guildford, Woking, Clapham Junction and Waterloo to Heathrow and enables new through train services via Heathrow to Watford Junction for example.

No further work is currently being carried out on the plan to link Terminal 5 to the Great Western Main Line of the airport, as there appears to be no economic case for such a development. However, there is a proposal for a freight link, and we are keeping open the option of looking again at a passenger service if the freight development goes ahead.

An integral part of our long-term proposals is the provision of additional facilities for our customers including remote check-in and luggage-handling for airline travellers. The first facility of this kind will be introduced at Paddington later this year, and we intend to work with partners to provide this facility for travellers at a number of key interchange hubs, including London Waterloo, Clapham Junction, Woking and Watford Junction.

Luton Airport

We shall complete the construction of the new station serving Luton Airport later this year. It will be served by Thameslink services and the considerably improved rail access will enable rail to compete more effectively for the growing scheduled flight market at this airport (see Route 5).

Gatwick Airport

A package of measures is necessary to ensure that rail maintains and increases its market share at Gatwick. We are working with train operators to ensure that new fleets of trains can fulfil the step-change improvement in quality on this well-established rail service.

We will work closely with BAA and customers to enhance the quality of the interchange between rail and air.

We are also examining how the very congested Brighton Main Line can be upgraded to accommodate the rapid growth in demand for train-service enhancements along this route serving the airport. Further details are included in Route 19.

Stansted Airport

Train operators serving Stansted Airport have seen a very rapid growth in passengers travelling to the airport. The West Anglia Route that serves the airport is currently highly congested and so we propose significant investment to increase capacity. This comprises a package of platform lengthening at key stations; additional tracks between Cheshunt and Broxbourne and between Brimsdown and Northumberland Park; and upgraded signalling. This will enable services to Stansted to increase to four per hour (see Route 15).

We will open a new station in 1999 at West Brompton offering good connections with London Underground services

8.5 Thameslink 2000

The primary objectives of Thameslink 2000 are to:

- provide increased capacity on train services to central London.
- give a substantially expanded range of cross-London journey opportunities which will minimise the need for passenger interchange.
- alleviate congestion on parts of London Underground.
- give an additional means of passenger dispersal from CTRL services at St Pancras.

Major works include:

- construction of a grade-separated junction at Bermondsey to separate Thameslink 2000 and Charing Cross-bound trains.
- an additional two lines to increase capacity between London Bridge and Metropolitan Junction.
- signalling works to provide the specified track capacity which will be integrated with renewals of signalling equipment and control systems approaching the end of their economic life.
- a link to the East Coast Main Line to the north of King's Cross.
- extensive reconstruction and refurbishment of London Bridge, Blackfriars and Farringdon stations.
- construction of a St Pancras Midland Road Station which will provide interchange with the new international station, improved connections to St Pancras and King's Cross domestic stations and London Underground. The basic construction of these will be undertaken by the CTRL promoter.

In the outer areas, Thameslink 2000 will operate over an area extending to Peterborough, Bedford, King's Lynn, Ashford, Brighton and other destinations in the South East.

We are considering further capacity enhancements in the London Bridge area to enable both the existing level of service to Charing Cross and the full Thameslink 2000 service to operate. We are also considering improvements at stations to accommodate the forecast level of demand including the interchange with London Underground at Farringdon.

Developments over the past 12 months

The announcement in January 1998 that the promoter of the CTRL project was unable to proceed caused significant delay to Thameslink 2000. In conjunction with industry partners, we considered a range of options to establish the optimum means of progressing the project either with the CTRL scheme or as a separate project.

As the review identified a number of design changes which are likely to be beneficial the Secretary of State has delayed an announcement regarding the possibility of a public inquiry into the project.

We have continued development of those parts of the project unaffected by the proposed design changes. Her Majesty's Railway Inspectorate responded positively to our proposals for a signalling system to deliver the specified capacity through the core section of the route, between Blackfriars and St Pancras.

We have worked closely with the Franchising Director to develop the train service specification.

Negotiations have been undertaken with a number of objectors to the Transport & Works Acts (T&WA) submission resulting in some objections being withdrawn. Progress has also been made with the significant objections to, for example, the designs for the Borough Market Viaduct and the Blackfriars Station roof, the level of train service into Charing Cross and interchanges with London Underground.

Developments over the next 12 months

During 1999, we will continue to work closely with the Franchising Director and the DETR to develop the detail of the project.

Once the project scope has been refined and agreed, we intend to progress and submit a supplementary T&WA application in autumn 1999. We anticipate that the Secretary of State will be in a position to make a decision on the public inquiry which, if required, would take place during 2000. We will continue to prepare all supporting information in anticipation of the need to present the case for the project at an inquiry.

We will start to develop a full Thameslink 2000 timetable integrated with all other operators' services.

The timescales for completing the project will not be finalised until the timescale for Section 2 of the CTRL project is agreed. If we exercise our option to build Section 2 in 2001, Thameslink 2000 should be operational in 2006.

Construction of the Channel Tunnel Rail Link between Folkestone and London has started...

8.6 Other cross-London routes

West London Line

This route runs between Clapham Junction and Willesden Junction and is used by a complex mix of international, intercity, regional and local passenger services, as well as domestic and international freight services. The route also provides the only access to Eurostar's North Pole maintenance depot. Certain train paths are contractually protected for future growth in international passenger and freight business and many operators aspire to increase frequencies over the route.

Developments over the past 12 months

We have reinstated platform 3 at Kensington Olympia for all passenger trains, to improve reliability.

Developments over the next 12 months

We will open a new station in 1999 at West Brompton, offering good connections with London Underground services.

Further developments

As capacity constraints elsewhere on the network are relieved, demand for paths on the WLL will increase. A number of train operators have Franchise Plan commitments to run additional services.

We are continuing to investigate whether significant capacity enhancement is a realistic possibility but we do believe that modest investment could create enough capacity to accommodate our existing customers' aspirations. However, the technical solution will largely depend on balancing their collective requirements. The provision of local trains with additional station stops will place the greatest demand on the route and it is unclear at the moment whether these services will maximise the benefit for all those who use or wish to use the line. We are particularly aware of the importance of this line to freight users who have plans for expansion (see Route 19 for more details).

8.7 Other developments

- **West Coast Main Line route modernisation**

This project will provide a step change in quality on London's busiest intercity route. Full details are contained in Route 1.

- **Channel Tunnel Rail Link**

Construction of the CTRL between Folkestone and London has started. Full completion of the project will result in a reduction of some 25 minutes in London–Paris and London–Brussels journey time. The CTRL consortium have also expressed an interest in running as far as Heathrow, to provide direct connections to continental Europe. We are examining this with them.

- We are discussing with London Transport, Docklands Light Railway (DLR), Silverlink and the Franchising Director the possibility of terminating existing NLL services at either Stratford or West Ham. From that point, the line will be operated by the DLR and will be diverted via City Airport to North Woolwich. A new tunnel will take the line under the Thames to a terminus at Woolwich Arsenal, giving easy connection to the North Kent Line services.
- We have been working with the Croydon Tramlink project team as they prepare to start passenger operation later this year. Much of the Tramlink network uses existing rail corridors, and we have worked hard to ensure the success of this new light rail system.
- The Watford–Croxley Green rail service remains suspended, because of the construction of a new road. An alternative road service is being funded by the local authority. We are continuing discussions with local authorities and London Underground about connecting the route to London Underground's Metropolitan Line, Watford branch. In the meantime, we are progressing closure of the existing service, consistent with the long-term aims of developing the link.

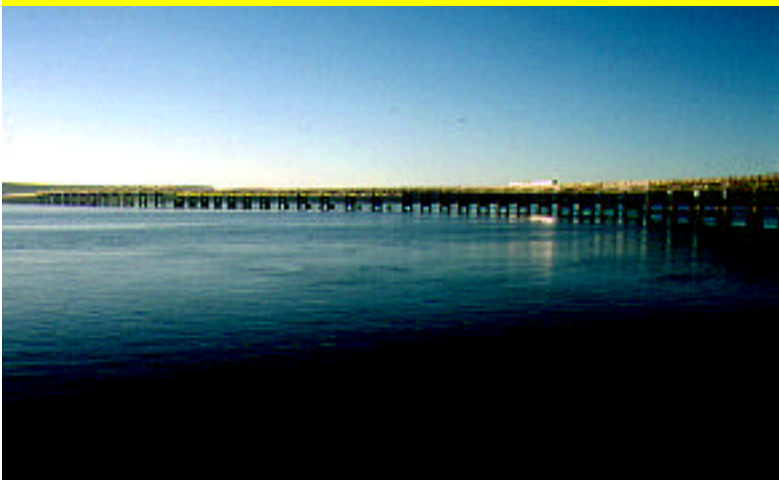
... full completion of the project will result in a reduction of some 25 minutes in London–Paris and London–Brussels journey times

Further developments include:

- schemes with the South West London Transport Advisory Committee for improved interchanges at West Croydon, Twickenham and Wimbledon and a number of smaller projects, and early progress is expected on many of these.
- similar discussions with the South East London Transport Strategy partnership concerning improved interchange at Catford and with West London Leadership concerning improved interchange at Harrow and Wealdstone.
- proposals from train operators and London Underground to introduce consistent standards for interchange on the London network.
- a property scheme to help provide enhanced interchange at West Hampstead between the Thameslink and NLL stations.
- our Route Strategies envisage major upgrades to many of our main line radial corridors serving London. Full details are contained in the appropriate pages of this document but include the ECML (Route 1), the Great Western Main Line (GWML) (Route 1) and the West Anglia Main Line (Route 15).

9 Scotland

- 9.1 Introduction
- 9.2 The Parliament and local government
- 9.3 Sustaining the network
- 9.4 Developing the network



This section provides a summary of the plans for the network in Scotland. It is a synopsis of a more detailed plan set out in our NMS for Scotland. We set out customer and market needs and aspirations, how we work with customers and the various branches of government to understand these, and how we are developing these inputs into a coherent plan for the rail network in Scotland.



We are developing on a commercial basis our key West Coast Main Line and East Coast Main Line routes linking Scotland and England

9.1 Introduction

Following the favourable response to the first Scottish Network Management Statement in 1998, and the establishment of a Scottish Parliament, we have committed to provide an annual Scottish edition of the NMS.

In common with the national NMS, the Scottish Statement describes how we are planning the future development of the railway network in partnership with our customers, the Government, and other organisations. However, for ease of reference by local communities, it provides a more focused look at the network in Scotland. Details for obtaining copies of the Scottish Statement are provided on page 14.

In this section, we provide an overview of our plans to sustain and develop the rail network within Scotland. Although the Scottish rail network is managed on the same terms as the rest of the British network, it has distinctive challenges which require imaginative responses from the rail industry and from Scottish transport policymakers within local and national governments.

We are developing on a commercial basis our key West Coast Main Line (WCML) and East Coast Main Line (ECML) routes linking Scotland and England. All the freight services in Scotland also operate commercially and we, along with our customers, anticipate that these will expand further. Scotland's geography and population settlement mean that much of the internal Scottish network will continue to require social support.

We are already nurturing innovative partnership opportunities in Scotland. There is a pending application by Railtrack and Strathclyde Passenger Transport (SPT) for Private Finance Initiative funding for enhancements on the Larkhall–Milngavie service. The opening of a line to Larkhall is potentially the first example of private–public partnership for an urban railway project. Building on this experience, we intend to play our part in delivering the Government's stated goal of a truly integrated transport system for Scotland.

The track access charges paid by the train operators to us, ensure maintenance and renewal of the existing Scottish rail network. However, the provision of new facilities such as stations or route reopenings in Scotland do not usually provide sufficient revenues to support the cost of investment.

As with the rest of the network, the past 12 months have brought a deeper understanding of the requirements of our customers in Scotland (SPT and train operators) and how these can be delivered, including the provision of a rail network ready for doubling the existing service between Edinburgh and Glasgow by September this year.

9.2 The Parliament and local government

Railtrack looks forward to working with the Scottish Parliament and Scottish Executive. Under the terms of the devolution settlement, the Scottish Executive has substantially wider powers for passenger and road transport than the Scottish Office has traditionally held. This is particularly true in the case of rail transport which has historically been administered directly from the Department of Environment, Transport and the Regions and its predecessors.

The Scottish Executive will shortly take over rail support powers for ScotRail's services, both those within Scotland and on Anglo-Scottish routes. Railtrack, in common with the rest of the rail industry, is working closely with the new railway division within the Scottish Office to ensure that appropriate accountability and interfaces are developed. This includes clarifying the implications of transport safety and regulation being retained as powers for Westminster and Whitehall.

We are also keen to use the information obtained from the Route Strategies that it has recently prepared to assist transport corridor planning with the Scottish Office.

The Scottish Transport White Paper *Travel Choices for Scotland* (July 1998) gave details of the Government's framework to encourage integrated transport. As a new institution, the Scottish Parliament has a unique opportunity to bring forward quickly legislation for the hypothecation of congestion-charging into public transport schemes. Such a fund could greatly speed up the provision of new integrated transport facilities on the Scottish network.

We look forward to clarification on the operation of the Shadow Strategic Rail Authority within Scotland, particularly within the context of devolved decision-making on the allocation of the Scottish block grant.

We undertake liaison with all local authorities and we participate in regional transport planning bodies such as Highlands Rail Developments and the South East Scotland Transport Partnership. We are proud of the links we have now established and will use them to ensure that together we can build a rail network that delivers the expectation of the communities that we serve.

9.3 Sustaining the network

Introduction

The railway network in Scotland serves a population of five million who occupy an area of 77,000 square kilometres, one-third of the Great Britain landmass. The railway reaches out to large areas of the community, including some of the remotest locations in the country. In doing so, it traverses some of the highest mountain passes, crosses some of the widest estuaries, and passes over some of the wettest moorland as well as having the largest and most concentrated urban rail network outside London. It is, therefore, a very diverse network that must use a range of techniques to manage and sustain the infrastructure.

In order to meet the requirements and demands of the Scottish community, and sustain the railway into the next millennium, we will concentrate on the following issues.

- Day-to-day operation – delivering reliability and punctuality
- Maintenance of the network
- Renewal of the network
- Developing the network.

Average delay per train movement in Scotland is 57 seconds compared to the GB average of 79 seconds

Day-to-day operation

We provide over 2,000 train paths per day in Scotland which enable our customers to operate over 38,000,000 train miles per year. Performance is carefully monitored to ensure that the already high performance levels in Scotland are maintained and, where possible, raised.

During the past year, in co-operation with the train operators, we have maintained the highest standards of punctuality in Great Britain with an average delay per train movement in Scotland of 57 seconds compared to the GB average of 79 seconds. This is despite the extreme weather conditions of the last few months of 1998 and early 1999. These have, however, resulted in some significant delays which are unacceptable to the railway industry and its customers. We are currently reassessing our processes and working on schemes to ensure that disruption caused by such extreme weather is minimised and our enviable punctuality record is maintained and enhanced.

Maintenance of the operational railway. This is the key to delivering a safe and reliable railway. The operational railway in Scotland is maintained by First Engineering who hold the five geographically based contracts to undertake this work. First Engineering and Railtrack work very closely together and these contracts have been recently relet including an innovative partnership approach which is being pioneered in Scotland with a view to possible extension elsewhere. These contracts provide fundamental changes in working practices to achieve further efficiency improvements to reduce the amount of time that contractors need access to the railway. Instead of teams built around a single engineering discipline, First Engineering is providing multidisciplinary rapid-response teams dispersed across the Scottish network. These are supported by our investment in electronic remote condition monitoring diagnostics.

Bridges and tunnels. In Scotland, the topography of the country requires larger, more varied and more numerous structures than are found elsewhere on our network. They are inspected annually, and, as a result, a programme of structure renewals and minor repairs is identified. This ensures that over 5,000 bridges and tunnels in Scotland continue to deliver the output necessary for the day-to-day operation of the railway. Included in this are the Forth and Tay Bridges across the east of Scotland estuaries. We are currently in the second year of a four-year programme to paint and upgrade the Forth Bridge at a cost of £40M, which will not only maintain the structure, but also allow the carrying capacity of the bridge to be increased, bringing benefits to our freight customers. We will shortly be inviting tenders for a programme of heavy maintenance of the 85 individual spans which make up the Tay Bridge.

We have committed to spend £128M over five years to bring stations back into a condition which creates an inviting environment

Stations. We have committed to spend £128M over five years to bring stations back into a condition which creates an inviting environment for passengers and one that can be maintained by the station operator. The amounts spent at each location vary with the extent of disrepair that we have inherited. At some of the newer stations, such as Camelon, nothing is required, while at others, like Glasgow Queen Street for example, we are spending over £15M. Work on the whole programme will be completed during the spring of 2001.

Renewals. Railway assets work in a hostile environment and, for this reason, a programme of renewals has been put in place designed to renew each item before it begins to adversely affect performance. A good example of this is the ongoing renewal of the signalling equipment from Glasgow Queen Street towards Edinburgh and Cumbernauld which includes additional bi-directional facilities.

Tables of expenditure to maintain and renew the assets are shown on page 139.

9.4 Developing the network

Over the past 12 months we have developed an ambitious programme to deliver customer, passenger and societal expectations and to contribute substantially to achieving Integrated Transport Policy objectives.

Growing the capacity and capability of the commercial network

A series of strategies has been developed to identify what will be needed to meet forecast demands for passengers and freight over the next ten years, and to compare this against the existing capacity and capability of the current network. In the past 12 months, Killiecrankie Tunnel between Perth and Inverness has been reprofiled to allow for containerised traffic. This has permitted Safeway to supply its supermarkets in the Highlands by rail. We are also preparing the WCML Route from Coatbridge–London to be available for W10 gauge. This will be complete from Coatbridge–Daventry for June 1999 and to London (Willesden Junction) in December 1999. We are also preparing the ECML and Edinburgh–Shotts–Coatbridge route to carry W9 vehicles. We are currently providing the facilities which will be required by ScotRail later this year to support their investment in three-car trains to provide a high-quality 15-minute interval Glasgow–Edinburgh service, including an upgrade at Haymarket Depot near Edinburgh.

Working with our train operating customers, we expect to identify further opportunities for commercial growth, such as between Edinburgh and Aberdeen.

We are working with partners on proposals for a service to Glasgow Airport, on the Edinburgh CrossRail scheme, and on doubling the frequency and reducing the journey time between Aberdeen and Inverness

Progressing developments where there is only a social justification

The geographical nature and sparse population of Scotland means that a limited number of developments have a purely commercial payback. The level of interest in public transport within Scotland has given rise to a long list of developments for which there is significant political support. Railtrack is keen to develop these schemes, but can only do so in partnership. This can take the form of jointly funding schemes, sharing the risks and benefits, or supporting local government in seeking funding for a proposal. We are working with partners on proposals for a service to Glasgow Airport, on the Edinburgh CrossRail scheme, and on doubling the frequency and reducing the journey time between Aberdeen and Inverness.

Another project currently under consideration, within the SPT area, is the upgrading of the Barrhead–Kilmarnock Line to allow a half-hourly service frequency to operate. We are also working with ScotRail and SPT to ensure the successful introduction of 40 new, three-car trains for the Strathclyde network by May 2000.

Improving the network

It is not always necessary to develop large schemes in order to improve the performance, reduce maintenance times and techniques or to improve capacity at a specific pinchpoint. Wherever appropriate, improvements will be made when the infrastructure is being altered as part of a renewal. On other occasions, they will be carried out in their own right. Some of these are highly visible, such as the installation of CCTV to monitor stations, with associated upgraded lighting and passenger help points. Others are less visible but give an improvement to the reliability of the network, such as the installation of heaters at more sets of points or the introduction of remote condition monitoring to give real-time information about the assets' performance.

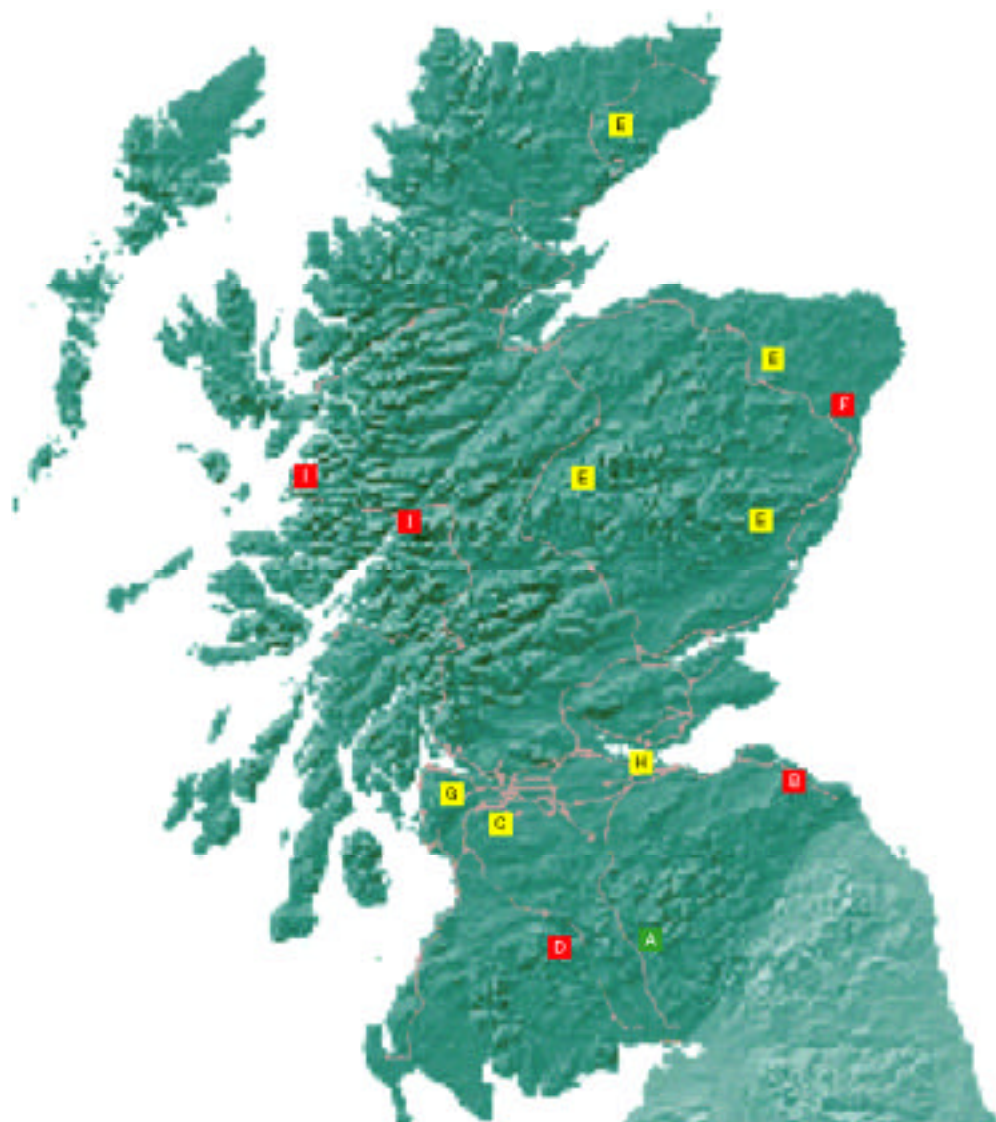
A table of expenditure planned to achieve our vision is shown on page 139 with more detail shown in each of the Route Strategies.

The map opposite identifies some of the key developments that are planned over the next ten years.

Key developments

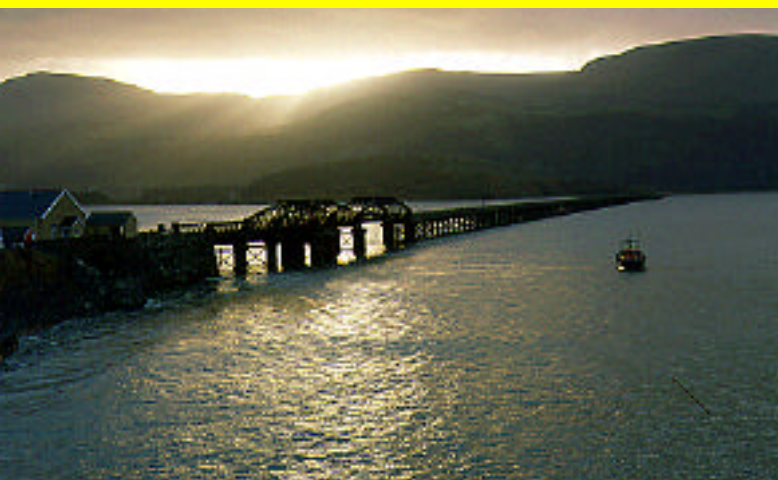
The map identifies key developments that are planned over the next ten years.

- A** West Coast Route modernisation
- B** East Coast upgrade
- C** Larkhall–Milingavie new route and service
- D** Kilmarnock–Gretna Junction increased capacity for freight
- E** Journey-time reduction
 - i) Edinburgh–Aberdeen
 - ii) Aberdeen–Inverness
 - iii) Perth–Inverness
 - iv) Inverness–Thurso
- F** Raithes Farm freight development
- G** Glasgow Airport link
- H** Edinburgh CrossRail
- I** Turntables for steam-train operation



10 Wales

- 10.1 Introduction
- 10.2 The Welsh Office and local authorities
- 10.3 Sustaining the network
- 10.4 Developing the network
 - Table A – Expenditure on maintenance, renewals and enhancement in Wales
- 10.5 Expenditure to achieve vision for Wales



This section gives, for the first time, an overview of the railway in Wales. We set out our plans for sustaining and developing the network within Wales to meet the needs and aspirations of our customers and funders, and describes how links with London, Manchester and other regions are to be strengthened. We also describe our partnering arrangements with local authorities and development agencies to improve rail facilities within Wales in the context of an Integrated Transport Policy.



Our investment expenditure on the Welsh Rail Network will amount to £72M over the next year and £660M over the next ten years

10.1 Introduction

The railway in Wales is an integral part of the GB network and consists of some 1,411 route kilometres and 213 stations, providing significant links to other regions of Great Britain and Europe. Long-distance passenger and freight links are provided from north and south Wales via Crewe and Bristol Parkway, with links to ferries to Ireland via Holyhead and Fishguard.

A strong North–South link is provided by the route between Newport, Hereford and Shrewsbury. Mid Wales and the Cambrian coastline is served by regular services from Birmingham via Shrewsbury to Aberystwyth and coastal stations to Pwllheli. The introduction of radio signalling, modern trains and linespeed improvements in recent years has resulted in much-improved services.

The network plays a significant local public transport role in the major centres of population such as Wrexham, Newport, Swansea and the Cardiff Valleys. Rural communities in many areas are linked into the network which serves social, journey-to-work, and tourist needs.

The network also provides for long-distance freight haulage and links to major Welsh ports and rural areas. Opportunities exist for the development of intermodal traffic to mainland Europe via the Channel Tunnel direct rail services.

Our investment expenditure on the Welsh Rail Network will amount to £72M over the next year and £660M over the next ten years. It is important to note that, while these figures relate to the actual spend within Wales, many of the investment schemes are an integral part of the overall Route Strategies going beyond the Welsh border. Also, investment on the routes connecting with the Welsh network will benefit Wales, for example by reducing journey times to and from other regions.

Maximising the benefits of the existing transport network will contribute towards achieving sustainable development and sharing the benefits of economic prosperity across Wales. Wales is located peripherally to Europe, and this has a marked impact on its transport needs. Fast, modern, road-and-rail communications are widely regarded as essential to the achievement of economic regeneration, especially in the remoter and generally rural areas of North West and South West Wales.

10.2 The Welsh Office and local authorities

We work with the Welsh Office and local authority land-planning and transport committees to achieve an integrated transport strategy within Wales. We look forward to continuing this close working relationship with the National Assembly for Wales.

We are already working in partnership with local authorities to develop innovative schemes to grow the rail business, make the network more attractive, and where rail can provide a viable alternative to encourage Wales to be less reliant on road transport.

We are progressing the enhancement of the Cardiff Valleys Routes in partnership with South Wales Integrated Fast Transit (SWIFT), which comprises local authorities and transport bodies involved in the network; our aim is to provide more frequent and faster rail services with improved interchanges and to enhance freight capability.

We are working closely with the Welsh Development Agency, North Wales Economic Forum and other industry partners to ensure the successful implementation of a number of schemes including increasing linespeeds in North Wales.

Building on the success of recent partnerships – with SWIFT, West Wales Rail Forum, Transport Integration in the Gwent Economic Region and the South Wales Rail Forum – Railtrack intends to play its part in delivering the Government's stated goal of an integrated transport system both within Wales and through its links to other regions.

In addition, we are participating in the:

- European Task Force Transport Infrastructure Group for Wales (European Objectives One and Two).
- Welsh Transport Advisory Group and its Working Groups on Accessibility and Land-Use Planning.

We share information obtained from the Route Strategies that we have recently prepared, to assist transport corridor and package planning with the Welsh Office and local authority rail forums.

We are working closely with the Welsh Development Agency, North Wales Economic Forum and other industry partners

10.3 Sustaining the network

Signalling

On the South Wales Main Line, our strategy is to sustain existing equipment until we replace it with the modern radio-based Train Control System beyond 2007.

On the Cardiff Valleys Route, where mechanical signal boxes are not planned to be replaced, we will undertake specific life-extension works such as rewiring.

The Cambrian Main and Coast lines currently operate modern, radio-electronic token-block signalling from Machynlleth. Renewal work on Machynlleth signal box and the radio signalling system are both included in our current plan. On the Cambrian Coast Line we plan to complete work to improve reliability of the radio signalling system in 2000.

Over the next ten years we plan to spend over £190M on renewing the signalling of the rail network within Wales, replacing life expired signalling with state-of-the-art modern equipment. At Penmaenmawr and Abergele, on the Chester–Bangor section, we have improved performance by fitting axle-counters to replace track circuits prone to interference from sea spray.

On freight-only lines, our strategy is to simplify operations to improve reliability and efficiency.

Track

Routes in Wales will benefit from strategies that we have developed for the whole network. These include:

- achieving the optimum balance between maintenance and renewals.
- ensuring that track meets targets for performance, quality and reliability.
- working with contractors to find more efficient ways of carrying out maintenance and renewals.
- using new materials such as steel sleepers to improve efficiency and reduce whole-life costs; we have relaid 24 miles of track in the Cardiff Valleys with steel sleepers and will complete a further four miles in 1999.
- simplifying layouts on freight routes to improve reliability.

Over the next ten years, we plan to spend £50M on track renewals within Wales, providing a solid foundation on which to build further improvements.

We are currently undertaking a programme of renewals in the Severn Tunnel to support improvements to the quality of track through the tunnel.

Structures

We have carried out sea-defence work at Llanfairfechan (near Bangor) and plan to undertake similar work at Tal-y-Cafn on the River Conwy and at both Friog Cliffs and Afon Wen on the Cambrian coast. We also plan the reconstruction of Glan Conwy Bridge on the Blaenau branch.

Our strategy to reinstate linespeeds on the Cambrian Line is through the renewal of the timber structures on the route. This will be complete upon finalisation of the necessary works to Barmouth Viaduct. This Grade II Listed Structure was originally constructed in the 1860s and rebuilt at the turn of the century to carry heavier trains. The viaduct is 2,219 feet in length, has 113 spans and is the longest operational railway timber structure in Europe. We plan to spend £10M to maintain structural integrity of the viaduct, increase linespeeds for Sprinter traffic and introduce the capability for locomotive hauled services.

In recent years, we have completed a significant programme of structure renewals on the Central Wales and Newport–Crewe Routes. Over the next two years, on the Cardiff Valleys Route, we will focus on structures sensitive to flooding.

We are evaluating options for major refurbishment of St Julian's Viaduct over the River Usk near Newport in 2001/02.

We will carry out a programme to improve the stability of embankments on all routes over the next ten years.

We expect passenger travel on the North Wales Coast Line to be transformed by the introduction of new rolling stock and by an increase in the maximum speed to 90mph

Level crossings

We will undertake renewals of selected level-crossing equipment as part of a continuing programme to ensure safe and reliable operation.

We have recently upgraded level crossings at Pwllheli Goods, Sandilands and Llandre from open to automatic half-barrier to improve safety for users.

We plan to convert Pencoed level crossing (near Cardiff) to remote control using CCTV in 2002 and to improve lighting at other crossings in South Wales controlled by CCTV.

We plan to automate three level crossings in West Wales by 2008: Kidwelly level crossing will be converted to automatic half-barriers and Pembrey and Ferryside level crossings to remote control with CCTV.

Telecommunications

We have a programme to renew signal-post telephone systems in the Newport, Cardiff and Port Talbot areas between 1999–2002 and at Machynlleth in 2001.

Stations and depots

We have completed provision of disabled access at Porth this year, and we intend to install disabled access to Platform 3 at Cardiff Queen Street by 2000.

We will also renew the lifts at Cardiff Queen Street in 2000/01. We are undertaking major refurbishment at Cardiff Central in 1999 which will enhance the station environment and enable the station to handle the large numbers of passengers attending events such as the Rugby World Cup at the adjacent National Stadium of Wales.

Working with the Cardiff Railway Company, we intend to renew and improve customer-information systems on the Cardiff Valley Lines in 1999–2001. We will carry out further renewals in West Wales in 2006/07.

On the North Wales Main Line, we are in discussion with train operators about upgrading and renewing customer-information systems.

10.4 Developing the network

Passenger

In the Cardiff Valleys, local authorities and the Cardiff Railway Company are keen to provide greater capacity and better journey times to offer an attractive alternative to road use.

We expect passenger travel on the North Wales Coast Line to be transformed by the introduction of new rolling stock by First North Western and Virgin Trains, and by an increase in the maximum speed from 75mph to 90mph between Chester and Bangor to reduce journey times.

Links to Wales

We will strengthen links between Wales and London, Manchester and other regions through shorter journey times as well as improved performance and additional capacity to accommodate growth in services.

The WCML upgrade over the next six years will deliver increased capacity and reliability between London, Birmingham and Crewe, along with infrastructure and systems to support tilting trains travelling at speeds up to 140mph. This will enable Virgin Trains to offer more services and shorter journey times to Wales progressing from 2002 onwards. The full new service will operate from 2005.

In our longer term plans, we are developing the scope for infrastructure changes to improve the capacity of the railway between Chester and Holyhead to allow more frequent services.

Substantial renewal work on the signalling system around the Shrewsbury area – at the gateway to the Cambrian Line into Mid Wales – and the lines to Newport and Wrexham will improve both reliability and flexibility at this key node. Feasibility studies to evaluate all available options are now in place and works will be complete within the next three years.

On the Great Western Main Line, we will raise line speeds, and work is under way to ease congestion at Reading and in the Severn Tunnel to improve performance and capacity. We have completed works to reduce flooding in the Chipping Sodbury Tunnel and we will undertake further improvements. A half-hourly service between London and Cardiff will be introduced in 2001. On the GWML route we will increase the freight loading gauge.

The Taff Vale North upgrade will provide additional capacity and higher linespeeds between Abercynon, Merthyr Tydfil and Aberdare and combined stations at Abercynon in 2000–02

We will raise linespeed between London and South Wales by 2003. Additional platforms at Reading, Swindon and Bristol, and layout alterations at Reading will increase capacity for services from South Wales to London and to the south coast during 2001–06. We will create an additional signal section in the Severn Tunnel in 2000/01 to increase capacity, subject to Her Majesty's Railway Inspectorate approval. We will programme this Severn Tunnel work in phases, along with track and other signalling improvements, to avoid a long period of closure.

We will modernise existing signalling between London and Swansea in 2007–09. This will improve flexibility and reliability and will further increase capacity.

Links between Manchester and North Wales have recently been strengthened by the improvement of signalling in the Eccles area.

On the Wrexham–Bidston Line, we have been working successfully with First North Western to improve the punctuality and reliability of the passenger services, and this joint approach has heralded a significant improvement in Passenger's Charter performance. First North Western have also expressed an interest in improving line speeds on this route, and we are currently exploring the options to enable us to meet this aspiration.

We have begun work on behalf of First North Western on a major new light maintenance depot at Chester to service the company's new rolling stock used on routes in North Wales and elsewhere. This facility will be completed in December this year.

On the Newport–Crewe route, we plan to carry out improvements in 2000–04 to increase reliability, in particular, through relocation of crossover points and, subject to funding, provision of additional capacity for freight.

Within Wales

We have completed a feasibility study into improving linespeeds in North Wales to 90mph and will start work in 2000. Funding comes jointly from the Welsh Office and Railtrack. When we have implemented this scheme, journey times will improve, giving a possible time of under one hour from Chester to Bangor when First North Western and Virgin Trains introduce their new stock on the route. As well as meeting local needs, this will benefit longer-distance flows including the link between Ireland and the UK and the rest of Europe.

For the Cardiff Valleys Route, in conjunction with SWIFT, the following schemes will progress:

- In 2000–03, track and signalling alterations between Cardiff Queen Street and Cardiff Central to improve capacity and reliability in the hub of the Valleys network.
- Taff Vale North upgrade to provide additional capacity and higher linespeeds between Abercynon, Merthyr Tydfil and Aberdare and combined stations at Abercynon in 2000–02.
- Station relocation and passing loop at Mountain Ash in 2000–02 to improve capacity.
- Upgrade of the Rhymney Valley Line in 1999–2002, to improve capacity, reliability and linespeed.
- An additional platform at Bargoed station in 1999/2000.

In addition, we will complete linespeed improvements currently under way north of Cardiff this year. We will also install improved facilities to ensure security of passengers at many Valleys stations during 1999/2000.

Together with the local authority we are considering new stations at Brackla and Llanharan in 2000/01, and at Magor once future development of the theme park is clear.

We will carry out improvements to the Vale of Glamorgan Line in 1999–2002 to accommodate a passenger service and additional freight trains, and we are evaluating new stations at Rhoose and Llantwit Major in partnership with SWIFT.

We will expand the gauge on the route from London–Cardiff to allow W10 traffic to be carried

A feasibility study is being prepared by the local authorities to explore the economics of reintroducing passenger services to Ebbw Vale and Abertillery.

We will complete the Station Regeneration Programme in Wales in 2001. So far, we have finished 159 stations and will complete a further 54 by the end of May 2001. We are taking opportunities to improve disabled facilities, interchange facilities and station security.

We have recently completed £3M of station regeneration works at Holyhead, including major refurbishment of the roof.

At Llandudno Junction we will spend £1.2M during 1999 on station regeneration works, including provision of new lifts.

Freight

There is demand for an extended loading gauge to cater for continental traffic via the Channel Tunnel, and for heavier axle weights and longer trains as well as new terminals. To meet this demand, we will work with our industry partners to provide additional capacity and enhanced capability on key freight routes within Wales and those linking it with the rest of the UK and Eire.

We will expand the gauge on the route from London–Cardiff to allow W10 traffic to be carried. This will be achieved in stages, with a target completion in 2005. The WCML upgrade will provide a similar improvement and will benefit links to Wales via Crewe. A detailed study has been carried out into a freight-gauge enhancement to Holyhead.

Following recent completion of the Trans-European Networks study for a world-class rail transportation network for the South West, we will progress a similar study for South Wales with our partners inside and outside the industry. This study will benefit both freight and passenger train operators.

We will increase capacity on the Newport–Crewe route in 1999–2004 to accommodate additional freight traffic, largely by shortening signal sections and improving passing loops. We will also lengthen passing loops to cater for longer, 750m trains.

We will carry out improvements to the Vale of Glamorgan Line in 1999–2002 to improve capacity and reliability as an alternative route to the South Wales Main Line between Cardiff and Bridgend. We will also complete work to modernise the line from Newport to Ebbw Vale in 1999, improving linespeed, reliability and capacity.

Construction of a major European intermodal terminal will begin this year in partnership with the Welsh Development Agency, the Welsh Office, Cardiff County Council and Freightliner at Wentloog near Cardiff. This terminal will have a secure bonded area, meeting EU standards, and capacity to accommodate future growth.

Several terminals have reopened to freight traffic in the past 12 months at Brynteg (coal), Rhymney (steel), Carmarthen (fertiliser), Pembroke Dock (MoD traffic) and Neath (aggregates).

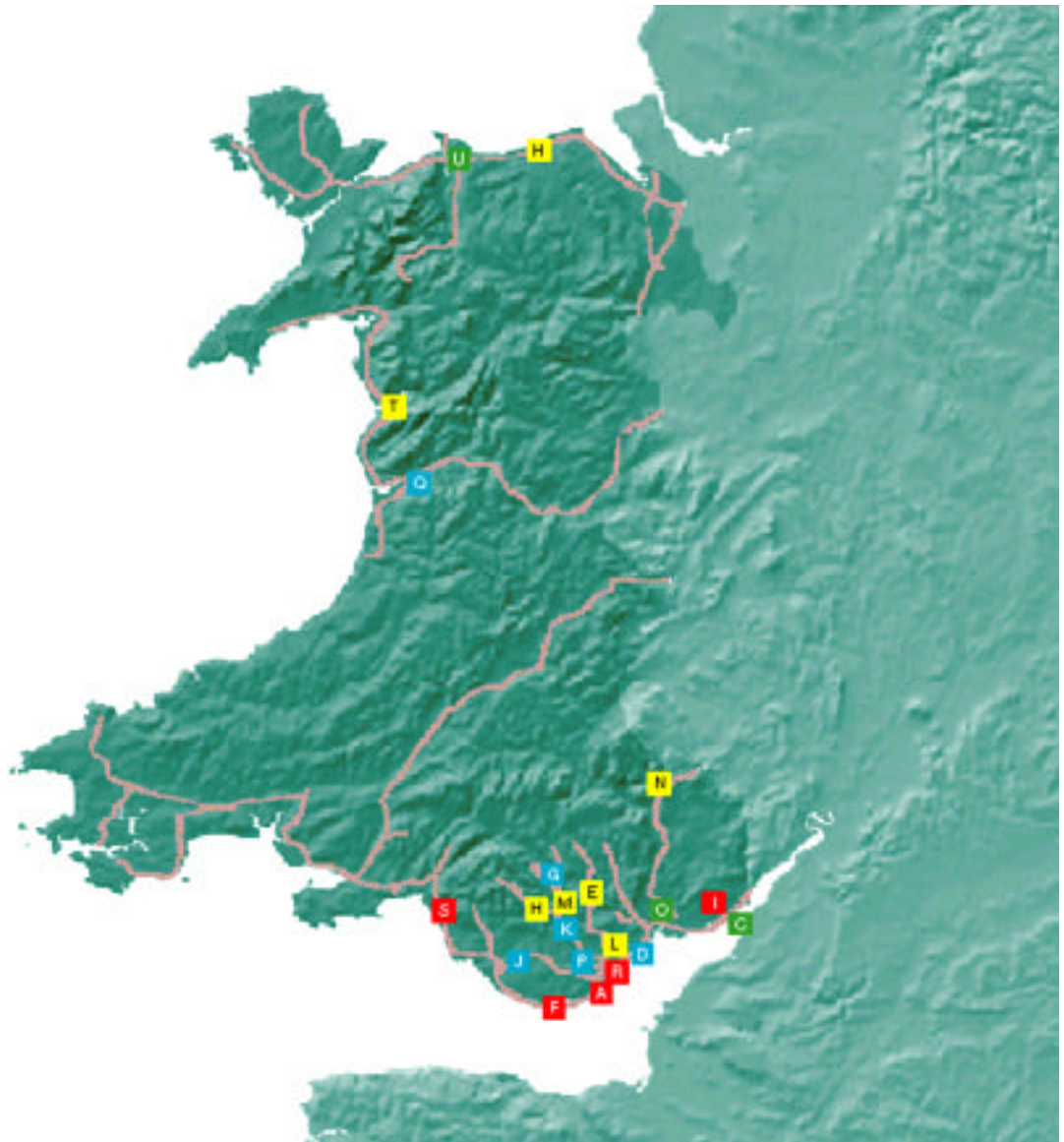
Table A Expenditure on maintenance, renewals and enhancement in Wales (£M – 1998/99 prices)

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
MAINTENANCE	26	25	24	23	22	22	22	22	21	21	20
RENEWALS											
TYPE OF ASSET											
Track	9	5	4	4	5	5	5	5	6	6	6
Structures	9	8	6	8	5	7	6	6	6	6	6
Signalling	4	4	7	8	6	5	4	16	71	37	37
Plant & Machinery	0	1	1	1	2	3	0	0	0	0	0
Telecoms	1	2	2	2	0	0	0	0	1	1	0
Stations	12	7	2	3	3	3	3	5	4	6	4
Depots	0	2	0	0	1	1	1	1	1	0	1
RENEWALS TOTAL	35	29	22	26	22	24	19	33	89	56	54
ENHANCEMENT TOTAL	11	14	7	8	10	18	1	1	4	4	1
TOTAL	72	68	53	57	54	64	42	56	114	79	75

10.5 Expenditure to achieve vision for Wales (EM – 1998/99)

NAME AND DESCRIPTION OF SCHEME	TIMESCALE	COST (£M)*
A Cardiff Central Station and Central Square Major refurbishment of Cardiff Central Station and the square in front of the station, including additional facilities to cater for the 1999 World Cup, with funding from Cardiff Bay Development Corporation, the Welsh Office and Railway Heritage amounting to £1.5M.	1999	13
B Station security Improvements to station security through the use of CCTV.	2000	2
C Severn Tunnel improvement works Structural repairs to the tunnel to improve track quality.	2001	6
D Wentloog freight terminal Construction of a connection into the main line giving access to a new freight terminal near Cardiff.	2000	3
E Rhymney Valley capacity enhancement Track and signalling alterations and an additional platform at Bargoed North to improve capacity, reliability and linespeed.	2004	14
F Vale of Glamorgan route enhancement (freight services) Track and signalling improvements to increase capacity and linespeed, so that the route is more suitable for use by trains diverted off the SWML between Cardiff and Bridgend.	2002	6
G Mountain Ash diversion Diversion of line to allow land reclamation, signalling improvements and possible new station, funded by SWIFT.	2002	3
H North Wales linespeed Infrastructure improvements to allow raising of linespeed between Chester and Bangor.	2000	1
I Severn Tunnel signalling Create an additional signal section in the Severn Tunnel to improve capacity.	2001	1
J Brackla and Llanharan – new stations Possible construction of new stations at these locations with local authority funding.	2001	2
K Cardiff Valleys – customer-information systems Renewal of customer-information systems at stations in the Cardiff Valleys to complement work shortly to be undertaken by Cardiff Railway Company.	2001	2
L Cardiff Central Rail Corridor capacity Track and signalling alterations to improve capacity between Cardiff Central and Queen Street to accommodate growth in train services on the Valleys network.	2003	9
M Taff Vale North modernisation Improvements to layout and signalling in the Cynon, Merthyr and Rhondda valleys to improve capacity and linespeed.	2002	1
N Newport–Crewe Route Strategy Shortening of signal sections, enhanced passing loops and relocated crossovers to provide greater capacity to accommodate freight growth and to improve performance.	2004	7
O St Julian's Viaduct near Newport Major refurbishment of this viaduct.	2002	2
P Cardiff Valleys – station improvements A package of improvement schemes at various stations in the Cardiff Valleys.	2004	1
Q Machynlleth signalling Works to extend the life of the signalling installation.	2004	1
R Cardiff Central Station – car park Acquisition and development of a multistorey car park to serve the station.	2006	5
S Signalling equipment renewal Life extension and renewal of signalling from Severn Tunnel–Swansea, to meet customers' needs, improve performance and reduce maintenance costs.	2009	105
T Barmouth Viaduct Renewal works and reopening of the viaduct to loco-hauled trains	2002	10
U Llandudno Junction Station improvements	1999	1

* Total cost including renewal and enhancement expenditure



zonal plans & route strategies

11. Zonal plans

Zone map and explanation of colour coding..Page 126

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Route Strategies

1	West Coast Main Line: London to Glasgow and Edinburgh
2	East Coast Main Line: London to Edinburgh
3	Great Western Main Line: London to Bristol and Swansea
4	Reading and Bristol to Penzance and branches
5	Midland Main Line: London to Sheffield
6	Channel Tunnel Routes
7	Derby to Bristol and Didcot via Birmingham
8	North Trans-Pennine: Liverpool to Leeds, Hull and Scarborough
9	Birmingham and Coventry to Peterborough
10	Crewe to Newport via Shrewsbury
11	Wolverhampton to Chester, Aberystwyth and Pwllheli
12	Manchester and Crewe to North Wales
13	Manchester to Sheffield and North Lincolnshire
14	Edinburgh to Glasgow, Glasgow and Edinburgh to Aberdeen and Inverness
15	West Anglia Main Line and branches



- 16** Great Eastern Main Line and branches
- 17** London, Tilbury and Southend
- 18** Chatham Main Line and North Kent
- 19** Brighton Main Line and South London network
- 20** South Coastal Route: Portsmouth to Ashford
- 21** London to Portsmouth and Weymouth
- 22** Wessex Routes
- 23** Clapham Junction to Reading and branches
- 24** Isle of Wight: Ryde to Shanklin
- 25** Chiltern Lines
- 26** North London Line
- 27** Cotswolds
- 28** Cardiff Valleys
- 29** West Wales
- 30** West Midlands local Routes

- 31** East Midlands local Routes
- 32** Merseyside
- 33** Manchester to the coast
- 34** Lancashire
- 35** Cumbria
- 36** Yorkshire
- 37** North East England
- 38** South West Scotland
- 39** Strathclyde
- 40** Edinburgh and Fife
- 41** Highlands
- 42** Freight-only routes: Southern England and South Wales
- 43** Freight-only routes: Midlands
- 44** Freight-only routes: Northern England
- 45** Freight-only routes: Scotland





Base map ©MAPS IN MINUTES™1997

Colour coding used on the Route Strategies

We have used a colour-coding system throughout the Route Strategies to identify the type of scheme.

Work already committed to in previous Network Management Statements

These are schemes we have already committed to deliver in previous Statements including the West Coast Route modernisation and Thameslink 2000.

New proposals made in this NMS

These new proposals fall into three packages:

Package 1 – Commercial. These are schemes that do not require public sector funding and in which we have sufficient control of the outputs to be able to take long-term demand risk. They require no up-front agreement with any public sector body – other than understanding of their treatment for regulatory purposes.

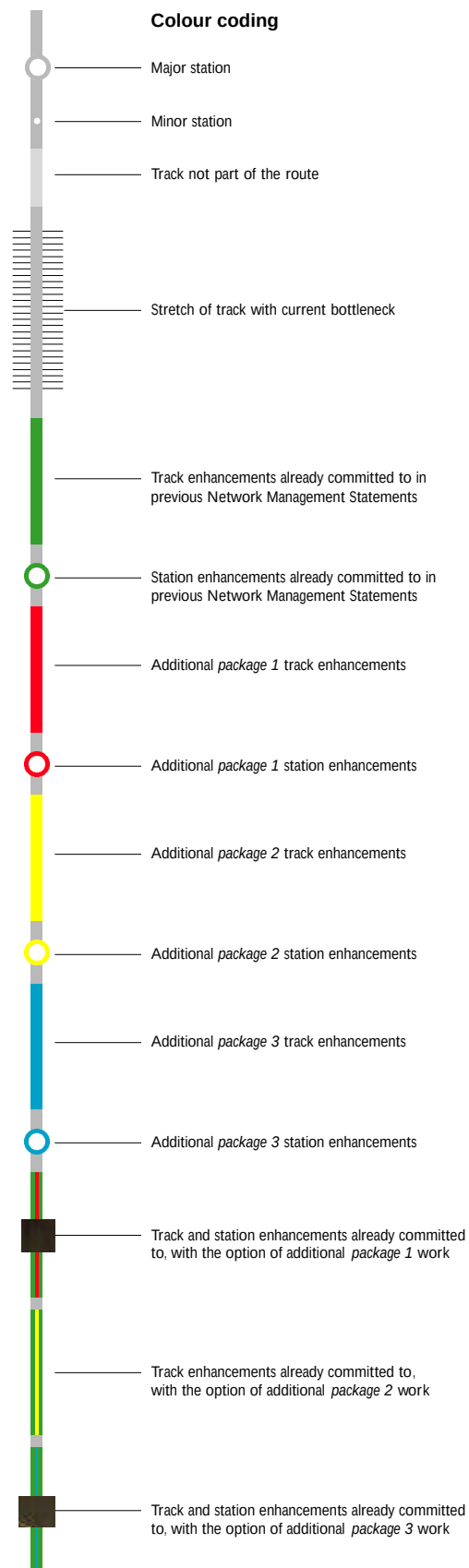
Package 2 – Partnership. These are also schemes where we wish to take demand risk but they require agreement with a funder for 'pump priming' investment before they can proceed.

Package 3 – Contractor. These schemes are generally unsuitable for us to take any demand risk, although we would take appropriate construction risk. Many of these projects are station schemes.

Feasibility Studies

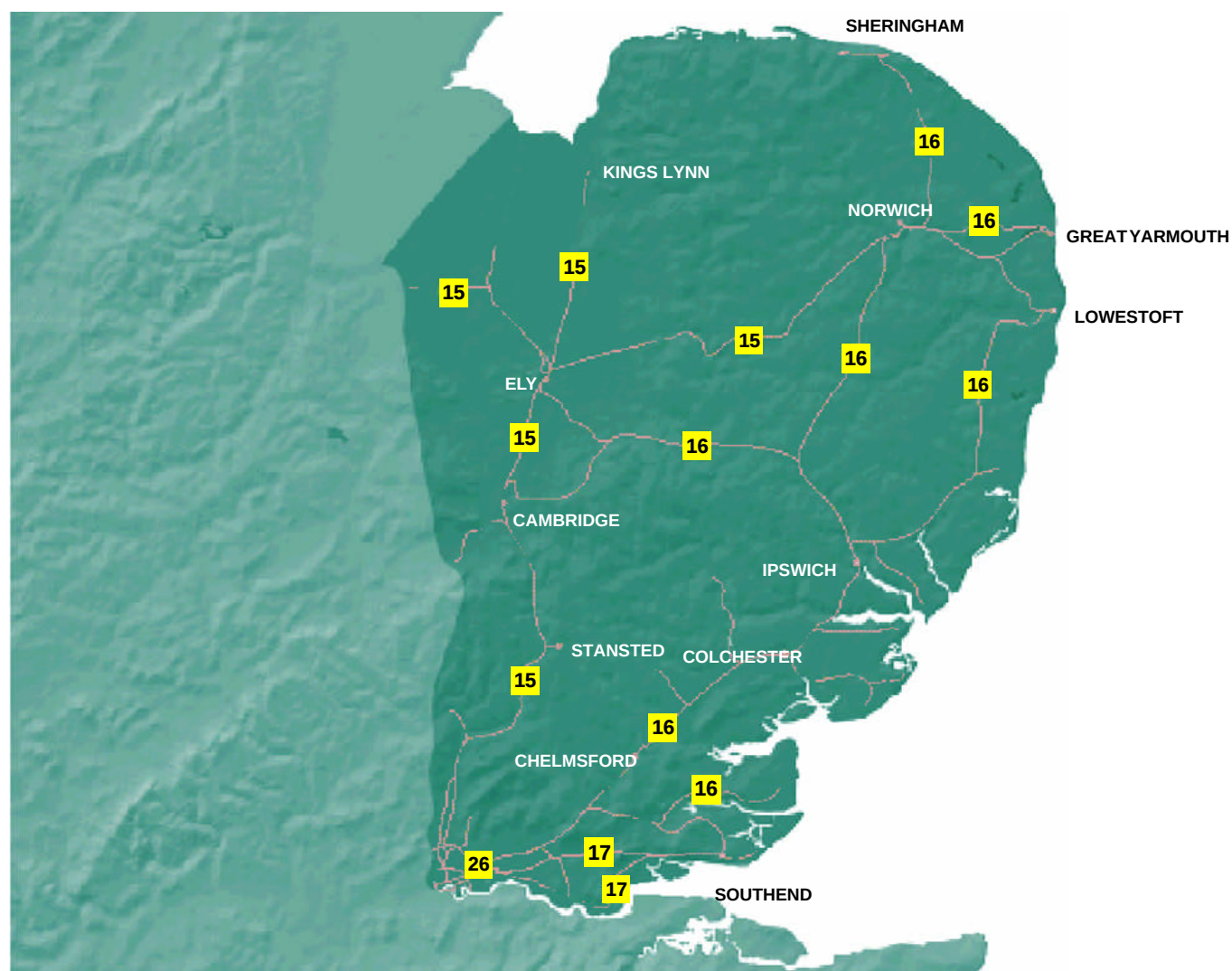
These are proposals that, at the publication of this NMS, have not yet been subjected to sufficient feasibility analysis to determine whether and how they should proceed. These schemes will be analysed during the next 12 months and the outcomes reported on in the 2000 NMS.

(E) This project has been awarded European funding.



Routes shown in detail:

- 15** West Anglia Main Line and branches
- 16** Great Eastern Main Line and branches
- 17** London, Tilbury and Southend
- 26** North London Line



Maintenance expenditure (£M – 1998/99 prices)

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
	72	66	64	63	62	61	62	62	62	62	61

Renewals expenditure (£M – 1998/99 prices)

TYPE OF ASSET											
Track	29	26	25	34	34	33	29	28	31	29	29
Structures	10	11	12	14	22	16	16	17	17	15	15
Signalling	23	19	22	28	31	22	2	14	15	34	34
Electrification	4	3	11	5	12	10	3	1	0	0	0
Plant & Machinery	0	0	0	0	1	1	1	0	0	1	1
Telecoms	1	6	7	4	4	3	6	0	0	0	0
Stations	21	22	14	11	12	12	12	13	12	12	12
Depots	7	4	1	3	3	3	3	3	2	2	2
TOTAL	95	91	92	99	119	100	72	76	77	93	93

Renewal rates

RENEWAL											
Rail renewed (km per year)	64	34	36	*	*	*	*	18	*	*	18
Sleepers renewed (km per year)	51	32	33	*	*	*	*	42	*	*	31
Ballast renewed (km per year)	55	38	40	*	*	*	*	52	*	*	52
Signals renewed (km per year)	22	55	23	*	*	*	*	248	*	*	27
Structures renewed (no. of structures)	5	1	0	*	*	*	*	3	*	*	3

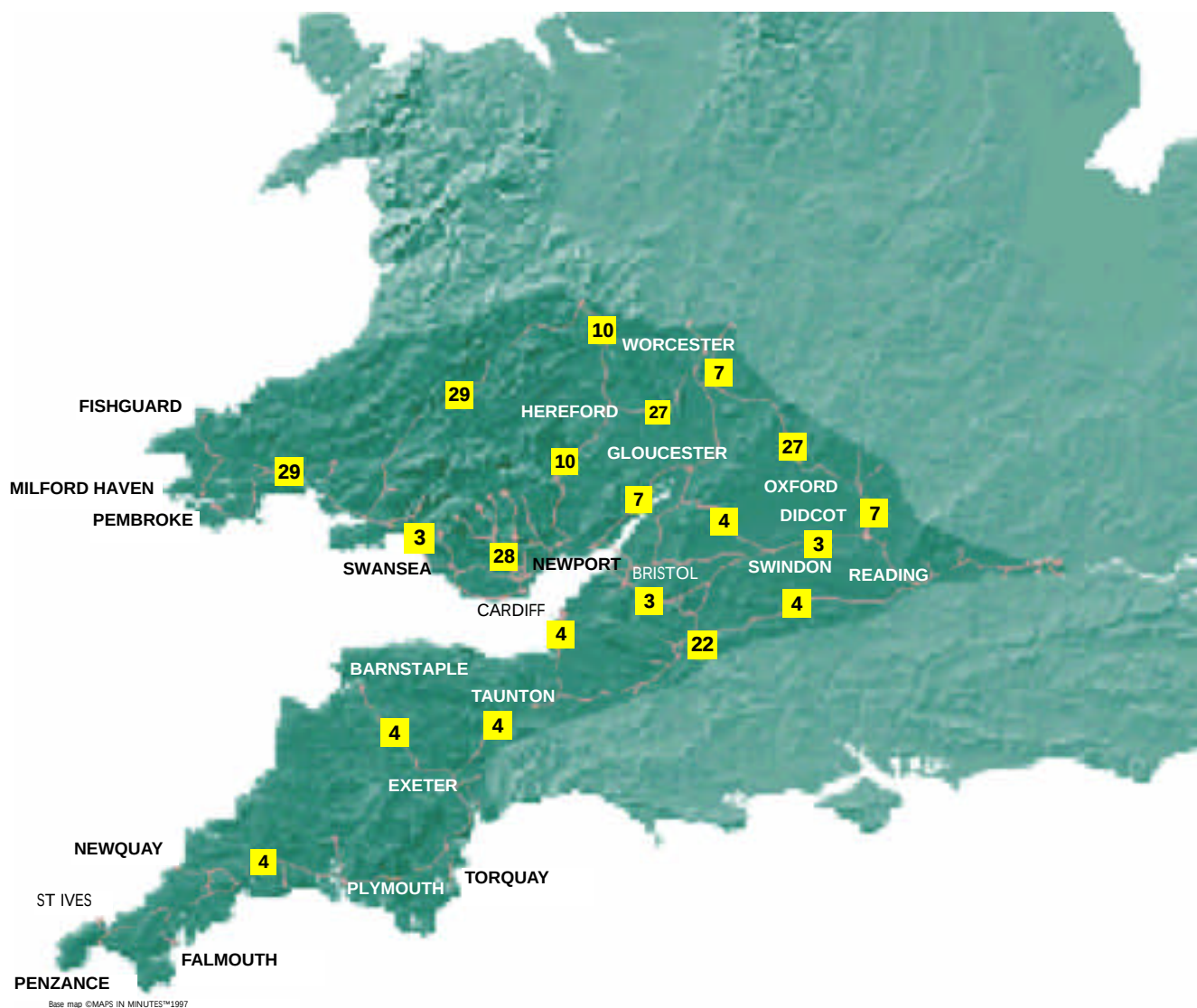
*A forecast only provided for 1998/99, 1999/2000, 2000/01, 2005/06, 2008/09

Enhancement expenditure (£M – 1998/99 prices)

TYPE OF ASSET											
Track	0	1	7	12	14	8	0	0	0	0	0
Structures	1	2	2	39	22	19	15	15	0	0	0
Signalling	2	1	9	15	10	20	0	5	0	0	0
Electrification	4	1	0	4	1	5	11	6	8	16	20
Plant & Machinery	0	0	0	0	0	0	0	0	0	0	0
Telecoms	1	2	0	0	0	1	0	0	0	0	0
Stations	13	21	8	9	3	2	0	0	0	0	0
Depots	0	1	0	0	0	0	0	0	0	0	0
TOTAL	21	29	26	79	50	55	26	26	8	16	20

Routes shown in detail:

- 3** Great Western Main Line: London to Bristol and Swansea
- 4** Reading and Bristol to Penzance and branches
- 7** Derby to Bristol and Didcot via Birmingham
- 10** Crewe to Newport via Shrewsbury
- 22** Wessex
- 27** Cotswolds
- 28** Cardiff Valleys
- 29** West Wales



Maintenance expenditure (£M – 1998/99 prices)

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
	96	91	88	84	84	82	83	83	83	82	81

Renewals expenditure (£M – 1998/99 prices)

TYPE OF ASSET											
Track	57	30	30	33	35	37	40	43	45	51	56
Structures	24	20	21	32	28	28	24	24	21	19	20
Signalling	9	13	14	19	19	11	9	81	148	114	38
Electrification	0	1	1	0	0	0	0	0	0	0	0
Plant & Machinery	1	5	4	4	6	9	5	3	2	2	3
Telecoms	3	8	4	3	3	1	1	2	5	3	0
Stations	28	18	11	13	11	11	11	10	10	12	11
Depots	0	10	2	3	4	4	4	3	2	2	2
TOTAL	122	105	87	107	106	101	94	166	233	203	130

Renewal rates

RENEWAL											
Rail renewed (km per year)	18	48	67	*	*	*	*	37	*	*	37
Sleepers renewed (km per year)	18	82	61	*	*	*	*	76	*	*	153
Ballast renewed (km per year)	2	82	61	*	*	*	*	62	*	*	62
Signals renewed (km per year)	35	0	0	*	*	*	*	95	*	*	95
Structures renewed (no. of structures)	12	3	3	*	*	*	*	5	*	*	5

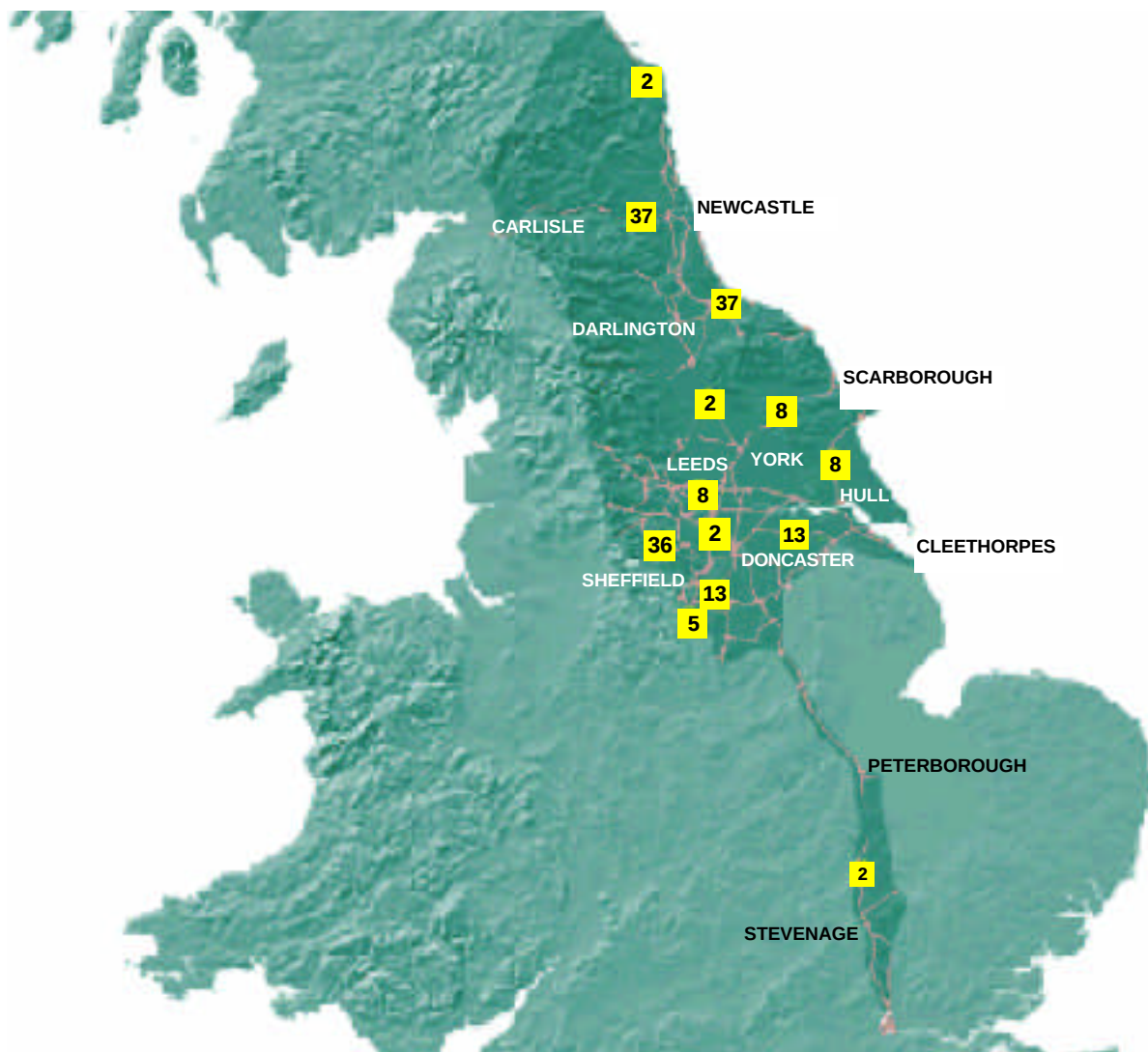
*A forecast only provided for 1998/99, 1999/2000, 2000/01, 2005/06, 2008/09

Enhancement expenditure (£M – 1998/99 prices)

TYPE OF ASSET											
Track	2	8	9	119	52	88	56	36	29	4	1
Structures	6	1	1	22	26	43	38	19	19	0	0
Signalling	4	8	7	47	55	62	50	30	26	0	0
Electrification	1	0	0	2	0	5	5	5	0	0	0
Plant & Machinery	0	2	0	0	0	0	0	0	0	0	0
Telecoms	2	2	1	0	0	0	0	0	0	0	0
Stations	63	46	27	34	20	16	9	9	5	5	5
Depots	1	2	0	5	14	2	0	0	0	0	0
TOTAL	79	69	46	229	167	216	158	99	79	9	6

Routes shown in detail:

- 2** East Coast Main Line: London to Edinburgh
- 5** Midland Main Line: London to Sheffield
- 8** North Trans-Pennine: Liverpool to Leeds, Hull and Scarborough
- 13** Manchester to Sheffield and North Lincolnshire
- 36** Yorkshire
- 37** North East England



Base map ©MAPS IN MINUTES™1997

Maintenance expenditure (£M – 1998/99 prices)

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
	100	98	97	97	98	98	97	97	96	95	93

Renewals expenditure (£M – 1998/99 prices)

TYPE OF ASSET											
Track	46	42	40	54	47	48	47	50	56	57	57
Structures	26	23	23	26	24	23	22	16	18	17	17
Signalling	18	20	11	34	29	24	19	22	23	24	30
Electrification	3	1	4	2	1	2	5	19	19	18	8
Plant & Machinery	4	2	4	6	3	5	6	5	3	2	1
Telecoms	1	4	4	0	0	0	1	1	1	1	1
Stations	32	33	40	16	13	13	13	14	13	13	13
Depots	5	5	1	3	2	2	2	2	2	2	2
TOTAL	135	130	127	141	119	117	115	129	135	134	129

Renewal rates

RENEWAL											
Rail renewed (km per year)	54	58	58	*	*	*	*	29	*	*	29
Sleepers renewed (km per year)	48	33	34	*	*	*	*	38	*	*	26
Ballast renewed (km per year)	78	51	51	*	*	*	*	61	*	*	62
Signals renewed (km per year)	15	30	30	*	*	*	*	30	*	*	30
Structures renewed (no. of structures)	36	13	18	*	*	*	*	18	*	*	18

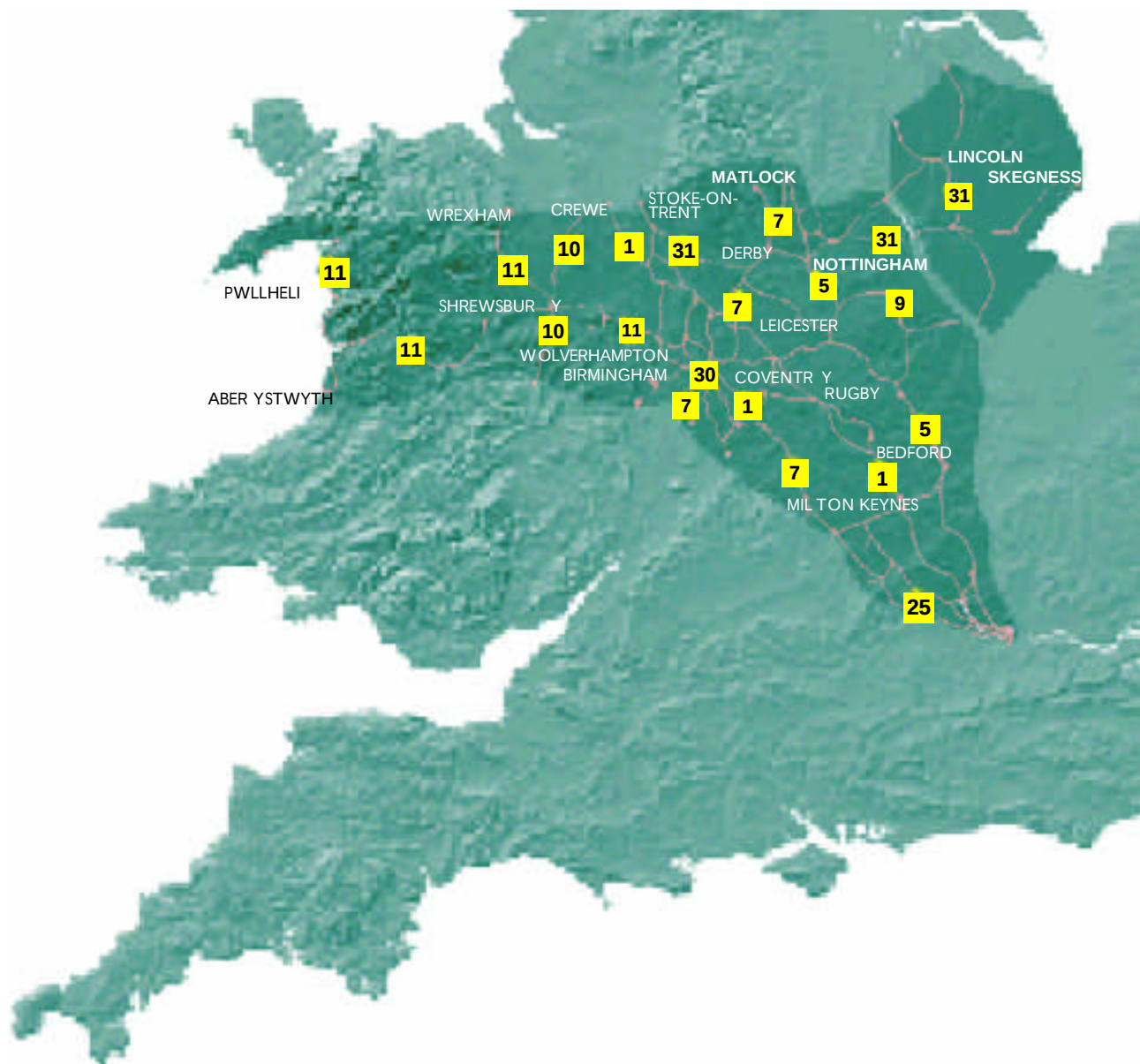
*A forecast only provided for 1998/99, 1999/2000, 2000/01, 2005/06, 2008/09

Enhancement expenditure (£M – 1998/99 prices)

TYPE OF ASSET											
Track	7	14	35	76	14	96	38	3	16	33	36
Structures	1	9	6	12	22	4	6	17	54	46	50
Signalling	3	9	25	42	48	9	23	2	17	28	37
Electrification	1	7	17	29	26	24	18	9	9	19	35
Plant & Machinery	0	2	1	0	0	0	0	0	0	0	0
Telecoms	0	1	2	1	1	0	0	0	0	0	0
Stations	14	20	20	21	38	31	23	0	0	0	0
Depots	4	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	1	2	0	0	0	0	4	7
TOTAL	30	62	106	182	151	164	108	31	96	130	165

Routes shown in detail:

- 1** West Coast Main Line: London to Glasgow and Edinburgh
- 5** Midland Main Line: London to Sheffield
- 7** Derby to Bristol and Didcot via Birmingham
- 9** Birmingham and Coventry to Peterborough
- 10** Crewe to Newport via Shrewsbury
- 11** Wolverhampton to Chester, Aberystwyth and Pwllheli
- 25** Chiltern Lines
- 30** West Midlands local Routes
- 31** East Midlands local Routes



Base map ©MAPS IN MINUTES™ 1997

Maintenance expenditure (£M – 1998/99 prices)

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
	129	121	120	120	116	112	107	107	100	100	98

Renewals expenditure (£M – 1998/99 prices)

TYPE OF ASSET											
Track	75	101	90	64	74	62	64	68	53	50	48
Structures	19	25	27	25	26	28	27	28	20	22	22
Signalling	67	152	205	219	174	173	113	86	31	23	28
Electrification	11	27	25	23	7	1	2	1	1	1	2
Plant & Machinery	3	1	0	2	0	1	1	0	0	0	0
Telecoms	13	7	13	20	22	13	3	2	1	1	1
Stations	43	46	32	17	16	16	16	17	16	16	16
Other	2	1	5	5	3	1	1	1	1	1	1
TOTAL	233	358	400	375	322	295	227	203	123	114	118

Renewal rates

RENEWAL											
Rail renewed (km per year)	69	79	61	*	*	*	*	34	*	*	34
Sleepers renewed (km per year)	88	118	91	*	*	*	*	109	*	*	81
Ballast renewed (km per year)	137	182	173	*	*	*	*	204	*	*	204
Signals renewed (km per year)	116	207	336	*	*	*	*	27	*	*	30
Structures renewed (no. of structures)	19	19	20	*	*	*	*	46	*	*	46

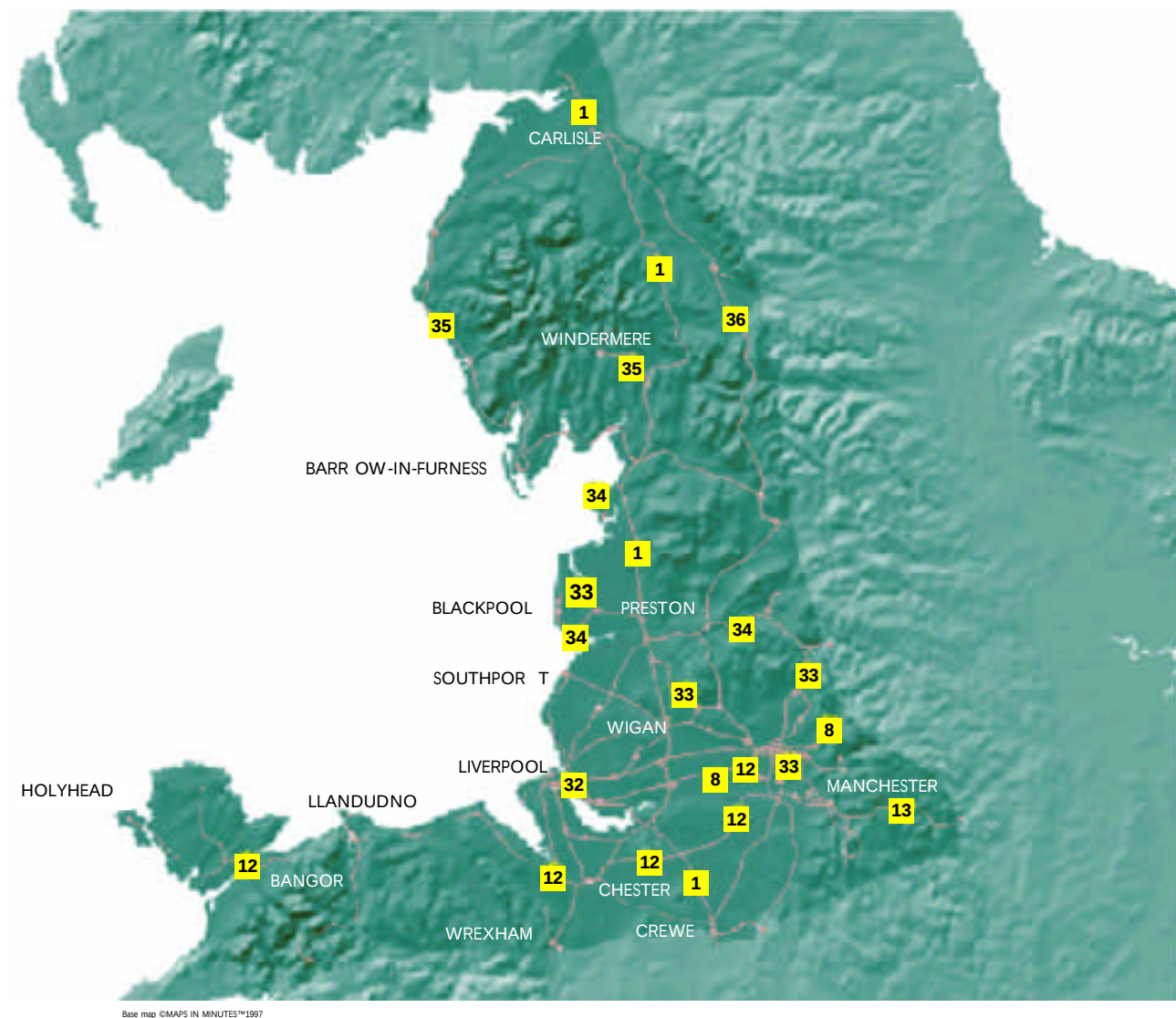
*A forecast only provided for 1998/99, 1999/2000, 2000/01, 2005/06, 2008/09

Enhancement expenditure (£M – 1998/99 prices)

TYPE OF ASSET											
Track	4	12	53	113	78	92	56	11	11	11	1
Structures	12	5	4	24	36	24	11	7	0	0	0
Signalling	11	9	20	34	79	56	62	10	0	0	0
Electrification	2	37	31	58	74	75	39	6	0	0	0
Plant & Machinery	1	0	0	0	0	6	5	0	0	0	0
Telecoms	0	1	0	0	2	2	0	0	0	0	0
Stations	26	27	16	16	12	30	33	22	0	3	0
Depots	6	0	0	0	0	0	0	0	0	0	0
Other	5	1	0	1	5	3	0	0	0	0	0
TOTAL	67	92	124	246	286	288	206	56	11	14	1

Routes shown in detail:

- 1** West Coast Main Line: London to Glasgow and Edinburgh
- 8** North Trans-Pennine: Liverpool to Leeds, Hull and Scarborough
- 12** Manchester and Crewe to North Wales
- 13** Manchester to Sheffield and North Lincolnshire
- 32** Merseyside
- 33** Manchester to the coast
- 34** Lancashire
- 35** Cumbria
- 36** Yorkshire



Maintenance expenditure (£M – 1998/99 prices)

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
	86	82	78	78	75	73	72	72	71	70	68

Renewals expenditure (£M – 1998/99 prices)

TYPE OF ASSET

Track	32	31	33	25	20	23	20	21	25	25	26
Structures	24	13	10	11	11	10	16	15	15	16	16
Signalling	24	18	25	33	32	23	16	23	21	20	27
Electrification	2	13	11	7	3	3	3	2	1	2	1
Plant & Machinery	3	3	1	2	3	1	1	1	1	0	0
Telecoms	6	6	8	12	13	10	6	5	5	2	2
Stations	51	45	32	19	13	10	10	10	10	10	10
Depots	1	1	1	2	2	2	1	1	1	1	1
Other	1	1	3	3	1	0	1	0	0	0	0
TOTAL	144	131	124	114	98	82	74	78	79	76	83

Renewal rates

RENEWAL

Rail renewed (km per year)	30	50	36	*	*	*	*	12	*	*	12
Sleepers renewed (km per year)	33	54	46	*	*	*	*	26	*	*	20
Ballast renewed (km per year)	36	54	46	*	*	*	*	40	*	*	40
Signals renewed (km per year)	70	108	129	*	*	*	*	58	*	*	47
Structures renewed (no. of structures)	5	2	0	*	*	*	*	8	*	*	8

*A forecast only provided for 1998/99, 1999/2000, 2000/01, 2005/06, 2008/09

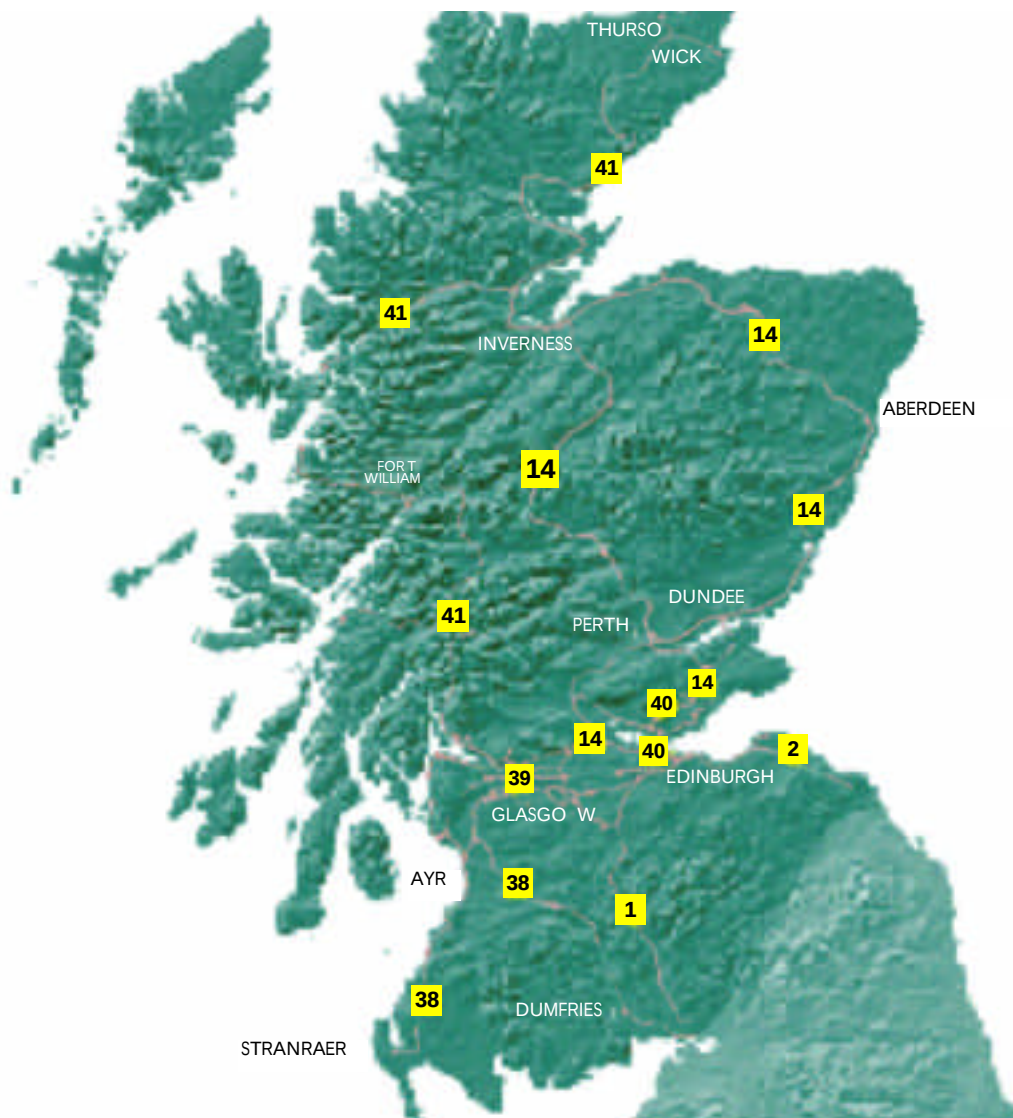
Enhancement expenditure (£M – 1998/99 prices)

TYPE OF ASSET

Track	11	15	22	81	72	7	18	0	0	0	0
Structures	6	5	6	8	24	25	7	0	0	0	0
Signalling	10	11	7	72	72	15	9	1	1	1	1
Electrification	2	11	12	19	15	6	1	0	0	0	0
Plant & Machinery	1	12	7	0	0	0	0	0	0	0	0
Telecoms	3	0	1	0	0	0	0	0	0	0	0
Stations	16	21	30	26	14	9	9	9	9	9	9
Depots	1	6	0	0	0	0	0	0	0	0	0
Other	2	1	3	5	1	1	0	0	0	0	0
TOTAL	52	82	88	211	198	63	44	10	10	10	10

Routes shown in detail:

- 1** West Coast Main Line: London to Glasgow and Edinburgh
- 2** East Coast Main Line: London to Edinburgh
- 14** Edinburgh to Glasgow, Glasgow and Edinburgh to Aberdeen and Inverness
- 38** South West Scotland
- 39** Strathclyde
- 40** Edinburgh and Fife
- 41** Highlands



Base map ©MAPS IN MINUTES™1997

Maintenance expenditure (£M – 1998/99 prices)

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
	79	69	68	69	70	71	67	67	67	66	65

Renewals expenditure (£M – 1998/99 prices)

TYPE OF ASSET

Track	36	23	19	24	26	29	29	28	28	29	29
Structures	22	23	27	27	21	21	18	18	17	18	18
Signalling	23	11	15	28	20	12	13	17	14	13	22
Electrification	7	6	7	12	7	4	8	8	9	6	8
Plant & Machinery	7	5	1	3	4	6	12	7	3	1	0
Telecoms	3	5	9	7	3	3	6	4	1	3	5
Stations	58	48	38	24	26	28	31	16	14	11	11
Depots	0	1	1	4	3	2	2	3	2	2	2
TOTAL	156	122	117	129	110	105	119	101	89	83	95

Renewal rates

RENEWAL

Rail renewed (km per year)	79	39	87	*	*	*	*	45	*	*	45
Sleepers renewed (km per year)	39	31	41	*	*	*	*	41	*	*	36
Ballast renewed (km per year)	39	35	42	*	*	*	*	55	*	*	55
Signals renewed (km per year)	21	50	0	*	*	*	*	80	*	*	50
Structures renewed (no. of structures)	0	8	14	*	*	*	*	12	*	*	12

*A forecast only provided for 1998/99, 1999/2000, 2000/01, 2005/06, 2008/09

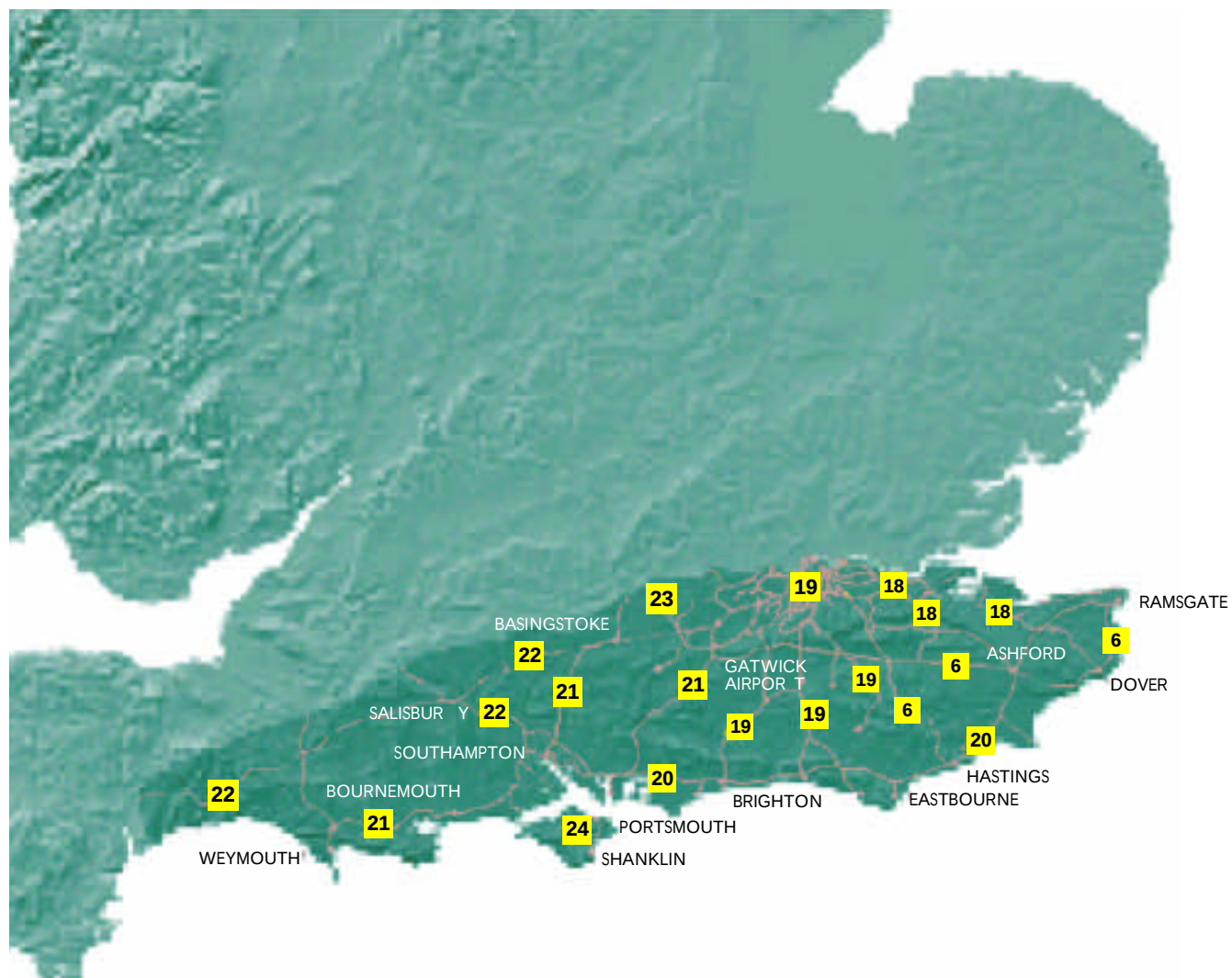
Enhancement expenditure (£M – 1998/99 prices)

TYPE OF ASSET

Track	6	3	6	14	2	0	0	0	15	15	0
Structures	1	16	17	12	32	20	1	1	1	1	1
Signalling	1	3	2	7	7	1	1	0	0	0	0
Electrification	1	2	2	4	3	0	0	0	0	0	0
Plant & Machinery	0	0	2	2	0	0	0	0	0	0	0
Stations	6	12	8	6	5	6	7	7	5	2	2
Depots	0	8	2	0	0	0	0	0	0	0	0
TOTAL	15	44	39	45	49	27	9	8	21	18	3

Routes shown in detail:

- 6** Channel Tunnel Routes
- 18** Chatham Main Line and North Kent
- 19** Brighton Main Line and South London network
- 20** South Coastal Route: Portsmouth to Ashford
- 21** London to Portsmouth and Weymouth
- 22** Wessex Routes
- 23** Clapham Junction to Reading and branches
- 24** Isle of Wight: Ryde to Shanklin



Base map ©MAPS IN MINUTES™1997

Maintenance expenditure (£M – 1998/99 prices)

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
	141	134	127	124	119	116	116	116	116	115	113

Renewals expenditure (£M – 1998/99 prices)

TYPE OF ASSET

Track	51	32	28	45	48	52	57	51	46	45	43
Structures	30	23	23	30	32	32	31	32	33	33	33
Signalling	40	37	41	65	66	74	69	69	38	35	49
Electrification	9	9	11	11	13	14	17	16	12	11	17
Plant & Machinery	2	2	5	9	3	2	2	1	1	2	2
Telecoms	12	19	17	8	6	6	7	7	6	7	16
Stations	42	56	39	26	30	31	36	39	30	25	25
Depots	11	13	9	9	10	10	10	10	7	7	7
Other	1	1	1	1	1	1	1	1	1	1	1
TOTAL	199	192	174	204	209	222	230	226	174	166	193

Renewal rates

RENEWAL

Rail renewed (km per year)	67	42	45	*	*	*	*	35	*	*	35
Sleepers renewed (km per year)	65	38	38	*	*	*	*	47	*	*	32
Ballast renewed (km per year)	71	40	48	*	*	*	*	86	*	*	87
Signals renewed (km per year)	48	22	59	*	*	*	*	83	*	*	100
Structures renewed (no. of structures)	7	3	3	*	*	*	*	6	*	*	6

*A forecast only provided for 1998/99, 1999/2000, 2000/01, 2005/06, 2008/09

Enhancement expenditure (£M – 1998/99 prices)

TYPE OF ASSET

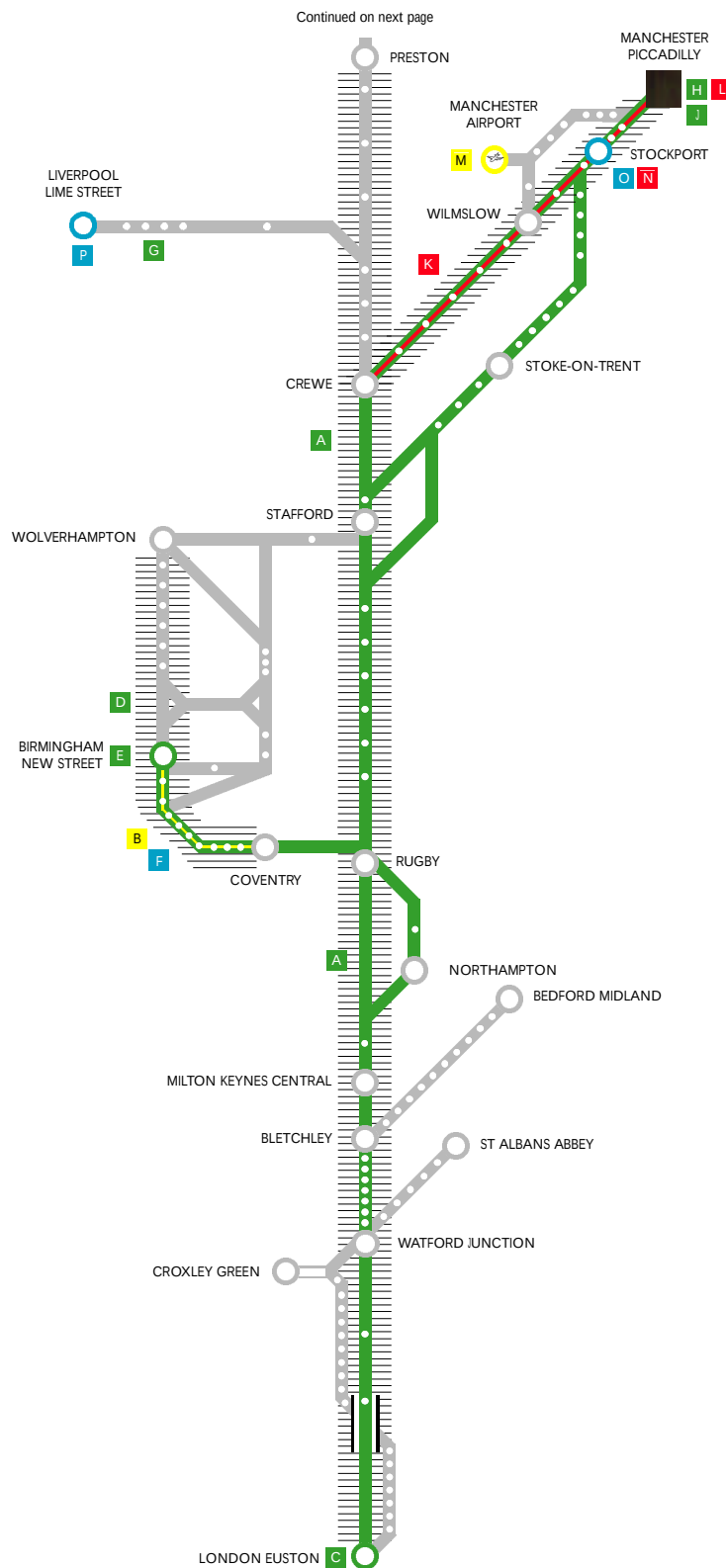
Track	4	9	10	47	88	127	93	28	8	8	3
Structures	5	3	1	12	44	60	64	29	10	10	0
Signalling	2	7	11	16	84	127	99	31	8	5	0
Electrification	1	1	1	1	5	10	9	1	0	0	0
Plant & Machinery	0	2	0	0	0	0	0	0	0	0	0
Telecoms	3	5	1	1	5	4	0	0	0	0	0
Stations	27	24	28	17	64	91	40	20	6	0	0
Depots	1	3	1	3	1	0	0	0	0	0	0
Other	0	0	0	6	6	19	7	0	0	0	0
TOTAL	43	54	53	103	297	438	312	109	32	23	3

Central Trains; Connex South Central; FNV; GNER; London Underground; Northern Spirit; ScotRail; Silverlink; Virgin Trains (West Coast and CrossCountry); Wales & West; DRS; EWS; Freightliner.



- A** West Coast Main Line upgrade scheme
- B** Coventry-Birmingham – capacity upgrade
- C** Euston Station – enhancements
- D** Soho Depot – new train maintenance facility
- E** Birmingham New Street – enhancement to facilities
- F** Birmingham International – new car-parking facility
- G** Allerton – new interchange station
- H** Manchester Piccadilly – additional platform
- J** Manchester Piccadilly – enhancement to station facilities
- K** Crewe-Manchester – capacity increases
- L** Manchester Piccadilly – further enhancement to station facilities
- M** Manchester Airport – additional platforms
- N** Manchester South – renewal of signalling equipment and additional capacity
- O** Stockport Station – station enhancements
- P** Liverpool Lime Street – station 'gateway' development

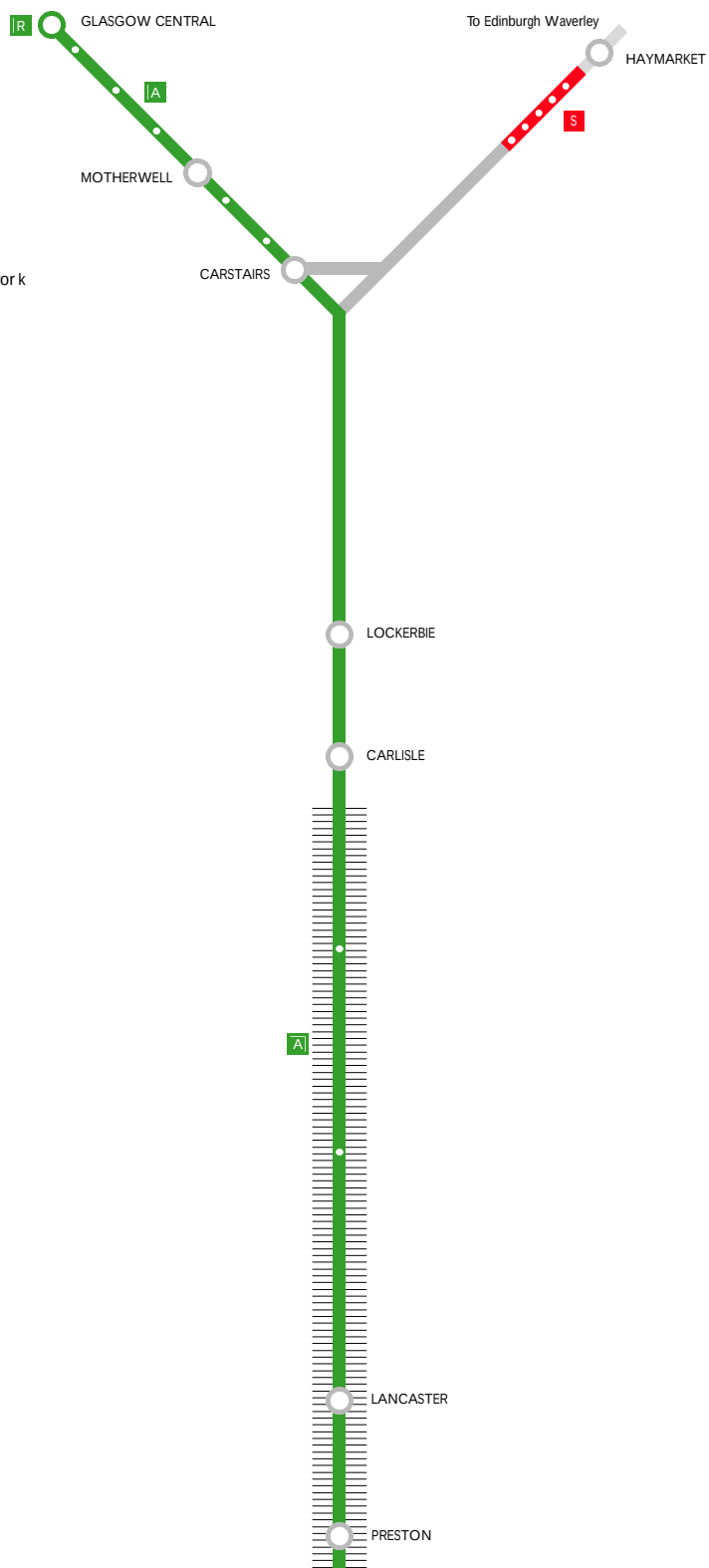
See page 127 for colour key





- A** West Coast Main Line upgrade scheme
- R** Glasgow Central – station regeneration work
- S** Midcalder – capacity increase

See page 127 for colour key



Continued from previous page

Route characteristics

DESCRIPTION This is the principal rail corridor linking the Channel Tunnel and London, the West Midlands, North West England, Glasgow and Edinburgh. The route is electrified throughout, except from Bletchley to Bedford. The route is four track from London to Rugby (including the Northampton Loop) but beyond there is a mixture of two-, three- and four-track sections. Linespeeds vary but are predominantly 100–110mph on fast lines and 60–90mph on slow lines. The southern end of the route was renewed and electrified in the 1960s and the northern end in the early 1970s.

This route also encompasses the Primrose Hill–Watford DC lines, Watford–St Albans City, and Bedford–Bletchley. These mostly have two tracks and Primrose Hill to Watford is also used by London Underground who operates services from Queen's Park–Harrow.

The volume of passenger and freight train movements on the route is very high. A number of route sections are operating near to capacity, the principal ones being London–Rugby, Coventry–Birmingham–Wolverhampton, Stockport–Manchester Piccadilly and the approaches to Glasgow.

MAJOR STATIONS

Birmingham New Street Station Regeneration Programme (SRP) work to the platforms and dispersal bridge area is currently in progress. This work is dramatically improving the platform environment as well as improving safety and fire precaution features, represents a commitment of about £19M and is due for completion during 1999/2000. The emerging station development plan includes many customer-reasonable requirements, such as new waiting lounges, improved ticketing and information facilities, and measures to reduce traffic congestion outside the main entrance.

Glasgow Central The largest single SRP scheme in Scotland, costing £35M, is at Glasgow Central, and involves upgrading the facilities for passengers and renewing the roof. The Argyle Street Bridge renovation received a special mention in the recent Ian Allan Heritage awards. In addition, we are reviewing the ability of the station to accommodate forecast passenger growth at this location, together with a number of customer-reasonable requirements, including improved waiting facilities.

London Euston A further phase of SRP work has continued to be progressed in parallel with additional work on how the station should develop to accommodate the passenger growth forecast in the route strategy. Our Development Control Planning process has also embraced short-term improvements to some retail facilities on the concourse, along with the inclusion of customer requirements which primarily relate to new and improved waiting lounges, customer-information and help facilities.

Manchester Piccadilly SRP work has continued with the gradual unveiling of the complete reglazing of the trainshed roof giving a foretaste of the transformation that this project will deliver at a cost of some £27M. In addition, we have undertaken further studies into the railway operating capacity requirements of this station and its relationship with the proposed urban regeneration of the surrounding areas being co-ordinated by Manchester City Council in partnership with Railtrack and others. Our Development Control Planning process takes account of a possible extension to the Metrolink and the desire to incorporate customer requirements – primarily the provision of new waiting lounges.

Route vision

Our vision for the West Coast Main Line (WCML) is of a high-capacity high-speed route that caters for the needs of all its train operators and users. We are committed to delivering much shorter journey times, for example, London–Glasgow in 4 hours 12 minutes in 2002 and London–Manchester in 1 hour 46 minutes in 2005.

As part of the European high-speed rail network, the WCML is designated as a priority Trans-European Networks (TENs) project. This reflects its strategic importance. It links the major conurbations of North West England and Scotland to mainland Europe via the Channel Tunnel. It also forms part of the links between Britain and Ireland via a number of routes. We are applying for further funding from the European Union (EU) to support the implementation, having already succeeded in gaining grant aid for the development of the project.

During the next six years, the route will be substantially upgraded to increase capacity and reliability, the latter including a reduced need for maintenance possessions. Work is being undertaken to increase the loading

gauge between Willesden and Motherwell to W10 gauge. Parts of the route will be capable of handling 750m-long freight trains. The infrastructure and control systems will support tilting trains travelling at speeds of up to 140mph.

Much of the extra capacity and speed capability is underwritten by our agreement with Virgin Trains.

Our West Coast Route modernisation (WCRM) scheme also ensures that all existing services to other customers who currently have contracted rights to operate over this route will be maintained. We are, however, aware that our customers also have a number of aspirations for additional services and reduced journey times throughout the route, for example between Edinburgh and Glasgow via Carstairs. We are working with our customers to reach agreement on these aspirations.

In 2005, there will be at least ten high-speed trains per hour leaving Euston for destinations in the Midlands, North West England and Scotland. Additional high-speed paths will be available on 'open access'.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

The route has substantial capacity as it is generally at least double track and signalled with four-aspect colour-light signalling. However, the volume of passenger and freight train movements on the route is very high. Several route sections are operating at or near to capacity, the principal ones being London–Rugby, Coventry–Birmingham–Wolverhampton, Stockport–Manchester Piccadilly and the approaches to Glasgow. Other sections of the trunk route will be operating closer to their capacity limit in the near future.

We have carried out a number of capacity analyses for the bottlenecks we identified in the 1998 NMS. In addition, in accordance with undertakings given to the Rail Regulator, we have carried out strategic capacity reviews in four areas. We have set out below the conclusions from all of these studies.

Euston–Rugby	The bottleneck constraint is caused by differential speeds and stopping patterns on the fast and slow lines, which will worsen on the slow lines when the fast lines become dedicated to 125–140mph trains. We have identified the following options to resolve the constraint. Option A Provide turnback facilities at Watford Junction, Tring and Milton Keynes to optimise slow line capacity and provide high-quality paths on the slow lines for Silverlink services, especially to and from Northampton. Option B In order to provide the minimum possible journey time between London and Northampton – about 45 minutes instead of 1 hour – this option would transfer two trains per hour on to the fast lines. This would require investment in 140mph trains and a grade-separated junction in the Hanslope area. The currently envisaged post-PUG 2 timetable requires some changes to the timetable of passenger trains on the slow lines and this option would alleviate these problems. These two actual paths consume four standard paths, which could be used by 75mph freight trains and/or other semi-fast passenger services. Option C Provide dynamic loops at Tring, Watford and quadrupling of slow lines at Bletchley. This has previously been assessed and found to further constrain the timetable pattern and operating flexibility, creating new bottlenecks. This option only creates enough capacity for additional short-distance trains, which do not satisfy the long-distance market demands on the route. Option D Provide four slow lines, ie a six-track railway from London to Rugby. This would significantly improve capacity, but gaining full benefit of this capacity would require substantial further investment in the Trent Valley, and further north. The substantial land purchase and construction costs involved are unlikely to be acceptable or fundable. Option E Lengthen the journey time of the fast Northampton trains on the slow lines from 2005. This reduces the nominal path consumption of these trains from four to two paths per hour, thereby freeing up two paths for other services. However, it increases the journey time to Northampton from 60 minutes to up to 75 minutes. Option F Reduce freight traffic over this section of the route by operating Felixstowe–West Midlands/North West England trains via Peterborough and Nuneaton and some other freight trains via Midland Main Line or via Oxford Banbury rather than on the WCML. This option is dependent upon the freight routeing strategy. It reduces differential speeds between trains, thereby enabling more passenger trains to operate on the slow lines, thus satisfying the aspirations of our customers for more capacity. Our preferred option is A, although option F is critical to the long-term management of capacity on the south end of the WCML.
Coventry–Birmingham	The number of train movements on the route between Coventry and Birmingham has been near the route's capacity for a number of years. There are both contracted commitments and customer aspirations to increase the number of train movements over the route. The present mixture of fast and slow trains over the route precludes any further train movements being accommodated without significant operational performance risk. An engineering feasibility study has been undertaken to assess the options to increase the number of available train paths on this corridor. The synopsis of the conclusions reached is set out below. To increase the corridor's capacity, it is necessary to reduce the conflict between fast trains and stopping trains. This can only be done by increasing the number of lines to provide an 'overtaking' facility. In addition, the remodelling of Proof House Junction on the approach to Birmingham New Street Station in 2000 will remove conflicting train movements between this route and those on the Walsall–Lichfield–Longbridge cross-city route. Thus, there are three options for this bottleneck. Option A Remodel Proof House as part of the WCRM project and do no other infrastructure work. Run a revised timetable with slow trains overtaken at Birmingham International Station on existing infrastructure. This would enable a maximum of 12 paths per hour, fully utilising capacity but not exceeding it. However, a number of customer aspirations would not be met. Additional freight train movements as agreed with the Rail Regulator can be accommodated. Option B Provide a four-track railway from Beechwood Tunnel to Stechford, broadly 70% of the route mileage between Coventry and Birmingham. This would enable all operator aspirations to be met. Option C Enhance option B by providing a grade-separated junction at Stechford and other works off this route to enable all WCML freight services to be routed over this corridor. Our initial analysis suggests that option A produces the best industry value even though all operator aspirations cannot be met. The trains concerned have the lowest industry value over the route. However, we have included within the partnership elements of schemes to develop the network, option B above providing the only long-term solution which would substantially increase capacity.
Birmingham–Wolverhampton	The number of train movements on the route between Wolverhampton and Birmingham has been growing and is now near its capacity. West Midlands Passenger Transport Authority (Centro) has an aspiration to further increase the number of train movements over the route. The present mixture of fast and slow trains over this route limits any future growth in train movements. In order to accommodate Centro's aspirations to increase the stopping train service from two to four trains per hour, an 'overtaking' facility would be required. We have assessed the most appropriate facility to be the creation of a four-track railway from Monument Lane Tunnel to Dudley Port. The route between these points would require very substantial reconstruction and additional land. The cost of achieving this, solely to operate two additional trains per hour is not viable for Centro. We have discussed this with Centro who no longer wish to proceed with this aspiration. The route will therefore continue to operate with the present infrastructure.

These are the route improvements we plan to deliver continued

Rugby–Carlisle	From Rugby to Colwich (75km), the four-track sections are interspersed with a three-track section from Rugby to Attleborough and a two-track section from Tamworth to Armitage which substantially reduces effective capacity. Crossing moves at Nuneaton, Lichfield and Colwich and stops by selected trains at Rugby, Nuneaton, Tamworth, Lichfield and Stafford further reduce capacity. The Colwich to Stafford section (9km) is partially a two-track section and is also constrained by slow line conflicts at Milford, Whitehouse and Trent Valley Junction at Stafford. From Stafford to Crewe (38km), the line is four track but effective capacity is reduced by crossing moves at Norton Bridge Junction to and from the Manchester Line and the fast and slow lines, and also at Basford Hall. At Crewe Station, various crossing moves which consume capacity cannot currently be avoided: freight trains into and out of Basford Hall yard; and trains to and from the Shrewsbury, Manchester and Chester lines have to cross many of the main lines. The Crewe to Carlisle section is two track for 85% of its 250km length. Capacity is highly used on the two-track sections between Winsford and Weaver Junction, and is further constrained by the mix of speed, the need for Liverpool–St Helens–Wigan trains to use the main line from Springs Branch to Wigan, the mixed traffic speeds on the Wigan–Balshaw Lane two-track section, the single lead junction with numerous crossing moves at Euxton, and limited slow line platforming capacity at Preston. Again, differential speeds of trains mean that many trains consume more than one 'standard path' from Preston to Carlisle. At Carlisle Station, there is limited capacity to handle freight trains. Option A Provide four miles of additional fourth track and five miles of additional third and fourth tracks between Rugby and Stafford. We will then be able to path the additional 42 freight and open access trains between Rugby and Crewe as set out in our PUG 2 undertaking with the Rail Regulator. Option B Provide four tracks throughout the Trent Valley to double capacity in this area which would require 9km of fourth track, 16km of third and fourth tracks, including creation of new track through National Trust Land, and widening of Shugborough Tunnel. This doubles the capacity in the Trent Valley, allowing an additional 14 trains per hour to be pathed between Rugby and Stafford. Option C Divert trains that exceed this route's capacity via Coventry and Walsall. The Coventry–Walsall Corridor is currently operating at full capacity and the planned improvements to capacity (under PUG 2) will be fully utilised by contracted additional services. There would be a need for heavy investment if trains were to be diverted this way from Trent Valley. Additional work would four-track the railway from Beechwood Tunnel to Stechford, provide a grade-separated junction at Stechford and need other off-WCML works. Option D Stafford–Crewe: reduce crossing moves at Norton Bridge and Crewe and thereby increase effective capacity. Grade-separated junction at Norton Bridge. Increased utilisation of independent lines and Basford Hall sidings at Crewe facilitated by improved yard arrival/departure facilities. NB: The junction layout at Crewe is proposed for improvement under PUG 2. Additionally, improved platform capacity could be provided here and, further improvements made to the layout. At Norton Bridge, a grade-separated junction would avoid approximately four crossing moves per hour and, at Basford Hall near Crewe, possible layout changes would create approximately two additional paths per hour for freight trains. However, unless works to alleviate congestion north and south of this area are undertaken, no advantage can be taken of such a capacity improvement. Option E Four track from Winsford to Weaver (eight miles). Two viaducts would also have to be widened as part of the eight-mile four tracking. Option F Avoid crossing fast lines at Euxton and encourage efficient use of slow lines between Euxton and Preston by Blackpool services. Provide grade-separation doubling of the junction at Euxton. Reallocate platforms at Preston. Option G Ease the capacity consumption caused by differential speeds over Shap summit through provision of a third track northbound between Carnforth and Shap summit, and southbound from Carlisle to Shap summit. Assuming each freight path consumes 2.5 nominal paths on the incline, all services aspired to could be accommodated. A is our preferred option as no viable potential funding package has been identified for additional capacity on this route which the other options will provide.
Manchester network development	We have analysed the current network capacity of all of our routes radiating from Manchester, together with our assessment of future market developments for both passenger and freight operations to determine an appropriate way forward. Our strategy is: (1) To invest in infrastructure between Manchester Piccadilly and Crewe, which will enable the new Virgin Trains' West Coast services (committed to in the 'PUG 2' agreement) and other operators services using current track access rights to be delivered reliably. This objective assumes that the track access rights of franchise operators that expire in 2004 are renewed in similar form. We have already remodelled the track layout at Manchester Piccadilly and restored the capacity to 12 fully operational platforms in the main trainshed. About £100M will be spent on completely renewing the signalling between Slade Lane and Cheadle Hulme, and in providing altered track configuration to optimise train path capability. (2) To provide costed options to develop further the capacity and capability of all routes which are impacted by services needing to access Manchester Piccadilly, Victoria, Oxford Road, Manchester Airport or Trafford Park freight terminal. We are using input from the Franchising Director and other customers, together with our own assessments of market demand to determine these options. There are specific interdependences with the strategies of Trans-Pennine freight developments and also local passenger services in Merseyside, Greater Manchester and West Yorkshire. Virgin Trains' investment in new high-capability diesel trains for its CrossCountry services, together with our investment at other nodal points such as Leeds provide a basis on which to identify options. We would like to agree commercial terms for some of these new requirements; in particular, those for long-distance cross-country passenger services, by December 1999 in order that the necessary infrastructure investment can be confirmed in the 2000 NMS. (3) To participate actively with Greater Manchester Passenger Transport Executive (PTE) in developing an investment strategy for heavy and light rail services in order to deliver their full potential of shifting current and future journeys from private car to public transport. We believe that the social benefits of a step change in the use of rail services could justify the land-use planning and significant investment necessary to provide a step change in capacity on the rail network. We propose to report on the outcome of this strategic review, and the commitments of the parties to the necessary infrastructure investment, in the 2000 NMS.

These are the route improvements we plan to deliver *continued*

Glasgow Central	There is a long-held perception in the railway industry that there is a capacity constraint on the approaches to Glasgow Central Station and that this may preclude the introduction of new services that our customers may aspire to. Our analysis demonstrates that both present and future aspirations for train paths can be delivered by the current infrastructure on the approaches to Glasgow Central. Depending upon the nature and volume of proposed services to Glasgow Airport, some specific enhancements for these services may be required when the full specification for such a service is established. Such enhancement would be included in the cost of the scheme. If the forecast growth in train movements materialises, the performance of the train plan during peak periods may deteriorate slightly by perturbation which cannot be recovered through available movement capacity. However, the renewal of signalling at Glasgow Central and approaches during 2000–2003 will reduce the current level of infrastructure equipment failures. This will offset any peak-hour performance deterioration through increased train movements.
Midcalder–Edinburgh	Our 1998 Statement identified this as a potential bottleneck. We have conducted a detailed analysis of the route's current capability and assessed further train path predictions. We have concluded that all known predicted train paths can be accommodated through a revised timetable structure, the existing signalling equipment, and an upgrade in traction current supply to remove the present restriction on train movements. This additional traction current capacity will be installed at Curriehill as part of our equipment renewal programme. In the next 12 months, we will conduct a detailed timetable review with our customers to test the robustness of our conclusion and agree action plans to deliver it.
Freight throughout the route	We have, as part of the West Coast upgrade, agreed with the Rail Regulator to make available a total of 42 additional train paths each day, each way (passenger and/or freight) over the south end of the route. If the freight operating customers bid successfully for all of these paths from 2005 this would, when added to the 1997 base figure (40 paths), more than double the number of freight trains operated between Wembley and Rugby. We will invest a substantial sum on the core section south of Crewe. This will ensure that the additional train paths can be supplied with the desired level of performance and that the additional trains can co-exist with the enhanced high-speed passenger train service operated by Virgin Trains. Since the Regulatory hearing, a number of traffic growth forecasts have been submitted by the freight operating customers. Their reasonable requirement submissions, for the year 2008, total 154 paths in each direction. Given an uneven distribution of trains across 24 hours, the forecast doubles again train path demand during most daytime hours. From 2005, both the slow and fast lines will be operating at capacity, so that the forecast growth of freight could only be handled with a further substantial expansion to the railway infrastructure. We have continued to discuss with our customers the options that offer realistic solutions. First, and as part of the overall freight routing strategy, other routes' capabilities are being examined on both an individual and network basis. Second, a number of the operators would like to use high-speed interurban trains in the two 'open-access' 140mph paths between London and Crewe which might, if traffic were transferred from the slow lines, help make capacity available for freight. Additional work is currently in hand to quantify the value of this option. Last, increased freight-train lengths can successfully address a proportion of the forecast growth.
Proposals	The proposals set out on the next page, when implemented, will give sufficient capacity to handle PUG 2, our contractual commitments as at 18 March 1998 and our commitments to the Rail Regulator.

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
London Euston–Glasgow	645	8	76mph (5hr 18min)	95mph (4h 12min)	No change	100mph (4hr 01min)
London Euston–Birmingham	182	3	71mph (1hr 35min)	86mph (1hr 18min)	No change	97mph (1hr 10min)
London Euston–Manchester Piccadilly via Crewe	304	3	73mph (2hr 35min)	94mph (1hr 59min)	No change	104mph (1hr 49min)
LINESPEEDS (km of track)						
Up to 35mph			233	233	233	230
40–75mph			840	748	748	748
80–105mph			1123	630	630	590
110–125mph			728	1317	1317	966
Over 125mph			0	0	0	391
TOTAL			2924	2924	2924	2924
GAUGE (km of route)						
W6A			1080	1080	1080	1080
W7			1071	1071	1071	1071
W8			1050	1050	1050	1050
W9			872	908	908	908
W10			0	675	675	675
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			1202	1202	1202	1202
23.5 tonnes to 25.4 tonnes			1722	1722	1722	1722
TOTAL			2924	2924	2924	2924

Our WCML upgrade scheme

ISSUE	LOCATION	COMMENTS	CHANGES TO SCHEME SINCE 1998 NMS
Layout remodelling	Euston–Camden	Work has started on site	The grade-separated junction at Camden Junction is not required
Renewal of track and signalling			
Upgrading of low-level goods lines to passenger status and provide turnback facility. New crossovers on low-level lines to slow lines at Brent Junction	Willesden area	Detailed design now starting	
New crossovers providing direct access from the WCML to and from Acton Canal Wharf Junction	Willesden–Brent	Outline design complete	The installation of the new crossovers has been deferred until we have an agreed understanding with customers on the services which would use this junction
Replacement of the double junction with a single lead junction	Willesden North Junction	Junction has just been renewed like-for-like	We have concluded that this was the most appropriate option
Track remodelling	Watford Junction	Feasibility study started	Change to the service specification has removed the need for a passing loop on the slow line
Remove junctions at Hemel Hempstead and Tring South	Bourne End	Feasibility study started	New replacement junction now required
Remodelling to introduce a centre turnback siding	Tring	Feasibility study started	Change to the service specification has removed the need for a passing loop on the slow line
Removal of junction	Ledburn Junction	Feasibility study started	Now to be retained as a high-speed junction
Remodelling of the sidings and freight loops at the south junction with a single ladder	Bletchley	Feasibility study started	
Remodelling to introduce a centre turnback facility	Milton Keynes Central	Feasibility study started	
Provide additional platforms and facilities	Rugby	Feasibility study started	
Provide new down slow	Rugby–Brinklow	Feasibility study started	
Provide grade-separated junctions	Nuneaton	Feasibility study started	Several options are under development
New slow lines to Armitage, reordering thence	Lichfield–Colwich	Feasibility study started	
Track layout changes	Crewe	Feasibility study started	
Two freight loops	Rugby–Coventry	Feasibility study started	
Remodel junction to improve capacity and reliability	Proof House Junction	Detailed design work now starting	
Resignalling & remodelling	Cheadle Hulme–Slade Lane Junction	Feasibility study under way	
Remodelling connections to platforms 9, 10, 11 & 12	Manchester Piccadilly	Scheme completed	
Resignalling replacing worn out equipment, and signals respaced for 125mph running	Meaford Crossing–Macclesfield	Feasibility study under way	
Introduction of Network Management Centres	Defined sections	Software design & development contract let	
Renewal of overhead-line equipment	Defined sections	Tender evaluation under way	
Power supplies renewal	Whole route	Feasibility study under way	
Abolition of foot and level crossings	Whole route	Feasibility study under way	Solutions include diversion, closure or bridges
Automatic half-barrier level crossings upgraded to CCTV operation	Whole route	Work has started at a number of sites and feasibility studies are ongoing for remaining sites	
Bridge repairs & replacements for condition or to permit higher speeds	Whole route	Will be undertaken as required	
Replacement of electrification control equipment	Whole route	Contract let	
Renewal of signalling equipment	Glasgow Central	Feasibility study under way	
Train Control System	Defined sections	Feasibility study under way	
W10	Willesden Junction–Coatbridge and Liverpool	Scheme authorised and work under way	
W10	Other route sections	Feasibility study under way	
W11	Willesden Junction–Coatbridge, Manchester and Liverpool	Feasibility study complete	We do not currently consider that this scheme offers value for money
During 1998, a number of additional feasibility schemes were commissioned. Some of these deal with longer-term aspirations; others either enhance existing proposals or are in connection with infrastructure to support reliability, perturbation management and maintenance issues. Further details will be provided as the studies progress in future Statements.			

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
MIDLANDS ZONE					
Track	38.0	58.5	68.4	178.9	
Structures	7.6	8.4	9.3	32.2	
Signalling	46.2	137.0	182.8	624.2	
Electrification	10.5	26.1	24.6	32.5	
Plant & Machinery	2.7	0.8	0.0	0.3	
Telecoms	12.8	6.5	10.5	49.4	
Stations	22.0	29.0	20.7	30.5	
Other	0.8	0.3	4.7	6.9	
TOTAL EXPENDITURE	140.6	266.6	321.0	954.9	
NORTH WEST ZONE					
Track	13.1	10.9	16.8	40.8	
Structures	12.2	7.6	5.6	27.7	
Signalling	4.9	10.6	18.5	48.5	
Electrification	1.3	11.4	10.0	10.4	
Plant & Machinery	0.3	2.0	0.3	0.9	
Telecoms	4.1	4.2	4.5	32.2	
Stations	12.9	11.9	7.5	23.8	
Other	1.2	0.8	2.3	3.9	
TOTAL EXPENDITURE	50.0	59.4	65.5	188.2	
SCOTLAND ZONE					
Track	0.1	4.0	3.3	19.3	
Structures	1.9	8.9	4.4	19.4	
Signalling	2.0	1.5	3.1	10.0	
Electrification	2.1	5.2	5.7	14.9	
Plant & Machinery	0.6	0.2	0.4	11.0	
Telecoms	0.0	0.6	1.6	0.4	
Stations	15.3	15.1	7.5	4.8	
Depots	0.0	0.0	0.0	0.8	
TOTAL EXPENDITURE	22.0	35.5	26.0	80.6	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
MIDLANDS ZONE							
COMMITTED							
West Coast Route modernisation PUG 2	2006	8.0	38.3	76.3	388.0	1	A
West Coast Route modernisation PUG 1	2002	2.6	17.3	25.8	8.7		A
Station enhancements	2001	7.0	7.5	0.3	0.0		
West Midlands PTE enhancements	2002	0.0	0.5	4.5	5.0	1	
Euston Station enhancements	2001	0.0	0.2	2.0	0.0		C
Soho Depot new maintenance shed	1999	2.1	0.0	0.0	0.0	1	D
W10 gauge Daventry–Coatbridge	2000	0.8	0.6	0.0	0.0		
Birmingham New Street Station enhancement	2000	0.5	0.6	0.0	0.0		E
West Coast Route modernisation FUG	2000	0.4	0.2	0.0	0.0		
PARTNERSHIP							
Urban network enhanced capacity	2006	0.0	0.0	0.0	200.0	1	B
CONTRACTOR							
Birmingham International Station multistorey car park	2001	0.0	0.1	4.9	3.4	1	F
Coventry Station car park	2001	0.0	0.0	1.8	0.0	1	
FEASIBILITY							
Virgin Stations upgrade	2006	0.0	0.0	0.0	1.0		
Other schemes	Various	0.2	0.7	0.0	0.1	111	
TOTAL RAILTRACK EXPENDITURE		21.6	66.0	115.6	606.2	117	
NORTH WEST ZONE							
COMMITTED							
West Coast Route modernisation PUG 1	2002	2.6	16.6	20.4	26.1		A
West Coast Route modernisation PUG 2	2006	0.8	8.5	6.9	22.7		A
Allerton interchange (E)	2001	0.5	2.0	6.2	0.0	1	G
Manchester Piccadilly Platforms 9/10/11	1999	6.9	0.0	0.0	0.0		H
Station enhancements	2001	0.0	2.9	1.5	0.0		
Manchester Piccadilly Station enhancement	2001	1.7	0.9	0.2	0.0		J
West Coast Route modernisation FUG	2000	0.4	0.2	0.0	0.0		
Electrification improvements	2001	0.0	0.0	0.5	0.0		
COMMERCIAL							
Manchester–Crewe capacity	2005	0.0	0.5	0.5	99.0	1	K
Manchester Piccadilly Station enhancement	2002	0.0	0.4	11.0	10.0	4	L
Manchester South	2003	1.8	4.9	2.5	10.8	1	N
PARTNERSHIP							
Manchester Airport Station capacity	2002	0.0	1.0	9.0	13.0	1	M
CONTRACTOR							
Stockport enhancement	2003	0.0	0.0	0.0	5.0	7	O
FEASIBILITY							
Virgin Stations upgrade	2006	0.0	0.0	0.0	1.0	49	
Liverpool Lime Street Station gateway	2002	0.0	0.0	0.0	1.0	1	P
THIRD PARTY							
New stations & major refurbishments	2001	0.0	4.8	4.3	2.9	1	
Other schemes	Various	0.3	0.4	0.0	0.7	19	
TOTAL RAILTRACK EXPENDITURE		14.3	35.2	43.4	147.0	85	
TOTAL NON-RAILTRACK EXPENDITURE		0.7	7.9	19.6	45.2		
SCOTLAND ZONE							
COMMITTED							
West Coast Route modernisation PUG 1	2002	1.8	5.4	8.5	4.9		A
Glasgow Central Station enhancement	2001	1.8	0.9	1.4	0.0		R
Station enhancements	2001	0.0	0.4	0.4	0.1		
West Coast Route modernisation FUG	2000	0.2	0.1	0.0	0.0		
COMMERCIAL							
Edinburgh–Midcalders capacity	2003	0.0	0.0	0.0	1.5	1	S
Other schemes	Various	0.1	0.0	0.1	0.1	4	
TOTAL RAILTRACK EXPENDITURE		3.9	6.8	10.4	6.6	5	

Progress on the 1998 NMS

WILLESDEN JUNCTION INTERCHANGE Work has started to improve interchange between rail services and other modes of transport.

CROXLEY LINK The 1998 evaluation study was completed, but no subsequent agreement on the development of the scheme has been reached.

SOHO DEPOT (BIRMINGHAM) Work has started on the construction of a new electric train maintenance facility within the depot.

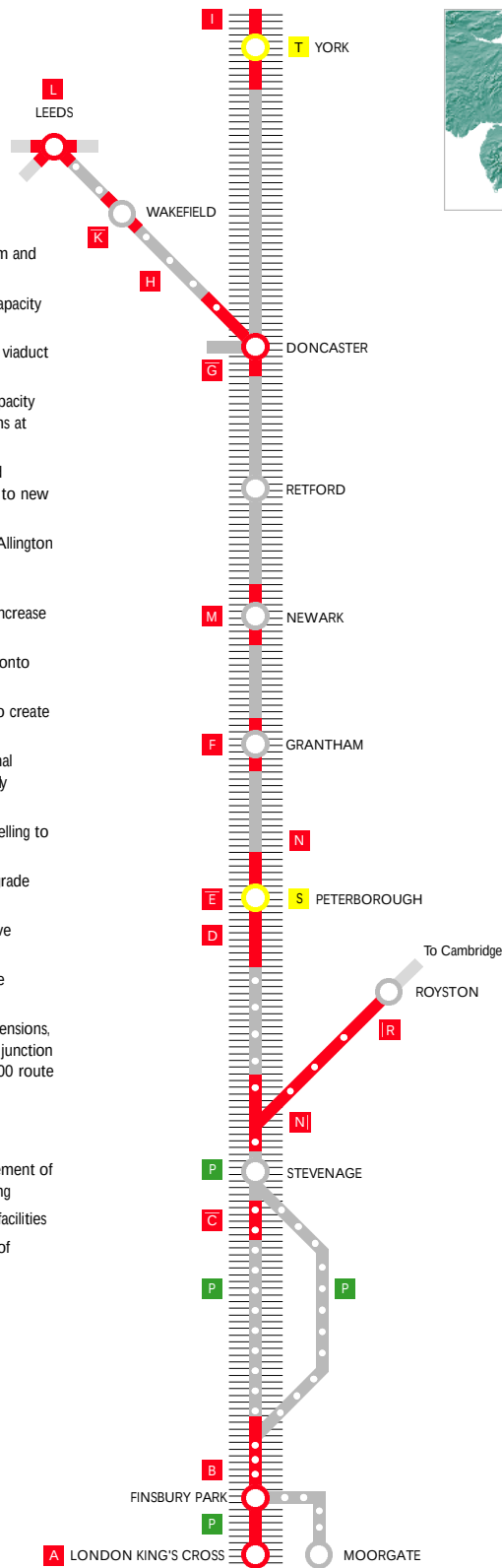
WALSALL–WOLVERHAMPTON This service was introduced in the summer 1998 timetable.

CARLISLE A new depot has been opened for DRS at Etterby near Carlisle.

EDINBURGH PARKWAY We are evaluating, with partners, a proposal for a major parkway station on the western outskirts of Edinburgh.

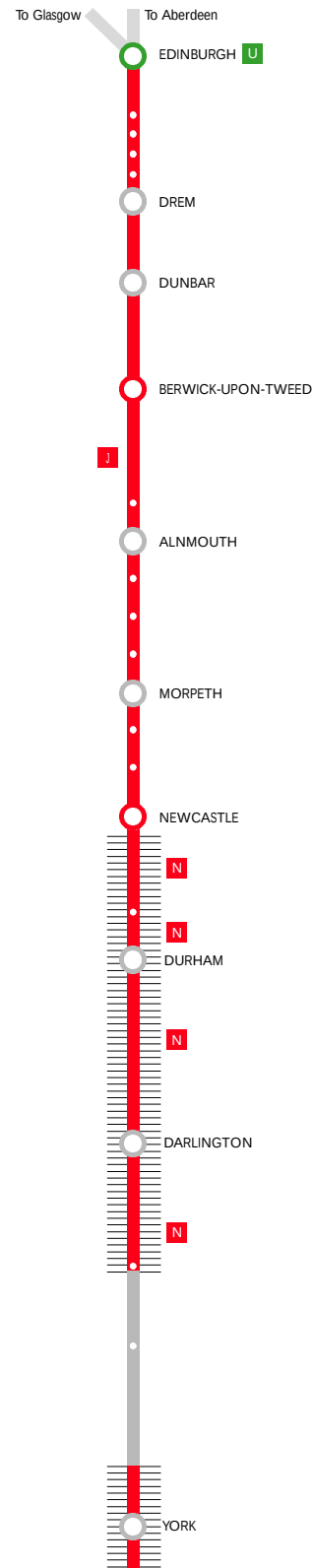
LIVERPOOL LIME STREET We have begun work on a major SRP scheme at the station. We are also working with our partners to undertake a major renewal of the public address and information systems to be completed in 2000. This will provide state-of-the-art facilities, enhanced coverage and assistance for disabled people.

Anglia Railways; Central Trains; GNER; Midland Main Line; Northern Spirit; North Western Trains; ScotRail; Virgin Trains; WAGN; DRS; EWS; Freightliner.



- A** King's Cross – additional platform and enhancement to station facilities
- B** Holloway–Alexandra Palace – capacity improvements
- C** Welwyn Viaduct – expansion of viaduct and tunnels to increase capacity
- D** Huntingdon–Peterborough – capacity upgrades and additional platforms at Peterborough
- E** Peterborough – grade-separated junction north of Peterborough to new freight priority route via Lincoln
- F** Grantham – new chord line at Allington and layout changes to separate conflicting train movements
- G** Doncaster – layout changes to increase capacity and new flyover
- H** South Elmsall – new chord line onto freight priority via Pontefract
- I** York – track layout alternative to create additional capacity
- J** Newcastle–Edinburgh – additional capacity of traction power-supply upgrade
- K** Wakefield –track layout remodelling to increase capacity
- L** Leeds – 'Leeds 1st' capacity upgrade and station enhancements
- M** Newark – new flyover to remove conflicting train movements
- N** Hitchin – new flyover to remove conflicting train movements
- P** Thameslink 2000 – platform extensions, power-supply upgrade and new junction at Belle Isle with Thameslink 2000 route to St Pancras
- R** Hitchin–Royston – linespeed improvements
- S** Peterborough Station – enhancement of facilities and additional car parking
- T** York Station – enhancement of facilities
- U** Edinburgh Waverley – upgrade of station facilities and provision of additional platforms

See page 127 for colour key



Route characteristics

DESCRIPTION The East Coast Main Line (ECML) is the high-speed link between London, Yorkshire, the North East and Scotland, and carries Britain's fastest train service. It handles cross-country passenger services and carries considerable freight and mail traffic. The lines routinely cater for 1,900 passenger trains, 200,000 passengers and 250 freight trains each day.

The route is primarily a two-track railway with four tracks in certain sections south of the Scottish border. The fast lines are generally designated for 125mph running, with the slow lines at 70–80mph. The route is electrified throughout.

MAJOR STATIONS

Edinburgh Waverley We have continued to invest in a number of short-term projects aimed at improving facilities at the station. It has been made more environmentally friendly by the segregation of pedestrians from road vehicles while at the same time improving retail outlets. The passenger waiting area has been restored including the cupola which received a special mention in the Ian Allan Heritage Awards.

Our predictions for the growth of train services at Edinburgh indicate that significant alteration will be required to the track and signalling throughout the station area, providing more and increased flexibility to platforms. This can only be accomplished by major alterations to the fabric. We propose to redevelop the station while preserving its historic character to provide Edinburgh with a modern structure befitting a capital city. We are working with all interested parties to achieve this goal.

London King's Cross London King's Cross is a highly complex location. It involves interchange with London Underground, Thameslink services and St Pancras Station. This will be further complicated when the Channel Tunnel Rail Link is completed creating international and domestic services at St Pancras station. In recognition of the expiry date of the temporary planning consent for the concourse at the front of the trainshed, we are making significant progress to prepare a Development Control Plan. This will aim to address the key interchange interfaces and to provide the station with the operational capacity needed to satisfy the forecast growth on routes served by this station. In addition, we are seeking to incorporate identified customer-reasonable requirements, including new waiting lounges, a travel centre, ticket gates and train operator staff accommodation needs.

BOTTLENECK ANALYSIS Our 1998 NMS identified the London–Newcastle portion of this route as close to capacity through projected growth in train movements. We have undertaken a detailed analysis of both market growth projections and the options for capacity enhancements to handle these projections. Our conclusions are drawn together in our upgrade scheme for the ECML set out in this route strategy. In addition, the Leeds area which interfaces with this route, is similarly constrained. Our upgrade scheme for Leeds is set out in Route 8.

Route vision

With the level of passenger traffic in the country at its highest for 40 years, and freight traffic growing, our vision is to develop extra capacity and reduce journey times. We have taken the decision to develop the route to carry more passenger trains, faster trains and more freight services. To deliver this, we will separate the high-speed passenger trains from slower trains by creating a four-track railway for much of the route. This will include a second parallel railway to the ECML which will serve as a freight priority route. Our aim is to deliver a three-and-a-half-hour journey time from London to Edinburgh by 2003/04 for 125mph tilting trains. These improvements will also benefit through services to Glasgow, Aberdeen and Inverness. The key flat junctions on the route will be replaced by flyovers and chord lines to separate the traffic flows. Level crossings, track, and signalling systems will be upgraded to enable train operators to use tilting trains. The separation of slower and faster moving trains will allow for the possibility of raising train speeds to 140mph, reducing journey times even further.

A parallel can be drawn between our plans and the conversion of the A1 of 20 years ago, with flat junctions and roundabouts into a motorway with grade separated junctions and extra lanes.

The development of the route in this manner will also encourage the development of local networks, which are currently constrained by the capacity of the main line. For example, it would be possible to open a new route in parallel to the present main line between Newcastle and Middlesbrough. This would provide the opportunity for a new local service and enable new stations to be opened in County Durham and Washington.

To support these network developments, we plan to enhance significantly the environment and facilities at all key stations. We are evaluating the opportunities to provide integrated transport facilities through new 'parkway' stations, new local stations and better multitransport interchanges.

In summary, passengers and freight users will enjoy a wider choice of trains, shorter and more punctual journeys, and better accessibility.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
London–Peterborough	King's Cross additional platform and station enhancements. New station junction and tracks. Holloway–Alexandra Palace and Huntingdon–Peterborough provision of extra tracks. Power supply upgrades. Peterborough additional platform capacity and station enhancements.	2003/04	A B D
Peterborough–York	Flyover north of Peterborough and at Doncaster. New chord lines at Allington near Grantham and South Elmsall. Upgrading of the GN/GE joint line via Lincoln between Peterborough and Doncaster and the route from Moorthorpe–Colton Junction Line (south of York). Remodelling of layout at Doncaster. New loop at Skellow. Power supply upgrades. Extension of loops on the ECML to increase capacity and reliability for both passenger and freight services.	2003/04	E F G H
York–Newcastle	York additional tracks and signalling alterations. Upgrade between Northallerton and Ferryhill. Restoration of the Leamside Line (between Ferryhill and Newcastle) and chord line at Bensham. Newcastle Station enhancements.	2003/04	I
Newcastle–Edinburgh	Additional capacity and power upgrade	2003/04	J
Doncaster–Leeds	Remodelling at Wakefield and Leeds	2002/04	K L
Newark	New flyover in place of flat crossing	2006/07	M
Thameslink 2000	Extension of platforms between London, Cambridge and Peterborough to accommodate longer (12-car) trains. New junction at Belle Isle (near King's Cross) and power supply upgrade.	2006	P
Hitchin	New flyovers	2008/09	N
Welwyn	Expansion of viaduct and tunnels for four tracking	2008/09	C
Throughout	Closure/diversion of occupational/footpath level crossings, power-supply upgrades, linespeed improvements, tilting trains	2003/04	

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
London–Edinburgh	631	1	99mph (3hr 58min)	No change	No change	112mph (3hr 30min)
London–Newcastle	431	0	110mph (2hr 26min)	No change	No change	115mph (2hr 20min)
London–Leeds	298	1	96mph (1hr 56min)	No change	No change	102mph (1hr 49min)
LINESPEEDS (km of track)						
Up to 35mph			134	134	134	134
40–75mph			548	548	548	548
80–105mph			482	482	482	482
110–125mph			1013	1013	1013	1013
Over 125mph			0	0	0	0
TOTAL			2177	2177	2177	2177
GAUGE (km of route)						
W6A			841	841	841	841
W7			841	841	841	841
W8			841	841	841	841
W9			0	0	0	841
W10			0	0	0	817
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			1113	1113	1113	1113
20.4 tonnes to 23.4 tonnes			832	832	832	832
23.5 tonnes to 25.4 tonnes			232	232	232	232
TOTAL			2177	2177	2177	2177

Our ECML upgrade scheme

TAKING THINGS FORWARD In line with our vision for the route and the strategy developed with the Franchising Director and our customers, we have continued our analysis of the current bottlenecks, timetables, and forecasts of demand. Set out below are our enhancement proposals to meet the growing markets for rail services on the ECML and to meet the Franchising Director-specific requirements for train frequency and journey times.

LOCATION	PROPOSED SOLUTION
King's Cross Station area	London King's Cross is a highly complex interchange location. We are drawing up a master plan to develop the station which will consider the needs of the ECML, London Underground and the adjacent St Pancras Station. It will also consider future opportunities for interchange with Channel Tunnel Rail Link, Thameslink 2000 and Heathrow Express services. The plan will develop facilities for passengers on the station to include better waiting lounges, travel centres, conference centres, restaurants and shops. It will also be necessary to build an additional platform by 2004 to provide extra capacity for longer trains running to Peterborough and destinations beyond. A brand new track layout will be built in this area just north of King's Cross Station (known as Belle Isle) to connect the ECML to the existing cross-London Thameslink route via tunnels as part of the Thameslink 2000 project. This will provide increased station capacity, more flexibility and greater reliability.
Holloway–Alexandra Palace	The existing four–five passenger tracks between Alexandra Palace and Holloway create a bottleneck in this busy section. The number of passenger tracks will be increased to six by 2004 and the junction layout at Alexandra Palace improved to the benefit of long-distance services and services via the Hertford Loop and will enable the Thameslink 2000 service to operate. Extra platforms will be built at Finsbury Park, Harringay and Hornsey.
Welwyn	The four-track railway reduces to two tracks where it passes over the viaduct at Welwyn and through the adjacent tunnels. The current maximum capacity is 17 trains per hour. Four tracking with a new viaduct and tunnels will alleviate this bottleneck and enable 30 trains per hour to operate. Current forecasts of demand indicate that this will be required by 2009/10. Feasibility work has been undertaken in the last year.
Hitchin	King's Cross to Cambridge services cross the ECML over a flat crossing at Hitchin, and a flyover will be required by 2007/08 to avoid congestion and delays with north–south trains. This will also improve the reliability of the Cambridge services. Feasibility work has been undertaken in the last year.
Huntingdon to Peterborough	This mainly two/three-track section supports a large number of commuter and longer-distance services and is close to capacity during peak periods. This line will be restored to four tracks for much of the route between Peterborough and Huntingdon by 2003/04.
Peterborough	This station is a busy passenger interchange between north–south and east–west services as well as the northern terminal for a large number of London commuter services. Present station platform capacity and track layouts are the limiting factor. Many freight trains cross the ECML here as they travel to and from East Anglian ports. Extra platform capacity is proposed for the station with junctions improved or reconstructed to provide additional capacity and reduce delays. A new flyover to the north of the station will carry both freight and cross-country passenger services over the main lines and feed trains on to the Lincoln Line. This will enhance services between the Midlands and East Anglia as well as those on the ECML by reducing congestion, improving reliability and reducing journey times. We plan to improve the station at Peterborough with better passenger facilities and more car parking in line with the growth in passenger travel from this thriving city.
Grantham area	Central Trains services for Lincolnshire use the ECML in this area and cross the main line to the north of Grantham. We will create a new junction and chord line at Allington on the Grantham–Nottingham route. This new infrastructure will increase the punctuality of both the Central Trains services from Nottingham and the main line services. It will also allow more local trains to serve Grantham, while reducing congestion and improving reliability on the main line.
Newark	Central Trains services and heavy freight trains cross the ECML here over a flat crossing and reduce the available capacity. We will replace the flat crossing with a flyover and separate the main line north–south services from freight and cross-country trains travelling east–west. This option will be required by 2006/07. Reconstruction of the Trent Navigation Bridge in 2000 will allow for future linespeed increases once the flat crossing is eliminated.
Doncaster Station and area	The junctions to the north and south of Doncaster are major bottlenecks and have constrained development of services in South Yorkshire for many years. We will fundamentally change the geometry of these junctions in two phases; building new south and north junctions by 2003/04 and a new flyover by 2007/08 to reduce congestion and improve reliability on all routes. Doncaster is a major transport interchange. We are participating in the project developing the area adjacent to the station with local partners South Yorkshire PTE in order to provide an integrated transport solution. This will provide better bus connections, improved car parking and new retail opportunities for the city.
Wakefield Westgate	We intend to build new platforms at Wakefield with a better track and signalling layout in order to cater for the mix of PTE-supported stopping services in West and South Yorkshire and the faster long-distance services. This will increase capacity and improve reliability. The station facilities will be improved and extra car parking will be provided.
Leeds	The 'Leeds 1st' project is now in hand and this represents the first phase of the upgrade of the ECML. It includes major reconstruction of the station track layout as well as several important junctions and chords in the area. These improvements will accommodate additional train services to London, Birmingham, the Leeds commuter area and other locations. The 'Leeds 1st' project also includes major enhancements of the station facilities to create a major new transport interchange with full accessibility (see Route 8 for full details). The works will improve capacity and reliability, and shorten journey times for both passenger and freight trains in West Yorkshire.
York	We will build an additional track through the station to Skelton Junction (north of York) and modify signalling to enhance capacity and reliability. The station car park will be enlarged and station facilities will be developed to give improved access for all.
Newcastle–Edinburgh	Freight and local services share the busy double-track Newcastle–Edinburgh Line with high-speed services. We plan to build extra capacity into this section, particularly in Scotland.

Our ECML upgrade scheme continued

Edinburgh Waverley	We will continue to invest in improved passenger facilities at Edinburgh Waverley. Our growth predictions indicate that significant alterations will be required to create additional capacity.
Freight priority route	The freight operators on the ECML are forecasting significant growth. Many of the proposals described above will lead to a railway that caters for the growth of high-speed train services alongside existing freight services. A fundamental part of our philosophy is to upgrade (and in one case, reopen) parallel lines as well as upgrading two- and three-track sections to four tracks to take slower-moving traffic off the main line. This will release capacity for high-speed services to the benefit of passenger and other high-speed services. The freight priority route from London to Newcastle is proposed as below: • London–Peterborough: via Hertford Loop, plus restoration of additional tracks between Huntingdon and Peterborough. • Peterborough–Doncaster: the parallel route via Lincoln will be upgraded. The flyover at Peterborough and remodelling of the layout at Doncaster is integral to this section. • Doncaster–York: reinstatement of a chord line at South Elmsall and upgrading of the Moorthorpe–Church Fenton Line and a new loop at Skellow. • Northallerton–Newcastle: upgrading the Northallerton–Eaglescliffe–Stockton–Ferryhill route, reinstatement of the Leamside (Ferryhill–Gateshead) Line and Norwood Curve at Bensham. These major schemes overcome the capacity barriers and delays to freight services imposed by the various double-track sections on the ECML. Coupled with existing and proposed four-track sections of the main line, they are equivalent to four tracking the ECML from Newcastle to the London area giving freight operators better transit times and the opportunity to increase the numbers of trains. A study into the route's capability to take larger gauge freight traffic has also been undertaken, and we are consulting with freight operators to identify realistic needs. The freight priority routes may lead to new and exciting opportunities to develop local services and new stations. An example of such would be a new passenger service via the Leamside Line from Middlesbrough to Newcastle via new stations in County Durham and at Washington. Additional funding and support is actively being sought from local authorities and PTEs to facilitate such a scheme. In addition, we are currently assessing the options to provide appropriate capacity for both existing and projected freight train volumes north from Newcastle to central Scotland.
Tilting train operation	To successfully operate tilting trains and improve journey times by moving at faster speeds, we will need to close or divert many occupational and footpath level crossings, create linespeed improvements, enlarge clearances, provide additional areas for trackside safety, enhance signalling and make track modifications.
Power upgrades	Existing overhead-line power supplies are already stretched at a number of locations and further upgrades to power supplies are required to increase capacity, reliability and improve journey times. Power supply upgrades are an essential part of the capacity upgrade as is the development of the railway layout. Particular power-supply bottlenecks exist in the Home Counties, Lincolnshire, Northumberland and Scotland.
Thameslink 2000	In addition to the above, the Thameslink 2000 project is planned to be constructed between 2002 and 2006, allowing a completely new high-intensity timetable between Peterborough, Cambridge and stations south of London including East Croydon and Gatwick Airport. As well as meeting the current needs for commuter travel to central London, the new services will create many new journey opportunities and increase the demand for travel.
Parkway stations	A number of operators, in particular Great North Eastern Railway (GNER), have identified key regions where access to rail services could be improved through building new 'parkway' stations. The introduction of such stations would also help alleviate local road congestion in the centres of busy urban areas. The feasibility of parkways to the east of Edinburgh, adjacent to the M18 in South Yorkshire, and North of London (M25) are being considered in conjunction with train operators, local authorities and passenger groups. Railtrack is considering other possible station sites.

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
LONDON NORTH EASTERN ZONE					
Track	30.2	18.9	12.5	100.1	
Structures	7.1	10.4	12.4	18.6	
Signalling	5.3	6.9	3.5	48.2	
Electrification	1.2	0.8	3.6	28.0	
Plant & Machinery	3.3	0.3	1.1	2.1	
Telecoms	0.6	2.0	3.0	0.8	
Stations	12.0	13.0	15.9	30.2	
Depots	2.1	0.9	0.2	2.5	
Other	0.1	0.0	0.0	0.0	
TOTAL EXPENDITURE	61.9	53.2	52.5	230.5	
SCOTLAND ZONE					
Track	3.3	1.8	1.5	13.4	
Structures	0.7	0.5	0.8	4.6	
Signalling	0.5	0.5	0.7	1.9	
Electrification	0.0	0.0	0.0	0.3	
Plant & Machinery	0.6	0.2	0.0	1.2	
Telecoms	0.0	0.0	0.0	0.1	
Stations	5.0	9.8	7.1	93.9	
Depots	0.0	0.1	0.1	1.1	
TOTAL EXPENDITURE	10.1	12.9	10.2	116.5	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
LONDON NORTH EASTERN ZONE							
COMMITTED							
Thameslink 2000	2006	0.4	2.1	2.3	57.7	1	P
Station enhancements	2001	4.6	2.2	0.0	0.0		
Peterborough–Doncaster freight loop lengthening	2000	4.0	2.0	0.0	0.0		
King's Cross Station enhancement	2001	0.0	0.1	4.2	0.0		A
Depots enhancements	2001	2.4	0.0	0.0	0.0	1	
COMMERCIAL							
ECML Route upgrade	2009	0.4	4.3	30.0	331.6	1	A to N
King's Cross Station retail development	2007	1.0	2.0	11.0	87.0		A
Hitchin–Cambridge linespeed increase	2000	0.0	0.2	0.0	0.0	1	R
PARTNERSHIP							
GNER station development	2003	0.4	5.1	0.6	6.0	1	
Peterborough Station development	2003	0.0	0.3	0.2	7.8		S
York Station additional facilities	2003	0.0	0.0	0.0	6.7	1	T
Peterborough Station additional car parking	2000	0.1	3.2	0.0	0.0	1	S
CONTRACTOR							
Peterborough Station new lifts	2000	0.0	0.5	0.0	0.0	1	
Other schemes	Various	0.9	3.0	1.3	0.5	64	
TOTAL RAILTRACK EXPENDITURE		14.0	24.1	48.5	497.1	72	
TOTAL NON-RAILTRACK EXPENDITURE		0.4	0.9	1.1	0.2		
SCOTLAND ZONE							
COMMITTED							
Edinburgh Waverley Station enhancement	2007	0.0	0.4	0.0	12.3		U
Station enhancements	2001	0.0	0.4	0.4	0.1		
Other schemes	Various	0.1	0.8	0.0	0.1	11	
TOTAL RAILTRACK EXPENDITURE		0.1	1.2	0.4	12.5	11	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.4	0.0	0.0		

Progress on the 1998 NMS

SIGNALLING We have started to upgrade signalling control equipment between York and Berwick-upon-Tweed and have provided diverse routeing for telecommunications to improve reliability and reduce delays. We have also undertaken an investigation into the condition of signalling equipment between London and Peterborough to prioritise our renewals in future years.

Points and crossings have been renewed at Birtley, Chathill, Retford, Peterborough, Carlton and Ranskill. At the latter two, we have taken the opportunity to lengthen the loops for larger freight trains, improving the capacity and capability of the line. We have also renewed the points at various locations to enhanced specification to improve reliability.

STRUCTURES We have completed repairs to King Edward Bridge at Newcastle and at Chester-le-Street Viaduct. Repairs to Welwyn Viaduct have commenced and a major bridge at Heck near Doncaster was totally reconstructed over Christmas 1998. An assessment has been completed of work necessary to upgrade the route to take larger-gauge freight traffic.

PLANT AND ELECTRICAL The point-heater programme has continued with points at all key locations now fitted to improve reliability in cold weather.

- We have strengthened the overhead-line structures across Stilton Fen south of Peterborough and provided a strengthened power supply at Welwyn Garden City to improve reliability.
- We have installed remote condition monitoring of some key plant and equipment to improve reliability and cut delays.
- New technology has been developed and installed to improve the performance of the overhead-line network and reduce delays. In addition, improved communication links for signalling systems have been installed at Hitchin and power supplies have been upgraded at Digswell.
- We have started work on a new refuelling facility at York for Northern Spirit.
- Windspeed devices have been installed to improve reliability of level-crossing barriers during storm conditions. Weather stations have been installed to help manage better train performance on the route – including, particularly, the overhead wires – in extreme weather.

PERFORMANCE Major investments as described above, a host of smaller schemes, and better performance management have improved reliability of the network. Delays from signalling and infrastructure causes have reduced by 20% on this route over the last year alone.

The work has required the development of much closer working relationships with our suppliers, including developing new analytical techniques to assess asset performance highlighting those areas requiring enhanced maintenance. Following this years successes we are now finalising plans for 1999/2000 to achieve further improvements building on our recent 'Alliances' agreement with Balfour Beatty Rail Maintenance which will assist in driving improvements further and faster.

Work has improved the reliability of point equipment at functions, particularly during poor weather.

We have also conducted a high profile anti trespass campaign and worked with the Samaritans over the alarming increase in suicides on this route.

STATIONS Station regeneration work has continued throughout the year with most of the smaller stations in Yorkshire and the North East completed.

The first phase of refurbishment at York Station was completed on time and work is now well advanced on reconstruction of the remaining platforms.

Work is well progressed at Newcastle to refurbish the station roof and buildings. Further work is under way on the roof and platforms at Darlington.

Improved retail and waiting facilities, and segregation of road vehicles from pedestrians, are being provided at Edinburgh Waverley Station.

DEPOTS At Craigminty depot, near Edinburgh, we have installed one of the first all-weather carriage-washing plants in Britain as part of our regeneration project.

EUROSTAR Work has been completed to enable Eurostar trains to operate through to Edinburgh and Glasgow from London.

Future plans

SIGNALLING The work between York and Berwick-upon-Tweed continues and a renewal of signalling equipment (particularly interlockings) between London and Peterborough begins shortly.

These will be renewed in a manner consistent with the future ECML upgrade.

TRACK Point and crossing renewals continue at Hatfield, Hitchin, Retford, Doncaster, Darlington and at locations between Newcastle and Berwick. At Retford we are again taking the opportunity to lengthen the loop to improve the line capability and capacity by handling longer freight trains. Linespeed improvements are in hand between Hitchin and Royston. This supports the major work on Route 15 to reduce journey times between London and Cambridge.

STRUCTURES Work continues at Welwyn Viaduct to enable it to continue to carry intensive traffic in this section. The major bridge over the Trent Navigation at Newark will be completely reconstructed over the next two years, allowing future operation at 140mph and the ability to convey heavier freight vehicles, as well as providing the new alignment needed for later upgrade of the adjacent flat crossing.

PLANT AND ELECTRICAL We are renewing the overhead line at Scremerston in Northumberland where salt corrosion along the coast is affecting our equipment. New wind monitoring systems and other performance-related improvements will be undertaken to improve overhead-line and track performance.

STATIONS Station regeneration work continues at Newcastle, York and Darlington, and is beginning at local stations between Finsbury Park, Royston and Huntingdon. Provision of lifts at Berwick-upon-Tweed will be undertaken, together with escalator connection to the Tyne & Wear Metro at Newcastle Station.

ECML UPGRADE We have started the design and feasibility work associated with the ECML upgrade. Our analysis reveals that, in order to accommodate the forecast growth in demand, a significant level of additional infrastructure is required, including provision of further tracks, flyovers, viaducts, station improvements and upgrades to power supplies, as listed on the previous page.

The total cost of the infrastructure works proposed above would be approximately £1,000M over the next ten years, with around half of this anticipated over the next five.

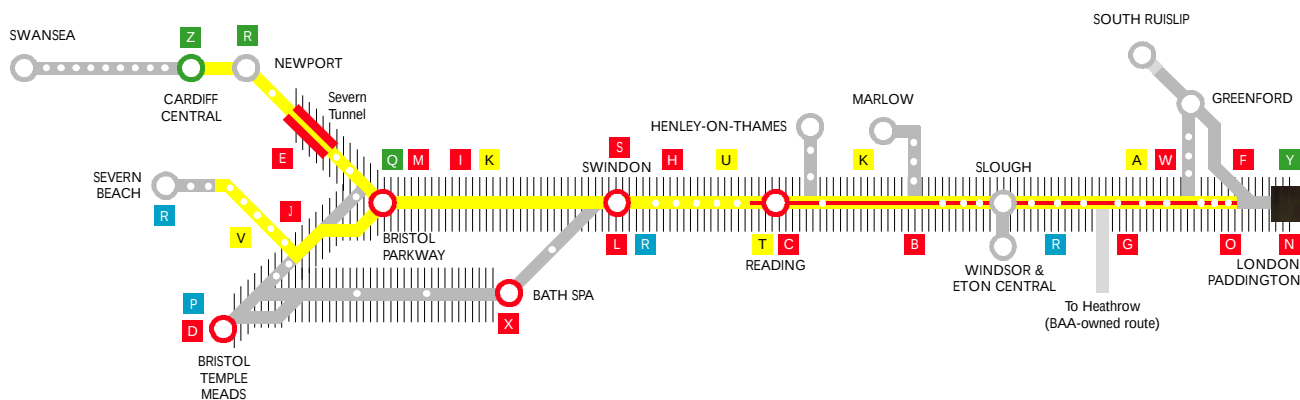
In August, we submitted an extensive report to the Franchising Director, to be forwarded to the DETR, containing final proposals for the upgrade, and followed up with an intensive period of continued validation with the Franchising Director. Since then, extensive work has been undertaken in house, and with customers, in order to develop, refine and challenge the proposals.

A full-time core team is continuing to take this upgrade project forward in order to retain the possibility of introducing tilting trains and the immediate capacity enhancements by 2003/04.

Great Western Trains; Heathrow Express; Thames Trains; Virgin Trains; Wales & West; EWS; Freightliner.



- A** Hayes Station – improved interchange facilities
 - B** Reading–West Drayton – changes to track layout to increase operational flexibility
 - C** Reading – additional capacity and platforms
 - D** Bristol Temple Meads Station – additional platforms
 - E** Severn Tunnel – increase capacity through additional signals
 - F** Acton Yard – remodelling of track layout for Heathrow–St Pancras service
 - G** Southall–Airport Junction – additional track and grade-separated junctions
 - H** Didcot East Junction – additional capacity
 - I** Westerleigh Junction – remodelling and increased speed towards Birmingham
 - J** Filton Junction – remodelling to increase capacity
 - K** Paddington–Cardiff – linespeed increases
 - L** Swindon Station – additional platforms
 - M** Bristol Parkway Station – additional platforms
 - N** Paddington Station – additional platforms
 - O** West Ealing–Acton – additional tracks
 - P** Bristol area – possible LRT scheme
 - Q** Bristol Parkway – new Royal Mail terminal
 - R** Wentloog, Avonmouth, South Marston, Colnbrook – new freight facilities
 - S** Swindon–Didcot – additional loops for freight trains
 - T** Reading West – grade-separated junction
 - U** (Southampton)–Reading–Didcot–(Birmingham) – increase gauge to handle W10 vehicles
 - V** London–Avonmouth–Cardiff – increase gauge to handle W10 vehicles
 - W** Southall–West Ealing – increase capacity through additional track
 - X** Bath Spa Station – increase length of platform for FGW services
 - Y** Paddington Station – enhancement of station facilities and provision of airline check-in facilities
 - Z** Cardiff Central – enhancement of station facilities
- See page 127 for colour key



Route characteristics

DESCRIPTION The Great Western Main Line (GWML) is the principal rail route from London to the West of England and South Wales. The route between Paddington and Didcot is a four-track railway. West of Didcot the route is primarily two track, though with four tracks between Severn Tunnel Junction and Cardiff. Linespeed between London and Bristol Parkway and Chippenham is 125mph; elsewhere it is 75–100mph. The slow lines between Paddington and Didcot are restricted to 60–100mph.

MAJOR STATIONS

London Paddington The construction stage of Phase 1 of our redevelopment proposals for this station is due to be completed by mid-1999. This will provide an airline check-in facility for the Heathrow Express Rail Link, escalator access to the enlarged London Underground concourse, and a new mezzanine area to provide a food court and improved retailing facilities. For Phase 2, we are planning improved station and concourse facilities for Platforms 9–12.

In addition, we are continuing to work towards meeting our customer requirements in relation to improved ingress and egress for taxis and coaches in the departures road.

BOTTLENECK ANALYSIS Two current bottlenecks were identified in the 1998 NMS: Paddington–Reading–Basingstoke and Bath–Bristol–Severn Tunnel Junction. Didcot–Swindon was identified as a potential bottleneck. Until 2001, we plan that growth will be met through restructuring the timetable. In addition, we are committing to a programme of infrastructure enhancements, as follows, in order to accommodate future services.

Paddington–Reading–Basingstoke A key bottleneck is the route section between Heathrow Airport Junction and Acton. This section is already operating at the limit of practical capacity (26 trains per hour) in the peak and close to the limit in a number of off-peak hours. We have identified a programme of enhancements to meet a series of future customer aspirations.

- Remodelling at Acton by 2002 to accommodate the proposed Heathrow–St Pancras two-train-per-hour service. This would create capacity for a total of 28 trains per hour.

- A later enhancement by 2006 of two additional tracks between Airport Junction and Southall, along with grade-separated junctions, would provide capacity to a total of 30 trains per hour, accommodating four trains per hour on the Heathrow–St Pancras service.
- The option, in addition, of providing two extra tracks between West Ealing and Acton and creating an extended loop between Airport Junction and Slough by 2006 would give capacity of 34 trains per hour which would accommodate all customer aspirations on this route throughout the day.
- Adding an extension of the two extra tracks between Southall and West Ealing by 2010 would provide further capacity to cater for growth in freight and suburban services, creating a total capacity of 42 trains per hour.

In addition to these enhancements, we have identified a series of alterations elsewhere on the GWML to utilise the capacity generated by easing this key bottleneck. These are: extra platforms at London Paddington, Bristol Temple Meads, Bristol Parkway and Swindon; Reading remodelling phase 2 (including one extra platform and improved access from the west); Didcot East crossover doubling; additional looping capacity at Swindon; Westerleigh Junction speed increase; Filton Junction remodelling; and Severn Tunnel additional signal section.

Bath–Bristol–Severn Tunnel Junction Analysis of this bottleneck showed that the following capacity improvements are required: an additional signal section in the Severn Tunnel; additional platforms at Bristol Temple Meads; and remodelling at Filton Junction. A possible later enhancement to accommodate Bristol light rapid transit is to install additional lines and stations from Bristol to Filton, including remodelling of Dr Days Junction.

Didcot–Swindon Capacity is forecast to limit future growth by 2003. Measures include increasing looping capacity between Didcot and Swindon and increasing platform capacity at Swindon Station.

Route vision

Our vision for the GWML is for a world-class reliable high-capacity route serving the rapidly growing markets in the M4 corridor and at Heathrow Airport. We will provide high-quality passenger interchanges while keeping the heritage appeal of major Brunel Stations. We aspire to a fastest journey time of 1 hour 40 minutes from Paddington to Cardiff.

The route has witnessed strong growth over the last two years. Utilisation has increased by up to 35% on the main lines between Acton and Airport Junction in the peak. Route capacity is being fully utilised over some sections as identified in the bottleneck analysis, and reliability has suffered as a result. Our main priority is to improve reliability, with improving timetable robustness and high levels of asset performance being our first goals.

We forecast that passenger demand on existing services will grow by around 30% over the next ten years. The Franchising Director and our customers have aspirations to run additional services that cater for this demand and to venture into new markets such as Heathrow Airport and London Services Orbital.

We also expect significant increases in the number of freight trains.

We will optimise and increase route capacity to meet the aspirations of the Franchising Director and our customers with a programme of route improvements. Shorter journey times on the GWML are important, to make rail more competitive with the M4 and so help to reduce the peripherality of South Wales and the South West. We will optimise the journey time achieved by existing rolling-stock and prepare to make the most of the potential offered by new vehicles.

A further goal is to upgrade facilities, the passenger environment, car-parking capacity and interchange opportunities at key stations, while keeping heritage character.

We will also provide connections to a number of new and developing freight terminals and enhance route capability to handle freight intermodal traffic.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Heathrow–Paddington stopping service, two trains per hour	Retimetabling Hayes Station upgrading to provide interchange facilities	2000	A
Improve performance and timetable flexibility	Reading–West Drayton. Review location and layout of main relief line junctions and implement agreed changes	2001	B
South Wales–London, half-hourly off-peak service	Reading remodelling Phase 2 Bristol Temple Meads: extra platforms Severn Tunnel: additional intermediate signal section	2001	C D E
Heathrow–St Pancras service, two trains per hour	Remodelling Acton Junction/yard Various works off GWML	2002	F
Heathrow–St Pancras service, four trains per hour	Additional tracks Airport Junction–Southall and grade-separated junctions	2006	F
Virgin CrossCountry service increases	Didcot East crossover doubling Reading remodelling Phase 2 Westerleigh Junction speed raising Filton Junction remodelling	2003	H E I J
Improved journey times	Swindon–South Wales linespeed raising package	2003	K
Paddington–Bristol–Cardiff service – peak growth to 20-minute interval service	Swindon: additional loops and platform Bristol Parkway: additional platform London Paddington: additional platform West Ealing to Acton: additional tracks Airport Junction and Slough: extended loop	2006 2006	L M N O G
Bristol and South Gloucester LRT	Filton–Bristol Temple Meads: electrification, additional tracks and associated resignalling, new and enhanced stations	2003	P
Freight capacity – intermodal growth to London and Europe	New freight terminals: Wentloog, Avonmouth, South Marston, Colnbrook Didcot–Swindon: extended loop	2000–02 2003	R S
Freight capacity – South Wales, addressing Cardiff–Margam Moors	Vale of Glamorgan Route: upgrade as alternative to GWML	2002	
Additional north–south Freightliner traffic through Reading	Reading West: provide grade-separated junction	2005	
Freight capability	Clearance for W10 Basingstoke–Didcot–Birmingham	2003	T
	Clearance for W10 Acton–Avonmouth and Cardiff (Wentloog)	2004/05	V
Paddington–Airport Junction – growth in suburban and freight services	Southall–West Ealing: additional tracks – to provide six tracks Airport Junction–Acton	2010	W
Bath Spa	To operate nine-coach First Great Western Services, the westbound platform at Bath Spa would need to be lengthened	To be agreed	X

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Paddington–Reading	58	0	86mph (25min)	No change	91mph (24min)	No change
Reading–Swindon	67	1	84mph (30min)	No change	89mph (28min)	92mph (27min)
Swindon–Bristol Temple Meads	66	2	57mph (43min)	No change	62mph (40min)	No change
Swindon–Bristol Parkway	56	0	79mph (26min)	No change	82mph (25min)	89mph (23min)
Bristol Parkway–Cardiff	53	1	52mph (37min)	No change	55mph (35min)	60mph (33min)
Cardiff–Swansea	74	3	51mph (54min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			36	36	36	37
40–75mph			250	176	176	178
80–105mph			235	309	309	309
110–125mph			555	555	555	555
Over 125mph			0	0	0	0
TOTAL			1075	1075	1075	1079
GAUGE (km of route)						
W6A			429	429	429	429
W7			400	400	400	400
W8			368	368	368	368
W9			0	0	0	240
W10			0	0	0	240
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			23	23	23	23
20.4 tonnes to 23.4 tonnes			20	20	20	21
23.5 tonnes to 25.4 tonnes			1033	1033	1033	1034
TOTAL			1075	1075	1075	1079

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	22.4	11.8	12.2	68.9	
Structures	8.6	8.9	8.3	40.0	
Signalling	4.5	7.6	6.7	39.4	
Electrification	0.3	0.5	0.1	0.1	
Plant & Machinery	0.6	2.8	3.8	10.6	
Telecoms	2.3	4.3	2.4	5.6	
Stations	9.2	9.4	8.3	17.1	
Depots	0.0	4.0	0.4	12.5	
TOTAL EXPENDITURE	47.9	49.3	42.2	194.2	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Paddington Station enhancements	2003	43.0	23.8	14.3	41.0	1	Y
Cardiff Central Station modernisation	2000	4.8	4.6	0.0	0.0	1	Z
Bristol Parkway Royal Mail terminal	2001	2.0	6.7	0.6	0.0	1	Q
Station enhancements	2001	0.8	2.1	0.0	0.0		
Wentloog freight terminal (E)	2000	0.1	1.9	0.7	0.0		R
Customer-information services enhancements	2000	0.2	1.4	0.0	0.0	1	
COMMERCIAL							
Access to Heathrow	2007	0.0	0.0	0.0	370.0	1	G W O F
Reading remodelling	2003	0.0	1.5	8.1	0.7	1	C
Swindon Station area remodelling	2004	0.0	0.1	0.3	4.0	1	L
Filton Junction remodelling	2003	0.0	0.3	3.9	0.0	2	J
Bristol Temple Meads Platforms 13–15	2000	0.1	1.6	0.0	0.0	1	D
Westerleigh Junction enhancement	2001	0.0	0.1	1.3	0.0		I
Severn Tunnel create additional signal section	2001	0.0	0.0	1.0	0.0	2	E
Provide passing loops Swindon–Didcot	2007	0.0	0.0	0.0	5.0		S
PARTNERSHIP							
GWML linespeed increase	2003	0.0	0.0	0.0	72.0	1	K
New stations	2001	0.0	0.0	1.8	0.0		
Hayes Station gateway development	2000	0.0	0.5	0.0	0.0	2	A
CONTRACTOR							
Colnbrook Euroterminal	2004	0.0	0.0	0.0	22.0		R
Old Oak Common Depot	2001	0.0	0.0	0.1	18.9	1	
South Marston, Swindon Euroterminal	2000	0.2	3.0	0.0	0.0		R
Car parks	2003	0.0	0.8	1.0	0.4	1	
Paddington Station automatic ticket gates	2000	0.0	1.5	0.0	0.0		
Paddington to Penzance Motorail	2000	0.0	0.1	0.0	0.0	2	
FEASIBILITY							
Bristol Parkway Station reconstruction & Platform 3	2001	0.0	0.0	0.1	3.5	1	M
THIRD PARTY							
New stations	2001	0.1	0.4	0.7	0.0		
Other schemes	Various	22.9	6.9	1.3	7.0	38	
TOTAL RAILTRACK EXPENDITURE		65.9	45.9	32.1	516.1	58	
TOTAL NON-RAILTRACK EXPENDITURE		7.9	11.4	3.1	28.0		

Progress on the 1998 NMS

RELIABILITY AND OPERABILITY Equipment reliability and minor signalling enhancements between Paddington and Airport Junction, and in the Bristol area have started and will continue through 1999/2000. Relaying track and structural repairs in the Severn Tunnel started in 1998/99 and will continue in 1999/2000.

STATION REFURBISHMENT Cardiff Central is undergoing major refurbishment, due for completion in 1999/2000. Improvements at Paddington, including extensive rebuilding of the main concourse area are due for completion in late 1999, with improved vehicle access due to follow in 2002/03. Hayes Station will be developed as a major interchange for Heathrow Airport. In partnership with Reading Council and our customers, a feasibility study has been commissioned to evaluate commercial development of Reading Station with improved transport interchange. Swindon Station redesign is planned for completion in 2001/02, subject to a partnership package. A scheme for the complete rebuilding of Bristol Parkway in 2000 is currently at feasibility stage. A partnership development will significantly improve facilities at Bristol Temple Meads. Installation of improved customer access and customer-information systems continues at many stations, in partnership with train operators. The Station Regeneration Programme is scheduled for completion in 1999/2000. A new London–Penzance motorail service will come into operation from summer this year, following completion of works at Paddington.

FREIGHT AND MAIL DEPOTS A new freight terminal at South Marston is due for completion in 1999/2000, and the Royal Mail Depot at Bristol Parkway and European railfreight terminals at Wentloog and Avonmouth are due to be completed in 2000/01. We are assessing the feasibility of clearing the route from Willesden Junction to Cardiff to W10 by 2003/04, subject to funding.

LAYOUT ALTERATIONS are under way at Reading, and Phase 1 is due for completion April 1999. Phase 2 work is being developed and will include expansion of platform capacity and remodelling at Reading to improve access from the west. Swindon and Bristol Temple Meads remodelling has been deferred until 2002/03. Newport layout alterations have been deferred pending major resignalling.

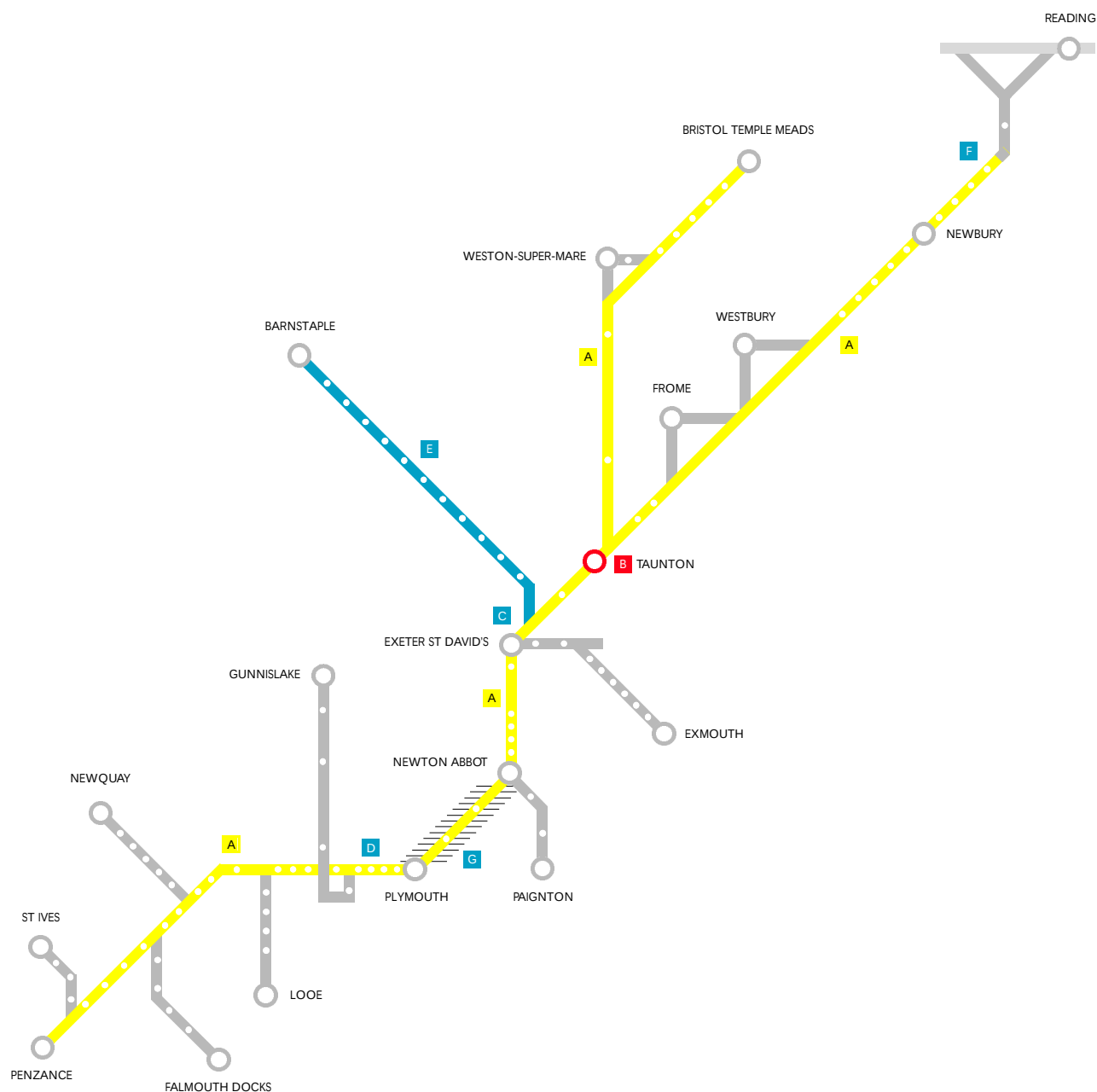
NEW STATIONS A new parkway station at Reading called Thames Valley Park is now planned for 2000/01. External funding for a new station at Grove near Didcot has not been forthcoming. A new station at Magor will be evaluated once development of the theme park is clear.

Great Western Trains; Thames Trains; Virgin Trains; Wales & West; EWS.



- A** Linespeed increases
- B** Taunton – additional platform
- C** Exeter – Euroterminal for freight services
- D** Menheniot – new park-and-ride facility
- E** Exeter–Barnstaple – linespeed improvements
- F** Theale – new park-and-ride station
- G** Tavistock Junction – new freight terminal

See page 127 for colour key



Route characteristics

DESCRIPTION This is primarily a two-track railway, but with some short single-track sections in Cornwall. Linespeeds east of Exeter are 80–110mph. West of Exeter speeds are lower, mostly between 40mph and 75mph.

Some sections of the route are operating near to capacity. These include Southcote Junction–Reading, Bristol Temple Meads–Weston-Super-Mare, Exeter St David's–Plymouth, Saltash Bridge and the seven miles of single track between Burngullow and Probus in Cornwall.

We are working in partnership with local transport and land-use planning authorities to achieve a co-ordinated, sustainable, integrated transport system.

Freight traffic on the route is growing, particularly aggregates, with new terminals opened at Newton Abbot, Plymouth and Heathfield. Our customers have aspirations for further growth, including intermodal traffic which will need loading-gauge improvements.

BOTTLENECK ANALYSIS In the 1998 NMS, Exeter–Plymouth was identified as a potential bottleneck. A number of constraints reduce capacity and timetable flexibility on this route, including the Weston-Super-Mare single-track loop, spacing of signals between Exeter and Plymouth and the single-track sections and long-signal sections in Cornwall. All of these impinge on the Exeter–Plymouth section of the route.

Our detailed analysis, however, shows that there is sufficient capacity to run our customers' proposed and forecast services until around 2008. The initiatives that we are undertaking to provide additional capacity (eg an extra platform at Taunton) are aimed primarily at achieving immediate performance improvements. We will be further evaluating options to increase capacity beyond 2008 as we and our customers develop firmer views of demand.

Route vision

Our vision is for a world-class rail transportation network for the South West. This vision was developed with the South West Government Office, regional development authority and local authorities together with our industry partners. We will reduce the peripherality of the South West through shortened journey times and enhanced freight capability.

We will improve performance through initiatives such as continuing sea-defence works at Dawlish, and reinstating the middle platform at Taunton.

We will work with our partners to deliver reduced journey times. We will do this by agreeing a revenue-sharing framework and a package of infrastructure enhancements to maximise the benefits from our partners' existing and proposed rolling-stock fleets.

We expect this to deliver journey times of 2 hours 39 minutes London–Plymouth (19-minute improvement) and 4 hours 20 minutes London–Penzance (37-minute improvement).

We aspire to increase the public transport market share through provision of a more integrated transport system. We aim to improve branch line connections and to increase the quality of environment at key interchange locations.

We look forward to working with Cornwall County Council to prepare the Objective 1 Bid to enhance further the county's transport capabilities.

We are working in partnership with local authorities in the Taunton area to fund a signalled connection to the West Somerset Railway and evaluate suitable locations for intermodal facilities in the area.

We are considering increasing the gauge for freight trains on this route west of Bristol to connect with new terminal sites in Devon and Cornwall. We would do this by working in partnership with the Government office of the South West local authorities and our customers to agree a viable funding package.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Bristol–Plymouth–Penzance	Analysis shows that there is sufficient capacity for all the identified existing and future services. We will, nevertheless, undertake the following. • Study of possible redoubling of Weston-Super-Mare Loop and provision of additional platform. • Provision of additional platforms at Bristol Temple Meads. • Provision of additional platform at Taunton. • Study of options for single-line sections in Cornwall.	Studies complete 2000	

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Bristol–Exeter	122	2	61mph (1hr 15min)	No change	65mph (1hr 10min)	67mph (1hr 07min)
Reading–Exeter	245	4	80mph (1hr 54min)	No change	No change	81mph (1hr 45min)
Exeter–Plymouth	84	2	49mph (1hr 04min)	No change	56mph (56min)	58mph (54min)
Plymouth–Penzance	130	13	41mph (1hr 58min)	No change	47mph (1hr 44min)	48mph (1hr 40min)
LINESPEEDS (km of track)						
Up to 35mph			74	75	75	75
40–75mph			403	403	403	403
80–105mph			689	689	689	689
110–125mph			46	46	46	46
Over 125mph			0	0	0	0
TOTAL			1211	1212	1212	1212
GAUGE (km of route)						
W6A			699	699	699	699
W7			555	597	597	555
W8			174	216	216	240
W9			0	42	42	240
W10			0	0	0	240
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			134	135	135	135
20.4 tonnes to 23.4 tonnes			293	293	293	293
23.5 tonnes to 25.4 tonnes			784	784	784	784
TOTAL			1211	1212	1212	1212

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	13.0	7.4	7.2	50.7	
Structures	5.8	4.2	4.7	34.7	
Signalling	0.8	3.2	4.0	13.9	
Plant & Machinery	0.0	0.7	0.2	4.7	
Telecoms	0.2	0.9	0.2	2.4	
Stations	5.2	4.2	0.8	11.3	
Depots	0.0	6.6	1.2	4.4	
TOTAL EXPENDITURE	25.1	27.2	18.3	122.1	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Wales & West station enhancements	2000	0.0	3.2	0.0	0.0		
CIS enhancements	2000	0.0	0.9	0.0	0.0	1	
Station enhancements	2001	0.0	0.2	0.0	0.0		
COMMERCIAL							
Taunton Station – reopening of island platform	2000	0.0	0.1	0.0	0.0	1	B
PARTNERSHIP							
Linespeed increases	2003	0.0	0.0	0.0	25.0	1	A
CONTRACTOR							
Tavistock Junction new freight terminal	2002	0.0	0.0	0.0	2.5		G
Exeter Euroterminal	2002	0.0	0.1	2.0	0.9		C
Menheniot park-and-ride Station	2004	0.0	0.0	0.0	1.5		D
Barnstaple linespeed improvements	2001	0.0	0.6	0.3	0.0	1	E
THIRD PARTY							
Theale park-and-ride new station	2001	0.0	0.3	2.8	0.0		F
Other schemes	Various	0.6	1.7	0.2	4.8	11	
TOTAL RAILTRACK EXPENDITURE		0.6	4.4	0.1	26.4	15	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	2.7	5.2	8.3		

Progress on the 1998 NMS

TENS FEASIBILITY STUDY The study has been completed and shows that some significant journey-time improvements are possible, for example a reduction of 27.5 minutes between Penzance and Bristol. For Plymouth–Bristol we are working with our customers to refine options for journey-time savings and to agree a funding framework. For Penzance–Plymouth and Taunton–London, the revenue gained from the improved journey time would be inadequate to finance the required investment; we are, therefore, working with our customers, government (local, regional, national and European) and other stakeholder groups to secure funding for this project.

Freight-loading gauge enhancement shows strong societal benefits, and we are seeking external funding support.

Preferred sites for future intermodal freight terminals have been identified at Exeter Airport, Tavistock Yard (Plymouth) and in mid-Cornwall. We are now working with EWS and potential developers to refine proposals for these locations.

STATIONS Theale, Menheniot and Kingskerswell park-and-ride stations are included in our business plan, subject to adequate funding, in partnership with the sponsors for the development and train-service provision. Further feasibility studies will be undertaken in partnership with the South West authorities during 1999/2000 to evaluate new stations and train-service provision.

In 1998/99, we have made excellent progress with the Station Regeneration Programme, undertaking works at many stations on the route. In 1999/2000, the works will be completed at all stations. In partnership with local authorities, we are taking the opportunity to incorporate additional and improved facilities at

many locations, ranging from larger stations such as Bristol Temple Meads, Exeter St David's and St Austell to many smaller rural, unstaffed stations. An improved station car park has been provided at Taunton, together with local authority funded car-park improvements at St Austell and Liskeard. Depending on funding and listed building consent, a new station building and passenger facilities will be provided at St Austell.

We will provide enhanced customer-information and security systems at many locations on the route during 1999/2000, in conjunction with our train operator partners and local authorities.

We will shortly complete works at Penzance to allow a motorail service to London to be reintroduced from summer this year.

We are developing proposals in conjunction with local authorities and First Great Western for improved interchange facilities at Exeter St David's and Plymouth.

PERFORMANCE IMPROVEMENT We are continuing this year's substantially expanded programme of sea-defence works at Dawlish and improvements at Stafford's Bridge to reduce flooding. We are also continuing with a major overhaul of the Royal Albert Bridge. We have replaced track circuits with the more reliable axle-counter system at Starcross, Totnes and Aish, and we are evaluating more locations. We will reinstate the middle platform at Taunton to improve operational flexibility and performance.

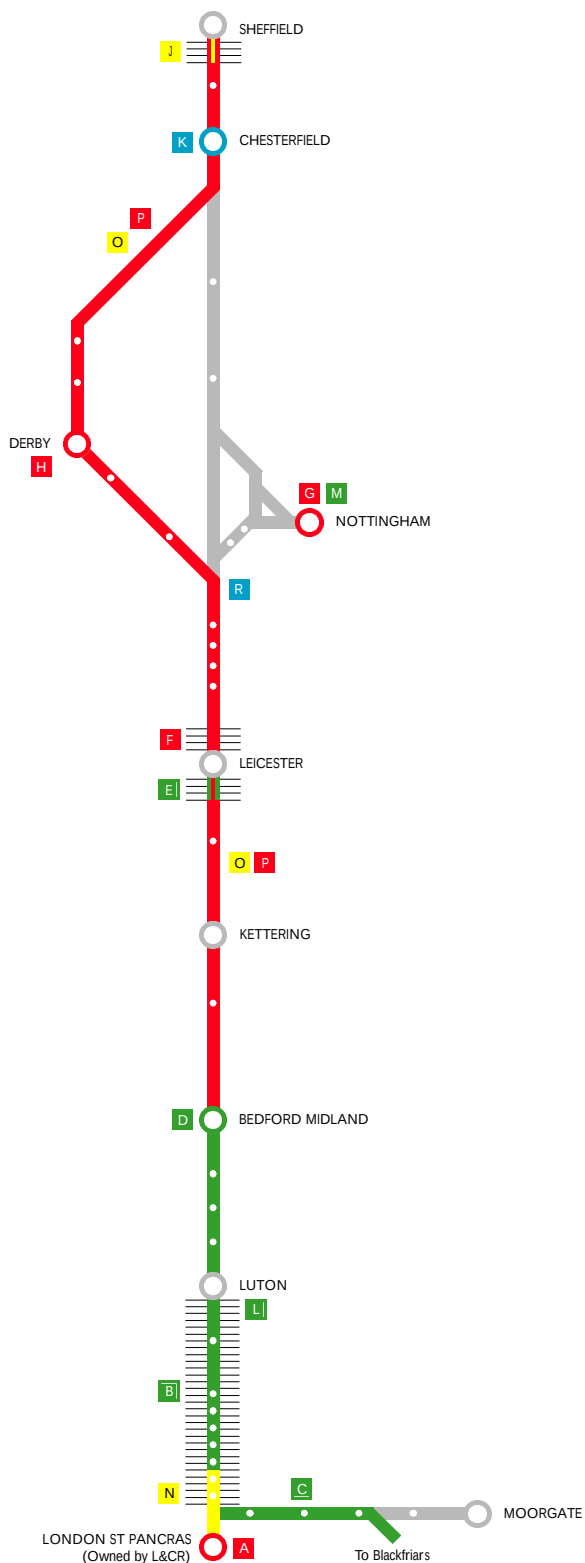
CAPACITY Our detailed analysis shows that there is sufficient capacity for all the identified existing and future services in the period of this NMS.

Central Trains; DRS; EWS; FNW; Midland Main Line Ltd; Northern Spirit; Silverlink; Thameslink Virgin Trains.



- A** St Pancras – additional operational platforms
- B** Thameslink 2000 – additional capability
- C** Thameslink 2000 – additional capacity and capability
- D** Bedford – additional platform
- E** Wigston North Junction – additional capacity
- F** Leicester area – possible capacity increase for freight trains
- G** Nottingham Station – additional operational platform
- H** Derby Station – platform works for Class 170 trains
- J** Dore–Sheffield – capacity increase
- K** Chesterfield – station reconstruction
- L** Luton Parkway – new station for airport
- M** Nottingham Eastcroft – new depot
- N** Access to Heathrow – facilities for possible St Pancras – Heathrow service
- O** Short term – linespeed improvements
- P** Longer term – linespeed improvements
- R** East Midlands Parkway – new station

See page 127 for colour key



Route characteristics

DESCRIPTION This is principally a four-track railway but with some critical two- and three-track sections. Linespeed on the main lines is 100–110mph, while on the slow lines from London to Bedford it is 90mph. Elsewhere, linespeeds on the slow lines are restricted to 50–60mph. The south end of the route forms part of the Thameslink network. The route operates near to capacity between Luton and London.

The key Midland Main Line investment comes to fruition in May 1999, with the introduction of new rolling stock and associated infrastructure improvements which will enable Midland Main Line to double train services.

BOTTLENECK ANALYSIS

Kentish Town–Luton The mix of fast and stopping services and varied station stopping patterns lead to a very high utilisation of the available capacity of this four track railway. In May 1999, the number of Midland Main Line services over the route will be increased from two to four trains per hour. This can be accommodated by the existing infrastructure except at Bedford where a new platform on the down fast line is currently being constructed and will be completed in May 1999. At St Pancras, we are also reinstating Platform 6 which is currently not in use.

Thameslink and the Franchising Director have aspirations to increase Bedford–London peak-service frequencies prior to Thameslink 2000 being introduced.

We are continuing to assess this requirement which we and our customers recognise cannot be achieved without a restructured timetable.

The destination of these additional trains in London would be determined through a timetabling exercise. Depending on the outcome of this exercise, this may involve reinstating platform 1 at St Pancras Station, which is currently not in use.

The possible St Pancras–Heathrow service would require infrastructure changes to provide additional capacity. This would involve an additional fast to slow lines connection north of West Hampstead and additional platforms at that station.

Leicester To accommodate the new summer timetable, we are currently increasing the capacity of Wigston North Junction.

We will make a decision by July 1999 on whether, as part of our freight routing strategy, to divert Felixstowe–Midlands–North England Freightliner services via Peterborough and Leicester rather than via London. This may require an increase in capacity between Syston, Leicester and Wigston. We will report on our conclusions in the 2000 NMS.

Sheffield area This is included in Route 13.

Route vision

Our vision for the Midland Main Line is of a high-performance route providing motorway-competitive journey times with capacity increases to meet passenger growth. Linespeed improvements will be implemented to gain full benefit from the network and modern rolling stock.

The Thameslink 2000 project will develop and expand the successful Thameslink network, providing direct links with greater capacity between this route across London to the South Coast.

New stations at Luton Airport and the proposed East Midlands Parkway will substantially improve road-based accessibility to the route.

Freight traffic is expected to increase. This route has the potential to accommodate further growth, although additional infrastructure may be needed to carry extra traffic through the currently identified bottlenecks.

We will continue to work with external stakeholders to make the case for further socio-economic investment in the route through specific initiatives.

We will continue to work with train operators to ensure that sufficient capacity is available to meet the aspirations of our customers.

Route development and customer requirements

We have consulted with our customers, the passenger and freight train operators, to determine their needs and how we evaluate them. The proposals set out in these pages address our intentions to deliver their aspirations for service frequency, journey-time reductions, station and depot facilities and new rolling stock.

We will also examine options to improve capacity, including remodelling of junctions and the provision of additional platforms and crossovers to remove bottlenecks from the route and allowing journey-time improvements in line with current operator aspirations. Linespeed improvements are being considered at a number of locations and will be achieved in 1999 at Kentish Town, on the Moorgate Line, between Flitwick and Bedford on the slow lines, at Wellingborough and on the Erewash Valley section of the route.

It is recognised that overcrowding on Thameslink peak services is severe and we are jointly exploring ways to alleviate this problem.

We will continue to work with industry partners, local authorities and outside developers to improve our stations. In particular, we will address the ease of interchange with other transport modes, provide better car parking at Harpenden, Flitwick, Kettering, Derby and Chesterfield, real-time passenger-information systems and access for the disabled. Major redevelopments, involving expenditure of £48M, are planned at Luton, Borehamwood and Elstree and West Hampstead stations to enhance facilities, improve links with other transport and develop property opportunities. A rebuild of station facilities at Chesterfield is also planned.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
St Pancras	Feasibility work to assess the possible reinstatement of Platform 1	2000	A
	Platform 6 will be reinstated for the summer timetable	1999	A
Kentish Town–Luton and Bedford	See bottleneck analysis above. In addition, the Thameslink 2000 project includes lengthening platforms to enable the operation of 12-vehicle trains		B
Kentish Town–Farringdon	Capacity will be increased as part of Thameslink 2000 projected to meet the requirements of the proposed 24-trains-per-hour timetable. No additional capacity will be provided prior to this. We will undertake a timetable exercise with Thameslink to increase the number of peak-hour trains for the summer 2000 timetable	2006	C
Bedford	A new fast-line platform will be available to operate the new timetable Railtrack is considering options to further improve the operation of this station	1999	D
Wigston Junction	Increase capacity by changing from the current single-lead junction to a double-lead junction	1999	E
Leicester area	We are evaluating the effects of proposed freight train-service increases on the current infrastructure to inform any decision on required changes	1999	F
Nottingham	A new platform, Platform 6, will be made available for passenger trains to allow for an increase in Central Trains services to and from Leicester	1999	G
Derby	Platform 5 will be upgraded to allow its use by Sprinter and Turbostar trains to provide extra capacity within the station	1999	H
Dore–Sheffield	Feasibility work is ongoing to assess how to provide extra capacity to cater for known growth aspirations by train operators		J

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
London St Pancras–Sheffield (fast lines)	255	1	84mph (1hr 59min)	85mph (1hr 57min)	No change	93mph (1hr 48min)
London St Pancras–Sheffield via Derby	266	2	79mph (2hr 06min)	80mph (2hr 04min)	No change	88mph (1hr 53min)
London St Pancras–Derby	208	0	86mph (1hr 30min)	88mph (1hr 28min)	No change	91mph (1hr 25min)
London St Pancras–Leicester	160	0	86mph (1hr 09min)	89mph (1hr 07min)	No change	104mph (57min)
Derby–Sheffield	58	0	64mph (34min)	64mph (34min)	No change	77mph (28min)
London St Pancras–Nottingham	204	3	84mph (1hr 31min)	86mph (1hr 29min)	No change	89mph (1hr 25min)
Farringdon–Bedford	82	2	68mph (45min)	71mph (43min)	No change	77mph (40min)
LINESPEEDS (km of track)						
Up to 35mph			51	51	51	51
40–75mph			208	208	208	204
80–105mph			575	575	575	531
110–125mph			209	209	209	257
Over 125mph			0	0	0	0
TOTAL			1043	1043	1043	1043
GAUGE (km of route)						
W6A			393	393	393	393
W7			367	367	367	367
W8			256	256	256	256
W9			76	76	76	76
W10			0	0	0	13
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			4	4	4	4
20.4 tonnes to 23.4 tonnes			131	131	131	131
23.5 tonnes to 25.4 tonnes			908	908	908	908
TOTAL			1043	1043	1043	1043

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
LONDON NORTH EASTERN ZONE					
Track	0.0	0.6	0.6	0.0	
Structures	1.5	0.7	1.0	4.3	
Signalling	0.0	0.2	0.1	0.0	
Plant & Machinery	0.2	0.0	0.0	0.0	
Stations	0.1	0.1	0.1	0.4	
TOTAL EXPENDITURE	1.8	1.6	1.8	4.7	
MIDLANDS ZONE					
Track	15.3	16.0	8.1	55.5	
Structures	0.6	2.9	2.9	15.7	
Signalling	3.2	2.5	3.8	21.0	
Electrification	0.0	0.0	0.0	0.9	
Plant & Machinery	0.0	0.0	0.1	0.0	
Telecoms	0.7	0.5	1.2	5.4	
Stations	2.3	5.7	5.2	6.9	
Other	0.0	0.1	0.0	0.3	
TOTAL EXPENDITURE	22.1	27.7	21.3	105.7	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
LONDON NORTH EASTERN ZONE							
CONTRACTOR							
Chesterfield Station enhancements	2000	0.0	1.0	0.0	0.0		K
Other schemes	Various	0.0	0.0	0.0	0.0	6	
TOTAL RAILTRACK EXPENDITURE		0.0	1.0	0.0	0.0	6	
MIDLANDS ZONE							
COMMITTED							
Thameslink 2000	2006	3.8	6.7	2.2	234.2	1	B C
Luton Parkway Station	1999	5.6	8.4	0.0	0.0	1	L
Midland Main Line 1999 timetable enhancements	1999	4.7	1.0	0.0	0.0		D E
Station enhancements	2001	0.7	2.5	0.1	0.0		
Nottingham Eastcroft new depot	1999	1.8	0.0	0.0	0.0	1	M
Derby Etches Park Depot enhancements	1999	0.7	0.0	0.0	0.0	3	
COMMERCIAL							
Journey-time reductions (short term)	2001	0.0	0.0	0.0	5.0	1	P
PARTNERSHIP							
Journey-time reductions (long term)	2007	0.0	0.0	0.0	20.0	5	O
Access to Heathrow	2007	0.0	0.0	0.0	6.1	1	N
CONTRACTOR							
Thameslink Stations car-park enhancements	2000	0.0	1.5	0.0	0.0	1	
THIRD PARTY							
East Midlands Parkway Station	2002	0.0	0.0	5.3	5.5	1	R
Other schemes	Various	0.2	0.8	0.1	0.0	16	
TOTAL RAILTRACK EXPENDITURE		17.5	20.9	2.4	245.3	31	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.0	5.3	5.5		

Progress on the 1998 NMS

NEW STATION FOR LUTON AIRPORT Now under construction and due for completion and opening in autumn this year.

PROPOSED LINESPEED INCREASES A number of options are under evaluation, some of which will be implemented during 1999. Railtrack and Midland Main Line have co-operated to offer a 1 hour 59 minute journey time from Sheffield to London – the fastest ever timetabled journey between the two cities.

PROPOSED EAST MIDLANDS PARKWAY STATION Midland Main Line is undertaking further feasibility work to ascertain passenger demand and the environmental implications of the new station.

NEW MAINTENANCE SHED FACILITIES FOR CENTRAL TRAINS AT NOTTINGHAM This facility has been completed and is now in operation.

PROPOSED TRENT PSB RESIGNALLING Options, including life extension by a programme of continuous component renewal, continue to be developed in time for implementation in 2000/01.

THAMESLINK 2000 See Section 8.5 in the London Section.

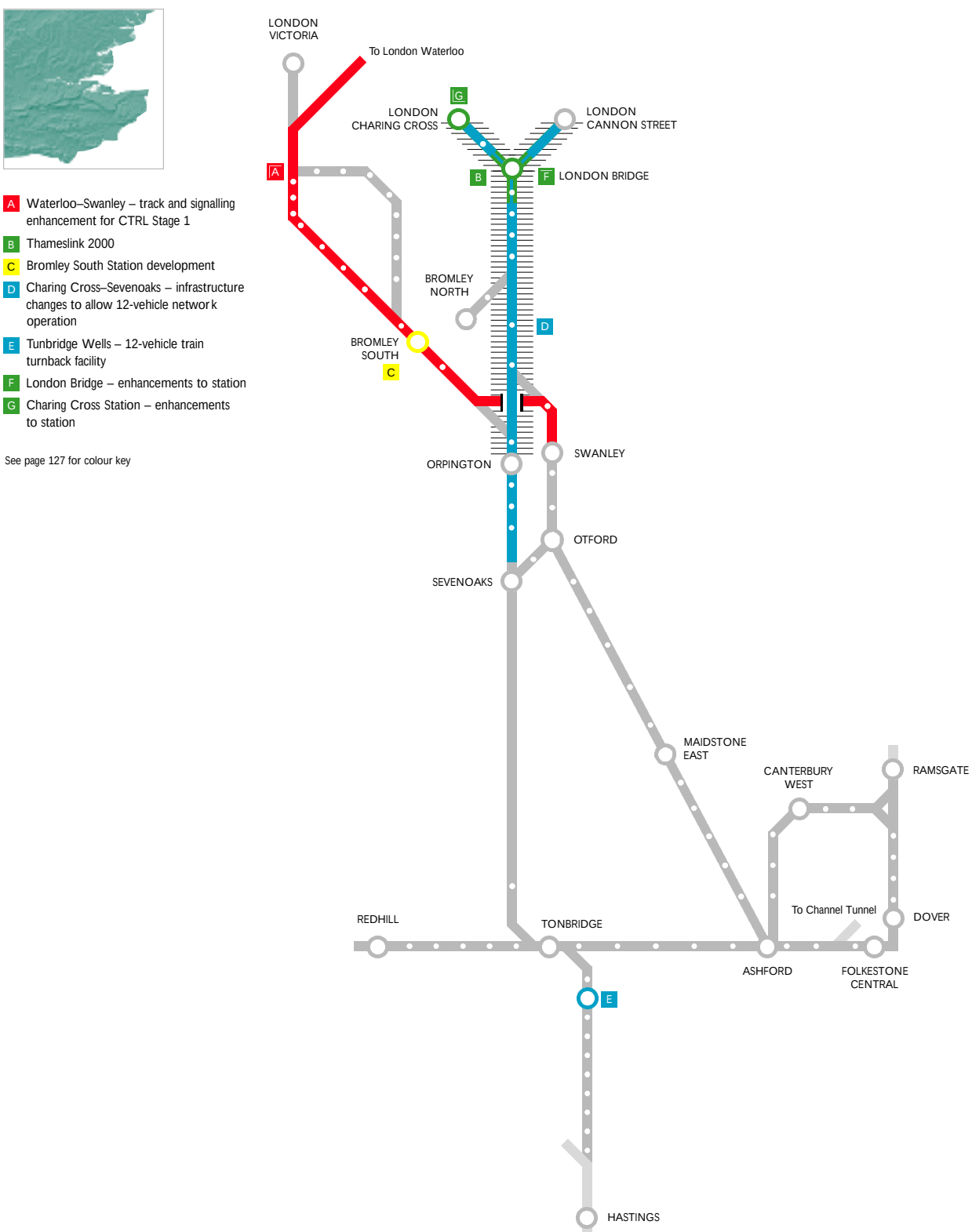
BEDFORD STATION New north bound platform is currently under construction. It is due for completion and opening in May this year and will provide full disabled access to all platforms via new lifts.

SHEFFIELD CAPACITY IMPROVEMENTS A feasibility study is due for completion this year.

LEICESTER TO WIGSTON Track capacity is being increased at Wigston by installing a double-level junction. This work will be completed in April 1999.

SHEFFIELD STATION REFURBISHMENT Design and development for Station Regeneration Programme works is currently ongoing with planned work starting in autumn this year.

Connex South Central; Connex South Eastern; Eurostar; Thameslink; Virgin Trains; DRS; EWS.



Route characteristics

DESCRIPTION This route carries both passenger and freight trains between London, the Channel Tunnel and beyond, as well as domestic services to South East London and Kent.

From Victoria to Swanley this route is four track (two tracks via Herne Hill and two via the Catford Loop) with a predominant linespeed of 60mph.

From Charing Cross and Cannon Street to Orpington, this is a four-track line with a 60mph linespeed rising to 70mph beyond Hither Green. Beyond Orpington, the route is primarily two track, with linespeed varying between 80mph and 100mph.

The route also includes Swanley–Ashford via Maidstone East, a two-track line with speeds between 70mph and 80mph. All lines are electrified.

BOTTLENECK ANALYSIS There are a number of capacity constraints between Charing Cross and Orpington, the most severe of which is the two-track section between Borough Market Junction and Metropolitan Junction. In the area between Charing Cross and London Bridge, which includes this short section, there are a number of flat junctions and the tracks converge and diverge leaving either two or four tracks. There are, thus, numerous possible conflicting moves which restrict available capacity.

Demand for train paths currently exceeds the available capacity and, during the peak, PEXC levels are exceeded and not all trains are able to stop at London Bridge Station. In addition, the current timetable for this section of route depends on services running on restricted signalling aspects during the peak hours.

The other main constraint is the four-track section between New Cross Station and Tanners Hill Junction.

Under the Thameslink 2000 project, significant new infrastructure will be provided including the quadrupling of the section of track between Metropolitan Junction and Borough Market Junction, thereby doubling capacity. The Thameslink 2000 project will both provide the means to accommodate underlying demand and induce new demand through the changed service pattern. In addition, discussions continue to assess how to meet other customer aspirations for further enhancements at London Bridge Station.

We are working with the Franchising Director and customers to develop additional facilities between New Cross, Tanners Hill and London Bridge Station. This will provide further relief to this bottleneck.

MAJOR STATIONS

London Bridge This is a very busy station whose role is set to grow with the Jubilee Line development. The opening of the Jubilee Line will see the underground concourse brought into use. SRP work will begin in 1999, and we will work with Connex and Thameslink to provide automatic ticket gates. CIS renewal is planned for 1999/2000. The Thameslink 2000 project will bring opportunities for substantial improvement to this station.

London Charing Cross This is an extremely busy London terminal constrained by its size. We will improve the concourse area to cater for passenger growth. We are working with Connex to provide automatic ticket gates to secure industry revenue. The major roof reglazing will be completed in summer this year.

Route vision

Our vision for this route is to create new capacity by constructing a 12-vehicle per train suburban network by 2002 and to capitalise on the new capacity offered by construction of the CTRL to improve journey times between London and Kent.

We intend to develop the London commuting markets with new journey opportunities and practical capacity enhancements. Central to this is the Thameslink 2000 project, due for completion in 2006, which will address the remaining major bottlenecks.

We are working with the Franchising Director to develop a scheme to provide additional facilities in the London Bridge area to enable Thameslink 2000

services to operate while retaining the potential for the existing level of service to West End locations. This will enable additional services to operate in Central London on this route. Subject to finalisation of the scope of these works, it is expected that we will submit a supplementary T&WA Order application for the scheme to the DETR in autumn this year.

The Jubilee Line Extension will lead to increased passenger demand for London Bridge as an interchange point.

Route development and customer requirements

Working with our customers, we will improve charter punctuality by two percentage points over the next two years. This improvement, which will vary across service groups, will typically result in 16% fewer trains arriving at their destinations more than five minutes late.

The opening of CTRL Section 1 will also provide a significant increase in capacity, both to the benefit of Eurostar on the new route, and for other operators who can make use of capacity released by Eurostar on the existing route. The 2003 timetable will provide the opportunity to optimise use of the available capacity by all services and enable significant reductions in journey times such as London–Ashford in 59 minutes.

In advance of the CTRL Section 1, works on the Waterloo–Fawkham Junction section of the route will allow Eurostar services leaving CTRL to successfully integrate with the domestic services. In the meantime, the route will continue to service the expected growth in international freight traffic.

Route clearance work for Connex's new fleet of electric trains has begun and the operating areas of its existing modern fleets will be extended.

We intend to clear two Channel Tunnel to London routes, via Maidstone and via Redhill to W10 gauge. We will be able to accommodate our freight customers forecast demand over both the next five and ten years.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Victoria–Swanley	Route clearance for Class 375 electric trains	1999	
Charing Cross–Ramsgate & Hastings	Route clearance for Class 375 electric trains	2000	
Waterloo International–Swanley	Track and signalling enhancements in conjunctions with CTRL Section 1	2003	A
Charing Cross–Hither Green	Thameslink 2000 project	2006	B
Charing Cross–Sevenoaks	Infrastructure enhancements to allow operation of 12-vehicle networker services	Study complete by 2000	D
Tunbridge Wells	Turnback facility for 12-car trains	Study complete by 2000	E

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	KM	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Charing Cross–Sevenoaks	35	2	42mph (31min)	44mph (30min)	No change	47mph (28min)
Charing Cross–Tunbridge Wells	55	6	39mph (53min)	40mph (51min)	No change	42mph (49min)
Charing Cross–Ashford via Maidstone East	90	5	46mph (1hr 13min)	47mph (1hr 12min)	No change	57mph (59min)
Charing Cross–Ashford via Tonbridge	95	7	49mph (1hr 08min)	50mph (1hr 10min)	No change	60mph (59min)
Victoria–Bromley South	18	0	45mph (15min)	No change	No change	No change
Waterloo International–Eurotunnel	109	0	60mph (1hr 08min)	No change	No change	80mph (51min)
LINESPEEDS (km of track)						
Up to 35mph			96	96	96	96
40–75mph			518	518	518	518
80–105mph			354	354	354	354
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			967	967	967	967
GAUGE (km of route)						
W6A			417	417	417	417
W7			168	168	168	168
W8			168	168	168	168
W9			168	168	168	168
W10			0	0	0	133
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			8	8	8	8
20.4 tonnes to 23.4 tonnes			34	34	34	34
23.5 tonnes to 25.4 tonnes			925	925	925	925
TOTAL			967	967	967	967

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	13.8	3.8	8.1	75.9	
Structures	1.6	3.2	4.0	22.3	
Signalling	2.4	4.2	9.3	161.7	
Electrification	0.7	1.0	1.2	10.9	
Plant & Machinery	0.6	0.2	0.3	1.3	
Telecoms	1.5	2.6	3.4	4.2	
Stations	6.2	11.3	9.3	35.1	
Depots	1.8	0.2	0.1	5.0	
Other	0.1	0.2	0.2	1.1	
TOTAL EXPENDITURE	28.7	26.7	35.9	317.5	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Thameslink 2000	2006	5.7	4.5	0.7	281.7	1	B
London Bridge Station enhancements	2006	0.0	0.5	0.9	3.5		F
Station and depot enhancements	2001	1.3	1.5	2.0	0.0		
Charing Cross Station enhancements	2000	1.3	0.1	0.0	0.0		G
COMMERCIAL							
Waterloo–Fawkham Junction enhancements for CTRL	2003	0.2	3.0	6.7	25.4	3	A
CSE Networker regenerative braking system	2000	0.4	0.2	0.0	0.0		
PARTNERSHIP							
Class 375 & Class 365 route clearance	2000	0.7	1.0	0.5	0.0	3	D
Ashford Depot improvements	2000	0.0	0.6	0.0	0.0	1	
CONTRACTOR							
Connex car parks	2001	0.0	0.5	0.5	0.0	1	
London Bridge Station automatic ticket gates	2000	0.0	0.5	0.0	0.0	1	
Other schemes	Various	0.7	0.0	0.0	1.0	21	
TOTAL RAILTRACK EXPENDITURE		10.1	12.4	11.3	311.6	31	
TOTAL NON-RAILTRACK EXPENDITURE		0.2	0.0	0.0	0.0		

Progress on the 1998 NMS

STATIONS During 1998, major works have been completed at Folkestone Central including track and platform rationalisation, and refurbishment of the station with new lifts and facilities to meet standards for mobility-impaired access. Discussions are under way with the local authority and Connex for improvements to the station facilities at Tonbridge. Planning permission has been sought for a redevelopment of Bromley South Station.

SRP work has been completed at Eynsford, Shoreham, Otford, Bat and Ball, Sevenoaks, Maidstone East, Bearsted, Hollingbourne, Harrietsham, Lenham and Charing.

It is proposed to enlarge and improve car park three at Sevenoaks and make improvements to the station forecourt to improve interchange. Customer-information systems at all Connex franchised stations are being replaced and significantly improved through a Railtrack and Connex partnership scheme.

SIGNALLING EQUIPMENT RENEWAL The renewal of signalling equipment in the Dover area was completed in 1998. Following the completion of signalling condition assessments, we intend to undertake signalling equipment renewal in the Hither Green area by 2001.

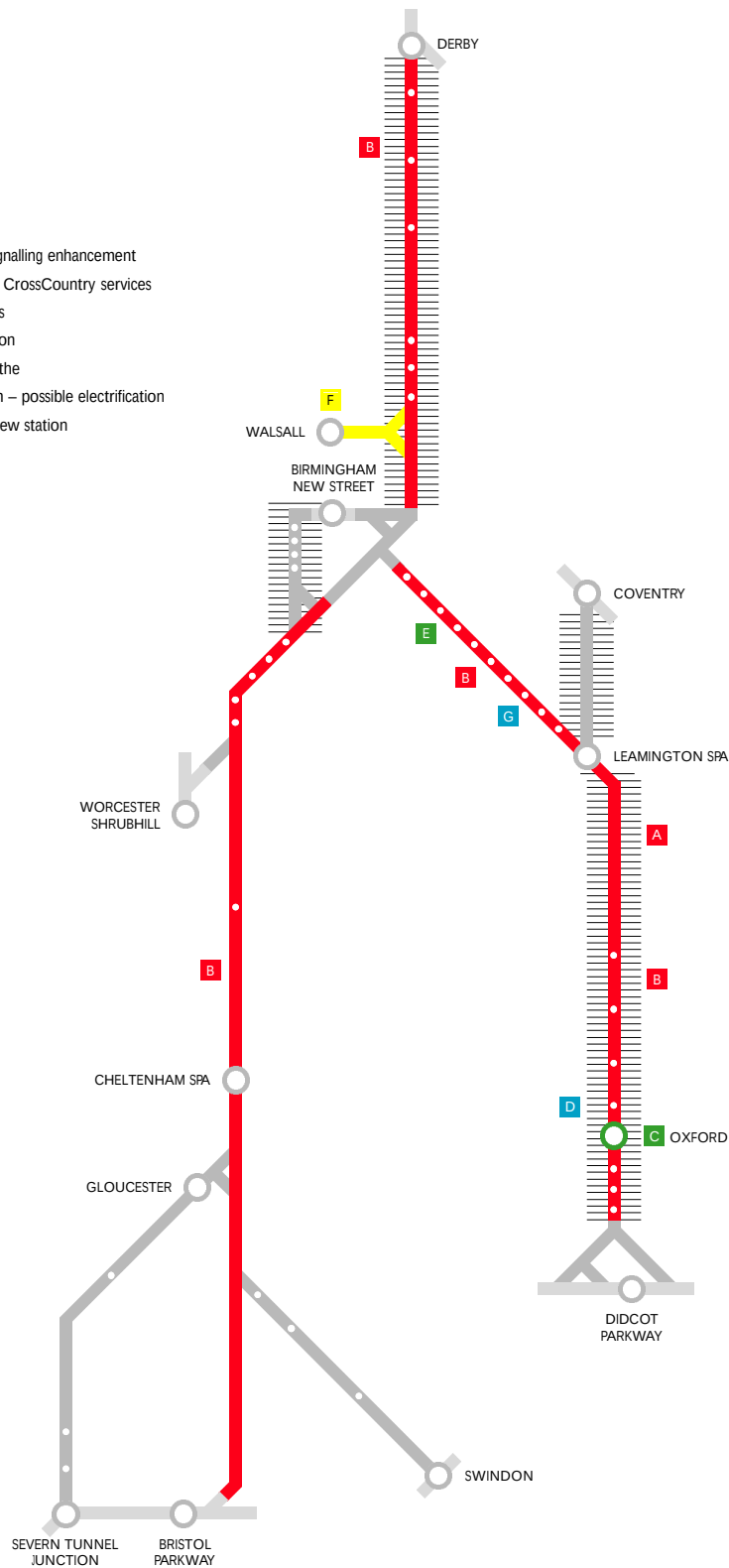
LINESPEED IMPROVEMENTS The opening of CTRL Section 1 will enable journey-time improvements for domestic services on existing lines. Elsewhere on the route, an initial linespeed improvement feasibility study is complete and priority routes have been identified. Action will be taken where meaningful journey-time reductions can be realised. Feasibility work is continuing for other sections of the route. Further work will take place this year to determine whether additional journey-time reductions can be achieved with new rolling stock.

Central Trains; Chiltern Railways; Great Western Trains; Thames Trains; Virgin CrossCountry; Wales & West; EWS; Freightliner.



- A** Banbury–Fenny Compton – signalling enhancement
- B** Linespeed increases for Virgin CrossCountry services
- C** Oxford Station – new buildings
- D** Kidlington – possible new station
- E** Tyseley Depot – new wheel lathe
- F** Nuneaton–Walsall/Birmingham – possible electrification
- G** Warwick Parkway – possible new station

See page 127 for colour key



Route characteristics

DESCRIPTION The Derby to Bristol and Didcot via Birmingham Line is a prime strategic route for Railtrack, providing a key element of the rail infrastructure linking the North East of England with the South West and Southern England via the Midlands. The route competes principally with the M5 from the West Midlands to Bristol, the M40 from Birmingham to the Thames Valley and the M42/A42/M1 from the Midlands to the North East.

This route is primarily two track with some sections of four track around Burton upon Trent, Kingsbury to Birmingham and around Tyseley. Linespeed is 90mph Derby–Water Orton and Leamington Spa–Didcot with 100mph Bromsgrove–Bristol Parkway but elsewhere 60–75mph. Linespeed on slow lines is 30–45mph. The Coventry–Leamington Spa Corridor consists of a single track.

BOTTLENECK ANALYSIS The 1998 NMS identified four bottlenecks on this route:

Derby–Birmingham New Street Customer growth proposals are principally from our freight customers and Virgin CrossCountry who wish to double their services. High levels of freight growth are predicted between Water Orton and Birmingham. All of these aspirations can be accommodated by the existing infrastructure.

Birmingham New Street–Kings Norton This two-track section carries an intensive urban passenger service and a growing number of long-distance services operated by Virgin, Central and Wales & West. Following detailed analysis and discussion with operators we have jointly concluded that the most effective solution to satisfy Virgin's aspiration to increase the frequency of their services to

two per hour, is for Virgin's services to use the Birmingham New Street–Camp Hill–Kings Norton route.

This will achieve significant segregation of fast and stopping services in the southern approaches to Birmingham and allow all operator and market aspirations to be met by the existing infrastructure.

Leamington Spa–Coventry This is primarily a single-track railway and usage is close to capacity. There is the potential to accommodate additional services on this route. However, the adjacent connecting route between Coventry and Birmingham precludes this, as it is currently operating at capacity.

Following detailed analysis, we have concluded with our customers, including Virgin Trains, that to meet their aspirations for increased service frequency, it would be more appropriate to operate their proposed additional services between Leamington Spa and Birmingham via Solihull rather than via Coventry.

We do not therefore propose to enhance the infrastructure on this route. However, should an increase in capacity between Birmingham and Coventry become available, we would reconsider the options for this route.

Leamington Spa–Didcot Capacity on this section of route is restricted by the signal spacing between Leamington Spa and Banbury.

Our analysis of future train path aspirations on this route demonstrates that, apart from Leamington Spa to Banbury, the existing infrastructure can accommodate all the projected train movements.

Between Leamington Spa and Banbury, our analysis has shown that, to meet our customers' aspirations for additional services, we will require the provision of additional signalling. We plan to implement this by 2003.

Route vision

The industry vision is for a key arterial route capable of handling a growing volume of passenger and freight traffic operating efficiently at different speeds across the country and at key junctions with other routes. This requires flexibility and responsiveness to potential changes in traffic mix and in meeting additional customer demand. The present route infrastructure can deliver the predicted volume of passenger and freight train services except Leamington Spa–Banbury and Oxford–Didcot. In both cases, we are proposing to increase capacity to allow for additional train movements and meet the aspirations of the Franchising Director, and of our customers. In addition, we are concluding agreement with our customers to increase linespeed across this route to obtain significant journey-time reductions by 2003.

Performance reliability and efficient timetabling are key requirements. From an operator's viewpoint, route vision would contain priority aspirations such as the introduction of new trains, and journey-time improvements with revised timetabling and service patterns.

A variety of freight services are provided over this route. Overall, we expect freight traffic to expand, not only in terms of volume but also in axle weights, train lengths and vehicle profiles with an aspiration of the freight capability on the route between Didcot and Birmingham to take W10 traffic.

Route development and customer requirements

We have consulted with our customers – the passenger and freight train operators – to determine their needs and how we evaluate them. The proposals set out in this strategy address all these aspirations for service frequency, journey times, station and depot facilities and new rolling stock.

We will also examine the options to improve capacity and journey times in line with current customer aspirations, for example, a feasibility study is currently being undertaken for the development of a turnback facility at Yate.

We will continue to work with industry partners, local authorities and outside developers to improve our stations, eg at Oxford, where the downside station buildings are to be rebuilt with additional customer and retail facilities funded in partnership with Thames Trains & Virgin Trains. As well as evaluate new station opportunities, eg Charfield, we will address the ease of interchange with other transport modes, provide better car parking, real-time passenger-information systems and access for the disabled.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Banbury–Fenny Compton	Analysis has shown that the provision of an additional intermediate block signal between Banbury and Fenny Compton will enable additional train paths to be provided. This scheme is currently being developed for implementation by 2003.	2003	A

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Birmingham–Bristol	150	0	80mph (1hr 10min)	No change	No change	93mph (1hr)
Birmingham–Reading	159	5	55mph (1hr 48min)	No change	No change	80mph (1hr 14min)
Birmingham–Leeds	187	5	58mph (2h 1min)	64mph (1hr 49min)	No change	No change
Swindon–Severn Tunnel Junction	114	1	67mph (1hr 3min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			16	16	16	16
40–75mph			215	215	215	215
80–105mph			542	542	542	542
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			773	773	773	773
GAUGE (km of route)						
W6A			442	442	442	442
W7			442	442	442	442
W8			442	442	442	442
W9			10	10	10	181
W10			0	0	0	181
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			31	31	31	31
23.5 tonnes to 25.4 tonnes			742	742	742	742
TOTAL			773	773	773	773

Progress on the 1998 NMS

TYSELEY DEPOT NEW WHEEL LATHE The project comprises the removal of the existing, outdated, underfloor wheel lathe with a new computer-controlled lathe, together with an extension to the shed to house it. Works will complete by May this year.

LINESPEED IMPROVEMENTS Preliminary feasibility study has been undertaken which looked at signal spacing and braking distances and track quality and geometry between ECML and Barnt Green (Birmingham–Bristol route) and Heyford (Birmingham–Didcot route). Preliminary study work for Barnt Green to Exeter is complete.

POSSIBLE NEW STATION AT KIDLINGTON Discussions are taking place with Oxfordshire County Council over possibilities of building a new station at Kidlington. This is unlikely to be undertaken for a number of years.

CHELTENHAM SPA: STATION IMPROVEMENTS A package has been proposed following discussions with local authorities and train operators regarding improvements to the station.

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK (MIDLANDS ZONE)	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
GREAT WESTERN ZONE					
Track	8.3	5.3	5.2	33.6	
Structures	2.9	1.4	1.9	12.5	
Signalling	0.9	1.1	1.5	71.9	
Plant & Machinery	0.0	0.0	0.1	3.1	
Telecoms	0.2	2.6	1.1	1.0	
Stations	2.5	1.8	0.8	6.5	
Depots	0.0	0.0	0.0	0.0	
TOTAL EXPENDITURE	14.8	12.2	10.6	128.6	
MIDLANDS ZONE					
Track	5.8	7.1	3.6	25.6	
Structures	1.0	2.4	2.3	12.8	
Signalling	1.9	1.2	1.4	15.7	
Telecoms	0.0	0.0	0.0	1.5	
Stations	3.3	1.7	2.0	8.0	
Other	0.0	0.1	0.1	0.3	
TOTAL EXPENDITURE	12.0	12.5	9.4	63.9	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

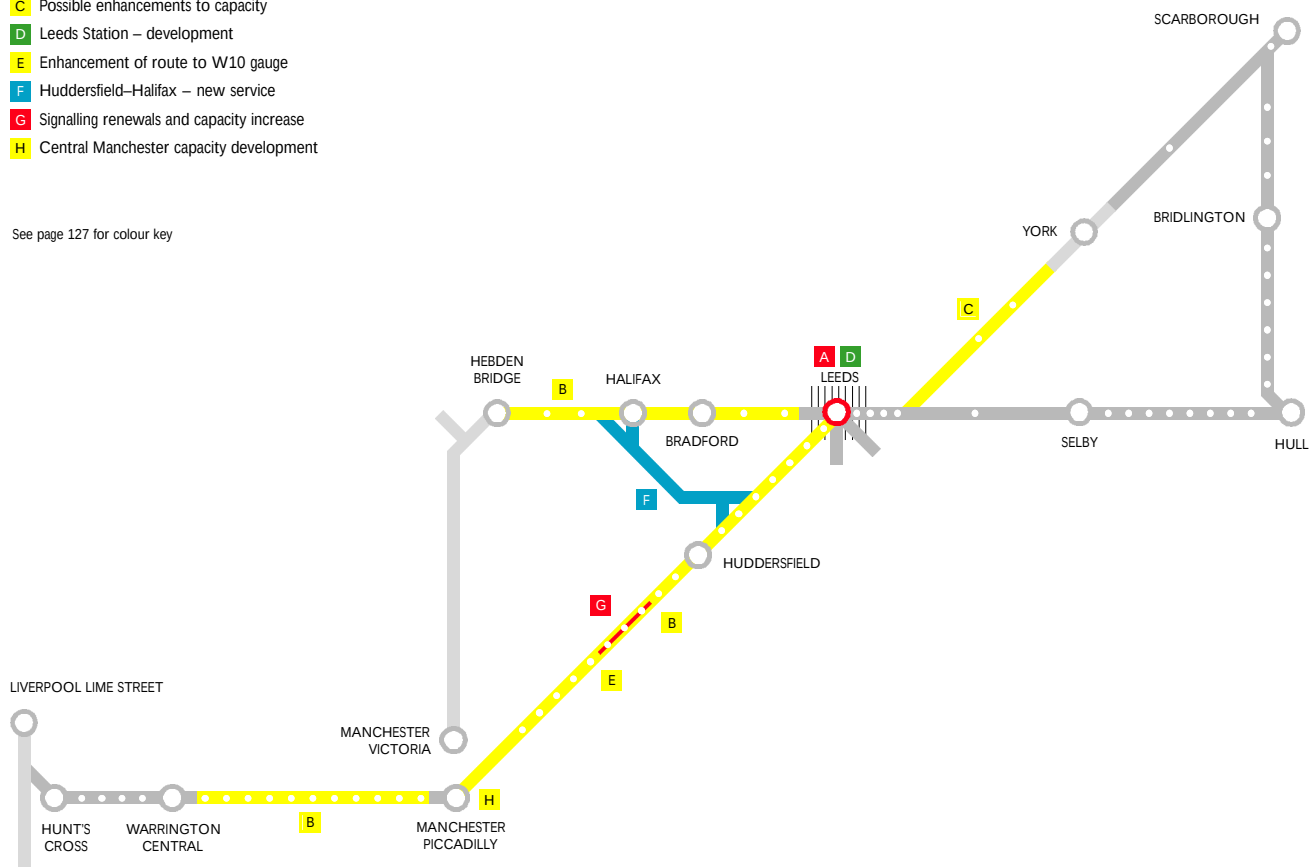
PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
GREAT WESTERN ZONE							
COMMITTED							
Oxford Station buildings	2000	0.1	0.9	0.0	0.0		C
Station enhancements (E)	2001	0.0	0.0	0.0	0.0		
COMMERCIAL							
Linespeed improvements	2005	0.0	0.0	0.0	20.0	1	B
THIRD PARTY							
Kidlington new station	2004	0.0	0.0	0.0	1.2		D
Other schemes	Various	0.0	0.7	0.3	3.1	17	
TOTAL RAILTRACK EXPENDITURE		0.1	1.3	0.0	20.2	18	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.3	0.3	4.1		
MIDLANDS ZONE							
COMMITTED							
Station enhancements	2001	1.6	0.6	0.0	0.0		
Tyseley Depot wheel lathe	1999	1.6	0.0	0.0	0.0	1	E
COMMERCIAL							
Linespeed improvements	2005	0.0	0.0	0.0	30.0	1	B
CONTRACTOR							
Nuneaton–Walsall–Birmingham electrification	2007	0.0	0.0	0.0	50.0	1	F
Leamington Spa Station new car park	2000	0.0	0.2	0.0	0.0	1	
Tyseley Depot water reclamation plant	2000	0.0	0.0	0.0	0.0	1	
THIRD PARTY							
Warwick Parkway Station	2000	0.0	0.0	0.0	0.0	1	G
Other schemes	Various	0.2	0.0	0.0	0.0	9	
TOTAL RAILTRACK EXPENDITURE		3.4	0.8	0.0	80.0	15	

Central Trains; FSNW; GNER; Midlands Mainline; Northern Spirit; Virgin CrossCountry; EWS; Freightliner.



- A** 'Leeds 1st' scheme to provide more capacity
- B** Development of capacity and journey-time improvements
- C** Possible enhancements to capacity
- D** Leeds Station – development
- E** Enhancement of route to W10 gauge
- F** Huddersfield–Halifax – new service
- G** Signalling renewals and capacity increase
- H** Central Manchester capacity development

See page 127 for colour key



Route characteristics

DESCRIPTION The North Trans-Pennine (NTP) Route forms the primary corridor across the Pennines encompassing the main conurbations of Liverpool, Manchester and Leeds, and linking them to Hull, York and Scarborough. The route also includes the Wolds Coast route from Hull to Scarborough and the Calder Valley via Bradford to Hebden Bridge. The route is predominantly two track with 90mph linespeed east of Huddersfield and 85mph between Liverpool and Manchester.

BOTTLENECK ANALYSIS Capacity on the route is constrained by the bottlenecks at Leeds, and in the Manchester area between Deansgate and Piccadilly.

The Leeds node is constrained by the number of available paths through the four-track layout at the west end of the station and the two-track layout at the east end. This congestion is further aggravated by the number of platforms and the 15mph and 10mph speed restrictions at the west and east end, respectively. Further constraints are the signalling system and the style of traffic operating through the node, which is entirely different from what it was when the layout was last modified in the 1960s.

Following detailed analysis and consultations with our customers, we have committed to major remodelling of Leeds West End Junction, minor

remodelling at the east end of Leeds Station with three new platforms and renewal of the signalling equipment in the area. This is a major part of our 'Leeds 1st' project, which also includes complete upgrading of passenger facilities throughout the station. The remodelling of the track will give a 50%-per-hour increase in capacity through the western approach to the station.

Our analysis and further work proposals for the Manchester area are set out in Route 1.

MAJOR STATIONS

Leeds Works completed on the station's north concourse provide additional car parking and improved retail opportunities. In parallel with the major track capacity enhancement work, Leeds Station will be substantially rebuilt with new platforms and a new roof. A priority in the rebuilding is to improve the accessibility of the platforms for all passengers, including the disabled and those with luggage or small children. Platforms will be linked by a new overbridge and lifts. The platforms will be resurfaced, lighting renewed, and customer-information displays will be replaced with state-of-the-art equipment. Customer facilities will be developed, including improved interchange facilities between rail and bus, additional car parking, new lounges and ticketing and information facilities.

Route vision

The increasing congestion on the adjacent road networks, particularly the M62, represents a major opportunity for this route. Following our route strategy work, our intention is to expand the rail market by providing for a high-capacity, fast, interurban route linking Liverpool, Manchester, Leeds and York–Hull.

The cornerstone to the future of the Trans-Pennine Route is the major work we have started at Leeds. Contracts have already been let and work has started on this development. The west end approaches to the station will be completely rebuilt in order to replace the existing constrained four-track layout with a higher-speed six-track layout. These six tracks will serve the three key flows into the station from Wakefield and south London (Route 2), Huddersfield and west Manchester (this Route) and the Airedale–Wharfedale–Harrogate commuter corridors (Route 36). The track layout at the east end of Leeds Station will also be remodelled to improve journeys to York, the North East and the important train maintenance depot at Neville Hill. In total the new layout will

allow up to 50% more trains per hour to serve Leeds from the west as opposed to the current 24 trains. Overall, the 'Leeds 1st' project will benefit Leeds and Yorkshire for many years to come by providing for more, and faster train services, as well as improving punctuality.

Across the North Trans-Pennine Route we also intend to improve passenger journey times, first by targeting the link between Liverpool, Manchester and Leeds. Journey times will be improved in the May timetable by taking advantage of the reconstruction of Irlam Viaduct (between Manchester and Warrington) which will be completed this spring. Beyond this, we have a set target time of 52 minutes on the Leeds–Manchester section of the route. The 'Leeds 1st' scheme will contribute towards meeting this objective. In the longer term, we are aiming to reduce the Leeds–Manchester journey time to around 45 minutes to meet market, Franchising Director and customer requirements.

Route development and customer requirements

The stations on the route are in good order following our major renewal programme. We are improving accessibility at Halifax and Dewsbury by installing new lifts in partnership with our customer, local authorities and the PTE. We are investigating the potential of parkway stations on the route, which aim to get people out of their cars and on to the railway. In particular, we have purchased land to secure a station site on the M60 to serve people living in south and east Manchester.

Freight traffic on the route is growing, particularly in chemicals and intermodal traffic. We intend to develop the capacity across the Pennines to serve the dual needs of passenger and freight markets. We propose to increase the gauge of this route to W10, and work is in hand to develop this.

Finally, to develop further capacity, faster journeys and new train services across the Pennines, we are considering the route via Huddersfield to Manchester Piccadilly, together with the route via the Calder Valley and Hebden Bridge to Manchester Victoria (part of Route 33). We are promoting solutions

that aim to provide four fast trains per hour between Leeds and Manchester with a 45-minute journey time. Our proposed solutions will address timetable service patterns, infrastructure enhancements and the linking of the Manchester stations, the development of the infrastructure to allow better integration of services on the North Trans-Pennine, Calder Valley, Warrington Central and Chat Moss routes, without compromising traffic growth on any of these individual routes.

We will complete this detailed study, after working closely with our customers, the Franchising Director and the PTEs, and will report on the results in the next NMS.

This is part of a major Midlands and Northern England timetable study for 2003 and beyond to ensure all of our customers aspirations can be met and any necessary infrastructure enhancements identified, agreed and completed before 2003. This includes the future timetable structure and infrastructure capacity between Leeds and Hull.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Leeds	The 'Leeds 1st' scheme of works has started and will provide approximately 50% additional track capacity (four to six tracks at the west end), reduce journey times, improve train punctuality, redevelop the station with improved access for all, and provide new transport interchange facilities	by 2002	A
Leeds–Manchester	Development work to define a scheme to deliver reduced journey times, increased capacity (four fast trains per hour), improved capability (W10 gauge), in a joint assessment with the Calder Valley Route	1999	B
Leeds–York	A study to establish the PTE/Franchise Director/Virgin Trains requirements and examine possible solutions for this section of route	1999	C
Manchester	A study to establish all customer needs and possible infrastructure and timetable solutions is currently taking place	2003	H

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Manchester–Leeds	68 3 (up to 18)		44mph (58min)	No change	No change	56mph (45min)
Leeds–York	42	0 (6)	71mph (22min)	No change	No change	78mph (20min)
Scarborough–York	69	1 (2)	55mph (46min)	No change	No change	59mph (41min)
Hull–Leeds	66	up to 14	45mph (55min)	No change	No change	52mph (48min)
Liverpool–Manchester	56	17 (22)	45mph (46min)	No change	No change	50mph (42min)
Leeds–Bradford Interchange	13	1 (2)	27mph (18min)	No change	No change	30mph (16min)
Hull–Scarborough	64	10	29mph (1hr 22min)	No change	No change	30mph (1hr 20min)
LINESPEEDS (km of track)						
Up to 35mph			83	83	83	83
40–75mph			649	645	645	645
80–105mph			157	160	160	160
110–125mph			3	3	3	3
Over 125mph			0	0	0	0
TOTAL			892	892	892	892
GAUGE (km of route)						
W6A			460	460	460	460
W7			460	460	460	460
W8			460	460	460	460
W9			42	42	42	175
W10			0	0	0	175
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			66	66	66	66
20.4 tonnes to 23.4 tonnes			819	819	819	819
23.5 tonnes to 25.4 tonnes			7	7	7	7
TOTAL			892	892	892	892

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
LONDON NORTH EASTERN ZONE					
Track	3.9	8.3	13.8	39.1	
Structures	4.8	3.5	3.7	28.2	
Signalling	1.9	5.5	2.3	29.5	
Plant & Machinery	0.1	0.0	0.0	0.0	
Telecoms	0.0	1.5	0.6	0.3	
Stations	9.6	15.5	23.6	21.1	
Depots	1.8	2.5	0.7	6.6	
TOTAL EXPENDITURE	22.1	36.8	44.7	124.8	
NORTH WEST ZONE					
Track	1.5	1.2	0.8	4.0	
Structures	6.3	1.5	1.0	7.4	
Signalling	1.3	0.1	0.1	10.5	
Plant & Machinery	0.2	0.0	0.0	0.0	
Telecoms	0.1	0.0	0.1	0.5	
Stations	0.0	0.4	1.6	0.0	
Other	0.0	0.0	0.0	0.7	
TOTAL EXPENDITURE	9.4	3.2	3.6	23.1	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
LONDON NORTH EASTERN ZONE							
COMMITTED							
Station enhancements	2001	3.3	0.7	0.0	0.0		D
Leeds Station enhancements	2001	0.0	0.9	0.9	1.1		D
Neville Hill light maintenance depot new carriage washer	1999	1.3	0.0	0.0	0.0		
Leeds new platform	1999	1.0	0.0	0.0	0.0		
COMMERCIAL							
Leeds development	2002	4.9	21.3	41.5	23.5	5	A
PARTNERSHIP							
North Trans-Pennine passenger capacity	2008	0.0	0.0	0.0	40.0		B
Trans-Pennine high-gauge freight capability	2006	0.0	0.0	0.2	14.8	1	E
Linespeed improvements	2004	0.0	0.0	0.2	8.0	6	B
Neville Hill Depot arrival line improvements	2002	0.0	0.0	0.0	1.0	1	
Car-park extensions	2001	0.0	0.3	0.3	0.0	4	
New lifts	2001	0.0	0.3	0.3	0.0	1	
THIRD PARTY							
Brighouse new service (Huddersfield–Halifax)	2001	0.2	4.8	1.0	0.0	2	F
Other schemes	Various	0.2	0.2	0.0	0.0	33	
TOTAL RAILTRACK EXPENDITURE		10.7	23.3	43.2	72.9	53	
TOTAL NON-RAILTRACK EXPENDITURE		0.2	5.2	1.2	15.5		
NORTH WEST ZONE							
COMMERCIAL							
Abolition of Greenfield signal box	2000	1.2	1.0	0.0	0.0		G
PARTNERSHIP							
Central Manchester capacity development	2007	0.0	0.0	0.0	100.0		H
Trans-Pennine speed & capacity upgrade	2003	0.0	0.0	0.7	6.3	1	B
North Trans-Pennine gauge enhancement	2005	0.0	0.3	3.0	18.1	1	E
Other schemes	Various	0.1	1.0	0.4	0.7	4	
TOTAL RAILTRACK EXPENDITURE		1.3	2.0	0.5	106.6	6	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.3	3.6	18.5		

Progress on the 1998 NMS

CAPACITY 'Leeds 1st' will be complete in 2002. In the past year, we have laid down new tracks and opened up a brand new platform. This has allowed for the development of extra train services into Leeds and has improved the punctuality of services in the Leeds area by streamlining the flow of trains. This work, together with our regular renewal programme, improvements in maintenance management and a host of smaller investments, has led to a reduction of around 25% in infrastructure-caused train delays over the last year in the Leeds and West Yorkshire area.

In addition, signalling equipment and track layout works to improve capacity in the Manchester Piccadilly area were completed in August and December 1998, respectively. These have the same effect on passengers as the changes at Leeds, with the potential for much improved punctuality.

In partnership with Merseytravel, we are assessing the feasibility of remodelling the junction at Hunt's Cross in order to improve reliability and allow for more flexible services. We expect the report to be complete by summer this year.

We have studied how to improve linespeeds at Guide Bridge Junction, where the Trans-Pennine Route meets suburban southeast Manchester routes. We consider this to be a medium-term project to be taken forward with our industry partners. In 1998 we repurchased some former railway land to facilitate potential improvements at Guide Bridge.

Work is under way at Greenfield (east of Stalybridge) to increase capacity through renewal of signalling equipment.

LINESPEED The work at the Ship Canal Viaduct at Irlam has merited an Engineering Excellence award for combining innovative construction techniques and meeting commercial challenge. As a result of this work, we will be able to improve train speeds between Manchester and Liverpool. We have developed proposals for journey-time improvements with our industry partners for the main sections of the route.

CAPABILITY A study into gauge clearance for the high-gauge freight route is due to report in September this year.

A new connection to the rail network from the cement works at North Ferriby near Hull has been opened.

We are working with North Yorkshire County Council, City of York, the Freight Transport Association and EWS on evaluating existing sidings on the Scarborough Line for potential freight use.

DEPOTS Work at Neville Hill Depot has included the installation of a new carriage washer, which is scheduled for completion later this year.

STATIONS The developments recorded in last year's NMS at Leeds Station included the renovation of the art deco north concourse, a new multistorey car park with improved access into the station, and additional shopping outlets, which will provide an increased range of services to station users. These works are all now largely complete, and retail tenants will be taking up the

opportunities in the new units at about the time this NMS is published. The rebuilding of much of the station, as part of the major 'Leeds 1st' project over the next three years, is about to begin.

In partnership with the local councils, we have been researching new station sites. At Strensall, we have purchased land in anticipation of the proposed new station.

Station regeneration projects are complete at many stations on the route including Manchester Oxford Road, Mossley, Greenfield, Scarborough and Bridlington. Reroofing and structural repairs at Manchester Oxford Road have been successfully completed, restoring this well-known Manchester landmark to its former glory. This will be followed by a joint initiative with Greater Manchester PTE to improve passenger facilities at the station. At many of the smaller stations, such as those on the Wolds Coast, station regeneration has typically included such works as platform resurfacing, construction of new waiting shelters, improvements in lighting, and a lot of work the travelling public is unlikely to see, such as improving drainage, rebuilding platform retaining walls, and reroofing buildings. Station regeneration continues at a number of stations on the route, most notably at Manchester Piccadilly, Hull, Huddersfield, Halifax and Stalybridge. Huddersfield and Hull stations are magnificent buildings in their own right and our work is going a long way to restoring them. At Hull, we have been working with local partners to find opportunities to develop the area around the station itself – particularly, because the station is located adjacent to the city bus station. The potential to improve the nature of interchange between bus and rail is great.

PERFORMANCE A range of initiatives from large investment projects to focused local initiatives have contributed to consistently improved performance this year. Delays on this route are on target for a reduction of around 30% on 1997/98. This has required the development of a much closer working relationship with our suppliers and the development of analytical techniques to manage asset performance and identify areas requiring enhanced maintenance. The 'Alliance' agreement we established with Jarvis Rail has helped deliver these achievements and will be the basis for our 1999/2000 plans.

Significant structural works have been carried out this year at Mirfield Bridge (West Yorkshire) and Hessle foreshore (an embankment adjacent to the Humber Estuary) in order to secure the fabric of the railway for the future and improve infrastructure reliability.

The first phase of a series of track renewals using some of the latest technology has resulted in substantial track improvements on the Wolds Coast between Hull and Beverley. In this case, we have used the innovative stoneblower machine to improve the foundations to the track (the ballast). These works have removed some of the temporary speed constraints on the line and have improved the quality of ride for travellers on the route.

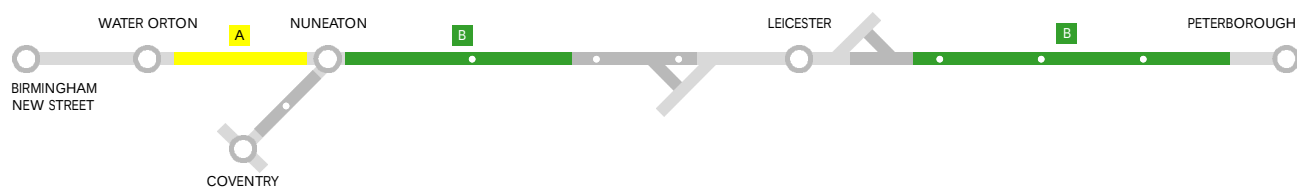
Further work has improved the reliability of the points equipment at junctions, and improved reliability in autumn and winter weather conditions. Trespass and vandalism problems have been tackled with a portfolio of approaches including fencing, increasing the visibility of Railtrack staff, the Q-Train initiatives and increased lineside patrols (Operation Scarecrow).

Central Trains; EWS; Freightliner.



- A** Possible Nuneaton–Birmingham–Walsall electrification
- B** Renewal of signalling equipment

See page 127 for colour key



Route characteristics

DESCRIPTION This route has two tracks with single-track sections at some of the junctions. Linespeed is up to a maximum of 90mph for Class 158 units but lower for other units and loco-hauled trains. The route is signalled through a mixture of multiple-aspect signals controlled from Leicester, Nuneaton, Coventry

and Saltley PSB, with mechanical signalling controlled from some 17 signal and level-crossing boxes. The infrastructure on this route is not used to capacity except for the junctions with the West Coast and Midland Main Line.

Route vision

Our vision for the Birmingham and Coventry to Peterborough Route is a high performing East–West link providing long-distance passenger flows and a key freight route, avoiding the London radial routes. This is a significant interurban cross-country route, providing excellent interchange opportunities with north–south arteries serving growth markets such as Stansted Airport. It will continue to offer competitive journey times on the key Birmingham–Cambridge services with East Midlands services joining the route at Leicester.

The strategic goals for the route are for its development as part of a reliable cross-country network and for improved journey times to meet the Franchising Director and customer requirements. The development of low-cost

replacement signalling for the route may have a possible application elsewhere, using the signalling partnership project.

We aim to develop new services with industry stakeholders, including the possibility of a new service from Melton Mowbray to Kettering via Corby, subject to local authority funding, increasing the frequency of services on the Birmingham–Peterborough route.

A variety of freight services use this route. By July, we will have concluded our freight routeing strategy and the decision whether Felixstowe to Midlands and North West England Freightliner services will be diverted over this route will have been made. We will report on this in the 2000 NMS.

Route vision

We have consulted with our customers, the passenger and freight train operators, to determine their needs and how we evaluate them. The proposals set out in the previous pages address all these intentions to deliver their aspirations for service frequency, customer-information systems and new rolling stock.

We will also examine the options to improve capacity and journey-time improvements in line with current operator aspirations.

We will continue to work with industry partners, local authorities and

outside developers to improve our stations. In particular, we will address the ease of interchange with other transport modes, provide better car parking, real-time passenger-information systems and access for the disabled.

We look forward to working with train and freight operators, the public, local authorities, the Franchising Director, the Rail Regulator and central Government to ensure that our vision becomes a reality.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Birmingham and Coventry–Peterborough	None required		

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Birmingham–Peterborough	148	5	51mph (1hr 48min)	No change	No change	55mph (1hr 40min)
Nuneaton–Peterborough	114	4	55mph (1hr 17min)	No change	No change	61mph (1hr 10min)
LINESPEEDS (km of track)						
Up to 35mph			5	5	5	5
40–75mph			150	150	150	150
80–105mph			95	95	95	95
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			250	250	250	250
GAUGE (km of route)						
W6A			126	126	126	126
W7			126	126	126	126
W8			58	58	58	126
W9			22	22	22	126
W10			0	0	0	126
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			250	250	250	250
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			250	250	250	250

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	0.3	0.4	0.2	1.3	
Structures	0.1	0.8	0.8	4.4	
Signalling	0.3	1.8	5.8	9.0	B
Telecoms	0.0	0.0	0.0	0.1	
Stations	1.0	0.8	0.3	2.4	
Other	0.0	0.0	0.0	0.1	
TOTAL EXPENDITURE	1.7	3.8	7.1	17.3	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	0.4	0.2	0.0	0.0		
PARTNERSHIP							
Nuneaton–Walsall–Birmingham electrification	2007	0.0	0.0	0.0	50.0	3	A
TOTAL RAILTRACK EXPENDITURE		0.4	0.2	0.0	50.0	3	

Progress on the 1998 NMS

REMODELLING OF NUNEATON AREA To remove conflicting movements with the West Coast Main Line, Railtrack is considering remodelling options under the WCML route modernisation project, including the provision of grade-separated junctions to remove operational conflicts.

PROPOSED NEW STATION AT HAMS HALL The proposed Hams Hall Station and its train service provision continues to be developed.

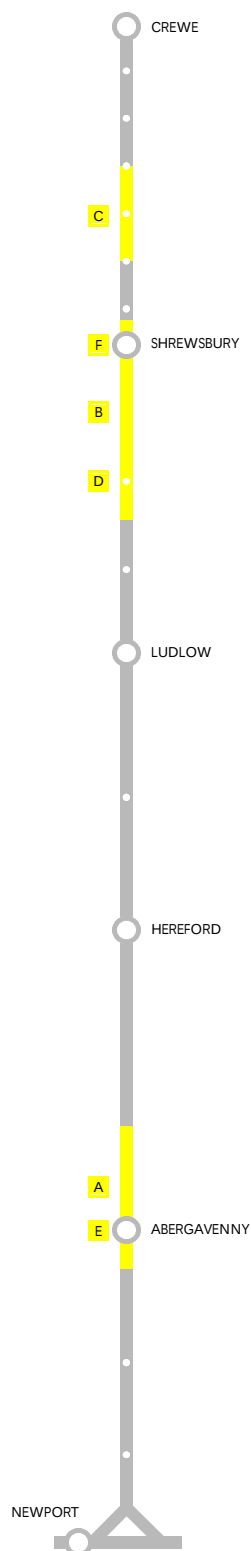
RENEW SIGNALLING EQUIPMENT WITH IMPROVEMENTS TO CAPACITY AND PERFORMANCE The resignalling of the Nuneaton to Peterborough route is being developed as part of the signalling partnership project, where new suppliers are to be introduced to the UK market.

Wales & West; EWS; Freightliner.



- A** Abergavenny–Pontrilas – capacity improvement
- B** Marsh Brook–Dorrington – capacity improvement
- C** Prees–Wrenbury – capacity improvement
- D** Craven Arms – capacity improvement
- E** Abergavenny – capacity improvement
- F** Shrewsbury – capacity improvement

See page 127 for colour key



Route characteristics

DESCRIPTION The route is double track with linespeeds in the range 75–90mph. Capacity of the infrastructure is constrained by three long block sections: Abergavenny–Pontilas, Marsh Brook–Dorrington and Prees–Wrenbury.

Route vision

Our vision for this important strategic link between North Wales, Mid Wales and South Wales is to improve its flexibility and capacity to meet the growing passenger and freight markets. We also propose to maintain the route's competitive edge over road through journey-time reductions, meeting customer and the Franchising Director expectations.

All main users of the route have aspirations to increase numbers of trains. EWS and Freightliner forecast that their trains will more than double in number over the next ten years. Wales & West might increase more of its timetable from hourly to half-hourly. We plan to shorten block sections and improve the provision of passing loops to allow additional capacity to accommodate our customers' requirements for growth.

To deliver our vision, we propose to improve the flexibility of the infrastructure to minimise delay as a result of disruption, whether planned for engineering work or as a result of failure by trains or infrastructure, we will also target maintenance and renewals to improve the reliability of equipment. In addition, we plan to increase capacity to handle Wales & West's, EWS's and Freightliner's aspirations for growth including running longer freight trains, possibly with heavier axle weights, to take all viable opportunities to raise linespeed to help Wales & West meet its aspiration for a journey time under three hours between Cardiff and Manchester, and to work in partnership with local authorities, including Transport Integration in Gwent Economic Region (TIGER).

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Abergavenny–Pontilas	Increase capacity to accommodate additional freight traffic by dividing the existing long block section with an additional signal, subject to funding	2000–2004	A
Marsh Brook–Dorrington	Increase capacity to accommodate additional freight traffic by shortening block section by reopening an existing signal box	1999–2004	B
Prees–Wrenbury	Increase capacity to accommodate additional freight traffic by shortening block section by reopening an existing signal box	1999–2004	C
Craven Arms	Increase capacity to accommodate additional freight traffic by building a new passing loop and improving an existing passing loop	1999–2004	D
Abergavenny	Increase capacity to accommodate additional freight traffic by improving an existing passing loop	1999–2001	E
Shrewsbury	Increase capacity to accommodate additional freight traffic by improving an existing passing loop	1999–2004	F

These are the route improvements we plan to deliver continued

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Newport–Crewe	204	8	54mph (2hr 21min)	No change	No change	55mph (2hr 18min)
Newport–Hereford	70	2	53mph (49min)	No change	No change	55mph (47min)
Newport–Shrewsbury	152	7	54mph (1hr 44min)	No change	No change	56mph (1hr 41min)
Hereford–Shrewsbury	82	4	56mph (55min)	No change	No change	58mph (54min)
Shrewsbury–Crewe	53	0	53mph (37min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			6	6	6	6
40–75mph			84	84	84	84
80–105mph			317	317	317	317
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			406	406	406	406
GAUGE (km of route)						
W6A			204	204	204	204
W7			204	204	204	204
W8			204	204	204	204
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			0	0	0	0
23.5 tonnes to 25.4 tonnes			406	406	406	406
TOTAL			406	406	406	406

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
GREAT WESTERN ZONE					
Track	3.1	1.6	1.5	10.6	
Structures	1.9	1.2	1.6	14.4	
Signalling	0.5	0.4	0.3	2.9	
Plant & Machinery	0.0	0.0	0.4	1.5	
Telecoms	0.1	0.1	0.1	0.6	
Stations	2.4	0.8	0.4	4.1	
Depots	0.0	0.0	0.0	0.0	
TOTAL EXPENDITURE	8.0	4.1	4.3	34.1	
MIDLANDS ZONE					
Track	1.7	2.2	1.1	7.8	
Structures	0.2	0.4	0.4	1.9	
Signalling	1.8	1.1	1.0	6.5	
Telecoms	0.0	0.0	0.0	0.1	
Stations	0.5	0.3	0.1	1.3	
Other	0.0	0.0	0.0	0.0	
TOTAL EXPENDITURE	4.2	4.0	2.6	17.6	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
GREAT WESTERN ZONE							
COMMITTED							
Wales & West station enhancements	2000	0.0	0.2	0.0	0.0		
Station enhancements	2001	0.0	0.0	0.0	0.0		
Other schemes	Various	0.0	0.1	0.0	1.4	5	
TOTAL RAILTRACK EXPENDITURE		0.0	0.2	0.0	0.1	5	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.1	0.0	1.3		
MIDLANDS ZONE							
COMMITTED							
Station enhancements	2001	0.2	0.1	0.0	0.0		
Other schemes	Various	0.0	0.0	0.0	0.0	2	
TOTAL RAILTRACK EXPENDITURE		0.2	0.1	0.0	0.0	2	

Progress on the 1998 NMS

CENTRALISATION OF SIGNALLING CONTROL Our analysis has shown that capacity and reliability improvements can be achieved without centralising signalling control.

INCREASE CAPACITY FOR FREIGHT TRAINS We will progress both lengthening passing loops to 750m and create additional capacity for freight trains, subject to agreement of funding.

STATIONS We have completed the regeneration programme at eight stations as planned.

TURNBACK FACILITIES AT ABERGAVENNY We will consider improvement to turnback facilities for passenger services at Abergavenny in conjunction with alterations to crossovers.

ST JULIAN'S VIADUCT NEAR NEWPORT We are evaluating options for refurbishing the viaduct in 2001/02.

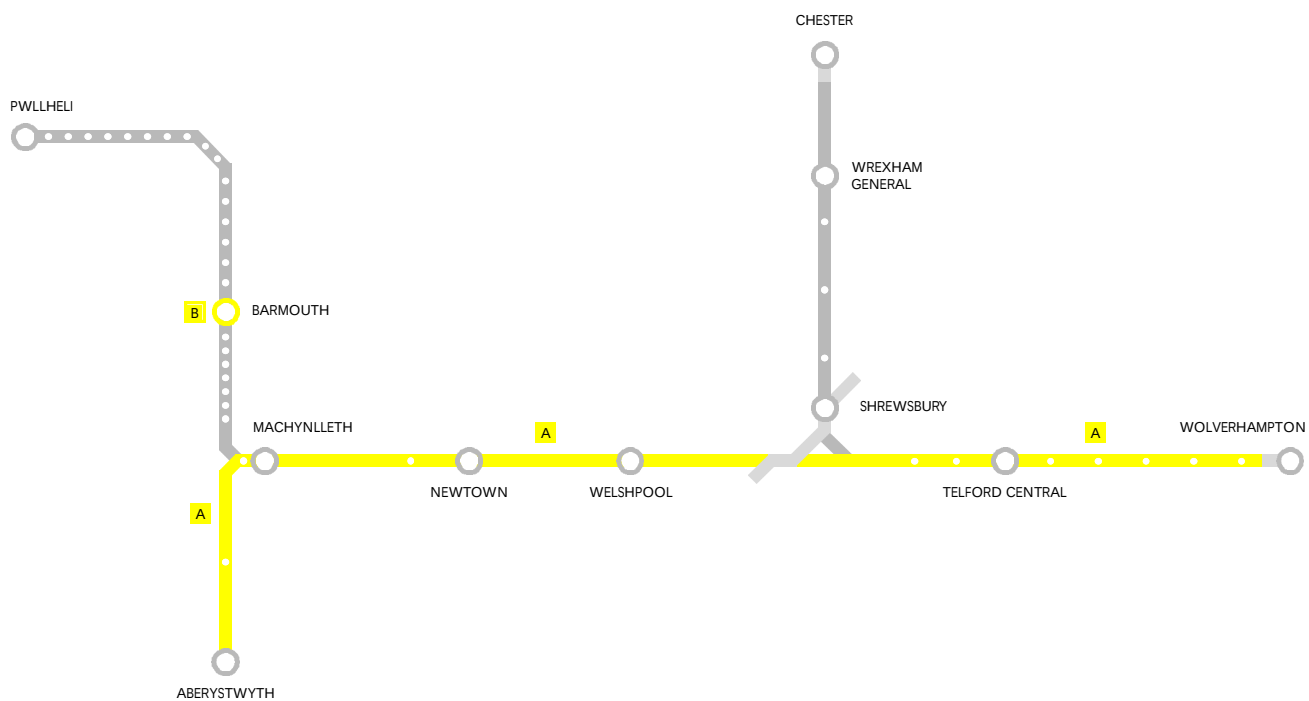
Central Trains; Virgin Trains; EWS.



A Linespeed improvements

B Enhancement of Barmouth Viaduct to take heavier trains

See page 127 for colour key



Route characteristics

DESCRIPTION The route is principally a non-electrified two-track railway but with some critical single-line sections. The signalling system is predominantly mechanical, with radio-electronic token block on the Cambrian lines. Linespeed

is predominantly 70mph with some sections attracting a maximum linespeed of 80mph. The route can be subdivided as follows: Wolverhampton–Shrewsbury–Wrexham, Shrewsbury–Aberystwyth, and Machynlleth–Pwllheli.

Route vision

A highly reliable railway which enables our customers to operate regular long-distance and local services, combined with the judicious use of cost-effective linespeed initiatives leading to opportunities for improved journey times.

We will continue to work with external stakeholders to make the case for further socio-economic investment in the route through specific initiatives.

The strategy of renewal of the timber bridges on the route, to enable the reinstatement of full linespeed will be completed when the works to Barmouth Viaduct (Grade II listed) are finished. Work is continuing to prevent erosion of sea defences of both Friog Cliffs and Afon Wen.

Route development and customer requirements

We have consulted with our customers, the passenger and freight train operators, to determine their needs and how we evaluate them. The proposals set out in this NMS address all these intentions to deliver their aspirations for service frequency, customer-information systems and new rolling stock.

We will also examine the options to improve capacity and journey times in line with current operator aspirations.

We will continue to work with industry partners, local authorities and

outside developers to improve our stations. In particular, we will address the ease of interchange with other transport modes, provide better car parking, real-time passenger-information systems and access for the disabled.

We look forward to working with train and freight operators, the public, local authorities, the Franchising Director, the Rail Regulator and central Government to ensure that our vision becomes a reality.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Wolverhampton–Chester, Aberystwyth and Pwllheli	None required		

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Wolverhampton–Shrewsbury	47	2	50mph (35min)	No change	No change	54mph (32min)
Shrewsbury–Pwllheli	191	25	35mph (3hr 25min)	No change	No change	36mph (3hr 17min)
Shrewsbury–Aberystwyth	132	6	47mph (1hr 44min)	No change	No change	52mph (1hr 35min)
Dovey Junction–Pwllheli	93	24	32mph (1hr 48min)	No change	No change	33mph (1hr 45min)
LINESPEEDS (km of track)						
Up to 35mph			22	22	22	22
40–75mph			377	377	377	377
80–105mph			31	31	31	31
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			430	430	430	430
GAUGE (km of route)						
W6A			329	329	329	329
W7			2	2	2	2
W8			2	2	2	2
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			190	190	190	190
20.4 tonnes to 23.4 tonnes			240	240	240	240
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			430	430	430	430

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	3.0	3.7	1.9	13.5	
Structures	2.9	1.4	1.4	7.5	
Signalling	2.8	0.4	2.8	14.8	
Telecoms	0.1	0.2	0.1	0.8	
Stations	3.3	1.9	0.8	8.4	
Other	0.0	0.1	0.1	0.3	
TOTAL EXPENDITURE	12.1	7.7	7.1	45.3	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	1.4	0.7	0.0	0.0		
PARTNERSHIP							
Barmouth Viaduct enhancement to permit RA5 traffic	2002	0.0	0.0	0.0	10.0	1	B
Wolverhampton–Aberystwyth linespeed increase	2002	0.0	0.0	0.0	1.0		A
Other schemes	Various	0.0	0.0	0.0	0.0	4	
TOTAL RAILTRACK EXPENDITURE		1.4	0.7	0.0	11.0	5	

Progress on the 1998 NMS

POSSIBLE RENEWAL OF SIGNALLING AND LINESPEED IMPROVEMENTS

WOLVERHAMPTON–SHREWSBURY A feasibility study has begun with regard to the linespeed improvements on this section of the route.

POSSIBLE SHREWSBURY AREA RESIGNALLING A feasibility study is to be undertaken with regard to the renewal of signalling in the Shrewsbury area and on the Wolverhampton–Shrewsbury section of the route.

POSSIBLE LINESPEED IMPROVEMENTS SHREWSBURY–ABERYSTWYTH

A feasibility study has begun with regard to the linespeed improvements on this section of the route.

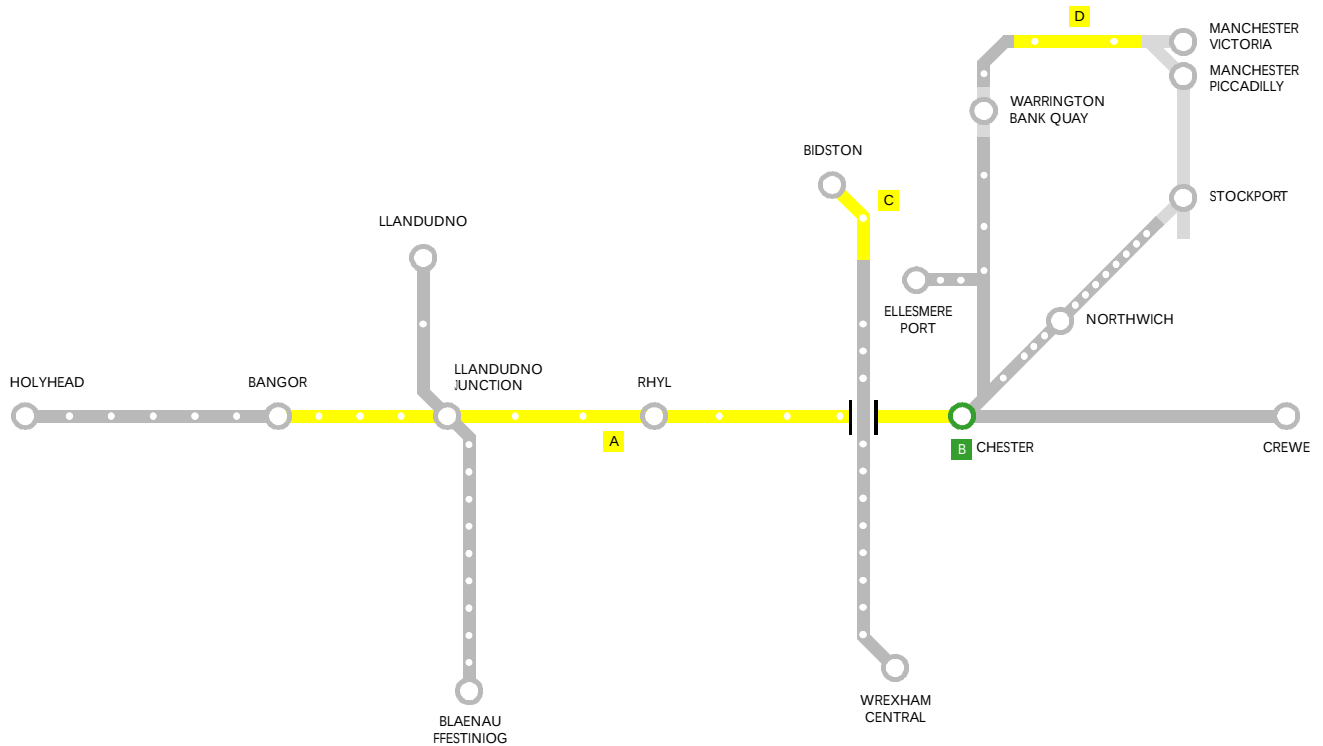
CAMBRIAN COAST TIMBER BRIDGE RENEWALS Cambrian Coast bridge renewal works have been completed at a number of sites. Extensive repairs to Barmouth Viaduct are scheduled to commence in 1999.

FNW; Virgin Trains; Wales & West; EWS.



- A** North Wales Coast linespeed improvements
- B** New depot at Chester for FNW
- C** Extension of electrifications to Woodchurch
- D** Increase route capability for W10 freight services

See page 127 for colour key



Route characteristics

DESCRIPTION This strategy covers the North Wales main line linking Anglesey and towns in North Wales to Chester, Crewe and Manchester. The North Wales branch lines are also included.

This route is primarily a two-track railway while some of the branch lines are single track. Linespeed on the main line is 90mph Crewe–Chester and

generally 75mph elsewhere with the branch lines at various speeds between 45 and 60mph. The routes are not electrified though there are areas which interface with the Merseyside DC system and OLE on the West Coast Main Line (WCML).

Route vision

The route provides an important link between North Wales and the North West of England, and London via the WCML. Access to the ferry terminal at Holyhead links communities and businesses in Ireland, Wales and England. For small communities, the routes provide an important public transport link.

Our vision is to provide the infrastructure to meet anticipated growth and stimulate further growth through the provision of higher-quality passenger and freight services. We will do this by investing in infrastructure to improve reliability and performance with journey times maintained or improved, with an increase in linespeed to 90mph along the North Wales coast.

It is anticipated that FNW and Virgin Trains will operate new rolling stock on

the route and, combined with WCML developments, this will further improve service frequency and reduce journey times.

As tourism and business are both key elements of the economy of North Wales, our strategy will help improve the quality of service for passengers and provide the opportunity for additional freight services, alleviating congestion and reducing pollution on the busy road network. Detailed studies have been carried out into gauge enhancements to Holyhead and along the Chat Moss route. We plan to enhance the Chat Moss route to carry W10 trains and will explore with our partners the options for North Wales.

Route development and customer requirements

In the coming year, Greater Manchester PTE intends to commission a study to help formulate its future rail investment strategy. This will incorporate a range of issues and will produce a series of options to be developed with industry partners, to provide for the transport needs of the area into the 21st century.

We will provide information and input to the study, and will work with the PTE to help ensure the study's success.

At Chester, we are constructing a new depot for First North Western, to a high specification, to accommodate FNW's new diesel fleet.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Manchester and Crewe to North Wales	None required		

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Manchester–Chester via Warrington Bank Quay	65	7	39mph (1hr 2min)	No change	No change	No change
Stockport–Chester	62	13	31mph (1hr 14min)	No change	No change	No change
Crewe–Chester	34	0	57mph (22min)	No change	No change	No change
Chester–Holyhead	136	5	49mph (1hr 43min)	51mph (1hr 39min)	No change	No change
Bidston–Wrexham Central	44	13	30mph (54min)	No change	No change	No change
Llandudno–Blaenau Ffestiniog	50	11	26mph (1hr 10min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			63	63	63	63
40–75mph			663	534	534	534
80–105mph			54	183	183	183
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			780	780	780	780
GAUGE (km of route)						
W6A			408	408	408	408
W7			340	340	340	340
W8			307	307	307	307
W9			4	4	4	4
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			2	2	2	2
20.4 tonnes to 23.4 tonnes			778	778	778	778
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			780	780	780	780

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	1.7	2.9	2.3	10.1	
Structures	0.6	0.4	0.3	2.5	
Signalling	0.2	1.0	1.2	14.3	
Plant & Machinery	0.3	0.0	0.0	0.0	
Telecom	0.2	0.0	0.0	1.3	
Stations	0.0	0.8	0.3	0.0	
TOTAL EXPENDITURE	3.0	5.1	4.1	28.2	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Chester LMD (E)	2000	1.3	6.0	0.0	0.0	1	B
Barton Moss signalling enhancements & Eccles Up Loop	1998	2.1	0.0	0.0	0.0		
Station enhancements	2001	0.0	0.6	0.1	0.0		
PARTNERSHIP							
Bidston–Woodchurch electrification	2004	0.0	0.0	0.0	15.0	1	C
North Trans-Pennine gauge enhancement	2005	0.0	0.0	0.0	1.9	1	D
Chester–Bangor linespeed improvement	2000	0.0	1.1	0.0	0.0	1	A
Other schemes	Various	0.0	0.0	0.0	0.0	6	
TOTAL RAILTRACK EXPENDITURE		3.4	7.2	0.1	15.0	10	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.5	0.0	1.9		

Progress on the 1998 NMS

During the year, we continued our programme of renewals. We completed signalling power distribution works at Holywell and Shotton and replaced signalling supply points at various locations including the provision of condition monitoring equipment. We also carried out sea-defence work at Llanfairfechan and the replacement of track circuits with axle-counters at Abergele and Penmaenmawr, all of which are already delivering improvements in reliability and performance.

ELECTRIFICATION BIDSTON-WOODCHURCH This section of route has been identified for potential extension of electrification and services of the Merseyrail Electrics network. It is anticipated that additional stations will be constructed and existing stations improved. A feasibility study has been completed and it is anticipated that detailed design works will be undertaken in the next 12 months.

CHAT MOSS CAPACITY ENHANCEMENTS Renewal of signalling equipment was completed between Manchester and Newton-le-Willows, thereby increasing capacity and creating the potential for future linespeed improvements. A freight loop was also added to the network as part of the scheme.

NORTH WALES LINESPEED IMPROVEMENTS Following the development of proposals to raise the linespeed between Chester and Bangor from 75mph to 90mph, we are committed, in partnership with the Welsh Office and the North Wales Economic Forum to the successful implementation of this scheme in 2000.

STATION REGENERATION PROGRAMME Eight stations including Colwyn Bay, Bangor and Rhyl have been successfully regenerated, with significant works at Chester, Holyhead and Wrexham. The quality of the works at Wrexham General has been recognised with a Civic Trust Award, while Wrexham Central has been rebuilt as part of a major town centre regeneration scheme.

ACCESS FOR THE DISABLED The routes have seen substantial improvements to unassisted passenger access to platforms. Old goods lifts have been replaced with passenger-operated lifts at Colwyn Bay, Wrexham General, Bangor and Rhyl.

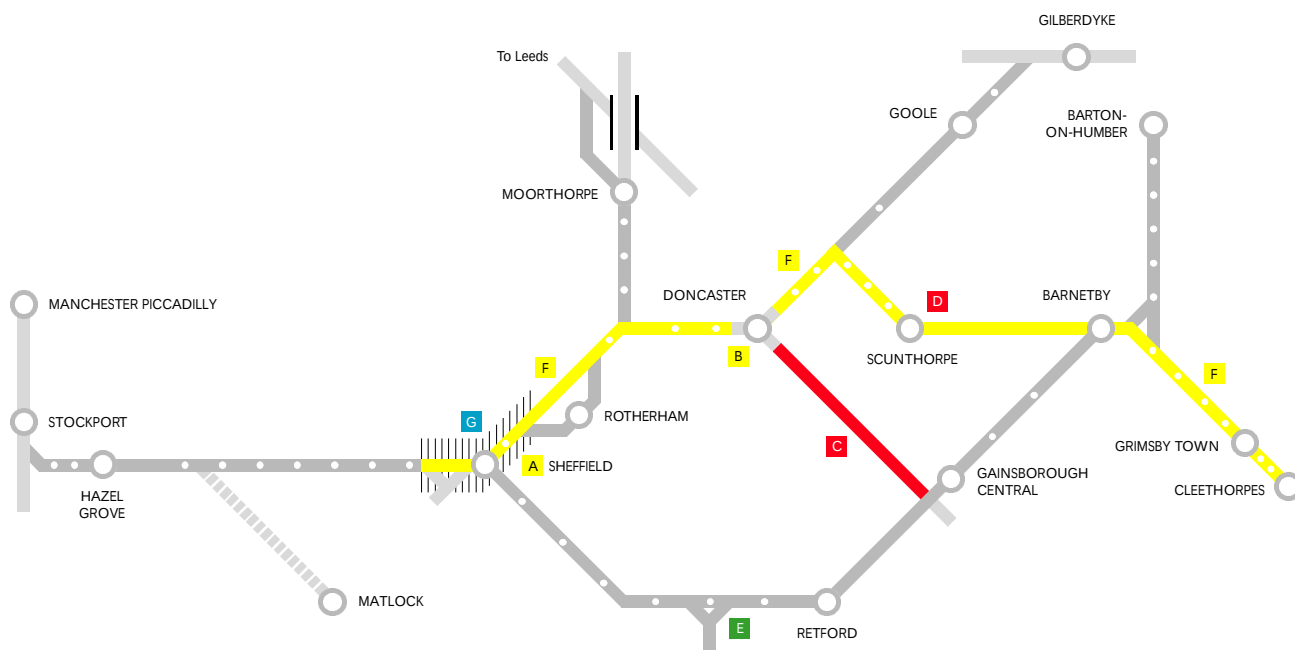
In conjunction with Flint County Council, improved facilities have been successfully completed at Flint Station. Further minor works have enabled better access at several stations on the Altrincham–Chester Line, key locations being Altrincham, Knutsford, Plumley and Ashley.

Central Trains; FNW; Midland Main Line; Northern Spirit; Virgin Trains; EWS; Freightliner.



- A** Capacity enhancements Dore–Sheffield–Swinton
- B** Capacity enhancement Doncaster
- C** Increase route capacity and capability as part of ECML upgrade
- D** Possible increase in capability for heavy axle load trains
- E** Whitwell reconnection of freight facility
- F** Linespeed improvements
- G** Millhouses possible new station

See page 127 for colour key



Route characteristics

DESCRIPTION The core route traverses the Pennines through the Hope Valley between Stockport and Sheffield and extends to the east coast seaside resort of Cleethorpes. The route provides a vital link between Manchester, Sheffield, Leeds and Doncaster and supports extensive urban services for Greater Manchester and South Yorkshire PTEs. Services to Lincoln, Retford, Worksop and on to the recently extended Robin Hood service to Nottingham also use the route. The link across the Pennines between Sheffield and Manchester is especially important, as parallel roads are of poor quality and, in the main, single carriageway. The route is especially important to the freight operators as it serves the port of Immingham, the steel mills of Scunthorpe and the quarries of Derbyshire.

BOTTLENECK ANALYSIS The Dore–Sheffield–Swinton route currently operates close to available capacity. A number of our customers and the

Franchising Director have aspirations to increase the volume of train movements in this area. We are currently working with all our industry partners to determine the most appropriate timetable solution to achieve all aspirations over the next five years and the additional infrastructure required to achieve this. This includes a timetable review over the whole Birmingham–Manchester–Sheffield–Leeds area. By summer, we will be able to determine the infrastructure enhancements necessary on this route to provide capacity for the predicted train movements. This is likely to involve a combination of doubling the track at Dore Station Junction and providing two tracks to Dore West Junction; modification to the track layout and speeds in Sheffield Station, enhancing Holmes Junction and increasing the route to Rotherham Control from one to two tracks, increasing track layout between Aldwarke and Swinton to three or four tracks.

The results of the study and the agreed actions will be included in the 2000 NMS.

Route vision

Our vision for this route is centred upon developing the network to run more trains, especially through the Sheffield–Doncaster Corridor. In addition, we intend to reduce journey times by improving the linespeeds, to maintain rail's competitive position on this corridor given the poor roads between Sheffield and Manchester.

Additional capacity on the route to meet the Franchising Director and customer requirements may come from infrastructure development, or alternatively from more efficient use of existing capacity as set out above. These two alternative approaches have the same goal of serving the markets for interurban and local stopping services with more frequent trains. The development of neighbouring routes – in particular, the major works that we have started to completely remodel Leeds Station (Route 8), the plans to remodel the junctions at Doncaster (Route 2), and the development of the WCML at

Stockport and Manchester (Route 1) – will have significant spin-off benefits for capacity on this route. The plans at Doncaster will provide better connections from Sheffield to Doncaster and then onwards to Hull (see Route 2).

Our vision for this route also encompasses improving the linespeed and thereby reducing journey times for passengers. We have identified a list of priority sites where train speeds can be increased, especially between Cleethorpes and Doncaster, and Manchester and Sheffield.

To develop freight services, we are working with EWS in the Scunthorpe area to assess the feasibility of introducing heavier trains, thereby reducing the numbers of trains and potentially freeing up capacity for other services. Projected demand for most other freight services can be met largely by the existing infrastructure.

Route development and customer requirements

We are working with the PTEs of Greater Manchester and South Yorkshire to understand how the route can best serve their transport needs in terms of services and stations. We are working within the South Yorkshire Centre of Excellence to develop integrated transport plans.

We are also evaluating with customers and local authorities whether

reopening of the Chimley–Buxton–Matlock route would be viable. This would improve access to Peak District National Park and create the opportunity to improve long-distance passenger and freight services between North West England, the Midlands and southern England.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Dore Junction–Sheffield–Meadowhall	We are working to pursue a two-pronged approach to the capacity issues within this bottleneck. First, we are investigating a timetable solution, and then, with the results of this, assessing the need for new infrastructure. We will complete this work within the year, it will be reported in the 2000 NMS, and we aim to complete the solution by 2002/3. Proposals include doubling the single-line sections at Dore, remodelling the layout at Sheffield, and doubling Holmes Junction.	2002/03	A
Doncaster	Remodelling of the junctions including St James at Doncaster, and the plan to build a flyover there, providing a better connection to the Hull route (see Route 2), will also reduce journey times on this route, allow for more clockface timetables and more punctual trains. This will allow for development of an improved Sheffield–Hull train service. We are intending to deliver journey-time improvements over the section between Cleethorpes and Doncaster.	2004	B
Doncaster–Gainsborough	Improvement to route capacity and capability as part of ECML upgrade.	2003	C
Scunthorpe–Immingham heavyweight freight	A feasibility study into running freight trains with heavier axle weights will be completed this year. We aim to deliver the final scheme by 2002.	2002	D

These are the route improvements we plan to deliver continued

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Manchester Airport–Cleethorpes	198	(up to 34)	40mph (3hr 4min)	No change	No change	43mph (2hr 52min)
Manchester–Sheffield	60	10	47mph (48min)	No change	No change	56mph (40min)
Sheffield–Doncaster	31	5	51mph (22min)	No change	No change	51mph (22min)
Sheffield–Leeds (Moorthorpe)	63	5	53mph (44min)	No change	No change	53mph (44min)
Sheffield–Hull (Gilberdyke)	93	11	34mph (1hr 42min)	No change	No change	38mph (1hr 31min)
Doncaster–Cleethorpes	84	15	44mph (1hr 11min)	No change	No change	51mph (1hr 1min)
LINESPEEDS (km of track)						
Up to 35mph			196	196	196	196
40–75mph			662	662	662	662
80–105mph			21	21	21	21
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			878	878	878	878
GAUGE (km of route)						
W6A			467	467	467	467
W7			463	463	463	463
W8			416	416	416	416
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			877	877	877	877
23.5 tonnes to 25.4 tonnes			1	1	1	1
TOTAL			878	878	878	878

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK (ENGLAND)	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
LONDON NORTH EASTERN ZONE					
Track	5.1	3.8	4.0	35.9	
Structures	2.2	0.4	0.1	2.6	
Signalling	0.2	1.5	0.9	14.2	
Plant & Machinery	0.0	0.4	0.8	6.5	
Telecoms	0.1	0.7	0.2	0.0	
Stations	9.5	3.1	0.4	6.5	
Depots	1.2	1.9	0.0	0.0	
TOTAL EXPENDITURE	18.3	11.7	6.4	65.7	
NORTH WEST ZONE					
Track	0.7	0.4	0.6	1.3	
Structures	0.4	0.1	0.1	1.1	
Signalling	0.0	0.1	0.1	2.8	
Electrification	0.0	0.0	0.0	2.7	
Plant & Machinery	0.0	0.0	0.0	0.2	
Telecoms	0.0	0.0	0.0	0.1	
TOTAL EXPENDITURE	1.1	0.6	0.8	8.2	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
LONDON NORTH EASTERN ZONE							
COMMITTED							
Station enhancements	2001	3.3	0.1	0.0	0.0		
Whitwell reconnection of freight facilities (E)	2000	0.0	0.9	0.0	0.0		E
PARTNERSHIP							
Sheffield Corridor capacity	2006	0.0	0.0	0.0	5.0	1	A
Sheffield–Cleethorpes linespeed improvement	2002	0.0	0.0	0.0	2.5	1	F
CONTRACTOR							
Sheffield Station additional car parking	2001	0.0	0.0	0.0	0.8	1	
THIRD PARTY							
Millhouses new station (E)	2001	0.0	0.7	0.0	0.0	1	G
Other schemes	Various	0.5	0.2	0.0	0.0	11	
TOTAL RAILTRACK EXPENDITURE		3.3	0.6	0.0	8.1	15	
TOTAL NON-RAILTRACK EXPENDITURE		0.5	1.3	0.0	0.2		
NORTH WEST ZONE							
Other schemes	Various	0.0	0.0	0.0	0.0	1	
TOTAL RAILTRACK EXPENDITURE		0.0	0.0	0.0	0.0	1	

Progress on the 1998 NMS

CAPACITY We have completed the work to extend the Robin Hood services connecting Worksop–Nottingham via Mansfield (see also Route 31). We have eliminated some long-standing speed restrictions typically caused by mining subsidence in order to lift the linespeed and give improved journey times to these local communities.

Our analysis of the requirements for passing loops on the Hope Valley has shown that the current network can sustain the envisaged growth in the immediate future. Similarly, the existing signalling system can support the current network for some years to come.

Increased use has been made of the Barnetby–Gainsborough Line to reduce delays to freight trains and improve performance on the Doncaster–Immingham route.

PERFORMANCE We have installed axle-counters to replace track circuit activated signalling in the two-mile Disley Tunnel to improve the reliability of the signalling system and therefore the performance of train services on this route.

We have installed low friction equipment on point mechanisms to improve the performance of junctions, especially targeting those which suffer coal or sand contamination. Dedicated junction care teams have focused on improving the reliability of particular locations using a combination of advanced fault analysis, regular heavy maintenance attention, new specialised equipment and additional renewals.

Bridge improvements undertaken at Althorpe near Scunthorpe have improved ride quality and performance on the route and have reduced journey times. Work to replace the waybeams on the King George V swing bridge at Keadby has improved performance not only on the railway but also for canal users.

LINESPEED We are still exploring the difficult operational arrangements, which have to date frustrated the early delivery of linespeed improvements between Hazel Grove and Stockport.

A significant workload of track work has been completed to remove numerous long-standing speed restrictions along the Humber Estuary from Immingham to Doncaster, improving performance.

FREIGHT Freight train gauge improvements between Doncaster, Immingham, Goole and Hull are part of the Trans-Pennine high-gauge feasibility study being conducted this year (see Route 8). We have also completed work at New Holland to enable new freight services to be operated.

STATIONS Improved access for disabled passengers has been implemented at Hope Station in partnership with Derbyshire County Council. A further scheme is being undertaken at Bamford. Regeneration work on the other stations in the Hope Valley will start this summer and will address items such as platform resurfacing, construction of new waiting shelters and improvements in lighting. Further partnership schemes with Derbyshire County Council are planned for 1999/2000.

A new footbridge linking the station to the local Earth Centre is under construction at Conisborough. This will improve access to both locations.

Regeneration work on the station at Cleethorpes is complete. The stations at Grimsby and Goole will start later this year; work is currently in hand at Sheffield and Doncaster. At many stations, improved facilities have included better platform surface and drainage, as well as tactile paving and better lighting which will benefit station users. Regeneration work has been carried out at the small train maintenance depot at Cleethorpes.

SIGNALLING WORK A major resignalling scheme at Worksop has been completed, and has led to improved train punctuality.

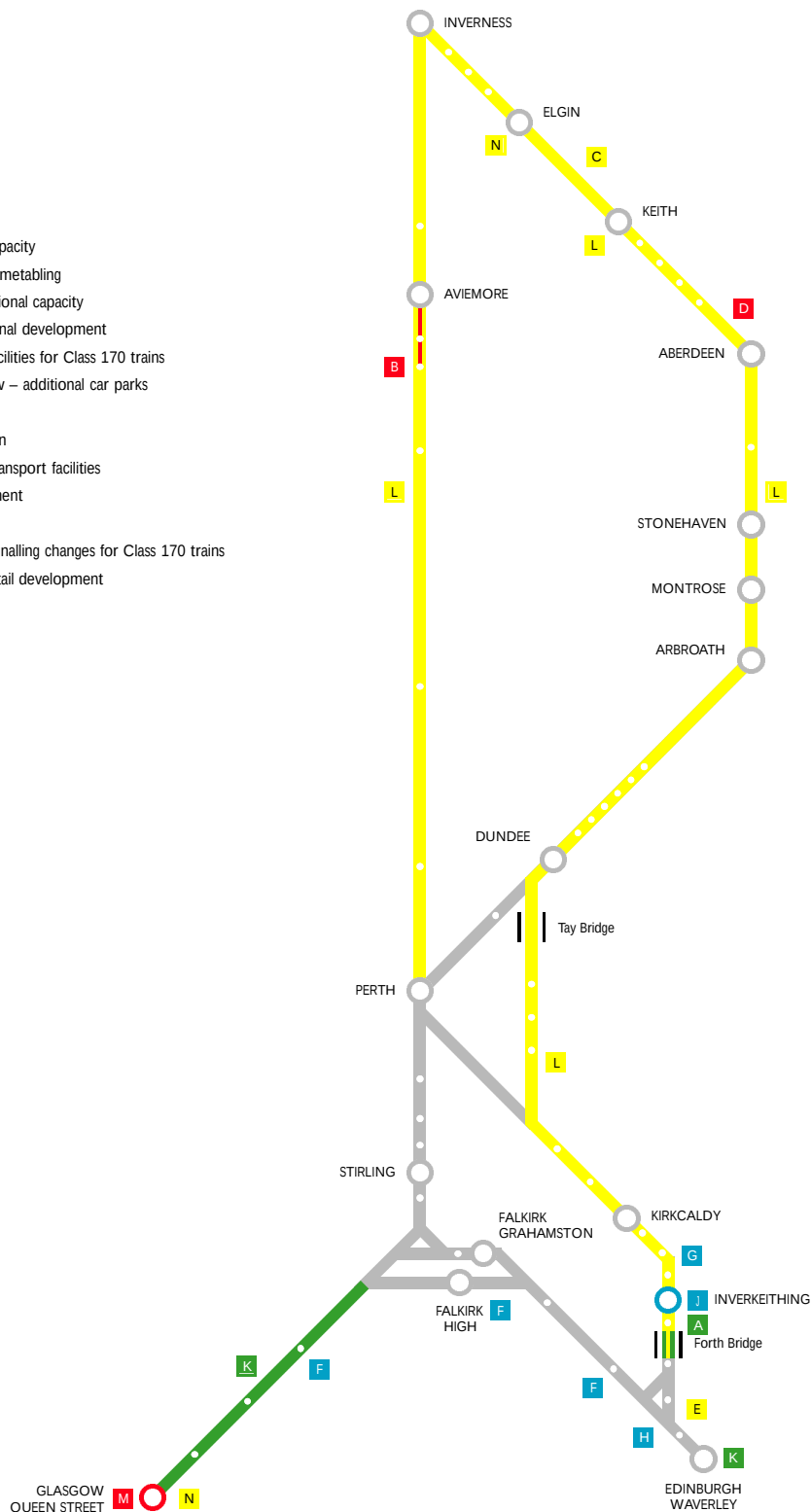
TRACK AND STRUCTURES A programme of track, bridge and embankment works between Doncaster and Grimsby has been completed and long-standing temporary speed restrictions removed. This is a particularly difficult section of track to maintain because of the substrata on which it lies – the result has been a major improvement to train punctuality along this part of the route. We have also completed renewal and enhancement work at the important junction at Brocklesby. This junction serves the heavily used freight link between the docks at Immingham and the steel mills at Scunthorpe, and has led to a much-improved infrastructure for the freight operators. This has enabled our customers to offer improved journey times and improved route performance.

GNER; ScotRail; Virgin CrossCountry; EWS.



- A Forth Bridge – additional capacity
- B Aviemore–Dalwhinnie – retimetabling
- C Aberdeen–Inverness – additional capacity
- D Raithes Farm – freight terminal development
- E Haymarket Depot – new facilities for Class 170 trains
- F Croy, Falkirk High, Linlithgow – additional car parks
- G Dysart – new station
- H Edinburgh Park – new station
- I Inverkeithing – integrated transport facilities
- K Renewal of signalling equipment
- L Linespeed improvements
- M Glasgow Queen Street – signalling changes for Class 170 trains
- N Glasgow Queen Street – retail development

See page 127 for colour key



Route characteristics

DESCRIPTION These routes are primarily two tracks but with a considerable mileage of single track, mainly Perth–Inverness and Aberdeen–Inverness. Four tracks are available between Edinburgh Waverley and Haymarket West Junction. The signalling is a mixture of semaphore and colour light. A short section of the route is electrified using 25kV OLE.

Maximum speeds range from 50mph between Winchburgh and Dalmeny to 100mph over parts of the Edinburgh–Glasgow route. Differential speeds for multiple unit trains over locomotive-hauled stock are available between Edinburgh and Aberdeen.

The Haymarket–Edinburgh Waverley area is operating at a high level of utilisation. Other busy sections near to capacity are Glasgow–Greenhill Junction, Aberdeen–Dyce, and parts of Fife.

MAJOR STATIONS We have continued to invest in a number of short-term projects aimed at improving facilities at the Edinburgh Waverley Station. It has been made more environmentally friendly by the segregation of pedestrians from road vehicles, at the same time improving retail outlets. The passenger waiting area has been restored, including the cupola, which received a special mention in the Ian Allan Heritage Awards.

Our predictions for growth of train services at Edinburgh indicate that significant alterations will be required to the track and signalling throughout the station area to provide more and increased flexibility to platforms. This can only be accomplished by major alterations to its fabric. We propose to redevelop the station while preserving its historic character to provide Edinburgh with a modern structure befitting a capital city. We are working with all interested parties to achieve this goal.

Route vision

The 'Express Route' acts as the railway artery of Scotland connecting the main centres of population and the principal cities of Edinburgh, Glasgow, Perth, Dundee, Aberdeen and Inverness. Our vision is to develop the route as the principal mode of transport between the main centres of government, commerce, industry and culture that will serve the people of Scotland into the next millennium, providing more train paths and faster journeys with greater comfort and reliability.

We have undertaken a study on behalf of the industry to establish future growth in rail travel. Analysis suggests that, between 1996 and 2008, the number of passenger journeys will grow by between 25% and 30%, the main growth being in the leisure market followed by commuting and business.

We will deliver this vision through the ability to increase the frequency and reduce journey times without significantly altering the infrastructure, through extensive works such as electrification, additional track capacity or major resignalling. Reduced journey time is a key market requirement. The improvements will be provided by judiciously combining condition-led renewals

with enhancements where there are commercial benefits. In October 1999 ScotRail will increase the train frequency between Glasgow and Edinburgh to every 15 minutes. Journey times between Edinburgh and Glasgow to Aberdeen and Inverness will be progressively reduced through a combination of track work and the utilisation of new curving rules. This is being achieved as a result of our initiative which is being taken forward with the European Union of Railways and is expected to be of benefit to many railway authorities. Our longer-term vision is to achieve a two-hour journey time using tilting trains between Edinburgh and Aberdeen.

We anticipate the continued expansion of freight traffic with the provision of new sidings. These will provide an increased ability to carry larger, longer and heavier trains, linking the north of Britain to the south and Europe via the Channel Tunnel. These measures will enable more freight to be transferred from busy roads such as the A9 and A90 to rail, benefiting the environment, allowing goods to move without congestion and helping to reduce road accidents.

Route development and customer requirements

ScotRail This year, ScotRail are doubling the train frequency to every 15 minutes between Edinburgh and Glasgow with the journey time reduced by two minutes. This is to be followed by additional services over other sections of the route. These requirements are being met by us through providing appropriate train paths and ensuring that the infrastructure is reliable through an enhanced maintenance regime over key sections of the route. They also require reduced journey times particularly between Edinburgh and Aberdeen, Edinburgh, Glasgow and Inverness, as well as Aberdeen and Inverness. As a first stage, we are working to reduce the journey time between Edinburgh and Aberdeen by ten minutes and Aberdeen and Inverness by up to ten minutes.

As part of their ScotRail 2000 project, they require improved customer-information systems, enhanced station security and extensions to selected station car parks. We have commenced works to meet these requirements. The new trains being introduced between Edinburgh–Glasgow and Aberdeen–Edinburgh require improved facilities to enable them to operate successfully. They need to be able to discharge train toilets, as well as to extend the trainshed at Haymarket Depot. The designs for these facilities are well advanced. Improved infrastructure performance and minimal interruption due to engineering work are essential to support these increases in services.

GNER and Virgin CrossCountry are primarily interested in reduced journey times from Inverness and Aberdeen to Edinburgh for their through trains

to London and southern Britain. An initial reduction of ten minutes between Aberdeen and Edinburgh could be followed by a two-hour journey time by utilising tilting trains. They also want improvements in reliability as well as maintenance of the high standard of track quality historically enjoyed in Scotland. This is being provided by enhanced maintenance at selected locations.

EWS requires improved access to operate larger, heavier and longer trains. In particular, they want to ensure that sidings for loading and unloading are available where and when requested by their customers. We are currently identifying a suitable scheme between Arbroath and Montrose.

Local authorities The key priority is to improve the accessibility of railways and station facilities. Examples include:

- new stations throughout
- local trains between Inverurie and Stonehaven providing a cross-Aberdeen service
- a reduction in journey time between Aberdeen and Inverness
- reduced journey times and increases in services between Fife and Edinburgh
- reopening of the Stirling–Alloa through to Kincardine for freight and eventually passenger services
- involvement in a new integrated transport interchange facilities at Perth and Inverkeithing.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Additional train paths over the Forth Bridge	Reduce the length of signal overlaps	1999	A
Additional train paths Aviemore–Dalwhinnie	Retimetable	In agreement with customers	B
Additional train paths Aberdeen–Inverness	Static or dynamic loop between Keith and Elgin	2002	C
New freight traffics at various locations	Track & associated signalling	2000 onwards	
Improved freight distribution in Aberdeen area	Raithes Farm development	2000	D

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Edinburgh–Aberdeen	210	8	52mph (2hr 30min)	56mph (2hr 20min)	No change	65mph (2hr)
Aberdeen–Inverness	174	8	49mph (2hr 13min)	51mph (2hr 8min)	No change	54mph (2hr)
Glasgow Queen Street–Aberdeen	249	6	59mph (2hr 37min)	63mph (2hr 27min)	No change	65mph (2hr 22min)
Edinburgh–Glasgow Queen Street	76	3	57mph (50 min)	59mph (48min)	No change	No change
Inverness–Perth	190	5	52mph (2hr 15min)	54mph (2hr 10min)	No change	57mph (2hr 5min)
Glasgow–Inverness	290	12	54mph (3hr 20min)	56mph (3hr 15min)	No change	58mph (3hr 10min)
LINESPEEDS (km of track)						
Up to 35mph			72	72	72	64
40–75mph			750	740	740	719
80–105mph			500	510	510	539
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			1322	1322	1322	1322
GAUGE (km of route)						
W6A			798	798	798	798
W7			798	798	798	798
W8			695	695	695	695
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			362	362	362	282
23.5 tonnes to 25.4 tonnes			960	960	960	1040
TOTAL			1322	1322	1322	1322

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	6.1	5.4	4.5	34.1	
Structures	13.9	9.7	15.5	43.8	
Signalling	9.2	4.3	3.2	19.7	K
Electrification	0.0	0.0	0.1	0.8	
Plant & Machinery	2.9	2.1	0.3	10.3	
Telecoms	1.2	1.5	0.5	7.1	
Stations	12.4	4.8	4.8	6.0	
Depots	0.0	0.3	0.2	5.4	
Other	0.0	0.0	0.0	0.4	
TOTAL EXPENDITURE	45.7	28.1	29.1	127.7	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	0.0	0.4	0.4	0.1		
COMMERCIAL							
Raithes Farm freight depot	2001	0.0	6.0	2.0	0.0		D
Retail development at Glasgow Queen Street	2000	0.0	0.5	0.0	0.0	1	M
PARTNERSHIP							
Aberdeen–Inverness capacity improvements	2007	0.0	0.0	0.0	10.0		C
Journey-time reductions	2007	0.0	0.5	0.0	7.0	3	L
Glasgow Queen Street signalling mods to cater for longer trains	1999	0.0	1.3	0.0	0.0	1	N
Provision of train toilet discharge facilities in depots	1999	0.0	0.9	0.0	0.0	5	E
Haymarket Depot shed extension	2000	0.0	0.5	0.0	0.0	1	E
CIS enhancements	2000	0.0	0.1	0.0	0.0	1	
CONTRACTOR							
Car-park extensions at Falkirk High, Linlithgow and Croy	2001	0.0	0.8	0.3	0.0	4	F
FEASIBILITY							
General route improvements	2009	0.2	0.2	0.1	0.3		
THIRD PARTY							
Edinburgh Park new station	2000	0.3	0.8	0.0	0.0	1	H
Dysart new station	2001	0.0	0.0	0.9	0.0	1	G
SPT car parks	2001	0.0	0.0	0.1	0.0	1	
Other schemes	Various	0.6	0.7	0.3	3.5	17	
TOTAL RAILTRACK EXPENDITURE		0.6	5.3	1.1	20.8	36	
TOTAL NON-RAILTRACK EXPENDITURE		0.5	7.4	3.0	0.0		

Other route developments

LOCATION	PROPOSED SOLUTION	YEAR	REF
Haymarket and Perth – depot discharge of train toilet tanks	New controlled emission toilet facilities	1999	E
Haymarket, Perth and Inverness – improved carriage washing	New washing plant	2001/02	E
Haymarket – longer trains (Class 170)	Trainshed extension	1999	E
Falkirk High, Linlithgow and Croy – additional car parking	Extensions to existing car parks	1999	F
Improved security and safety at stations	Upgrade lighting	Ongoing	
	Install CCTV		
	Enhance customer-information systems		
Dysart – new station	Development in partnership with Fife Council		G
Edinburgh Park – new station	Development in partnership with the Development Corporation and the City of Edinburgh Council	2000	H
Inverkeithing – integrated transport facilities	Development in partnership with Fife Council	2000*	J
Improved station facilities	Improvements to waiting rooms, toilet facilities, cycle rack and retail outlets	Ongoing	

*subject to funding agreement

Progress on the 1998 NMS

SIGNALLING The renewal of signalling in the Glasgow Queen Street area based on Cowlares signal box has continued with £19M spent this year out of a £25M total. The ROSS 1 scheme at Cowlares, which also involves the Strathclyde route, is on schedule for completion in May 1999 and will result in the closure of seven signal boxes, including Sighthill, the last mechanical signal box in Glasgow. The completion of this scheme will help to maintain and improve performance, and it has already resulted in greater flexibility of operation in and out of Queen Street Station, including bidirectional working to and from Lenzie.

To sustain improved performance between Edinburgh and Glasgow, we have carried out renewals at three further interlockings, together with the renewal of the 'train describers' that enable signallers to position and identify trains at Greenhill and Edinburgh.

PLANT AND ELECTRICAL The points-heater programme has continued as promised in last year's NMS. The installation of new or improved systems at 33 locations involving 177 point ends has enabled performance to be maintained and improved when cold weather would have otherwise put the service to customers at risk.

Monitoring equipment has been installed, enabling the performance of vital installations at key locations to be assessed remotely by our maintenance contractor. This allows the condition of plant items such as power generation sets, pumps and air supply systems to be assessed, often before failure, thereby avoiding delays to trains. If there is a failure, the time taken to restore services is minimised, as the technician can take the appropriate spares and fit them immediately. Anemometers have been installed on the Tay Bridge giving warning of high winds.

Signalling equipment at Cowlares, Greenhill, Polmont and Edinburgh Haymarket is being fitted with uninterrupted power supplies, so that, if the main electricity supply is lost, trains can continue to operate safely without the need to reset computer equipment, thereby avoiding delays.

STRUCTURES The five-year programme to refurbish the Forth Bridge continues, with about 25% completed. We have also taken the opportunity to provide Scotland with the largest millennium countdown clock in Europe.

Killiecrankie Tunnel has been cleared for W8 traffic, opening up the Perth-Inverness route. As an immediate consequence, EWS can now offer Safeway a daily service to Inverness. The myth that only 40-tonne articulated lorries can bring fresh, regular supplies of perishable foodstuffs to the area has been exploded.

Drainage measures have been installed at several locations. While not solving all the flooding problems that have occurred this year, they have gone some way towards reducing the effects of one of the wettest years on record, even for Scotland.

Detailed analysis has been carried out to determine what work is required on the Tay Bridge, and a work programme is being produced.

STATIONS We were pleased to take the responsibility for construction of a new station at Dalgety Bay. Sponsored and financed by Fife Council, it has already proved to be a success, so much so that additional car parking is now being considered.

The Station Regeneration Programme has continued with over 20 stations completed to date. Most notable is the completion of the roof repairs at Aberdeen Station and the ongoing work at Glasgow Queen Street with the £15M renewal of the largest single-barrel vault roof in the country.

Lifts at Stirling and Linlithgow, funded by the local authorities, were installed to improve access for many groups of people, the former being given an Ian Allan Heritage 'Highly Commended' Award. ScotRail has also taken the opportunity to carry out additional work at its own cost simultaneous to the Station Regeneration Programme, as have local authorities in upgrading adjacent facilities. This includes station lighting and the provision of CCTV equipment, providing improved safety and security at stations.

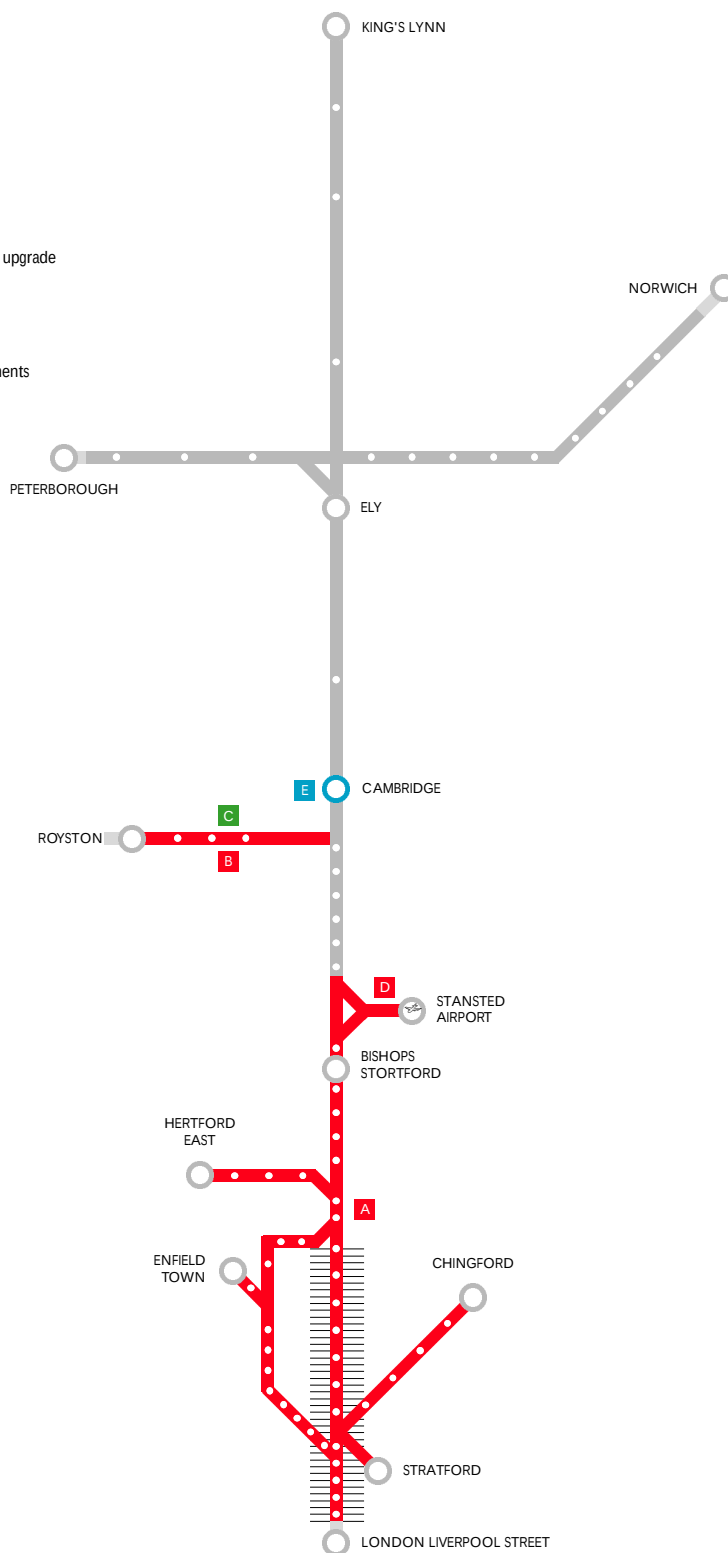
Most of the investment referred to above has been carried out as part of our continued programme of steady-state renewal, demonstrating our continued commitment to enable the daily performance of trains to be maintained and improved by our customers. As a direct consequence, the wider community benefits from a better way of travelling.

Anglia Railways; West Anglia & Great Northern Railway (WAGN); Central Trains; EWS.



- A Signalling equipment renewal and capacity upgrade
- B Linespeed improvements
- C Thameslink 2000
- D Stansted Airport – capacity increase
- E Cambridge Station and car-park improvements

See page 127 for colour key



Route characteristics

DESCRIPTION The West Anglia Main Line runs from London to King's Lynn via Cambridge with several suburban branches and a link to Stansted Airport. The combination of the main line through the Lea Valley and the Southbury Loop (Hackney Downs to Cheshunt) creates a four-track railway between Bethnal Green and Cheshunt. Otherwise the route is two track, with a small number of single-line sections. The maximum speed on the main line is 90mph.

The route from Norwich to Ely and Peterborough connects East Anglia to the Midlands, the North and Scotland.

Apart from the Norwich–Peterborough section, all lines on the route are electrified.

BOTTLENECK ANALYSIS Studies of capacity have shown that if the current service pattern is maintained, there is sufficient space available on existing trains,

and later by extending trains, to cater for predicted peak demand for at least the next ten years. However, the Franchising Director, WAGN and Central Trains aspire to operate more frequent services (peak and off-peak) to Stansted Airport in order to further stimulate growth.

This new custom, in addition to underlying growth, means that demand for paths is expected to continue growing strongly beyond the expiry of the WAGN franchise (2004) and the current plan horizon (2009). To satisfy this continuing growth, we may need to alter the track layout and signalling (see below).

The key driver for the route is capacity, which is restricted by the mixture of fast and stopping services.

A prerequisite for capacity enhancement is to modernise the basic signalling, telecoms and overhead-line equipment. This year, we will start work on a major modernisation scheme, and will complete the first stage in 2001.

Route vision

The West Anglia Main Line serves densely populated areas at its southern end and some key locations at its centre, including Cambridge and Stansted Airport. Our vision for this route is to provide frequent and reliable high-quality services to all destinations, with comfortable capacity for many years to come. The rapid growth of the region means that significant investment is needed in the infrastructure to meet these needs, and we have started a major renewal of the signalling, telecoms and overhead-line between London and Elsenham. In addition, we have assessed opportunities for further enhancements:

Maximise current capacity (£10M) Extend platforms to allow longer trains, but some journey times would have to be increased, or station stops reduced, to accommodate a service of four trains per hour to Stansted Airport.

Stimulate rail growth (£60M) As well as the platform works above, include an additional track between Cheshunt and Broxbourne to accommodate four trains per hour to Stansted Airport without disrupting existing services. There would be limited operational flexibility to recover from incidents or to handle exceptional demand.

High specification (£113M) In addition to the previous options, install an additional track between Brimsdown and Northumberland Park and upgrade the signalling capability. This would provide full operational flexibility for all forecast services to all destinations with standard setting reliability.

To take this forward, we are working with the Franchising Director, industry partners, local authorities and others to determine the best specification for the infrastructure to 2008 and well beyond.

None of the options above include improving capacity of the Stansted Airport terminal, which we are evaluating separately.

We will continue to improve our stations and, in particular, address integration with other transport modes, improved passenger information and access for the disabled.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
West Anglia Main Line	Route upgrade	2001–06	A
Stansted Airport	Increasing tunnel from one to two tracks	2006	D

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
London Liverpool Street–Stansted	60	2	55mph (41min)	No change	No change	No change
London Liverpool Street–Cambridge	90	6	48mph (1hr 10min)	No change	No change	No change
London Liverpool Street–King's Lynn	156	12	49mph (1hr 59min)	No change	No change	No change
London King's Cross–Cambridge	93	1	71mph (49min)	75mph (47min)	No change	No change
London King's Cross–King's Lynn	159	7	63mph (1hr 34min)	65mph (1hr 32min)	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			39	39	39	39
40–75mph			445	428	428	428
80–105mph			224	241	241	241
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			708	708	708	708
GAUGE (km of route)						
W6A			380	380	380	380
W7			335	335	335	335
W8			335	335	335	335
W9			46	46	46	46
W10			0	0	0	46
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			17	17	17	17
20.4 tonnes to 23.4 tonnes			691	691	691	691
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			708	708	708	708

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	5.8	9.3	8.3	40.4	
Structures	3.8	2.2	2.3	23.0	
Signalling	3.7	6.8	18.7	57.0	
Electrification	0.0	1.1	7.2	17.8	
Plant & Machinery	0.1	0.1	0.1	0.0	
Telecoms	0.4	2.5	3.9	11.7	
Stations	5.2	5.7	5.3	6.9	
Depots	0.3	0.7	0.1	0.5	
TOTAL EXPENDITURE	19.3	28.4	45.9	157.3	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Thameslink 2000	2006	0.1	0.4	0.0	7.4		C
WAGN stations	2001	1.8	1.6	1.3	0.0		
COMMERCIAL							
WARM	2004	0.8	2.5	17.7	92.1	1	A
Stansted Airport capacity	2004	0.0	0.0	0.0	14.0	1	D
Hitchin–Cambridge linespeed increase	2000	0.0	0.4	0.0	0.0	1	B
CONTRACTOR							
Station and car-park improvements	2001	0.0	1.0	0.2	0.0	1	E
Bishops Stortford Station car-park extension	2001	0.0	0.0	0.3	0.0	1	
Other schemes	Various	0.5	6.6	2.8	7.0	32	
TOTAL RAILTRACK EXPENDITURE		3.2	8.4	19.7	107.5	37	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	4.1	2.6	13.0		

Progress on the 1998 NMS

SIGNALLING RENEWALS PROPOSALS BETWEEN ELY–NORWICH AND ELY–PETERBOROUGH We have completed studies of asset conditions and are developing a programme of future renewals.

STATION REGENERATION PROGRAMME We will have completed work to 20 stations in 1998/99, and plan to finish the rest by March 2001.

GAUGE ENHANCEMENT EVALUATION IPSWICH–ELY–PETERBOROUGH We are assessing increasing the gauge on these routes to provide an alternative route from Felixstowe to the Midlands and beyond. We will make a decision by July this year as part of our overall freight routeing strategy development.

DISABLED ACCESS AT STATIONS We have provided access to two more stations, Cheshunt and at Bishops Stortford, where new lifts have been installed in partnership with WAGN, Hertfordshire and Essex County Councils.

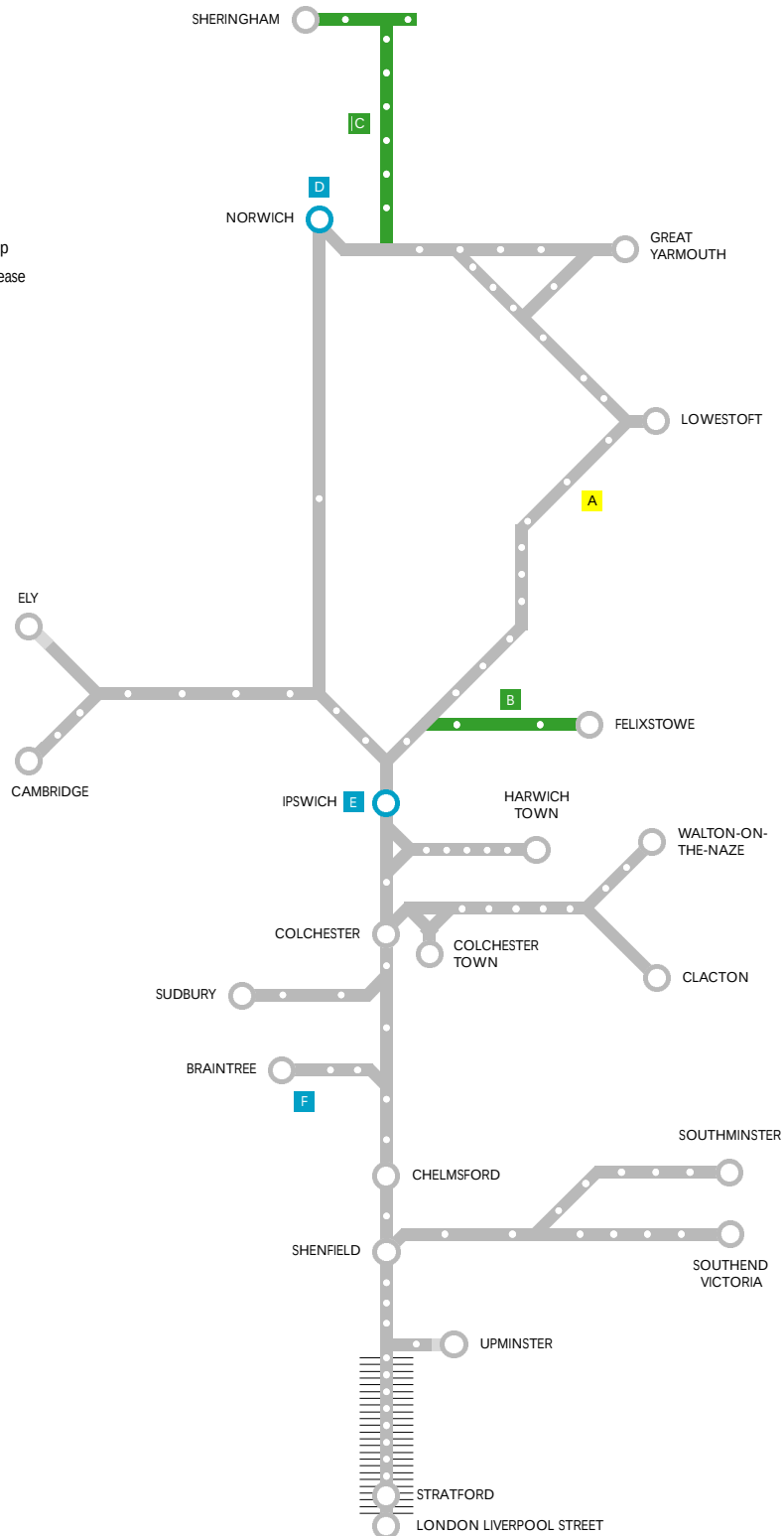
LINESPEED IMPROVEMENT HITCHIN–CAMBRIDGE Work will be complete this year with the resulting journey-time saving built into the winter timetable.

Anglia Railways; Great Eastern Railway; LTS Rail; EWS; Freightliner.



- A** Beccles – possible new passing loop
- B** Ipswich–Felixstowe – capacity increase
- C** Renewal of signalling equipment
- D** Norwich Station development
- E** Ipswich Station improvement
- F** Braintree Freeport – new station

See page 127 for colour key



Route characteristics

DESCRIPTION The Great Eastern Main Line runs from London to Norwich and has a number of branches. There are four tracks between London and Shenfield; two with speeds of 80mph, and two of 70mph. Beyond Shenfield the main line is two track with speeds up to 100mph. The London–Norwich route and the routes to Southend, Braintree, Clacton, Walton and Harwich are electrified. The route also serves the ports of Felixstowe (the country's largest container port) and Harwich.

MAJOR STATIONS

London Liverpool Street Our station regeneration work will begin in 1999/2000 and has been timed to integrate with other proposals to improve passenger facilities. Other schemes we are considering with our customers include additional and improved ticketing and information facilities, as well as airline check-in facilities for services to Stansted Airport.

BOTTLENECK ANALYSIS During the peak, demand growth can be met by the existing infrastructure, although some work will be needed at Stratford

Station to improve connections to Docklands Light Railway and the Jubilee Line Extension. In the off peak, however, when GER and Anglia Railways are looking to develop their business, there is a bottleneck between Forest Gate Junction and Stratford, where fast and stopping services share a four-track railway with freight traffic crossing between the LTS and NLL routes on flat junctions. If freight traffic grows at predicted levels, up to five extra train paths an hour will be needed by 2008; the existing infrastructure only has the capacity to provide four extra paths.

We are relieving the problem by installing new signals in 1999 between Woodgrange Park and South Tottenham (NLL), which will allow more diesel-hauled freight services to be diverted away from Stratford, via Barking and Gospel Oak. This will allow off-peak passenger demand to be accommodated on the main line for the next ten years.

By July this year we will have concluded our freight routing strategy and agreed whether Felixstowe–Midlands and beyond trains will run on this route or via Peterborough. This year we will double freight capacity to the Port of Felixstowe as we complete the Ipswich–Felixstowe Line modernisation project.

Route vision

Our vision is to further develop the rail market share from the major centres of population in East Anglia, including Chelmsford, Colchester, Ipswich and Norwich, while providing attractive services for rural communities.

The major modernisation completed in 1997 invested £220M in creating a route capable of reliably delivering 24 trains per hour into London from Shenfield over the main lines, in the peak, and up to 20 per hour over the 'E' lines between Ilford and London (18 per hour from Gidea Park). In the future, journey times will be reduced without loss of reliability or capacity wherever possible, with an aspiration of a ten-minute reduction from London to Norwich, a minute of which will be achieved in 2000 following OLE improvements.

We will provide capacity sufficient for fast, frequent and regular passenger services across the route network. Early in the year 2000, we will complete the

resignalling of the Sheringham Line. This includes renewal of a number of level crossings, and provides the opportunity to introduce new signalling technology to the UK which will improve the reliability of the services for these rural communities.

We are working with our customers to examine the potential for new stations on this route. Options include Southend Airport, Beaulieu Park (east of Chelmsford) and Braintree Freeport, which should open later this year. At a number of stations we are working with our customers to increase car-park capacity.

The Franchising Director has asked us to assess the implications of increasing service frequency between Ipswich–Lowestoft to hourly. This would require the provision of an additional passing loop, probably at Beccles.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Ipswich–Lowestoft	Provision of an additional loop probably at Beccles	Not yet agreed	A
Ipswich–Felixstowe	Increase capacity of single line and passing loop	1999	B

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
London Liverpool Street–Southend	67	9	45mph (55min)	46mph (54min)	No change	No change
London Liverpool Street–Colchester	83	5	70mph (44min)	72mph (43min)	No change	77mph (40min)
London Liverpool Street–Ipswich	111	1	71mph (58min)	73mph (57min)	No change	80mph (52min)
London Liverpool Street–Norwich	185	2	72mph (1hr 35min)	73mph (1hr 34min)	No change	81mph (1hr 25min)
LINESPEEDS (km of track)						
Up to 35mph			33	33	33	33
40–75mph			689	689	689	689
80–105mph			392	392	392	392
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			1114	1114	1114	1114
GAUGE (km of route)						
W6A			644	644	644	644
W7			404	404	404	404
W8			404	404	404	404
W9			0	106	106	213
W10			0	0	0	107
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			84	84	84	84
20.4 tonnes to 23.4 tonnes			1030	1030	1030	1030
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			1114	1114	1114	1114

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	12.8	7.4	7.7	40.5	
Structures	3.0	3.6	3.2	16.6	
Signalling	15.5	10.5	1.0	19.4	C
Electrification	1.9	2.4	2.7	1.8	
Plant & Machinery	0.1	0.2	0.1	1.1	
Telecoms	0.1	2.6	1.9	6.1	
Stations	11.1	12.9	6.1	14.8	
Depots	3.0	0.4	0.0	1.9	
TOTAL EXPENDITURE	47.5	39.5	22.9	102.2	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
GE stations	2001	2.7	1.8	0.6	0.0		
Renew and reprofile OLE at low bridges	1999	3.2	0.0	0.0	0.0		
Anglia stations	2001	1.6	0.9	0.1	0.0		
GE station security measures	1999	0.7	0.0	0.0	0.0		
CONTRACTOR							
Station car-park extensions	2002	0.0	0.0	0.0	1.5		
Norwich Station shops & concourse	2000	0.5	0.8	0.0	0.0		D
Ipswich Station improvements	2000	0.0	0.8	0.0	0.0		E
THIRD PARTY							
GE CIS upgrade	2001	0.2	1.2	0.2	0.0		
Braintree Freeport new station	2000	0.1	1.0	0.0	0.0		F
Other schemes	Various	1.0	2.9	1.9	5.6	31	
TOTAL RAILTRACK EXPENDITURE		9.7	6.2	1.1	7.1	31	
TOTAL NON-RAILTRACK EXPENDITURE		0.3	2.8	1.7	0.0		

Progress on the 1998 NMS

OVERHEAD-LINE IMPROVEMENTS BETWEEN STRATFORD AND SHENFIELD
We will complete by March this year and deliver a 10mph improvement and a one-minute journey-time reduction by 2000.

SIGNALLING & CAPACITY IMPROVEMENTS ON THE FELIXSTOWE LINE
Completion spring this year. Extending the loop at Derby Road, together with signalling improvements will permit an hourly passenger and hourly freight service each way.

SHERINGHAM LINE RESIGNALLING Work has started and completion planned for early 2000.

UPGRADE ALTERNATIVE FREIGHT ROUTE BETWEEN GOSPEL OAK AND BARKING (NLL) TO RELIEVE CAPACITY BOTTLENECK BETWEEN STRATFORD AND FOREST GATE JUNCTION New signals between Woodgrange Park and South Tottenham (NLL) will be completed during the spring this year, which will allow additional freight trains to be diverted away from Stratford.

ANTI-TRESPASS MEASURES Improvements to fencing and a joint Railtrack–GER 'Respect' campaign.

GAUGE IMPROVEMENTS We have cleared the route between Harwich and Forest Gate (Stratford) during 1998 to accommodate W9 gauge.

AWS We are installing the Automatic Warning System in the remaining GE branches to Felixstowe, Norwich–Lowestoft, Great Yarmouth and Cromer.

DISABLED ACCESS AT STATIONS We have provided disabled access at five more stations.

CUSTOMER-INFORMATION SYSTEM (CIS) IMPROVEMENTS Real-time CIS at all unmanned Anglia Railways stations will be installed by late 1999. Enhanced CIS at GE stations will be completed in 2000.

STATION REGENERATION PROGRAMME We will have completed 42 stations in 1998/99, and plan to finish the rest by March 2001.

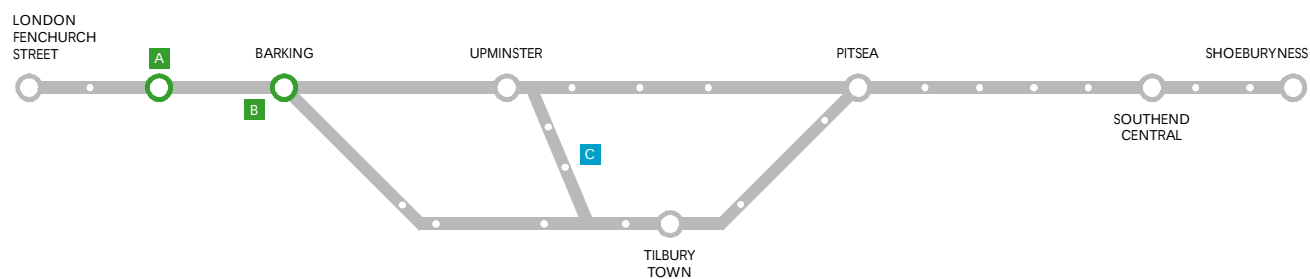
TRACK RENEWALS We will have removed two permanent speed restrictions by the end of 1998/99.

LTS Rail; EWS; Freightliner.



- A West Ham – new station
- B East Ham – depot improvements
- C Chafford Hundred – new walkway

See page 127 for colour key



Route characteristics

DESCRIPTION This route runs from Fenchurch Street to Shoeburyness, with a loop running between Barking and Pitsea via Tilbury. It is two track with a single-track line connecting Chafford Hundred Station (close to the Lakeside shopping

complex) with Upminster and Grays on the Tilbury Loop. The maximum speed is 75mph on the main line.

The route is electrified throughout.

Route vision

Our vision is to develop a high-quality, safe and reliable service, which sets world-class standards of excellence for a community regional passenger railway. At the same time, we will work with freight customers to develop the potential for extra freight on rail which the North Thameside area provides. This builds upon the major route modernisation completed in 1997 which invested over £150M to transform an ageing infrastructure and create one of our most modern and reliable routes.

We are also working with LTS Rail to look at reducing journey times

between Fenchurch Street and Upminster.

Demand is led by central London commuting which is expected to continue growing strongly, although largely within the capability of existing services. LTS Rail is also keen to develop leisure use of the railway, especially at weekends and to the Lakeside shopping centre.

We are investing £750,000 to improve passenger safety and security at LTS Rail stations, and will continue to improve car parking. We are assessing freight terminal and capacity requirements as part of our strategy for the route.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
London, Tilbury and Southend	None required		

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
London Fenchurch Street–Barking	12	1	38mph (12min)	No change	No change	45mph (10min)
London Fenchurch Street–Basildon	39	3	49mph (30min)	No change	No change	55mph (27min)
London Fenchurch Street–Southend Central	58	6	46mph (47min)	No change	No change	50mph (44min)
London Fenchurch Street–Chafford Hundred	32	4	39mph (31min)	No change	No change	44mph (28min)
LINESPEEDS (km of track)						
Up to 35mph			4	4	4	4
40–75mph			216	214	214	214
80–105mph			0	2	2	2
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			220	220	220	220
GAUGE (km of route)						
W6A			115	115	115	115
W7			102	102	102	102
W8			102	102	102	102
W9			19	19	19	19
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			11	11	11	11
20.4 tonnes to 23.4 tonnes			209	209	209	209
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			220	220	220	220

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	3.8	4.5	4.7	40.6	
Structures	1.9	1.2	1.8	15.5	
Signalling	0.4	0.8	0.9	4.2	
Electrification	1.1	0.1	0.5	10.0	
Plant & Machinery	0.0	0.1	0.1	0.0	
Telecoms	0.1	0.7	0.9	0.1	
Stations	3.0	3.7	1.7	4.6	
Depots	3.6	2.0	0.6	0.2	
TOTAL EXPENDITURE	13.9	13.1	11.2	75.2	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
LTS stations and depots	2001	2.0	1.3	0.3	0.0		
West Ham new station	2000	1.3	0.2	0.0	0.0		A
East Ham Depot enhanced maintenance capability	2000	0.3	0.8	0.0	0.0	2	B
LTS resignalling enhancements	1998	1.1	0.0	0.0	0.0		
CONTRACTOR							
Chafford Hundred Walkway	2000	0.0	2.0	0.0	0.0	1	C
Other schemes	Various	0.3	2.3	0.0	4.7	30	
TOTAL RAILTRACK EXPENDITURE		5.0	6.5	0.3	3.2	33	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.1	0.0	1.5		

Progress on the 1998 NMS

NEW STATION – WEST HAM Completed 1998

JOURNEY-TIME IMPROVEMENTS We are studying options to remodel three junctions and realign curves to allow trains to run at 100mph and potentially save 3.5 minutes between Fenchurch Street and Upminster.

CUSTOMER-INFORMATION SYSTEM IMPROVEMENTS A new main indicator board has been installed at Fenchurch Street and we are working with LTS Rail to improve passenger information at most stations.

TICKET BARRIERS AT STATIONS LTS Rail will have installed barriers at all stations by the end of this year.

OVERHEAD-LINE RENEWAL Our £9M project was completed during the summer of 1998.

FREIGHT CAPACITY NEEDS Additional signals at Woodgrange Park and South Tottenham (NLL) will relieve pressure at Stratford so permitting further growth for North Thameside freight services.

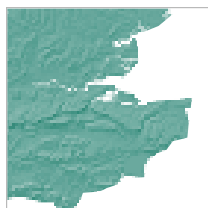
CLASS 357 CLEARANCE We are working with LTS Rail to ensure that its new rolling stock is introduced as smoothly as possible.

DISABLED ACCESS We have provided access at five more stations.

TRACK RENEWALS We will have removed two permanent speed restrictions by the end of 1998/99.

STATION REGENERATION PROGRAMME We will have completed 13 stations in 1998/99, and plan to finish the rest by March 2000.

Connex South Eastern; Virgin Trains; EWS; Freightliner.



- A** Charlton – upgrade for Millennium Dome access
- B** Rochester–Gillingham – capacity enhancement
- C** Hoo Junction – layout changes to improve freight train operation
- D** Holborough – new freight facility
- E** Swanley–Fawkham Junction – enhancements for CTRL Section 1
- F** Greenhithe Station – development of stations facilities
- G** Dartford resignalling

See page 127 for colour key



Route characteristics

DESCRIPTION This route comprises a high-density commuter railway and much lower-density rural services in Kent.

The route consists of three separate lines to Dartford, where they merge and continue to Rochester where the Swanley–Ramsgate Line is joined. The route includes branch lines from Lewisham–Hayes, Strood–Paddock Wood, Sittingbourne–Sheerness and Faversham–Dover. Linespeed is 60mph as far as Dartford, then 70mph to Strood, 60mph to Newington and 90mph to

Ramsgate. The route is two track throughout with the exception of a short single-track section on the Sheerness branch.

The route primarily serves the passenger market, but has important freight flows to terminals at Thamesport (Grain) and Sheerness.

All passenger lines are electrified. The south-east London area of the route operates close to capacity.

Route vision

Our vision for the route is to build on the current capacity by providing more seats on peak services into London with a 12-vehicle train suburban network and by improving journey times, possibly by 2003. This will be aided by the Dartford resignalling scheme currently under way and by the Thameslink 2000 project. Connex is assessing the provision of additional seats through lengthening existing trains. Off peak, it is Connex's aspiration to move to a Connex Metro concept of four trains per hour and over time to increase the range of through-journey opportunities.

Channel Tunnel Rail Link (CTRL) Section 1 will impact on the Fawkham Junction to Swanley section of this route, for which the signalling will be enhanced to enable the Eurostar service to successfully integrate with the domestic services. The timetable in 2003 will provide the opportunity to optimise use of the capacity by all services, reduce journey times, and move to 12-vehicle suburban services. We will also investigate capacity enhancement through the Medway towns in advance of Section 2 of the CTRL.

Route development and customer requirements

Working with customers, we will improve charter punctuality by two percentage points over the next two years. This improvement, which will vary across service groups, will typically result in 16% fewer trains arriving at their destinations more than five minutes late.

Connex and the Franchising Director have aspirations for journey-time reductions on a number of sections of route, both through practical linespeed increases, and by taking advantage of the superior acceleration and braking of new rolling stock. Route clearance work for Connex's new 375 fleet has begun, and the operating areas of the 365, 465 and 466 fleets will be extended.

On the Medway Valley Line (Strood–Paddock Wood) we are working with Kent County Council and the Medway Unitary Authority to improve transport facilities.

Discussions are taking place to develop Greenhithe Station as an alternative transport route to the Bluewater retail development. Options include the provision of interchange facilities and a dedicated bus link.

The route will continue to play an important part in delivering a rail freight service to North Kent. Both Thamesport and Sheerness freight terminals are expected to continue to grow and rail will play an increasingly important role in that growth. Various aggregate depots around the route are expected to be served.

At Holborough we are carrying out a feasibility study on behalf of Blue Circle to reconnect the cement works site to the network.

We believe that latent demand exists in North Kent for a new rail-freight terminal for which Northfleet is one of the options under consideration.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
London–Ramsgate and Dover	Route clearance for Class 375	1999	
Charlton	Enhanced station facilities for Millennium Dome access	1999	A
Woolwich Arsenal–Falconwood–New Eltham–Strood	Resignalling scheme and track layout changes to facilitate 12-vehicle operation	2001	G
Hoo Junction	Relocation of crossover, to allow easier access to freight yard	2001	C
Holborough	New freight connection	2002	D
Swanley–Fawkham Junction	Track and signalling enhancements in conjunction with CTRL Section 1	2003	E
Rochester–Gillingham	Capacity enhancement	2007	B
Swanley–Ramsgate	Linespeed improvements	Study complete by 2000	
Charing Cross–Gillingham by all routes via Dartford	Infrastructure enhancement to enable 12-vehicle operation	Study complete by 2000	

These are the route improvements we plan to deliver continued

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
London Charing Cross–Dartford	27	7	27mph (37min)	No change	No change	No change
London Victoria–Chatham	55	1	50mph (41min)	No change	No change	52mph (40min)
London Victoria–Canterbury East	98	7	45mph (1hr 21min)	48mph (1hr 17min)	No change	50mph (1hr 14min)
London Victoria–Ramsgate	127	11	46mph (1hr 43min)	No change	No change	50mph (1hr 35min)
LINESPEEDS (km of track)						
Up to 35mph			62	62	62	62
40–75mph			333	333	333	333
80–105mph			184	184	184	184
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			578	578	578	578
GAUGE (km of route)						
W6A			292	292	292	292
W7			58	58	58	58
W8			53	53	53	53
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			10	10	10	10
20.4 tonnes to 23.4 tonnes			27	27	27	27
23.5 tonnes to 25.4 tonnes			541	541	541	541
TOTAL			578	578	578	578

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	6.6	1.1	1.1	17.2	
Structures	6.1	2.1	3.1	14.0	
Signalling	10.5	19.3	6.0	47.4	
Electrification	1.7	3.2	1.9	10.1	
Plant & Machinery	0.3	0.3	0.1	0.8	
Telecoms	1.7	1.8	1.0	6.0	
Stations	2.4	4.1	2.9	10.0	
Depots	0.1	3.7	0.5	10.0	
Other	0.1	0.1	0.2	0.8	
TOTAL EXPENDITURE	29.5	35.7	16.8	116.3	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Dartford resignalling enhancements	2001	2.7	4.4	0.9	1.8	1	G
Station and depot enhancements	2001	0.4	1.3	1.4	0.0		
COMMERCIAL							
Waterloo–Fawkham Junction enhancements for CTRL	2003	0.7	5.5	10.5	13.0	3	E
PARTNERSHIP							
Charlton millennium works	1999	0.0	1.0	0.0	0.0	1	A
CONTRACTOR							
Greenhithe Station development	1999	0.0	0.8	0.0	0.0	1	F
THIRD PARTY							
Holborough reinstated connection	2002	0.0	0.0	1.5	1.5		D
Northfleet freight siding	2004	0.0	0.0	0.0	0.5		C
Other schemes	Various	0.2	0.0	0.0	1.6	4	
TOTAL RAILTRACK EXPENDITURE		4.0	13.0	12.8	14.9	10	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.0	1.5	3.5		

Progress on the 1998 NMS

DARTFORD-AREA SIGNALLING RENEWAL Work is progressing with completion scheduled for 2001.

KINGSFERRY BRIDGE Strengthening and refurbishment works have been completed.

LINESPEED IMPROVEMENTS We are undertaking a number of studies examining the feasibility of linespeed improvements between Swanley and Ramsgate via Faversham.

STATIONS Station regeneration works have been completed at Crayford, Belvedere, Chatham, Dartford, Canterbury East, Dover Priory and Ramsgate. Customer-information systems at all Connex franchised stations are being improved through a Railtrack and Connex partnership scheme.

MILLENNIUM DOME ACCESS Major works are planned to enhance station facilities at Charlton, which is the chosen railhead for the Millennium Dome. This station will provide an interchange for bus services to the site.

EAST KENT & MEDWAY VALLEY SIGNALLING RENEWAL Reassessment of the condition of the signalling equipment in the East Kent & Medway Valley areas has concluded that life-extension works will enable resignalling to be postponed beyond 2004.

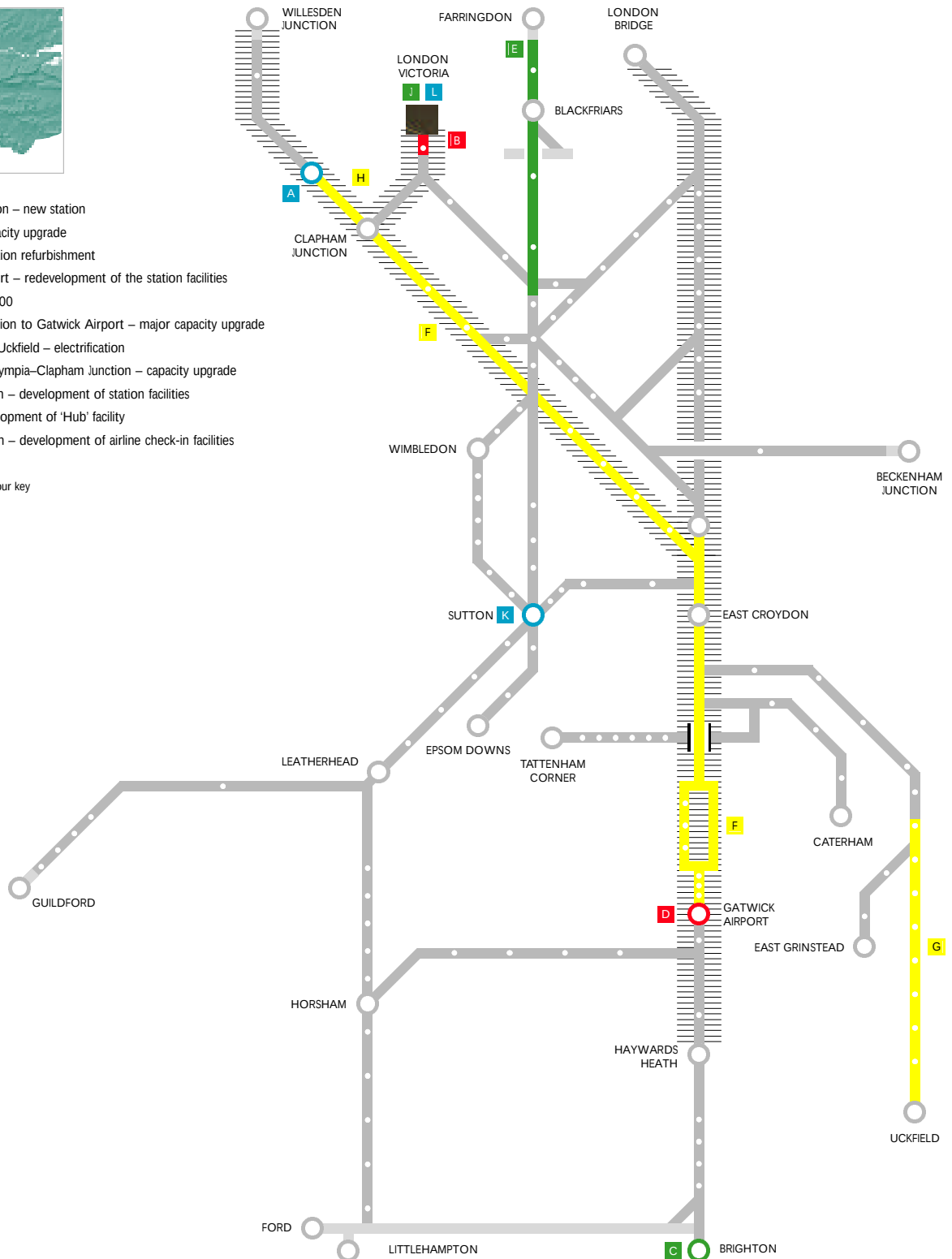
ANGERSTEIN & HITHER GREEN RESIGNALLING We have carried out detailed condition assessments in the Angerstein & Hither Green areas and have concluded that renewal work will need to be undertaken in the Hither Green area by 2001. Replacement of the signalling interlocking at Angerstein is also scheduled for 2001.

Connex South Central; Connex South Eastern; Eurostar (UK); Gatwick Express; Silverlink; South West Trains; Thameslink; Thames Trains; Virgin Trains; EWS; Freightliner.



- A West Brompton – new station
- B Victoria – capacity upgrade
- C Brighton – station refurbishment
- D Gatwick Airport – redevelopment of the station facilities
- E Thameslink 2000
- F Clapham Junction to Gatwick Airport – major capacity upgrade
- G Hurst Green–Uckfield – electrification
- H Kensington Olympia–Clapham Junction – capacity upgrade
- J Victoria Station – development of station facilities
- K Sutton – development of 'Hub' facility
- L Victoria Station – development of airline check-in facilities

See page 127 for colour key



Route characteristics

DESCRIPTION This route links south London and the South Coast to London's West End (at Victoria) and the City (via London Bridge). Over the busiest section, between Clapham Junction and Balham, the route carries some 700 trains per day, making it one of the most heavily used routes in Great Britain. The route also caters for a large leisure market, providing access to Gatwick Airport, central London, and to the resorts of the Sussex Coast.

The core route is four track from Victoria and London Bridge until it reaches Balcombe Tunnel where it becomes two track for much of the remainder of its length to Brighton. Linespeed is variable but predominantly 60mph within Greater London, 90mph elsewhere, and with a short stretch of 100mph.

The West London Line (WLL) connects the West Coast Main Line, North London Line and Great Western Main Line with the south London network. This two-track line has a predominant linespeed of 40mph, with a short section of 60mph and flat, low-speed entry and exit junctions.

Other lines are predominantly two track, with linespeeds 60–75mph. With the exception of the line between Hurst Green and Uckfield, the route is electrified throughout.

MAJOR STATIONS

Gatwick Airport This station handles rail traffic to the UK's second busiest airport, at which significant growth is expected over the next ten years. A package of SRP work has been completed, which includes lighting improvements, and new, enhanced waiting areas and toilets. Way-finding improvements will be made during 1999 to improve access between the station and airport terminals. We intend to renew the customer-information system during 1999/2000. We will also work with BAA to develop longer-term proposals to radically improve the rail/air interchange, provide capacity for the anticipated growth and ensure a long-term growth in rail share of this market.

London Victoria As our busiest major station, Victoria handles south London, Kent and Sussex commuting and interurban business, as well as providing a specialist facility for Gatwick Express. In 1999/2000 we will provide a modest airline check-in facility in the station concourse and work with Connex to provide automatic ticket gates for their platforms. We also intend to start station regeneration work during 1999 and are in the process of developing new information and ticketing facilities.

BOTTLENECK ANALYSIS

Victoria to Haywards Heath There are a number of related capacity constraints between Victoria and Haywards Heath. A key constraint is Windmill Bridge Junction where the four-track routes from Victoria and London Bridge combine into one four-track railway. Other capacity constraints on this section include limited platform availability at both Victoria and Gatwick Airport stations due to platforms dedicated to Gatwick Express Services and station dwell times at Clapham Junction. The number of tracks and platform availability are also constraints at East Croydon.

Option A Retimetabling to improve use and release capacity. A detailed exercise has been carried out, showing that it would only be possible to release one additional path on the fast lines by retimetabling while meeting existing customer aspirations.

Option B Lengthening of existing trains and platforms to increase passenger-carrying capacity on existing services. In addition to the vehicle leasing cost involved, this would require platform lengthening and track layout changes at Victoria, East Croydon and Gatwick Airport and a number of other locations. This would, however, increase ability to carry additional passengers without running extra trains.

Option C Use of rolling stock with increased seating capacity on existing services. This would increase ability to carry additional passengers without running extra trains. Up to 20% additional passengers could be carried in the peak, thereby reducing the need for additional paths or longer trains. New rolling stock would be required to achieve this.

Option D Use of rolling stock with higher-speed and better performance characteristics. This would facilitate better use of the available capacity. However, it would only be of benefit if the majority of the rolling stock on the route was replaced at the same time.

Option E Infrastructure solution to increase route capacity in the peak. In order to avoid simply shifting the bottleneck from one location to another, capacity can only be released through addressing a number of constraints at various points along the route. The infrastructure enhancement involves:

- construction of a flyover at Windmill Bridge Junction (to remove down Victoria/up London Bridge conflicts)
- additional platforms at Gatwick Airport Station
- upgrade carriage roads at Victoria and Brighton
- upgrade power supply along the route
- operational changes (reduce turnaround times for trains, and restructure the timetable).

The combined effects of the above infrastructure work would create capacity for up to four additional trains per hour on both fast and slow lines.

Option F Infrastructure solution to increase route capacity in the off-peak. Again, in order to avoid simply shifting the bottleneck from one location to another, capacity can only be released through addressing a number of constraints at various points along the route. The infrastructure involves:

- provision of additional turnback capacity at Gatwick Airport
- provision of an additional 40mph junction between fast and slow lines near Clapham Junction
- restructuring the timetable between Balcombe Tunnel Junction and Brighton.

This would allow an increase of six off-peak trains per hour in services from the north terminating at Gatwick Airport and would deliver a number of customer aspirations. In addition, action would be required on the West London Line at the junctions of both WCML and GWML.

Our preferred long-term option would be to undertake the complete infrastructure works required to de-bottleneck the route if there were sufficient industry funding. Option E is chosen as it is the only solution to provide any significant benefit in terms of capacity. However, in the shorter term, options A, C, and D would provide significant improvement in seating capacity on the route.

West London Line The West London Line is used by a wide mix of local and long-distance passenger and freight traffic. This section of route is bounded by the WCML, GWML, Brighton Main Line and Channel Tunnel Routes. The entry and exit points to the route are mainly via single-lead and flat junctions and linespeed is low. These adjoining routes all have their own capacity constraints and restrict timetabling flexibility. As a result, use of the available capacity is dictated by peaks elsewhere as much as by those on the line itself, and varies widely through the day with a single mid-day peak rather than distinct morning and evening commuter peaks. During the busiest hours, there is little spare capacity. There is insufficient capacity to meet PSR, contractual rights and franchise commitments as well as local authority and developer aspirations to open additional local stations on the line.

Option A Retimetabling to facilitate better use of the existing capacity. It is not considered that retimetabling on the West London Line at this stage would be a practical option, given the fact that it is a key artery linking so many routes. Any retimetabling is likely to have a significant effect on the timetable for much of the rest of the network.

It is recommended that no retimetabling be carried out at this stage. However, it is planned to revisit this in conjunction with the timetabling review to be undertaken for completion of Phase 1 of CTRL works.

Option B Relax capacity constraint over Chelsea River Bridge by increasing linespeed. Chelsea River Bridge currently has restricted speeds, due to its condition and track alignment on its approaches. In addition, the signal spacing is greater than for the rest of the line. A headway improvement of 20 seconds could be achieved by strengthening the bridge and providing an additional signal.

Either of these would increase capacity by between one and two paths per hour.

Option C Examine linespeed profile in an attempt to make it more uniform. Currently, differential speeds along the route prevent effective use of the available capacity. An assessment has been undertaken to determine whether the existing profile can be smoothed to provide an increase in capacity. We consider it unlikely that increasing speeds on the line would produce a significant capacity enhancement. However, it would aid timetabling and performance reliability on this route.

Route characteristics continued

Option D Complete resignalling of the existing three-aspect signalling to four to improve headways. It is not considered that resignalling would provide any significant increase in capacity on the line (no more than one additional path per hour). Although the average headways on the West London Line are about four minutes, limited benefit could be obtained from resignalling, due to the wide mix of traffic using the line. In addition, reducing signal spacing would only increase the number of instances when long freight trains bridge two or more signal sections.

Option E Transferring the AC/DC electrification interface to a location where a train is already stationary to release one additional path. Currently, trains have to stop in both directions to change from one electrification system to the other. This effectively reduces available capacity by one train path per hour. Transferring this interface to a location where a train is already stationary, eg at a station, would increase capacity.

This can be achieved either by extending the overhead line southwards or the conductor rail northwards. The nearest station at present is Kensington Olympia. However, a new station is proposed at Shepherd's Bush.

Extension of the OLE would require structure clearance to accommodate the OLE and immunisation works to ensure compatibility with London Underground lines. Extension of the conductor rail would require a new substation at Willesden Junction.

Due to the limited capacity benefit and expected cost, it is not recommended that this option is pursued in isolation. The infrastructure works required would only be carried out in conjunction with the construction of an additional station on the line, which would neutralise the effect on overall capacity. The full extent of the works to move the interface has yet to be determined.

Option F Release capacity through flexing, or rerouting of existing trains. The existing traffic mix leads to a very inefficient use of the available capacity, due to the differing train speeds and stopping patterns. The effect of this option would be to make more efficient use of the available capacity and/or to free up paths for other operators.

Options for re-routing freight have been looked at, including the alternative routes of Kew Diversionary and North Downs. We have concluded that we should increase capacity by removal of the linespeed constraint at Chelsea River Bridge, justified by the revenue from the additional services, together with assessing the case to move the AC/DC interface to a station location.

These are the only available options that will provide any significant capacity improvement.

Route vision

Our vision for this route is to increase capacity for south London commuting services and to enable the interurban commuting and leisure market to grow by a series of strategic developments.

The route must satisfy the still-growing demand for fast, frequent and reliable services between central London, East Croydon, Gatwick Airport and the South Coast, while also meeting the developing needs of freight and north of London services.

Many main line morning peak services into and through London are now suffering significant overcrowding, and we believe that passenger numbers will continue to grow. We intend to work with our customers to develop a range of options, including train lengthening and, in the longer term, major infrastructure enhancements.

We have already completed an initial study which has two key conclusions. The first is that, in the short term, some improvements can be made at Victoria. We will begin a £2.6M package of track and signalling enhancements at Victoria this year as our first phase of the upgrade of the Brighton Main Line. This will ease congestion at Victoria and is funded entirely by Railtrack. The second conclusion is that an additional four train paths per hour could be created by major infrastructure work at Clapham Junction, East Croydon and Gatwick Airport at a total cost in excess of £150M. The study demonstrated that the additional ticket revenue that this would create would not fund the higher operating costs and interest charges on this investment. We will develop this work further and discuss our conclusions with the Franchising Director to try and ensure that demand for rail travel is not suppressed in future years on this key route.

We expect that an upgrade at Gatwick will be the first of these areas to be

addressed. We will seek to create an integrated development plan at Gatwick Airport to ensure rail can continue to grow its market share. This will put more pressure on the remaining Clapham Junction and East Croydon bottlenecks for which we have identified solutions. We wish to proceed with these in partnership with the Franchising Director and our customers.

We and our customers want to see improved journey times. In the longer term, these would be built into any major infrastructure enhancements but, in the short term, opportunities are limited because of the effective capacity of the route. We will examine economic incremental linespeed improvements during major maintenance or renewal of the suitable infrastructure.

The South London suburban network is constrained to a maximum of eight-vehicle operation and is now under enormous pressure from increased demand. While this is good for the railway, it has proved very difficult to improve train punctuality and passenger comfort now that all the effective capacity in the peak periods is used up. We and our customers are looking at short-term solutions. Medium- to long-term solutions could be longer trains, together with a platform lengthening programme to at least ten coaches, more innovative train solutions and major infrastructure capacity improvements. We will be taking options to potential funders to agree both the solution and the method of funding.

Capacity improvements on the core central route would, in turn, bring greater accessibility to the important radial routes to Eastbourne, Newhaven, East Grinstead and Chichester. It is our determination that the Uckfield Line will be electrified. The timing will be heavily dependent on issues relating to the life of the current rolling stock.

Route development and customer requirements

Improving train punctuality when the numbers of trains running on our network has increased substantially is an enormous task. Working with customers, we will improve charter punctuality two percentage points over the next two years. This improvement, which will vary across service groups, will typically result in 16% fewer trains arriving at their destinations more than five minutes late.

The Thameslink 2000 project, by improving track layout in the London Bridge area, providing a new station at St Pancras and improving facilities at Farringdon and Blackfriars, will facilitate movements across the capital, provide a key interface with London Underground and relieve some of the congestion at Victoria Station. More details of the Thameslink 2000 proposals can be found on subsequent pages.

The WLL will continue to develop as a key artery for local and long-distance passenger and freight traffic. Potential solutions are described in the Bottleneck analysis section above.

Discussions are taking place with Borough and County Councils concerning

interchange improvements to be provided in conjunction with a proposed high-quality transport system. This would link residential development areas to stations, town centres and employment areas at Horley, Gatwick, Three Bridges and Crawley.

A feasibility study has been undertaken into the development of a concourse-level airline check-in facility at Victoria, and negotiations are continuing with various stakeholders to determine commercial arrangements to allow this project to proceed. We are also developing a programme with Connex to create key hub-interchanges at East Croydon, Sutton, Three Bridges and Haywards Heath. A planning application has been submitted for a redevelopment of Epsom Station, which will enhance the station environment, provide undercover car parking and improve the customer-information system.

Significant refurbishment of Brighton, Stewarts Lane and Streatham Hill light maintenance depots currently under way. The facilities at Selhurst Depot are planned to be upgraded, including the provision of a new wheel lathe.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
West Brompton	Opening of new station	1999	A
Victoria–Battersea Park	Track and signalling enhancement (Carriage Road)	2000	B
Brighton	Station refurbishment	2000	C
Farringdon–Herne Hill	Thameslink 2000 project	2006	E
Clapham Junction–Gatwick Airport	Major infrastructure work to enhance capacity	2004	F
South London suburban network	Capacity enhancement study	Study complete by 2000	
Kensington Olympia–Clapham Junction	Strengthening Chelsea River Bridge to increase linespeed and capacity	Study complete by 2000	H
Gatwick Airport	Major redevelopment of station	Study complete by 2000	D
Hurst Green–Uckfield	Electrification	2007	G

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
London Victoria–East Croydon	17	0	48mph (13min)	No change	No change	53mph (12min)
London Victoria–Gatwick	43	0	53mph (30min)	No change	No change	64mph (25min)
London Bridge–Gatwick	43	0	62mph (26min)	No change	No change	64mph (25min)
London Victoria–Brighton	81	1	62mph (49min)	No change	No change	65mph (45min)
LINESPEEDS (km of track)						
Up to 35mph			97	97	97	97
40–75mph			653	653	653	653
80–105mph			195	195	195	195
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			945	945	945	945
GAUGE (km of route)						
W6A			426	426	426	426
W7			97	97	97	97
W8			82	82	82	82
W9			52	52	52	52
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			89	89	89	89
20.4 tonnes to 23.4 tonnes			193	193	193	193
23.5 tonnes to 25.4 tonnes			664	664	664	664
TOTAL			945	945	945	945

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	11.4	10.5	7.6	64.5	
Structures	10.7	7.2	3.7	31.7	
Signalling	1.7	5.1	7.1	56.7	
Electrification	2.0	2.1	4.3	18.3	
Plant & Machinery	0.4	0.1	0.2	1.1	
Telecoms	1.8	1.6	4.4	7.3	
Stations	13.8	20.8	13.4	49.2	
Depots	6.1	4.9	3.5	10.0	
Other	0.1	0.2	0.2	1.1	
TOTAL EXPENDITURE	48.0	52.5	44.4	239.9	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Thameslink 2000	2006	3.8	5.5	9.4	175.4	1	E
Station and depot enhancements	2001	8.9	2.7	3.1	0.0		
Victoria Station enhancements	2006	0.0	1.3	1.7	7.7		J
Connex CIS enhancements	2001	1.2	4.4	0.6	0.0	2	
Stewarts Lane LMD carriage-washing machine enhancement	1999	0.7	0.0	0.0	0.0	1	
COMMERCIAL							
Victoria Carriage Road upgrade	2000	0.1	2.5	0.0	0.0		B
Victoria Station enhancements	2000	0.0	0.6	0.0	0.0	1	
PARTNERSHIP							
Brighton Main Line capacity upgrade	2004	0.0	0.0	0.5	155.5	4	F
CONTRACTOR							
Connex car parks	2001	0.0	0.5	0.5	0.0	1	
Sutton Hub	2001	0.0	0.5	0.5	0.0	1	K
Selhurst wheel-turning facility	2000	0.0	0.5	0.0	0.0	1	
Victoria Station airline check-in	2000	0.0	0.5	0.0	0.0	1	L
THIRD PARTY							
West Brompton new station	1999	1.6	0.1	0.0	0.0	1	A
Stewarts Lane waste terminal	2002	0.0	0.0	0.0	1.0		
Other schemes	Various	1.3	0.9	0.1	3.1	31	
TOTAL RAILTRACK EXPENDITURE		16.0	19.3	16.4	341.7	45	
TOTAL NON-RAILTRACK EXPENDITURE		1.6	0.5	0.0	1.0		

Progress on the 1998 NMS

STATIONS The three-year, multimillion pound programme to refurbish Brighton Station, including extensive reroofing, is proceeding according to plan. Following successful completion of Phase 1 SRP works at Haywards Heath, Phase 2 works will provide an upgrade of both entrances and improve the environment at platform level. At Horsham, works are under way and will be completed in the summer to improve the station ambience and restore this building to its former glory. SRP work continues at Brighton, South Croydon, Purley Oaks and Purley, and work will begin later this year at Three Bridges, Wivelsfield and Hassocks. Construction of a new station at West Brompton is under way with completion scheduled for this year.

Customer-information systems at all Connex franchised stations are being improved through a Railtrack and Connex partnership scheme. A significant amount of SRP work has been undertaken on the Wimbledon Loop to improve the station environment.

BATTERSEA YARD BRIDGE Work is under way with completion scheduled for 2000.

SPEED IMPROVEMENTS A number of initiatives are under way to identify journey-time improvements between Victoria and Brighton, through an analysis of permanent speed restrictions and infrastructure limitations.

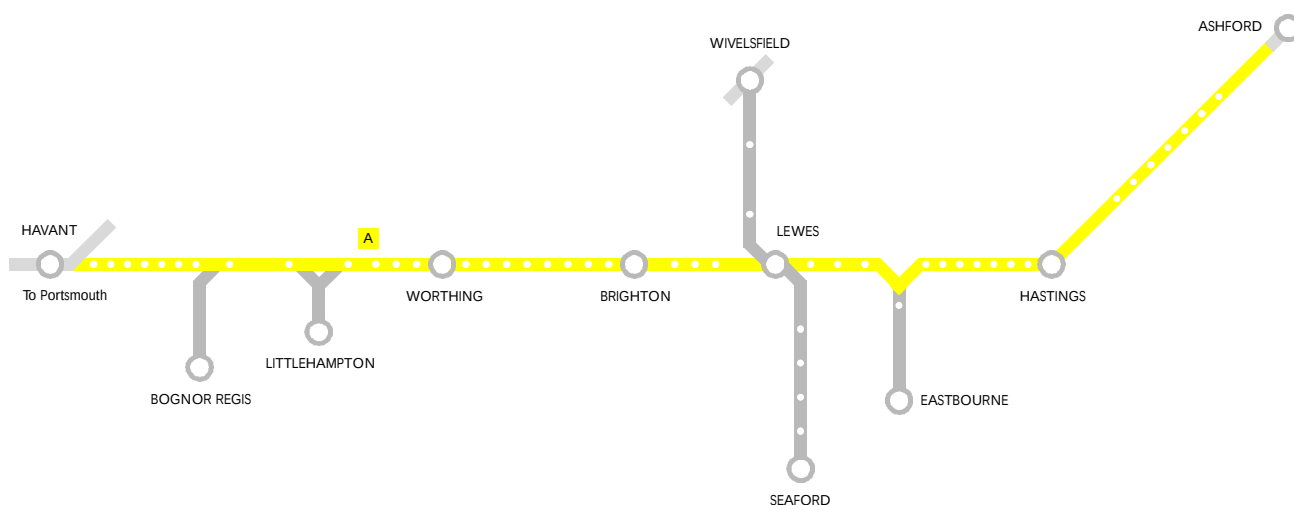
ARUN VALLEY RESIGNALLING Reassessment of the condition of the signalling in this area has established that only the equipment in the Horsham area is in need of attention and a feasibility study is nearing completion. Complete resignalling is one of the options currently being assessed, along with options for life extension. If resignalling is chosen as the way forward, it will be completed by 2002.

Connex South Central; South West Trains; Wales & West; EWS.



A Havant–Ashford – major enhancement scheme including electrification of Hastings (Ore)–Ashford

See page 127 for colour key



Route characteristics

DESCRIPTION This route predominantly carries passenger services operating along the coast as well as services that operate for a short distance and then turn north towards London.

The route is almost entirely two track, although the short Ore–Appledore and Newhaven Harbour–Seaford sections are single track. Linespeed is

predominantly 75mph with notable exceptions being 90mph from Southerham Junction to Willingdon Junction and 60mph from St Leonard's Warrior Square to Ashford. Apart from the Ore–Ashford section, the route is electrified.

Capacity on some parts of the route is constrained by the lack of passing places.

Route vision

Our vision is to improve linespeeds along the route so that, for the majority of journeys over 50 miles, rail has a journey-time advantage over road as well as significant environmental benefits. At the same time, freight connections will be improved in order to stimulate the freight market, although on this route there are a number of limitations.

Journey times for both rail and road in this transport corridor are slower than for the routes from the coast to London. For rail this is due to both configuration and linespeeds. The configuration – two track with overtaking possible only at Lewes, Hove, Worthing and Barnham, and a length of single track with only one passing place at Rye – gives little opportunity for faster services. Linespeeds along this route are constrained by several factors including signalling, track curvature, 54 level crossings, the need for services to reverse at Brighton and Eastbourne and the substandard clearances in some of the eight tunnels.

We, with a consortium of local authorities, funded a preliminary study of the line between Weymouth and Dover, comprising this route as well as parts of Routes 6 and 21. This report identified a large number of improvements which, if all were implemented, would improve the fastest journey time from Weymouth to Dover by 37% at an estimated cost of between £300M and £500M. Lower-

cost improvements that provide journey-time savings were also identified. The report concluded that, even when measures designed to reduce demand for car travel were considered, insufficient passengers would be attracted to the route to fund the infrastructure improvements. This scheme also needs to be assessed against other proposed transport schemes in this corridor.

We are working with the Government Office for the South East to agree how the benefits to the wider community of the alternative rail and road schemes can be assessed. This assessment will then be used to agree whether there is scope to progress a rail scheme. The current timing of the multimodal study for this corridor means that it is unlikely that any decision will be reached in the next three years. We support the position of other stakeholders that this multimodal study should be brought forward in order that a decision be reached far more quickly. In particular, we note that the South East Regional Planning Conference has identified the South Coast Corridor as one of the five areas or corridors in the whole of the South East of England considered to be of regional significance.

It is our determination that the Ore–Ashford section will be electrified, although there is still a funding gap to be overcome. The timing will be heavily dependent on issues relating to the life of the current rolling stock.

Route development and customer requirements

At Eastbourne, Phase 2 of the SRP is well under way which will see extensive repairs to this listed station. At Lewes, the local authority has resolved to grant listed-building consent for major refurbishment, and construction works will begin this year including rebuilding part of Platform 1 and providing new toilet

accommodation. At Hastings, planning permission is being sought for a multimillion-pound scheme to construct a new station building and refurbish platform facilities. Included within the proposals is an improved public transport interchange.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Portsmouth–Ashford	Potential major enhancements, including electrification between Ashford and Ore	2007	A

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Portsmouth & Southsea–Brighton	73	22	33mph (1hr 22min)	No change	No change	55mph (50min 4 stops)
Brighton–Hastings	56	6	33mph (1hr 3min)	No change	No change	45mph (47min 2 stops)
Hastings–Ashford	43	7	37mph (43min)	No change	No change	62mph (26min 1 stop)
LINESPEEDS (km of track)						
Up to 35mph			24	24	24	24
40–75mph			297	297	297	297
80–105mph			47	47	47	47
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			368	368	368	368
GAUGE (km of route)						
W6A			199	199	199	199
W7			99	99	99	99
W8			25	25	25	25
W9			1	1	1	1
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			92	92	92	92
23.5 tonnes to 25.4 tonnes			276	276	276	276
TOTAL			368	368	368	368

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	3.6	0.9	1.1	13.9	
Structures	1.2	3.1	2.4	12.0	
Signalling	0.7	0.7	1.9	4.2	
Electrification	0.5	0.7	1.0	4.3	
Plant & Machinery	0.1	0.0	0.0	0.4	
Telecoms	5.1	7.9	1.4	1.9	
Stations	4.6	3.6	2.3	7.0	
Depots	0.1	2.1	0.4	10.0	
Other	0.0	0.1	0.1	0.6	
TOTAL EXPENDITURE	15.9	19.1	10.6	54.3	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station and depot enhancements	2001	1.6	1.7	1.8	0.0		
Thameslink 2000	2006	0.0	0.0	0.0	1.7		
PARTNERSHIP							
Ashford–Portsmouth major enhancement	2007	0.0	0.0	0.0	481.0		A
Other schemes	Various	0.1	0.6	0.0	0.0	6	
TOTAL RAILTRACK EXPENDITURE		1.7	2.2	1.8	482.7	6	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.1	0.0	0.0		

Progress on the 1998 NMS

LONG-TERM ROUTE DEVELOPMENT The study has now reported and further work is progressing with the Highways Agency and local governments.

STATIONS SRP work has recently been completed at Littlehampton and Bognor Regis stations. SRP work continues at Eastbourne and will start at Bexhill and Lewes during the year.

Customer-information systems at all Connex franchised stations are being replaced and significantly improved through a Railtrack and Connex partnership scheme.

DEPOTS Regeneration works have recently been completed at Eastbourne and are under way at Littlehampton.

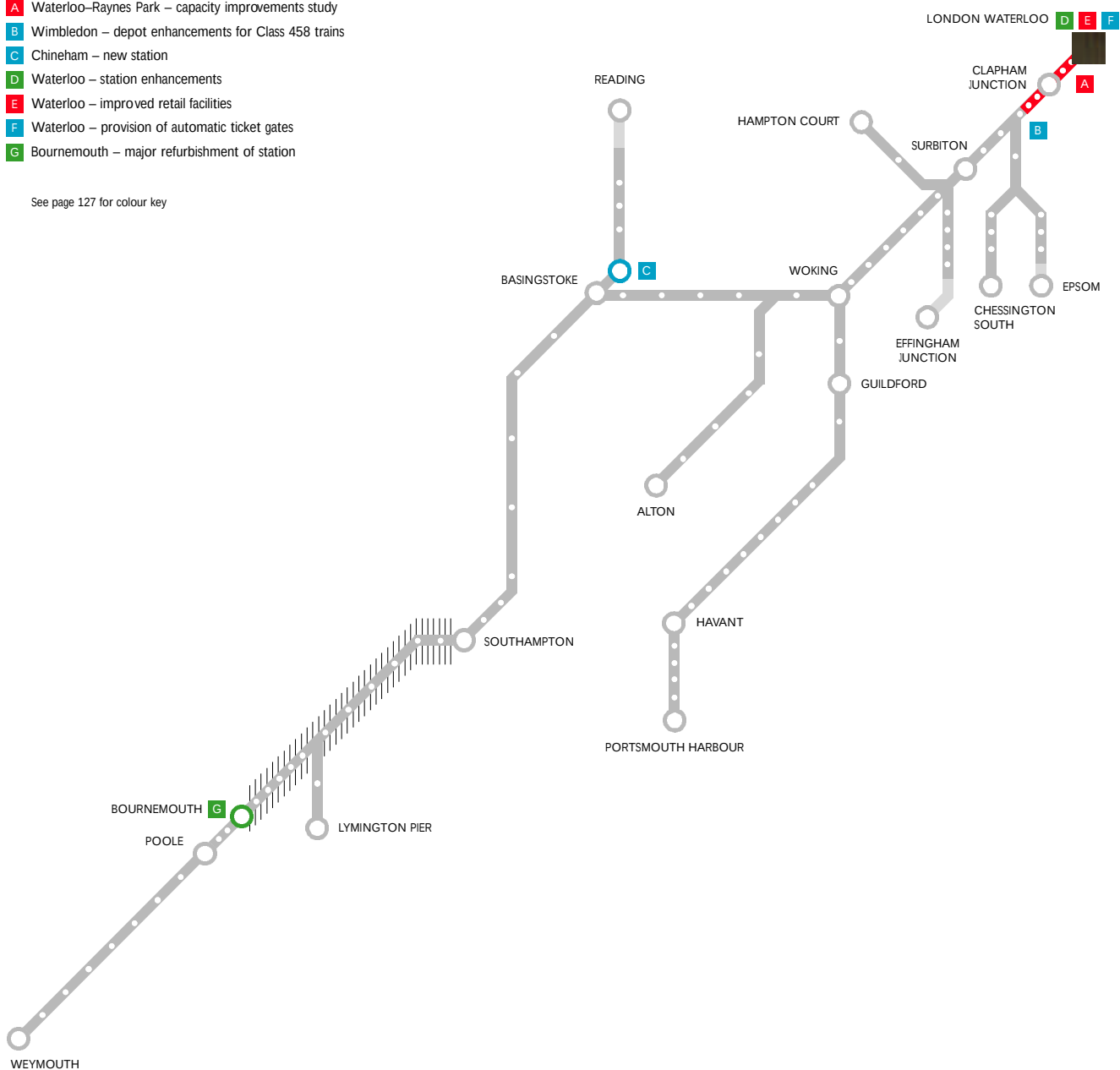
SIGNALLING We have completed our evaluation of renewals on the Seaford branch and at Hastings, and have concluded that the equipment does not need to be replaced at present.

Connex South Central; South West Trains; Thames Trains; Virgin CrossCountry; Wales & West; EWS; Freightliner.



- A Waterloo–Raynes Park – capacity improvements study
- B Wimbledon – depot enhancements for Class 458 trains
- C Chineham – new station
- D Waterloo – station enhancements
- E Waterloo – improved retail facilities
- F Waterloo – provision of automatic ticket gates
- G Bournemouth – major refurbishment of station

See page 127 for colour key



Route characteristics

DESCRIPTION This route forms the principal rail connection between Dorset, Hampshire, West Surrey, and South West and central London.

There are eight tracks between Waterloo and Clapham Junction, where the lines diverge into a route to Reading (see Route 23: Clapham–Reading) and a four-track main line to Basingstoke.

Beyond Basingstoke, the route is generally two track, although east of Dorchester there is a short section of single line. Maximum speeds are 60–75mph in the London area and 90–100mph between Surbiton and Eastleigh. Speeds are more restricted beyond Eastleigh, although a maximum of 85mph is possible on some sections.

The main line from Woking to Portsmouth Harbour is two track and maximum linespeeds vary due to severe curves and gradients. The route also contains a number of other feeder routes.

Suburban routes branch off the main lines at Raynes Park for Chessington, Dorking and Epsom, at New Malden for Kingston and Shepperton, and at Surbiton for Hampton Court and Guildford via Effingham Junction. The suburban stations are capable of accepting eight-vehicle trains and this, together with the limiting capacity of the main line at Waterloo, limits the short-term options to reduce overcrowding on trains at peak times.

Apart from Basingstoke–Reading, the route is third-rail electrified throughout.

The route is primarily a passenger railway but with freight carried on many of the lines. Freight tonnage and traffic levels are particularly significant between Southampton and Reading.

BOTTLENECK ANALYSIS The route between Southampton and Bournemouth was identified in the 1998 NMS as a potential bottleneck. Further analysis has shown that there is sufficient capacity for all the identified existing and future passenger demand. However, we may need to make some specific provision if the new Southampton–Dibden Bay container terminal traffic exceeds current expectations.

MAJOR STATIONS

London Waterloo Waterloo's important role as an interchange between domestic, international and underground routes will be enhanced with the completion of the Jubilee Line Extension. SRP work has been reprogrammed to enable improvements to station facilities to be incorporated and will begin in 1999/2000. We will work with South West Trains to develop proposals for automatic ticket gates and new customer-information systems to be implemented by 2000/01.

Route vision

Our vision is to improve further the route to maintain and grow the market share, providing a smooth and fast route for passengers to the coast and a frequent, punctual and comfortable suburban network for South West London. This will be achieved by working with our customers to enable the introduction of new rolling stock, concentrating resources on track quality and linespeeds and on using the last ten miles into London in the most cost-effective manner to manage the continuing demands for peak capacity.

On this route, there has been a substantial increase in passengers travelling at peak times in and out of Waterloo Station which has created severe overcrowding on many of South West Trains' main line and suburban trains. Our forecasts show that this growth will continue.

With the approaches to Waterloo operating close to capacity throughout the day, opportunities for immediate improvements are limited. A joint study of

suburban capacity is under way with South West Trains to develop potential solutions. Any immediate solutions will be announced before the next NMS. We anticipate that short- and medium-term possibilities will include higher-density rolling stock which could include double-decker trains and longer trains coupled with a platform lengthening programme. The longer-term solutions will include major infrastructure enhancements on the main line to Waterloo. Where solutions are uneconomical, we will be offering options to potential funders to assist us. In anticipation that short-term, commercially viable improvements will arise from the study, we have set aside £5M to spend by 2003 to reduce congestion and overcrowding. The results of the study will be available for the next NMS.

Route development and customer requirements

Train performance is an area that we and our customers take very seriously. We are developing a strategy that will see a rapid and steady reduction in infrastructure failures on the critical section between Raynes Park and Waterloo. We anticipate that this improvement will be tangible by the next NMS, and this will be achieved through enhanced maintenance and targeted renewals of infrastructure. Together with our contractors, we have developed teams of specialists who target persistent infrastructure failures until they are eliminated. We see this as an essential part of our endeavouring to drive down train delays and improve train punctuality. We are also working with our customers on initiatives that will yield performance improvements through train timetabling and contingency planning.

Working with train operators, we will improve charter punctuality by two percentage points over the next two years. This improvement, which will vary across service groups, will typically result in 16% fewer trains arriving at their destinations more than five minutes late.

We are continually looking at ways in which journey times can be improved by taking opportunities afforded by track renewals, resignalling schemes and major maintenance.

The resignalling of the Bournemouth area will provide opportunities for minor enhancements to the operational flexibility and capacity of the route.

Our analysis of future freight train volumes shows that projected movements can be accommodated up to 2004. The position beyond 2004 and the proposed growth of Southampton's deep-water port facilities at Dibden Bay requires further evaluation. This will be complete by May this year and will include an assessment of provision of larger-gauge freight trains to W10 gauge.

During our regular discussions with local authorities and user groups, many suggestions are made that have the potential to improve our network. Two such developments are improvements to the Alton Line where journey times and

capacity improvements are sought, and the reopening of the freight-only spur between Eastleigh and Chandler's Ford (on Route 22) to passenger operation. We will be looking at the economics of these proposals and will be discussing them with funding bodies when the studies are complete.

With the Purbeck Rail Partnership, we are examining the feasibility of restoring the rail link between the Swanage Railway and the national rail network. This would enable a direct train service to operate between Swanage, Wareham, Poole and Bournemouth.

Work is going forward with Basingstoke and Deane BC and Thames Trains on a proposal for a new station at Chineham on the Basingstoke–Reading Line.

A potential further new station at Grazeley, between Mortimer and Reading West, is planned in association with a major residential development. This is currently subject to a planning enquiry.

Work at Wimbledon Depot is being carried out to accommodate South West Trains' new Class 458 rolling stock. Work at Fratton Depot is complete, and work at Bournemouth Depot will be completed in July 1999.

Planning permission has been sought for a major development at Woking Station. If successful, the opportunity will be taken to improve station facilities at the same time.

We intend to work with customers to improve the attractiveness of stations through completion of the regeneration programme and we will be renewing customer-information systems on South West Trains' operating area over the next two years. In addition, major works will begin at Southampton Central Station during 2000.

A review of car-park capacity is under way and, together with our customers, we have identified some that could be extended. Currently, extension works are to be undertaken at Winchester and Basingstoke.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Waterloo–Raynes Park	Suburban capacity enhancement study	Study complete by 2000	A
Wimbledon	Depot enhancements for Class 458	2000	B
Chineham	New Station	2000	C

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
London Waterloo–Woking	39	1	63mph (23min)	No change	No change	No change
London Waterloo–Guildford	48	1	56mph (32min)	No change	No change	No change
London Waterloo–Portsmouth Harbour	119	5	52mph (1hr 25min)	No change	No change	55mph (1hr 21min)
London Waterloo–Southampton Airport	127	0	78mph (1hr 01min)	No change	No change	No change
London Waterloo–Weymouth	220	12	54mph (2hr 32min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			78	78	78	78
40–75mph			351	351	351	351
80–105mph			599	599	599	599
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			1028	1028	1028	1028
GAUGE (km of route)						
W6A			406	406	406	406
W7			252	252	252	252
W8			123	123	123	123
W9			0	0	0	94
W10			0	0	0	94
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			2	2	2	2
20.4 tonnes to 23.4 tonnes			56	56	56	56
23.5 tonnes to 25.4 tonnes			971	971	971	971
TOTAL			1028	1028	1028	1028

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	10.1	11.6	7.1	54.9	
Structures	6.8	5.2	5.9	40.7	
Signalling	22.3	6.5	14.7	54.2	
Electrification	2.5	1.0	1.0	16.8	
Plant & Machinery	1.1	0.3	0.2	1.0	
Telecoms	1.3	4.5	5.4	8.7	
Stations	11.7	11.5	7.1	44.5	G
Depots	0.7	1.8	2.2	10.0	
Other	0.4	0.2	0.2	1.1	
TOTAL EXPENDITURE	56.9	42.6	43.8	231.9	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Waterloo Station enhancements	2007	0.0	1.5	1.0	14.2		D
Station and depot enhancements	2001	3.0	0.7	5.3	0.0		
SWT CD/RA indicators	1999	0.8	0.0	0.0	0.0		
Thameslink 2000	2006	0.0	0.0	0.0	0.1		
COMMERCIAL							
Suburban capacity improvements	2001	0.0	0.0	0.0	5.5	2	A
Waterloo Station retail reconfiguration	2000	0.0	1.7	0.0	0.0		E
CONTRACTOR							
Waterloo Station automatic ticket gates	2000	0.0	1.5	0.0	0.0	1	F
SWT car-park enhancements	2000	0.5	1.0	0.0	0.0	1	
CIS enhancements	2001	0.0	0.0	0.0	1.0	2	
Wimbledon Depot Class 458 enhancements	2000	0.5	0.4	0.0	0.0		
THIRD PARTY							
Dibden Bay development	2004	0.0	0.0	0.0	0.5		
Other schemes	Various	0.6	0.6	0.2	3.3	9	
TOTAL RAILTRACK EXPENDITURE		5.4	7.3	6.5	23.8	15	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.1	0.0	0.8		

Progress on the 1998 NMS

SIGNALLING The signalling renewal scheme in the Guildford area was substantially completed in December 1998.

Reassessment of the condition of the signalling equipment in the Portsmouth, Havant, Basingstoke and Farnborough areas has concluded that resignalling is unnecessary until after 2004. Some investment in life extension of the existing systems will be undertaken in the short term.

Development of the scheme to renew signalling in the Bournemouth area is continuing. Work will begin in 1999, with completion due in 2001.

FREIGHT We are actively supporting Associated British Ports with its proposed development of a deep-water port at Dibden Bay, which will be linked with the rail network.

STATIONS A complete refurbishment of Surbiton Station is under way, which is restoring this station to its former glory. This has led to this station being awarded Station Regeneration of the Year by the Railway Heritage Trust.

At Clapham Junction, Phase 1 SRP work on the canopies and platforms has been completed. Phase 2 works, which are due to start in 2000, involve refurbishment or replacement of the station footbridge.

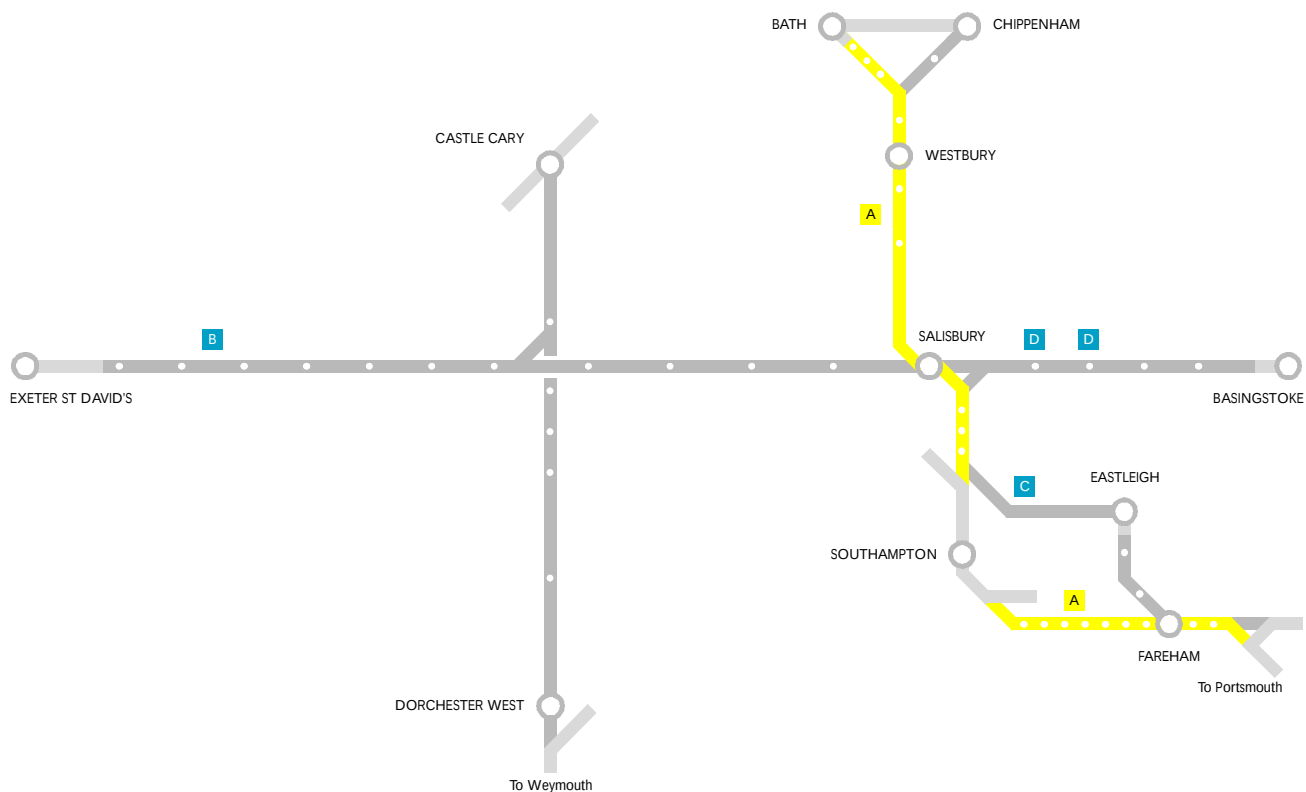
Work has just begun at Bournemouth Station, where up to £7M will be spent on the provision on a new station roof to replace the existing badly damaged structure. The new roof is based on the original William Jacumb design, amended to comply with modern safety requirements. This work is scheduled for completion in 2000.

Connex South Central; South West Trains; Wales & West; EWS.



- A** Bath Spa–Portsmouth Harbour – linespeed improvements
- B** Clyst Hayes – new station
- C** Chandler's Ford – new station
- D** Car-park extensions

See page 127 for colour key



Route characteristics

DESCRIPTION The routes are mainly two-track railways, although between Salisbury and Exeter and between Castle Cary and Dorchester, there are significant sections of single track. Between Basingstoke and Exeter, maximum permissible speeds are generally 85mph to 90mph but on other routes

linespeeds are slower and the maximum speed is generally 70mph or 75mph. The Southampton and Eastleigh to Portsmouth sections of the route are electrified.

Route vision

Our vision is to improve the quality of service and the attractiveness of the route to encourage greater use of rail. This will be achieved by working with customers to enable the introduction of new rolling stock, to reduce journey times through infrastructure and timetable improvements and to enhance peak capacity by infrastructure and train service changes.

We will also improve the attractiveness of stations through completion of the regeneration programme and, where appropriate, enhancement of customer-information systems. In conjunction with South West Trains, we are extending car parks at Grateley and Andover.

Between Salisbury and Exeter, service frequencies are constrained by the extensive single-track sections. A study jointly funded with local authorities and South West Trains concluded that, currently, the benefits to the wider community of increasing train frequency through converting some of the single track to double do not outweigh the increased subsidy that would be required. We accept this view. However, some service improvements might be economical.

These are likely to consist of timetable changes and, if funding can be agreed with the developer, a proposed new station at Clyst Hayes. Should further industrial and distribution developments take place east of Exeter, there may be an opportunity for an intermodal freight depot.

Between Bath and Portsmouth, there is a strong customer demand to reduce journey times and we have been working with customers to identify opportunities. Our assessment shows that the majority of opportunities for reduced journey times will not be fundable from ticket revenues alone. We will work with Wales & West to secure funding for improved journey times. These improvements could, potentially, be more significant than those shown in the table. We will also ensure that Wales & West is consulted on the asset renewals programme for the route in order to identify fundable opportunities to renew assets for higher linespeeds. We will continue to work with customers and Hampshire County Council to enable passenger trains to operate between Eastleigh and Chandler's Ford.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Bath Spa–Portsmouth Harbour	Linespeed improvements	Study complete by 2000	A
Clyst Hayes	New station	2000	B
Chandler's Ford	New station	2000	C

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Basingstoke–Exeter Central	200	12	57mph (2hr 11min)	No change	No change	No change
Bath–Portsmouth	146	10	41mph (2hr 13min)	No change	No change	44mph (2hr 05min)
LINESPEEDS (km of track)						
Up to 35mph			19	19	19	19
40–75mph			319	319	319	319
80–105mph			296	296	296	296
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			633	633	633	633
GAUGE (km of route)						
W6A			472	472	472	472
W7			261	261	261	261
W8			171	171	171	171
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			119	119	119	119
23.5 tonnes to 25.4 tonnes			514	514	514	514
TOTAL			633	633	633	633

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
GREAT WESTERN ZONE					
Track	1.8	1.0	1.0	6.9	
Structures	0.6	0.4	0.7	3.4	
Signalling	0.1	0.3	0.2	1.1	
Plant & Machinery	0.0	0.0	0.0	1.3	
Telecoms	0.0	0.0	0.0	0.1	
Stations	0.9	0.6	0.3	2.8	
Depots	0.0	0.0	0.0	0.0	
TOTAL EXPENDITURE	3.4	2.3	2.2	15.6	
SOUTHERN ZONE					
Track	3.4	1.7	0.8	7.9	
Structures	4.0	0.9	1.4	14.5	
Signalling	0.6	0.8	1.7	12.9	
Electrification	0.4	0.1	0.2	3.1	
Plant & Machinery	0.0	0.0	0.0	0.8	
Telecoms	0.1	0.3	0.7	4.0	
Stations	1.5	1.7	1.7	8.1	
Depots	2.0	0.1	0.1	5.0	
Other	0.1	0.2	0.2	1.1	
TOTAL EXPENDITURE	12.1	5.8	6.9	57.4	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
GREAT WESTERN ZONE							
COMMITTED							
Station enhancements	2001	0.0	0.0	0.0	0.0		
Other schemes	Various	0.0	0.4	0.0	1.8	2	
TOTAL RAILTRACK EXPENDITURE		0.0	0.1	0.0	0.1	2	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.3	0.0	1.7		
SOUTHERN ZONE							
COMMITTED							
Station and depot enhancements	2001	0.1	0.0	0.4	0.0		
Other schemes	Various	0.0	0.0	0.2	0.0	4	
TOTAL RAILTRACK EXPENDITURE		0.1	0.0	0.6	0.0	4	

Progress on the 1998 NMS

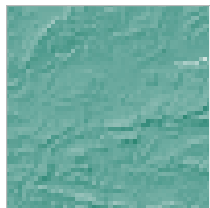
STATIONS The SRP work at Salisbury Station has been completed.

SOUTH HAMPSHIRE RAPID TRANSIT We fully support Phase 1 of this scheme, for which a public inquiry is in progress. The conclusion is expected in early 2000. Future phases include proposals to employ our infrastructure between Fareham and Southampton. For it to be progressed, it requires the agreement of all stakeholders as to its fit within the local transport and land-use

plans. We support Hampshire County Council's study into the feasibility of a new chord line to enable trains to run between Botley and Southampton without reversing at Eastleigh.

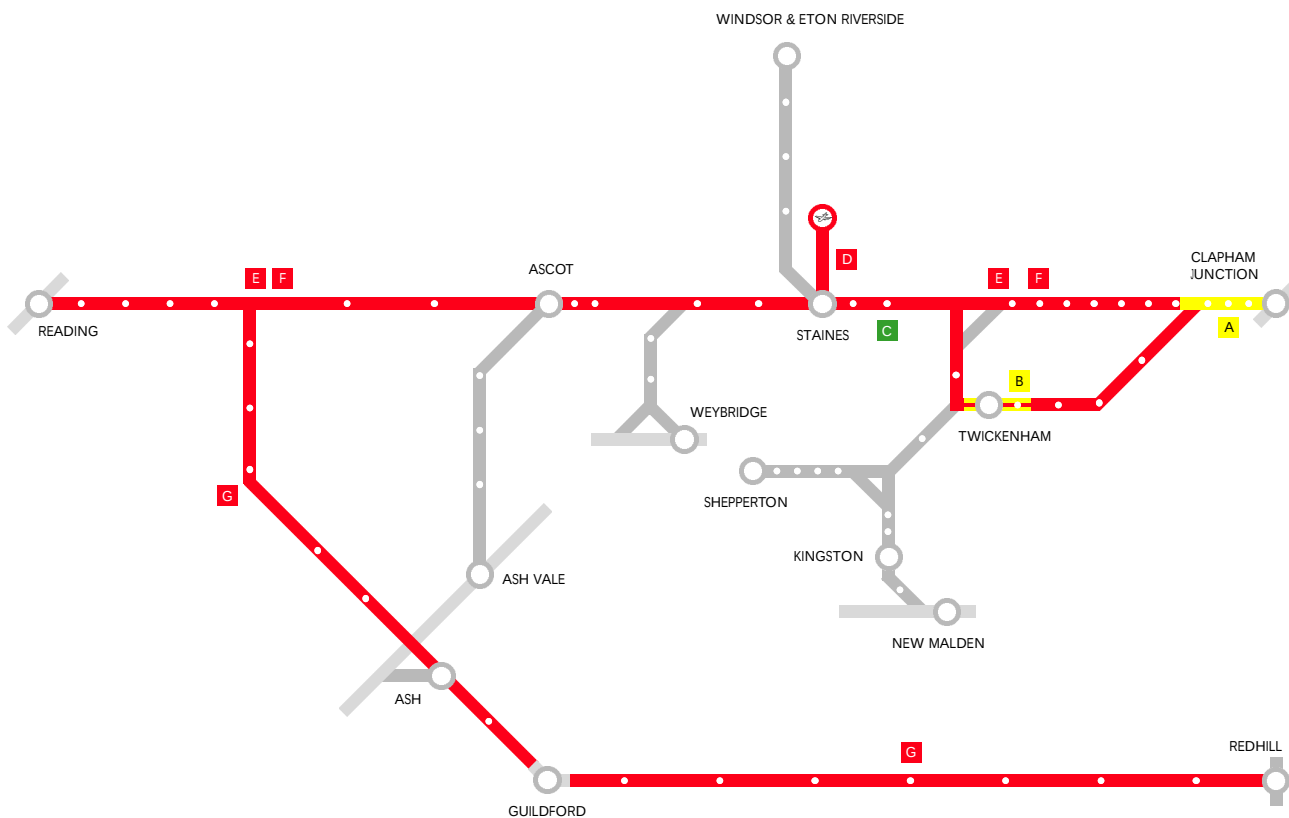
SIGNALLING We have undertaken a condition assessment of the signalling systems on the Salisbury–Honiton route and have concluded that no significant work will be necessary before 2006.

Connex South Central; South West Trains; Thames Trains; Virgin Trains; EWS.



- A** Waterloo–Barnes – capacity enhancement study
- B** St Margaret's–Twickenham – capacity enhancement
- C** Feltham – improved facilities for coach link to Heathrow Airport
- D** Staines–Heathrow – new rail link
- E** Waterloo–Reading – work to enable Class 458 trains to operate
- F** Waterloo–Reading – linespeed improvements
- G** Wokingham–Redhill –linespeed and capacity improvements

See page 127 for colour key



Route characteristics

DESCRIPTION The route has two main elements. First, the line from London Waterloo to Reading via Staines, which is primarily a suburban commuter route, with little variation in stopping patterns and train speeds. Second, the North Downs Line connecting Reading, Guildford and the Brighton Main Line at Redhill. This line, despite being less busy, has a greater mix of traffic types, as it is used by freight and longer-distance passenger services.

The route is predominantly two track, the only four-track section being between Clapham Junction and Barnes. There are short sections of single line on the approaches to Reading and between Frimley and Ash Vale. There are two non-electrified sections of the North Downs Line; these are Wokingham–Aldershot South Junction and Shalford Junction–Reigate.

Other suburban routes branch off the core route at Barnes for the Hounslow Loop, at Twickenham for links to Shepperton and Kingston, at Staines for Windsor, Virginia Water for Weybridge and at Ascot for Ash Vale.

The linespeed between Clapham Junction and Feltham and on some of the branch lines is 60mph. To the west of Feltham and on the North Downs Line, the predominant linespeed is 70mph.

The suburban stations are capable of accepting eight-vehicle trains and this, together with the limiting capacity of the line to Waterloo, reduces the short-term options to reduce overcrowding on trains at peak times.

Route vision

To capture a greater market share to Heathrow while improving suburban, orbital and cross-country services. In the short term, we have entered into a partnership with SWT, London Transport, BAA and the London Borough of Hillingdon to open a new rail–bus interchange at Feltham Station. This will open in the second quarter of this year. Feltham Station will then become a co-ordinated and timetabled interchange with direct bus links into Heathrow Airport. In the longer term, we see an opportunity for a rail link into Heathrow Airport from the southern direction and will work with the major industry players such as BAA, train operators and local authorities on the development of a proposal for a scheme named Airtrack. The Airtrack concept will give access to

Heathrow Airport from Staines, on the Windsor & Eton Riverside Route. It could also provide new journey opportunities from this route to other parts of the national network.

Although this route is essentially a suburban railway, we believe there is a demand for a faster journey time to Reading from Waterloo in order to make this route more competitive. This will also be important if, or when, the Airtrack development is completed. We recognise that there are some significant difficulties in achieving this but are looking at economical ways to deliver the industry vision.

Route development and customer requirements

Quality of service is important to us and our customers and so we are helping them to introduce new rolling stock on the route. This will also provide opportunities to improve journey times to Reading and improve the attractiveness of the route.

Although this route has not been identified as a bottleneck, we have been working with SWT on a capacity study which includes Waterloo–Barnes. The aim of the study is to develop potential solutions to overcrowding on trains approaching Waterloo. The route is operating close to capacity during peak times and any immediate solutions found to ease this will be announced before the next NMS. We recognise that, if Feltham Gateway and Airtrack are successful in improving rail's market share, capacity improvements will be required. Solutions to these could be higher density rolling stock and longer trains, coupled with a platform extension programme, but in the longer term expensive infrastructure solutions will have to be found. We are working on a strategy so that we can offer options to potential funders.

The orbital line from Reading to Guildford and Redhill is a key strategic link for Thames Trains' services between Oxford, Reading and Gatwick Airport, and for Virgin Trains' services between the Midlands, the North and Portsmouth. Our vision is to improve the attractiveness of the line to encourage a significant increase in rail's share of traffic from the Reading–Guildford Corridor to Gatwick Airport. We also expect further growth in passenger numbers on commuter services into Reading and Guildford and the route is under consideration for a potential gauge enhancement scheme which may result in increased freight usage of the line.

While the present infrastructure is adequate for the current level of service, key pinchpoints are track and platform capacity at Reading and signal spacing between Wokingham and North Camp. We will undertake a study in conjunction with our customers to identify the level of enhancement needed to cope with projected growth.

We are working with Thames Trains to identify a package of linespeed improvements to reduce the journey time between Reading and Gatwick Airport. Initially, we will identify incremental improvements which can be achieved in the short term. We will also examine further, major work which would be required to achieve Thames Trains' aspiration of a one-hour journey time between Reading and Gatwick Airport.

Train performance is an area that we and our customers take very seriously. We are therefore developing a strategy that will see a rapid and steady reduction in infrastructure failures on the core of the route between Waterloo and Barnes. We anticipate that this improvement will be tangible by the next NMS. This will be achieved through enhanced maintenance and targeted renewals of infrastructure. Together with our maintenance contractors, we have developed teams of specialists who target persistent infrastructure failures until they are eliminated. We see this as essential to drive down train delays and improve train punctuality. We are also working with our customers on initiatives that will yield performance improvements through train timetabling and contingency planning.

Improving train punctuality when the number of trains running on our network has increased substantially is an enormous task. Working with train operators, we will improve charter punctuality by two percentage points over the next two years. This improvement, which will vary across service groups, will typically result in 16% fewer trains arriving at their destinations more than five minutes late.

We recognise that, as demand increases, we will have to address depot capacity and location and have started working with our customers on a depot strategy that will enable us to make incremental improvements to the depots as demand increases.

We intend to work with customers to improve the attractiveness of stations through completion of the regeneration programme and will be renewing existing customer-information systems on South West Trains' operating area over the next two years.

In partnership with SWELTRAC, we are working to deliver environmental improvements to various stations in South West London. We are also working with the Rugby Football Union to seek improvements at Twickenham Station to accommodate passengers attending events at the Twickenham ground.

We recognise that increased demand for passenger services also requires more car-parking capacity. We are working with our customers to identify locations where improvements in car-parking facilities can and should be made, including facilities to cater for off-peak demand. In conjunction with South West Trains, we are currently exploring a car-park extension at Egham.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Waterloo–Barnes	Suburban capacity enhancement study	Study complete by 2000	A
StMargaret's–Twickenham	Capacity enhancement	2002	B
Feltham	Integrated transport interchange for Heathrow Airport	1999	C
Staines	New rail link to Heathrow Airport	2006	D
Waterloo–Reading	Route clearance work for Class 458	2000	E
Waterloo–Reading	Linespeed improvements	2001	F
Wokingham–Redhill	Linespeed and capacity improvements	2001	G

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
London Waterloo–Reading	70	15	33mph (1hr 19min)	No change	No change	35mph (1hr 14min)
Reading–Gatwick Airport	81	7	40mph (1hr 15min)	42mph (1hr 12min)	No change	50mph (1hr)
LINESPEEDS (km of track)						
Up to 35mph			28	28	28	28
40–75mph			388	388	388	388
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			416	416	416	416
GAUGE (km of route)						
W6A			202	202	202	202
W7			43	43	43	43
W8			33	33	33	33
W9			10	10	10	10
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			44	44	44	44
23.5 tonnes to 25.4 tonnes			372	372	372	372
TOTAL			416	416	416	416

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	2.2	2.3	1.8	16.7	
Structures	0.7	0.9	2.0	19.6	
Signalling	1.1	0.4	0.9	4.3	
Electrification	0.4	1.2	1.0	4.5	
Plant & Machinery	0.1	0.0	0.1	0.5	
Telecoms	0.1	0.1	0.4	1.9	
Stations	1.7	3.8	2.1	7.6	
Depots	0.0	0.2	2.5	0.0	
Other	0.0	0.1	0.1	0.4	
TOTAL EXPENDITURE	6.5	9.0	10.9	55.5	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

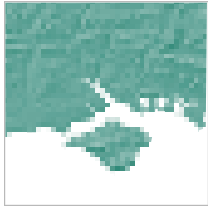
PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Feltham Gateway for Heathrow buses	1999	2.9	0.1	0.0	0.0	1	C
Station and depot enhancements	2001	0.2	0.8	0.5	0.0		
COMMERCIAL							
Access to Heathrow	2007	0.0	0.0	0.0	60.0	1	D
Waterloo–Reading linespeed improvements	2001	0.0	0.2	0.3	0.0		
Wokingham–Redhill linespeed improvements	2001	0.0	0.1	0.1	0.0	1	
PARTNERSHIP							
St Margaret's–Twickenham capacity enhancements	2002	0.0	0.0	0.0	1.5	1	B
Other schemes	Various	0.4	0.5	0.0	0.5	3	
TOTAL RAILTRACK EXPENDITURE		3.4	1.7	0.9	62.0	7	
TOTAL NON-RAILTRACK EXPENDITURE		0.1	0.0	0.0	0.0		

Progress on the 1998 NMS

STATIONS The upgrade of Feltham Gateway Station will be completed for full operation from the summer timetable. This station will provide an integrated transport facility with a dedicated bus link to Heathrow Airport and is expected to attract significant numbers of Heathrow passengers.

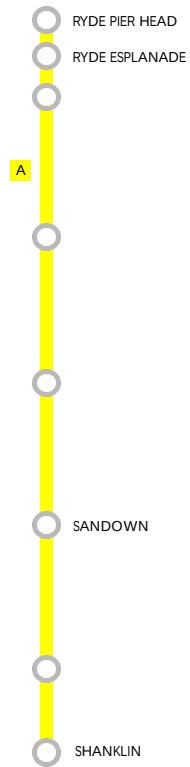
SIGNALLING Condition assessment of signalling equipment in the Feltham area has established that no major work is required within the next ten years.

JOURNEY-TIME IMPROVEMENTS We have identified a number of locations where speed increases could result in journey-time improvements. Further consultation with our customers will take place this year to establish the level of demand for the improvements.



A Provision of train stops

See page 127 for colour key



Route characteristics

DESCRIPTION The railway infrastructure on the island is leased from Railtrack by Island Line plc. Train operations are run under franchise from Island Line plc by Stagecoach Holdings. These arrangements make the organisation of rail services on the island different from those on the mainland.

The route is double track from Ryde Pier Head to Smallbrook Junction and single track thereafter. A passing loop at Sandown permits the current service pattern to operate.

Route vision

Our vision for the Island Line is for a reliable train service with a regular service pattern. To achieve this it is essential that the present passing loop at Sandown is moved to Brading. However, the cost of this outweighs the benefits. The existing franchise expires in October 2001 and it is essential that stakeholders have an understanding of the type of transport link that can be provided and funded

beyond the present franchise. We will be taking this discussion to stakeholders in the forthcoming year and hope to generate innovative ideas for the future.

We will continue our drive to improve reliability by undertaking a programme of conductor rail renewals this year.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Ryde-Shanklin	None required		

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Ryde Pier-Shanklin	13	6	21mph (23min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			3	3	3	3
40-75mph			15	15	15	15
80-105mph			0	0	0	0
110-125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			18	18	18	18
GAUGE (km of route)						
W6A			13	13	13	13
W7			0	0	0	0
W8			0	0	0	0
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			18	18	18	18
20.4 tonnes to 23.4 tonnes			0	0	0	0
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			18	18	18	18

Renewals expenditure to deliver the programme of route improvements (EM – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Structures	0.7	0.0	0.0	0.2	
Signalling	0.3	0.2	0.0	0.0	
Electrification	0.1	0.1	0.0	1.1	
Stations	0.1	0.1	0.1	0.6	
TOTAL EXPENDITURE	1.2	0.4	0.1	1.9	

Enhancement expenditure on schemes to achieve the route vision (EM – 1998/99 prices)

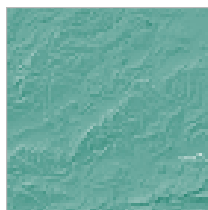
PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
Other schemes	Various	0.0	0.0	0.0	0.0	1	
TOTAL RAILTRACK EXPENDITURE		0.0	0.0	0.0	0.0	1	

Progress on the 1998 NMS

INFRASTRUCTURE A significant signalling programme and works to improve ride quality on Rowborough Bank are under way. This is being undertaken with innovative techniques making use of lime stabilisation and locally quarried flint.

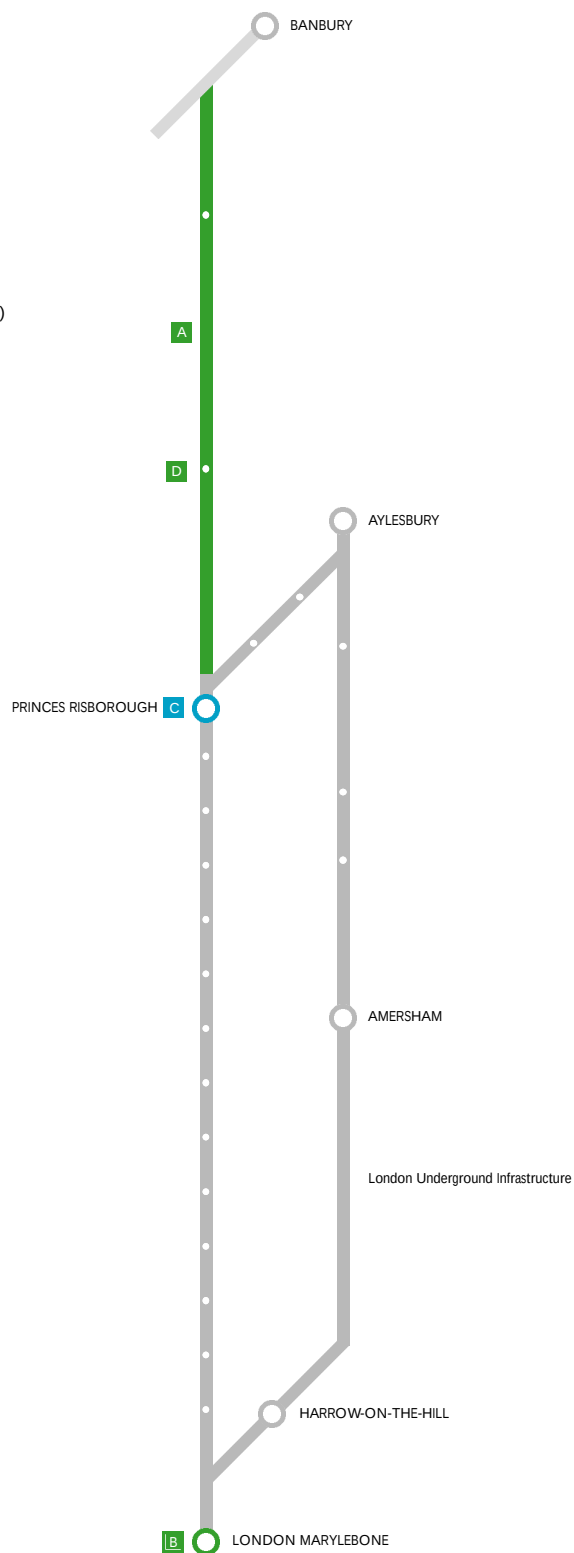
STATIONS Work at Ryde Pier Head, Ryde St John's Road, Sandown and Shanklin stations is complete. We will start work on the footbridges at Ryde St John's Road and Brading as soon as HMRI approval has been given. Work continues at Ryde Esplanade and it has been established that no work is required at Lake and Smallbrook Junction stations.

Chiltern Railways; London Underground; EWS.



- A Capacity and linespeed improvements
- B Marylebone Station – concourse redevelopment
- C Princes Risborough – new platform (funded by Chiltern Trains)
- D Haddenham and Thame – car-park enhancement

See page 127 for colour key



Route characteristics

DESCRIPTION The route is predominantly 75mph. The new capacity created by track doubling between Princes Risborough and Bicester North has enabled most of that section to be uplifted to 90–100mph and has improved the route capacity. Freight traffic is limited with the route capability allowing for RA7/8 axle loads only.

Route vision

The vision is to capitalise on the recent capacity increase and encourage market growth and customer loyalty with the provision of a highly reliable commuting service into London Marylebone successfully combined with a long-distance network connecting London–Birmingham. The emphasis will be on robust and continually improving performance to ensure delivery of the established timetable. Improvements to linespeed will continue to be sought to gain full benefit from new rolling stock, but only where they can be delivered at an economical price.

The increased capacity, together with new rolling stock has enabled services frequency north of Princes Risborough to be doubled with reduced journey times.

We are jointly developing, with Chiltern Railways, improved accessibility to the route through a series of station, depot and car-park improvements. This includes the concourse retail development of the London terminal at Marylebone.

Route development and customer requirements

We have consulted with our customers, the passenger and freight train operators, to determine their needs and how we evaluate them. The proposals set out in this Statement address these intentions to deliver their aspirations for service frequency, journey-time reductions, station and depot facilities and new rolling stock.

We will also examine the options to improve capacity and journey-time improvements in line with current operator aspirations.

We will continue to work with industry partners, local authorities and outside developers to improve our stations. In particular, we will address the ease of interchange with other transport modes, provide better car parking, real-time passenger-information systems and access for the disabled.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Princes Risborough	An additional platform is being provided by Chiltern Railways to provide extra capacity within the station, thereby removing current capacity constraints	1999	C
Bicester–Aynho Junction	Further growth in train paths is unlikely to be accommodated without track doubling of this critical single-line section. At present our customers have no plans for further growth over this section of route	1998	A

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
London Marylebone–Aylesbury	61	3	47mph (49min)	No change	No change	No change
London Marylebone–Princes Risborough	58	1	54mph (40min)	No change	No change	No change
London Marylebone–Banbury	109	0	65mph (1hr 03min)	No change	No change	No change
Princes Risborough–Aylesbury	12	0	32mph (14min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			15	15	15	15
40–75mph			247	247	247	247
80–105mph			60	60	60	60
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			322	322	322	322
GAUGE (km of route)						
W6A			168	168	168	168
W7			107	107	107	107
W8			107	107	107	107
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			62	62	62	62
23.5 tonnes to 25.4 tonnes			260	260	260	260
TOTAL			322	322	322	322

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	1.9	2.3	1.2	8.2	
Structures	1.9	1.0	1.0	5.6	
Signalling	0.9	0.2	0.3	1.2	
Plant & Machinery	0.0	0.0	0.0	0.1	
Telecoms	0.0	0.2	0.7	3.0	
Stations	1.6	0.7	0.2	4.3	
Other	0.3	0.0	0.0	0.2	
TOTAL EXPENDITURE	6.6	4.5	3.4	22.6	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Chiltern Line track & earthworks	1999	8.6	0.0	0.0	0.0		A
Chiltern Lines capacity	1999	8.0	0.0	0.0	0.0		A
Haddenham & Thame Station car-park enhancement	2000	0.5	0.7	0.0	0.0	1	B
Marylebone Station concourse redevelopment	2000	0.7	0.4	0.0	0.0	1	D
Station enhancements	2001	0.6	0.0	0.0	0.0		
CONTRACTOR							
Other schemes	Various	0.2	0.0	0.0	0.0	14	
TOTAL RAILTRACK EXPENDITURE		18.6	1.1	0.0	0.0	16	

Progress on the 1998 NMS

TRACK DOUBLING TO IMPROVE CAPACITY Has now been completed between Princes Risborough and Bicester North.

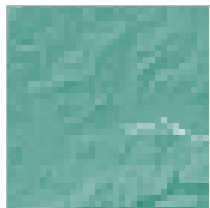
AYNHO JUNCTION LINESPEED IMPROVEMENTS Have now been implemented on the up line.

LINESPEED IMPROVEMENTS SOUTH OF PRINCES RISBOROUGH Analysis has indicated that the benefits associated with any linespeed increase are not commercially attractive to the industry. However, consideration is being given to a localised improvement at Beaconsfield.

SAFETY AND SECURITY We are funding improvements to station safety and security. Chiltern Railways is well advanced with proposals for a network CCTV/PA/Help-Point system to be installed this year.

STATION ENHANCEMENTS Various car-park and SRP works are being developed and undertaken, including the new concourse development at London Marylebone.

Silverlink; EWS; Freightliner.



- A Capacity improvement
- B Camden–Dalston – electrification
- C Gospel Oak – station improvements
- D Access to Heathrow – proposed St Pancras–Heathrow service

See page 127 for colour key



Route characteristics

DESCRIPTION The North London Line comprises the Richmond–North Woolwich route, the Gospel Oak–Barking route, the Dudding Hill Lines and associated connections. These are two-track lines with a maximum speed of 50mph, except for Camden–Dalston which has three- and four-track sections, and the line between Custom House and North Woolwich, which is single track.

The core route from Richmond to North Woolwich is electrified, as are the connections to the Great Western Main Line and West Anglia Main Line.

BOTTLENECK ANALYSIS Demand on the North London Line is driven by a mixture of work, leisure and freight journeys, and is not as dependent upon commuting as the London arterial routes. Passenger growth is forecast to grow by around 20% in the peak and 30% off-peak over the next ten years, while freight traffic is expected to double. With the reintroduction of the four-

train-per-hour service this year, the passenger demand can be met with existing capacity by extending platforms and lengthening trains.

We are installing new signals between Woodgrange Park and South Tottenham this year. These will allow diesel-hauled freight trains to be diverted away from Stratford to the Gospel Oak–Barking Route to help relieve the bottleneck identified in the 1998 NMS.

We recognise that this route is a key component in the development of new cross-London passenger services. It is also critical to routeing freight services. We are undertaking, with our Franchising Director industry partners, a detailed appraisal of the development options for sections of this route. This will be completed by August 1999, and the conclusions set out in the 2000 NMS together with an appropriate package of enhancements.

Route vision

The North London Line is an important part of London's transport infrastructure and a major strategic link between the key arterial routes to and from the capital. It is an important freight route, provides a passenger service around London, and enables trains to connect from one main line to another.

We are developing options to maximise the potential of this route. A key feature will be a detailed assessment of the demand for future paths on this and associated lines, including those as a part of longer journeys linking other routes. We are assessing how best to improve the ease of interchange at the large number

of intersections, both with rail and with other forms of transport.

There is potential for new orbital services, particularly as major projects are completed in the future, including Thameslink 2000, West Coast Main Line upgrade and Heathrow–St Pancras, which is being jointly developed with BAA. The North London Line is also likely to feature in bids for paths to new destinations by different operators following the relaxation of Moderation of Competition Rules this year.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
North London Lines	Not yet identified – study taking place		
Barking Gospel Oak	Additional capacity being installed, Woodbridge Park to South Tottenham	1999	A

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Richmond–Stratford	28	22	19mph (56min)	No change	No change	No change
Willesden–Stratford	19	17	18mph (40min)	No change	No change	No change
Hampstead Heath–Stratford	13	11	18mph(26min)	No change	No change	No change
Stratford–North Woolwich	8	5	20mph (14min)	No change	No change	No change
Barking–Gospel Oak	19	11	21mph (34min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			28	28	28	28
40–75mph			90	90	90	90
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			118	118	118	118
GAUGE (km of route)						
W6A			65	65	65	65
W7			55	55	55	55
W8			49	49	49	49
W9			34	34	34	34
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			7	7	7	7
20.4 tonnes to 23.4 tonnes			111	111	111	111
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			118	118	118	118

Renewals expenditure to deliver the programme of route improvements (EM – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	7.8	4.2	4.3	37.8	
Structures	1.2	3.8	4.5	30.2	
Signalling	0.1	1.0	1.0	15.7	
Electrification	0.4	0.1	0.2	0.5	
Plant & Machinery	0.0	0.1	0.1	0.0	
Telecoms	0.1	0.1	0.2	0.1	
Stations	1.2	0.4	1.0	3.5	
Depots	0.0	0.3	0.8	0.0	
TOTAL EXPENDITURE	10.8	10.0	12.1	87.7	

Enhancement expenditure on schemes to achieve the route vision (EM – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
NLL stations	2001	0.8	0.0	0.0	0.0		
NLL route study	2000	0.7	0.0	0.0	0.0		
PARTNERSHIP							
Access to Heathrow	2007	0.0	0.0	0.0	14.5	1	D
Camden–Dalston electrification	2006	0.0	0.0	0.0	12.0		B
Other schemes	Various	0.8	0.5	0.1	1.0	41	
TOTAL RAILTRACK EXPENDITURE		2.3	0.5	0.1	27.5	42	

Progress on the 1998 NMS

SPEED RESTRICTIONS We will have removed four permanent speed restrictions by the end of 1998/99.

ELECTRIFICATION We are evaluating the case for overhead electrification between Camden and Dalston and Gospel Oak and Barking.

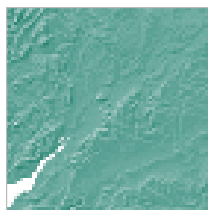
IMPROVED GAUGE CLEARANCE We are looking at the implications of clearing the whole route to W9 and W10.

CAPACITY We are installing new signals between Woodgrange Park and South Tottenham this year, which will allow more freight trains to be diverted away from Stratford on the Great Eastern Route.

STATION IMPROVEMENTS We have provided disabled access at four more stations.

STATION REGENERATION PROGRAMME We will have completed 13 stations in 1998/99, and plan to finish the rest by March 2001.

Central Trains; Great Western Trains; Thames Trains.



- A Chipping Camden – new station
- B Oxford–Bletchley – possible east–west service route upgrade

See page 127 for colour key



Route characteristics

DESCRIPTION The route is mainly single track, with double track between Ascott-under-Wychwood and Moreton-in-Marsh and between Worcester and Malvern. Linespeed is mainly in the 80–100mph range but some sections are restricted to 40–75mph.

Route vision

Our vision is to provide more capacity on this route, through reduced journey times, to meet the aspirations of our customers and the Franchising Director.

The route's facilities were reduced during the 1970s, but there has been considerable growth in traffic in the last 20 years, and we project that further growth will come. Having considered strategic options with our customers, we have concluded that the most cost-effective option for improving capacity and performance is to increase the linespeed between Oxford and Worcester. Signalling is currently adequate for considerably higher speeds, but is constrained by speed restrictions at accommodation level crossings. By increasing protection at these crossings, we will raise linespeeds to match the signalling system and thus improve capacity and performance.

We will expand car parks at stations on the route, where viable, to meet growth in demand.

The East–West rail project, linking Cambridge, Bedford, Milton Keynes, Oxford and Bristol, will make many more rail journeys possible between East Anglia, the Midlands and the South West without the need to travel via London. This involves upgrading existing routes, reopening closed lines, and constructing new lines. The work could be carried out in stages. We have been developing the scheme as part of a consortium of local authorities, and public-sector funding will be key to taking this project forward. Interest has now focused on the western end of such a route, with a Bristol–Oxford–Milton Keynes or Bedford service proposal emerging. This would involve increasing capacity and linespeeds between Oxford, Bicester and Bletchley. We will continue to work with the local authority consortium, and progress will be reported in future Statements.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Worcester–Oxford	Analysis shows that there is sufficient capacity for future services. The route is busiest at the Oxford end, where the speed improvements that we plan will enhance performance and capacity		
Oxford–Bletchley	Upgrade of route to provide additional capacity and higher linespeed for east–west route services		B

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Worcester Shrub Hill–Oxford	92	7	49mph (1hr 10min)	No change	No change	53mph (1hr 05min)
Hereford–Worcester Foregate Street	46	4	44mph (39min)	No change	No change	No change
Hereford–Oxford	139	10	46mph (1hr 53min)	No change	No change	48mph (1hr 48min)
Droitwich Spa–Worcester Shrub Hill	9	0	48mph (07min)	No change	No change	No change
Oxford–Bicester	17	1	24mph (26min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			23	23	23	23
40–75mph			145	145	145	145
80–105mph			69	69	69	69
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			236	236	236	236
GAUGE (km of route)						
W6A			160	160	160	160
W7			75	75	75	75
W8			16	16	16	16
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			187	187	187	187
23.5 tonnes to 25.4 tonnes			49	49	49	49
TOTAL			236	236	236	236

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	1.3	0.6	0.5	3.0	
Structures	1.7	1.1	1.4	10.6	
Signalling	0.7	0.2	0.4	1.8	
Plant & Machinery	0.0	0.0	0.0	1.6	
Telecoms	0.1	0.1	0.1	0.3	
Stations	2.0	0.4	0.4	6.2	
Depots	0.0	0.0	0.0	0.0	
TOTAL EXPENDITURE	5.8	2.4	2.8	23.5	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	0.0	0.0	0.0	0.0		
PARTNERSHIP							
East–west rail link	2004	0.0	0.0	0.0	240.0		B
CONTRACTOR							
Chipping Campden new station	2001	0.0	0.0	0.8	0.0		A
Car parks	2003	0.0	0.0	0.0	0.6	1	
Other schemes	Various	0.0	0.1	0.4	2.8	1	
TOTAL RAILTRACK EXPENDITURE		0.0	0.1	0.1	0.7	2	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.0	1.1	242.2		

Progress on the 1998 NMS

STATIONS We have completed works as part of the SRP at Great Malvern, Evesham, Moreton-in-Marsh, Hanborough, Kingham, Ascott-under-Wychwood, Pershore, Shipton, Bicester Town and Finstock. We plan to include Ledbury, Colwall, Malvern Link, Worcester Foregate Street and Worcester Shrub Hill within the next 12 months.

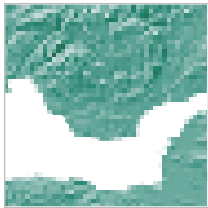
We are evaluating the potential new station at Chipping Campden in conjunction with Gloucestershire County Council. We are working closely with developers and Worcestershire County Council regarding possible new station sites within that county.

PERFORMANCE AND CAPACITY IMPROVEMENT Our analysis shows that there is sufficient capacity for existing and future services.

We are, however, working with our industry partners, including the Cotswold Line Promotion Group and the Cotswolds and Malvern Transport Partnership, to establish future demand and potential service patterns. We are pursuing speed improvements between Oxford and Worcester as the most efficient option for enhancing performance and providing limited capacity improvements. We are exploring proposals for an hourly interval service pattern throughout the day in partnership with customers and local authorities.

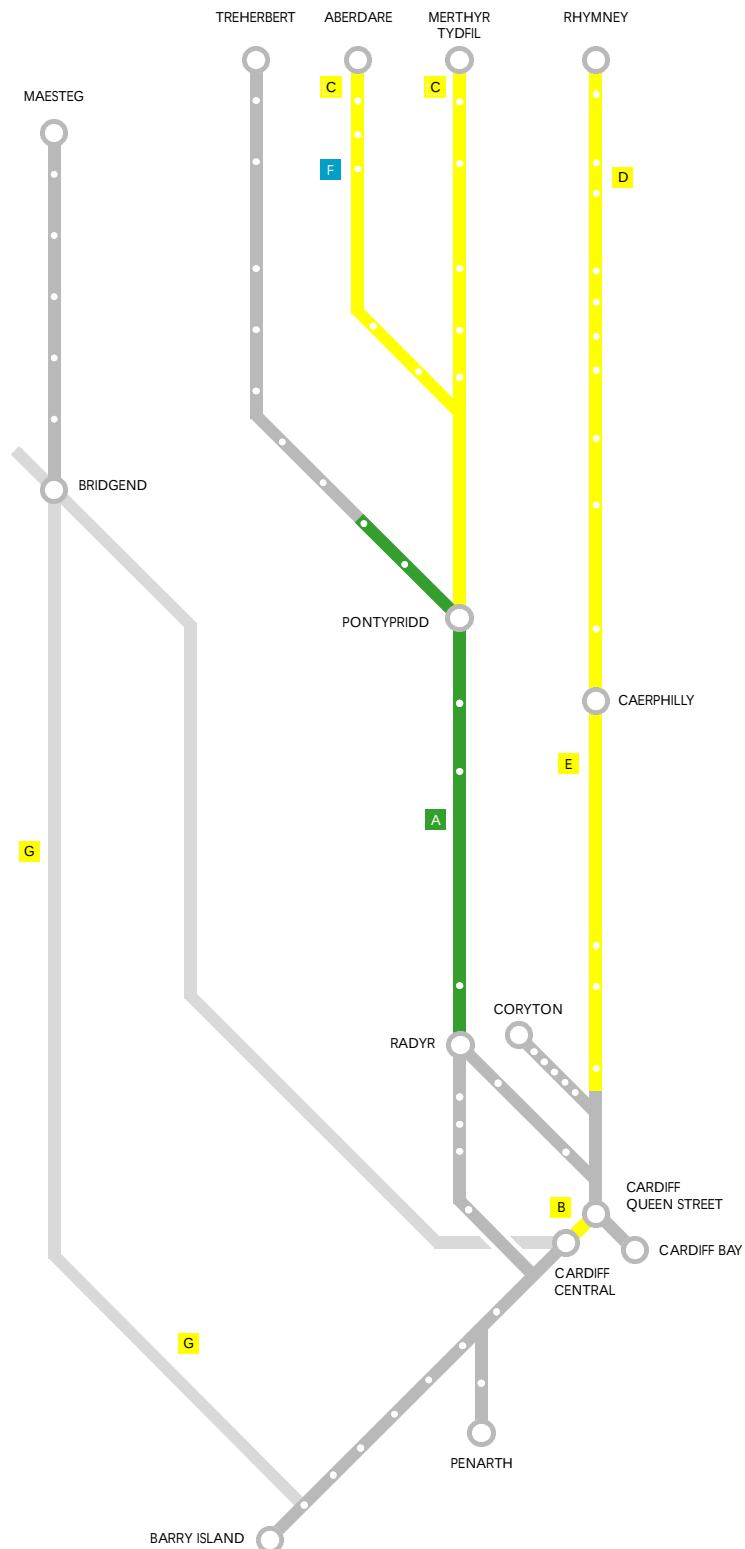
OXFORD-AREA GUIDED TRANSIT EXPRESS We continue to work with Oxfordshire County Council and other industry partners on proposals for a Rapid Transit System to run alongside the Oxford–Bicester route, and are evaluating its fit with the East–West rail project.

Cardiff Railway Company; Wales & West; EWS.



- A** Taff Vale – signalling renewal and enhancements
- B** Cardiff Queen Street–Cardiff Central – capacity upgrade
- C** Taff Vale North – signalling renewal and enhancements
- D** Bargoed–Rhydney – increase in capacity
- E** Heath–Bargoed – increase capacity and signalling improvements
- F** Mountain Ash – line diversion
- G** Vale of Glamorgan – capacity and linespeed increases for possible new passenger service

See page 127 for colour key



Route characteristics

DESCRIPTION The northern sections of the Valley routes are single track, with double track south of Porth, Abercynon and Bargoed. The Bay branch, the Coryton branch, Cogan Junction–Penarth and Barry Junction–Barry Island are also single track. Linespeeds are generally 40–55mph, with sections of 70mph

at the southern end of the Valleys. Bridgend to Maesteg is single track with linespeeds 30–50mph.

The route is operating near capacity between Cardiff Queen Street and Cardiff Central.

Route vision

The Cardiff Valleys rail network is a key component of the public transport network of Southeast Wales. Our vision is to maintain and enhance this position through capacity and journey-time improvements, developed in partnership with South Wales Integrated Fast Transit (SWIFT), and to meet the expectations of customers for a reliable service.

The Cardiff Valleys Route is primarily a commuter network. There is strong interest from local authorities and the Cardiff Railway Company in providing greater capacity and better journey times to offer an attractive alternative to road, particularly in the congested A470 corridor between Pontypridd and Cardiff. Location of the National Assembly for Wales in Cardiff Bay has added further impetus to creating better public transport links in this area.

£16M has recently been spent on resignalling and remodelling in the Taff Vale between Radyr, Pontypridd and Porth in partnership with local authorities to give greater capacity and increases in linespeed.

In conjunction with our partners, we are already developing proposals to achieve our vision. They range from the possibility of introducing a new passenger service on the Vale of Glamorgan line, with new stations at Rhoose and Llantwit Major, to major renewals and remodelling of track and signalling to improve reliability, linespeed and capacity in the Rhymney Valley and the northern end of the Taff Vale. We are improving station and car-park security, and extending park-and-ride facilities to promote greater use of rail.

Freight traffic has grown over the last 12 months, with terminals opening at Rhymney for steel and at Cwmbargoed for aggregates and MOD, and coal services have increased from Tower Colliery north of Aberdare. We will accommodate this traffic and future growth in proposals we develop for the route.

Working in partnership with SWIFT, our goals for the route are: to increase capacity, to improve reliability and journey times, to work with our partners to attract more customers to rail, to provide effective public transport access to Cardiff Bay, and to develop a passenger service on the Vale of Glamorgan route.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Cardiff Queen Street–Cardiff Central	We will evaluate options to increase capacity to accommodate proposed service increases	2000–03	B
Bargoed–Rhymney	Increase capacity to accommodate proposed service increases by extending double track through Bargoed Station and restoring the former up platform as the first phase of Rhymney Valley Line improvements	1999–2002	D
Rhymney Valley Line	Increase capacity and linespeeds through resignalling and track improvements	2000–02	E
Pontypridd–Merthyr Tydfil–Aberdare	Increase capacity by installing new loops at Mountain Ash and Merthyr Vale, restoring the loop at Penrhiwceiber, layout improvements and a new combined station at Abercynon	1999–2002	C
Vale of Glamorgan	Shorten signal sections and raise linespeed to accommodate the proposed 1999–2002 passenger service and facilitate freight growth	1999–2002	G

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Cardiff Queen Street–Rhymney	37	14	25mph (55min)	No change	26mph (53min)	28mph(49min)
Cardiff Queen Street–Merthyr Tydfil	37	8	26mph (53min)	No change	No change	28mph (51min)
Cardiff Queen Street–Treherbert	36	15	24mph (56min)	No change	No change	25mph (54min)
Cardiff Queen Street–Barry Island	16	8	19mph (32min)	No change	No change	No change
Cardiff Queen Street–Penarth	7	3	16mph (16min)	No change	No change	No change
Cardiff Queen Street–Maesteg	13	9	22mph (20min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			86	86	86	86
40–75mph			179	179	179	180
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			265	265	265	266
GAUGE (km of route)						
W6A			149	149	149	149
W7			137	137	137	137
W8			17	17	17	17
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			78	78	78	78
20.4 tonnes to 23.4 tonnes			133	133	133	133
23.5 tonnes to 25.4 tonnes			54	54	54	55
TOTAL			265	265	265	266

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	3.5	0.6	0.4	2.0	
Structures	1.2	1.5	1.1	7.7	
Signalling	0.9	0.6	0.4	2.7	
Plant & Machinery	0.0	0.0	0.1	0.2	
Telecoms	0.1	0.0	0.0	0.5	
Stations	2.9	0.5	0.2	4.2	
Depots	0.0	0.0	0.0	0.0	
TOTAL EXPENDITURE	8.6	3.4	2.2	17.3	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Taff Vale resignalling enhancements	1999	4.1	0.0	0.0	0.0		A
Station enhancements	2001	0.0	0.0	0.0	0.0		
PARTNERSHIP							
Rhymney Valley modernisation	2002	0.0	0.0	0.0	12.0	D	E
Cardiff Valley Queen Street – central corridor upgrade (E)	2003	0.0	0.0	1.0	8.0		B
Taff Vale North modernisation	2002	0.0	0.0	0.2	0.6		C
CONTRACTOR							
Mountain Ash diversion – land reclamation and new loop (E)	2002	0.0	0.3	1.0	1.8		F
Cardiff CIS	2001	0.0	0.1	0.9	0.0		
THIRD PARTY							
Improved station facilities	2004	0.0	0.0	0.0	1.2		
Other schemes	Various	0.2	1.1	0.0	1.7	66	
TOTAL RAILTRACK EXPENDITURE		0.0	0.2	1.0	0.1	66	
TOTAL NON-RAILTRACK EXPENDITURE		4.3	1.3	2.1	25.2		

Progress on the 1998 NMS

SIGNALLING We completed work on Radyr, Pontypridd and Porth track, and signalling renewals (Taff Vale Phase 2) in October 1998.

We are completing a feasibility study on Pontypridd–Aberdare–Merthyr Tydfil resignalling by March 2000.

To improve reliability, we have equipped 22 point-ends with new electric heaters, and converted heaters on four point-ends from gas to electric operation.

STATIONS We have completed 46 stations under the SRP. We have improved disabled access at Porth and will install improved facilities to ensure security of passengers in many Valleys stations during 1999/2000. We will complete a major refurbishment of Pontypridd Station and improvements to the station forecourt to enhance interchange facilities this year.

RHYMNEY VALLEY We have completed the feasibility study into Rhymney Valley improvements, and SWIFT has applied for funding for the full scheme.

CARDIFF QUEEN STREET–CARDIFF CENTRAL We are due to complete a study into options for increasing capacity between Cardiff Queen Street and Cardiff Central by March this year.

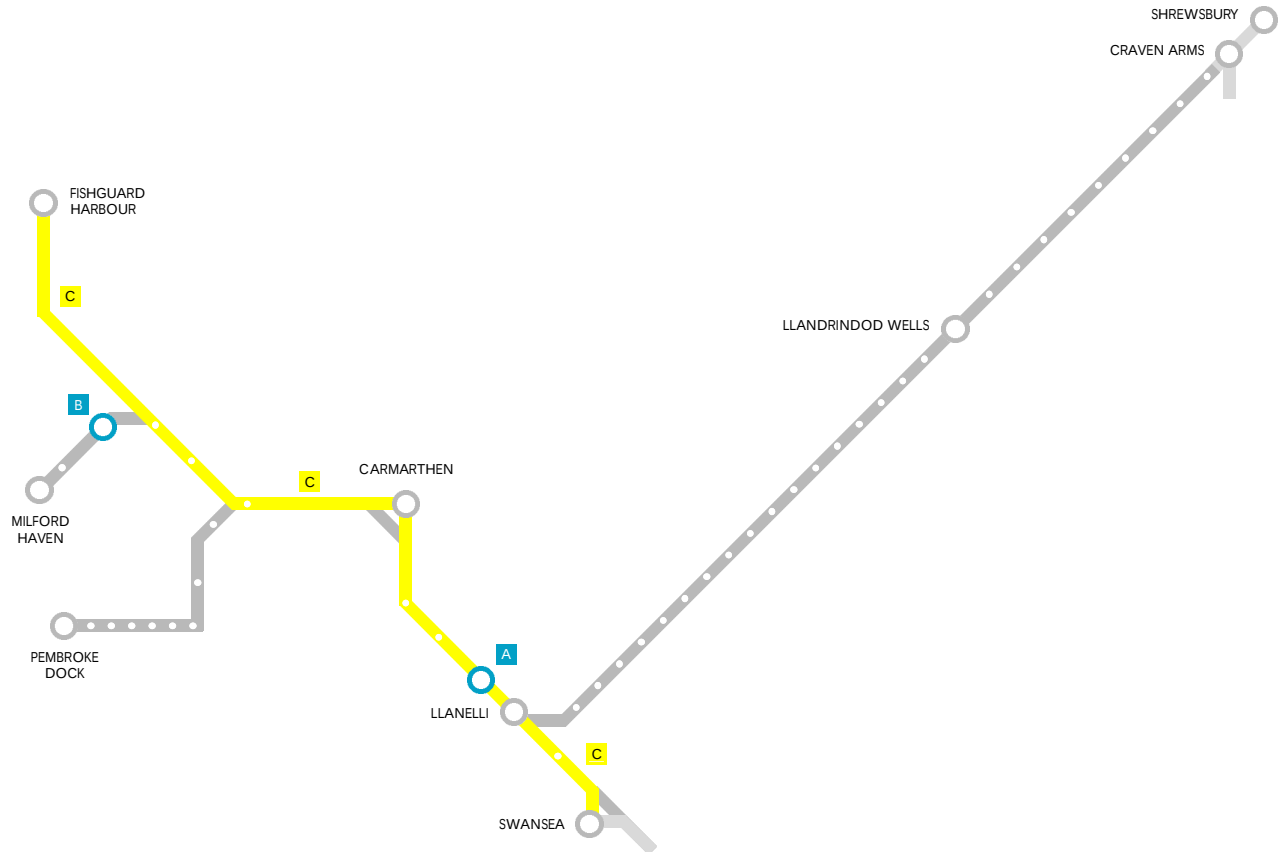
LRT We will consider options to accommodate a possible light rapid transit system.

Wales & West; EWS.



- A Penbury – new station forecast in conjunction with adjacent development
- B Haverford West – improved public transport interchange (local authority funded)
- C Linespeed increases

See page 127 for colour key



Route characteristics

DESCRIPTION The route from Swansea to Clarbested Road is primarily double track with a five-mile stretch of single track between Swansea and Llanelli. The remainder of the lines are single track with passing places. Linespeeds on the route are in the range 40–75mph.

The present infrastructure is not used to capacity. The route forms an important link to Eire via the ferry ports.

Route vision

Our vision for West Wales is to improve its integration with South Wales cities through a substantial reduction in rail journey times.

The railways in West Wales have an important role in linking remote communities. We look forward to working with the West Wales Rail Forum, which has been formed by local authorities to work with us to develop rail services in West Wales and to lobby for European and UK grant funding to improve the infrastructure and deliver our vision.

Our customers' aspirations are to keep their services broadly at current levels, and this is well within existing capacity on the route. Wales & West would like linespeeds raised to 90mph through incremental improvements where feasible and where funding can be made available.

There are significant flows in freight traffic, particularly to the oil refineries at Milford Haven, and further developments are being considered.

We will work with our industry partners to obtain funding for improvements to route capability and building new freight terminals. We will also continue our SRP at stations to improve their condition to maintain and improve reliability, to improve linespeed where this can be achieved at level crossings through renewals or grant funding, and to modernise equipment and layouts where this creates greater efficiency.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
West Wales	None required		

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Swansea–Llanelli	18	1	42mph (16min)	No change	No change	No change
Swansea–Carmarthen	51	5	41mph (46min)	No change	No change	No change
Swansea–Pembroke Dock	117	16	36mph (2hr 02min)	No change	No change	No change
Swansea–Milford Haven	115	11	40mph (1hr 49min)	No change	No change	No change
Swansea–Fishguard Harbour	118	4	46mph (1hr 41min)	No change	No change	No change
Llanelli–Craven Arms	145	17	28mph (3hr 13min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			111	111	111	111
40–75mph			407	407	407	407
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			518	518	518	518
GAUGE (km of route)						
W6A			327	327	327	327
W7			314	314	314	314
W8			110	110	110	110
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			303	303	303	303
23.5 tonnes to 25.4 tonnes			215	215	215	215
TOTAL			518	518	518	518

Renewals expenditure to deliver the programme of route improvements (EM – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	2.0	1.1	1.1	7.5	
Structures	1.0	0.8	0.8	6.5	
Signalling	0.2	0.1	0.1	2.0	
Plant & Machinery	0.0	0.1	0.1	0.7	
Telecoms	0.0	0.1	0.1	0.3	
Stations	2.2	0.3	0.2	3.8	
TOTAL EXPENDITURE	5.4	2.5	2.4	20.9	

Enhancement expenditure on schemes to achieve the route vision (EM – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	0.0	0.0	0.0	0.0		
Other schemes	Various	0.4	0.5	0.2	1.4	1	A B
TOTAL RAILTRACK EXPENDITURE		0.4	0.0	0.0	0.1	1	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.5	0.2	1.3		

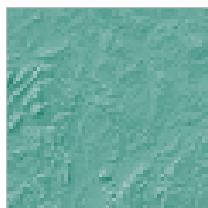
Progress on the 1998 NMS

RENEWALS We have carried out £2.3M of major maintenance on Cockett and Sugar Loaf tunnels. Telephones at two level crossings have been renewed with improved equipment giving safety benefit. Further renewals are planned over the next three years.

SIGNALLING 17 signals have been converted from oil to electric lighting, giving better reliability.

STATIONS SRP has been completed at 27 stations as planned.

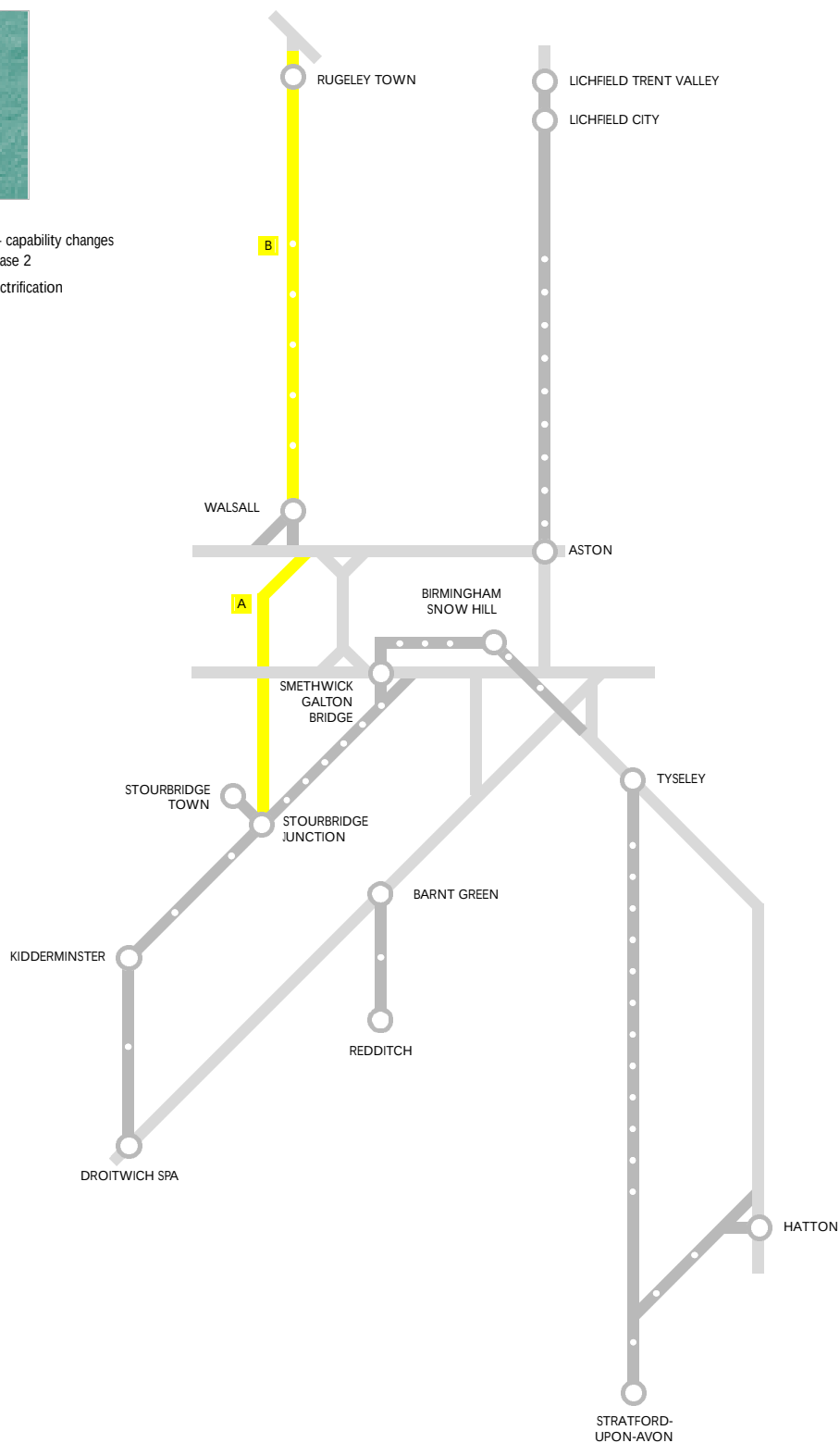
Central Trains; Chiltern Railways; Thames Trains; EWS; Freightliner.



A Walsall–Stourbridge – capability changes for Midland Metro Phase 2

B Walsall–Rugeley – electrification

See page 127 for colour key



Route characteristics

DESCRIPTION This group of lines, together with the section of lines covered in other Route Strategies, is the network for local trains serving the West Midlands Conurbation.

These lines have two tracks with the exception of Barnt Green to Redditch, the Stourbridge Town branch, and Bearley Junction to Hatton Station Junction which are single track. Linespeeds are relatively low, but are in line with sprinter and diesel multiple-unit traffic, normally 50–75mph, with lower restrictions at junctions and through some stations.

The lines from Bescot Junction to Walsall, Aston to Lichfield Trent Valley, and from Barnt Green to Redditch are electrified.

The line from Bescot Junction to Rugeley Town is controlled by mechanical signalling, the lines from Aston to Lichfield Trent Valley and Barnt Green to Redditch are controlled by colour-light signalling. All other lines are controlled by a mixture of mechanical and colour-light signalling.

Route vision

Our plan is to deliver high reliability and high performing suburban and long-distance interurban services, and to develop the infrastructure in conjunction with train operators and the PTE. We will continue to work with external stakeholders to make the case for further investment in the route seeking to maximise the socio-economic worth of Centro-supported services, through specific initiatives. Performance, reliability and efficient timetabling are key requirements.

There are opportunities to expand the current volume of freight through the operation of new services on certain parts of the route, arising from a concerted effort to search for new freight sites.

The possible extension of the Midlands Metro service in the Dudley area would have a significant impact on the Walsall–Stourbridge freight route and ultimately on this route. We will work closely with the PTE and our industry partners to ensure the most appropriate scheme is developed.

Feasibility work has recently commenced on the electrification of the Walsall–Rugeley route. Once developed, this will give our customers greater flexibility and timetable opportunities.

To achieve this vision we will:

- secure and, where possible, encourage income growth, and therefore profitability, through high-performance delivery, the operation of new services, or the extension of existing services, as well as through a consistently high level of punctuality and reliability, achieved through specific performance initiatives and initiatives to tackle key bottlenecks.
- optimise performance through improved asset reliability.
- improve linespeeds, if economically feasible and are not disruptive to deliver.
- reduce maintenance costs through efficient asset management and efficiencies arising from renegotiated maintenance contracts and the consolidation of signalling control at targeted locations.
- develop a series of station, depot and car-park improvements, where these are commercially attractive.

Route development and customer requirements

We have consulted with our customers, the passenger and freight train operators, to determine their needs and how we evaluate them. The proposals set out in this NMS address all these intentions to deliver their aspirations for service frequency, customer-information systems and new rolling stock.

We will also examine the options to improve capacity and journey-time improvements in line with current operator aspirations.

We will continue to work with industry partners, local authorities and outside developers to improve our stations. In particular, we will address the ease of interchange with other transport modes, provide better car parking, real-time passenger-information systems and access for the disabled.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
West Midlands local routes	None required		
Walsall–Stourbridge	Capability changes to increase capacity Phase 2 of Midland Metro	N/A	A

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Walsall–Rugeley	22	5	28mph (30min)	No change	No change	No change
Aston–Lichfield Trent Valley	26	7	33mph (29min)	No change	No change	No change
Birmingham–Stratford-Upon-Avon	40	14	32mph (47min)	No change	No change	No change
Birmingham–Redditch	24	9	27mph (33min)	No change	No change	No change
Birmingham–Droitwich Spa	35	2	47mph (28min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			20	20	20	20
40–75mph			298	298	298	298
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			318	318	318	318
GAUGE (km of route)						
W6A			167	167	167	180
W7			83	83	83	83
W8			38	38	38	38
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			318	318	318	318
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			318	318	318	318

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	4.3	5.3	2.7	19.0	
Structures	0.6	1.0	1.0	5.6	
Signalling	1.8	1.2	0.6	26.0	
Electrification	0.5	0.3	0.0	0.2	
Plant & Machinery	0.1	0.0	0.0	0.1	
Telecoms	0.1	0.0	0.7	0.1	
Stations	4.3	2.3	1.1	10.8	
Other	0.0	0.1	0.1	0.4	
TOTAL EXPENDITURE	11.7	10.2	6.1	62.1	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	1.8	0.9	0.0	0.0		
PARTNERSHIP							
Walsall–Rugeley electrification	2005	0.0	0.0	0.0	35.0	1	B
Centro Trains security, access & information	2006	0.0	0.0	0.0	1.0	2	
CONTRACTOR							
Reopening of closed routes	2006	0.0	0.0	0.0	75.0	1	
Other schemes	Various	0.0	0.0	0.0	0.0	11	
TOTAL RAILTRACK EXPENDITURE		1.8	0.9	111.0	311.0	15	

Progress on the 1998 NMS

WALSALL AREA RESIGNALLING RENEWALS AND LAYOUT CHANGES The development of a project to undertake renewal of signalling cable, cable route and location cases between Walsall and Ryecroft Junction has continued throughout the year. Implementation is planned for 1999/2000.

The development of proposals for the layout rationalisation and capacity improvements in the Walsall area has continued throughout the year as part of the West Coast Route modernisation project.

EXTENSION OF CENTRAL TRAINS SERVICES FROM RUGELEY TO STAFFORD This was implemented in June 1998.

PROPOSED RENEWAL OF SIGNALLING EQUIPMENT A project to renew and rationalise signalling infrastructure on the section of line between Stratford and Bearley Junction was commissioned in April 1998. This included the abolition of Stratford-upon-Avon signal box and transfer of signalling control to Bearley West Junction signal box.

Central Trains; Northern Spirit; EWS.



- A** Gainsborough–Peterborough – linespeed capacity and capability as part of ECML upgrade
- B** Allington – new chord line to remove conflicting train movements at Grantham

See page 127 for colour key



Route characteristics

DESCRIPTION This route is used by regional and local passenger services centred on the East Midlands and also carries a significant volume of freight trains, especially to and from Humber ports.

The route is predominantly two track but with single-track sections from Ambergate to Matlock and Newstead to Kirkby. Linespeed varies between 60mph and 75mph, with lower speeds at many junctions and stations.

Route vision

Our vision for this route is to increase its relevance to local communities. This is to be achieved by continuing to work with local authorities and making the case for further socio-economic investment to improve public transport access to Nottingham and other centres. The recent go-ahead for Nottingham Express Transit will provide an opportunity to help achieve this vision.

We have undertaken station regeneration at a variety of freight services operate over this route, including coal and oil trains, and the fast-growing international, intermodal and parcels sectors. There are a number of freight terminal facilities on this route. Overall, we expect freight traffic to expand, not only in terms of volume, but also in axle weights, train lengths and vehicle profiles.

Specific strategic goals are:

- achieving operating cost savings
- developing new stations and services in conjunction with Nottingham, Lincoln and Derby County Councils
- developing rail initiatives through partnerships such as Nottingham Express Transit.

To achieve this vision we will:

- secure and, where possible, encourage income growth, and therefore profitability, through high-performance delivery, the operation of new services, or the extension of existing services, and through a consistently high level of punctuality and reliability, achieved through specific performance initiatives.
- optimise performance income through improved asset reliability.

The route between Peterborough and Gainsborough will be upgraded to form part of the ECML freight route (see Route 2). This will also enable an improved passenger service to be provided through higher linespeeds and improved capability, including grade-separated junctions at Peterborough and Doncaster which will improve timetable flexibility.

We are developing proposals with Central Trains to reduce journey times between Stoke and Derby through increasing the linespeed.

We are also evaluating with industry partners and local authorities the possible reopening of the line between Matlock and Buxton to improve access to Peak District National Park and create new long-distance passenger and freight services.

Route development and customer requirements

We have consulted with our customers, the passenger and freight train operators, to determine their needs and how we evaluate them. The proposals set out in this NMS address all these intentions to deliver their aspirations for service frequency, customer-information systems and new rolling stock.

We will also examine the options to improve capacity and journey-time improvements in line with current operator aspirations.

We will continue to work with industry partners, local authorities and outside developers to improve our stations. In particular, we will address the ease of interchange with other transport modes, provide better car parking, real-time passenger-information systems and access for the disabled.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
East Midlands local routes	None required		
Gainsborough–Peterborough	Capacity and capability increase for ECML upgrade	2003	A
Grantham–Allington	New chord line to remove conflicting train movements at Grantham	2003	B

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Nottingham–Skegness	126	6	45mph (1hr 45min)	No change	No change	No change
Peterborough–Gainsborough	116	7	39mph (1hr 50min)	No change	No change	No change
Nottingham–Barnetby	100	3	47mph (1hr 20min)	No change	No change	No change
Nottingham–Worksop	51	11	28mph (1hr 09min)	No change	No change	No change
Derby–Crewe	82	6	44mph (1hr 09min)	No change	No change	48mph (1hr 04min)
LINESPEEDS (km of track)						
Up to 35mph			31	31	31	31
40–75mph			778	778	778	778
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			809	809	809	809
GAUGE (km of route)						
W6A			427	427	427	427
W7			320	320	320	320
W8			272	272	272	272
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			12	12	12	12
20.4 tonnes to 23.4 tonnes			797	797	797	797
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			809	809	809	809

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	2.9	3.6	1.8	13.0	
Structures	1.0	2.5	2.5	13.7	
Signalling	2.1	4.9	6.1	13.7	
Plant & Machinery	0.1	0.0	0.0	0.1	
Telecoms	0.0	0.0	0.0	0.1	
Stations	3.9	2.1	1.0	10.0	
Other	0.4	0.1	0.1	0.4	
TOTAL EXPENDITURE	10.4	13.2	11.5	60.0	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	1.7	0.8	0.0	0.0		
FEASIBILITY							
Matlock–Buxton (Peak Valley Line) reopening	2007	0.0	0.0	0.0	1.0		
Other schemes	Various	0.3	0.0	0.0	0.0	2	
TOTAL RAILTRACK EXPENDITURE		2.0	0.8	0.0	1.0	2	

Progress on the 1998 NMS

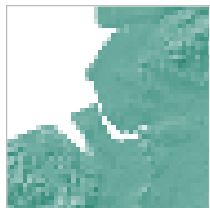
NOTTINGHAM LIGHT RAPID TRANSIT SCHEME This scheme has now received funding, but will not include shared running over the Nottingham–Mansfield Line. We will continue to support this project, ensuring that it provides benefits to our customers.

EXTENSION OF ROBIN HOOD LINE (MANSFIELD–WORKSOP) This scheme has now been completed and the service introduced.

PROPOSED RENEWAL OF SIGNALLING EQUIPMENT Following further detailed analysis, our strategy in this field is now focused on life extension providing a cost-effective way of improving reliability within signalling facilities.

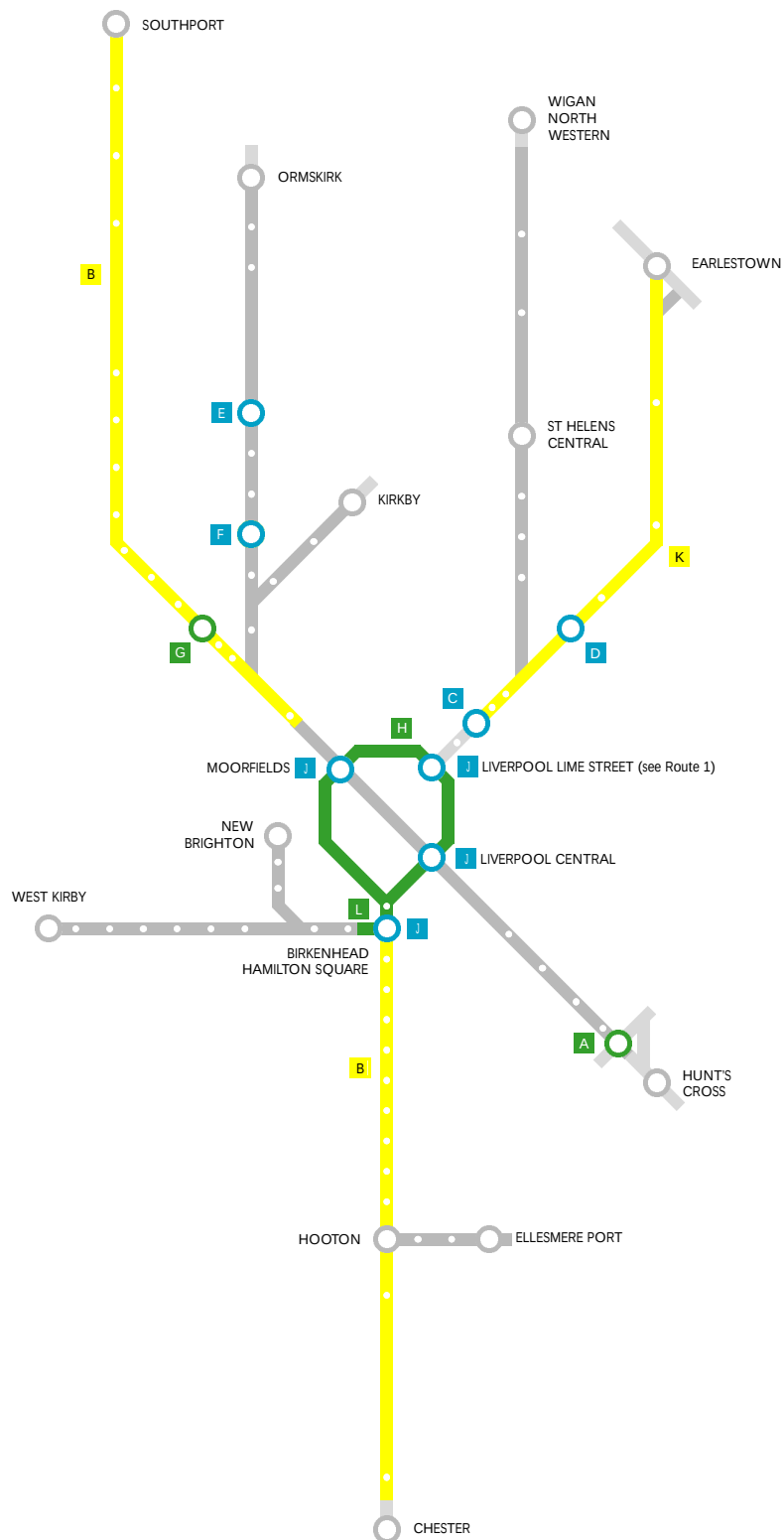
PROPOSED LINESPEED IMPROVEMENTS DERBY–STOKE This particular proposal has yet to begin, and has not been a focus for development during the past year.

FNW; Merseyrail Electrics; Virgin Trains; EWS.



- A Allerton Interchange – new station
- B Linespeed increase for 75mph service
- C Wavertree Technology Park – new station
- D Lea Green – new station
- E Maghull – car-park extension
- F Aintree – multimodal interchange and station refurbishment
- G Bootle New Strand Station –refurbishment
- H Mersey Tunnel drainage
- J Underground station – refurbishment
- K Trans-Pennine Route – gauge enhancement for W10 vehicles
- L Birkenhead – axle-counter installation

See page 127 for colour key



Route characteristics

DESCRIPTION This rail network extends throughout Merseyside, including the Sefton Coast, St Helens, and the Wirral, and beyond the Merseyside boundary to the neighbouring towns of Ormskirk, Wigan, Ellesmere Port, and Chester. Freight traffic is carried along the lines from Wigan and Earlestown to Edge Hill.

The majority of the signalling is controlled from the Sandhills Control Centre and most of the route is electrified with a 750V DC third rail. The line from Liverpool Lime Street is electrified with 25kV OLE as far as Edge Hill, where the WCML diverges to Crewe.

Route vision

These lines primarily form a high-capacity suburban passenger railway, which performs a key role in the social fabric of Merseyside. As part of the Merseyside integrated public transport network, these routes enable the local population to commute to work efficiently, quickly, and with minimal environmental impact. They also attract considerable numbers of leisure journeys, supporting the area's shopping and tourism markets.

By building on the existing strengths of the rail network, we want to see this role maintained and expanded, as rail offers an ever-more attractive alternative to private transport. This will require us to continue to invest in improving the reliability of our infrastructure-investment which has contributed in the past 12 months to significant improvements in the punctuality of Merseyrail Electric's services.

In working towards these aspirations, we have a strong partner in Merseytravel. Together with Merseytravel, we are particularly interested in the case for opening new stations and developing better transfer facilities between public transport modes, and between rail and the private car. We will also investigate any locations where there is scope to reduce journey times. On the Wirral, there may also be opportunities to introduce a semi-fast service in addition to current services, and reduce journey times for many passengers.

We will also evaluate options to extend the network to Woodchurch on the Wirral and beyond Hunt's Cross towards Warrington.

Route development and customer requirements

We have committed to evaluate a series of options to improve capacity, reliability, and operational flexibility, including remodelling of junctions and the provision of additional crossovers. The results, when evaluated, will be shared with industry partners. In addition, a joint exercise will be carried out to look at the viability of express services on the electrified network, including 75mph running.

We anticipate that a series of new stations will open, sponsored by Merseytravel. These include Allerton Interchange, forming part of a wider, multimodal integrated transport scheme, and new stations at Wavertree Technology Park and Lea Green. Where applicable, we will seek to involve EU funding in the support of these projects. The extension of the existing electrified network from Kirkby to Headbolt Lane and east of Hunt's Cross is under consideration with Merseytravel.

In addition, we believe there are commercial opportunities for the rail industry to develop integrated transport facilities (including park and ride) on the Merseyside network. We have made provision for this in our financial plans, and we will be developing the options in consultation with Merseytravel.

Major alterations are planned to take place at Aintree Station including a new ticket office and extended car park with bus interchange. Maghull Station has also been identified as a site for a major extension to car-parking facilities.

It is anticipated that the ongoing renewal of the conductor-rail and traction power-supply systems on the electrified network will be significantly enhanced with a major two-year programme of works, expected to begin next year.

We want to encourage the area's freight traffic to develop in line with the widely held desire to get more freight off the roads in urban areas. We will explore the possibility of improving the freight loading gauge, including clearance for W10 to Seaforth Docks, and opportunities for restoring freight services to Birkenhead.

With our partners, we will seek out all possible sources of funding in order to drive forward this vision, including additional funds available through the area's EU Objective 1 status. We will thus help not only the day-to-day running of Merseyside, but also the longer-term economic regeneration of the whole area.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Merseyside	None required		

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Liverpool Central–Chester	29	14	29mph (38min)	No change	No change	31mph (35min)
Liverpool Central–Southport	31	15	27mph (42min)	No change	No change	No change
Liverpool Central–West Kirkby	20	11	26mph (29min)	No change	No change	No change
Liverpool Central–Hunt's Cross	11	5	26mph (17min)	No change	No change	No change
Liverpool Lime Street–Earlestown	24	7	29mph (30min)	No change	No change	No change
Liverpool Lime Street–Wigan	32	10	31mph (38min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			42	42	42	42
40–75mph			280	280	280	280
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			322	322	322	322
GAUGE (km of route)						
W6A			163	163	163	163
W7			56	56	56	56
W8			56	56	56	56
W9			0	0	0	23
W10			0	0	0	23
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			10	10	10	10
20.4 tonnes to 23.4 tonnes			312	312	312	312
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			322	322	322	322

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	1.6	2.8	2.3	9.8	
Structures	1.7	1.0	0.5	3.9	L
Signalling	0.5	1.7	0.6	2.8	
Electrification	0.3	1.4	1.4	3.7	
Plant & Machinery	0.1	0.0	0.0	0.0	
Telecoms	0.5	1.4	0.8	4.5	
Stations	0.6	15.7	8.5	0.0	
TOTAL EXPENDITURE	5.3	24.0	14.1	24.7	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Mersey Tunnel drainage	2000	2.5	0.1	0.0	0.0		H
Bootle New Strand Station refurbishment (E)	1999	2.6	0.0	0.0	0.0		G
Station enhancements	2001	0.0	0.5	0.2	0.0		
Allerton Interchange (see Route 1) (E)	2001	0.0	0.0	0.0	0.0	1	A
PARTNERSHIP							
North Trans-Pennine gauge enhancement	2005	0.0	0.0	0.0	1.9	1	K
Merseyside 75mph services	2002	0.0	0.0	0.0	1.0	1	B
CONTRACTOR							
Liverpool Underground Station enhancements (E)	2001	0.0	12.3	7.0	0.0		J
FEASIBILITY							
Merseyside park and ride	2002	0.0	0.0	0.0	1.0	1	
THIRD PARTY							
New stations & major refurbishments	2001	0.0	2.2	2.7	0.0	1	C D F
Maghull car-park & station enhancements	1999	0.7	0.0	0.0	0.0		E
Other schemes	Various	0.2	0.0	0.0	0.0	31	
TOTAL RAILTRACK EXPENDITURE		3.1	12.9	7.2	1.0	36	
TOTAL NON-RAILTRACK EXPENDITURE		2.9	2.2	2.7	2.9		

Progress on the 1998 NMS

We have continued our investment in infrastructure renewals and improvements, and in doing so helped Merseyrail Electrics achieve a very high level of service, punctuality and reliability in 1998. This work has included the replacement of rail fastenings, which will directly improve the infrastructure within the loop section and 13km of conductor rail, which will improve the reliability of the network.

Enhancement works to electrify the bay platform at Hooton will be completed by the end of April this year. This will offer improved operational flexibility at this location. Work to refurbish Bootle New Strand Station is also approaching completion, supported by Merseytravel, Bootle Maritime City Challenge and EU funds.

NEW STATIONS During 1998/99 new stations were successfully opened at Conway Park and at Brunswick, funded by Merseytravel with EU assistance.

AIR CONDITIONING IN LINESIDE BUILDINGS A programme of work to install air conditioning units into various relocatable equipment buildings throughout the electrified network is close to completion. This will improve performance of the signalling and telecoms equipment, preventing failure due to overheating during the summer months.

TUNNEL DRAINAGE A highly successful drainage scheme was completed during the year, which incorporated additional tunnel pumps and equipment to

monitor the water levels. As a consequence of the successful targeting of these works, there has been a notable fall in the water levels, with a consequent improvement in train performance, and reliability, as well as increasing the lifespan of the present infrastructure.

OLIVEMOUNT SIGNALLING EQUIPMENT RENEWAL This scheme has improved capacity between Edge Hill and Huyton.

MERSEYSIDE LOOP/LINK AXLE COUNTERS The programme for replacing track circuits with axle-counters has been extended. There has been a significant performance benefit from the work undertaken in previous phases in the James Street area. It is anticipated that this programme will be completed by the end of June and will offer further significant improvements in infrastructure reliability.

STATION REGENERATION PROGRAMME This has taken full advantage of joint initiatives with Merseytravel, combining station regeneration with new station works, which has resulted in maximum benefit to the network. Work to completely refurbish all 33 of the escalators at the underground stations was completed by the end of 1998, and further major mechanical and electrical works are programmed.

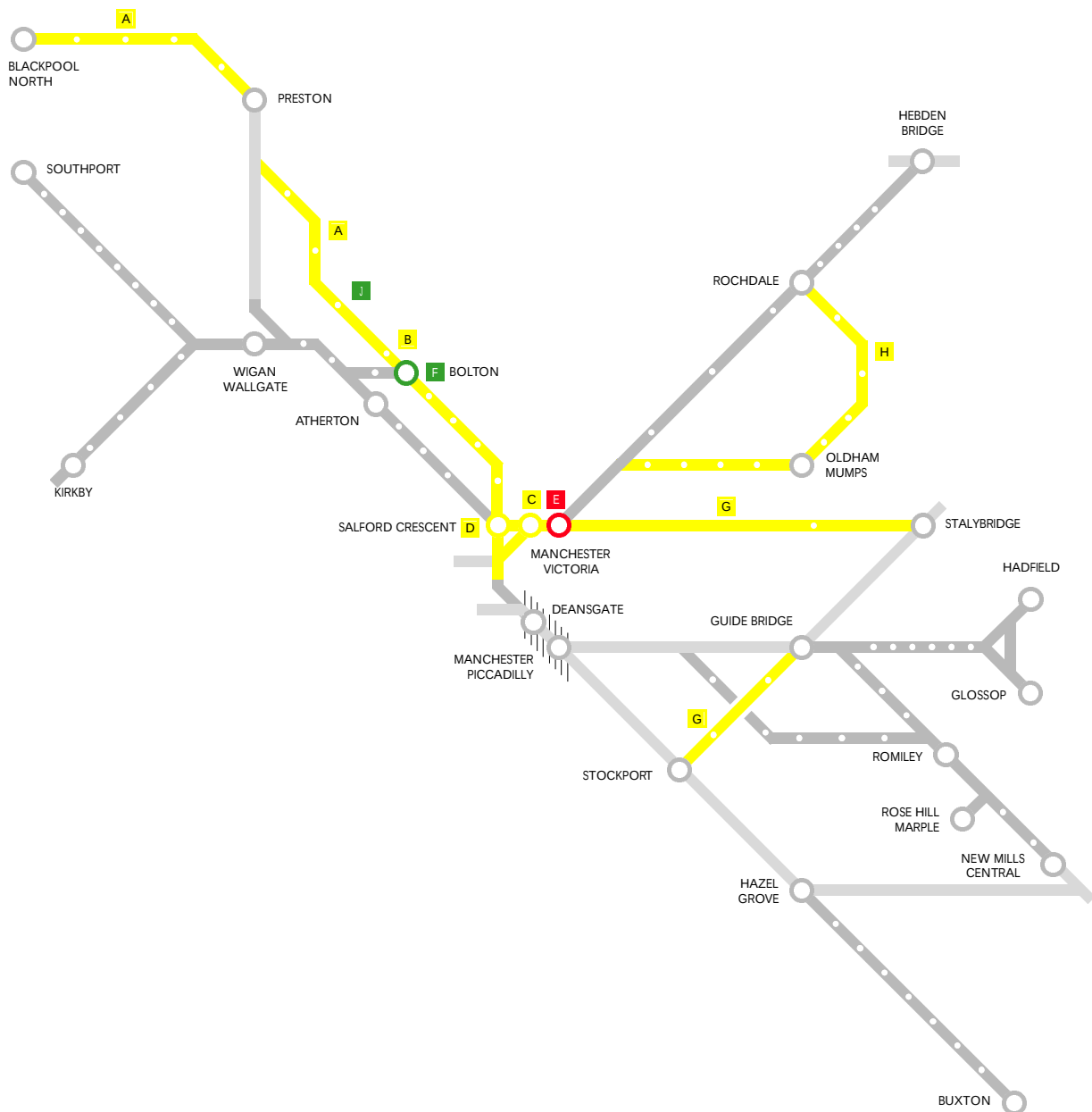
Phase 1 of the Southport Station regeneration is complete, with further work on the station roof now being evaluated.

FNW; Northern Spirit; Virgin CrossCountry; EWS.



- A** Manchester–Blackpool – increase in linespeed
- B** Lostock – new platforms on Wigan Line
- C** Salford Central – possible new platform
- D** Salford Crescent – new lifts and platform
- E** Manchester Victoria – station regeneration work
- F** Bolton – new platform
- G** Freight gauge enhancement for W10 vehicles
- H** Oldham Loop – possible conversion to light rail
- J** Horwich Parkway – new station

See page 127 for colour key



Route characteristics

DESCRIPTION This route strategy incorporates the Manchester to Blackpool and Southport interurban lines, and the suburban network of East and North Manchester. The spine of the route, between Manchester and Preston, forms part of the local passenger and long-distance service network.

Freight traffic is also carried on this route, particularly on the lines to the east of Manchester.

These lines are predominantly two-track railways except for the Manchester Victoria area, which has four tracks, and on the Oldham Loop and at Dinting where there are significant single-line sections. The maximum speeds in East Manchester and the Oldham Loop are broadly 60mph, elsewhere 75mph.

The line between Manchester and Hadfield/Glossop is electrified.

Route vision

These lines serve some very busy transport corridors. Our vision is to ensure that the railway meets the predicted growth of both passenger and freight traffic, relieving congestion and pollution by providing a better alternative to road travel on the A6 and M61.

Recent analysis shows that there will be a steady growth in passenger numbers. Much of the passenger growth is expected to be outside the commuter travel period and includes leisure and conference travel to Blackpool, Buxton and Southport. We will contribute to FNW's plans to deliver improved levels of service quality by continuing to focus on improving the performance and reliability of the infrastructure.

Integrated transport has an important role to play; we are examining park-and-ride opportunities in the Manchester area and are working with the Greater Manchester PTE to provide the most effective solution for the future of the Oldham Loop and the associated Metrolink Initiative.

Virgin CrossCountry is planning to introduce new fast tilting diesel trains with an enhanced service on the route between Manchester and the West Coast Main Line from 2003. We will examine the potential for linespeed improvements to maximise benefits from the new rolling stock.

The Manchester Victoria–Hebden Bridge line forms part of our network of Trans-Pennine routes and will be developed in conjunction with Route 8.

Route development and customer requirements

In the coming year GMPTE intends to commission a study to help formulate its future rail investment strategy. This will incorporate a range of issues and will produce a series of options to be developed with industry partners, to provide for the transport needs of the area into the 21st century. We will provide information and input to the study, and will work with the PTE to help ensure the study's success.

We are currently looking at the feasibility of introducing linespeed improvements between Manchester and Blackpool. Potential capacity and

performance improvements are being examined at Salford Crescent, Bolton and Lostock.

We will continue to work with industry partners and other interested bodies in assessing the benefits of new station proposals for this route.

Feasibility works are under way to determine plans for the station regeneration works at Manchester Victoria Station.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Manchester to the coast	None required		

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Manchester Piccadilly–Blackpool North via Chorley	78	13	37mph (1hr 19min)	No change	No change	To be evaluated
Manchester Victoria–Southport via Atherton	58	15	30mph (1hr 11min)	No change	No change	No change
Hebden Bridge–Manchester Victoria	38	5	34mph (41min)	No change	No change	To be evaluated
Buxton–Manchester Piccadilly	41	11	29mph (52min)	No change	No change	No change
Glossop–Manchester Piccadilly	21	9	26mph (31min)	No change	No change	No change
New Mills Central–Manchester Piccadilly via Bredbury	21	6	25mph (31min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			43	40	40	40
40–75mph			550	519	519	519
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			592	559	559	559
GAUGE (km of route)						
W6A			296	283	283	283
W7			153	153	153	153
W8			32	32	32	32
W9			0	0	0	13
W10			0	0	0	13
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			592	559	559	559
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			592	559	559	559

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	6.3	6.9	5.5	23.5	
Structures	3.5	1.0	1.7	12.2	
Signalling	15.3	1.2	1.6	16.5	
Electrification	0.0	0.1	0.0	0.0	
Plant & Machinery	0.4	0.0	0.0	0.0	
Telecoms	0.1	0.2	0.0	2.6	
Stations	0.0	6.6	4.2	0.0	E
Other	0.1	0.1	0.0	0.0	
TOTAL EXPENDITURE	25.7	16.1	13.0	54.8	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
MVAIR	1998	14.6	0.0	0.0	0.0		
Station enhancements	2001	0.0	2.7	1.2	0.0		
PARTNERSHIP							
North Trans-Pennine gauge enhancement	2005	0.0	0.0	0.0	3.1	1	G
Oldham Loop LRT conversion	2000	0.0	0.3	0.0	0.0	1	H
CONTRACTOR							
Car parks at various locations	2009	0.1	0.1	0.1	0.5	1	
THIRD PARTY							
New stations & major refurbishments	2001	2.9	0.0	0.0	0.0	1	
Other schemes	Various	0.0	0.0	0.1	0.7	10	
TOTAL RAILTRACK EXPENDITURE		14.7	2.8	1.3	0.8	14	
TOTAL NON-RAILTRACK EXPENDITURE		2.9	0.3	0.1	3.5		

Progress on the 1998 NMS

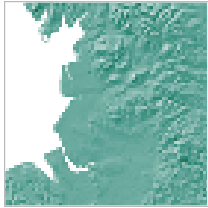
MANCHESTER VICTORIA AREA INFRASTRUCTURE RENEWALS The £50M scheme to improve the track layout and signalling was commissioned in summer 1998. During the works, up to 250 personnel were involved on site each day, tackling the closure of ten signal boxes and creating a new replacement signalling centre at Salford Crescent. Additional improvements included the installation of new telecommunications for faster signalling information, the remodelling of track layouts to improve operational flexibility and train regulation, continuously welded rail for improved ride quality and reduced maintenance, and £500,000 of new palisade fencing, helping to protect the railway from trespass and vandalism.

STATION REGENERATION Southport Station Phase 1 is complete. Further work, on the station roof, is being evaluated.

Works have also been completed at Blackpool North, Bolton and Rochdale, together with several smaller stations, including improvements made to stations on the Glossop Line.

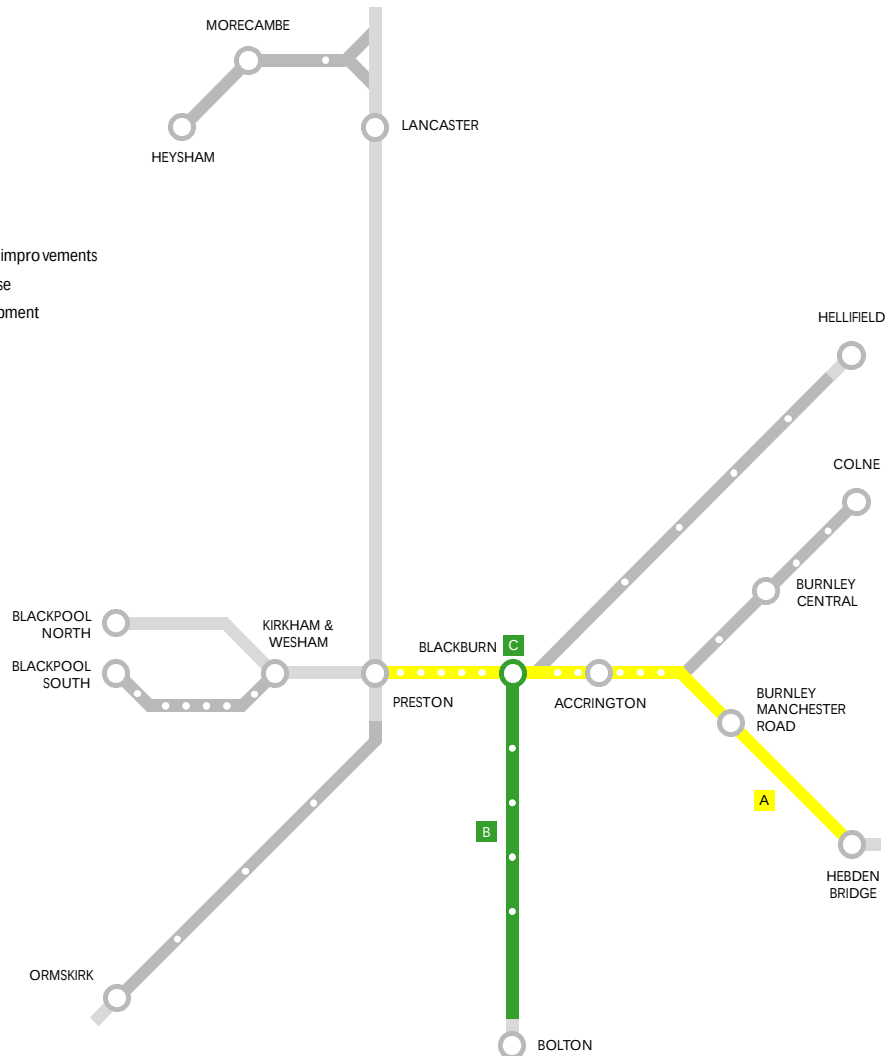
HORWICH PARKWAY Work is on site with an anticipated opening in May this year. This is a new park-and-ride facility adjacent to the M61 and is linked to the adjacent retail park and sports stadium.

FNW; Northern Spirit; EWS.



- A** Hebden Bridge–Preston – linespeed improvements
- B** Blackburn–Bolton – linespeed increase
- C** Blackburn Station – station redevelopment

See page 127 for colour key



Route characteristics

DESCRIPTION The Lancashire network covers the routes North of Manchester, radiating out from Preston. Services on these lines are used by a mixture of commuter and leisure traffic with frequencies ranging from half hourly between Blackburn and Preston to less than hourly between Preston and Ormskirk.

These lines are predominantly two track, although the branches are mainly single track. Many of the single-track branch lines operate near to capacity with current traffic volumes.

In general, the linespeed is 70 or 75mph, although many sections have a lower linespeed, for example the section between Gannow and Hall Royd Junctions.

The mix of fast and slow traffic may restrict further growth on parts of the main Preston–Hebden Bridge route.

Some of these lines carry freight traffic, with the most significant flows in terms of tonnage and traffic levels being concentrated between the West Coast Main Line and Hebden Bridge.

Route vision

These lines serve local communities throughout Lancashire, and also have a key strategic role in linking the WCML and the Fylde Coast with West Yorkshire and beyond. We want to exploit these strengths, to develop both passenger and freight on the network.

The basis of our plans is to continue to improve the quality and performance of the network, to generate new custom for the railways and to win it from other modes of transport. We will also identify opportunities to offer faster journey times to the Franchising Director and customers, particularly on the key artery from Hebden Bridge–Preston.

To accommodate the projected increase in passenger numbers, longer trains may be necessary on some of these routes, which may involve platform lengthening works at certain locations.

Several privately funded freight sites are currently under investigation, and we will continue to work with our freight customers to encourage the opening of further new terminals. The Heysham, Clitheroe and Blackburn areas are believed to offer particular opportunities for winning freight traffic from the road network.

Route development and customer requirements

In the coming year, Greater Manchester PTE intends to commission a study to help formulate its future rail investment strategy. This will incorporate a range of issues and will produce a series of options to be developed with industry partners to provide for the transport needs of the area into the 21st century. We will provide information and input to the study, and will work with the PTE to help ensure the study's success.

The rebuilding of Blackburn Station, which will provide a modern centrepiece for this route has recently begun. Planning permission has been

received for a station, which will provide modern facilities including improved passenger access and platform capacity while retaining the original heritage frontage.

The stations and services on this route between Blackburn and Clitheroe are actively promoted by the Ribble Valley Rail Group, an excellent example of community involvement in local rail services.

We will also look at the feasibility of reducing journey times between Leeds–Blackpool.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Lancashire	None required		

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Hebden Bridge–Preston	60	3	40mph (56min)	No change	No change	Under evaluation
Lancaster–Heysham Port	14	2	19mph (27min)	No change	No change	No change
Colne–Preston	48	16	26mph (1hr 08min)	No change	No change	No change
Clitheroe–Bolton	38	8	27mph (52min)	No change	Under evaluation	No change
Preston–Ormskirk	24	3	32mph (28min)	No change	No change	No change
Kirkham–Liverpool South	20	6	28mph (26min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			18	18	18	18
40–75mph			245	245	245	245
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			263	263	263	263
GAUGE (km of route)						
W6A			178	178	178	178
W7			74	74	74	74
W8			52	52	52	52
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			263	263	263	263
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			263	263	263	263

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	4.6	2.0	1.6	6.9	
Structures	0.8	0.3	0.1	1.0	
Signalling	0.1	0.3	0.7	3.5	
Telecoms	0.4	0.0	1.0	2.7	
Stations	0.0	3.3	1.4	0.0	C
Other	0.0	0.1	0.0	0.0	
TOTAL EXPENDITURE	5.9	6.0	4.8	14.1	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

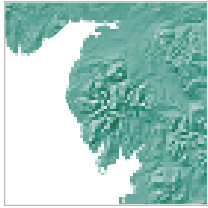
PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	0.0	1.6	0.7	0.0		C
Other schemes	Various	0.0	0.0	0.0	0.0	2	
TOTAL RAILTRACK EXPENDITURE		0.0	1.6	0.7	0.0	2	

Progress on the 1998 NMS

TRACK RENEWALS AND LINESPEED IMPROVEMENTS Significant track renewals have been carried out between Bolton and Blackburn and between Gannow Junction and Hall Royd Junctions to improve reliability and ride quality. As a result of the work, linespeed will be raised, leading to journey-time improvements.

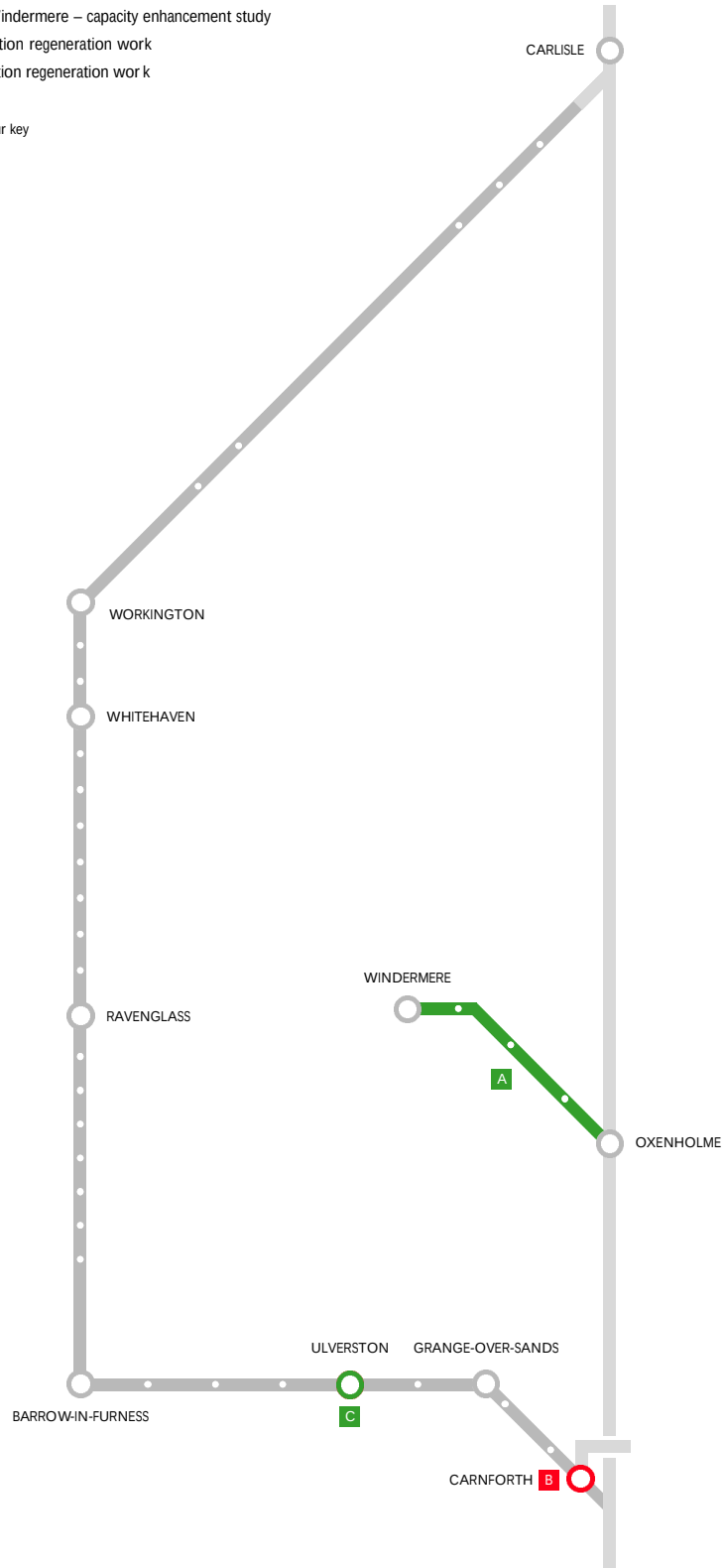
CIVIL ENGINEERING WORKS Major works have taken place at Kitson Wood and Horsfall Tunnel to ensure that good performance on the route is maintained. We received external recognition for this work when an award was received from the Institution of Civil Engineers (North East division) for the stabilisation works associated with Horsfall Tunnel.

FNW; DRS; EWS.



- A Oxenholme–Windermere – capacity enhancement study
- B Carnforth – station regeneration work
- C Ulverston – station regeneration work

See page 127 for colour key



Route characteristics

DESCRIPTION This Cumbria Route Strategy covers the coastal route from Carnforth to Carlisle via Barrow-in-Furness, and the line from Oxenholme to Windermere. Windermere is seen as a key destination for tourism from both North West and North East England.

The coastal route is mainly two track but has some single-line sections. Most of the route runs beside the sea, and there are stretches vulnerable to sea erosion, and several viaducts across estuaries.

The Windermere Line is single track, and the linespeed is generally 60mph. The line operates at capacity with the current service pattern during most of the day.

The Cumbrian Coast Line carries freight traffic, with the most significant flows, in terms of tonnage and traffic levels, being concentrated between Carnforth–Sellafield, and Carlisle–Workington. The lines carry steel and nuclear traffic.

Route vision

We want rail to play a central role in supporting the developing economy of West Cumbria, and have already begun to demonstrate this by our considerable investment in sea defences on the Cumbrian Coast Route. The rail network is crucial for Cumbria's internal communications and its links with the rest of the UK and Europe.

We believe that the area's industry and commerce, including tourism in the Lake District, can only develop in an environmentally responsible way if rail plays a key part. This is particularly the case as the area's road network is relatively poor, and major investment in roads is unlikely to be acceptable.

We think there is significant potential for increasing the capacity to secure growth in passenger traffic on the Windermere branch, running directly into the

heart of the Lake District. Electrification is not currently considered to be viable for the branch, given that present and potential services originate from non-electrified routes.

We will also continue to develop the capability of the coastal route, to encourage the growth of freight traffic. Other investment will be targeted at securing the route's long-term future and improving its performance, providing the impetus for taking forward further options for enhancement as they become economically viable.

Station regeneration work will continue, with schemes being developed at Ulverston and Carnforth.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Cumbria	None required		

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Windermere–Oxenholme	16	3	30mph (20min)	No change	No change	No change
Carlisle–Workington	53	5	41mph (48min)	No change	No change	No change
Workington–Whitehaven	11	2	22mph (18min)	No change	No change	No change
Whitehaven–Barrow-in-Furness	74	15	32mph (1hr 25min)	No change	No change	No change
Barrow-in-Furness–Carnforth	46	8	35mph (48min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			32	32	32	32
40–75mph			333	333	333	333
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			364	364	364	364
GAUGE (km of route)						
W6A			201	201	201	201
W7			183	183	183	183
W8			52	52	52	52
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			364	364	364	364
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			364	364	364	364

Renewals expenditure to deliver the programme of route improvements (EM – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	1.2	1.6	1.3	5.5	
Structures	0.1	0.2	0.3	2.0	
Signalling	0.5	1.3	1.7	5.3	
Plant & Machinery	0.1	0.0	0.0	0.0	
Telecoms	0.1	0.0	0.0	0.0	
Stations	0.0	0.2	3.2	0.0	B
Other	0.1	0.1	0.0	0.0	
TOTAL EXPENDITURE	2.3	3.4	6.5	12.8	

Enhancement expenditure on schemes to achieve the route vision (EM – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Cumbrian Coast gauge clearance for freight	1998	0.6	0.0	0.0	0.0		
Station enhancements	2001	0.0	0.0	0.1	0.0		
Other schemes	Various	0.2	0.0	0.0	0.0	1	
TOTAL RAILTRACK EXPENDITURE		0.8	0.0	0.1	0.0	1	

Progress on the 1998 NMS

GAUGE ENHANCEMENT FOR FREIGHT TRAINS The gauge on the section of route between Carlisle–Whitehaven has now been improved to W8 clearance. This has involved track lowering under bridges, work on platform edges and track-slewing.

SEA DEFENCES Significant works on sea defences have been completed at Parton, incorporating rock armour protection for the toe of the sea wall. These works will help protect this part of the route against the erosive effects of the sea, and will help improve performance of the route. Feasibility studies into potential further works are ongoing.

STATION REGENERATION Work at Grange-over-Sands has returned the station to its Victorian splendour, while providing modern facilities, and has received the Railway Heritage Trust Award. Work has also been undertaken at Barrow and Cark.

WINDERMERE BRANCH We have undertaken preliminary feasibility work to understand options for potential capacity enhancements between Oxenholme and Windermere.

Together with Cumbria County Council, and interested train operators, we are currently considering options for enhancement, and exploring whether viable funding mechanisms exist to support such work.

Drainage work has recently been undertaken to help resolve the long-standing flooding problem on this branch. This will improve performance.

FNW; GNER; Midland Mainline; Northern Spirit; Virgin CrossCountry; EWS; Freightliner.



- A** 'Leeds 1st' project – enhance capacity at Leeds
- B** Infrastructure works to support t introduction of Class 333 trains
- C** Halifax–Huddersfield – new service
- D** Pontefract–York – increased capacity and capability as part of ECML upgrade
- E** Settle–Carlisle – capacity increase

See page 127 for colour key



Route characteristics

DESCRIPTION This geographic route is made up of a number of largely urban routes centring on Leeds. These are mainly two track with linespeeds of up to 70mph. The Leeds and Bradford to Ilkley and Skipton section is an electrified

two-track railway with a linespeed of 90mph. The route through Settle to Carlisle provides a transport link to more remote and rural areas, with predominant linespeeds of 60mph.

Route vision

Our vision for this vital network carrying passenger traffic and freight in Yorkshire and Cumbria is to develop and encourage the continuing growth in travel around and into the thriving commercial centre of Leeds. To achieve this aim, we will expand capacity and capability for new and enhanced services.

Demand has grown strongly for services on this route and we expect the trend to continue. To meet the demand, we are making capacity available for both longer and additional trains. The major enhancements now under way at Leeds (Route 8) provide the core capacity to meet this expansion and stimulate additional passenger growth. The Leeds scheme will permit extra trains to operate to both local and interurban destinations. This will offer further opportunities for people seeking an alternative to the busy local road networks and will be strengthened by expanded car-parking facilities and better bus connections at local stations. New trains on the Leeds to Bradford, Ilkley and Skipton routes are planned in 2000 which, in conjunction with the enhancements at Leeds, will bring benefits of reduced journey times and provision of additional seating.

To provide for the growth in traffic on the Settle–Carlisle section, we are beginning a major three-year programme of track renewals this year. To confirm our future development strategy for this line, we are undertaking a detailed evaluation this year to understand the infrastructure needed to support freight traffic and passenger growth beyond the current projections. We have also

reviewed the potential for passenger service opportunities. Our vision is for a reliable mixed traffic route providing a vital transport service to local communities and connecting key city destinations.

We are developing new service opportunities for this route. Work has begun to open the rail connection between Halifax and Huddersfield. The provision of new track is required to facilitate the services sponsored by West Yorkshire PTE, which are planned for introduction on this route in May 2000. As part of the scheme a new station will be built at Brighouse, a community which is not currently served by rail. Further service developments for the local communities will be possible once this new link is in place. Our customers are developing proposals to provide a through Leeds–Glasgow service. We, with our industry partners, wish to develop the Leeds–Barnsley–Sheffield service to reduce journey times. This will support the South Yorkshire Centre of Excellence transport initiative while working closely with South Yorkshire PTE.

We predict freight growth will rise in line with the rest of the network for the majority of the route. We are currently evaluating the network impact of this growth, especially the section of the route from Hare Park Junction (near Wakefield) to Stourton (Leeds), Healey Mills and Thornhill (part of the proposed high-gauge route, see Route 8) and Moorthorpe to Church Fenton (forming part of the freight priority Routes, ECML Route 2).

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Halifax–Huddersfield	The reopening of the previously closed route between Dryclough Junction to Greetland and between Bradley Wood–Bradley Junction will see new passenger services running between Halifax and Huddersfield	2000	C
Wharfedale and Airedale	Route works and platform extensions are being undertaken to enable the Leeds North West route to be cleared for Class 333 train operation, which will provide additional seating and shorter journey times	2000	B
Settle–Carlisle	Further increases above those already predicted for freight traffic, and the possible introduction of new services to Glasgow, may require capacity on this route to be increased A study to develop the best industry solution is currently under way and will report in summer We have already increased the hours of the route's operation through introduction of a night shift	2000	E
Leeds–Barnsley journey-time improvements	The resignalling and remodelling of Leeds will enable improved journey times between Leeds and Barnsley and increase reliability	2002	A
Millford Junction	Freight growth at this location will exceed current capacity Our solution is to enhance the layout to avoid conflicting moves around the junction and will be completed by 2002, progressing as part of the ECML upgrade (see Route 2)	2003	D
Leeds	As part of 'Leeds 1st' project, a major scheme of works has begun to double track capacity (four to six tracks at the West end), by reducing journey times and improving train punctuality The overall project included redevelopment of the station and this is well under way, providing improvements in passenger access and new transport interchange facilities	2002	A

These are the route improvements we plan to deliver continued

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Leeds–Skipton	42	7	36mph (44min)	No change	No change	41mph (38min)
Leeds–Carlisle	182	20	42mph (2hr 40min)	No change	No change	48mph (2hr 23min)
Leeds–Harrogate	32	6	34mph (35min)	No change	No change	35mph (34min)
Leeds–Barnsley	42	5	33mph (47min)	No change	No change	52mph (30min)
Leeds–Ilkley	26	5	32mph (29min)	No change	No change	37mph (26min)
Leeds–Castleford	16	2	35mph (17min)	No change	No change	38mph (16min)
Leeds–Barnsley–Sheffield	65	10	30mph (1hr 21min)	No change	No change	43mph (57min)
LINESPEEDS (km of track)						
Up to 35mph			164	164	164	164
40–75mph			867	867	867	867
80–105mph			83	83	83	83
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			1114	1114	1114	1114
GAUGE (km of route)						
W6A			710	710	710	710
W7			664	664	664	664
W8			546	546	546	546
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			13	13	13	13
20.4 tonnes to 23.4 tonnes			1099	1099	1099	1099
23.5 tonnes to 25.4 tonnes			2	2	2	2
TOTAL			1114	1114	1114	1114

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
LONDON NORTH EASTERN ZONE					
Track	2.8	5.3	4.4	36.3	
Structures	2.6	4.8	4.2	6.9	
Signalling	0.2	0.6	1.4	5.6	
Electrification	0.2	0.0	0.0	0.0	
Plant & Machinery	0.2	0.0	0.4	2.2	
Telecoms	0.0	0.2	0.2	0.0	
Stations	0.3	0.8	0.2	4.3	
Depots	0.0	0.0	0.2	2.4	
TOTAL EXPENDITURE	6.5	11.7	11.0	57.7	
NORTH WEST ZONE					
Track	0.0	1.2	1.0	4.1	
Structures	2.8	0.6	0.7	5.4	
Signalling	0.0	0.1	0.2	4.5	
TOTAL EXPENDITURE	2.8	1.9	1.8	14.0	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
LONDON NORTH EASTERN ZONE							
COMMERCIAL							
Milford Junction enhancement	2004	0.0	0.0	0.0	1.5		D
PARTNERSHIP							
Leeds North West Class 333 operation	2001	0.0	2.0	1.0	0.0	4	B
Car-park extensions	2001	0.0	0.3	0.3	0.0	4	
New lifts	2001	0.0	0.3	0.3	0.0	1	
THIRD PARTY							
Crosshills new station	2001	0.0	0.0	0.8	0.0	1	
New stations for West Yorkshire PTE	2002	0.0	0.0	0.0	0.5	4	
Other schemes	Various	0.2	0.1	0.3	0.3	12	
TOTAL RAILTRACK EXPENDITURE		0.1	0.5	0.6	2.2	25	
TOTAL NON-RAILTRACK EXPENDITURE		0.1	2.2	1.9	0.1		
NORTH WEST ZONE							
COMMERCIAL							
Track work Settle–Carlisle	2002	0.0	5.0	5.0	5.0		
PARTNERSHIP							
Settle–Carlisle speed & capacity upgrade	2003	0.0	0.0	0.4	11.6	1	E
Other schemes	Various	0.0	0.0	0.0	0.0	1	
TOTAL RAILTRACK EXPENDITURE		0.0	5.0	5.4	16.6	2	

Progress on the 1998 NMS

We have consulted with our customers – the passenger and freight train operators – to determine their future needs and how we can best meet them. Our vision contains the opportunities demonstrated by this process and we are committed to developing the schemes to move us towards these goals.

CAPACITY During the year, we have carried out extensive design and feasibility work for the new Halifax–Huddersfield Line and for the station at Brighouse. We have worked closely with WYPTE to produce the most affordable solution to meet local needs. We are now on site with preparatory works at Brighouse to enable services to commence by 2000. Full works will start upon final agreement with the PTE. During 1998, the Settle and Carlisle Line was returned to 24-hour operation with the overnight opening of the signal boxes to allow the passage of increasing volumes of freight traffic.

PERFORMANCE Performance at the Leeds hub has been the focus of particular attention this year to deliver improved reliability to the many services using this very busy part of the network. Particular attention has been devoted to points care, drainage improvements and reduced friction points.

We have implemented successful performance improvement initiatives at a series of junctions on the route. These have used investment and other innovative solutions to overcome the operational problems caused by contamination to point mechanisms caused by the spillage of coal dust from wagons. This, together with enhanced maintenance and tighter management, has consistently reduced delays caused by infrastructure by around 20% compared to last year. We are now working with the train operators to implement further improvement schemes.

LEEDS Works have been completed at Leeds as part of the 'Leeds 1st' project to reopen the north concourse, providing additional car parking, and improved retail facilities. We are now implementing our plans to make the station a fully

integrated transport facility to support the track capacity enhancement. This work, to be completed by 2002, will provide access for all to the station, with a new bridge, lifts, platform surfaces and lighting. Customer facilities will be developed with improved interchange facilities for rail and bus, additional car parking, new lounges, ticketing and information facilities. The number of platforms will be increased and the station ambience will be revolutionised with a new overall roof. (Please refer to Route 8.)

STATIONS Station improvements are complete at Harrogate, Shipley, Bingley, Knaresborough and Skipton. Major work on the roof at Keighley Station was undertaken this year and further regeneration work has now started and will enhance some of the historical features at the station. We are on site and scheduled for completion later this year at Halifax, Huddersfield, and York.

Station improvements are also well under way on the route between Settle and Carlisle, with particular work to improve the platforms, lighting and waiting shelters at the stations. Work on the station buildings at Goole will begin later this year following the granting of planning permission.

Design work has been completed for improvements at Wakefield Kirkgate which are currently subject to planning permission.

We are in discussion with West Coast Railway Company concerning the provision at Hellfield of a connection to the rail network for charter train operations.

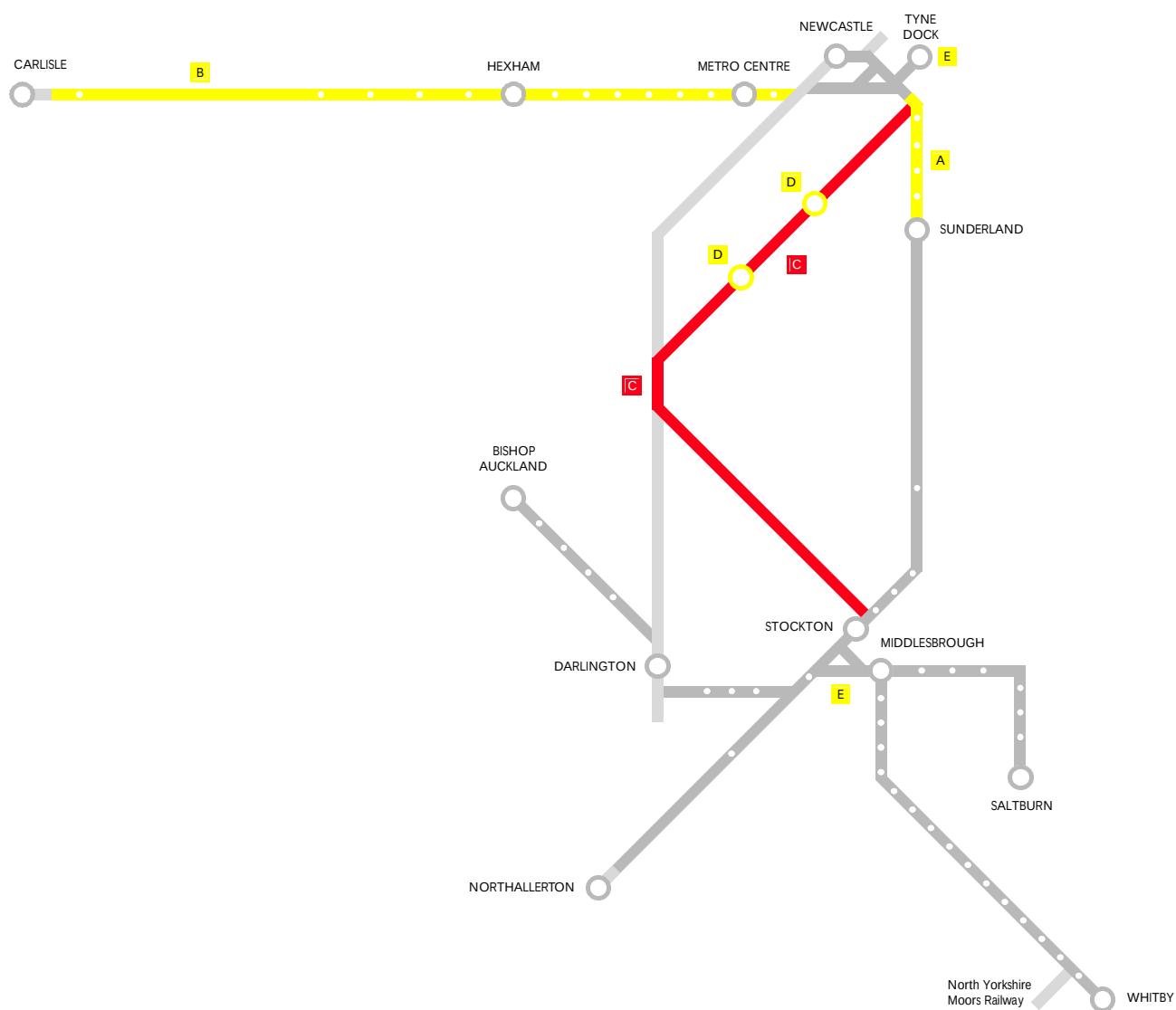
Station enhancement works have been undertaken to accommodate the introduction of Class 333 trains on the Wharfedale and Airedale routes. We have also assisted GNER through infrastructure modifications to allow Class 91 trains to use the route from Skipton to Leeds to provide a direct Skipton–London service. On the Settle–Carlisle route we are working with Railway Heritage Trust, the S&C Development Group and the Friends of S&C to enhance stations and accommodate longer trains.

Northern Spirit; DRS, EWS; Freightliner.



- A** Extension of Tyne and Wear Metro to Sunderland
- B** Newcastle–Carlisle – increase in linespeed
- C** Reopening of Leamside route as part of ECML upgrade
- D** Possible new stations for new passenger service over Leamside Line
- E** Increased freight vehicle gauge

See page 127 for colour key



Route characteristics

DESCRIPTION This route covers the passenger railways in the North East, particularly those serving the conurbations on the Rivers Tyne, Wear and Tees. It provides lowland regional passenger services, while carrying a substantial volume of freight trains from Teesside and Tyneside and providing a link to WCML and Scotland via Carlisle.

The lines within the area are predominantly two track with typical linespeeds of 60mph; the exception is the single-track Whitby branch with linespeeds of 30–40mph.

Route vision

Our vision is to develop the routes in the North East (i) to allow introduction of new services using existing passenger lines and lesser-used freight-only lines and (ii) reduce journey times wherever practicable. We wish also to develop further freight connections to the network at industrial sites throughout the North East.

The biggest development project is the extension of the Tyne & Wear Metro System from Newcastle to Sunderland and South Hylton (Sunderland University). We have been working very closely with NEXUS (Tyne & Wear PTE) to draw up detailed plans for this. Following discussion with Government in late 1998, we are now working with NEXUS to assess the extent of funding we can provide. This has involved detailed design work and evaluating likely costs. A swift resolution of this issue is needed in order to adhere to the project timescales. The scheme will provide a direct, very frequent, Metro connection between Sunderland and the extensive NEXUS Tyne & Wear Metro system. This is an exciting scheme – for the people of Sunderland, for NEXUS and for us. It will provide a level of city centre access that can only be achieved through a Metro system. The scheme will also pioneer the running of lightweight Metro vehicles on the national rail network, creating an example that can be mirrored elsewhere. We will use TPWS (see Section 4.7) to manage the joint operation of trains and trams on this line.

Opportunities for other passenger services have been identified through our work on the East Coast Main Line (Route 2). In particular, the freight priority routes will open up the possibility of new passenger rail stations and services. One such service is a fast Middlesbrough–Newcastle service, which could serve new stations on the currently disused Leamside Line at Durham A1 Parkway and at Washington. Another scheme which we are keen to promote, depending on funding partners, is to open up the freight line to Ashington northeast of Newcastle, to passenger services.

This could provide for passenger services from Newcastle to stations at Backworth (a possible park and ride off the A19 and Metro interchange), Blyth, Bedlington and Ashington.

We are investigating an opportunity to develop rail facilities in conjunction with probable expansion of the Metro Centre (a large shopping centre west of Newcastle). Specifically, by building turnback facilities at the existing station, it would be possible to develop additional services to Metro Centre from places such as Morpeth, Durham and Darlington.

Freight growth has been projected to double over the next five years, principally on flows from Teesside and Tyne Dock and on flows to the ECML. We will develop schemes to sustain the growth of these freight services, as we project capacity will be exceeded by 2005. Schemes are also being evaluated to provide facilities for high-gauge traffic from Teesside and Tyne Dock. We are working to understand the potential for freight services to Whitby.

Reduced passenger journey times is an important part of our vision for the routes in the North East. We are evaluating how best to achieve our immediate target journey time of 75 minutes for Carlisle to Newcastle, with an ultimate aim of 70 minutes. The reopening of the Leamside Line, as noted above, will also provide for much faster journeys between Teesside and Tyneside.

Finally, we have been working with Northern Spirit and the North Yorkshire Moors Railway to develop tourism along the Esk Valley line to Whitby; most visibly by supporting the running of steam trains from Pickering to Whitby. We hope to develop this initiative further for the benefit of rail enthusiasts and passengers alike.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Tyne & Wear Metro	Provide facilities for the integration of Metro (light rail) services with the existing national rail services between Newcastle, Sunderland and South Hylton. This exciting scheme will involve the electrification of the route, new junctions at Pelaw and Sunderland, new stations, and a completely new railway between Sunderland and South Hylton.	2001	A
Newcastle–Carlisle	We are progressing a feasibility study to identify the work required to deliver our immediate target journey time of 75 minutes from Carlisle to Newcastle. Key to this is the need to modify the ways in which certain of the level crossings on the route operate.	2000	B
Leamside	In conjunction with the ECML upgrade proposals (Route 2) we are supporting the proposal to open new stations on this route to provide a fast interurban service between Middlesbrough, Durham, Washington and Newcastle.	2003	C D
Freight capability	We have evaluated the route to Tyne Dock for high-gauge freight and determined that some infrastructure changes would be required. Work is now under way to identify the requirements to provide high-gauge facilities for Teesside.	2005	E

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Newcastle–Sunderland	19	4	37mph (19min)	No change	No change	39mph (18min)
Newcastle–Carlisle	97	14	45mph (1hr 21min)	No change	No change	48mph (1hr 15min)
Sunderland–Middlesbrough	58	4	41mph (53min)	No change	No change	45mph (47min)
Newcastle–Middlesbrough	82	9	50mph (1hr 01min)	No change	No change	63mph (48min)
Northallerton–Middlesbrough	34	2	45mph (28min)	No change	No change	49mph (26min)
Middlesbrough–Whitby	56	16	24mph (1hr 25min)	No change	No change	26mph (1hr 20min)
LINESPEEDS (km of track)						
Up to 35mph			197	197	197	197
40–75mph			479	479	479	479
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			676	676	676	676
GAUGE (km of route)						
W6A			410	410	410	410
W7			399	399	399	399
W8			399	399	399	399
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			676	676	676	676
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			676	676	676	676

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	2.8	2.3	2.0	14.7	
Structures	1.4	1.4	0.2	5.4	
Signalling	0.6	0.7	0.4	12.3	
Plant & Machinery	0.0	0.0	0.4	2.2	
Telecoms	0.0	0.1	0.1	0.0	
Stations	0.0	0.1	0.2	4.9	
TOTAL EXPENDITURE	4.8	4.6	3.3	39.5	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
PARTNERSHIP							
Sunderland Tyne & Wear Metro (E)	2002	0.1	0.3	0.0	31.0	2	A
Other schemes	Various	0.0	0.0	1.5	0.0	12	
TOTAL RAILTRACK EXPENDITURE		0.1	0.3	0.0	31.0	14	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.0	1.5	0.0		

Progress on the 1998 NMS

CAPABILITY We have supported the development of the Sunderland Metro Scheme. We are now considering how to structure our approach to the implementation of this scheme to achieve a service start by the end of 2001. We have purchased sidings at Eaglescliffe to enable future freight traffic growth.

JOURNEY TIME We have identified the works required to deliver linespeed improvements between Northallerton and Middlesbrough. We are now discussing with our customers the economic viability of these improvements.

GENERAL WORKS A three-year programme of repairs and painting of the Newcastle High Level Bridge is now complete.

PERFORMANCE Our maintenance regime has been enhanced by developing a closer relationship with our suppliers and developing analytical measurement of asset performance identifying areas which need enhanced maintenance.

Consequently, delays have fallen considerably throughout this route by some 20% in the past 12 months. We are now developing our plans for the coming 12 months.

STATIONS The £20M programme of work on Newcastle Station is well under way. This extensive programme of work involves rebuilding the heavily corroded south barrel roof, refurbishing the main offices, improvements to the car parking, new lifts and an escalator connection to the Tyne & Wear Metro Station.

Work at Middlesbrough Station began in August 1998 and is scheduled for completion by the time this NMS is published. This has involved rebuilding and resurfacing the platforms, repairing the Victorian cast-iron canopy and its ingenious drainage, and renovating the subway.

At other stations throughout the area, we have carried out regeneration work, typically improving waiting shelters, resurfacing platforms and improving lighting.

ScotRail; DRS; EWS.



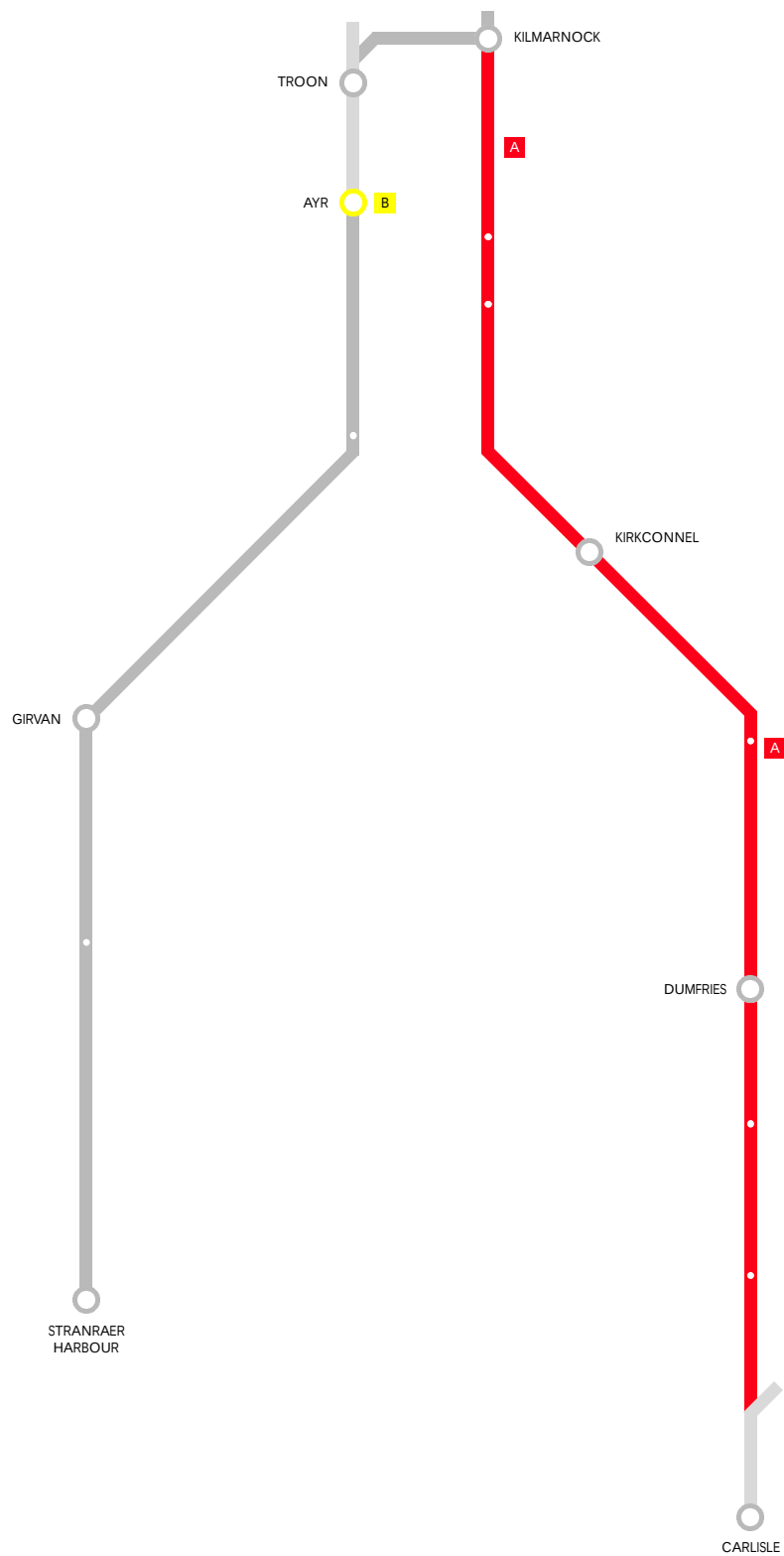
- A**

Kilmarnock–Gretna – capacity improvements and track renewals

- B

Ayr Depot – improvements to service new trains

See page 127 for colour key



Route characteristics

DESCRIPTION The Ayr–Stranraer route is primarily single track with passing loops. This is a passenger route providing connections with the ferry to Northern Ireland as well as an essential local service. Coal traffic runs over the northern section between Ayr and Dalrymple Junction. In contrast, the Kilmarnock–Carlisle Line is double track as far as Annan. This is a busy, mixed traffic line with very high and increasing levels of freight traffic, mainly coal en route to power stations in England, from local open-cast sites and imported via Clydeport's Hunterston Terminal. The line from Kilmarnock to Gretna Junction also acts as a diversionary route for WCML. The route is controlled from 14 signal boxes and has maximum linespeeds from 50mph to 80mph.

BOTTLENECK ANALYSIS The Kilmarnock to Gretna Junction route has several interlinked restrictions on capacity, which together create bottlenecks identified in the 1998 NMS.

The 125km route has a 13km single-line section, no passing loops, and long signalling sections which restrict train movements to a maximum of three per hour in each direction and 16–20 hours of operation per day.

The recent growth in freight train movements means that most of the route's capacity has been used.

To accommodate predicted growth in freight train movements, we have already increased the opening hours of the route, as well as introducing dedicated paths for freight train services to maintain the high-punctuality standards required by ScotRail. During 1999/2000 we will provide a passing loop facility, which will provide capacity for predicted train movements. If, however, these continue to expand above the predicted level, we will undertake a series of incremental enhancement schemes.

Route vision

The route provides links between smaller towns and larger conurbations and forms part of the Anglo–Scottish and Ireland–Scottish transport corridors. Our analysis predicts further significant increases of Anglo–Scottish freight trains, while other markets will continue to grow.

Our vision for the route is one of a very busy rural railway with a significant requirement for freight train movements. We will provide the additional train paths and the new infrastructure to support them by providing additional loops and crossovers between Gretna and Kilmarnock. The existing infrastructure will be improved to allow larger and heavier trains. The route makes an important contribution to the economic growth of South West Scotland with its important ferry services.

Our vision for passenger traffic is that it will grow, but that most of this growth will be accommodated. We are supporting this growth by providing better station facilities, and infrastructure works to provide improved reliability and performance.

We see the Ireland–Scottish Route as vital for the economy of Stranraer. We will work in partnership with our customers and the local authorities to develop, expand and improve both passenger and freight business with the objective of benefiting the community and the environment by encouraging the transfer from road to rail.

Route development and customer requirements

ScotRail is primarily seeking to maintain and improve performance. They are concerned that increased numbers of slower freight trains do not impede the movement of scheduled passenger trains. Dedicated freight train paths and the addition of a loop between Dumfries and New Cumnock will increase the capacity and maintain ScotRail's performance. ScotRail is satisfied with the current track quality. They are also keen that facilities at stations are improved.

EWS and DRS require the provision to operate more trains with more flexible pathing arrangements between Carlisle and Kilmarnock. EWS also desires improved access to operate larger, heavier and longer trains. Both EWS and their

customers are seeking to reopen disused sidings and provide suitable loading and unloading facilities. In partnership with EWS, we are currently investigating extensions to loops and improved operation of the Knockshinnoch branch, together with sidings at Girvan, Stranraer and in the New Cumnock area.

Local authorities want to see the facilities at stations improved as well as a faster and a more frequent level of services. This is particularly relevant at Stranraer, where the local authority is anxious to retain and expand rail links with the sea crossing to Belfast. A key issue in this area is connections from remote rural areas with major towns and long-distance services.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Kilmarnock–Gretna Junction	Optimisation of train paths and the utilisation of the route for 24hrs each day	1999	A
	Provision of loop to increase capacity and flexibility	2000	
	Additional loops and crossovers to meet future growth	2002	
Various new freight traffics	Track and associated signalling	Ongoing	

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Stranraer–Carlisle	270	10	48mph (3hr 31min)	No change	No change	No change
Stranraer–Glasgow	163	6	48mph (2hr 07min)	No change	No change	No change
Glasgow Central–Carlisle	185	8	49mph (2hr 22min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			10	10	10	10
40–75mph			315	315	315	315
80–105mph			51	51	51	51
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			376	376	376	376
GAUGE (km of route)						
W6A			242	242	242	242
W7			241	241	241	241
W8			241	241	241	241
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			119	119	119	119
23.5 tonnes to 25.4 tonnes			257	257	257	257
TOTAL			376	376	376	376

Other route developments

LOCATION	PROPOSED SOLUTION	YEAR	REF
Discharge of train toilet tanks at Ayr Depot	New controlled emission toilet facilities	1999	B
Improved security and safety at a number of stations	Upgrade lighting		
	Install CCTV		
	Enhance customer-information systems	Ongoing	
Improved facilities at key stations	Improvements to waiting rooms, toilet facilities, cycle rack and retail outlets	Ongoing	

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02 to 2005/6	REF
NORTH WEST ZONE					
Track	0.2	0.4	0.3	1.4	
Signalling	0.0	0.0	0.0	0.3	
TOTAL EXPENDITURE	0.2	0.4	0.3	1.7	
SCOTLAND ZONE					
Track	4.5	2.9	2.4	17.0	
Structures	1.1	0.7	1.4	7.4	
Signalling	0.0	0.3	0.5	17.3	
Plant & Machinery	0.4	0.1	0.1	2.0	
Telecoms	0.0	0.0	0.0	0.1	
Stations	6.3	4.3	4.3	1.9	
Depots	0.0	0.0	0.0	1.0	
TOTAL EXPENDITURE	12.3	8.3	8.7	46.7	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	0.0	0.4	0.4	0.1		
COMMERCIAL							
Capacity enhancements Kilmarnock–Gretna	2002	0.1	0.5	0.5	0.9		A
PARTNERSHIP							
CIS enhancements	2000	0.0	0.1	0.0	0.0		
Other schemes	Various	0.0	0.1	0.0	0.1		
TOTAL RAILTRACK EXPENDITURE		0.1	1.0	0.9	1.1		

Progress on the 1998 NMS

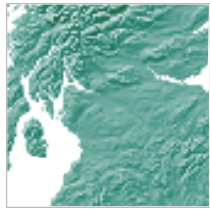
TRACK Various renewals have been completed over the past 12 months. At these locations, the opportunity has been taken to install modern components to give increased reliability. This is of particular importance between Mauchline and Gretna where freight tonnage has significantly increased on track which has for many years only carried lightweight passenger rolling stock. A policy of strengthening the track at similar locations will continue.

PLANT AND ELECTRICAL The points-heater programme has continued, enabling our performance to be maintained and improved when cold weather would otherwise put the service to customers at risk. This has resulted in 53 point-ends being entirely refurbished at 13 locations, including installing new power supplies, strip-heaters and sensing equipment. Provision has been made for remote monitoring equipment so that, in the future, our maintenance contractor can identify potential faults and attend the site with the relevant equipment, thereby reducing the potential for delay.

STRUCTURES The infill/repair work at U/B172 New Cumnock has been completed, thus enabling the speed restriction for freight trains to be removed and the line limit of 70mph restored. Improvements to lineside drainage have been carried out, thereby maintaining performance even in the worst conditions.

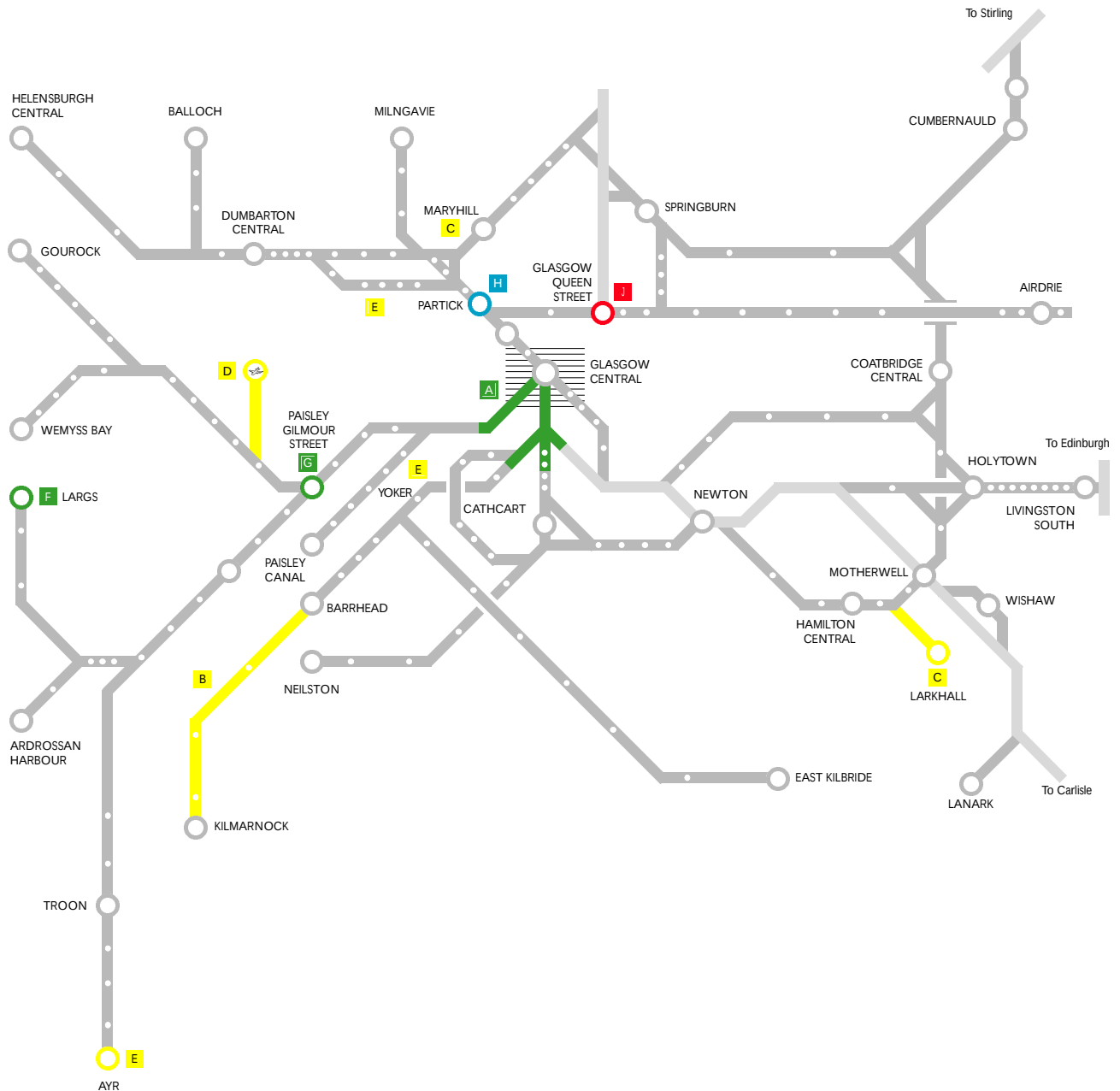
STATIONS Nine of the 12 stations on the route have had work carried out as part of the SRP. The regeneration work is being carried out by us, following full consultation and agreement over the scope of work with ScotRail and the relevant local authority and SPT. ScotRail has, in addition, taken the opportunity to carry out additional work at its own cost and at the same time, thereby minimising the extent of disruption to the travelling public.

GNER; ScotRail; Virgin West Coast; DRS; EWS; Freightliner.



- A** Glasgow Central – renewal of signalling equipment
- B** Barrhead–Kilmarnock – increase in capacity
- C** Larkhall–Milngavie – reopening line Larkhall–Hamilton and new service to Milngavie
- D** Glasgow Airport – rail link
- E** Depot enhancements for servicing new trains
- F** Largs Station – reconstruction
- G** Paisley Gilmour Street – station enhancements
- H** Partick Station – new transport interchange facilities
- J** Glasgow Queen Street Station – retail development

See page 127 for colour key



Route characteristics

DESCRIPTION The route is the largest suburban passenger railway outside of London, with freight carried on many of the lines. The route is mainly double track, although 23% is single line. In the Glasgow Central area, there are multiple tracks. Speeds vary considerably, ranging from 40mph to 90mph. Signalling is predominantly colour-light using route-relay interlockings. 58% of track miles is electrified using 25KV OLE.

The route is largely co-terminus with the Strathclyde Passenger Transport (SPT) area of responsibility and runs through 12 local authority areas in whole or in part.

BOTTLENECK ANALYSIS Two potential bottlenecks have been identified on the route: at Glasgow Central and between Barrhead and Kilmarnock.

Our analysis at Glasgow Central shows that there is sufficient capacity for all the identified existing and future services, although specific provision may have to be made to accommodate a possible 15-minute interval service to Glasgow Airport (see Route 1 for more details).

Route vision

The Strathclyde route is the primary public transport network for the Glasgow area. Our vision is to develop the network to maintain its position and grow its share of an expanding market.

SPT is responsible for setting the service specification and standards on these routes. ScotRail is the service provider. SPT is responsible for funding these services and is keen to promote expansion where this can be viably achieved.

We envisage a dynamic urban railway providing fast, frequent and reliable services radiating out from Glasgow's city centre throughout the conurbation. The rail service plays a key role in an integrated system throughout the area, helping to improve the environment by reducing road congestion, thereby ensuring the economic and cultural growth of Scotland's largest city.

Our analysis of projected passenger travel predicts an underlying growth of up to 35% over the next ten years, much of which will be off-peak travel. SPT will need to continue its proactive marketing policy, seen as of vital importance – as is punctuality, performance and quality image. Other growth areas will be addressed by the provision of additional capacity in the form of extra train paths and services, and in the opening of new lines and stations.

To accommodate the proposed service increase on the Barrhead–Kilmarnock Line, an additional loop will be needed between Stewarton and Dunlop.

Most lines in the Strathclyde Route carry freight traffic, with the main flows in terms of tonnage and traffic levels being concentrated in the Mossend–Coatbridge area where the main English Welsh & Scottish Railway and Freightliner Ltd terminals are located in Scotland. Significant traffic is now being generated by Clydeport's Hunterston Bulk Handling Terminal on the Largs Branch. Several smaller freight facilities are encompassed within this route. We forecast freight traffic will continue to expand rapidly.

Glasgow Central The largest single station regeneration scheme in Scotland costing £35M is at Glasgow Central, which involves upgrading the facilities for passengers and renewing the roof. The Argyle Street Bridge renovation received a special mention in the recent Ian Allan Heritage Awards.

In addition, we are reviewing the ability of the station to accommodate the forecast passenger growth, together with a number of customer requirements, including improved waiting facilities, and are preparing a development programme.

Route development and customer requirements

Strathclyde Passenger Transport requirements can be divided into three groups.

- Faster and more frequent services, such as Glasgow–Cumbernauld–Croy, Ayr, Kilmarnock, Paisley Canal, Whifflet, Maryhill and East Kilbride as well as Bellgrove–Dalmuir and Newton–Neilston. Railtrack has appropriate measures/plans in place to meet these.
- New stations at Howwood and Gartcosh, and improvements to the Partick interchange. Improvements in disabled access, customer-information systems, CCTV and car parking which are being delivered at some stations.
- New routes to Larkhall, between Maryhill and Anniesland, and to Glasgow Airport. We are expecting to reach a PFI agreement to allow the Larkhall extension to be built.

In addition, SPT desires include improved performance, reduced journey times and fewer interruptions due to engineering work. We have introduced an enhanced maintenance policy at key locations to improve performance.

ScotRail's requirements for this route include those of the SPT with the addition of facilities to discharge on-train toilets at Ayr, Corkerhill and Yoker, and expansion of driver-only operation for Paisley Canal, Whifflet and to West Calder. They also require the extension of the overhead electrification to Paisley Canal and between Rutherglen and Coatbridge and the construction of a new station at Abbronnhill.

DRS, EWS and Freightliner require the provision for piggyback services from the south to Mossend. The general ability to move larger-gauge traffic and improved performance are requirements for all routes. We have completed our assessment of their proposals at Motherwell Depot, which would provide additional facilities and we look forward to its implementation.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Glasgow Central	Improved performance arising from enhanced reliability as a consequence of the resignalling scheme	2003	A
Barrhead–Kilmarnock	Provide a dynamic loop allowing trains to pass without stopping, between Stewarton and Dunlop	In agreement with SPT	B
Larkhall–Milngavie	Construct 4.65km of electrified railway between Larkhall and Haughead Junction (south east of Hamilton) and provide three stations Reinstate a 1.65km line between Maryhill Park and Anniesland and build a new station	2001	C
Glasgow Central–Glasgow Airport	Construct a new electrified railway off the Glasgow to Gourrock line	2006	D

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	KM	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Helensburgh–Drumgelloch	59	19	31mph (1hr 10 min)	No change	No change	No change
Dalmuir–Lanark	62	22	30mph (1hr 17min)	No change	No change	No change
Glasgow Central–Neilston	19	9	26mph (27min)	No change	No change	No change
Glasgow Queen Street–Maryhill	8	4	23mph (13min)	No change	No change	No change
Glasgow Central–Gourock	42	6	38mph (41min)	No change	No change	41mph (38min) Increased linespeed from 75mph to 90mph
Glasgow Central–Ayr	69	7	48mph (52min)	No change	No change	53mph (47min) If selected stopping patterns used
LINESPEEDS (km of track)						
Up to 35mph			103	105	105	105
40–75mph			694	700	700	719
80–105mph			85	85	85	85
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			882	890	890	909
GAUGE (km of route)						
W6A			468	473	473	492
W7			468	473	473	492
W8			274	278	278	298
W9			39	39	39	39
W10			0	0	0	39
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			97	97	97	97
20.4 tonnes to 23.4 tonnes			106	106	106	106
23.5 tonnes to 25.4 tonnes			679	687	687	706
TOTAL			882	890	890	909

Other route developments

LOCATION	PROPOSED SOLUTION	YEAR	REF
Discharge of train toilet tanks at Ayr, Corkerhill & Yoker depots	New controlled emission toilet facilities	1999	E
Improved carriage washing at Corkerhill	New washing plant	1999	E
Largs Station	Reconstruction and development of the station	1999	F
Paisley Gilmour Street	Provision of lifts and enhancements	1999	G
Partick Station	Redevelopment and provision for integrated transport facilities	Subject to City Challenge funding	H
Improved car parking for the disabled	Development in partnership with the SPT	1999	
Retail development at Glasgow Queen Street	Upgrades to retail outlets	1999	I
Improved security and safety at stations	Upgrade lighting Install CCTV Enhance customer-information systems	Ongoing	
New stations at locations required by SPT	Development in partnership with the SPT		
Improved station facilities	Improvements to waiting rooms, toilet facilities, cycle rack and retail outlets	Ongoing	

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	6.1	5.0	4.0	29.7	
Structures	2.7	2.1	2.9	17.6	
Signalling	10.9	4.0	7.4	34.7	A
Electrification	4.7	0.5	1.0	22.5	
Plant & Machinery	2.3	1.2	0.2	3.2	
Telecoms	1.4	2.7	6.4	8.1	
Stations	15.9	6.1	6.1	13.6	
Depots	0.1	0.2	0.2	4.8	
TOTAL EXPENDITURE	44.1	21.8	28.2	134.2	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Paisley Gilmour Street improvements	2000	1.2	0.5	0.0	0.0		G
Largs Station rebuild	2000	0.0	1.0	0.0	0.0		F
Station enhancements	2001	0.0	0.4	0.4	0.1		
AWS	2002	0.0	0.0	0.0	0.5		
PARTNERSHIP							
Glasgow Airport rail link	2005	0.1	0.0	0.1	50.0	1	D
Larkhall–Milingavie and Anniesland	2001	0.0	10.0	14.0	0.0	1	C
CIS enhancements	2000	0.0	0.1	0.0	0.0	1	
CONTRACTOR							
Barrhead–Kilmarnock capacity improvements	2002	0.8	0.0	3.0	4.3		B
FEASIBILITY							
Station information & security	2007	0.0	0.0	0.0	1.0	1	
THIRD PARTY							
SPT new stations	2009	1.3	1.0	1.4	7.0	1	
SPT car parks	2001	0.0	0.1	0.2	0.0	1	
Other schemes	Various	0.5	0.9	0.6	9.9	10	
TOTAL RAILTRACK EXPENDITURE		0.0	10.9	14.5	7.0	16	
TOTAL NON-RAILTRACK EXPENDITURE		3.9	3.1	5.2	65.8		

Progress on the 1998 NMS

SIGNALLING The renewal of the signalling equipment based on Cowlares signal box has continued. The completion of this scheme will help to maintain and improve reliability and performance and has already resulted in improvements in the flexibility of operation in and out of Queen Street Station, giving an improved service to the travelling public. This year £19M has been spent, out of a total of £25M. The three-year project will be completed in May this year when the Sighthill–Cumbernauld section will be commissioned. These works have seen the removal of Sighthill, the last mechanical signal box in the Glasgow area.

Detailed development has been carried out at four major signalling locations – Glasgow Central, Rutherglen, Polmadie and Mossend – allowing renewal to begin during the next 12 months.

The renewal of train describers (which enable signallers to position and identify trains) at Glasgow and Motherwell has been completed, as has the replacement of the signalling interlocking at Motherwell. Equipment to protect the signalling at Yoker from power surges has been commissioned. The equipment that detects train movements (track circuits) has been upgraded with axle-counters installed at certain critical locations to improve the reliability and performance of the system.

PLANT AND ELECTRICAL The points-heater programme has continued as promised in last year's NMS. The installation of new or improved equipment at 47 locations involving 280 point-ends has enabled performance in the Strathclyde area to be maintained and improved during periods of cold weather.

Remote monitoring equipment has been installed enabling the performance of vital installations at key locations to be assessed without a visit to the site by our maintenance contractor. This allows a variety of equipment such as power generation sets and air supply systems to be monitored and their condition to be assessed at various locations. The objective is to identify potential failures, thereby avoiding delays to trains. If a fault occurs, the time taken to restore services is minimised as the technician can take the appropriate spares and fit them immediately. Equipment being monitored also includes anemometers

at three locations, providing warnings of high winds and the consequential risk to the OLE.

OLE power supplies have been renewed at Port Glasgow, Parkhead and Dalreoch. When commissioned, they will provide improved standards and a higher quality for electric train services.

STRUCTURES Two tunnels have had significant works carried out. The first – at Knightswood – saw the renewal of the original cast-iron roof beams supporting a public road and the Forth and Clyde Canals. Construction took place during an agreed closure of the railway, the road and the canal. Disruption was kept to a minimum with the works being completed within the planned 43 days. At Abonhill Tunnel, the solution was different; the roof of the tunnel was removed and a cutting created. Both of these major works have prevented possible future collapse of the structure and will provide an assured service for more than a century. Even with regular inspections the unexpected does occur, as happened at Paisley when a retaining wall started to show signs of deterioration. Remedial work was rapidly arranged to avoid closure of the route.

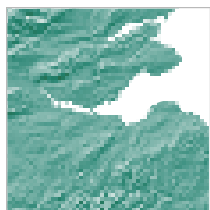
Drainage works have been completed at various locations, thereby maintaining and improving performance despite abnormally high rainfall levels.

STATIONS Drumfrochar Station was opened in May, sponsored and funded by the SPT and constructed by us.

The Station Regeneration Programme has continued, with 98 stations completed to date. The largest worksite is the roof repairs at Glasgow Queen Street. The regeneration work is carried out by us, but only after full consultation and agreement over the scope of work, with the SPT and ScotRail. Additional work has been carried out at the same time by the SPT, at its own cost, to upgrade adjacent facilities.

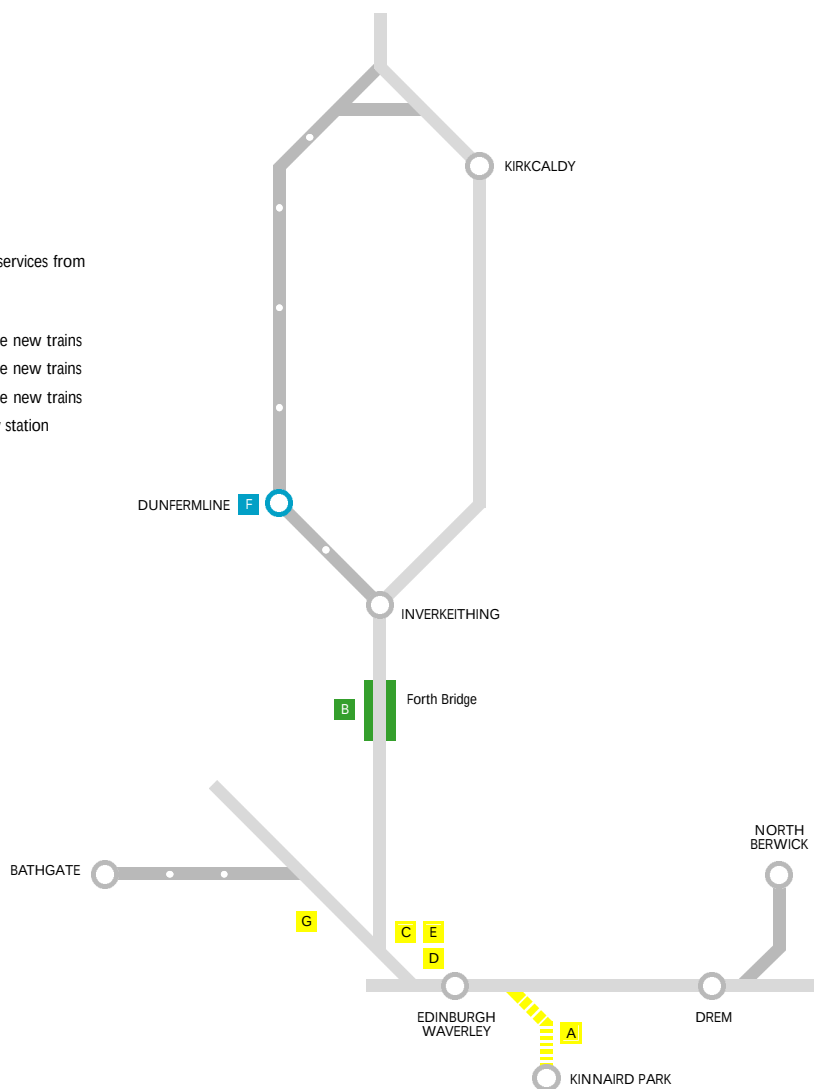
In addition to the regeneration work, improvements to station lighting and the provision of CCTV equipment at a number of stations have improved safety and security for the public.

ScotRail; EWS



- A** Edinburgh CrossRail – extension of services from Fife, Bathgate to Kinnaird Park
- B** Forth Bridge – additional capacity
- C** Haymarket Depot – facility to service new trains
- D** Haymarket Depot – facility to service new trains
- E** Haymarket Depot – facility to service new trains
- F** Dunfermline Queen Margaret – new station
- G** Edinburgh Park – new station

See page 127 for colour key



Route characteristics

DESCRIPTION The Route consists of three distinct elements, Inverkeithing Central Junction–Thornton North and South Junctions (Fife Inner Circle), Drem Junction–North Berwick, and Newbridge Junction–Bathgate.

The Fife Circle is double track used by both freight and passenger traffic. Maximum speed is 65mph with the capability to carry 25-tonne axle weights between Inverkeithing and Cowdenbeath.

The Bathgate line is a mixture of double- and single-track railway, which is primarily used by passenger trains with a maximum linespeed of 75mph, but can also carry trains up to 25-tonne axle weight.

The North Berwick Branch is a four-mile long, single-line, passenger-only railway, electrified throughout with 25kV OLE.

The signalling on the route is by colour-light signals controlled from the Edinburgh signalling centre.

Based on current projections and customer requirements, there is sufficient capacity to meet future projections.

Route vision

The Edinburgh and Fife Route is set to act as the springboard for the future public transport network of Scotland's capital, currently awaiting the establishment of the Scottish Parliament. Serving the communities of West Fife, and parts of West and East Lothian, it is well positioned to take a leading role in relieving Edinburgh's over-stretched road network, which relies heavily upon the Forth Road Bridge and on the A720 ring road. This will be achieved by improving existing services, increased frequency of service and by growing new markets.

Our vision is of a route that expands to form a network of railway lines at the core of the city's urban transport requirements. It would then enable the provision of through services from Inverkeithing, West Calder and Bathgate to Kinnaird Park, with its shopping centres and proposed housing developments, eventually extending outwards to Dalkeith, Penicuik and the Borders. This would see the renaissance of railway travel in and around Edinburgh. These and other routes, would link with the bus network with the City of Edinburgh Rapid Transit

System into an integrated transport network serving Parliament and the administration, the airport, business, and not least the community, allowing an over-congested road network to function more efficiently with consequential benefits to the environment. We also support the principle of hypothecation whereby charges for entering or parking in the City of Edinburgh could be used to pay for an enhanced railway.

The route in both its current form and in an expanded future is seen as being vital in providing feeder services to other routes connecting Fife and the Lothians to the remainder of Scotland and beyond to England and the rest of Europe.

Coal traffic in Fife has grown in recent years and we predict that this and other freight traffic will continue to expand. The route is well positioned to realise ambitions of turning Rosyth into a major East Coast Port, providing connections to and from the ECML as well as potentially to the west.

Route development and customer requirements

ScotRail has increased the frequency of trains to Bathgate and to Fife which requires a very reliable infrastructure. To ensure reliability for these services we have introduced enhanced maintenance at key junctions to maintain and improve performance.

EWS requires improved access and reliability for their trains to and from Longannet power station.

Local authorities The authorities are keen to see a growth in the use of rail passenger transport and associated facilities.

- The introduction of the Edinburgh CrossRail scheme to Kinnaird Park. In partnership with The City of Edinburgh and ScotRail, we have initiated proposals and will take these forward following a satisfactory funding agreement.

- Possible extensions to Dalkeith, Penicuik and onwards to Carlisle (The Borders Railway).
- The reopening of direct services between Dunfermline and Stirling via Alloa.
- The development of Rosyth docks with associated rail services into a major east-coast port.
- Improved station facilities.
- New stations eg at Dunfermline Queen Margaret.

Our plans allow for these where appropriate.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Edinburgh CrossRail: Portobello Junction to Millerhill	Although not part of the actual route improvements to the track, signalling and new stations will be necessary for this new service, which is likely to be an extension of either the Bathgate, West Calder or Fife services	2002	A
Additional train paths over the Forth Bridge	Reduction in signal overlap lengths. Though not part of this route, they are vital to the growth in train services in Fife	1999	B
New freight traffics in Fife	Track & associated signalling	Ongoing	

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Edinburgh–Glenrothes via Dunfermline	49	10	33mph (56min)	No change	No change	No change
Bathgate–Edinburgh	30	3	43mph (26min)	No change	No change	No change
Edinburgh–North Berwick	38	5	43mph (33min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			21	21	21	21
40–75mph			78	78	78	78
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			99	99	99	99
GAUGE (km of route)						
W6A			56	56	56	56
W7			56	56	56	56
W8			32	32	32	32
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			8	8	8	8
20.4 tonnes to 23.4 tonnes			35	35	35	35
23.5 tonnes to 25.4 tonnes			56	56	56	56
TOTAL			99	99	99	99

Other route developments

LOCATION	PROPOSED SOLUTION	YEAR	REF
Discharge of train toilet tanks at Haymarket	New controlled emission toilet facilities	1999	C
Improved carriage washing at Haymarket	New washing plant	2001–02	D
Longer trains (Class170) at Haymarket	Trainshed extension	1999	E
New station at Dunfermline Queen Margaret	Development with Fife Council		F
New station at Edinburgh Park	Construction of a two-platform station with full facilities, in partnership with the Development Corporation, the City of Edinburgh and ScotRail		G
Improved security and safety at stations	Upgrade lighting Install CCTV Enhance customer-information systems	Ongoing	
Improved station facilities	Improvements to waiting rooms, toilet facilities, cycle rack and retail outlets	Ongoing	

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06
Track	3.1	1.7	1.4	9.8
Structures	1.1	0.7	1.3	7.3
Signalling	0.2	0.4	0.4	1.6
Electrification	0.0	0.0	0.0	0.0
Plant & Machinery	0.3	0.1	0.0	0.6
Telecoms	0.0	0.1	0.0	0.1
Stations	3.3	4.4	4.5	2.7
Depots	0.0	0.0	0.0	0.3
TOTAL EXPENDITURE	8.0	7.3	7.6	22.4

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	0.0	0.4	0.4	0.1		
PARTNERSHIP							
CIS enhancements	2000	0.0	0.1	0.0	0.0	1	
THIRD PARTY							
Dunfermline Queen Margaret – new station	2000	0.0	1.1	0.0	0.0	1	F
Other schemes	Various	0.1	0.1	0.0	2.4	2	
TOTAL RAILTRACK EXPENDITURE		0.1	0.6	0.4	2.5	4	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	1.1	0.0	0.0		

Progress on the 1998 NMS

SIGNALLING Signalling improvements have been completed in the Fife area, which increases capacity to facilitate an increase in train frequency from Glenrothes to Edinburgh via Cowdenbeath.

Early development of signalling works to renew the signalling equipment at Edinburgh is ongoing and will continue in 1999 with completion in 2001. This will ensure that the reliability and integrity of the systems are maintained. The equipment that enables signallers to position and identify trains (train describers) has been renewed and updated at Edinburgh, improving the reliability of control systems.

PLANT AND ELECTRICAL Additional points heaters have been installed, completing the programme that was started two years ago. This proved to be of benefit during the cold weather last winter, helping to improve performance and reduce delays.

Remote monitoring equipment, enabling the performance of vital installations at key locations to be assessed by our maintenance contractor, has been installed. This allows the condition of plant etc to be assessed – often before it fails – thereby avoiding delays to trains. Systems to monitor signalling power supplies, generators, mains power supplies and points heaters have been provided to improve services to destinations on this route.

Equipment to deter birds from nesting on overhead wires at certain bridges has been installed on the ECML north of Prestonpans, thereby reducing the risk of disruption to services caused by short-circuiting when trains pass.

STRUCTURES All passengers travelling to Fife will have observed the scaffolding which permits the refurbishment work to the Forth Bridge. This five-year programme is now about 25% complete.

STATIONS A new station has been opened at Dalgety Bay and the development of another station at Dunfermline has been carried out on behalf of Fife Council. Completion of this second station for the town is expected in 1999.

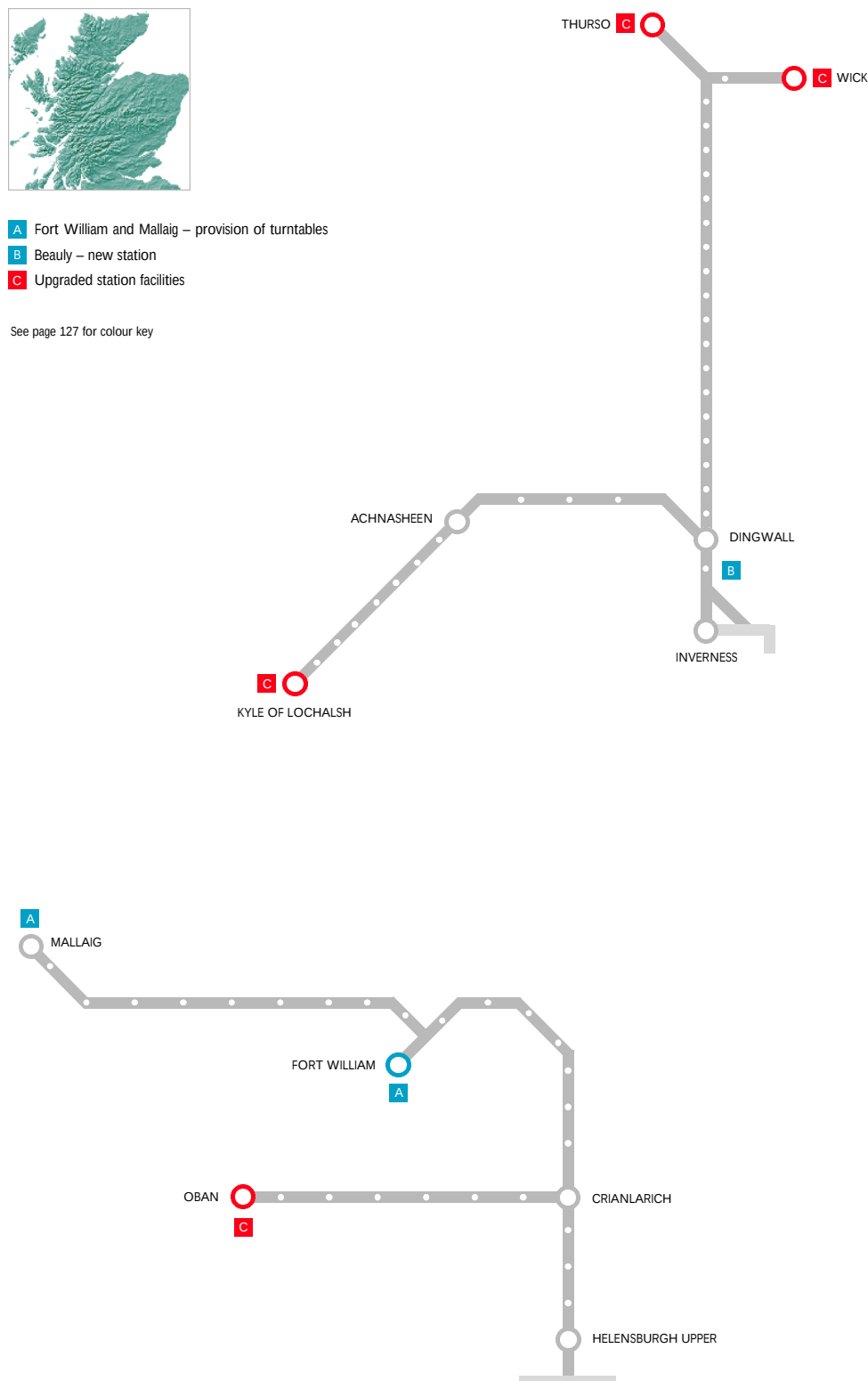
The Station Regeneration Programme has continued with five stations completed so far. ScotRail has, in addition, taken the opportunity to carry out additional work at its own cost at the same time, as have local authorities in upgrading adjacent facilities. Working in partnership has minimised the extent of disruption to the travelling public. In addition to the regeneration work, station lighting has been improved and CCTV equipment provided, including a new control centre at Dunfermline, which has allowed stations and car parks throughout eastern Scotland to be monitored. This has improved safety and security for the public.

ScotRail; West Coast Railway Co; EWS; Freightliner.



- A Fort William and Mallaig – provision of turntables
- B Beaulieu – new station
- C Upgraded station facilities

See page 127 for colour key



Route characteristics

DESCRIPTION The West Highland Line is a 180-mile-long single-track rural mixed-traffic railway with passing loops, which runs from Glasgow and terminates at Fort William, Mallaig and Oban, the last two locations being ferry terminals serving the Western Isles. The line has a regular passenger service. There is also an overnight sleeper service from Fort William to London, regular charter trains and a summer steam-hauled service. While freight traffic is predominantly concentrated in the Fort William area, there are other terminals on the line.

Similarly, the line from Inverness to the north is a 231-mile-long single-track, rural mixed-traffic railway with passing loops, which runs from Inverness and

terminates at Kyle of Lochalsh, Wick and Thurso, the latter location being near the ferry terminal serving the Orkney Isles.

As well as regular passenger services, it also carries charter services. Freight traffic is now being reestablished on a more regular basis over the entire line.

Apart from a pocket of conventional signalling in the Fort William area, the route is controlled from RETB centres at Banavie and Inverness.

There are 67 passenger stations on the route as well as several rail-connected freight facilities. The railway provides a vital social lifeline.

Route vision

Our vision is that the route will continue to provide a much-valued social role of linking small towns and settlements with larger conurbations and transport hubs throughout the year, while also serving the seasonal tourist industry. These links also include the ferry terminals serving many of the Scottish Islands. The route will continue to be maintained for the existing traffic, and will be appropriately enhanced and developed in order to meet our customers' requirements.

Passenger travel is predicted to grow but is likely to require further encouragement through continued good marketing, sound reliability and the provision of enhanced journey opportunities in conjunction with the tourist industry and the opening of new stations. These will need to be selectively funded and of designs suitable for the market that they serve.

We anticipate that the summer-only steam-hauled service between Fort William and Mallaig on the West Highland Line will continue.

We plan to continue our links and working arrangements with the various bodies in the area, including the Argyle and West Highland Heritage Trusts, in order to promote and develop railway travel.

Freight traffic on the West Highland Line is well established, and we see scope for this to grow further. Although currently more sporadic, there is the potential for freight to expand and become more diverse on the Far North Line, with the possible opening of several new terminals such as that recently provided at Kyle of Lochalsh.

Route development and customer requirements

ScotRail are primarily seeking to maintain and improve performance. They require that Beaulieu Station is reopened to provide a new facility for passengers. Designs have been prepared, and construction will be completed in 2000.

The West Coast Railway require improved facilities for their steam train operations on the West Highland Lines. In particular, they require turntables at Fort William and Mallaig.

EWS require improved access to load and unload trains at times and locations to suit their customers, and to operate trains with larger loads. This year, we

will have completed works enabling trains to carry refrigerated-food containers to run directly from Mossend to Wick and Thurso, and with a ferry connection to Stromness. With European Railway Development funding, lineside loading will be expanded on the Far North Line.

Local authorities are concerned to improve station facilities and to reduce journey times. They also want a new station opened at Beaulieu. We will provide disabled facilities at various locations including Dingwall, Inverness, Strathcarron and Kingussie.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Increased freight traffics	Provision of loading points, sidings and connections as identified by customers	In agreement with customers	
Increased flexibility for steam train operation	Provision of turntables at Fort William and Mallaig	1999 in agreement with customers	A

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Glasgow Queen Street–Oban	163	12	34mph (2hr 58min)	No change	No change	No change
Glasgow Queen Street–Fort William	198	14	33mph (3hr 42min)	No change	No change	No change
Fort William–Mallaig	67	9	31mph (1hr 20min)	No change	No change	No change
Inverness–Kyle of Lochalsh	132	13	34mph (2hr 26min)	No change	No change	No change
Inverness–Wick–Thurso	260	22	39mph (4hr 10min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			142	142	142	142
40–75mph			542	542	542	542
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			684	684	684	684
GAUGE (km of route)						
W6A			666	666	666	666
W7			666	666	666	666
W8			418	418	418	418
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			629	629	629	629
20.4 tonnes to 23.4 tonnes			0	0	0	0
23.5 tonnes to 25.4 tonnes			55	55	55	55
TOTAL			684	684	684	684

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	1.8	1.4	1.1	9.2	
Signalling	0.2	0.7	0.2	4.3	
Plant & Machinery	0.0	0.0	0.0	2.5	
Telecoms	0.0	0.2	0.2	5.3	
Stations	0.0	4.2	4.2	1.6	
Depots	0.0	0.0	0.0	0.8	
TOTAL EXPENDITURE	2.0	6.5	5.7	23.7	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	0.0	0.4	0.4	0.1		
CONTRACTOR							
Mallaig turntable	2000	0.0	0.3	0.1	0.0	1	A
Fort William turntable	2000	0.0	0.1	0.0	0.0		A
THIRD PARTY							
Beaully Station reopening	2000	0.0	0.1	0.0	0.0	1	B
Other schemes	Various	0.0	0.0	0.0	0.4		
TOTAL RAILTRACK EXPENDITURE		0.0	0.4	0.4	0.5	2	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.5	0.1	0.0		

Other route developments

LOCATION	PROPOSED SOLUTION	YEAR	REF
New station at Beaully	Upgrade to the disused station providing facilities to meet a specific need	1999	B
Improved carriage washing at Inverness	New washing plant	2001/02	
Improved security and safety at specific stations – Mallaig, Oban, Kyle of Lochalsh, Thurso and Wick	Upgrade lighting Enhance customer-information systems	2000/01	C
Improved station facilities at stations detailed above	Improvements to waiting rooms and toilet facilities	2000/01	

Progress on the 1998 NMS

SIGNALLING Signalling equipment at Georgemas Junction has been installed, enabling the train driver to operate the equipment. This has efficiency benefits and reduces the journey time to Thurso and Wick.

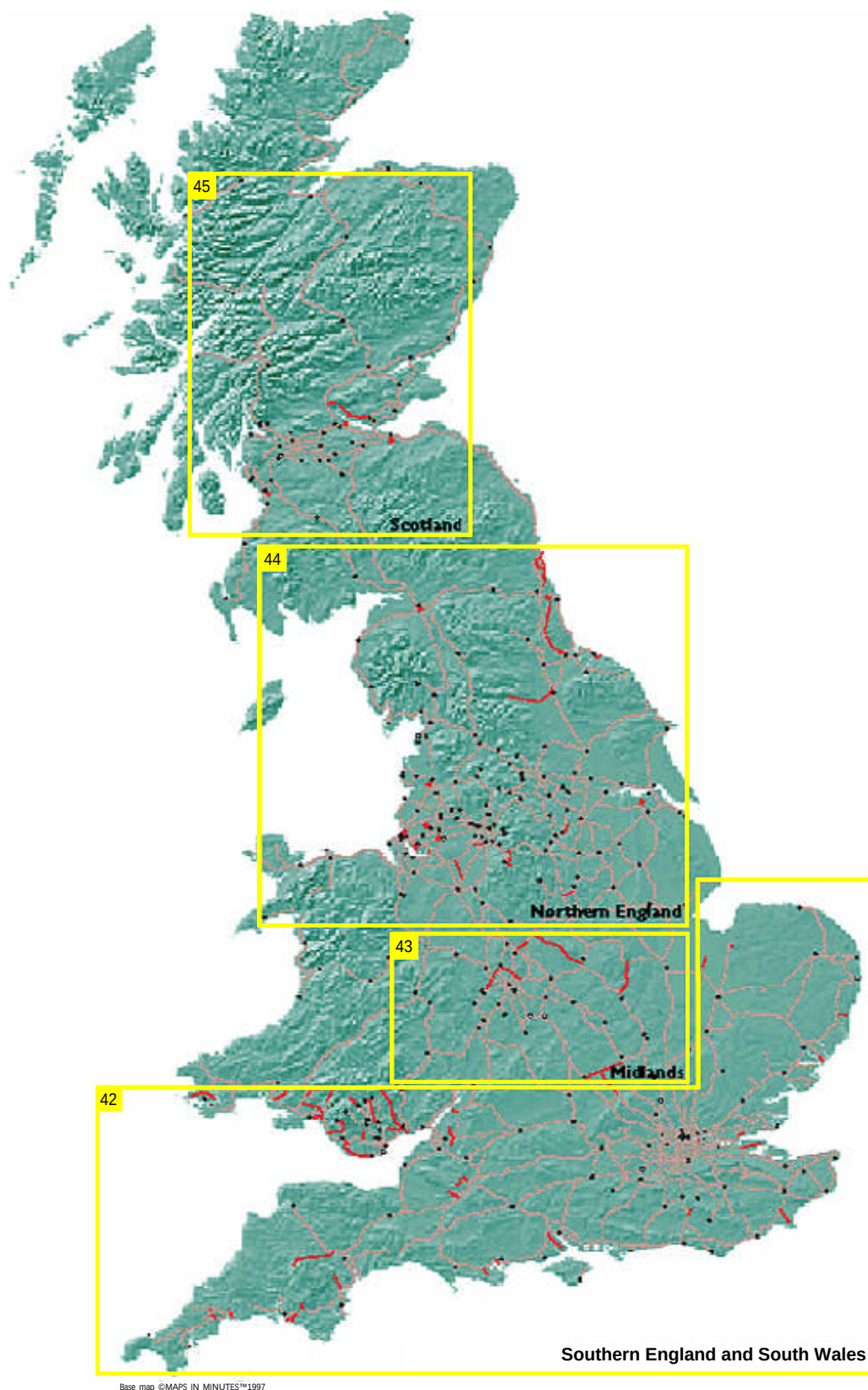
PLANT AND ELECTRICAL New and improved points heaters have been installed at junctions and loops, giving improved reliability and performance during periods of cold weather.

STRUCTURES The route has a higher-than-average number of structures often built to support the railway through difficult terrain. Much regular and routine work has taken place over the year including waterproofing of bridges over Altnafael River and the Corriemollie Burn. In addition, linings to Leachabudhe Tunnel were renewed, together with the portals.

STATIONS The SRP has continued with 49 stations completed by the end of March. Regeneration work has been carried out by Railtrack, but only after full consultation and agreement over the scope of work, with ScotRail and the relevant local authority. Agreement has recently been reached to open a new station at Beaully in the next 12 months. ScotRail has, in addition, taken the opportunity to carry out additional work at its own cost at the same time. Working in partnership has minimised the extent of disruption to the travelling public.

FREIGHT A new siding has been constructed and brought into use at Kyle of Lochalsh. Other mothballed facilities have been brought back into use. Lineside loading facilities for timber traffic have been introduced.

Two temporary Rail Development Officers' posts have been created by the local authority, jointly funded by local government and the rail industry covering the West Highlands and the North Highlands, respectively.



DRS; EWS; Freightliner.

Route characteristics

DESCRIPTION This geographically dispersed group of routes conveys freight trains only. Linespeeds are low, generally 20–30mph.

Route vision

Our vision for these freight-only routes is to encourage and cater for growth in rail freight by providing connections to the network at the most favourable, strategic locations.

Route development and customer requirements

Over the past two years, southern England and South Wales have seen an increase of 30% in rail freight traffic. We forecast that, nationally over the next ten years, traffic carried will increase by around 300% and the number of trains will double.

Our goal is, at least, to provide the infrastructure to cater for this rate of future growth and to encourage even higher rates of future growth.

To encourage rail freight growth, we will provide reliable infrastructure at a cost which keeps rail freight competitive. We will also increase gauge clearances, axle weights and speeds wherever practicable, within the constraint of maintaining cost competitiveness.

Freight terminals have been reopened at Brandon, Ipswich Lower Yard (and connection to the Upper Yard), Bury St Edmunds, Eccles Road, Tilbury Riverside, Dereham, Slough, Impress Siding at Rhymney, Brynteg (Seven Sisters), Tower Colliery, Carmarthen Goodrington, Heathfield, Newton Abbot and Plymouth.

At Felixstowe, the north and south terminals will be connected as part of the new signalling system due for completion at Easter.

Work has started on providing a connection to the South Marston freight terminal near Swindon. Work is under way on the new terminal for Royal Mail at Bristol Parkway. Site works have begun at Avonmouth Euroterminal.

The route between Marchwood and Fawley has been cleared for W8 gauge.

The Meldon Quarry Line has been reopened to regular traffic.

Upgrading works and speed improvements are continuing on the Western Valley Line (between Newport and Ebbw Vale).

The possibility of European grant funding for works associated with improvements at the port of Wisbech is being investigated.

We are examining capacity issues on the Isle of Grain in connection with increased traffic from Thamesport and Foster Yeoman. We are also working with Associated British Ports to develop a rail link into the proposed new terminal at Dibden Bay, Southampton.

We will complete our evaluation of reopening the Portishead Branch for freight in partnership with the Bristol Port Company by May this year.

We are evaluating reopening the Cwm branch from Llantrisant to Cwm Coking Works and capacity improvements on the East Usk branch in Newport to cater for new traffic.

A number of options are being evaluated for improving capacity and reliability on the Vale of Glamorgan Line, in partnership with South Wales Integrated Fast Transit. These improvements will make it more suitable as an alternative route for freight between Cardiff and Bridgend, and the line may also see scheduled passenger services and new stations.

In partnership with Argent, developers of the London International Freight Exchange at Colnbrook near Heathrow, we are undertaking a feasibility study improvement of capacity on the Great Western Main Line and a connection to the Colnbrook branch for a proposed major new Euroterminal serving the London markets.

The Vale of Neath and Onllwyn lines have been opened to 24-hour operation to cater for additional traffic. Track relaying has also been carried out.

Track relaying has been completed on the Cwmbargoed Line.

We have upgraded some branch lines in Cornwall to enable Class 66 locomotives to haul china-clay traffic, and we are evaluating improvements on other lines in the area.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Various new freight sidings and loading points	Track & associated signalling as necessary	Ongoing	

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

LINESPEEDS (km of track)	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Up to 35mph			495	495	495	499
40–75mph			190	190	190	190
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			686	686	686	689
GAUGE (km of route)						
W6A			523	523	523	523
W7			469	469	469	469
W8			308	308	308	308
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			36	36	36	38
20.4 tonnes to 23.4 tonnes			250	250	250	250
23.5 tonnes to 25.4 tonnes			400	400	400	402
TOTAL			686	686	686	689

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
GREAT WESTERN ZONE					
Track	1.9	1.1	1.2	7.0	
Structures	0.7	0.6	0.6	5.1	
Signalling	0.1	0.2	0.1	1.3	
Plant & Machinery	0.0	0.0	0.0	0.1	
Telecoms	0.0	0.0	0.0	0.1	
TOTAL EXPENDITURE	2.7	1.9	1.9	13.6	
SOUTHERN ZONE					
Track	0.0	0.0	0.0	1.2	
Structures	0.0	0.1	0.1	1.9	
Signalling	0.5	0.0	0.0	0.7	
TOTAL EXPENDITURE	0.5	0.1	0.1	3.8	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
EAST ANGLIA ZONE							
Other schemes	Various	0.0	0.0	0.0	0.0		
TOTAL RAILTRACK EXPENDITURE		0.0	0.0	0.0	0.0	0	
GREAT WESTERN ZONE							
PARTNERSHIP							
Vale of Glamorgan upgrade	2002	0.0	0.3	0.9	4.3		
Other schemes	Various	0.0	0.1	0.0	1.3	2	
TOTAL RAILTRACK EXPENDITURE		0.0	0.4	0.9	0.8	2	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.0	0.0	4.8		
SOUTHERN ZONE							
PARTNERSHIP							
Freight feasibility studies	Various	0.2	0.2	0.2	0.6	11	
THIRD PARTY							
Hoo Junction track-layout enhancement	2001	0.0	0.0	0.6	0.0		
Other schemes	Various	0.0	0.2	0.0	1.6		
TOTAL RAILTRACK EXPENDITURE		0.2	0.2	0.2	0.6	11	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.2	0.6	1.6		

Progress on the 1998 NMS

ISSUE	LOCATION	COMMENTS
Programme of renewals to track & structures		Renewals under way eg Western Valley Line, Cwmbargoed, Vale of Neath, Onllwyn
Evaluation of centralised signalling control in the Neath, Brecon Junction and Park Junction area	Neath–Brecon	A feasibility study has been undertaken
Upgrading Western Valley Line	Newport–Ebbw Vale	Work is under way
Avonmouth Euroterminal	New Bristol	Site works started
Modernisation and capacity improvements on the Vale of Glamorgan Line	Vale of Glamorgan	We are evaluating options
Developing track and signalling enhancements to support the Dibden Bay development at Southampton	Southampton	We are working with Associated British Ports on development
Improvement to infrastructure to enable traffic from newly expanded Sheerness Freight Depot to be transported more effectively	Sheerness	We are evaluating options
Evaluation of options for reopening the Heathfield branch	Newton Abbot	We have reopened the branch

EWS; Freightliner.

Route characteristics

DESCRIPTION This geographically dispersed group of routes conveys freight trains only. Within the Midlands Zone there are two distinct categories of lines: main arterial routes and branch lines. The main arterial routes include Sutton Park Line, Kettering–Manton Junction, Sheet Stores–Stenson Junction, St Andrews

Junction–Lawley Street and Knighton Junction–Leicester Burton Junction. Linespeeds are predominantly 40–75mph. These routes further supplemented by numerous facilities, both on branch lines and at private sidings, are predominantly single track with a linespeed ranging between 30mph and 60mph.

Route vision

Our vision for these routes is to encourage and cater for growth in all freight markets which, we see as expanding, not only in terms of volume but also in axle weights, train lengths and vehicle profiles to a maximum of W10. There will be opportunities to expand the current volume of freight throughout the network, arising from a concerted effort to search for new freight sites. A reduction in the operating base cost of these routes, providing the optimal performance income through improved asset reliability (and the introduction of new low-cost

technology), and securing cost savings through improved maintenance regimes is essential. So, too, is the encouragement of market growth with the provision of highly reliable and performing services, seeking the continual improvement of performance to ensure delivery of the established timetable.

We are also evaluating electrification of the Water Orton–Walsall Line as part of an improved access to West Midlands from WCML.

Route development and customer requirements

We will continue to work with industry partners to secure and encourage freight growth utilising both existing facilities and potential freight locations. We are working with developers to investigate the opportunities for new intermodal depots at a number of locations within the East and West Midlands as well as in London.

Market demand has suggested that there is potential for new traffic on the branch lines from Kingswinford–Pensnett and Stoke–Caldon Low. We are working to examine the options for reopening both routes.

The mothballed Claydon–Bletchley and Round Oak–Bescot routes are being safeguarded for possible future reopening in conjunction with the East–West Rail Link and Midland Metro, respectively, or for future traffic growth.

We look forward to working with train and freight operators, the public, local authorities, the Franchising Director, the Rail Regulator and central government to ensure that this vision becomes a reality.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSEDSOLUTION	YEAR	REF
Midlands Zone – Freight-only routes	None required		

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

LINESPEEDS (km of track)	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Up to 35mph			24	24	24	24
40–75mph			181	181	181	181
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			205	205	205	205
GAUGE (km of route)						
W6A			199	199	199	199
W7			68	68	68	68
W8			42	42	42	42
W9			21	21	21	21
W10			0	0	0	15
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			0	0	0	0
23.5 tonnes to 25.4 tonnes			205	205	205	205
TOTAL			205	205	205	205

Expenditure on renewals to sustain the route

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	1.6	2.0	1.0	7.1	
Structures	3.4	1.6	1.6	8.8	
Signalling	3.1	0.6	1.0	11.8	
TOTAL EXPENDITURE	8.1	4.2	3.6	27.7	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
PARTNERSHIP							
Various freight schemes	2009	0.0	0.5	0.5	2.5	1	
TOTAL RAILTRACK EXPENDITURE		0.0	0.5	0.5	2.5	1	

Progress on the 1998 NMS

REOPENING OF FREIGHT FACILITIES The last year has seen the reopening of freight facilities on the Gedling, East Leake and Rawdon branch lines.

DRS; EWS; Freightliner.

Route characteristics

DESCRIPTION This is a geographically dispersed group of individual lines and small networks, most of which are used almost exclusively by freight trains. Some routes, such as the Chesterfield–Barrow Hill–Woodhouse Line regularly take diverted passenger services. Linespeeds are generally low and the signalling is predominantly on traditional manually operated signal boxes.

Route vision

Freight-only lines often provide the crucial link between traffic origin points, terminals and the rest of the rail network. We intend to continue a programme of heavy maintenance, primarily to track and structures, to improve the reliability and availability of the routes. We will encourage the use of these lines and,

where possible, open them up to passenger services with the opportunities for enhanced investment that this may provide. The development of a passenger service on the Blyth and Tyne route is being considered in association with industry partners.

Route development and customer requirements

Particular mention should be made of the network of freight lines around Immingham and Grimsby, including the Humber International Terminal where the port operators are keen to make even more use of rail. The Brocklesby–Immingham Line and the line to Hull Docks are both included as part of the proposed Trans-Pennine W10 route extending across to Liverpool and the Seaforth container terminal.

Significant increases in traffic on the Bootle Branch, out of the Peak District

and between Ditton and Latchford have placed considerable additional demands on the routes, and we are adapting our maintenance strategy to ensure that the quality of our infrastructure meets the current and future requirements of our customers.

Most other routes are expected to see at least a small increase in traffic, but it is also important that the future of routes with reducing levels of traffic, or no traffic at all, are kept under review.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Various new freight sidings and loading points	Track & associated signalling as necessary	Ongoing	

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

LINESPEEDS (km of track)	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Up to 35mph			349	349	349	349
40–75mph			269	269	269	269
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			618	618	618	618
GAUGE (km of route)						
W6A			513	513	513	513
W7			428	428	428	428
W8			368	368	368	368
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			29	29	29	29
20.4 tonnes to 23.4 tonnes			589	589	589	589
23.5 tonnes to 25.4 tonnes			0	0	0	0
TOTAL			618	618	618	618

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
LONDON NORTH EASTERN ZONE					
Track	1.7	2.1	1.6	10.2	
Structures	0.6	0.4	0.2	3.8	
Signalling	0.0	0.0	0.0	0.0	
TOTAL EXPENDITURE	2.3	2.5	1.8	14.0	
NORTH WEST ZONE					
Track	0.7	0.9	0.8	3.8	
Structures	0.0	0.6	0.1	0.5	
Signalling	0.0	0.1	0.5	3.8	
Plant & Machinery	0.2	0.0	0.0	0.0	
TOTAL EXPENDITURE	0.9	1.6	1.4	8.1	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
PARTNERSHIP							
North Trans-Pennine gauge enhancement	2005	0.0	0.0	0.0	2.0	1	
CONTRACTOR							
Freight Buxton	2001	0.0	0.7	0.6	0.0		
THIRD PARTY							
Hillhead Quarry new connection	2000	0.0	0.5	0.0	0.0		
Other schemes	Various	0.3	0.0	0.0	0.0	4	
TOTAL RAILTRACK EXPENDITURE		0.0	0.7	0.6	0.0	5	
TOTAL NON-RAILTRACK EXPENDITURE		0.3	0.5	0.0	2.0		

Progress on the 1998 NMS

We have worked with H J Banks to reopen a coal-handling siding at Renishaw Park, and with British Steel and Associated British Ports to improve capacity at the Immingham Bulk Terminal. In addition, EWS, Avesta Sheffield and Railtrack have collaborated on a scheme at Tinsley to allow the expansion of the works and improve the potential for future traffic growth.

Feasibility work to extend the run-round loop at Buxton has been completed but implementation of the proposal is dependent on the identification of future traffic requirements. Reinstatement of the Olive Mount Chord Line to provide direct access to the Bootle Branch has been the subject of detailed feasibility work; this will be kept under review as changing traffic flows to Liverpool Docks emerge.

DRS; EWS; Freightliner.

Route characteristics

DESCRIPTION This route is a diverse mixture of running lines and branches, some of which are not in use. Apart from double track in the Millerhill Yard/South Suburban Complex, the route is primarily single track. Running lines account for 27% of the route, split approximately 40% double track and 60% single track. Maximum linespeeds range from 5–60mph according to line. The branches are single track with lengths ranging from 1–20km in length and with maximum speeds from 5–45mph.

The lines from Monktonhall Junction to Portobello Junction via Millerhill Yard and between Whifflet and Sunnyside are electrified with 25kV OLE. Signalling is a mixture of semaphore, colour-light and various token arrangements controlled from five signalling centres and nine other signal boxes.

Route vision

Our vision is of the freight renaissance within Scotland continuing in line with the growth forecasts being made by DRS, EWS and Freightliner who have recently commenced operations to Torness and Hunterston.

All of our customers require the provision to operate more trains with improved pathing arrangements. They also require improved access to operate larger, heavier and longer trains. Both EWS and their customers are seeking to reopen disused sidings and provide suitable loading facilities as well as being involved in the construction of new loading/unloading facilities. We have taken forward the customers' proposals and will carry out implementation works at locations when agreements have been reached with all relevant parties. We accept these requirements and are working with all parties to grow the business.

We are actively working towards updating the East Coast Main Line and Shotts routes to increase capability to W10 gauge. We have put in place the facility to carry refrigerated traffic between Mossend and Inverness and on to Thurso enabling substantial volumes of traffic to be transferred from road to rail.

With increasing freight volumes and services, coupled with a raised interest by road hauliers in rail options, network accessibility is becoming a key objective. We will continue to reopen mothballed sidings and provide new connections and loading points wherever these are commercially viable. We are endeavouring to provide innovative solutions to meet customers' needs whether they are for short- or long-term duration, while promoting 24-hour access to the network.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Various new freight sidings and loading points	Track & associated signalling as necessary	Ongoing	

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

LINESPEEDS (km of track)	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Up to 35mph			174	174	174	179
40–75mph			48	48	48	56
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			222	222	222	235
GAUGE (km of route)						
W6A			193	193	193	206
W7			193	193	193	206
W8			34	34	34	47
W9			3	3	3	19
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			37	37	37	37
20.4 tonnes to 23.4 tonnes			82	82	82	82
23.5 tonnes to 25.4 tonnes			103	103	103	116
TOTAL			222	222	222	235

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	0.8	0.6	0.5	4.3	
Structures	1.1	0.5	1.1	7.0	
Electrification	0.0	0.0	0.0	0.0	
Plant & Machinery	0.3	0.1	0.0	0.6	
Stations	0.0	0.1	0.0	0.3	
Depots	0.0	0.0	0.0	0.1	
TOTAL EXPENDITURE	2.2	1.3	1.6	12.3	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
New freight sidings and connections	2007	0.1	0.0	0.0	1.0		
PARTNERSHIP							
Edinburgh CrossRail	2002	0.1	0.0	0.0	12.0	2	
CONTRACTOR							
New freight sidings and connections	2004	0.0	4.1	2.0	2.4		
THIRD PARTY							
Stirling–Longannet freight service	2003	0.1	0.5	0.5	3.3		
Other schemes	Various	0.2	0.3	0.0	2.0		
TOTAL RAILTRACK EXPENDITURE		0.2	0.6	0.3	15.4	2	
TOTAL NON-RAILTRACK EXPENDITURE		0.3	4.3	2.2	5.3		

Progress on the 1998 NMS

STRUCTURES The Deanside Branch is now available for W10 traffic.

FREIGHT A new branch and coal-loading terminal has been constructed and brought into use at Holehouse, off the Waterside branch. Since 1995, a total of 34 sidings throughout Scotland have been reopened and have received freight traffic, and over half are in regular use.

We have completed the study into reopening the Stirling–Longannet route, and have concluded that this is viable, subject to sufficient levels of freight traffic. We will carry out the necessary works when appropriate funding arrangements are in place.

Investigations are continuing into the reacquisition of the closed former BR branches to Maxwelltown (Dumfries) and CPA Container Terminal (Greenock).

The former BR-owned site at Elderslie has been purchased by Railtrack Property with a view to establishing a rail-connected freight facility.

11 Appendices and glossary

Appendix 1 Extracts from Railtrack's Network Licence

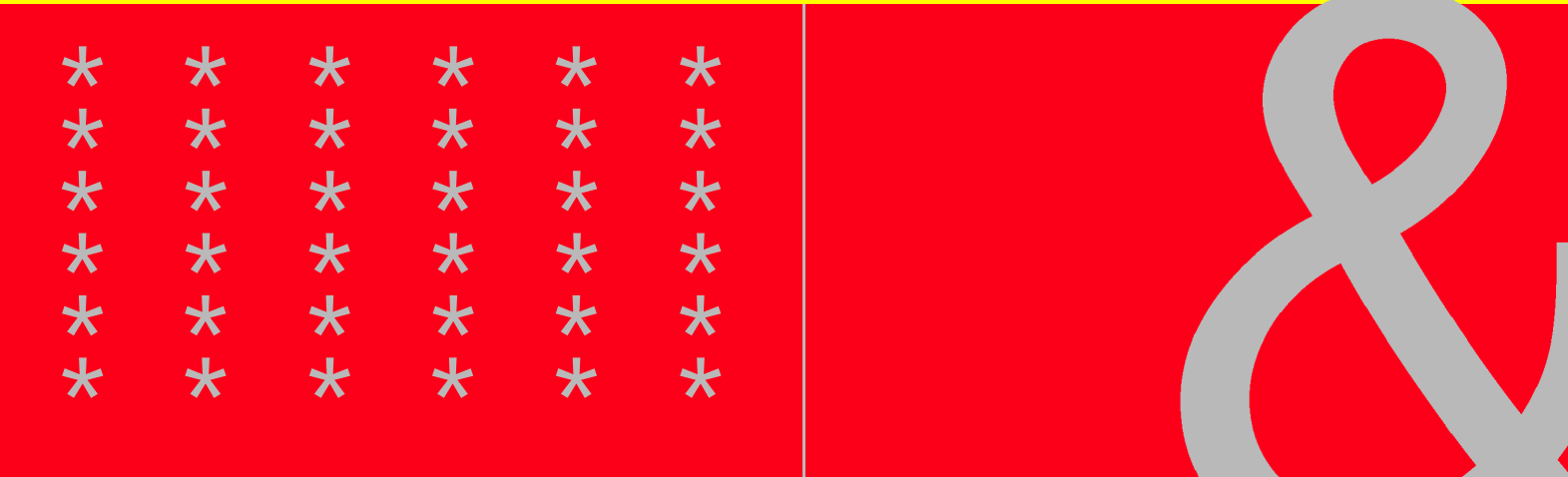
Appendix 2 Other Railtrack publications

Appendix 3 Information available on Railtrack's website

Appendix 4 Customer-reasonable requirements

Appendix 5 Abbreviations and glossary





Appendix 1

Extracts from Railtrack's Network Licence

This condition sets out our responsibilities for maintaining, renewing and developing the rail network.

Condition 7: Stewardship of the Licence Holder's Network

1 Purpose

The purpose is to secure:

- (a) the maintenance of the network;
- (b) the renewal and replacement of the network; and
- (c) the improvement, enhancement and development of the network,

in each case in accordance with best practice and in a timely, economic and efficient manner so as to satisfy the reasonable requirements of persons providing services for the carriage of passengers or goods by railway and funders in respect of the quality and capability of the network.

2 General duty

The licence holder shall carry out its licensed activities to achieve the purpose to the greatest extent reasonably practicable having regard to all relevant circumstances including the ability of the licence holder to finance its licensed activities.

3 Criteria

The licence holder shall within three months of the coming into force of this condition (or such later date as the Regulator may, after consulting the licence holder, specify) develop and publish the criteria which it will apply to comply with the duty including its method of determining the priority and timing of different types of work, the parts of the network on which it will be carried out and the basis for reviewing such priority. The licence holder shall from time to time:

- (a) review the criteria to determine whether they are fit for purpose; and
- (b) revise the criteria so as to make them fit for purpose, and shall publish any such revised criteria.

4 Annual Statement

After complying with paragraph 6, the licence holder shall prepare and publish on or before 31 March in each year (or such other date as the Regulator may, after consulting the licence holder, specify) a Statement in a form and covering a period approved by the Regulator including the information specified in paragraph 5 in sufficient detail to enable providers and potential providers of railway services to plan their businesses and to enable funders of railway services to plan their future financial and service requirements, in each case with a reasonable degree of assurance.

5 Contents of the Statement

The Statement referred to in paragraph 4 shall demonstrate the way in which the licence holder expects to carry out the duty and satisfy the criteria in respect of:

- (a) projections of future network quality and capability requirements;
- (b) planned modifications to the network;
- (c) the expected effect of such modifications on the quality and capability of the network, the quality of network services and the ability of users to provide improved services to their customers;
- (d) the estimated costs of and the method proposed for financing such requirements and improvements within its overall financial framework; and
- (e) a progress report on the matters referred to in the Statement last published under paragraph 8.

6 Consultation

The licence holder shall consult persons providing, or potential providers of, services for or in connection with the carriage of passengers or goods by railway and funders regarding their present and future proposals in the provision of such railway services.

The licence holder shall maintain adequate information as to the actions it has taken to comply with its obligations under this condition. The licence holder shall furnish the Regulator with such information as they may reasonably require to monitor compliance with this condition.

8 Reconciliation

The licence holder shall prepare and publish on or before 31 July in each year (or such other date as the Regulator may, after consulting the licence holder, specify) a Statement in a form compatible with the Statement published in the preceding year under paragraph 4 ('the preceding year's Statement') setting out:

- (a) the works carried out by it during the year ending on 31 March in that year and the extent to which it has achieved the aims for such work set out in the preceding year's Statement;
- (b) the extent to which such works have not achieved their aim, the reasons therefore and the steps the licence holder proposes to take to remedy such failure; and
- (c) the reasons for any material changes to the works set out in that Statement.

9 Transitional

In respect of the Statements required during the year 1998:

- (a) in subparagraph (e) of paragraph 5, the reference to 'the Statement last published under paragraph 8, and
- (b) in paragraph 8, the reference to 'the preceding year's Statement'

shall be deemed to refer to the Statement published by the licence holder in February 1997 in accordance with the provisions of Condition 7 of this licence at the time of such publication.

10 Interpretation

In this Condition

'criteria' means the criteria referred to in paragraph 3;

'duty' means the duty set out in paragraph 2;

'funder' means the Franchising Director, each Passenger Transport Executive and any local, national or supra-national authority or agency (whether of the United Kingdom or the European Union) or other person who provides money by way of grant or loan with the primary purpose of securing the provision of railway services;

'licensed activities' includes the management of any estate, interest or right in the network;

'network' includes, where the licence holder has any estate or interest in, or right over a station or light maintenance depot, such station or light maintenance depot; and

'the purpose' means the purpose set out in paragraph 1.

Appendix 2

Other Railtrack publications

- Investment criteria
- Environment Policy
- Connections Guide/Freight Route Directory (CD-ROM)/Code of Practice
- 1997/98 Annual Report
- 1998/99 Interim Results
- 1997/98 Corporate Responsibility Review

Copies of these publications can be obtained by calling the Railtrack Helpline on 0345 114141 (calls will be charged at the local call rate).

Appendix 3

Information available on Railtrack's website

www.railtrack.co.uk

- 1998 and 1999 Network Management Statements
- Detailed data tables and network capability maps
- Environment Policy
- Current timetable for passenger services on the rail network.

Appendix 4

Customer-reasonable requirements. Summary of types of requirements received and discussed with customers and funders (excluding the Franchising Director).

We have included in the Route Strategies the number of customer-reasonable requirements on each route. These total 1054. In addition, there are 22 requirements that are not route specific. This gives a total of 1076. In this appendix, we have included how the 1076 requirements are split between our customers and funders. This total is derived from enhancement feasibility studies (627), enhancement planned or implemented (417) plus those still under discussion (32).

CUSTOMER OR FUNDER	NUMBER SUBMITTED	NUMBER WITHDRAWN OR COMPLETED	REQUIREMENTS RELATING TO ACCOUNT MANAGEMENT PROCESS	PERFORMANCE REQUIREMENTS	TRACK QUALITY REQUIREMENTS
Anglia Railways	85	13	10	21	5
Cardiff Railway Company	89	0	5	5	1
Central Trains	87	19	6	9	2
Centro	25	2	0	3	1
Chiltern Railways	38	4	1	4	0
Connex South Central	64	25	1	1	1
Connex South Eastern	45	4	4	5	1
Direct Rail Services	21	4	1	2	1
Eurostar	20	0	1	6	1
EWS Freight	151	1	34	19	1
EWS Passenger Charter	8	0	6	0	0
First Great Eastern	75	6	6	17	5
First Great Western	65	22	0	5	2
First North Western	30	9	8	1	2
Freightliner	22	1	0	5	1
Gatwick Express	12	1	0	1	1
GMPT	40	6	4	3	1
GNER	73	12	0	2	2
Heathrow Express	7	0	0	1	1
Island Line	10	0	2	1	0
London Underground Bakerloo Line	13	2	0	4	3
London Underground District Line	10	1	0	3	2
LTS Rail	62	3	2	3	5
Midland Main Line	68	11	2	6	5
Merseyrail Electrics	32	3	3	2	2
Merseytravel	63	2	13	3	1
NEXUS	7	0	0	0	0
Northern Spirit	7	0	1	0	2
ScotRail	71	10	2	5	1
Silverlink	153	32	0	3	4
South West Trains	48	3	6	2	5
SPTE	24	2	1	1	1
SYPT	11	0	0	0	0
Thames Trains	143	44	54	12	0
Thameslink	24	5	2	1	1
Virgin CrossCountry	34	0	6	1	2
Virgin West Coast	125	2	4	1	2
WAGN	93	3	4	6	5
Wales and West Railway	92	0	21	14	4
West Coast Railway	4	0	2	0	0
WYPT	19	0	0	0	0
TOTAL	2137	252	212	178	74

CUSTOMER OR FUNDER	REQUIREMENTS RELATING TO TRACK ACCESS	REQUIREMENTS RELATING TO RENEWALS	NETWORK DEVELOPMENT (ENHANCEMENT) REQUIREMENTS: FEASIBILITY STUDIES	NETWORK DEVELOPMENT (ENHANCEMENT) REQUIREMENTS: PLANNED FOR DEVELOPMENT OR IMPLEMENTATION	UNDER DISCUSSION
Anglia Railways	1	20	6	8	1
Cardiff Railway Company	2	10	61	5	0
Central Trains	12	14	12	12	1
Centro	1	1	13	4	0
Chiltern Railways	0	8	12	9	0
Connex South Central	0	2	28	6	0
Connex South Eastern	1	4	14	12	0
DRS	5	5	3	0	0
Eurostar	1	5	4	2	0
EWS Freight	3	0	54	6	33
EWS Passenger Charter	2	0	0	0	0
First Great Eastern	0	26	7	8	0
First Great Western	1	6	19	10	0
First North Western	1	4	2	3	0
Freightliner	1	0	12	2	0
Gatwick Express	0	1	5	3	0
GMPTE	0	5	20	1	0
GNER	0	4	15	38	0
Heathrow Express	1	1	1	2	0
Island Line	0	6	0	1	0
London Underground Bakerloo Line	2	2	0	0	0
London Underground District Line	2	2	0	0	0
LTS Rail	2	15	16	16	0
Midland Main Line	0	9	22	8	5
Merseyrail Electrics	0	7	8	7	0
Merseytravel	0	7	26	11	0
NEXUS	0	1	5	1	0
Northern Spirit	3	5	51	12	0
ScotRail	14	2	22	15	0
Silverlink	1	34	70	9	0
South West Trains	1	15	7	8	1
SPTE	4	2	6	7	0
SYLTE	0	0	11	0	0
Thames Trains	0	5	13	15	0
Thameslink	3	5	5	2	0
Virgin CrossCountry	2	2	2	19	0
Virgin West Coast	4	5	1	106	0
WAGN	6	10	29	30	0
Wales and West Railway	4	6	37	6	0
West Coast Railway	0	0	0	2	0
WYPTE	0	0	8	11	0
TOTAL	80	256	627	417	41

Note: 41 requirements are subject to further discussion to decide the way forward. The vast majority are with freight customers and are discussed in more detail in Section 7.

Appendix 5

Abbreviations and glossary

A	AC	Alternating current
	accommodation level crossings	Points at which private roads, farm trucks, public footpaths and bridle paths cross a railway line. There is usually no automatic warning of the approach of a train
	AHB	Level crossing protected by automatic half-barrier
	air rights development	The right to develop buildings above existing building height on land owned by Railtrack
	AMP	Asset Maintenance Plan
	ARL	Above rail level
	ATCO	Association of Transport Co-ordination Officers
	ATP	Automatic Train Protection
	AWG	Adhesion Working Group
	AWS	Automatic Warning System
B	axle-counters	Part of signalling system which detects the position of a train on a railway line
	BAA	British Airports Authority. Owner and operator of a number of airports in Great Britain and elsewhere
	balise	Trackside TCS transmitter
	bay line	A short, dead-end platform
	BML	Brighton Main Line
	bottleneck	A location on the network where the number of train movements is close to, or projected to exceed, the capacity of that location (same as pinchpoint)
	BRB	British Railways Board
	CCTV	Closed-circuit television
	CD/RA indicators	A special signal to a train driver that a train is ready to depart from a station
	Centro PTA	West Midlands Passenger Transport Authority
C	CERT	City of Edinburgh Rapid Transport
	CET	Controlled emission toilets on a train. The train's toilet empties into a tank which is emptied at a servicing depot
	chord line	Short section of line connecting two other lines, forming a triangle
	CIS	Customer-information systems
	clockface timetable	A timetable where trains run at regular intervals (eg every 10 minutes)
	Control Period	The Period (normally five years) for which the Rail Regulator fixes our access income from franchised passenger train operators
	CRR	Corporate Responsibility Review
	CRR	Customer-reasonable requirements
	CRS	Corporate Responsibility Statement
	CSC	Connex South Central
D	CSE	Connex South Eastern
	CSR	Cab secure radio
	CTR1	Channel Tunnel Route 1 (via Tonbridge)
	CTR2	Channel Tunnel Route 2 (via Maidstone)
	CTR3	Channel Tunnel Route 3 (via Redhill)
	CTRL	Channel Tunnel Rail Link
	customers	Those who use Railtrack equipment (compare passengers)
	DART	Digital Advanced Radio for Trains
	DC	Direct current
	DETR	Department of Environment, Transport and the Regions
	disaggregation	Splitting Railtrack's plans and expenditure into seven Zonal and 45 Strategic Route plans
	DLR	Docklands Light Railway

D	DMU	Diesel multiple-unit
	DOO	Driver-only operation
	DRA	Driver's Reminder Appliance
	DRS	Direct Rail Services
E	ECML	East Coast Main Line
	ELL	East London Line
	EMS	Environment Management System
	ERDF	European Regional Development Fund
	ERTMS	European Rail Traffic Management System
	ETSC	European Transport Safety Council
	EU	European Union
	euro	European currency unit
	EWS	English Welsh & Scottish Railway
F	FFG	Freight facilities grant
	footfall	The number of people passing through a station
	FTA	Freight Transport Association
	FUG	Freight upgrade
G	GAUGES	
	'big-box'	See W10
	SB1c	Gauge to carry Swap-body vehicles
	UIC A	European gauges
	UIC B	European gauges
	W6A	Loading gauge for standard freight vehicles
	W7	Previously called WG8 8' container gauge
	W8	Previously 8'6" container gauge
	W9	Previously SB1c gauge
	W10	Previously 9'6" container gauge
	W11	The gauge capable of handling 4m-high lorry trailers on rail wagons
	GB	Great Britain
	GE	Great Eastern
	GEML	Great Eastern Main Line
	Georgemas Plunger	A device permitting the train driver to operate the points at Georgemas Junction
	GER	Great Eastern Railway
	GLA	Greater London Authority
	GMPT	Greater Manchester Passenger Transport Executive
	GNER	Great North Eastern Railway
	GNRTS	Greater Nottingham Rapid Transit System
	golden assets	Railway infrastructure which has the greatest potential impact on train performance
	grade-separated junction	A junction where one track passes over or under another on a bridge to avoid conflicting train movements
	G&SW	Glasgow and South Western Route
	GTE	Proposed Rapid Transit System for Oxford
	gtm	Gross tonne-miles
	GWML	Great Western Main Line

H	HML	Highland Main Line
	HMRI	Her Majesty's Railway Inspectorate
	HSE	Health and Safety Executive
	HST	High-speed train
I	ICC	International Convention Centre (Birmingham)
	IECC	Integrated Electronic Control Centre
	IMC	Infrastructure maintenance company/contractor
	IMC2	Second generation maintenance contract
	immunisation works	These protect the signalling system from high-voltage electric currents in the overhead line train power supply system
	INLORS	Inner London Orbital Route Strategy
J	JLE	Jubilee Line Extension
K	kiss and ride	Where a passenger is dropped off or collected by car at a station
	kV	Kilovolt (= 1,000 volts)
L	LIFE	London International Freight Exchange
	LMD	Light maintenance depot
	LRT	Light Rail Transport
	LTA	London Transport Authority
	LTS Rail	London, Tilbury and Southend train operator
M	M	Million
	megafret	An intermodal wagon with a platform height of 835mm to carry Swap-bodies or container
	MEL	Merseyrail Electrics Limited
	MML	Midland Main Line
	MOD	Ministry of Defence
	MPTE	Merseyside Passenger Transport Executive
	m ultifret	An intermodal wagon with a platform height of 945mm to carry Swap-bodies or container
	MVAIR	Manchester Victoria area signalling renewal scheme
N	NEG	National Express Group plc
	NEXUS	Tyne and Wear Passenger Transport Executive
	NLL	North London Line
	NMC	Network Management Centre
	NMS	Network Management Statement
	NRN	National Radio Network
	NTP	North Trans-Pennine
O	objective 1 areas	Area of Europe eligible for maximum grant support from EU institutions
	OLE	Overhead-line equipment
	output-based contract	A contract where the outputs and the price are defined, but not the means to achieve the end result
P	pantograph	On train equipment for collecting electricity from overhead power cable
	parkway station	A railway station with a large car park and easy road access
	passengers	Those who travel on the trains (compare customers)
	PFI	Private Finance Initiative
	PfPI	Process for Performance Improvement
	piggyback	Conveying lorry trailers by train

P	pinchpoint	A location on the network where the number of train movements is close to, or projected to exceed, the capacity of that location (same as bottleneck)
	PIXC	Passengers in excess of capacity. The Franchising Director's measure of overcrowding on train services.
	PPP	Private–public partnership
	Project Elephant	Project to assess feasibility and costs of increasing freight vehicle loads and axle weights
	PSB	Power signal box
	PTA	Passenger Transport Authority
	PTE	Passenger Transport Executive
	PUG	Passenger Upgrade
	PUG 1	Passenger Upgrade No.1 – agreement with the Franchising Director and WCML
	PUG 2	Passenger Upgrade No.2 – agreement with Virgin Trains for the capacity and capability of WCML and revenue-sharing arrangements
Q	Q-Train	Special train run randomly to catch trespassers on railway lines
R	RA	Route availability – RA1–6 up to 20.3 tonnes; RA7–9 up to 23.4.1t; RA10 up to 25.4t
	RAC	Royal Automobile Club
	radio-electronic token-block	A radio based signalling system used on some rural, single track railways
	reactionary delay	A late train delays other trains
	RGS	Railway Group Standards
	RHA	Road Haulage Association
	ROSS	Renewal of Scottish signalling
	RPI-X formula	This is the formula often used by Regulators to determine how the charges of a company will vary over time. It is the Retail Price Index less a percentage eg RPI=3% less X of 1% means that the maximum price rise that the company can levy in any one year is 2%
	RPL	Rail Property Ltd
	RSAB	Rolling Stock Acceptance Board
	RTCS	Railtrack Train Control System
	RTIA contracts	Contract between Railtrack and its maintenance contractors
	RTS	Rapid transit system
	RUCC	Rail Users' Consultative Committee
	Rules of Route	Agreement between Railtrack and train operators as to when lines can be temporarily closed for maintenance and renewal work
S	Safety Case	The documentation and systems by which all parts of the railway industry set out how they will manage the safety of their activities
	SB	Signal box
	SBI gauge	Loading gauge which permits operation of road–rail Swap-body vehicles
	SCADA	Supervisory control and data acquisition
	S&CL	Settle and Carlisle Line
	Section 54 agreement	Agreement with the Franchising Director over form/content of a future franchise
	Section 54 Support	Enables the Franchising Director to give an undertaking on how he will exercise his franchising function in the future
	SELTRANS	South East London Transport Strategy
	shoulder peak services	Train service timetable immediately before and immediately after the 'peak' period of maximum train services
	SHR T	South Hampshire Rapid Transit
	skip-stopping	Not stopping at all intermediate stations between two main stations

S	SMA	Strathclyde Manning Agreement
	SMS	Safety Management System
	SPAD	Signal passed at danger
	SPT	Strathclyde Passenger Transport
	SRP	Station Regeneration Programme
	S&SD	Railtrack's Safety and Standards Directorate
	Sustrans	Sustainable transport – an organisation primarily involved in creating a national network of cycle paths
	Swap-body	System for conveying road freight vehicle bodies on rail vehicles
	SWELTRA C	South-West London Transport Advisory Committee
	SWELTRANS	South-West London Transport Strategy Committee
T	SWIFT	South Wales Integrated Fast Transit
	SWML	South Wales Main Line
	SWT	South West Trains
	SYLTE	South Yorkshire Passenger Transport Executive
	TCS	Train Control System
	TENS	Trans-European Networks
	TERFF	Trans-European Freight Freeway
	TPWS	Train Protection Warning System
	TSR	Temporary speed restriction
	T&W A	Transport & Works Act
U	UIC	International Union of Railways (Union Internationale Chemins de Fer)
	UK	United Kingdom
	US	United States (of America)
V	V DC	Volts direct current
	VoG	Vale of Glamorgan
W	WA	West Anglia
	WA GN	West Anglia & Great Northern Railway
	WAML	West Anglia Main Line
	WARM	West Anglia Route modernisation
	WCML	West Coast Main Line
	WCRC	West Coast Railway Company
	WCRM	West Coast Route modernisation
	WELL	West London Leadership
	WLL	West London Line
	WYPTE	West Yorkshire Passenger Transport Executive
Y	Y2K	Year 2000

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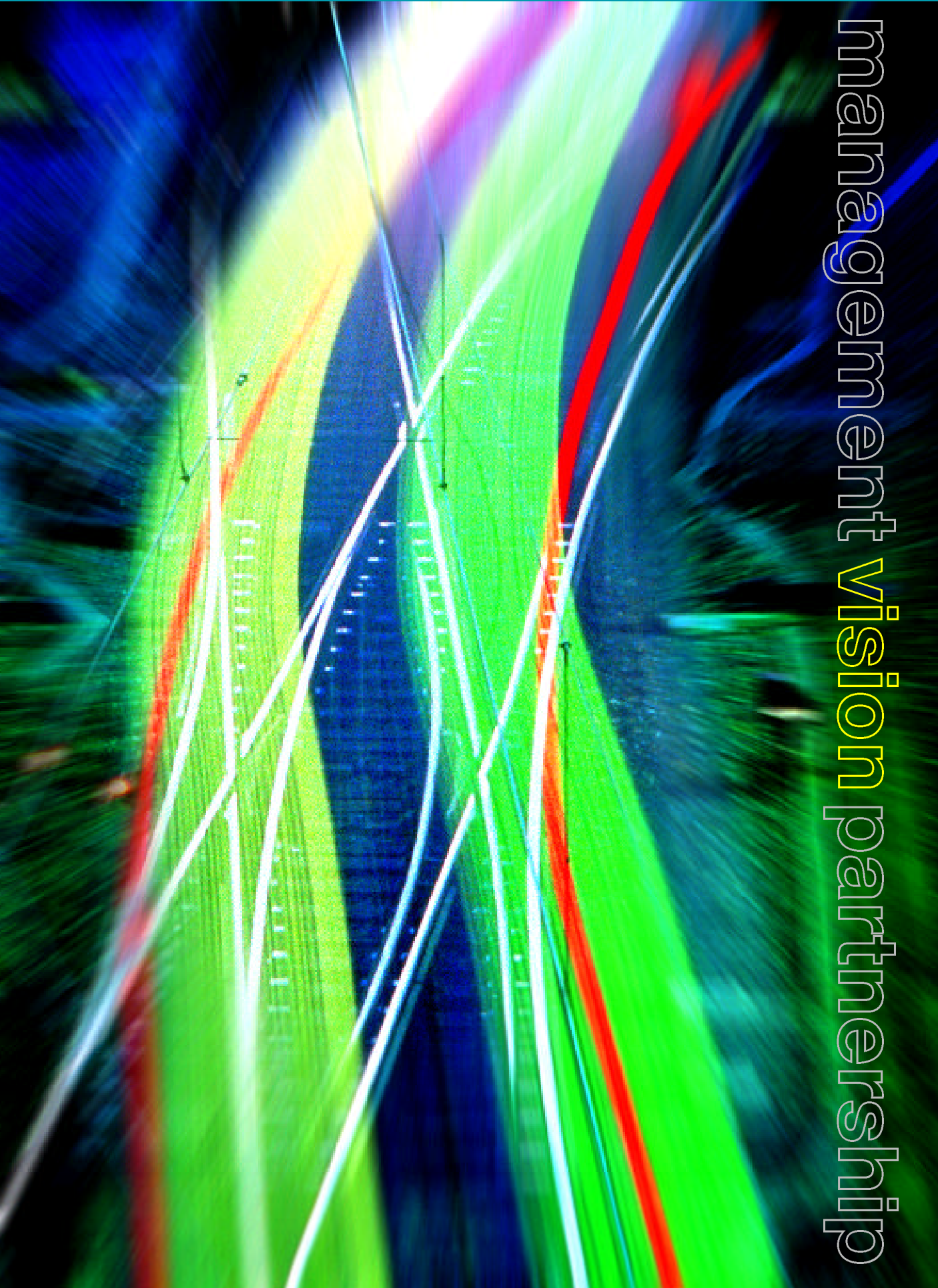
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1999 NETWORK MANAGEMENT STATEMENT FOR GREAT BRITAIN



management vision partnership



The Network Management Statement (NMS) is published annually by Railtrack PLC in accordance with Condition 7 of our Network Licence. The purpose of the Statement is to achieve a shared understanding among those involved in the industry of our plans for the management and enhancement of the network, particularly during the next Control Period from 2001–2006, and the criteria adopted to produce these plans, and to assist the Rail Regulator, train operating companies and industry-funding bodies to monitor the effectiveness of our plans. This Statement sets out our plans for the maintenance, renewal and enhancement of the network for a ten-year period, with greater detail for the first seven years of the programme. The Statement explains the processes of consultation we adopt with our industry partners – the passenger and freight operators, suppliers, the Franchising Director, Passenger Transport Executives, local authorities and other bodies – to achieve this shared understanding. The form of the Statement, and the period it covers, have been approved by the Rail Regulator.

The inclusion of any project or proposal in this Statement does not imply that it has formal investment approval by Railtrack. As plans are developed in detail, alternative proposals may be preferred. It should also be noted that any material change can be objected to by those affected by it under the track and station access agreements, and, in the event of disagreement over a proposed change, an appeal to the Rail Regulator may be necessary.

Our plans, set out in this Statement, particularly beyond 2001, are subject to the outcome of the Rail Regulator's periodic review of access charges for the period 2001–2006. Unless otherwise stated, all costs quoted in this Statement are at 1998/99 prices, and have been rounded, but not more coarsely than to the nearest £10M.

The 1999 Network Management Statement outlines our plans for the management of railways in Great Britain. It expresses a shared industry vision for a major network expansion to carry more trains with greater reliability and reduced journey times, with bigger, heavier freight trains and 21st-century stations.

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Chairman's foreword

The 12 months since publication of the 1998 Network Management Statement have been momentous for the industry.

- Passenger and freight volumes have continued to grow strongly.
- The Government's Integrated Transport Policy White Paper has set out new opportunities and direction for the rail industry.
- The Deputy Prime Minister's two Rail Summits have provided a catalyst for the industry – Railtrack and train operators – to come together to address the problem of train punctuality.
- The issue of growth and the creation of the right financial incentives to facilitate this have been placed firmly on the agenda.
- The creation of the Strategic Rail Authority has moved forward with the appointment of Sir Alastair Morton as Chairman designate.
- The Government has offered franchise renegotiation on the basis of key criteria at the second Rail Summit.
- The Channel Tunnel Rail Link has been rescued by a deal between the Government and Railtrack, and construction has begun.

Perhaps the key thing for me, however, is the growing recognition of our interdependence as players within the newly structured industry. To deliver the more reliable, faster services that the user wants, requires effective collaboration between us, train operators, and our suppliers. The adversarial approach does not work.

This 1999 Network Management Statement is primarily about growth – how we provide for the additional capacity in the network to overcome current constraints and to accommodate the future demands for passenger and freight.

The balance of our ten-year programme reflects this shift of priorities away from merely maintaining and renewing the existing network towards providing more capacity and improved capability. £11bn (40%) of our £27bn expenditure plan that we have set out in this Statement is for network enhancement. This scale of investment will allow us to accommodate a 30% growth in passenger traffic over the next ten years along with major growth in freight traffic – and thereby bring about significant benefits to society from reduced emissions, congestion and improved safety. This annual growth rate of 3% is in line with the Deputy Prime Minister's target.

These plans are underpinned by support from our customers – the train operators – and are in line with what we believe our wider stakeholders – rail users, central and local governments – want. Indeed, based on the extensive consultations that we have carried out, we see this very much as an industry plan for development of the rail network.

Over the coming months, there will be discussions with governments and the Rail Regulator, over priorities and funding requirements. Central to this is the Rail Regulator's periodic review of access charges which has to provide the right financial framework to enable delivery of the investment needed.

This is the challenge that we, in conjunction with the new Strategic Rail Authority, must now rise to. We look forward to concluding this framework so that we can get on and deliver our part of the deal.



Sir Robert Horton. Chairman



Zone Director's foreword

The publication of the first Network Management Statement for Scotland last year presented Scotland's rail network in a level of detail not seen before. This year we go further and set out our vision of the direction the railway can take.

Railtrack Scotland is one of the country's leading transport businesses, responsible for managing and developing safe, reliable and efficient railways for the people of Scotland. Last year, we spent nearly £250M on maintaining, renewing and improving Scotland's railway; this is more than has ever been spent in its history. At the same time, we have further reduced delays caused directly by failures in our infrastructure by 13%.

I explained last year that the 1998 Statement was a snapshot. It presented the rail industry as it was, and where we saw it going. We now have the vision to take Scotland's railway further. Our aim is to continue to enhance railway performance through:

- playing a leading role in shaping the future of Scotland's railway.
- building partnerships that maximise the impact of all our activities.
- investing in the future and being responsible guardians of the country's railway heritage.
- the innovative use of new technology.
- developing the skills and expertise of our people.

That is the essence of this year's NMS. It details what is being done to transform the railway, and what can be done in partnership with other bodies.

This second Network Management Statement for Scotland commits us to the challenge of these significant enhancements. Scotland's rail industry, the Scottish Parliament and its Executive, and local authorities working together will be able to meet this challenge and deliver the railway we all want.

This Statement contains commitments, includes risks and identifies greater steps for the ongoing rail renaissance. Together, in partnership, we can deliver more and faster trains, open more stations and improve existing ones, and carry more freight on the Scottish railway.

I hope that you will join us and be part of our vision.



Janette Anderson
Director Railtrack Scotland



The 1999 NMS gives a vision of the future of the railway in Scotland

Our 1999 Network Management Statement for Scotland occurs at a defining moment for the industry. It represents the rail industry's response to the Government's Integrated Transport Policy White Paper and sets out an industry vision for a rail renaissance based on an expanding railway meeting the needs of a growing number of passengers and businesses. The plan will contribute towards the Government's policy of sustainable development with reduced dependence on road transport delivering a transport system that is safe, efficient, clean and fair. Rail is particularly well-suited to this role. We demonstrate that, in environmental terms, increased use of rail can confer substantial benefits in respect of lower vehicle emissions, congestion and safety. To deliver the Plan, we also propose a new incentives framework to enable and encourage the necessary investment.

Against this background, the 1999 NMS:

- sets out plans to accommodate a 30% growth in passenger demand over the next ten years and a trebling of freight volumes.
- tackles 30 capacity bottlenecks – with three in Scotland.
- commits to a number of major enhancements including an upgrade of the East Coast Main Line between London, Yorkshire and Edinburgh.
- includes proposals for improved rail access to and through central London together with new and improved rail connections to Heathrow and Stansted airports.
- sets out proposals for improving facilities across all our 333 stations in Scotland, including better access to the network for the disabled.
- proposes increased access to the network for larger freight containers and the development of a third Anglo-Scottish freight corridor.
- sets out in Route Strategies a range of detailed proposals for improving the capability and capacity of the network.
- commits Railtrack to further improvements in network reliability.
- gives a vision of the future of the railway in Scotland.

Our plans involve total investment of some £2bn (£27bn in Great Britain) over the next ten years – some of which will need to be carried out in partnership with funders. This compares with the total planned investment of £1.7bn (£17bn in GB) in the 1998 NMS.

We have proposed a Scottish programme totalling £2bn to facilitate a 30% growth in passenger kilometres and a trebling of freight by 2009

The market for rail services

Since 1995, passenger numbers have increased by 25% in what has been one of the main successes of the new rail industry. This is against the background of static passenger rail traffic over most of this century (at around 30bn passenger kilometres annually across Great Britain) and declining market share.

Against a momentous period of social change, through two world wars and the transformation of personal mobility through the rise of the motorcar and development of the road network, rail usage has been remarkably stable. In our view, this stability reflects an overall constraint on the network's carrying capacity. Even though the network size has diminished over the century, particularly through the Beeching closures of the 1960s, the lines that were closed rarely carried significant volumes.

There are now a number of factors supporting a shift towards long-term sustainable growth:

- aspirations by train operators to develop and grow their businesses along with powerful economic incentives for them to do so
- the Government's support for public transport and its stated intention of putting rail at the heart of its Integrated Transport Policy
- growing environmental concerns about the sustainability of increased car usage and freight on a constrained-capacity road network, combined with increasing costs of road use and slower journey times
- a trend of declining rail fares in real terms, after 20 years of price increases (our market research shows that rail fares are still the single biggest impediment to increased use of rail).

However, unless something is done to develop the network, it is very unlikely that significant growth can be realised. We have investigated a range of future growth scenarios for passenger traffic from less than 1% a year to over 4%, and considered the investment needed to create necessary capacity to deliver that growth. In consequence, we have proposed a Scottish programme totalling 2bn (£27bn in Great Britain) to facilitate a 30% growth in passenger kilometres by 2009. This is in line with the Deputy Prime Minister's targets.

On freight. After decades of decline, we have seen a 40% increase in freight tonne-kilometres since 1995 and there is now a real prospect of sustainable long-term growth. Again, we have considered a range of future growth scenarios involving compound annual growth rates of up to 9%, in line with our customers' forecasts. The latter involves a trebling of rail freight within ten years – a target which the Government also endorses in its integrated transport White Paper. The plans in this NMS are designed to deliver this growth, and the costs are included in the £27bn total.

Consulting widely with customers and stakeholders

Railtrack plays a pivotal strategic planning role in the rail industry. Since the 1998 NMS for Scotland, we have undertaken extensive consultation with our customers (train operators) and funders (Strathclyde Passenger Transport, the Franchising Director and local authorities) through a structured account planning process, to understand their requirements and how these can be met. We have consulted extensively on longer-term studies of strategic options for developing individual routes and alleviating capacity bottlenecks. We have undertaken research into public and passenger opinion to ensure that our plans reflect passenger priorities. We have also carried out environmental and cost-benefit assessments of the case for developing the rail network. The resulting ten-year plan is therefore an industry – not just a Railtrack – document. It is truly collaborative.

We are now committed to a major upgrade of the East Coast Main Line between London, Yorkshire and Edinburgh at an estimated total cost of around £1bn

What the plans involve

Our plans comprise the following elements, each of which are associated with a range of deliverable outputs. For Scotland, they are:

Sustaining the network	Ten-year total (£M) 1999/2000–2008/09
Maintenance and renewal expenditure	1749
Developing the network	
Committed schemes	47
Commercial projects	12
Partnership schemes requiring some funder support	138
Contractor schemes undertaken on behalf of the Strategic Rail Authority or Strathclyde Passenger Transport Executive (including station improvements)	18
Other enhancement	48
Total enhancement spend over ten years	263
Total network investment	2012

These plans compare with the £1,700M (at 1998/99 prices) ten-year investment plan set out in the 1998 NMS.

Among major commercial projects to which we are now committed is a major upgrade of the East Coast Main Line between London, Yorkshire and Edinburgh, at an estimated total cost of around £1bn. This provides increased capacity to meet passenger and freight growth, allows for the operation of tilting trains and offers significant reductions in journey times. Railtrack is willing to take demand risk and sell the additional paths created, on a commercial basis.

The vision for Scotland is to expand the network, provide more trains, open more stations and carry more freight on our railway. In partnership, we can deliver the challenges this Statement presents, such as tilting trains to reduce journey time on curves.

Our commitments include plans to relieve all of the 30 capacity bottlenecks (three in Scotland) identified in the 1998 Network Management Statement. Of these, 11 are already being implemented either through capital or timetabling solutions. We make firm commitments on 13 more, including three as part of the East Coast Main Line project. Proposals are included for the remainder to which Railtrack is willing to commit to partnership-based solutions.

Our plans include a whole range of improvements across the network – the provision of new stations, disabled access facilities, improved airport links, new metro services and additional capacity. We will upgrade our stock of 333 stations in Scotland – 2,500 across Britain to ensure that they meet customer aspirations for the 21st century.

We have included a chapter which outlines our plans and commitments on freight where we expect to be able to meet our customers' forecast freight figures for the next five years without major new investment. For the longer term, we are looking to develop a third major route between London and Scotland and to raise the loading gauge on a network of key routes. We have also submitted a funding proposal to the Department of the Environment, Transport and the Regions (DETR) to clear two routes between the Channel Tunnel and London to handle higher gauge traffic.

The Rail Regulator indicated a way out of this dilemma... to grow our business through commercial partnerships with customers and Government

What the plans deliver

The major deliverable from these plans is the capacity to accommodate a 30% growth in passenger kilometres and a 200% growth in freight volumes over ten years.

The effect of our plans will be to produce a range of other improvements to the capacity and capability of the network. In addition to the targets we have set ourselves for improvements to delays per train movement of 5.5% and 4% respectively for the next two years (1999/2000 and 2000/01), our renewal plans involve further annual reductions averaging 2% over the next Control Period. By 2005/06, the cumulative reductions in delays per train movement attributable to Railtrack will have reached nearly 60% against 1995/96 levels. We are also currently evaluating the cost implications of an alternative option of achieving further performance improvements post 2001.

Following commitments made to the Rail Regulator, we have started to implement a track-quality improvement programme which, by April 2001, should deliver the highest levels of track quality ever recorded.

Our plans will also produce improvements in journey times, improved station facilities on a range of dimensions, and an increased freight loading gauge for a proportion of the network, to enable large containers to be carried.

The funding challenge – financing the rail renaissance

This £2bn (£27bn for GB) programme is the largest upgrade of infrastructure since the railways were first built. Delivery of a programme of this scale involves a massive challenge which can only be met through an effective partnership between the public and private sectors.

Railtrack is already committed to funding much of this investment through its own borrowing. Our previous programme of £1.7bn (£17bn for GB) will already lead to us being one of Britain's biggest borrowers with an expected debt of around £4bn by 2003/04. The additional financing required to fund this investment can only be sustained if Railtrack and other interested parties have the right financial framework which provides an appropriate return on investment – both debt and equity.

The Rail Regulator is currently reviewing our financial framework as part of his periodic review of access charges. In December, he published his initial conclusions on the financial framework, following the broad approach adopted for other utilities, such as water. But as a low-risk/low-return 'contractor' and with a regulatory asset base defined in terms of the original, heavily discounted, flotation value, our future revenues would be reduced and our funding capacity would be significantly curtailed.

Our current rate of renewal spend (£1.4bn annually across Britain) is double the level three years ago and by 2001, we shall have spent £1.25bn more than the Rail Regulator allowed on renewals when the current level of access charges was set in 1994 – although he has so far been unwilling to allow a return on this additional spend. The tight financial framework outlined in the Rail Regulator's December document will not enable the proposed programme to be delivered.

However, the Regulator indicated a way out of this dilemma. This was for us to grow our business through commercial partnerships with customers and Government, taking additional risk but securing additional rewards. That is what we have sought to do through this NMS.

With accelerated or new investment being one of the Government's published criteria for franchise renegotiation, we anticipate working with train operators to assist them in this process.

Delivery of these plans provides a challenge to Railtrack, the Rail Regulator, the Strategic Rail Authority and to the Government to develop the right financial framework and balance of risk between the public and private sectors. Rail investment has the potential to produce benefits which go much wider than the industry and ultimately affect the quality of life in this country. For this reason, it requires a true public-private partnership.

This is the industry vision, outstanding service quality, punctuality, clean, modern rolling stock and station facilities

Wider incentives framework

The current incentives framework for the industry involves strong commercial growth incentives for train operators but much weaker incentives for Railtrack, with a system of access charges under which 91% of its passenger franchise income is fixed.

Work has been under way to review the current system of charging for use of the network, and the Rail Regulator will be publishing a paper on charging options in the spring. Our proposals include a larger variable component of charges, perhaps in the order of 30%, reflecting more accurately the costs incurred by running additional trains on the network, together with a volume incentive, so that we and the train operators share the benefit of traffic growth.

Such a regime would extend the principle of revenue sharing, as agreed between Virgin Trains and Railtrack for the West Coast Main Line, to the whole network. Getting the right charging structure is important in providing the right economic signals, aligning growth incentives between Railtrack and train operators, while making it easier to finance necessary enhancement. One option would be to strengthen these incentives through Strategic Rail Authority top-up payments in respect of the additional social benefits which accrue from traffic growth.

A further change to incentives is required on performance. There may be scope for mechanisms to recycle a proportion of Railtrack efficiency gains back to train operators based on their performance. Together with a volume incentive, this would mean the industry sharing the benefits of growth and improved efficiency, to the benefit of rail users.

Having the investment plans needed to provide for growth in use of the network is only the first step. The delivery mechanism is a revised economic architecture which aligns the interests of the parties, forces collaborative working, transfers risk to those best able to bear it, and so enables the investment to get funded. It represents a new approach. Anything less radical will not deliver the scale of the changes now required.

Industry vision

'This is the industry vision: outstanding service quality, punctuality, clean, modern rolling stock and station facilities, the renaissance achieved, the growth we forecast realised, an incentives framework which enables and encourages it, a host of new projects, the Government objectives of a safer network – commercially funded – and the Deputy Prime Minister's policy of truly integrated transport realised. Gerald Corbett, National Rail Summit, February 1999.'

Privatisation of the rail industry has produced many successes. Investment has increased, safety has improved and, after years of stagnation and decline, the industry has grown dramatically in passenger and freight volumes

Progress since the 1998 NMS

The time since our 1998 Network Management Statement for Scotland has been a period of intensive activity for Railtrack. We have developed a new, more systematic approach to the management of train performance, based on budgets, action plans which focus on key route sections and assets, and accountability for delivery with Area Delivery Groups. We have adopted a more collaborative approach to working with our customers – the train operators – based on a Ten-Point Plan for improving train performance. The Government's Rail Summits provided a catalyst for this approach.

We have also changed the way we work with our maintenance contractors, moving to a more collaborative approach with an 'open-book' policy, and have let the first four new-style contracts. We are leading this field in Scotland with our 'Strategic Alliance'.

We have rebalanced our investment programme towards enhancement and introduced new techniques for managing the maintenance/renewal trade-off. We have now completed half the Station Regeneration Programme and have made solid progress on safety, introduced new collaborative approaches to timetabling, and started upgrading the West Coast Main Line. We have also helped the Government save the Channel Tunnel Rail Link. We shall meet our financial targets for the year and be close to achieving the 7.5% overall performance target (for train delays) that we agreed with the Rail Regulator in July last year.

The industry record

Privatisation of the rail industry has produced many successes. Investment has increased, safety has improved and, after years of stagnation and decline, the industry has grown dramatically in passenger and freight volumes. Passenger numbers since 1995 have increased by 25% and freight tonne-kilometres by nearly 40%.

Since 1996, our own investment programme has doubled to £1.45bn per annum, most of it on renewing the infrastructure (track and signalling etc) and making good the backlog of public sector underinvestment, particularly on stations. Over half of our 333 stations in Scotland have now benefited from the Station Regeneration Programme which is on course for completion in 2001.

However, success has also raised new issues. After a significant early improvement, industry performance (measured in delays per train movement) has recently deteriorated, with train operators performance (defined as attributed minutes' delay) worsening and Railtrack's overall performance showing only minimal improvements after 40% gain achieved in the last three years. In Scotland, delays caused by infrastructure failures reduced by 13% counterbalanced by an increase in weather-related delays caused by flooding and severe storms.

The potential scale of these problems is compounded by the projected growth in passenger and freight traffic. Industry models of congestion show that a 1% increase in passenger train kilometres leads to a 2.5% increase in delays to trains. A growth of 40% in train kilometres over the next ten years – all other things being equal – would lead to a doubling in the total amount of train delays, a result which is clearly unacceptable.

A number of solutions present themselves; in the short term more systematic management and a more collaborative approach will help. But a full solution requires investment to expand capacity together with an improved incentive regime for a new era which will deliver the desired outputs.

introduction

1 Introduction and context of plan

- 1.1 Introduction
- 1.2 Strategic planning role
- 1.3 Structure of the Statement and the form of publication
- 1.4 Context
- 1.5 Economic incentives framework
- 1.6 Institutional context
- 1.7 Financing the Plan



In this section, we set out the structure of the NMS and place it in the context of the Rail Regulator's periodic review of Railtrack's access charges. We describe the existing incentives framework for the industry and how we believe this should change to facilitate growth. Finally, we outline the institutional context for the NMS – the Government's Integrated Transport Policy and the proposed Strategic Rail Authority, links with regional and local governments, and European Union proposals for pricing and technical harmonisation.



We have a unique position at the heart of the rail industry that enables us to take a strategic and co-ordinated view in developing and delivering an industry vision

1.1 Introduction

Railtrack owns and operates the rail infrastructure of Great Britain. We are responsible for maintaining, renewing and developing the network to meet the needs of train operators and users, within the context of the Government's Integrated Transport Policy objectives.

Our assets in Scotland (Great Britain figures in brackets) include 4,200km (32,000km) of track and associated signalling and electrical control equipment, providing a network of more than 2,700 (16,000) route kilometres. We are responsible for 5,000 (40,000) bridges, tunnels and viaducts, 333 (2,500) stations, and 10 (90) light maintenance depots. With the exception of Glasgow Central and Edinburgh Waverley, which we operate, all stations and depots are leased to train operating companies.

Safety of the network is of paramount importance and we oversee safety matters relating to contractors and train and station operators. We formulate and monitor mandatory network-wide safety standards and have established the industry Safety Management System, including processes for the acceptance and monitoring of train company safety arrangements.

1.2 Strategic planning role

We have a unique position at the heart of the rail industry that enables us to take a strategic and co-ordinated view in developing and delivering an industry vision with our customers and funders designed to satisfy their needs and expectations.

1.3 Structure of the Statement and the form of publication

We publish a Great Britain (GB) Statement, and this Scottish Statement which provides a more detailed focus on our network in Scotland. Where relevant, we quote Scottish data and examples, otherwise information relating to GB as a whole is used.

Both Statements set out national plans for the maintenance, renewal and development of the network together with the analyses, planning and processes that underpin these plans.

Our national plan is disaggregated into 45 Route Strategies of which eight affect Scotland, which are also set out in the Statement. Each route strategy is derived from: an assessment of the transport markets served by that route, our customers' requirements identified through our Account Planning process, the maintenance and renewal needs on the route and a joint vision of the long-term development of the route. These Route Strategies ensure that the railway infrastructure can deliver the level and quality of service which our customers require to meet current and foreseen market needs.

For each customer we also have an Account Plan which records their business needs and agreed plans to meet these requirements.

The Statement shows the financial inputs to our plans, and the physical performance and quality outputs that we expect to achieve as a result of this level of expenditure both in the remaining two years of the current Control Period and during the five years of the next Control Period. The effect on the capability, quality and performance of the rail network and stations will then be tracked over time in future Statements to show that the expected expenditure benefits have been delivered.

These measures, and how we expect them to change over time, can be found in Section 5.

Various editions of this NMS are available:

- GB NMS
- Scotland NMS
- Summary edition
- Welsh language extract
- Website
- Tape version
- PC disk version.

For further information, contact the Railtrack Helpline on 0345 114141 or see our website <http://www.railtrack.co.uk>

The more track access charges are reduced, the less our ability to fund a growing programme of investment

1.4 Context

The periodic review of Railtrack's access charges

The Rail Regulator has a statutory duty 'not to make it unduly difficult' for Railtrack to finance its activities. In turn, we must ensure that we meet the reasonable requirements of our customers and funders and satisfy our stewardship obligations for the network.

This is our fourth Network Management Statement and the second produced under Licence Condition 7. Although the NMS is produced annually, the context of the 1999 NMS is rather different. It represents a Strategic Business Plan on which the Rail Regulator is to make decisions on access charges for the five years from April 2001.

The periodic review involves key decisions on future track access income and investment. Broadly, the more track access charges are reduced, the less our ability to fund a growing programme of investment. Uniquely among regulated utilities, reductions in access charges (through the 'RPI-X' formula) do not affect our direct customers (train operators), or end users (passengers) but are passed back to the Franchising Director, and can either be used to reduce overall Government support for the industry or be reinvested in network development.

We will follow up the NMS with a submission on detailed projections of capital and operating-cost expenditures, together with income forecasts. These will be used to inform the Rail Regulator's decisions on allowed revenue and access charges for the next Control Period.

It will be up to the Franchising Director and the Shadow Strategic Rail Authority, in light of the NMS, to advise the Government on national priorities for development of the network and the prioritisation of schemes for support on social grounds.

Our aspirations for the periodic review can be summarised as:

- alignment of growth and performance incentives between Railtrack and its customers.
- a financial framework with incentives for Railtrack to take greater commercial risk in developing the network.
- an agreed framework for remunerating different types of enhancement projects which allows us to initiate such schemes to develop the network to meet customer and funder requirements.
- a well-specified regulatory contract which focuses on the outputs to be delivered for the period 2001–06.

The Rail Regulator expects to reach provisional conclusions in December 1999, and finalise these in summer 2000. The 2000 NMS will set out the implications of the Regulator's draft conclusions for investment and outputs to be delivered over the ten years from 2001. It will be important to ensure that the outcome of the review provides flexibility to accommodate enhancement proposals that emerge from Account Plans and the development of Route Strategies during the next Control Period.

We are keen to have stronger volume incentives... either through revenue sharing... or an incentives element within track access charges

1.5 Economic incentives framework

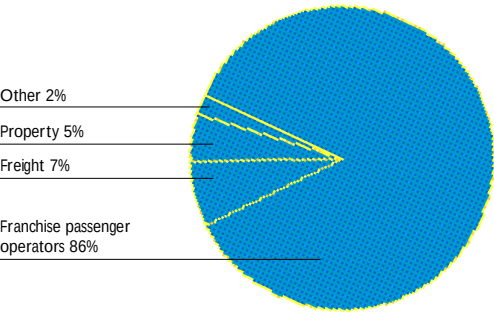
Our income is derived from a number of sources: track access charges paid by train operators, stations and depots access charges, and property rentals and disposals.

We operate under a single-till arrangement. Under this, the Rail Regulator calculates an overall total revenue requirement for the Control Period. From this is deducted expected income from freight and property to give a revenue requirement from passenger franchise operators. This is then divided between track access charges and station charges.

The effect of the single till is to allow income from property and other non-franchise sources to reduce the amount that needs to be raised from passenger franchise operators for using the network. Because the Government provides financial support to franchise train operators, additionally the single till reduces the amount of Government subsidy required.

The relative magnitude of the different components of Railtrack's income is shown below:

Components of Railtrack's income
Source: Railtrack's Annual Accounts 1997/98

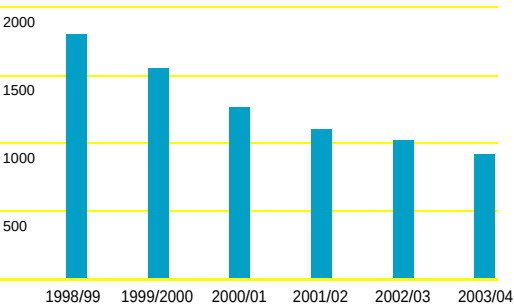


Government support to passenger franchise operators is expected to fall from £1.6bn (1998/99) to £900M (in 2003/04). Over this period, most long-distance train operators are expected to become profitable and then pay contributions to the Franchising Director. Almost all of the remaining subsidy will be directed at services in Scotland, Wales and the English regions including the Passenger

Transport Executive (PTE) areas, with that in Scotland under the aegis of the devolved Parliament.

The current framework of access charges was established at a time when there was little expectation of traffic growth. It is ill-suited to the situation that the industry now faces. While train operators have strong financial incentives to grow traffic volumes, we currently receive little benefit from traffic growth on the network because 91% of track access income is fixed. Recent work suggests that a much higher proportion of our usage costs, both passenger and freight, vary with traffic volume, suggesting figures broadly in line with a recent European Union study across all member states. We are now exploring the implications of this with our customers and the Rail Regulator. In this Statement we assume that our charges in the next Control Period are set at a level that at least covers our marginal costs. In addition, we are keen to have stronger volume incentives – either through specific revenue sharing arrangements with train operators, or through an incentives element within track access charges.

Subsidy to the rail industry is declining
Subsidies to rail industry (£M)



However, our ability to invest depends ultimately on the financial framework which is set out by the Rail Regulator. In his December document*, he set out the challenge for us – whether we wanted to be a low-risk utility essentially acting as a contractor for Government or the Shadow Strategic Rail Authority, or a commercial organisation willing to take demand risk through innovative approaches to network development.

*The periodic review of Railtrack's access charges: the Rail Regulator's conclusions on the Financial Framework (Third Paper) December 1998.

Where it is not possible to undertake an investment and network enhancement commercially, we propose a partnership approach

We firmly believe that risk is best borne by those who are closest to the market. We are, therefore, keen to take on more risk – both in project construction and market demand – in undertaking network development. As long as we can be fairly rewarded for this, we believe the scope for it will increase over the next few years, as the subsidy falls and as more of the network becomes viable.

The key challenge facing the industry is the scale of investment funding required. We have a strong balance sheet, but our previous £17bn programme takes our debt to over £4bn by 2003/04. To accommodate the passenger growth rate of 30% over the next ten years that we have projected in this Statement, the network will require an additional £5bn–£10bn to provide the appropriate capacity. If long-term growth projections of 70% or more are to be allowed for, a further £13bn–£24bn investment would be needed.

However, rewards must be proportionate to the risks involved; we have to be able to attract sufficient capital. We have concerns about the Rail Regulator's approach to our cost of capital and the additional regulatory risk implicit in the five-yearly review cycle. This is in the context of major schemes which have a 4–5 year gestation, and the sheer scale of the investment required. We shall therefore be putting forward alternative proposals to address these issues. For commercial upgrades, we shall want to explore alternative approaches to selling additional train paths and discuss methods of ring fencing returns with the Regulator.

Where it is not possible to undertake an investment and network enhancement commercially, we propose a partnership approach. The Government's proposals for new infrastructure funding sources available to the Shadow Strategic Rail Authority are welcomed, along with the development of freight facilities grants. Beyond that, we suggest that additional funding for a partnership approach to network development can come from only two sources.

- Retaining the benefit of reductions in access charges arising from the review within the industry – in effect, recycling the benefits of efficiency savings into enhancement.
- New sources of local funding through the powers given to local authorities to introduce road-user charging. Over time, this is estimated to produce a major new source of revenue available for reinvesting into public transport improvements.

We also believe that more of the present Government support should be linked explicitly to the delivery of agreed social outputs such as reduced traffic congestion and environmental benefit.

Our plans in this Statement are, therefore, based upon the successful resolution of the above issues, such that we are then able to finance our ambitious programme to expand the network, and to deliver both the industry's and society's expectations of the rail network.

1.6 Institutional context

The Strategic Rail Authority

We have welcomed the Government's proposals to establish a Strategic Rail Authority (and the setting up of a Shadow Strategic Rail Authority pending legislation,) to concentrate on strategic planning issues – which include establishing the right incentive structure and funding arrangements for the industry. This should complement the planning that is already undertaken through the Account Plan and Route Strategy arrangements that we have in place. We also welcome the key role that the Strategic Rail Authority will play in franchise extension negotiations. The Government's decision to take a flexible approach to franchise extension renegotiation should help to unlock further investment and growth in the rail system.

We note that many of the key decisions affecting the future of the railways – in particular, over the criteria for franchise extension (or renewal) and the level of Railtrack's access charges in the period from April 2001 – will have to be taken using existing agencies and their powers before the Shadow Strategic Rail Authority has statutory authority.

UK Government

We continue to work with the UK Government to understand how we can most effectively work towards achieving its Integrated Transport Policy objectives. Our position at the heart of the railway industry enables us to co-ordinate responses and actions from all industry parties and provide a focal point for national Government. Examples of this have been the two recent national rail industry summits on train service performance and the action plans (and achievements) flowing from them. They have acted as catalysts for more collaborative cross-industry responses on performance and related issues.

Railtrack is committed to working with the Scottish Parliament and its Executive to develop the rail network and implement integrated transport schemes

Scottish Parliament

The Scottish Parliament will be opened on 1 July 1999, at which point full legislative powers will be granted to it. The Parliament and its Executive will have the power and responsibility to be a major player in the modernisation and continuous improvement of Scotland's railway and other transportation links. Railtrack is committed to working with the Parliament and its Executive to develop the rail network and implement integrated transport schemes.

The Parliament will have the power to impose road tolling and congestion charging on Scotland's roads and can use such raised finances to enter into radical partnerships with Railtrack promoting social inclusion. By entering into partnership, Railtrack is willing to use its status to borrow privately for the financing of diesel tilting trains for Scottish routes. Railtrack would then lease these to train operators. These trains would offer the same benefits as electrification on a number of routes, such as Aberdeen–Edinburgh. Railtrack and the Scottish Parliament can achieve a significant number of radical improvements for Scotland, and, once established, we look forward to discussing our tilting trains concept with the Parliament's Executive.

Scottish local authorities

Scottish local authorities will continue to hold their important role in transportation planning. Relationships have been built by Railtrack with the local authorities across Scotland. All local authorities in Scotland have been part of the consultation process for the production of this NMS for Scotland. It is only through effective dialogue with local authorities and Strathclyde Passenger Transport (SPT), that the rail industry can meet the needs of the local community. We will continue to work with the SPT, local authorities and local authority partnerships, such as the South East of Scotland Partnership, to understand and deliver a rail network that meets their needs.

Railtrack has assisted councils in bids to the Scottish Office's transport fund, and other partnerships with the rail industry and local authorities have resulted in a number of benefits to the rail infrastructure, examples are detailed in Section 8.

European Union

1999 will see the continuation of technical and legislative reforms to the European railway environment. In the summer of 1998, the European Commission published a draft directive which seeks to achieve community-wide standards on train path allocation and on access charging. Further proposals were also made on introducing greater railway market liberalisation. In addition, proposals were made to tackle the complex issues of both ensuring fair intermodal competition, and the incorporation of external costs (for example, pollution and congestion) into the charges paid by the users of transport infrastructure.

These issues will now be the focus of intense debate within European institutions. We expect to see a general endorsement of UK rail industry processes, although we will need to give careful consideration to the implications arising from the proposals to base infrastructure charging on marginal cost principles.

Proposals for the technical harmonisation of the standards for the development and operation on new and upgraded high-speed passenger lines are due to come into force in the UK during April 1999. The directive applies to our plans for upgrading and building the routes which are designated as Trans-European Networks (TENs) high-speed lines, including the West Coast Main Line, East Coast Main Line, Great Western Main Line and Channel Tunnel Rail Link. Laying down minimum specification necessary to achieve European interoperability, we expect to see this legislation have an increasing impact on our development activities.

1999 will also see further debate on the availability of European funding to the regions of the United Kingdom and, in particular, the rail transport sector. We can expect to see changes being proposed to the TENs' guidelines for transportation projects, in addition to alterations to the regions of the United Kingdom which will be eligible for future external funding. Our European Affairs Directorate is working closely with UK and European institutions to ensure that the rail network is eligible to benefit from funding which is currently available and will be in place in the future.

It is only through effective dialogue with local authorities and Strathclyde Passenger Transport (SPT), that the rail industry can meet the needs of the local community

Integrated transport

In the past 12 months, the Government has published its White Papers A New Deal for Transport: Better for Everyone and Travel Choices for Scotland together with a number of supporting documents setting out more detailed policies. Among these were the response to the Environment, Transport and Regional Affairs Committee Report on the Proposed Strategic Rail Authority and Railway Regulation which set out the Government's plans for the rail industry in more detail.

The rail industry has welcomed the emergence of an Integrated Transport Policy and is working actively towards the achievement of its objectives and contributing positively to policy development.

The following are planned or have already been delivered against Government objectives.

- More and better train services – an increase of 14% in passenger kilometres over the past two years – and an increase of 5% in train kilometres in 1998/99 compared to the previous year.
- Better information – We control the national rail timetable and have made it available on the Internet – on average 850,000 Internet enquiries are successfully answered a week.
- Better security – We and train operators are investing in improved security. Customer security staff have been recruited by train operators.
- Easier access – Pilot schemes to make available secure bicycle storage and hire facilities are under way at main line rail stations. New services have opened connecting Heathrow with central London. There are other plans under development.
- Growth in train services of up to 30% over the next ten years.
- The further development and integration of information systems. We are playing a full part in the feasibility studies for national information systems. The railway industry is also developing the integration of its different information systems to bring together timetables, fares and real-time train-running information.
- We are working closely with the Highways Agency and Scottish Office to develop and exploit opportunities for managing transport corridors cross-modally.

1.7 Financing the Plan

Maintenance and renewal. Train operators enter into track access agreements with us which set out the terms, including the access charges payable, on which they are permitted to run trains on specified parts of the network. Under these agreements, we are required to ensure that the network is maintained and operated to a standard which permits our customers to deliver their obligations.

When the Rail Regulator determined the overall level of charges to be paid by passenger franchise train operators for track access for the period to April 2001, he took into account the extent of our proposed asset renewal programme and income earned from commercial development or sales of our property. This means that we will fund the maintenance and renewal expenditure set out in this Statement primarily from the income we receive from our customers under these access contracts.

Some projects are not simply renewals but involve elements – new techniques, European harmonisation, or renewal of historic structures in a manner in keeping with the original design – which may attract grant funding.

Enhancement. Our investment in commercial projects with an appropriate rate of return which enhance the network will usually be recovered from additional access charges which we negotiate with our customers who benefit from the investment. In most cases we would be taking market risk through a revenue sharing deal. This is our preferred approach.

For partnership projects, we would be prepared to finance part but not all of the capital cost including earning an appropriate rate of return and would look for grant funding to cover the balance. Such a grant would be paid in return for the benefits to the community such as reduced traffic congestion. Existing public grant mechanisms allow for this via grants to passenger operators to pay additional access charges or by direct grant funding of assets by the Franchising Director, local authorities and PTEs. For freight schemes, freight facilities grants may be available. Again, we would wish to take the market risk.

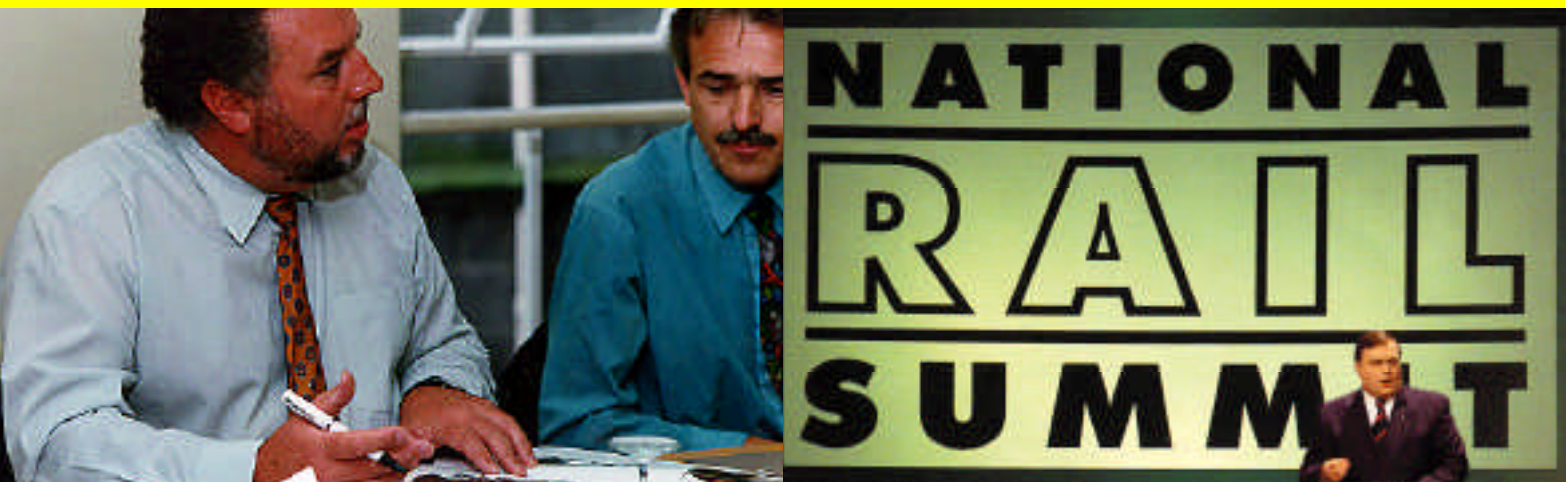
For contractor projects we would again be prepared to fund the costs of construction either wholly or in partnership but we would not take any commercial risk and would only recover our costs and standard rate of return through access charges.

2 Consultation

- 2.1 Consultation on the 1998 NMS
- 2.2 Consultation with our customers, funders and passengers
 - Table A – Analysis of customer requirements received and proposals for action
- 2.3 Stations – Customer research
 - Table B – Satisfaction with station facilities
 - Table C – Changes in standard of station facilities
- 2.4 Feedback on this Statement



The Network Management Statement is a broadly based plan. In this section, we report on our consultations on last year's Statement and how these have been incorporated into this document. We describe the structured processes we have used for establishing our customers' and funders' requirements, agreeing their reasonableness, and feeding them through into Account Plans and Route Strategies. We also present the results of our research of the perceptions of the industry held by both rail users and the public, their priorities for improvements and how these are built into our plans. Lastly, we outline our process for consulting on this edition.



We need to develop and share an industry vision

2.1 Consultation on the 1998 NMS

Following publication of our last year's Statement on 25 March 1998, we held discussions with most of our customers and funders during April and May. We also received many written responses, and held a series of regional workshops during summer 1998 to feed back the results of our consultation and our proposed actions to address the issues raised.

The key conclusions from these consultations on our 1998 Statement were:

- the new layout with eight Route Strategies was welcomed.
- we need to develop and share an industry vision.
- the 1998 Statement was seen as risk averse with too few commitments and targets.
- our growth forecasts were too pessimistic.
- more detail on individual routes and policies was needed.
- we should clarify our plans for bottlenecks and journey-time reductions.
- we should show more clearly how schemes are funded and give credit to funding bodies.
- we should define more clearly our policy on renewals.
- we should improve consultation and links to customer Account Plans.
- we should demonstrate more clearly the benefit from investment schemes.

This Statement is designed to answer these concerns while building upon the positive aspects of the 1998 Statement.

The Rail Regulator conducted his own consultation on the 1998 Statement to see whether it fulfilled the requirement of Condition 7 of our Network Licence.

Following this review we have agreed:

- To aim to reduce the delay per train movement during 1998/99 by 7.5% – rather than the 3% set out in the 1998 NMS – following more detailed analysis.
- To pursue an improvement programme to ensure that by 31 March 2001 track quality would at least meet the standard achieved on 1 April 1994.
- To complete a process with our customers and funders to ascertain their reasonable requirements and put in place actions to deliver them.
- To provide the Rail Regulator with a study of the capacity bottlenecks highlighted in the 1998 NMS.

Discussions have also been held with the Franchising Director to understand his requirements for changes to the output of the network

2.2 Consultation with our customers, funders and passengers

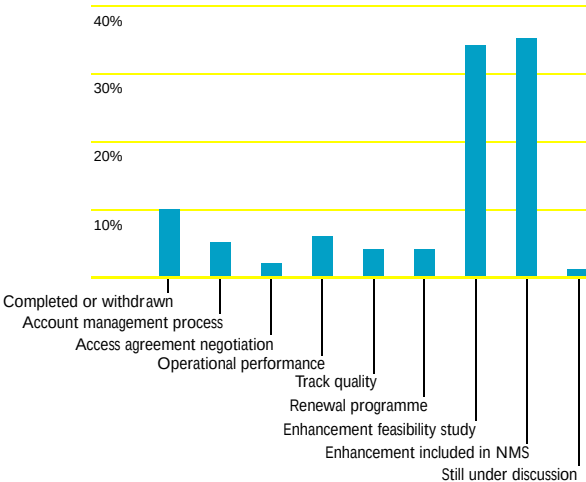
Last year, we strengthened our account planning through a structured exercise to agree with each of our train operating customers – and Strathclyde Passenger Transport (SPT) – a statement of their reasonable requirements. Customers and funders were invited to set out their requirements, which resulted in approximately 110 individual proposals varying widely in both scale and type. Each was discussed with the customer or funder to agree output deliverables.

We have taken forward those requirements which:

- represent ways of delivering an output for which we are already funded (eg in meeting our criteria for maintenance and renewal of the network, including renewal in modern equivalent form); or
- relate to enhancement of the capability or capacity of the network (or are for additional train services where no access agreement currently exists) where the requirement is consistent with the relevant Route Strategy. In these cases, we will examine how risks and benefits might be shared.

Table A Analysis of customer requirements received and proposals for action

Source: Railtrack analysis



A summary of the types of requirements received from customers and funders is shown in Table A.

Further information is given in Appendix 4.

Requirements relating to enhancement of the network are also referred to in each Route Strategy of this document.

The agreed outcome of each reasonable requirement relating to development of the network is shown in the relevant Route Strategy, including the impact on options for solving capacity constraints. Significant requirements, and the agreed way forward, are also set out in the relevant descriptions of Route Strategies in this NMS. Where the requirements relate to performance or track quality, these have been considered as part of the network-wide commitments that we have given. Requirements concerning our renewals programme, including incremental improvement options where possible, are being discussed with each customer. At the time that this NMS went to press, a small number of requirements (1%) were still being discussed with customers to agree a way forward.

Action plans have been agreed either to implement each reasonable requirement, or to carry out the next stage of feasibility or development work. These are now incorporated into the Account Plans, whether or not details of the proposal are published in this NMS, and will be used to monitor and report progress. Where new or modified requirements arise in future, these will be treated in the same way.

Discussions have also been held with the Franchising Director to understand his requirements for changes to the output of the network. Those requirements related to the capacity and capability of routes, such as frequencies or journey times, have been considered within the relevant Route Strategies.

There is widespread demand (over 70% of respondents) for increased investment in both local and long-distance rail services

Customer and public research

In addition to Government and transport industry requirements of the rail network, we have also researched passenger and society expectations. This research shows strong support from both existing and potential rail passengers for our approach to the significant network development that we are planning to deliver.

Public attitudes towards investment

MORI undertook a research study for us in January 1999 to investigate attitudes towards, and perceived requirements for, investment in the railway network (see note below). The most important areas that would encourage greater rail use are a reduction in the cost of tickets (mentioned by 49%), greater reliability (35%) and frequency of services (31%). Access to stations, safety and comfort of stations and access to information all featured as important secondary factors.

Investment priorities followed a similar pattern with cost of tickets (57%) and reliability and frequency of services (48% and 40%) again receiving the top number of mentions. Investment in security at stations was again an important secondary factor (19%). There is widespread demand (over 70% of respondents) for increased investment in both local and long-distance rail services.

Note: The research was conducted using MORI's General Public Omnibus, a national survey of 1,996 adults representative of the population of Great Britain aged 15 and over in terms of sex, age, social class, working status and geographic spread. Fieldwork was carried out between 22–25 January 1999 across 163 enumeration districts.

2.3 Stations – customer research

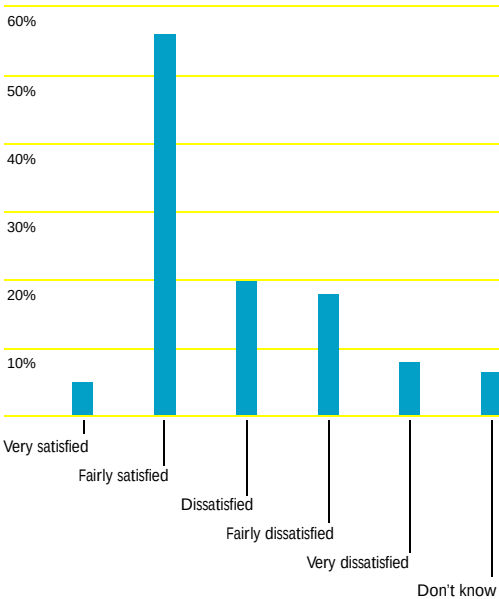
Our qualitative research examining the station experience among passengers has shown travellers want to:

- be made to feel welcome and cared for
- be reassured about the status of their train services
- feel secure from any threat
- feel proud of their station
- feel help is available if needed (luggage, steep steps etc)
- be able to use their time at the station productively (newspapers, cashpoints, cafés).

We commissioned MORI to carry out research among users of railway stations to identify whether they are satisfied with the standard of facilities, and whether they consider them to be improving. Encouragingly, a majority of respondents were satisfied and felt that standards are getting better, as illustrated below.

Table B Satisfaction with station facilities

Source: all rail users in Scotland (151). Fieldwork Sept & Dec 1998 MORI/Railtrack
Customers were asked how satisfied or dissatisfied they were with the facilities provided at railway stations.



A consultation forum
will be held during
June and July 1999

Of those who were satisfied, the most important reasons given were:

Cleanliness	39%
Eating and drinking facilities	30%
Stations improved generally	27%
Access to information	24%

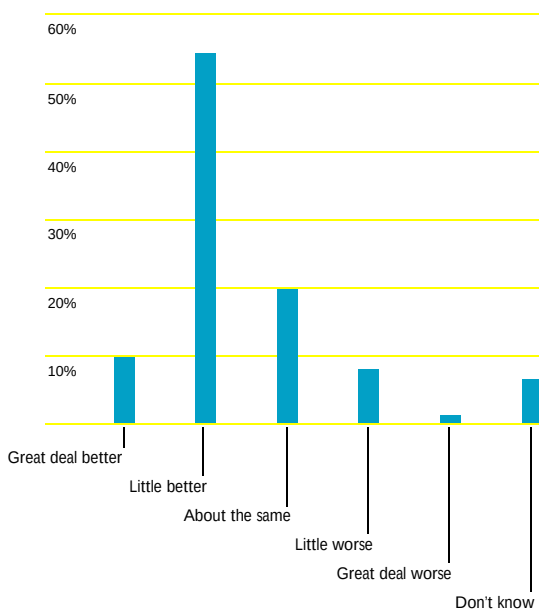
Of those who were dissatisfied, the most important reasons given were:

Cleanliness	43%
Toilets	41%
Comfort/waiting facilities	30%
Access to information	24%

These results reflect the current variability of the levels of facility and condition of the stations.

Table C Changes in standard of station facilities

Source: all rail users in Scotland (151). Fieldwork Sept & Dec 1998 MORI/Railtrack
Customers were asked to consider whether they thought facilities at railway stations have got better, got worse, or stayed about the same over the past few years.



2.4 Feedback on this Statement

We would again like to receive comments on both format and content of the NMS. We will use a number of mechanisms to achieve this.

- Formal, written consultation with our customers through our Account Executives on both this Statement and our Route Strategies.
- Formal consultation with the Franchising Director, SPT and other funders.
- Informal consultation with our suppliers.
- Written responses from other interested parties.
- Consultation forums in each of our Zones with the opportunity to discuss the NMS with our appropriate key managers.

We would like to receive written responses by 1 June 1999, and we will conclude formal written consultations by the same date. A consultation forum will be held during June and July 1999.

For immediate response, a tear-off, postage-paid response form is included on the last page of this document.

Written responses should be sent to:

Janette Anderson
Director Railtrack Scotland
Buchanan House
58 Port Dundas Road
Glasgow
G4 0LQ

3 Progress

- 3.1 Summary
- 3.2 Operational performance
- 3.3 Track quality
- 3.4 Infrastructure support
- 3.5 Year 2000 compliance and information technology
- 3.6 Rebalancing our investment programme
- 3.7 Renewal of network
- 3.8 Station regeneration programme
- 3.9 Enhancement investment



We report on the substantial progress we have made since the 1998 NMS, the commitments we made, and what we have achieved. Against this report our future plans, and our implementation of them, can be judged.



Over the past 12 months, we have delivered on all the key objectives set out in last year's NMS

3.1 Summary

In the 1998 Statement, we set out our Plan which involved expenditure of over £2bn in 1998/99 to sustain the network, improve network outputs and deliver specific investment schemes. Following consultation on, and review of the 1998 NMS, we provided further commitments in a number of areas including performance, track quality and consultation with customers and funders on their reasonable requirements.

In summary, over the past 12 months, we have delivered on all the key objectives set out in last year's NMS – train performance, track quality, new consultative processes with our customers and funders, new approaches to managing maintenance contractors, progress on the Station Regeneration Programme, renewal and enhancement of the network and resolving the Year 2000 issue.

3.2 Operational performance

Delays attributable to our contractors and to us have fallen, but despite substantial progress we are likely to fall short of delivering our target of 7.5% year-on-year improvement. In Scotland, the main reasons are:

- exceptionally high rainfalls in October leading to severe flooding.
- at Christmas, the worst gales for 30 years.
- increased incidences of road vehicles striking railway bridges.

Delays due to weather more than offset a 13% improvement in failures attributed to the infrastructure. The net effect is that our overall performance is the same as last year.

3.3 Track quality

During the course of 1998, we have prepared a track-quality improvement programme for the two years to March 2001. This programme sets out our objectives to reduce the level of track not meeting our 100% standard to the maximum reasonably practicable. It also sets out our commitment to ensure that the proportion of track achieving the 50% and 90% standards is no lower than the levels achieved at 1 April 1994.

3.4 Infrastructure support

We have ordered 25 multipurpose vehicles costing a total of £33M to counter the effects that bad weather has on our performance. These vehicles clean the rail-head with a high-pressure water spray and lay a gel to help trains avoid slipping during the leaf-fall season. They are also fitted with adjustable, miniature snowploughs. Additionally, a number of the multipurpose vehicles will be able to undertake weed-spraying, fire-damping and de-icing activities. The first two vehicles are due for delivery to Scotland for testing in summer this year, with the remainder delivered between autumn 1999 and the end of 2000.

In the past year, we have refurbished 22 snowploughs and 15 breakdown-and-recovery support vehicles. We have let a contract for the overhaul of our fleet of five telescopic-jib 75-tonne breakdown-and-recovery cranes, which will be completed in July 1999.

We have bought eight stoneblowers to improve the maintenance and renewal of track, and have a further three on order for delivery in the coming year. We are continuing the development and implementation of our high-output rebalasting system. Our contracting strategy for plain line track-renewals delivery has enabled a supplier to announce plans to procure a high-output track-relaying train.

We are developing remote condition monitoring for plant equipment, and new specifications for mechanical and electrical services at stations and depots.

The proportion of enhancement expenditure compared with renewals will rise from 9% in 1998/99 to 27% in 1999/2000

3.5 Year 2000 compliance and information technology

We are working with the rest of the rail industry to implement a plan to achieve Year 2000 compliance on critical systems, the first stage of which has been successfully implemented. Between April and December 1998, we made 52 critical information systems compliant, with the remaining 53 planned for adjustment between January and August 1999. During the same period, 5,200 types of equipment, potentially susceptible to the 'millennium bug' have been investigated, though few have been shown to be non-compliant. Remedial work on non-compliant equipment is under way, and planned for completion by the summer of 1999. Up until December 1998, we spent £41.8M on achieving Year 2000 compliance for critical systems. We are now confident that all critical systems will be compliant in time for the new millennium.

In the past year, we have introduced a new, integrated national train-planning system to streamline and speed up the process of handling bids for train paths from train operating customers and making offers of train paths to them. We have also introduced a new corporate financial management system to improve handling of suppliers' accounts and our accounting processes.

We have made provision in our financial plan for the replacement of inherited IT systems in the medium term.

3.6 Rebalancing our investment programme

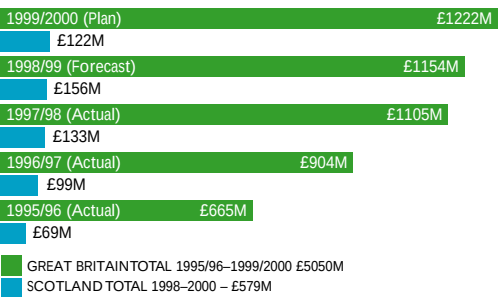
One of the early reactions to our 1998 NMS was that the expenditure on enhancements was disappointing and did not address sufficiently the needs of our customers. We responded by increasing expenditure on enhancement with an additional £1M, giving an increase of 7%. The proportion of enhancement expenditure compared with renewals will rise from 9% in 1998/99 to 27% in 1999/2000. We report in Section 8 and in the Route Strategies on our progress against this modified programme, rather than the original.

We have invested £53M in our stations over the last year, including substantial works at Glasgow Central, Edinburgh Waverley and Glasgow Queen Street

3.7 Renewal of network

We have continued to invest significant sums in the track, structures and signalling systems throughout the rail network. We have developed our processes to ensure that we invest wisely in those parts of the network that require it. Our aim is to maintain and improve performance and safety, to facilitate opportunities in the rail market and to improve customer end-products. We have instigated a number of initiatives and techniques to reduce unit costs. Value management initiatives and partnerships with our contractors are showing positive results in reducing costs, improving efficiencies and identifying priorities.

Expenditure on renewals

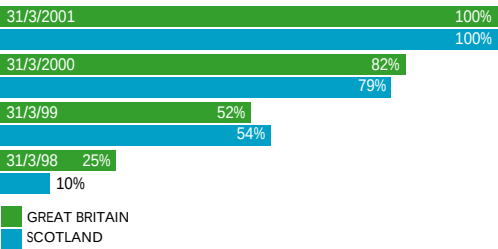


3.8 Station regeneration programme

Our commitment to complete the SRP by 2001 is well on course and over half has now been completed. We have invested £53M in our stations over the last year, including substantial works at Glasgow Central, Edinburgh Waverley and Glasgow Queen Street.

The chart opposite shows our achievements to date and our forecast for the next two years.

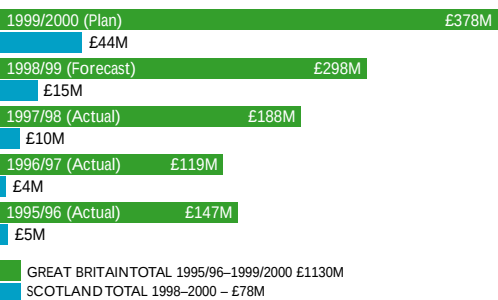
Station SRP scheme completion targets



3.9 Enhancement investment

The chart opposite shows the significant growth in our expenditure on network development and enhancement over the past few years.

Expenditure on enhancements



Note: All expenditure is at 1998/99 prices including new railway infrastructure expenditure.

Examples of significant work

Scottish signalling renewals. Cowairs – the first stage was commissioned over Christmas, the second and final stage will be completed in May 1999.

Renewal of point heaters. Work on this £9M scheme covering locations throughout Scotland is now 80% complete. Benefits in the form of reliability during cold weather have already been realised.

OLE feeder stations. The renewal of electricity supply equipment at four key locations is well advanced and will be completed by the summer of this year.

Forth Bridge. We remain committed to the significant maintenance required to this historic bridge. We have greatly increased the volume of repairs and painting work to bring the bridge up to a condition that will allow a more efficient steady-state maintenance regime to be carried out thereafter.

Stations completed include

Aberdeen Station. Concourse roof has been entirely replaced and upgraded transforming this station under at £2.2M programme of works.

Dunkeld and Birnam. Regeneration including the former station building which is now being let to allow life to be breathed into this station.

Milngavie. 50th station to be completed in Scotland as part of the SRP access and lighting enhancement carried out at the same time.

Singer. The opportunity was taken to provide additional facilities in the form of ramps giving improved access to the Glasgow platform.

Schemes in progress include

Glasgow Queen Street. £15M complete renewal of the entire station roof bringing daylight to radically improve this important rail hub for the west of Scotland.

Port Glasgow. Extensive building, platform and footbridge repairs.

Thurso and Wick. £1.5M joint programme of major upgrades and alterations. Work will be completed in time for the 125th anniversary of these vital Highland stations.

Polmont. Part of the upgrade of stations on the Edinburgh–Glasgow Line prior to the doubling of frequency of service provided by ScotRail.

Schemes completed include

Remote monitoring. First phase completed allowing the identification of equipment failures and early rectification.

Signalling improvements. Alteration increasing capacity in Fife and reduced journey time on the Far North Line.

Improved freight access. Four new sidings and improvement at Killiecrankie Tunnel allowing large loads to be conveyed.

Schemes in development/progress include

West Coast Main Line Route modernisation. An ongoing programme to deliver the core investment plan, and the enhancements required for the passenger service upgrades (PUG 1) is now under way.

Increased line capacity. Provision of additional loops at Thornhill on the G&SW and between Barrhead and Kilmarnock.

Depot enhancements. Provision of facilities to empty train toilets. Extension of trainshed at Haymarket.

New passenger lines. Larkhall and Anniesland for the service to Milngavie and the Edinburgh CrossRail link to Kinnaird Park.

Scottish signalling renewals. This is driven by the need to renew signalling equipment and enhance capacity covering Glasgow Queen Street–Greenhill via Lenzie and Cumbernauld and Cowairs–Maryhill. Completion is planned for this summer.

4 Sustaining the network

- 4.1 Criteria
- 4.2 Expenditure summary
 - Table A – Expenditure to sustain the network
- 4.3 Maintenance policy
- 4.4 Renewals policy
- 4.5 Stations
- 4.6 Depots
- 4.7 Safety developments
- 4.8 Environment



In this section, we set out what needs to be done to sustain the network. This includes our criteria, policies and processes for maintaining and renewing each type of asset and the expenditure to achieve this. We also include safety and environmental issues and how we will deliver against our commitments and objectives.



We have reduced delays caused by infrastructure-related failures or our management of the network by more than 40%

4.1 Criteria

Our actions to sustain the network form a central part of our Plan. Section 5 sets out the outputs we plan to achieve. This section discusses our criteria and policies for maintaining and renewing the network, including stations and light maintenance depots (LMDs).

In addition to ensuring that we can continue to deliver services at current output levels, these plans will result in improved reliability of the network and other benefits. We have already reduced delays caused by infrastructure-related failures or our management of the network by more than 40%. Through our plans, we intend to continue to improve on this key measure of performance.

We also plan to further improve station facilities as they are renewed.

Key criteria and objectives. In later parts of this section, we define the philosophies which underpin each component of expenditure. Our criteria for investment in maintenance and renewal of the network are that we will:

Comply with statute. Improvements in safety and environmental impacts associated with rail travel flow in part from the development of legislation. While no single major compliance issue dominates the foreseeable future, we do forecast a number of additional requirements, and delivery of these has been provided for in this Plan.

Comply with other binding commitments that we have given in contracts with train operators and funders. We have established with each of our customers a process for reviewing our plans. Where we are able to modify any maintenance or renewal activity in order to help a customer better achieve their goals, then we try to do so. Where a requirement is included within a binding agreement, then its delivery is treated as a firm commitment.

Comply with commitments given in our NMS. As noted in the next section, the performance improvement targets represented in this NMS are considerable. In addition, there are commitments to improvements in asset quality, station facilities and other network outputs. Significantly, these improvements will be delivered against a background of increasing growth in train and passenger kilometres. We confirm that the maintenance and renewal plans and expenditures allow for achievement of these objectives.

Minimise whole-life costs. The output of the network for use by train services arises from the combination of different types of route asset operating together, rather than the quality and capability of individual asset types in isolation. Consequently, our objective in assessing maintenance and renewal is to minimise whole-life costs for each route, while seeking to maintain an improving trend in route reliability, capability and other outputs. Where the route strategy is still being evolved, then we may need to optimise the whole-life costs for each asset group. A key element of the reductions in costs is the successful packaging of work activities along route sections (see also Section 4.4).

Impact on customers. We will work with our contractors and customers to ensure that our maintenance and renewal programmes are carried out in such a way as to minimise the impact on train services. We cover this in more detail in Section 6.8.

Enhance and develop the network to provide customer and funder benefits. Full details of the customer consultation process and the development proposals which have resulted are described in other sections of this document. These enhancements will be delivered in conjunction with ongoing maintenance and renewal activities, and the efficient interaction of all types of construction activity is an important consideration. We confirm that the plans have been prepared on an integrated basis even though the expenditure plans have been presented separately.

A significant portion of our infrastructure costs are related to the volume of traffic carried on the network

4.2 Expenditure summary

The maintenance and renewal expenditure proposals within this NMS are generally higher than the values in the 1998 Statement. There are three main reasons for this.

- 1 A significant portion of our infrastructure costs are related to the volume of traffic carried on the network. Since the traffic volume has grown significantly in the past four years, and a higher level of growth is predicted to occur in the future, the variable component of the maintenance and renewal costs is greater than previously stated.
- 2 The performance targets and other key outputs which are committed to within this NMS represent considerable advances compared to current standards, and where there are costs associated with these improvements, these have been included.
- 3 In the past year, we have undertaken a major exercise to determine how much we need to spend each year to sustain the network. This study, carried out with the assistance of engineering consultants, draws on the experience of the three years since our flotation.

Our forecast expenditure to sustain the network is given in the table below. All figures are at constant unit prices. These expenditures provide for delivery of the growth in passenger and freight traffic and for delivery of other output targets.

Table A Expenditure to sustain the network (EM – 1998/99 prices)

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
MAINTENANCE	710	670	650	640	630	620	610	620	610	610	600
RENEWALS											
TYPE OF ASSET											
Track	330	290	270	280	280	290	290	290	280	290	290
Structures	150	130	140	160	155	150	150	145	140	140	140
Signalling	200	270	330	420	370	330	230	310	290	260	230
Electrification	35	60	70	60	40	30	40	50	45	40	35
Plant & Machinery	80	70	35	40	40	40	30	15	10	10	10
Telecoms	40	55	60	50	50	40	30	20	20	15	25
Stations	275	270	200	130	120	120	130	120	105	95	100
Depots	25	30	15	30	30	30	30	30	20	20	20
Other	5	5	10	10	5	0	0	0	0	0	0
RENEWALS TOTAL	1140	1180	1130	1180	1090	1030	930	980	910	870	850
TOTAL	1850	1850	1780	1820	1720	1650	1540	1600	1520	1480	1450
LAST YEAR'S NMS	1930	1850	1650	1390	1260	1240	1220	1100	1090	1130	n/a

Expenditure to sustain the Scottish network (EM – 1998/99 prices)

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
MAINTENANCE	79	69	68	69	70	71	67	67	67	66	65
RENEWALS TOTAL	156	122	117	129	110	105	119	101	89	83	95
TOTAL	235	191	185	198	180	176	186	168	156	149	160
LAST YEAR'S NMS	218	222	201	153	149	146	141	133	118	113	n/a

For further details see Section 8 and the route strategies

The new generation contracts will focus more on efforts to improve the train performance delivery of the network

4.3 Maintenance policy

Our infrastructure maintenance contracts ensure that all operational assets are maintained to provide consistent and reliable train paths to our customers.

The scope of the contracts covers all inspection and maintenance of:

- permanent way
- signalling
- electrification assets
- operational telecoms
- lineside assets.

In addition, the maintenance contractors provide a comprehensive faulting and rapid-response service.

There are currently 35 contracts with six infrastructure maintenance companies (IMCs). The contracts started in 1994 and were let for five, six or seven years. The new infrastructure maintenance contracts (IMC2) are being competitively tendered to start during 1999, 2000 or 2001. The awards for the first four IMC2s have recently been made.

As part of the competitive tendering exercise, we are rationalising the number of contract areas. We expect that, ultimately, the number of contracts will be reduced to about 15.

The maintenance contracts will remain geographically based, with contractors taking the overall responsibility for keeping the railway operational and maintaining assets in accordance with the relevant Standards.

The new generation contracts will focus more on efforts to improve the train performance delivery of the network. There will be further emphasis on the co-ordination of our and the IMCs' efforts to deliver a more reliable network, in particular in identifying optimal frequencies for the inspection and maintenance of assets, and in identifying the optimal timing of renewals.

The new contracts contain more precise mechanisms for monitoring the performance of contractors. They build on recent work to identify and communicate variations in the quality of delivery against agreed performance indicators. This will assist the spread of best practice between contractors. The scope of the contract has been revised to improve the way in which IMCs interface with renewal works, and to provide incentives for better train performance, to enhance contract standards for track quality, and to develop better asset-condition monitoring systems.

In addition, they will be 'open-book' so that we can develop a better understanding of the relationship between inputs and outputs, through a more collaborative partnering approach.

We have developed techniques to enable us to target renewals at those 200 or so critical locations that have the greatest impact on train performance

4.4 Renewals policy

We have worked hard in the past year to target our renewals expenditure on those assets and locations that will have the greatest positive impact on train performance – eliminating temporary speed restrictions, raising track quality, and reducing the number of broken rails.

Our work has identified improved asset-management regimes for most of our major assets. We have identified opportunities to inspect and maintain assets more effectively so that we can target subsystem renewals, with the result that complete asset renewal is required less often. We have also developed techniques to enable us to target renewals at those 200 or so critical locations that have the greatest impact on train performance.

In all cases we will renew assets with the most appropriate, contemporary equipment available that minimises whole-life costs and minimises the disruption caused by installing the equipment.

We continue to work with suppliers to ensure that the work they plan reflects these priorities, so that the benefits for passengers are captured.

We also continue to develop further measures to enable us to identify the condition of each asset, the impact of inspection, maintenance and renewal options on asset condition, and the end impact of that condition on the journey experience by passengers. This work is reflected in the new measures of the output of our signalling and electrification assets included in this NMS. We have not made the progress we had hoped on developing detailed systems for measuring asset condition due to the resources required by the Year 2000 project.

Track renewals. We have developed track asset-management processes to help us target track renewals at those locations where they will have the most impact on the quality of the track and on train-running performance. We assess potential sites for track renewals against financial and asset-condition criteria to ensure that the optimum decision is made between continued maintenance and partial or complete renewal.

Renewals specifications reflect current best practice and normally use continuous welded rail on concrete, steel or hardwood sleepers. This provides greater reliability and the ability to carry heavy axle-weight vehicles, while reducing disturbance from the effects of noise and reducing the

maintenance requirements compared with older track comprising jointed rail and softwood sleepers. Where rebalasting is carried out, we ensure that any underlying drainage or formation problems are dealt with to provide a long-life and low-maintenance track structure. Renewals of switches and crossings are now carried out in fully welded form, and we have introduced some modern continental practices giving improved ride quality, reliability and reduced maintenance.

We are working with our suppliers to ensure that we gain the benefits of stoneblower, on-track flash-butt welding and high-output renewal technologies. We have also improved the efficiency of our engineering materials haulage and ballast delivery process to improve its efficiency. These improve the economics of track asset management.

Planned renewal volumes reflect our current understanding of future traffic volumes and flows. Significant increases in volumes or shifts in flows will affect the track renewals required for optimum asset management.

We are continually looking at developments in track management and are partners in various European research projects to improve track asset performance.

Structures renewals. Structures are identified for renewal where maintenance of the network operation is impracticable for technical or economic reasons.

Given the diversity of structures owned by Railtrack, it is necessary to appraise the condition of each structure individually and to define site-specific actions. This means that the renewal activity performed on two structures which are superficially similar can differ in scale and scope. Consequently, it is not easy to identify specific trends in the nature of materials used and the technologies applied.

To ensure that renewals evaluation is both rigorous and consistent, we have developed new asset condition modelling techniques for our masonry and metallic bridge stock. Effectiveness of our renewals investment will continue to improve as this approach is applied to renewal decisions during 1999.

One consequence of this process is that renewals activity on heavily loaded lines will be more extensive and will have a longer design life than that on lightly loaded lines, where piecemeal activity is often more cost-effective. Other structural types will be subject to this process during 1999.

We have concluded from our analysis that whole-life costs of signalling assets are optimised through targeted renewals rather than renewal of entire installations

Renewals work is carried out in accordance with Standards, to provide W10 gauge and 25.4-tonne axle-weight capacity. These standards are regularly updated to reflect best practice and to take into account developments in other industries. An important means of improving the effectiveness with which structures renewal work is performed is to combine packages of structures work together with renewal and repair activities performed on other assets.

We are pursuing various opportunities to reduce the whole-life cost of renewal. Among them are standardised designs which can be constructed more cheaply, and the use of polymers both as structural members and as corrosion protection. We are intensifying our pursuit of lower-cost solutions.

Signalling renewals. Our policy and strategy on signalling equipment renewals have developed over the past three years. We have concluded from our analysis that whole-life costs of signalling assets are optimised through targeted renewals rather than renewal of entire installations. We are working, therefore, to reduce signalling renewals costs significantly by ensuring that the scope of the renewals work is optimal and fully justified.

We use a structured and numerate means of assessing asset condition, together with a national expert review process which ensures that our renewal plans are robust, justifiable, and nationally consistent. We are refining the processes by which we determine the appropriate and precise scope of the work in each case. This will enable us to target renewals of individual components or complete installations as appropriate, thus avoiding premature renewal of parts of installations, and ensuring that existing assets are used to the fullest possible extent.

This emphasis is likely to lead to smaller and less costly renewal schemes targeted at those parts of the system that are approaching the end of their useful life. Many of the technology changes that we are already implementing as part of our overall signalling strategy are well suited to this type of work, particularly for extending the life of many of the installations of the 1960s and 1970s which are prone to localised degradation.

There will still be cases, however, where the best option is a conventional wholesale renewal. This might be justified where we are able to enhance the network simultaneously by, for example, increasing capacity or reducing journey times, or reducing maintenance costs through the introduction of modern technology.

We are working closely with our signalling suppliers to optimise our maintenance and renewal activities. Closer relationships are producing opportunities for innovation to drive productivity up and costs down.

Long-term signalling strategy and Network Management Centres (NMCs). We are developing the new Train Control System (TCS) for initial application on the West Coast Main Line (WCML) in partnership with Alstom Signalling. The TCS will enable higher speeds, greater route capacity and better reliability at a lower whole-life cost than conventional signalling. The TCS is based on the European Rail Traffic Management System specifications being developed as the European standard for interoperable routes.

The TCS comprises control centre computers which communicate continuously with trainborne computers via digital radio. Each train determines its position by a combination of odometry and fixed beacons (balises) mounted in the track. The central computer is aware of the locations of all the trains in its area, and computes safe limits for a train's movements, which are then transmitted to the train and displayed to the driver. If the driver fails to react correctly to the instructions, the inherent Automatic Train Protection (ATP) system intervenes and applies the brakes.

After the WCML, we are considering the deployment of the TCS on the East Coast Main Line and the Great Western Main Line – the next two longest-distance and highest-speed routes. We have also been able to demonstrate its potential for subsequent cost-effective application to some other routes. The strategy for rollout of the TCS across the network will be refined as the unit costs of implementation become clearer, and as we gain experience with the installation and operation of this new system. Our renewal activities, in the meantime, will aim to maximise the potential for future large-scale TCS installation by life-extending some current equipment where practicable so that the largest possible geographic and route area

We are introducing computer-based control systems to renew secondary route signalling and level crossings at lower cost than with our established technologies

becomes due for total renewal at the same time, thus increasing the opportunities to use TCS technology.

The TCS will be inappropriate for many high-capacity suburban routes where very large train fleets operate, due to the costs of fitting rolling stock with the necessary equipment. In these cases, conventional colour-light signalling remains the best option. However, there are still significant opportunities to improve the cost-effectiveness and performance of this type of signalling, and to extend its use to parts of the network previously served by traditional mechanical installations. We are achieving this by introducing systems and equipment in use on other railways where they have a proven track record.

Network Management Centres (NMCs) will provide the tools and environment for every activity associated with the delivery of train paths, from timetable planning, to setting routes and clearing signals, to real-time management of incidents and the gathering of performance data. We have reviewed our strategy for the construction of NMCs, and have concluded that they are most attractive when a large area of railway requires renewal at once, for example a route modernisation. We are evaluating the options for their further deployment across the network.

Modern axle-counters are an extremely reliable and economical means of providing train detection. They can be applied on a diverse range of routes from high-speed, high-density through to rural lines. We are proposing to introduce new axle-counter systems during 1999 at a number of locations.

We are also introducing small computer-based control systems which will enable us to renew secondary route signalling and level crossings at lower cost than with our established technologies. The first implementation will be on the Norwich–Cromer route in 1999.

At the other end of the scale, we are working with our suppliers on the introduction of high-speed computer-based systems for the renewal of signalling in large and complex areas such as our major stations and junctions where the use of current systems could restrict throughput.

We are also working on our control-centre technology, to ensure that we have an appropriate set of options for control in areas which do not justify an NMC.

In summary, our signalling strategy is to:

- implement TCS on main-line routes starting with the WCML from 2002. Other routes are planned to follow, but there are many routes for which TCS does not appear to be economical.
- develop more cost-effective solutions for the renewal of conventional signalling where TCS is not cost-effective over the remainder of the network – urban, main-line and secondary routes.
- ensure that the existing signalling assets are maintained, and renewed as required. This will generally involve targeted renewals, rather than renewal of the entire installation.

Telecoms renewals. Our telecoms strategy is to optimise whole-life costs while renewing equipment to maximise reliability and minimise obsolescence and reliance on bespoke systems. Our strategy is also to ensure that we derive the maximum benefit from the commercial liberalisation of telecoms services.

We are using the opportunity of the forthcoming expiry of the leases for many of our long-distance cable routes to create new telecoms services and improve reliability of equipment. A trial of such equipment will take place this year on the Brighton–Havant route.

The coming year will also see the introduction of new proprietary operational telephone systems at Ashford, Birmingham, Leicester, London Bridge, Swindon, London Victoria and Walsall.

With work completed at 54% of stations and with a further 72 planned for next year, this major programme is due for completion in 2001

Electrification renewals. We are working with European-wide suppliers and partners to evaluate alternative designs of key infrastructure components and to develop innovative solutions to commonly shared problems. We are also developing software-based tools for optimising maintenance and inspection periodicity for our electrification assets with industry partners in Great Britain.

We are continuing to fund and install innovative infrastructure equipment, more of which will be commissioned this year to check the correct operation of train pantographs, and have developed a system fitted to service trains to check for poor quality in the overhead wire contact system. In both cases, these have reduced delays caused by pantograph and overhead-line problems which benefit operators as well as us.

We have developed a solid-state regulator to improve the reliability of signalling back-up supplies, currently on trial at Long Buckby, and a maintenance-free 25kV circuit breaker to improve performance reliability and flexibility, and to reduce both capital and whole-life costs.

There are plans for power-supply enhancement for the West Coast Route Modernisation, East Coast Main Line upgrade and Thameslink 2000 projects to renew equipment, to enable more services to operate, and to increase speeds.

4.5 Stations

There are 333 stations on the rail network in Scotland.

Our stations provide the visible and physical interface with the rail network and, as such, influence the experience of every rail passenger. It is, therefore, of considerable importance to us and our customers that stations provide necessary facilities in a condition suitable for a modern railway.

Many of our stations fall short of this ideal owing to a legacy of underinvestment, and changes in customer and passenger expectations. We are rectifying this situation through major investment programmes and, while we are replacing defective and out-of-date facilities in modern form, wherever practicable we are also working with our customers to develop stations in line with their passengers' emerging requirements. Details of enhancements we propose are given in Section 6.

Station regeneration programme. The Station Regeneration Programme (SRP) is now beginning its fourth year and has made considerable progress in remedying the legacy of inherited defects. With work completed at 54% of Scotland's stations and with a further 72 planned for next year, this major programme is due for completion in 2001.

The experience gained and the innovations made in the very early stages of the programme have continued throughout the past year, with on-site solutions to common problems, greater use of IT and new procurement initiatives all helping to deliver the programme in the most cost-effective manner.

While the programme's primary objective was to remedy inherited defects, close communication with our customers has led to many instances of improved facilities, providing a timely upgrade for numerous stations.

Recognition for the achievements of this programme has come in numerous award nominations for station regeneration with Aviemore, Glasgow Central, Edinburgh Waverley and Stirling receiving Ian Allan Awards.

The assistance of the Railway Heritage Trust has been of great value during this process ensuring the best fit solution for many historic structures.

Continued improvement. The completion of the regeneration works is only the first step in providing and maintaining our stations to the standards required. We are ensuring that the processes are in place to enable the continued improvement of facilities and to guarantee that a satisfactory condition is maintained.

Throughout the year, we have been working with our partners and suppliers to create effective regimes for inspection and collection of condition data to enable a greater accuracy in planning future maintenance and renewals. This has been piloted in an area of the North West and is now being implemented in our other Zones.

The process enables maintenance plans, over 20 years, to be generated efficiently and updated through annual inspections. Any defects discovered through these inspections are programmed for either immediate remedial works or planned maintenance and renewal, depending on their condition.

This procedure will ensure that the improvements and innovations made through the SRP are sustained and, additionally, provide an annual update of the condition of our stations against which we can target and monitor further improvements.

In addition, we have continued with our commitments to improve the quality of station facilities where possible through renewals. Examples include station access for disabled passengers, information systems, CCTV, fencing and lighting to improve customer confidence and safety.

4.6 Depots

There are currently 88 LMDs on the rail network, ten of which are in Scotland, providing the facilities to undertake necessary train maintenance.

Depot regeneration programme. The depot regeneration programme in Scotland continues apace, rectifying the inherited defects at existing depots. Works range from small scale targeted repairs at some locations to the renewal of carriage-washing plant.

This five-year programme is now entering its fourth year. Work at two depots has been completed with another four scheduled for next year. This major programme of works will be completed, as planned, by 2001.

Carriage washers. Surveys undertaken in 1996 highlighted the need for investment in carriage-washing plant. It is worth noting that they do not operate effectively when the air temperature falls beneath 2°C. Clearly, they do not meet our customers' aspirations, particularly during Scotland's winters.

Over the past 12 months, we invested almost £200,000 to improve quality. The results shown in the table on page 37 are disappointing and we are working with ScotRail to realise the benefits of this investment and improve quality.

We have invested in new equipment at Craigentinny Depot installing one of two all-weather plants in Great Britain. The performance of this washer is being evaluated. The specification is being used for a new washer at Corkerhill planned for this year, to be followed by installations at Inverness and Haymarket.

This year's Railway Group Safety Plan sets a ten-year objective to further halve the level of risk on the rail network by 2009

4.7 Safety developments

In the past ten years, safety on the GB rail network has improved significantly under most measures (see charts opposite). Figures recently published by the European Transport Safety Council (ETSC) show that, for the EU as a whole, rail is now 27 times safer than road, and twice as safe as air per passenger kilometre, and 16 times safer than road and 18 times safer than air per hour exposed (which ETSC believes to be the best method for mode-to-mode comparisons even when many trespasser casualties are included within the rail figures).

This year's Railway Group Safety Plan sets a ten-year objective to further halve the level of risk on the rail network by 2009. Integral to achievement of the overall Plan objective is a requirement that infrastructure renewal and enhancement is progressed in a way which delivers the maximum affordable improvements in safety performance. This is implicit within all investment schemes detailed in this NMS.

Technical development of the Train Protection Warning System (TPWS), which provides a significant improvement in performance over that available through the Automatic Warning System (AWS) that is already fitted to most of the network, continues to plan.

Early in 1998, the functionality of the TPWS was demonstrated to the Health and Safety Commission; their Executive has also been party to the field trials of the TPWS on the Thameslink route which have been successfully concluded. The reliability of both the infrastructure and on-train elements of the TPWS has been demonstrated. We can now complete the TPWS installation on the Thameslink Corridor and the Tonbridge–Hastings route to validate installation methodology and costs before roll-out across the network.

In parallel, negotiations are continuing with Her Majesty's Railway Inspectorate (HMRI) to finalise agreement on the fitment criteria and installation programme by which we will comply with the Railway Safety Regulations 1999, under which a train protection system is required network-wide by the beginning of 2004. Definitive agreement with HMRI must be concluded by mid-1999 to achieve the already tight implementation deadline without unreasonably inflating costs.

We have been fully supportive of the Regulations which mandate adoption of our TPWS as the baseline route to

enhanced train protection. The infrastructure fitment costs, estimated at £140M, are a fraction of what we believe it would cost to fit the network with ATP which would also take significantly longer to install, and deliver very limited further safety benefits. The introduction of TPWS is seen as particularly important given the levels of growth now being seen which inevitably lead to trains encountering more red signals.

Alternative train protection arrangements already in place will be retained, except where the proportion of 'captive' train operation is low and dual-fitting with the TPWS would be required under the Regulations.

Once the TPWS installation is complete, the risk arising from trains passing red signals will be substantially reduced.

ATP functionality is integral to the design of the TCS under development for application on the WCML to increase linespeeds to a maximum of 140mph by 2005.

The TCS, for which Alstom has been contracted to complete development, is more fully described under our signalling strategy on page 40.

The adoption of new TCSs, tilting trains and higher speeds on the WCML, and potentially on other corridors requires development of a portfolio of risk-based Railway Group Standards (RGS). An holistic, system-level approach has been pursued to the stage that 'proposals in principle' were issued for stakeholder review in January 1999. This process is also taking account of the emerging technical standards for interoperability which will underpin delivery of the EU interoperability directive expected to come into force in spring 1999.

The progress made within the SRP to address defective roofs, platforms and other station facilities will deliver safety benefits through reducing the numbers of 'trips, slips and falls'.

The safety of our workforce, and of our contractors' staff, is of equal importance to that of passengers. After an 18-month period without a fatality, five fatalities in 1998 in the workforce contracted to Railtrack highlight the importance of initiatives to reduce the risk to those exposed to moving trains when maintaining and renewing the infrastructure. Achievements of particular significance in 1998 were the approvals for deployment of rigid safety barriers and the first portable automated track safety warning system

We have developed action plans to address known 'black spots' to secure safety and performance improvement

on the network. These safety improvements will increase production by enhancing separation and providing more effective warnings of approaching trains.

Antisocial public behaviour incurs significant risk to the network through level-crossing abuse, trespass and vandalism. Our response is a combination of enhanced physical controls and programmes to change behaviours through education.

Following a systematic risk assessment of automatic level crossings, a programme of works to improve their safety performance to meet a Railway Group Safety Plan objective will be completed by 31 March 2000. The residual programme embraces about 80 level crossings.

The 1999/2000 Railway Group Safety Plan requires a qualitative assessment of risk at all user-worked level crossings to be completed by the end of December 2000. The programme of necessary works is currently scheduled for completion by 31 March 2004. The programme will be reviewed in summer 1999 when the results of the early risk assessments have been evaluated.

Some 60% of train accidents are attributed to malicious action; accordingly, targeted initiatives to counter vandalism are a high priority. We have developed action plans to address known 'black spots' to secure safety and performance improvement. Enhanced physical controls and educational initiatives to counter the linked issues of vandalism and trespass will be implemented in 1999/2000.

We support the establishment of an independent transport accident investigating body for all transport modes. This body would interface with our Safety & Standards Directorate (S&SD) and take over some of the accident investigation duties from S&SD and those of HMRI, the Railway branch of the HSE. Such a body would not only give confidence that accidents were being impartially investigated, but could look at all modes for good practice. Sensible models can be found in a number of other EU states, the Netherlands being the most recently established.



We are determined to seize this opportunity to improve the quality of life for travellers, and non-travellers, in Britain

4.8 Environment

Environmental vision

This NMS is the first in a new era for the railways. It is an opportunity for us to explain how we will take forward the exciting new challenges of the White Paper A New Deal for Transport: Better for Everyone and Travel Choices for Scotland which describes 'the potential for a railway renaissance'. The NMS maps out investments which will be crucial to delivery of sustainable mobility in GB. We are determined to seize this opportunity to improve the quality of life for travellers, and non-travellers, in Britain.

Achieving a sustainable transport network presents a serious challenge. In 1998, the Royal Commission on Environmental Pollution reported that, in the 1980s alone, an area of 10,500 hectares, equivalent to the size of Bristol, was taken for road-building and parking. Furthermore, the Government has published figures which show that up to 24,000 vulnerable people are estimated to die prematurely each year because of exposure to air pollution, much of which is due to road traffic. This is in addition to the 120 deaths and injuries which occurred every day in accidents on UK roads in 1997. These figures are unsustainable. In contrast, the railways offer efficient transport at much lower environmental and social cost.

For example, freight tonne-kilometres have increased by 30% in the past two years and passenger kilometres on rail have increased by 15% over the same period. Had these increases been on the road network, this growth would have resulted in the emission of an extra 1.5M tonnes of carbon dioxide. If other impacts, including reductions in air pollution, accidents, congestion and noise are calculated using standard unit values, the benefit delivered by the railways relative to the roads, for this passenger and freight growth alone, was approximately £470M. Furthermore, we have estimated that, by 2011, growth of passenger and freight traffic could be worth £4.6bn annually in social and environmental benefits.

Given that demand for transport in the UK is growing rapidly, and that the UK's fastest-growing contributor to climate change is through carbon dioxide emissions, the savings achievable through a modal shift from road to rail will be key to the Government achieving its objectives for environmental protection. The Government has described traffic growth as 'the greatest global threat facing the

international community'. The rail network can provide a major part of the solution to these environmental problems. At the Rail Summit on 25 February 1999, John Prescott said, 'I believe most of the industry shares my vision for a modern railway . . . playing its part in an integrated transport system and contributing to a sustainable society'.

The opportunity for the rail industry is tremendous. For example, while more than 80% of domestic freight currently travels by road, we now have support from a government which wants to see a real increase in freight movement by rail. Our investment plans have been geared to deliver environmental benefits. The Deputy Prime Minister has been actively looking for companies prepared to join the Government in shaping 'a new future for sustainable transport'. We have taken up that challenge.

The Government has backed these demands with firm financial commitments. It will boost the take-up of freight grants, and put more money into support for new investment proposals that produce wider benefits for both integration of the transport network and shifting traffic from road to rail. The Shadow Strategic Rail Authority will also be a key player. It is likely to have a responsibility to oversee rail's contribution to sustainable development objectives.

We are fostering a more productive relationship with the Environment Agency, by seeking the Agency's advice to help us prevent adverse environmental impacts. Last year, we signed the first-ever memorandum of understanding with the Environment Agency, putting our relationship on a clear and open footing.

We now look forward to constructive regulatory support at the highest level. In return, we can offer commitments and action in six areas which are outlined below.

This work puts us at the heart of both UK and international efforts to achieve... real progress towards sustainability and high standards of environmental protection

Environmental commitments

First, over the coming year, we will be expanding upon opportunities to improve and underpin the integration of transport with the bus operators, local authorities, the Scottish Office, airport authorities and passenger groups, and we look forward to support from the Shadow Strategic Rail Authority in delivering the benefits.

Second, we are evaluating various approaches to identify and quantify social and environmental benefits of investment proposals. These have been applied, on a preliminary basis, to some of the investments put forward in Section 6.

Third, much of our investment has environmental impacts in terms of land use, the raw materials it consumes, the waste it produces, and the disruption it causes while the work is in progress. We are seeking to identify these factors and limit them, both at this early planning stage, and in the later construction and operation phases. An example of this is the West Coast Route Modernisation, where environmental issues have been considered from the outset. The project will continue to be assessed through environmental impact studies and extensive consultation exercises.

Fourth, we are enhancing our stewardship activities as one of the largest landowners and largest private sector investors in Britain through setting, monitoring and reporting on environmental targets annually. Following on from last year's Corporate Responsibility Review, we will report publicly on our progress and new objectives in the summer.

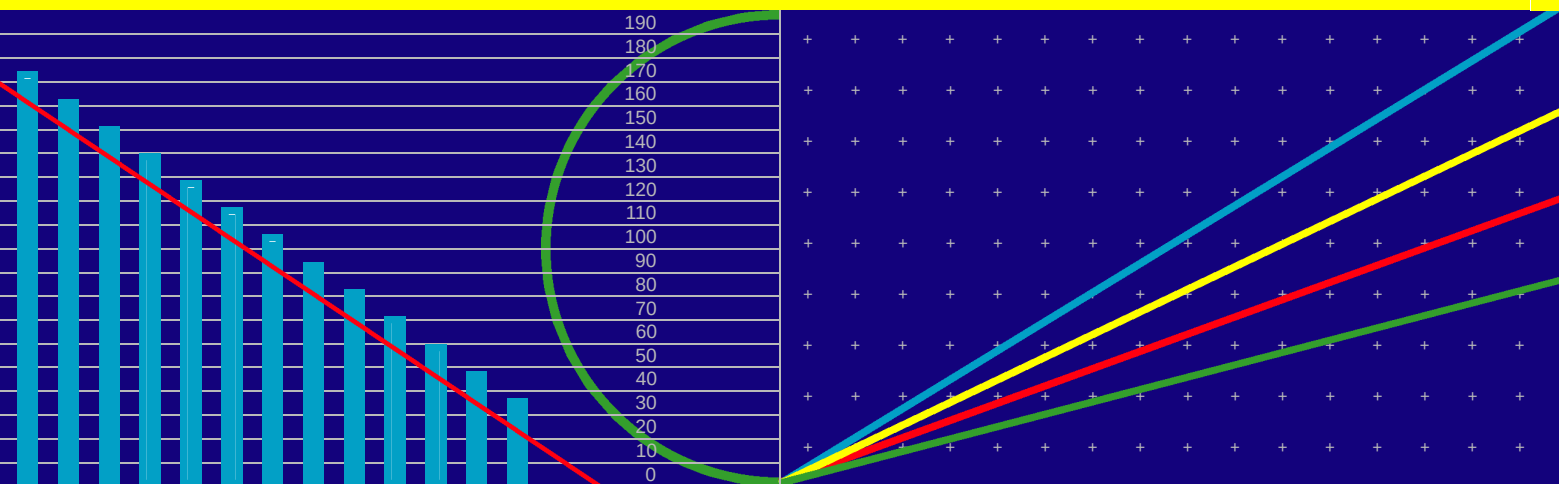
Fifth, we are integrating environmental management into the day-to-day operation of the business, incorporating our environmental targets into business planning. Targets include increasing environmental awareness among our staff, and improving control in supply chain management.

Last, we are entering into partnerships with our stakeholders to promote environmental improvement. For example, we have joined forces with the Tidy Britain Group to identify best practice in limiting the visual impact of the lineside. We are also introducing a joint initiative with English Welsh & Scottish Railway in April, to minimise the emission of carbon dioxide from stationary locomotives.

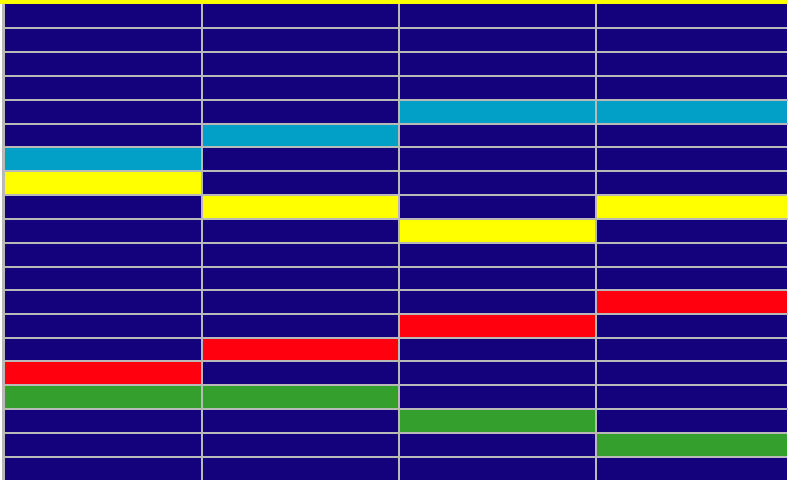
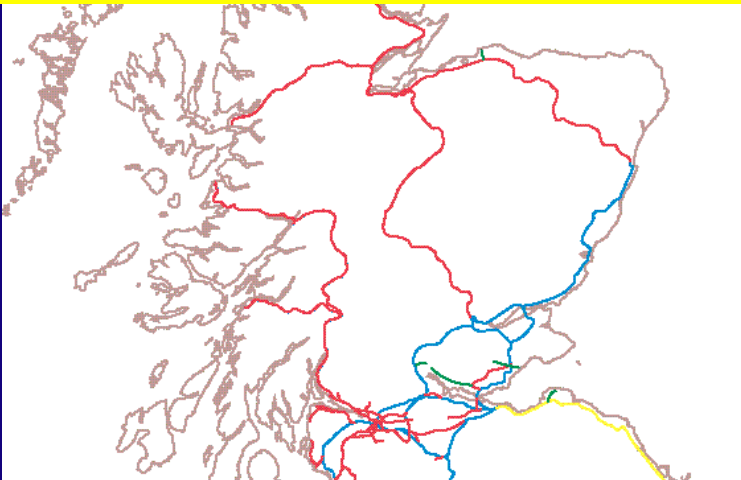
At the same time, we have looked for opportunities to deliver environmental benefits to our customers and the public where our investment can promote a shift from road to rail for passengers and freight. This work puts us at the heart of both UK and international efforts to achieve what society is now demanding – real progress towards sustainability and high standards of environmental protection.

5 Outputs

- 5.1 Performance and reliability
 - Table A – Delays to train services
- 5.2 Station facilities
 - Table B – Station facilities measures
- 5.3 Asset condition
 - Table C – Average condition of stations
 - Table D – Distribution of stations between the five condition ratings
 - Table E – Quality of carriage washing at depots
 - Table F – Asset condition
 - Table G – Renewal of network
 - Table H – Track quality
- 5.4 Network utilisation
 - Map – Capacity utilisation
- 5.5 Network capability
 - Map – Journey times and linespeeds
 - Map – Loading gauge
 - Map – Permitted axle weights
 - Map – Electrification



This section describes the impact of our proposals for the maintenance and renewal of the network, and for improvements in network performance and reliability. It presents output measures to assess the facilities available at stations and the condition of our assets, together with forecast rates of renewals. It also contains forecast improvements to network capability arising from the totality of our investment plans, both in renewal and development.



We are planning to deliver further improvements of 2% per year in delays per train movement for the years 2001/02–2005/06

5.1 Performance and reliability

Since 1995/96, the year prior to flotation, we have reduced the total direct delays that we cause to operators' trains by around 40%, despite an increase in train movements of around 10% over this period.

At the start of 1998, we embarked on a new phase of our performance management including rigorous new continuous improvement processes. This approach focuses on an enhanced understanding of the root causes of delay, down to individual asset and component level, and the identification of the critical locations and 'golden assets' where improved infrastructure reliability is particularly important. Such analysis allows prioritisation of improvement projects to these locations and assets.

Over the past year, this approach has been bolstered by our Process for Performance Improvement, creating accountability for delays across the operational management of the company. Local managers are involved in generating initiatives to reduce delays, and hold 'budgets' of improvements for which they are held accountable. Local Area Delivery Groups have been established as cross-functional teams with access to investment funds and to a current best-practice toolkit of techniques. Across the company, managers seek to work closely with all of our customers and suppliers to ensure close co-operation on the selection and delivery of initiatives.

We have completed the second year of this performance budgeting process, and significant enhancements are in place to both processes and the supporting information systems.

The success of this initiative in 1998/99 has contributed to an expected overall improvement across Britain of around 7.5% in the delay per train movement attributable to factors within our control. See Section 8 for specific details of Scotland. This has benefited both passenger services and freight, although the improvement for

the latter was particularly marked. The last year would have seen a larger improvement in performance had it not been one of the worst years for flooding in some parts of Britain.

More recently, we have been instrumental in establishing the National Performance Task Force, which works on cross-industry initiatives with train operators to find joint solutions to some of the complex problems on the network. We have taken the lead on the transfer of industry best practice, on the identification of national delay 'hot spots', and in working with train operators to build enhanced recovery plans to mitigate the impact of major incidents.

On 15 January, we published our new targets of a further 7.5% national improvement in delays per train movement for 1999/2000, with a further 5% reduction planned for the following year. Our targets for Scotland are slightly less because the performance base is better than other areas of Great Britain. They are 5.5% improvement for 1999/2000 and a further 4% in the following year. These are shown in Table A.

We are planning to deliver further improvements in Scotland of 2% per year in delays per train movement for the years 2001/02–2005/06. While some of these improvements can be achieved from pursuing continuous improvement in our planning and operation of the network, these targets will also require a significant contribution from our maintenance contractors. We have already set enhanced targets for performance improvement in the maintenance contracts recently let, and will be discussing similar improvements with bidders for contracts being let over the next two years.

With some parts of the network operating at close to full capacity, each additional train movement can lead to a disproportionately large impact on delays. The actual impact on average delays to trains will depend on the location and

nature of this growth and our ability to put in place additional route capacity to enhance the robustness of the network.

Future growth in the level of train movements represents a significant influence on overall performance, and we support the principle of enhanced train services both in terms of frequency and reliability.

Building on our recognised success in performance improvement, we are committed to playing our part, working closely with industry partners, in delivering a high-quality railway service for the future.

The Franchising Director has requested that we look at the potential for an improvement of 5% per year in delays per train movement for the years 2001/02–2005/06. Our initial view is that we would be prepared to commit to agreed performance levels on a route-by-route basis, although this may well require additional funding, which we will discuss with the Franchising Director in the coming months.

Table A Delays to train services

RAILTRACK-CAUSED DELAYS (PER TRAIN MOVEMENT)	1997/98 (ACTUAL) (SECONDS)	1998/99 (ESTIMATE) (SECONDS)	1999/2000 (TARGET*)	2000/01 (TARGET*)	2001/02 TO 2005/06 (TARGET*)	2005/06 TO 2008/09 (FORECAST*)
Passenger trains	70 (47)	68 (49)	-7.5% (-5.5%)	-5.0% (-4.0%)	-2.5% (-2.0%)	-2.0% (-2.0%)
Freight trains	285 (338)	239 (323)	-7.5% (-5.5%)	-5.0% (-4.0%)	-2.5% (-2.0%)	-2.0% (-2.0%)
Total delays	85 (56)	79 (56)	-7.5% (-5.5%)	-5.0% (-4.0%)	-2.5% (-2.0%)	-2.0% (-2.0%)

RAILTRACK DELAYS BY CAUSE (PER TRAIN MOVEMENT)

Infrastructure (track & structures)	35 (21)	34 (24)	-9.0% (-3.5%)	-6.0%	na	na
Power supply	3 (4)	2 (2)	-9.0% (-3.5%)	-6.0%	na	na
Control system failures	18 (13)	16 (11)	-8.5% (-8.0%)	-5.5%	na	na
Other external (eg vandalism)	6 (3)	5 (4)	-6.5% (-6.0%)	-4.5%	na	na
Maintenance & renewal-related causes	62 (41)	58 (41)	-8.6% (-4.9%)	-5.7%	na	na
Other Railtrack causes	23 (15)	22 (15)	-4.5% (-7.5%)	-3.0%	na	na
Total Railtrack delays	85 (56)	80 (56)	-7.5% (-5.5%)	-5.0% (-4.0%)	-2.5% (-2.0%)	-2.0% (-2.0%)

* compound annual growth rate

Notes:

- Figures relate to the entire network for Great Britain, blue numbers in brackets relate to Scotland.
- The above delay seconds per train movement are based on all delays recorded for attribution, divided by total train movements. The delay data differs from that used to calculate the 1998 NMS figures, which excluded those delays recorded for attribution of fewer than three minutes.
- The 1997/98 figures above reflect the actual delay and train movement data and updates the forecasts used in the 1998 NMS.

Causes of passenger train cancellations due to maintenance and renewal activities

This represents 0.3% of scheduled train movements

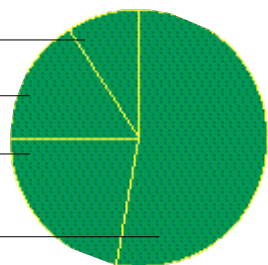
Great Britain

Power supply 9%

External causes 16%

Control systems 22%

Infrastructure 53%



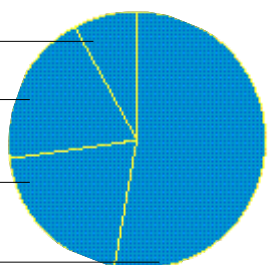
Scotland

Power supply 8%

Control systems 20%

External causes 19%

Infrastructure 53%



Causes of freight train cancellations due to maintenance and renewal activities

This represents 0.2% of scheduled train movements

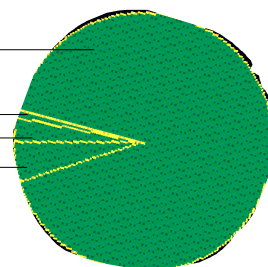
Great Britain

Infrastructure 91%

External causes 1%

Control systems 3%

Power supply 5%



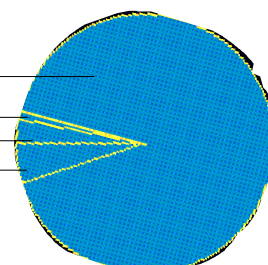
Scotland

Infrastructure 90%

External causes 1%

Control systems 3%

Power supply 6%



5.2 Station facilities

During the past year, we have developed, in collaboration with our customers, the Rail Regulator and other stakeholders, a categorisation of stations and a specification for each category that the industry aspires to achieve (see the list below).

The output measures indicate the extent to which each category of station reaches the ideal in a

number of areas. A score of 100% would imply that all stations in the relevant category met the ideal.

However, because some facilities are the responsibility of others within the industry, we have presented the performance of both the industry as a whole, including Railtrack, and for those facilities which Railtrack is responsible for providing.

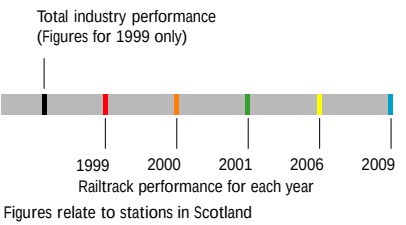
Table B Station facilities measures

The chart opposite shows planned progress over the next ten years for each of the station facilities measures. Improvements arise through the action of Railtrack and station operators in maintaining and renewing existing facilities at stations. The provision of new facilities through enhancement investment is not included. The station development proposals described in Section 6 will have the effect of fully achieving these station facility standards so far as reasonably practical.

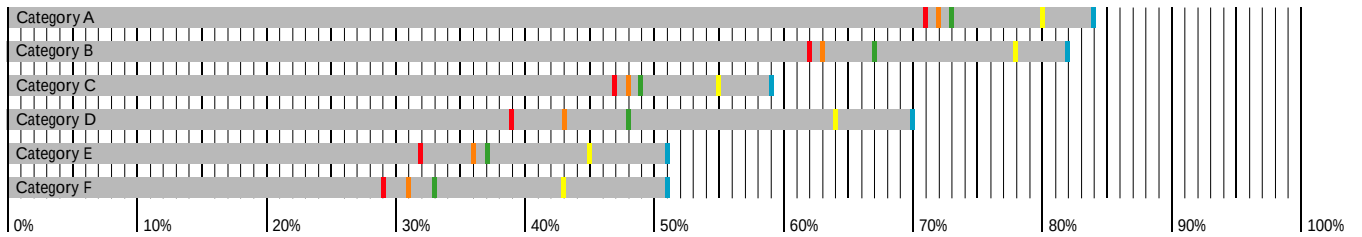
THE CATEGORIES ARE AS FOLLOWS:		EXAMPLES
A	National hub	Edinburgh Waverley, Glasgow Central
B	Regional hub	Aberdeen, Dundee, Glasgow Queen Street, Inverness, Perth
C	Important feeder	Dunbar, Inverkeithing, Paisley Gilmour Street, Stirling
D	Medium, staffed	Aviemore, Dumfries, Dunfermline, Helensburgh Central
E	Small, staffed	Bearsden, Cowdenbeath, Croy, Dingwall, Lockerbie
F	Small, unstaffed	Alness, Carnoustie, Dalgety Bay, Drumfrochar, Longniddry

WE HAVE AGREED FIVE THEMES FOR MEASURING STATION FACILITIES

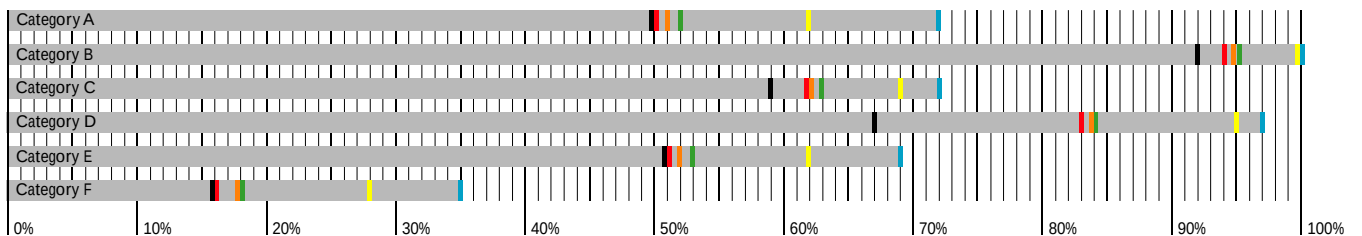
Accessibility	Unassisted disabled access to all platforms, platform length, disabled toilets
Comfort and convenience	Sheltered waiting accommodation, waiting rooms, toilets
Integrated transport	Car parking, bus and light-rail interchanges, taxi ranks and cycle racks
Information and communications	Customer-information systems, public address, help points and pay phones
Safety and security	CCTV coverage, lighting, antislip floors and handrails in subways and on footbridges



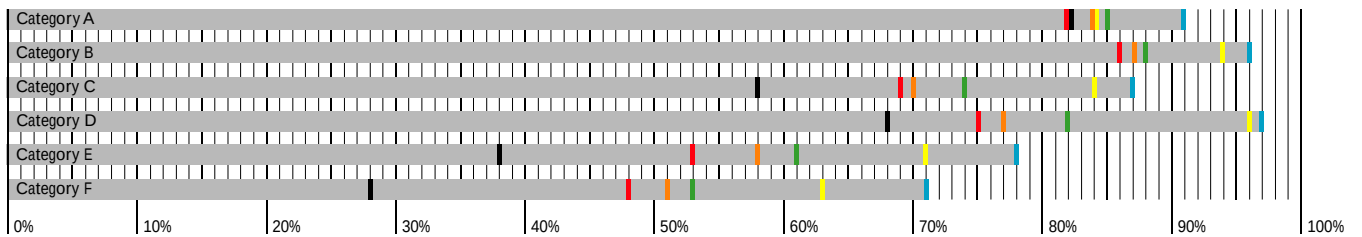
Accessibility



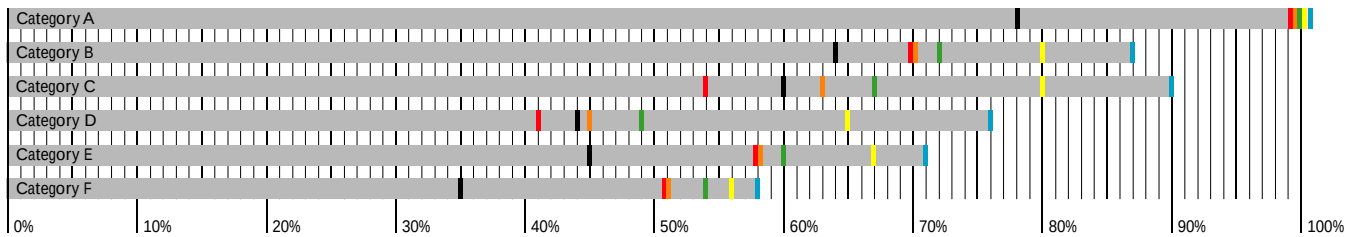
Comfort and convenience



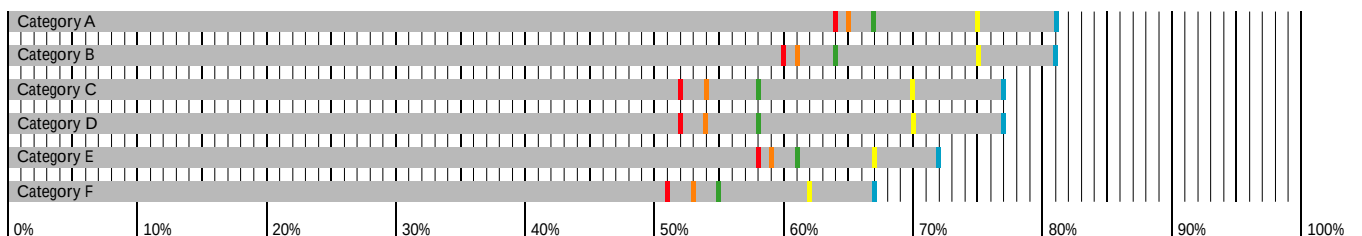
Integrated transport



Information and communications



Safety and security



5.3 Asset condition

Table C Average condition of stations in Scotland

STATION CATEGORY	1994	1998/99	1999/2000	2000/01	2005/06	2008/09
A	2.5	2.1*	2.1	2.1	2.1	2.1
B	2.9	*	2.4	2.3	2.3	2.3
C	3.1	2.3*	2.2	2.2	2.2	2.2
D	2.8	2.6*	2.4	2.3	2.3	2.3
E	2.8	2.3	2.2	2.2	2.2	2.2
F	2.7	2.3	2.3	2.2	2.2	2.2
All stations	2.7	2.3	2.3	2.2	2.2	2.2

*This sample did not include any category B stations and was not sufficiently large to produce reliable figures for categories A,C or D. As a result, the forecasts for future years are subject to a higher level of uncertainty for these categories.

The station condition scores reflect the average condition of stations within each station category, defined on the previous page. 1 is the highest possible condition and 5 is the lowest. Sensible management of maintenance and renewals would suggest that the average station condition score should be around 2.2–2.3 (although many stations will outperform that).

The score predictions in this table are based on the maintenance and renewal expenditure set out in this NMS.

Table D Distribution of Scotland's stations between the five condition ratings

STATION CATEGORY		CONDITION 1	CONDITION 2	CONDITION 3	CONDITION 4	CONDITION 5	TOTAL
A	1994	0	1	1	0	0	2
	1999	0	1	1	0	0	2
B	1994	0	2	3	0	0	5
	1999	0	3	2	0	0	5
C	1994	0	3	5	0	0	8
	1999	1	4	3	0	0	8
D	1994	0	9	14	0	0	23
	1999	2	11	10	0	0	23
E	1994	0	30	72	3	0	105
	1999	10	70	25	0	0	105
F	1994	4	46	118	20	0	188
	1999	11	104	71	4	0	190
All stations	1994	4	91	213	23	0	331
	1999	24	193	112	4	0	333

Table E Quality of carriage washing at depots

QUALITY OF CARRIAGE WASHING AT DEPOTS	1998/99	1999/2000	2000/01	2005/06	2008/09
No. of light maintenance depots	88 (10)	86 (10)	85 (10)	85 (10)	85 (10)
No. of carriage washers	75 (9)	75 (9)	74 (9)	74 (9)	74 (9)
Quality of carriage wash provided (%)	51 (33)	51 (33)	53 (34)	57 (36)	59 (38)

The score we published in the 1998 NMS was 37%. The data for this was collected during 1995 and 1996. We are pleased to report the much improved result which reflects the investment we have made in renewing the equipment. For Scotland, see Section 6 for further details. We believe it is important that the output of carriage washers is measured, and to do this we commission survey reports on the quality of wash provided by each of the carriage washers on the network. The results of these surveys, which are compiled by an independent consultancy, were used as the data source for the derivation of the quality index included in the table above. It should be noted that the results of these surveys are heavily influenced by the manner in which equipment is operated, and also by the speed at which vehicles are driven through the washer. We are committed to enhancing the performance of the carriage washers on the network. We therefore plan to resurvey all carriage washers using the same methodology during 1999, and to publish these results in the 2000 NMS.

The score predictions in this table are based on the maintenance and renewal expenditure set out in this NMS.

Table F Asset condition

SPEED RESTRICTIONS	1998/99	1999/2000	2000/01	2005/06	2008/09
No. of temporary speed restrictions in operation for more than three months*	187 (8)	147 (8)	122 (8)	98 (6)	86 (6)
TRACK					
No. of broken rails	836 (74)	770 (77)	700 (70)	560 (54)	510 (50)
No. of condition of track-speed temporary restrictions*	184 (5)	145 (5)	118 (5)	95 (4)	85 (4)
STRUCTURES					
No. of condition of structure-speed temporary restrictions*	49 (3)	29 (3)	22 (3)	18 (2)	16 (2)
ELECTRIFICATION**					
No. of OLE wire alignment exceedance	1813 (566)	n/a	n/a	n/a	n/a
SIGNALLING†					
No. of repeat failures	8752 (870)	n/a	n/a	n/a	n/a

* Outside Rules of the Route

** Overhead electrification lines are surveyed periodically by means of train-mounted measuring equipment. This demonstrates that the number of exceedances from Railtrack standards reduced by more than 20% in 1998 compared with 1997. Effective maintenance of targeted renewals are expected to lead to further improvements in future years.

† During 1998 the number of repeat failures associated with the main signalling components, namely track circuits, points and signals, decreased by approximately 10%. Through targeted renewals and effective maintenance, this improving trend is expected to continue in future years.

The forecasts set out in this table are based on the maintenance and renewal expenditure set out in this NMS.

Table G Renewal of network

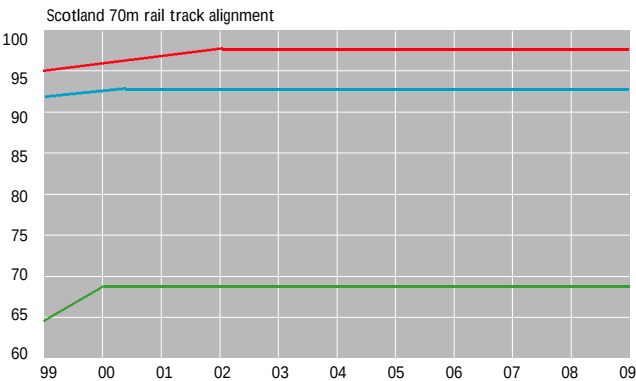
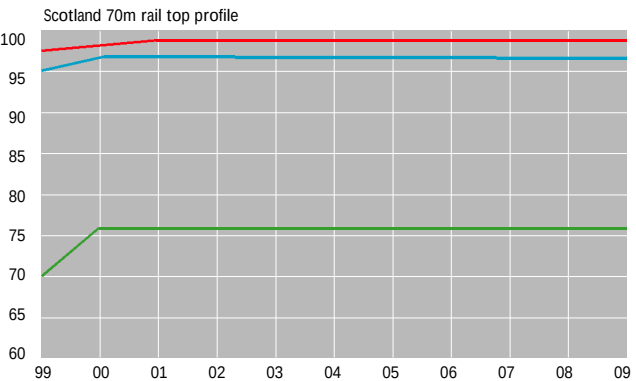
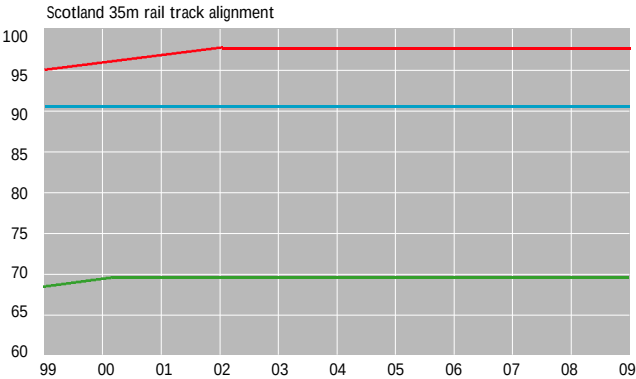
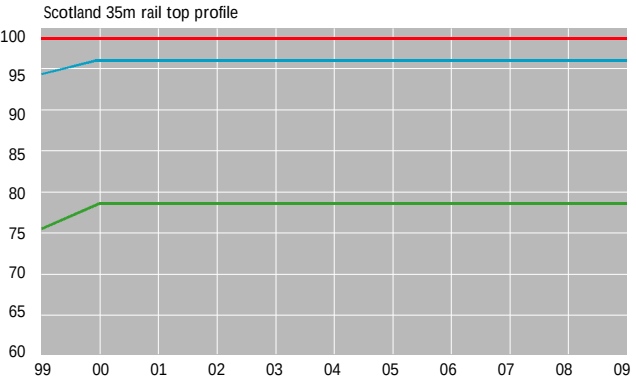
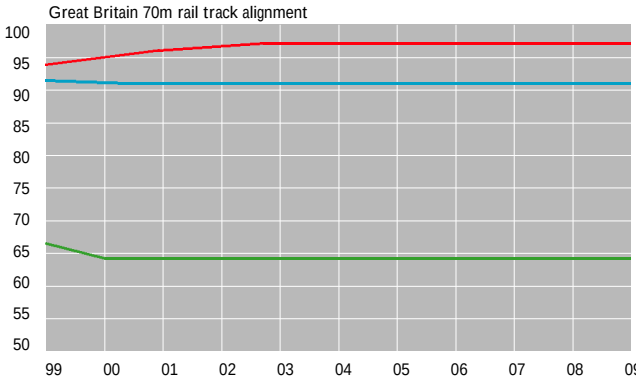
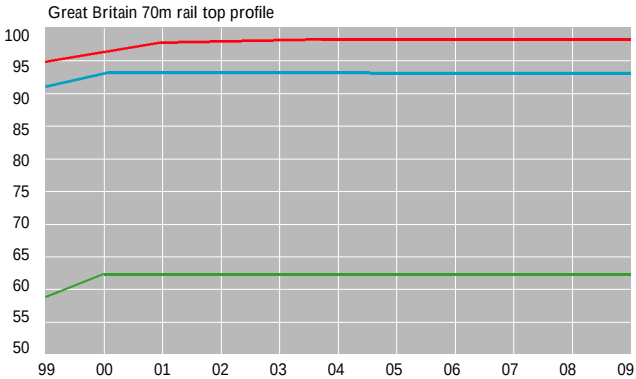
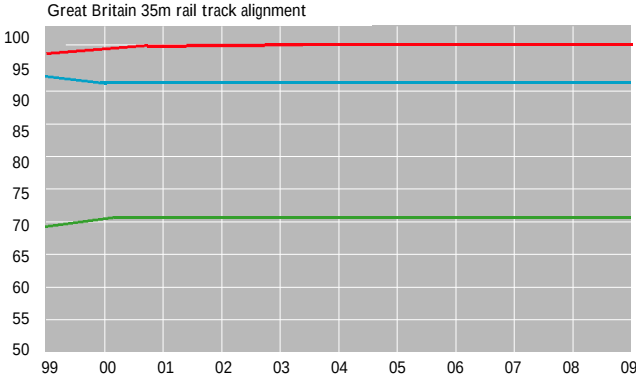
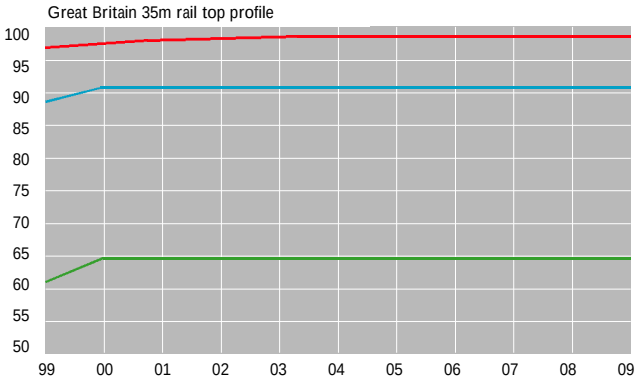
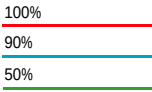
RENEWAL	1998/99	1999/2000	2000/01	2005/06	2008/09
Rail renewed (km per year)	524 (38)	350 (18)	390 (43)	210 (40)	210 (45)
Sleepers renewed (km per year)	474 (39)	388 (31)	343 (41)	379 (36)	379 (41)
Ballast renewed (km per year)	571 (39)	470 (38)	469 (42)	560 (44)	560 (42)
Signals renewed (km per year)	333 (21)	471 (50)	577 (0)	657 (80)	349 (50)
Structures renewed (no. of structures)	84 (0)	49 (8)	58 (14)	98 (8)	98 (6)

The forecasts set out in this table are based on the maintenance and renewal expenditure set out in this NMS.

Note: In tables E, F and G, figures relate to the entire network for Great Britain; blue numbers in brackets relate to Scotland.

Table H Track quality

Track quality is monitored by measuring vertical and horizontal alignment over distances of 35m and 70m. We have three standards. We aim for 50% of track to meet the highest standard, 90% to meet the second standard, and 100% to meet the third standard. We aim to move further towards meeting these standards. For track which does not meet the required standard, we have a programme in place for appropriate renewal and maintenance work. The targets we have included in this table are based on the maintenance and renewal expenditure set out in this NMS. The area below each line shows the proportion of track on our network that meets the relevant standard.



5.4 Network utilisation

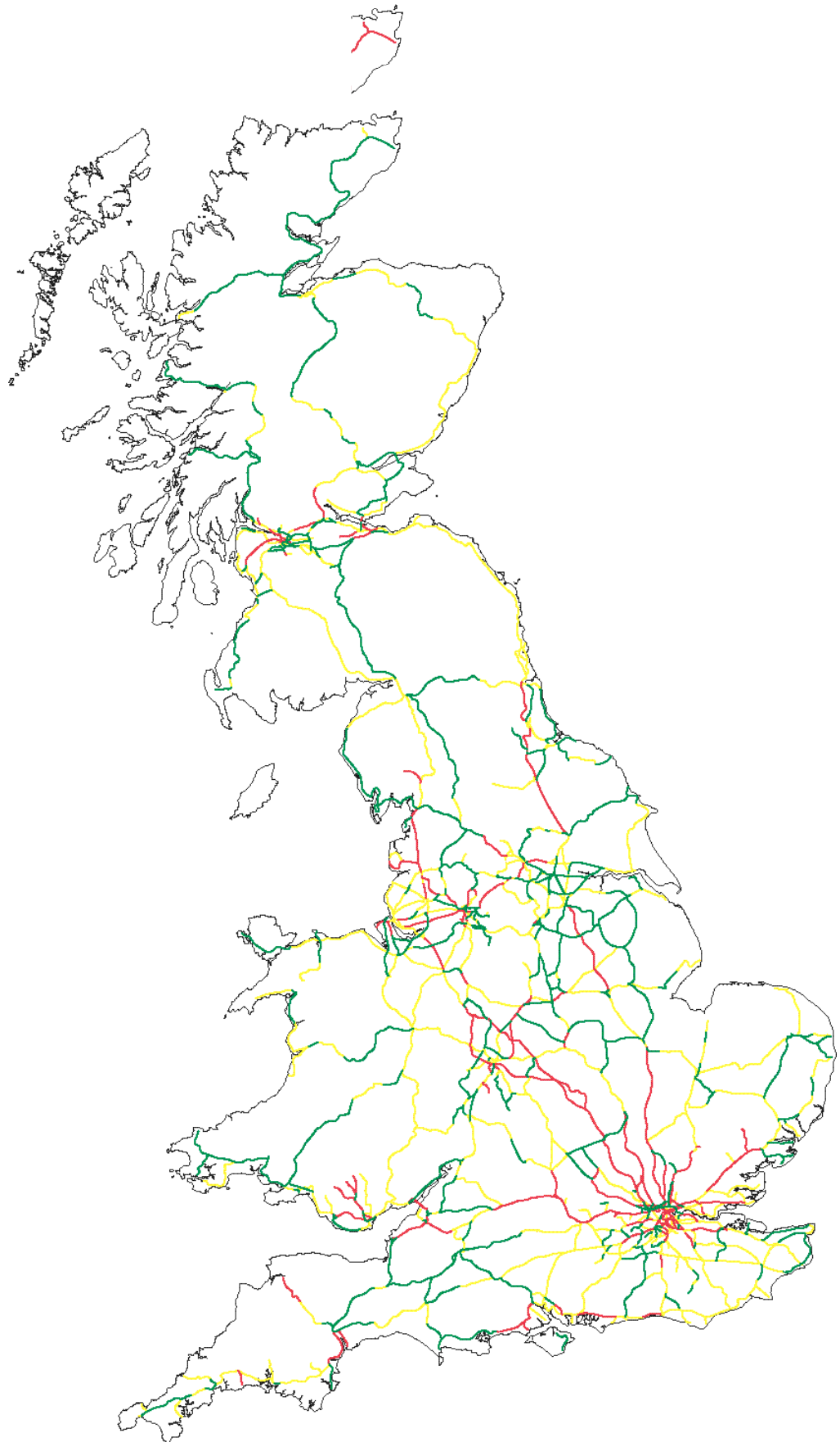
Capacity utilisation

This map shows the current use of the available capacity of the rail network.

70% or more of available capacity used

between 30% and 69% of available capacity used

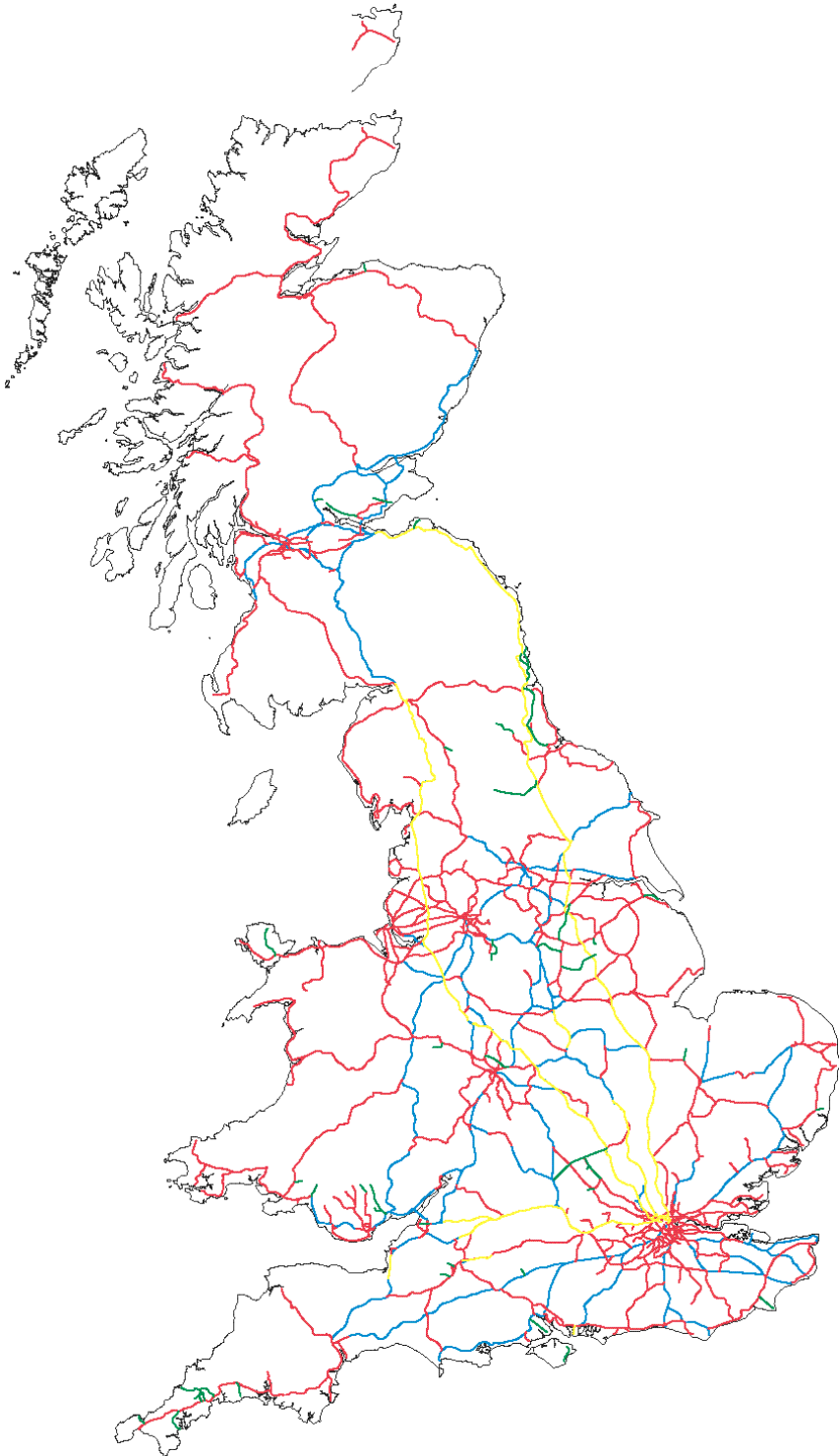
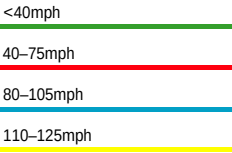
less than 30% of available capacity used



5.5 Network capability

Journey times and linespeeds

The current linespeeds shown on the map and the types of train currently in operation, together with their timetable and stopping patterns produce the actual journey times for rail services



SPEED	1998/99	1999/2000	2000/01	2005/06	2008/09
km of track up to 35mph	3598 (551)	3598 (551)	3596 (553)	3598 (550)	3589 (541)
km of track 40 to 75mph	17236 (2503)	17143 (2503)	16884 (2497)	16888 (2501)	16842 (2457)
km of track 80 to 105mph	7459 (979)	7552 (979)	7200 (989)	7145 (978)	7177 (1010)
km of track 110 to 125mph	2553 (159)	2553 (159)	3142 (159)	2839 (199)	2887 (247)
km of track for speeds over 125mph	0 (0)	0 (0)	0 (0)	391 (0)	391 (0)
TOTAL	30846 (4192)	30846 (4192)	30822 (4198)	30862 (4230)	30887 (4255)

Note: The data shown in the table differs from that which we published in the 1998 NMS and is more accurate. The forecasts in this table are based upon both the maintenance and renewal expenditure and the completion of enhancement schemes set out in this NMS. Blue numbers in brackets relate to Scotland.

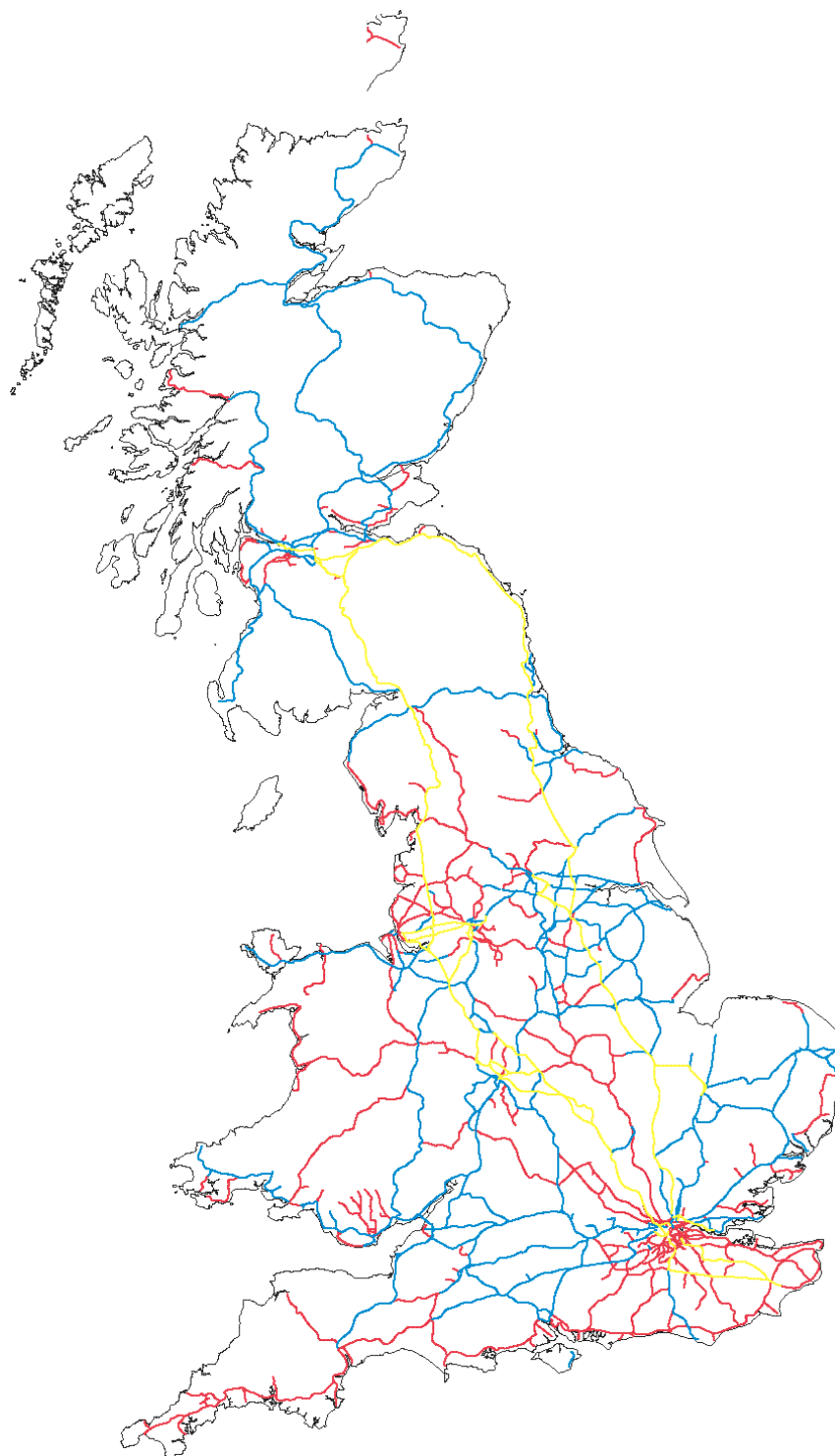
Loading gauge

This stipulates the maximum height, length and width of a vehicle that can travel on the network. The size varies by route primarily because of bridge and tunnel clearances. All passenger-carrying vehicles are constructed to a similar height and width. The primary variable is the length, at 20m or 23m. Generally there are few restrictions on passenger vehicles but, for freight vehicles the capability of the network in ascending order of size (as set out in the key below) is shown on the map.

W6A Standard freight vehicles

W8

W9



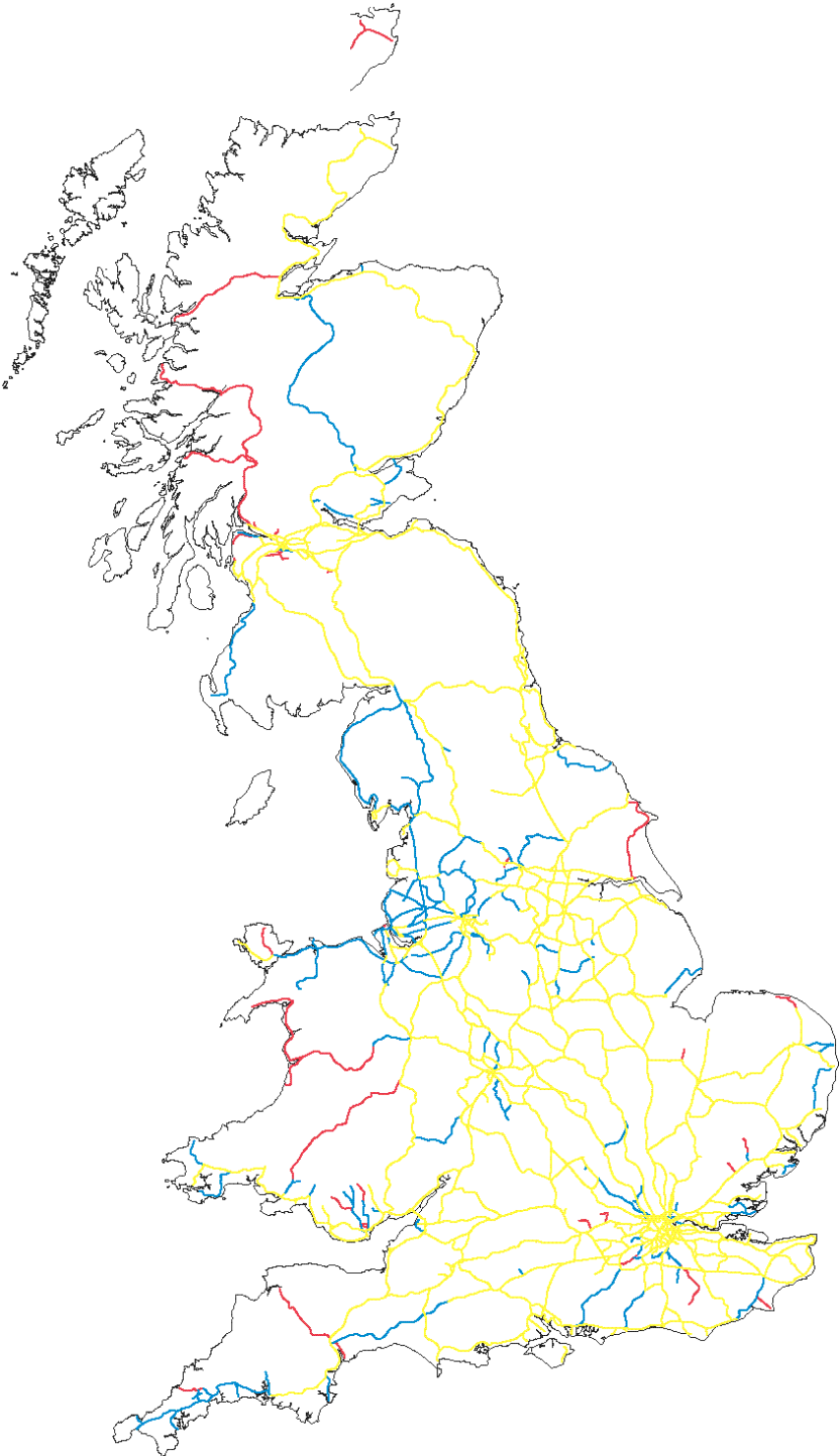
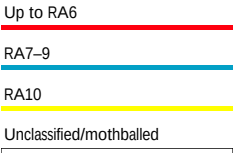
GAUGE	1998/99	1999/2000	2000/01	2005/06	2008/09
km of route W6A	16522 (2702)	16522 (2702)	16514 (2707)	16559 (2739)	16574 (2754)
km of route W7	13097 (2702)	13097 (2702)	13144 (2707)	13134 (2739)	13149 (2754)
km of route W8	10233 (1966)	10233 (1966)	10289 (1970)	10404 (2003)	10412 (2011)
km of route W9	1525 (185)	1561 (221)	1602 (221)	2707 (237)	2070 (237)
km of route W10	0	675 (160)	675 (160)	2147 (160)	2147 (160)

Full gauging analysis undertaken*

* At the time of publication we are unable to give firm timescales for this analysis work to be undertaken. Note: The data shown in this table differs from that published in the 1998 NMS and is more accurate. The forecasts in this table are based upon both the maintenance and renewal expenditure and the completion of enhancement schemes set out in this NMS. Blue numbers in brackets relate to Scotland.

Permitted axle weights

The maximum axle weights that the current network can carry vary according to the engineering characteristics of each route particularly of the underline bridge and viaduct structures Axle-weight limits are classified into Route Availability (RA) values between 1 and 10, of which the key groupings are:
RA 1–6 up to 20.3 tonnes
RA 7–9 up to 23.4 tonnes
RA 10 up to 25.4 tonnes
The current network availability for these axle weights is shown here



AXLE WEIGHTS	1998/99	1999/2000	2000/01	2005/06	2008/09
km of track up to 20.3 tonnes	2725 (771)	2725 (771)	2727 (771)	2729 (771)	2729 (771)
km of track 20.4 to 23.4 tonnes	14729 (717)	14729 (717)	14695 (715)	14617 (637)	14617 (637)
km of track 23.5 to 25.4 tonnes	13392 (2704)	13392 (2704)	13400 (2712)	13516 (2824)	13541 (2849)
TOTAL	30846 (4192)	30846 (4192)	30822 (4198)	30862 (4232)	30887 (4257)

Note: The data shown in the table differs from that which we published in the 1998 NMS and is more accurate. The forecasts in this table are based upon both the maintenance and renewal expenditure and the completion of enhancement schemes set out in this NMS. Blue numbers in brackets relate to Scotland.

Electrification

38% of the rail network is currently equipped with electrification. Two systems are used: 25kV AC overhead line and 750V DC third rail. Their coverage is shown in the map.

25kV AC overhead

750V DC third rail

Non-electrified



ELECTRIFICATION	1998/99	1999/2000	2000/01	2005/06	2008/09
km of 25kV AC overhead line	7576 (1295)	7576 (1295)	7582 (1301)	7639 (1320)	7639 (1320)
km of 750V DC third rail	4285	4285	4285	4269	4269

Note: The data shown in the table differs from that which we published in the 1998 NMS and is more accurate. The forecasts in this table are based upon both the maintenance and renewal expenditure and the completion of enhancement schemes set out in this NMS. Blue numbers in brackets relate to Scotland.

6 Developing the network

- 6.1 Passenger markets
- 6.2 Passenger market growth
- 6.3 Freight markets and growth
- 6.4 Capacity bottlenecks
- 6.5 New vehicles
- 6.6 Stations and depots
- 6.7 Social and environmental benefits
- 6.8 Timetabling
- 6.9 Investment packages
 - Table A – Enhancement expenditure
 - Table B – Network development packages
- 6.10 Summary of investment proposals and principal schemes
- 6.11 Schemes being developed



This section sets out our ambitious and expansive plans to develop the rail network, to meet customer and funder requirements, and also the Government's Integrated Transport Policy objectives. We include our assessment of current market position, future growth opportunities, and the importance of network capacity to deliver growth aspirations. Our plans include major increases in capacity to remove the bottlenecks set out in our 1998 Statement, provide for the development of high-speed passenger services, urban network enhancements, and the creation of stations for the 21st century. We set out those schemes to which we are already committed, along with new commitments and the market risks that we wish to take. In addition, we present a portfolio of schemes which require elements of public support, but in which we also wish to share market risk.



There is a core commercial network of long-distance passenger services for which growth can be accommodated through investment that has a commercial return

6.1 Passenger markets

The passenger market can be categorised broadly into:

- Long-distance services
- Urban services
- Rural services
- Access to airports and ports.

Long-distance services – Anglo-Scottish

There is a core commercial network of long-distance passenger services for which growth can be accommodated through investment that has a commercial return. This is supported by our customers' own plans to meet growing demand. Our strategy is to work with our customers to develop their businesses and to increase the number of passengers travelling on their services. Our main contribution is usually the investment necessary to reduce journey times and to ensure that there is sufficient network capacity to handle increased frequencies. In addition, the radical timetable restructuring that is necessary is being promoted through a new collaborative approach involving all operators – both passenger and freight – with the objective of the highest possible level of network use.

Long-distance services – within Scotland

These markets are defined more by our customers than by our route divisions, with their services generally operating over more than one of our strategic route sections. Of particular note are the following.

- Works in partnership with ScotRail to carry out the necessary infrastructure improvements required for the introduction of their new diesel multiple-unit services. These will operate over their express routes between Aberdeen–Edinburgh–Glasgow.
- Service frequencies will be enhanced on some corridors. We are also working with our customers and suppliers in an effort to identify potential journey-time reductions and performance enhancements that can be implemented on routes such as Edinburgh–Aberdeen.

Urban

The economic and social development of services, towns and cities in Scotland, provide one of the strongest challenges to turn the concept of integrated transport into reality. Choices exist both in the short and long term as to how to optimise the economic benefits of integrating good highway planning and commercial land-use developments, particularly on the edge of existing conurbations, while sustaining the viability and cohesiveness of the established business, shopping, leisure and residential core of inner and central city areas. Partnership with public bodies, such as SPT, is essential. Planning authorities have recognised that the core attributes for public transport in a good policy on integrated transport are likely to include physical accessibility, clarity of, and access to, information and ticketing, and safety and comfort in the travel and waiting environments.

Rural services

Population densities in rural areas are relatively low, and high levels of public sector support are normally required to fund public transport services. The rail network often provides a vital means of social accessibility for those in local communities who either do not have access to a vehicle, or prefer not to drive. Prospects for economically viable growth strategies based on infrastructure enhancement are limited but there are many initiatives where we work with local public sector agencies to continue to promote the development of train travel.

Access to airports and ports

Growing demand for international travel, for both business and leisure, is putting pressure on surface access to airports and ports. We are working with a number of operators of such facilities to develop high-quality rail access. Examples include:

London airports. Gatwick Airport has, for a number of years, enjoyed high-quality rail links to central London. Capacity improvements for additional services, including those provided by long-distance operators, is being considered for the Brighton Main Line.

The starting point for developing and enhancing the network is the ability to forecast demand and to understand how train operators would react to this demand

Heathrow Express commenced services to and from London Paddington in 1998 and we are currently working with a number of parties to develop infrastructure for access from St Pancras, and to provide a new southern link. In 1998, a regular hourly service was introduced from Stansted Airport to Cambridge and the Midlands, while additional peak services and services calling at intermediate stations were introduced from London's Liverpool Street Station.

At Luton, we are currently building a new station that will fulfil a dual role as both a parkway station and a facility for easy access to the airport. Much of the infrastructure works are now complete. We expect services to commence during the second half of 1999.

Glasgow Airport

We are working, in partnership, with SPT and BAA to assess the options for providing a rail link from the airport to Paisley and Central Glasgow. A new cross-Glasgow passenger link to allow services from the airport to extend through to destinations on the north of the Clyde is also being considered.

Edinburgh Airport

We are working, in partnership, with public bodies and other private companies, to create a transport interchange at Edinburgh Park, in the west of the city. The proposal entails building a new station and interchange facility which will allow access to the airport via City of Edinburgh Rapid Transport (CERT) using dedicated busways, thus linking both the west and centre of Edinburgh to the airport.

We are currently partnering an additional study into providing a direct rail link to the airport from Fife.

Sea ports to the islands and Ireland

We are working with our partners to improve the facilities at stations providing integration between rail and ferry services to the islands from Oban, Mallaig, Kyle of Lochalsh and Thurso. Additionally, we will be carrying out work between Inverness and Thurso which will allow containers of food supplies to be conveyed by rail and sea from Coatbridge to the Orkney Isles. At Stranraer, we are working with the local authority and ferry companies to improve facilities for passenger interchange between ships and trains.

6.2 Passenger market growth

The starting point for developing and enhancing the network is the ability to forecast demand and to understand how train operators would react to this demand. Possible reactions to demand growth include increasing the number of seats filled on existing trains, lengthening existing trains or running more trains.

We have four principal sources of information on which to base our forecasts of market growth.

- First, we place considerable weight on what we learn from passenger and freight operating companies. The recent customer-reasonable requirements process has helped with this. Our customers are carrying the risks of the short-term end-market demand in their own business plans, with the Franchising Director taking the long-term demand risk. Revenue sharing arrangements such as those we have with Virgin Rail Group and Chiltern Railways bring us closer to a shared understanding of some end markets.

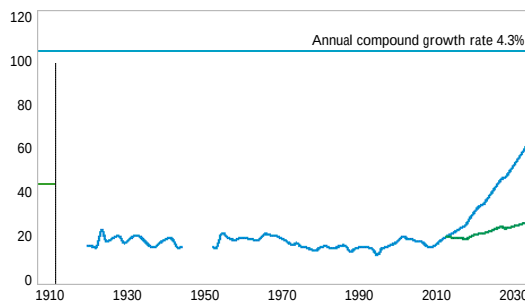
Our market growth assumptions include the effects of additional train services resulting from the implementation of Moderation of Competition (Stage 2) provisions in so far as our customers have discussed their plans with us.

- Second, as an operator of 14 major stations, we carry out independent market research among customers and listen to the needs of our retailing partners at these locations. The output of this research feeds into the development plans described in the relevant route sections of this document.
- Third, we have developed our own passenger-demand forecasting tools to assist with modelling future demand, and to anticipate likely changes required in network capacity and capability. An equilibrium econometric model of the Great Britain passenger transport market developed for us by the Centre for Economic and Business Research is the centrepiece of this.
- Fourth, we have begun to assess the implications of the Government's Integrated Transport Policy for changes in demand for capacity which might be brought about either directly by the public sector through reprioritisation of investment expenditure, or through the market responding to changes in the structure of charges for the use of different modes of transport.

We believe that this growth is not merely a reflection of the current phase of the economic cycle, but heralds a trend which is potentially capable of being sustained...

Passenger growth (billion passenger kilometres)

Source: Transport statistics Great Britain 1998; Railtrack demand models



Rail has been losing market share for much of the 20th century and, in particular, since the 1950s. Its share has been under 6% since the early 1990s. However, since 1910, the absolute level of passenger rail volume, while fluctuating with economic cycles, has remained remarkably constant as the graph above indicates. This has happened through periods of immense social change, two world wars, and the transformation of personal transport through the motorcar.

Such stability against such a background is strongly suggestive of other factors. In our opinion, it results from an overall capacity constraint on the rail network, for although it is true that network size has been reduced, the portions that have been closed actually carried very little traffic. The Beeching cuts of the 1960s are scarcely noticeable on the graph.

In the two years since privatisation was completed, passenger kilometres have risen by 15%. However, the resulting traffic volumes have not exceeded the parameters of the recent past.

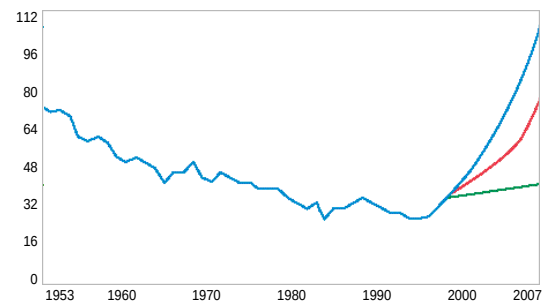
We believe that this growth is not merely a reflection of the current phase of the economic cycle, but heralds a trend which is potentially capable of being sustained. But, unless the century-long capacity constraint is tackled, such growth cannot continue.

We set out in this section plans to create this extra capacity. Many of the schemes are fully commercially viable, and we are committed to them. Others require a partnership approach and a proportion of public funding, and we are also prepared to commit to these.

Together, these plans provide capacity to enable passenger traffic growth of around 30% over the next ten years, and involve total expenditure of around £27bn

Freight growth (billion gross tonne-kilometres)

Source: Transport statistics Great Britain 1998; Railtrack analysis and freight operators' forecasts



(compared to £17bn in last year's NMS). Nevertheless, even this level of growth, although unprecedented this century, is at the lower end of the range that some of our train company customers aspire to achieve.

6.3 Freight markets and growth

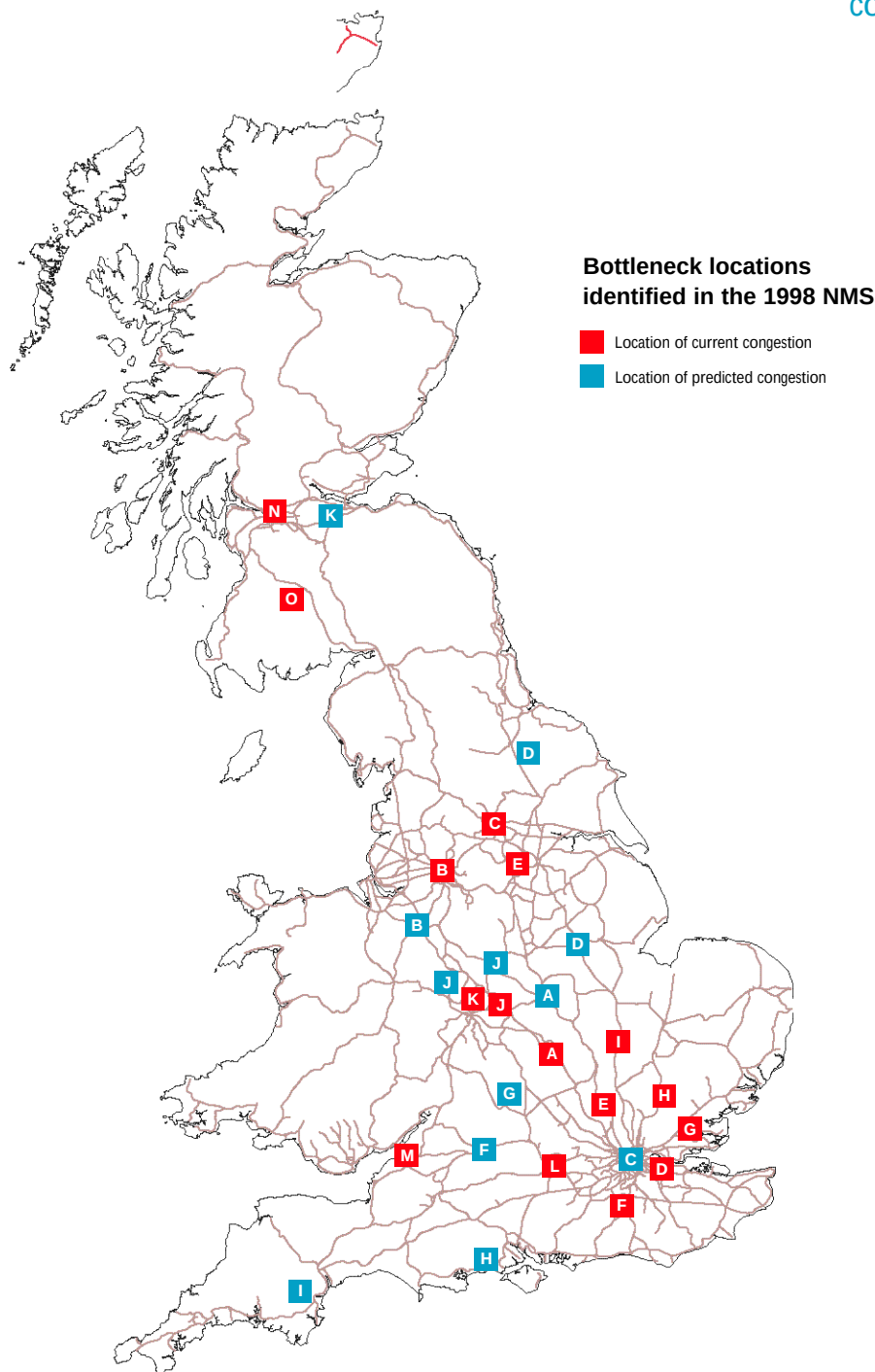
Our freight growth assumptions are driven principally by working with our existing customers and understanding how their own businesses need to develop if they are to successfully capture market share. We have also developed a freight demand model, and continue to discuss new business opportunities with prospective customers. The results of this analysis have led us to develop the freight strategy set out in Section 7. The graph above indicates the range of possible growth scenarios.

6.4 Capacity bottlenecks

The 1998 NMS identified locations on the network with current and predicted congestion. These locations were identified through a systematic evaluation of capacity across the whole network, which established current and predicted train-path use and capacity indicators for all key terminals, junctions and plain line sections. Utilisation percentages were then derived by dividing actual or forecast train paths by the maximum number allowed. The locations identified in the 1998 NMS were all those with current or predicted use, measured at 90% or above, together with a small number of other locations at which use is slightly below this level but which have high levels of reactionary delays.

Railtrack has evaluated the technical options for alleviating the current and potential congestion problems

...but, unless the century-long capacity constraint is tackled, such growth cannot continue



identified at these locations. These technical options have been discussed with customers, funders and the Rail Regulator as part of the development of our Route Strategies. Our conclusions are set out in the relevant route sections later in this document. At some locations, the effects of high use have not resulted in significant congestion-related delays. Similarly, in a number of locations identified with

predicted congestion, either our utilisation forecasts have been revised or we believe we will be able to manage future train path demand without creating any noticeable additional disruption.

The tables overleaf summarise the proposals for each location indicated on the map above.

SUMMARIES OF KEY LOCATIONS IDENTIFIED IN THE 1998 NETWORK MANAGEMENT STATEMENT WITH CURRENT CONGESTION

	LOCATION AND POSSIBLE SOLUTIONS TO CONGESTION	STATUS	COMPLETION DATE
A	West Coast Main Line: Euston–Rugby. The West Coast Main Line upgrade will provide additional capacity on the fast and slow lines in 2005. This will provide sufficient capacity to meet existing and known future contractual requirements. It will also allow for an increase in paths by 42 per day in each direction, which could be used for additional freight traffic.	Solution being implemented.	2005
B	West Coast Main Line/North Trans-Pennine: Slade Lane Junction Piccadilly–Deansgate. The track layout at Manchester Piccadilly was remodelled in December 1998 and the capacity of the main station trainshed was restored to 12 fully operational platforms. Strategic options for further capacity enhancements will be discussed with train operators and GMPTE. The results will be reflected in the 2000 NMS.	We are currently developing options.	2002
C	North Trans-Pennine: Leeds Station area. A major remodelling and resignalling of Leeds West End Junction to increase capacity by 50% and a minor remodelling of the east end of the station.	Solution being implemented.	2002
D	Channel Tunnel Routes: Charing Cross–Hither Green–Orpington. The Thameslink 2000 project will double the capacity on the Metropolitan Junction–Borough Market Junction section. Capacity issues on other sections have been identified and are being discussed with the Rail Regulator.	Solutions partially identified and to be implemented. Further solutions being developed.	2006 partially
E	Midland Main Line: Kentish Town–Luton. The solution involves retimetabling and reinstatement of a platform at London St Pancras. The Thameslink 2000 project includes lengthening of platforms to enable 12-vehicle trains to operate.	Solution being implemented. Part of Thameslink 2000 scheme.	1999–2006
F	Brighton Main Line: Victoria–East Croydon–Haywards Heath. A range of solutions has been analysed. They vary from a short-term timetable solution to accommodate Virgin's requirements through renewing rolling stock to increase seating capacity and improve journey times to a comprehensive increase in route capacity to enable more trains to run.	Solution identified and under discussion.	–
G	Great Eastern Main Line: Liverpool St–Gidea Park. The solution involves enhancing capacity of the Gospel Oak–Barking Line to remove some freight trains from the route.	Solution being implemented.	Spring 1999
H	West Anglia Main Line: Clapton Junction–Broxbourne Junction. We have identified a potential timetabling solution to allow additional trains to operate to Stansted Airport in 2000. In conjunction with planned signalling renewals, we have identified longer-term capacity enhancements to satisfy customer requirements.	Solution being progressed.	2000–04
I	East Coast Main Line: Finsbury Park–Peterborough. We have committed to a phased increase in capacity to reflect emerging market and customer demands as part of the ECML upgrade.	Preferred solutions to be identified in 1999.	2003–09
J	Derby–Bristol and Didcot via Birmingham: Leamington–Coventry. We propose to implement a timetabling solution.	Solution identified. Implementation dependent on customer negotiations.	2000
J	Derby–Bristol & Didcot via Birmingham: Coventry–Birmingham. A partial timetabling solution has been identified, and agreed with our customers for delivery in 2005. In order to meet all customer market needs, we have identified a solution to four-track this corridor.	Partial solution to be implemented. Implementation of further solution dependent on customer negotiations.	2005 partially
K	Derby–Bristol & Didcot via Birmingham: Birmingham New Street–Kings Norton. A timetabling solution has been identified which has customer support subject to contractual negotiations.	Solution identified. Implementation dependent on customer negotiations.	2003
L	Great Western Main Line: Paddington–Reading & Reading–Basingstoke. A phased approach has been identified which involves progressively more platform capacity at Reading in the short term; additional track capacity between Acton and Airport Junction in the medium term; and additional platform capacity at Paddington.	Solution identified and partial implementation to start in 1999.	2000–09
M	Great Western Main Line: Bath–Bristol–Severn Tunnel Junction. We are implementing an infrastructure solution according to a phased timescale to meet customer requirements.	Solution being implemented.	2003
N	West Coast Main Line: Glasgow Central approaches. Further analysis suggests that the current layout is not operating at capacity and that known operator aspirations can be met.	No solution required.	n/a
O	South West Scotland: Kilmarnock–Gretna Green. Introduction of 24-hour-a-day operation will allow more trains to be pathed during less busy hours. We have committed to add a passing loop in 2000.	Solution to be implemented in 2000.	2000

SUMMARIES OF KEY LOCATIONS IDENTIFIED IN THE 1998 NETWORK MANAGEMENT STATEMENT WITH PREDICTED CONGESTION

	LOCATION AND POSSIBLE SOLUTIONS TO CONGESTION	STATUS	COMPLETION DATE
A	Midland Main Line: Leicester area. We are already increasing capacity at Wigston North Junction. We are examining whether additional capacity would be required if Felixstowe–Midlands–North West freight trains are rerouted by Leicester.	Short-term solution being implemented.	1999
B	West Coast Main Line: Rugby–Carlisle. The West Coast Main Line modernisation project will provide additional paths, limiting growth of freight paths to the minimum agreed with the Rail Regulator. Our position is that it is not economical for the industry to provide paths for freight beyond 84 per day.	Solutions being implemented.	2005
B	West Coast Main Line: Crewe and Colwich–Manchester (Slade Lane Junction). The West Coast Main Line modernisation project commits Railtrack to providing additional capacity to meet existing and future contractual commitments. Complete renewal of the signalling between Slade Lane and Cheadle Hulme will begin in 2000/01 and this will incorporate capacity enhancements to accommodate the additional PUG 2 services. We are currently determining the scope of the layout and signalling changes required between Cheadle Hulme and Crewe.	Design and development authority for Cheadle Hulme and Slade Lane being progressed.	2002–05
C	North London Line: Stratford–Richmond. The options for this route, which links the key radial routes from London, can now be identified as our strategies on the radial routes has been finalised.	We are currently developing options.	n/a
C	West London Line: Willesden Junction–Clapham Junction. We have examined a number of solutions involving increasing the linespeed over Chelsea River Bridge, the examination of the prevailing linespeed to provide a smoother profile, resignalling, the transfer of AC/DC electrification interface to a station stop, possible rerouting of freight and/or other passenger paths, and buying out of paths. The Chelsea River Bridge linespeed solution has been proposed as the most appropriate short-term solution to reflect emerging market and customer needs.	Partial solution has been proposed. Other solutions being identified for longer term.	2001
D	East Coast Main Line: Peterborough–Newcastle. We have committed to phased increase in capacity.	Preferred solution identified.	2003–09
E	Midland Main Line: Sheffield area. We are undertaking a timetabling exercise to ascertain the scope of infrastructure works necessary. Possible solutions include the doubling of the line between Dore Station Junction and Dore West stations.	Options being identified.	2003
F	Great Western Main Line: Didcot–Swindon. We will implement proposals depending on emerging growth in traffic. These include upgrading facilities for looping freight trains, increasing platform capacity at Swindon, and enhancing the signalling system.	Options identified. Selection and implementation subject to traffic growth.	2006
G	Derby–Bristol and Didcot via Birmingham: Didcot–Leamington Spa. Known customer and market requirements can be met by existing infrastructure except between Banbury and Fenny Compton. Additional signalling between these locations will provide the necessary capacity.	Solution identified.	2003
H	London–Portsmouth and Weymouth: Southampton–Bournemouth. Further analysis suggests that train-path demand will not exceed capacity during the planning period. However, planned signalling renewals work will marginally increase capacity.	No solution currently required.	n/a
I	Reading and Bristol–Penzance: Exeter–Plymouth. Further analysis demonstrates that known customer and market requirements can be met by existing infrastructure.	No solution required.	n/a
J	Derby–Bristol and Didcot via Birmingham: Derby–Birmingham. Retimetabling, increasing capacity through additional infrastructure. Our analysis shows that the present information can accommodate known market and customer requirements.	Options identified. Implementation subject to traffic growth.	n/a
J	West Coast Main Line: Birmingham–Wolverhampton. Further analysis demonstrates it would not be cost-effective to increase capacity on this route. Consequently, one customer's aspirations will not be met. This position has been agreed with the industry.	Solution implemented.	Implemented
K	West Coast Main Line: Edinburgh: (Haymarket East Junction–Midcalder). Further analysis suggests that present infrastructure can accommodate all existing and known future customer demands.	No track capacity solution required (but overhead-line power supply analysis continuing).	n/a

Railtrack is actively working with its partners throughout the European rail industry to ensure that the technical standards adopted match the interests of the UK rail industry

6.5 New vehicles

We are committed to working with our customers to ensure that their new vehicles can be introduced on appropriate routes of the network.

As part of our Safety Case, we must formally accept and certify new or modified vehicles and locomotives before they can operate on the network. This process is jointly undertaken by us and train operators through our Rolling Stock Acceptance Board. Introduced in 1997 to address previous problems in this area, the Rolling Stock Acceptance Board successfully accepted the following new vehicles into service in 1998.

- Heathrow Express Class 332 electric unit
- Chiltern Railways Class 168 diesel unit
- EWS Class 66 freight locomotive
- Midland Main Line Class 170/1 diesel unit
- A range of freight wagons.

Staged programmes of work are continuing to ensure the timely acceptance of many other vehicles over the Plan period.

The main new vehicles planned for acceptance in the next three years are shown below.

Entry into service

- 1999 Eurostar North of London – Electric
Central Trains – Diesel
Anglia Railways – Diesel
ScotRail – Class 170/4 Diesel units
ScotRail – Class 334 Electric units
Connex South Eastern – Electric
LTS – Electric
South West Trains – Electric
Gatwick Express – Electric
EWS – Freight Electric (Route extension)
Freightliner – Diesel conversion
EWS – Freight Diesel (Class 67)
Railtrack – Multipurpose vehicles.

- 2000 First North Western – Diesel
First North Western – High-speed diesel
First Great Western – High-speed diesel
Northern Spirit – Electric
Railtrack – High-speed track relaying machine.

- 2001 Virgin CrossCountry – High-speed diesel
Virgin West Coast – High-speed electric tilting.

Interoperability

In July 1996, Directive 96/48/EC on high-speed interoperability was issued to facilitate the improved passage of rail traffic between member states of the European Union. The provisions of this directive will be introduced into UK legislation this year. All new and upgraded high-speed passenger lines and rolling stock will have to comply with European specifications, subject to certain derogations. Railtrack is actively working with its partners throughout the European rail industry to ensure that the technical standards adopted match the interests of the UK rail industry.

Discussion with our partners has confirmed that there is a strong common desire to enhance the level of facilities at stations throughout the network

6.6 Stations and depots

Discussion with our partners has confirmed that there is a strong common desire to enhance the level of facilities at stations throughout the network. Previous sections have indicated how we propose to progress our maintenance and renewal responsibilities, both at those major stations which we operate, and at those stations which are leased to customers. This section sets out how we plan to progress enhancements.

Following pilot exercises with Central Trains and Great North Eastern Railway (GNER), and widespread consultation with all stakeholders, we have published a specification for Modern Facilities at Stations. This allows allocation of stations to one of six categories according to size and function. It indicates the level of facilities that we aspire to provide. Where an existing facility is to be renewed (such as a life-expired lift), we will ensure that its renewal (paid for from existing access charges) conforms to the relevant specification (in this example, a passenger-operated lift). Our plans for upgrading stations in this way through renewal are set out in Section 4.

However, many stations do not currently have the full range of facilities which are set out in the specification and so cannot reach the specification through renewal alone. To fund the investment to provide such facilities, it will be necessary to negotiate and agree new financing arrangements. The same comment applies for an accelerated renewal of existing facilities that are not yet life-expired.

In some cases, the current station operator can develop a commercial case to fund the enhancement because the increases in revenue resulting from improved product quality will provide sufficient payback. A number of schemes are progressing on this basis, notably with GNER and Virgin Trains for passenger-waiting environments, and with a number of operators for car-park extensions. In many cases, the economic life of the enhancement extends beyond the life of the current franchise operator, and we have assumed that the additional income necessary to give a fair return on our investment will continue to be provided in future station charges.

To cover other cases, we propose an option for discussion with the Franchising Director, the Shadow Strategic Rail Authority and the Rail Regulator whereby we would commit to deliver the output specifications, in whole or part, to provide a step change in the level of facilities by the end of the next Control Period in 2006. To assess the likely cost implications, we have undertaken modelling work which takes account of the current levels of facilities, and the unit costs of delivering those facilities necessary to bridge the gap to the output specification. The costs are, therefore, a broad approximation and will need to be validated on a detailed basis if the option is to proceed.

Platform stepping distance and length policy

A number of important issues have a bearing on the maximum stepping distance that passengers need to negotiate when entering and exiting from trains, and the length of the platform over which this distance is maintained.

These include:

- the variety of existing passenger and freight vehicles
- introduction of new vehicles onto the network
- gauging of passenger and freight vehicles
- track renewals
- access for disabled people
- European interoperability.

These issues, when considered together, present a complex background against which we seek to set a consistent stepping distance and platform length policy.

We have established a project group which will be consulting broadly with our industry partners, having first evaluated a number of options for future platform and train standards with a view to developing a policy by mid-1999 for inclusion in the 2000 NMS. We also intend to develop a funding strategy, in partnership with external agencies where appropriate, and an understanding of the timescales over which the policy could be implemented as an integral part of our Modern Facilities at Stations initiative.

We have assessed the cost of achieving full compliance with the standard on platform gauge and length to be in the order of £900M across the whole of the network.

The costs of delivering all of the 'Modern Facilities at Stations' specifications with accelerated renewal are approximately £2.5bn

Disabled access

We have improved access for disabled passengers at stations this year, achieving the targets set in the 1998 NMS. By 31 March 1999, there will be an additional 12 stations (plus the new stations built this year) across Scotland with unassisted wheelchair access from the street, and a further six with accessible toilets. In addition, many improvements have been made for disabled passengers who do not use wheelchairs, including induction loops, platform-edge tactile paving, and better handrailing.

Most importantly we have been consulting this year on our strategy for providing access for disabled people across the whole network. Two consultation phases are complete and the feedback has been very encouraging.

- 330 respondents expressed views in a number of areas.
- The majority expected the network to be accessible within 10–20 years.
- Fewer than 10% of respondents disagreed with any of the objectives in the consultation document.
- A number of valuable suggestions were made by respondents about implementation of policies – these will be subject to further examination.
- Respondents thought that the highest priority should be given to large stations (33%), to prevalence of impairment (23%) and to localities where there was no alternative accessible transport (15%).

We will conclude a more sophisticated methodology for setting priorities incorporating the above feedback that will be included in our forthcoming policy statement to be issued in the middle of 1999. This will set out our policy to deliver the Rail Regulator's Code of Practice, reasonable outputs from the policy, and the costs for and timescales to implement the policy.

This coming year major plans will come to fruition for lift access at Birmingham New Street and Paisley Gilmour Street stations, the latter with partnership funding from Strathclyde PTE.

Another important area is research to find better, cheaper solutions to our access problems across the network. Topics this year include platform-edge tactile paving for people with visual impairments and lifts that can be used safely at unstaffed stations.

Making the rail network accessible is a substantial task that will take many years, but we have every confidence that, together with our customers (and their investment in on-train facilities), partners in government and the public, we will be able to achieve it.

Investment costs

The costs of delivering across Britain all of the 'Modern Facilities at Stations' specifications with accelerated renewal of existing facilities are approximately £2.5bn.

This figure includes £900M for platform-stepping distance, and £300M for disabled access facilities. This latter figure may be further refined in discussions with funders early this summer.

Railways have a significant contribution to make to achieve Government policy and commitments on protecting the environment

Major stations

Last year, we reported in very general terms on our work in preparing development control plans for each of our major stations. These plans have now been progressed as part of our dialogue with customers and other stakeholders. A description of significant initiatives on a station-by-station basis is given in the relevant route section of this document.

New stations

We continue to evaluate the possibility of constructing new stations on the network, often in conjunction with funders. Since 1995, we have developed and opened 24 (2 in Scotland) new stations. With the increase in rail passengers and the need to service growing communities, this trend is set to continue. Possible new stations include Dunfermline Queen Margaret, Edinburgh Park, Howwood, Beaulieu and a parkway station on the East Coast Main Line near Edinburgh.

Depots

We anticipated that 1998/99 would be a significant year in the future of development of light maintenance depots (LMDs), with our customers beginning to address their long-term needs in terms of both the location of and services provided at LMDs.

This forecast has been confirmed over the past year and we have seen evidence of changes in approach adopted by train operators to deliver their train maintenance activity.

Certain train operators are contracting out the role of depot facility owner, while others have established subsidiary companies for this purpose. Coupled with the investment in new trains and major advances in maintenance technology such as computerised diagnostics, train maintenance is an area of considerable change.

Undoubtedly, major investment in maintenance, be it enhancing facilities or developing new depots, will be required. We are in detailed discussion with our industry partners to establish how our planned investment in LMDs can be best used to realise this objective.

6.7 Social and environmental benefits

The benefits of upgrading the rail network are felt by many others as well as rail passengers and freight shippers. Railways have a significant contribution to make to achieve Government policy and commitments on protecting the environment.

Increasing the capacity and efficiency of the rail network attracts passengers and freight currently using roads, and can therefore alleviate some of the impact of future growth on the road system. For those who live and work near roads, the benefits mainly accrue from reduced noise and air pollution, which affect health and the local environment. In addition, for those who switch from road to rail, the benefits include faster journey times as well as leading to a reduction in the cost of congestion and accidents. Consequently, society will benefit from our contribution towards reducing local pollution and mitigating climate change, since a rail transport solution offers savings in greenhouse gas emissions and noise relative to roads. All these factors are part of the cost-benefit equation for rail investment projects.

We are using the results of rail transport and environment studies to assess the relief which investment projects will bring to the environmental and social costs of transport incurred by the public, or paid for out of the public purse. We recognise that this is a complex task because decisions to stimulate the use of rail travel cannot be made in isolation from other transport policy decisions (such as road pricing). It is important that methodologies are aligned with those used for Government decision-making. However, we have taken some early steps to assess the value of social benefits that could be gained through avoiding road journeys. Two schemes which are not viable on a commercial basis but which we have assessed are briefly described overleaf together with some examples of schemes in Scotland in a similar category. Further information is available on Railtrack's website. We welcome debate and discussion on our approach.

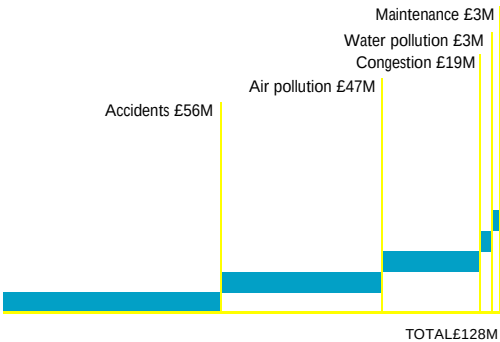
The influence of social and environmental factors is likely to be of particular significance in Scotland, giving a distinctive challenge for transport

Brighton Main Line

The Brighton Main Line is one of the major commuter routes,carrying approximately 10% of the total rail-borne peak-morning traffic into London. We propose, in this NMS, an enhancement scheme that focuses on the capacity and network performance constraints which currently limit growth at peak times.The project is complicated by the density of the rail network in this region and, therefore, requires substantial partnership investment.The financial case for investing in increased capacity and reduced journey times is strengthened by the environmental benefits of shifting the forecast increase in commuter traffic. Savings are apparent on congestion costs, reducing the health impacts and damage to the local environment caused by air pollution. Moreover, rail is safer than road travel. Switching to rail reduces the risk of serious injury and death, thereby saving society accident costs. The table below gives an indicative value of non-user benefits that might be created given that capacity enhancements would shift the projected increased traffic to rail.

Brighton Main Line.
Quantification of potential non-user benefits

Source:Analysis by OXERA Environmental Ltd



Increased capacity – north of Scotland

The influence of social and environmental factors is likely to be of particular significance in Scotland,giving a distinctive challenge for transport.Examples of Scottish schemes which may not be commercially viable without consideration of social and environmental benefits are:

- Aberdeen–Inverness capacity and speed increase, providing journey times of less than two hours.
- Additional capacity for increased services between Inverurie and Stonehaven.

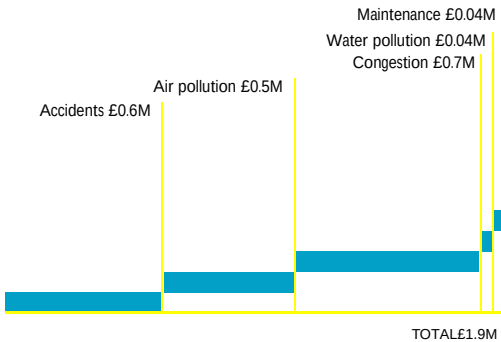
Neither scheme has yet been fully assessed, but we would welcome debate on how these schemes could be funded to the benefit of the communities concerned.

Walsall–Rugeley Electrification Scheme

Centro has proposed the electrification of the line between Walsall and Rugeley.This enhancement project will reduce journey times and allow increased passenger services.Central Trains wishes to provide services for a growing market along this route, although this requires infrastructure improvements. The costs of capacity expansion through electrification and resignalling will be partly recovered through increased revenues, but this will still leave a financial shortfall.The environmental benefits of transporting the increase in passenger miles by rail instead of road will offset this shortfall. In this example, the main savings are reduced accident, congestion and air pollution costs.The table below gives an indicative value of non-user benefits that might be reflected given the capacity enhancements that would be created.

Walsall–Rugeley Electrification Scheme.
Quantification of potential non-user benefits

Source:Analysis by OXERA Environmental Ltd



We will move towards a more collaborative approach starting with a National Train Planning Conference

6.8 Timetabling

With an increasing demand for use of the network, we must ensure that the existing, and future, capacity is efficiently allocated through an effective timetabling process. The Rail Regulator has recently approved our proposals for change to Access Condition D which governs this.

With the development of the May 2000 timetable planned for this year, we move away from the potentially combative bid and offer process where train operators' bids are kept secret until the last minute. In the past this gave us a limited window to assess the implications for identifying optimal solutions and the true performance impact of options available.

Instead, we will move towards a more collaborative approach starting with a National Train Planning Conference which will operate along the lines of the International Air Transport Association airline-slot allocation meeting. Over a period of three days, train operators will discuss with us their aspirations for the following year. We have also developed a code of practice detailing the mechanism for the handling of requests for access rights prior to the commencement of the timetabling process.

At the Conference, all of our Zones will be represented. We plan to convene multi-Zone line of route discussions with train operators in order that we can identify, at a very early stage, likely 'hot spots'. The teams will then jointly develop a plan to produce a fully operable 'draft' timetable over the following 14 weeks. At agreed milestone dates, we will present standard-hour models to demonstrate how the development work is progressing. In the case of new services, this will be accompanied by appropriate results from network congestion models.

This new collaborative approach will enable operational planning teams to develop a range of timetabling options rather than the present one solution, offering more optimal paths and potentially reduced journey times including the impact of scheduled engineering work on the availability of the network for train services and assessing the true performance impact of the whole timetable package. Our aim will be to minimise both the impact of engineering work on our customers' services and minimise the performance risk of the timetable. During the 14-week drafting stage, our Area Delivery Groups will be involved in reviewing the timetable options, and account teams in agreeing with customers commercial terms for any new access rights.

6.9 Investment packages

How this Plan is structured to meet industry vision and needs

The ten-year plan set out in this Statement is structured to meet our vision, and that of our customers, funders and other partners. It provides a bold agenda to deliver step changes in the capacity and capability of the network. It sets out our funding assumptions, and provides a summary of the main schemes which we propose. More details of the schemes, and how they have been set within the context of customer-reasonable requirements and the Route Strategies, are then set out in the route sections of this document.

Risk and return

As part of his current periodic review, the Regulator has provided a challenge to Railtrack to indicate not only what we believe the right strategic plans are for developing the industry, but also how we could share more of the demand risk involved. We welcome this opportunity. This Network Development Plan sets out our proposals in the investment area.

All investments involve various types of risk.

- Construction risk – the risk that the costs of the project will exceed the budget and/or forecast completion date.
- Counter-party risk – the risk that the party funding the project will not be able to meet its obligations for reasons not related to the project.
- Functionality risk – the risk that, even though completed, the investment is incapable of delivering its intended outputs.
- Demand risk – risk that the demand generated by the project will not meet forecast levels.
- Regulatory risk – risk as to how the investment will be treated by the Rail Regulator at future reviews of access charges.

We are ready to invest the significant capital needed to deliver the outputs, and to take on the associated market risks

In establishing a categorisation of schemes for discussion with partners and other stakeholders, we have considered two fundamental issues.

- Whether we expect to be sufficiently in control of the sale of outputs, with the value of sales linked to end-user demand.

If so, we propose that the arrangements we enter into with the user should be capable of reflecting a transfer of an appropriate amount of the demand risk to us, and that we should be able to earn a corresponding higher return on the capital invested, subject to the overall success of the scheme. Where this is not possible, either because the transaction costs of establishing a satisfactory risk transfer outweigh the benefits of such an arrangement, or because of the nature of the outputs is such that it is difficult for us to effectively control their use, we propose a 'contractor' model in which we continue to invest and retain construction risk, but recognise that we would earn a standard rate of return.

- Whether we and our customers are likely to be able to establish a financially viable business case for each investment without public sector funding.

Where we believe this to be the case, this Plan assumes that we will conclude an agreement based on the features described in the paragraph above. We plan to deliver such schemes without the need for agreements with public sector funders to provide additional financial support. Where a viable business case cannot be established on this basis, but the proposal provides outputs which enhance the capability or capacity of the network to meet our forecasts of underlying volume growth potential and/or customer- and funder-reasonable requirements, we will need to agree the funding of the commercial deficit. However, the need for additional funding does not of itself lead to a position where we could not take demand risk. On a scheme-by-scheme basis, the features described under the first criteria will still apply to varying degrees and the partnership arrangement involved in each case will be established to allocate appropriate shares of risk.

Explaining the packages

On page 78, we give a summary of the enhancement proposals that we intend to deliver to achieve our vision. These represent a significant increase in investment, compared to our previously published plans. These schemes, and the public sector implications, require us to conclude arrangements with the Government and the Regulator about the framework which allows us to share more in long-term demand risk and which also reflects the choice of options for network enhancement that require additional funding. We look forward to its completion during 1999 so the results can be reported in the 2000 NMS.

The costs set out in this Plan are our current best view but will be subject to refinement during the detailed scheme development stages.

To simplify presentation, we have categorised proposed schemes as described opposite. These categories represent our view of how each sits against the criteria of risk-sharing and funding requirements. The categories are carried through into the relevant part of the routes section of this document.

Way forward

We believe all of the enhancements set out in this Plan are a part of the total necessary to deliver our vision and our customer- and funder-reasonable requirements. Further schemes for later years of the ten-year plan will be developed as our understanding of the growth profile emerges.

We are ready to invest the significant capital needed to deliver the outputs, and to take on the associated market risks.

We shall work with the Shadow Strategic Rail Authority and the Rail Regulator to devise the frameworks necessary to allow this all to happen.

Table A Enhancement expenditure (£M – 1998/99 prices)

TYPE OF ASSET	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Track	40	70	150	510	360	420	260	180	180	170	120
Structures	30	40	50	260	460	390	180	130	180	160	130
Signalling	30	45	80	230	350	290	240	180	150	130	140
Electrification	10	60	60	120	120	130	80	25	20	35	55
Plant & Machinery	5	20	10	10	10	10	10	0	0	0	0
Telecoms	10	10	5	0	10	10	0	0	0	0	0
Stations	160	170	135	390	420	440	380	525	425	320	320
Depots	20	20	5	10	15	0	0	0	0	0	0
Other	5	5	5	10	15	20	10	0	0	5	5
TOTAL	310	440	500	1540	1760	1710	1160	1040	955	820	770
1998 NMS	130	220	530	430	530	420	320	180	210	220	n/a

For Scotland information see page 117.

Table B Network development packages (1999/2000–2008/09)

Feasibility, third-party and other unspecified or minor schemes

Package 3 – Contractor

These schemes are generally unsuitable for us to take any demand risk, although we would take appropriate construction risk. Many of these projects are station schemes.

Package 2 – Partnership

These are also schemes where we wish to take demand risk but they require agreement with a funder for 'pump priming' investment before they can proceed.

Package 1 – Commercial

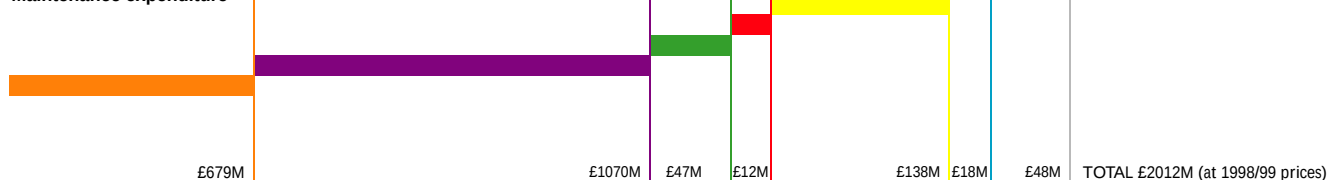
These are schemes that do not require public sector funding and in which we have sufficient control of the outputs to be able to take long-term demand risk. They require no up-front agreement with any public sector body – other than understanding of their treatment for regulatory purposes.

Committed in last year's NMS

These are schemes that have yet to be completed but which were firmly committed in last year's NMS.

Renewals expenditure

Maintenance expenditure



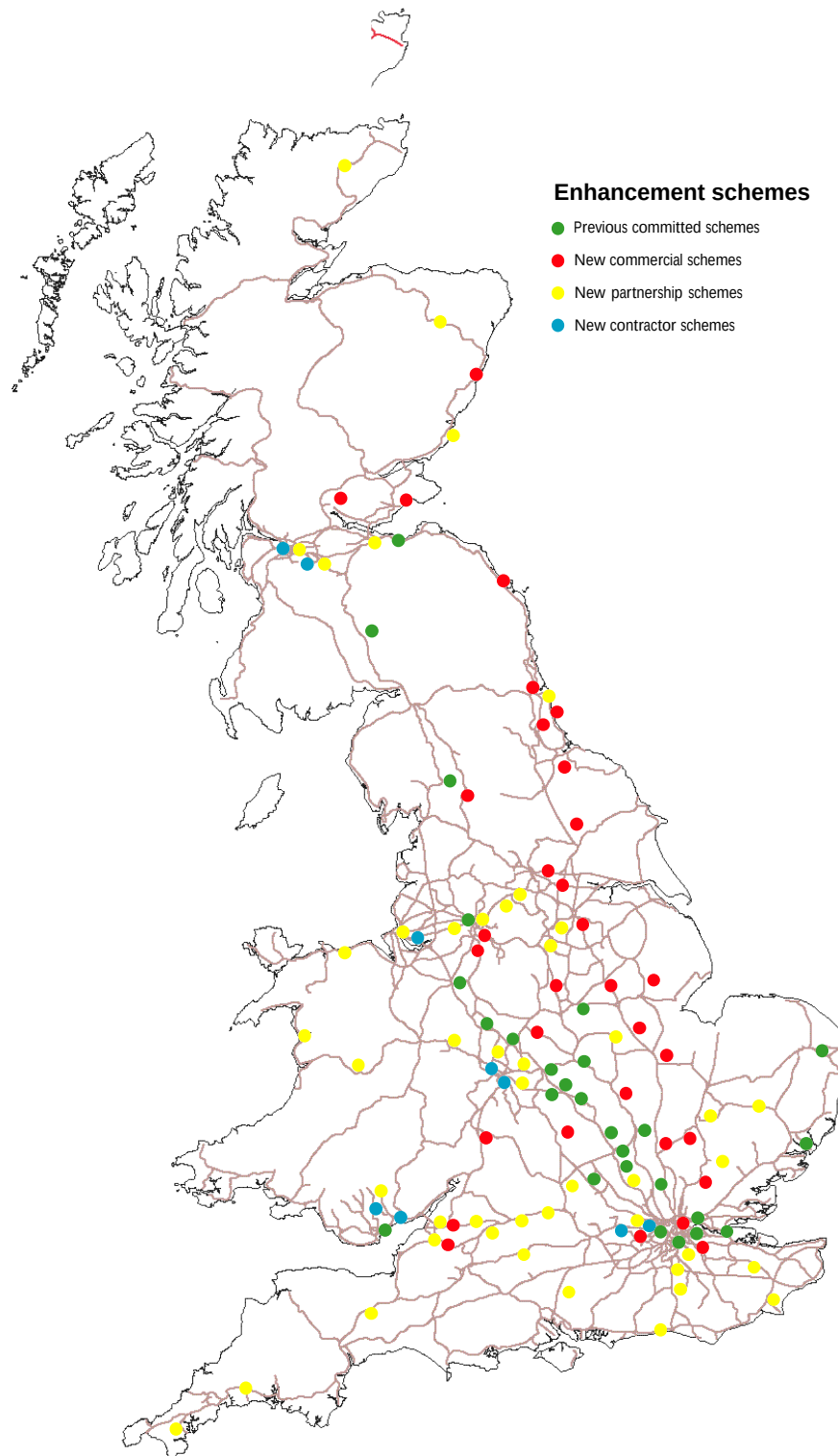
6.10 Network development – summary of investment proposals and principal schemes (enhancement expenditure 1999/2000–2008/09)

TYPE OF SCHEME	ESTIMATED CAPITAL COST (£M)*
In last year's NMS	
● Thameslink 2000	800
● WCRM PUG 1 and PUG 2	675
● Paddington Station enhancements	80
● Waterloo Station enhancements	22
● Freight enhancements	16
● Edinburgh Station enhancements	16
● London Victoria Station enhancements	11
● Luton Parkway new station	8
● Dartford resignalling	7
● Cardiff Central Station enhancements	5
● Other	127
TOTAL	1767
Commercial	
● East Coast Main Line upgrade	750
● London–Stansted upgrade	130
● Southern link to Heathrow	100
● Manchester to Crewe capacity	100
● Virgin Trains CrossCountry journey-time and capacity	80
● Waterloo to Fawkhams Junction enhancements for CTRL	65
● Manchester Piccadilly Station enhancements	21
● Freight routeing: Settle–Carlisle	15
● New freight depot Aberdeen (Raithes Farm)	8
● Midland Main Line journey-time improvements Phase 1	5
● Other	134
TOTAL	1408

* These cost estimates vary in accuracy from firm prices through detailed design estimates to indicative feasibility assessments. The cost of each scheme will be refined as it is progressed. Total enhancement spend is based on a top-down estimate of the investment required to deliver 30% growth in passenger miles and a tripling of freight traffic by 2008/09. The schemes identified are those currently envisaged to deliver the majority of that growth. However, we would not expect the inclusion or exclusion of a specific scheme to affect the total enhancement required.

TYPE OF SCHEME	ESTIMATED CAPITAL COST (£M)*
Partnership	
● Northern access to Heathrow	450
● Freight routeing strategy	400
● East West Rail Link	240
● London commuter area capacity	200
● Freight gauging improvements	200
● Coventry–Birmingham capacity	200
● Brighton Main Line capacity	160
● Oldham Loop LRT	120
● Sheffield area capacity	100
● Central Manchester capacity	100
● Nuneaton–Walsall/Birmingham electrification	100
● Great Western Main Line journey-time improvements	70
● Glasgow Airport rail link	50
● North Trans-Pennine capacity	40
● ScotRail Express journey-time improvements	37
● Walsall–Rugeley electrification	35
● Tyne & Wear Metro extension to Sunderland	31
● West of England journey-time improvements	25
● Larkhall–Milngavie new service	24
● Manchester Airport capacity and interchange	23
● Merseyside electrification extension	15
● Rhymney Valley capacity	12
● Barmouth Viaduct weight limits	10
● Other	914
TOTAL	3556

Contractor	
● Modern Facilities at Stations	1300
● Platform-stepping distance	900
● Disabled access improvements	300
● West Midlands reopening closed routes	75
● Colnbrook Euroterminal	22
● Merseyrail underground stations	19
● Old Oak Common depot enhancements	19
● Barrhead–Kilmarnock capacity	7
● Other	82
TOTAL	2724
Feasibility	100
Third-party and unspecified or minor schemes	1145
TOTAL	10700



6.11 Schemes being developed

NAME AND DESCRIPTION OF SCHEME	TIMESCALE	COST (£M)	ROUTE STRATEGY
East Coast Main Line upgrade Provision of additional capacity throughout the route and through upgrading and reopening parallel routes. Increased linespeeds and changes to infrastructure to accommodate tilt trains. Renewal of signalling equipment	Phase 1 (Leeds) 2003 Phase 2 2004 Phase 3 2009	1500	B
Freight routeing strategy and gauge enhancement We are clearing the WCML to W10 gauge and have submitted a proposal to the Department of Environment, Transport and the Regions (DETR) to extend this from London the Channel Tunnel. Further proposals will be developed later this year.	Up to 2005	In a range from 100 to 500	-
Northern access to Heathrow Capacity increases Airport Junction–Paddington–St Pancras services–Hayes Hub	2007	461	-
Edinburgh Waverley Station Major development involving track/platform remodelling and redevelopment of the site	2006	in a range of 200-250	B C
East–West Rail The East–West Rail project involves reopening the route between Cambridge and Oxford via Letchworth, Sandy, Bedford and Bletchley. This will make many new rail journeys possible without the need to travel via London. We have been developing the scheme with 25 local authorities. Grant funding will be a key issue in the development of this project. Phase 1 is likely to be Bristol–Oxford–Bletchley–Bedford.	Phase 1 2003	240	-
CrossCountry journey-time improvements Infrastructure alterations to increase speeds and to permit operation of tilt trains	2005	101	C
King's Cross Station Mezzanine retail development	2007	80	B
Glasgow Airport Rail Link Provision of infrastructure for new service to Glasgow Airport; enabling direct rail transit between the airport and the city centre	2004	50	E
Scottish Express journey-time reductions Reductions in journey times over lines within the Scottish Express Route will be facilitated by: localised signalling schemes; level crossing alterations; infrastructure works; revised technical requirements, including those for the operation of tilt trains	2002 2009	3 37	C
Glasgow–Gourock–Wemyss Bay Route renewals Renewal and enhancement of infrastructure on the route, driven by the condition of signalling, overhead cables and telecoms equipment. Capacity improvements and junction rationalisation are being undertaken. The scheme is subject to evaluation	2008	39	E
Glasgow Central Signal-box renewal Renewal of signalling equipment. An opportunity exists to rationalise control and improve capacity and performance in the area. The scheme, which is subject to evaluation, also includes remedial works at Polmadie and Rutherglen	2003	31	A E

NAME AND DESCRIPTION OF SCHEME	TIMESCALE	COST (£M)	ROUTE STRATEGY
Larkhall–Milngavie new service New train service over reopened branch line south of Hamilton providing increased frequency of service through Central Glasgow to Milngavie. Three new stations will be constructed on the new line which will serve a population of about 16,000. Provision of the infrastructure necessary to extend the Glasgow Queen Street–Maryhill service to Anniesland including the provision of a new station at Dawisholm and a new platform line at Anniesland. The overall scheme is subject to the provision of a funding agreement	2001	24	E
Tay Bridge Development progressing in order to enable implementation works to be completed. This will lead to improvements in the carrying capacity of the structure for freight traffic	2006	13	C
Kilmarnock–Gretna Junction. Resignalling and linespeed improvements The scheme is subject to evaluation.	2006	13	D
Glasgow-area overhead-line equipment Overhead-line contact-wire renewal at Glasgow Central Station; Cathcart Circle/Motherwell; Airdrie–Helensburgh network	2001–09	11	E
Freight facilities Provision of new freight connections to the network to meet customer aspirations for expansion	1999–2009	11	H
Signal post telephone concentrators Renewal of equipment in signal boxes and signalling centres	2002–09	10	A to H
Raithes Farm freight depot Construction of new freight depot at Dyce as part replacement for Aberdeen Guild Street which will be redeveloped as a transport interchange in conjunction with the local authority and others. Subject to provision of funding agreement	2001	8	C
Cathcart signal box Renewal of signalling equipment	2009	8	E
Inverkeilor–Carnoustie resignalling Resignalling between Carnoustie–Arbroath–Inverkeilor. Scheme to be evaluated	2006	8	C
Edinburgh signalling Interlocking remedial works; safeguarding performance	2002	8	C
Barrhead–Kilmarnock Provision of new dynamic loop on the single line to increase capacity and enable the existing passenger service to be increased from hourly to half-hourly. Subject to external funding arrangements being put in place	2002	7	C
Edinburgh Crossrail Upgrading of infrastructure and construction of stations for new passenger service between Kinross Park and Edinburgh Waverley – providing relief to localised road traffic congestion. Subject to provision of funding agreement	2004	7	F

NAME ANDDESCRIPTION OF SCHEME	TIMESCALE	COST (£M)	ROUTE STRATEGY
Perth track and signalling alterations Resignalling and rationalisation in Perth area.Scheme to be evaluated	2007	6	C
Perth–Inverness Renewal of Aulnaslanach Viaduct;will permit both the maximum linespeed and axle loading restrictions to be raised	2004	5	C
Mossend Interlocking remedial works;safeguarding performance	2001	5	E
25kV traction supply Renewal and upgrade of 25Kv distribution equipment at Cathcart,Coatbridge and Midcalder track. Sectioning cabins to improve reliability and performance	2002–07	4	C E
Signalling equipment renewal Renewal of radio electric token block equipment on the West Highland Line (Craigendoran–Oban–For t William–Mallaig) and the Far North Line (Inverness–Wick–Thurso–Kyle of Lochalsh)	2002–06	4	G
Fort William signal box Alteration to For t William/Annat/Banavie signalling equipment to improve performance and productivity	2005	4	G
Stirling–Kincardine Reopening of mothballed line for freight traffic	2004	4	H
Edinburgh–Midcalder Junction Infrastructure alterations to enable customer aspirations for increased capacity to be realised	2003	2	A
Kilmarnock–Gretna Junction Infrastructure enhancements to meet rapidly increasing freight train requirements by: a) provision of additional loop, (2000) b) capacity improvements	2000–02	2	D
Station car parks Extensions to existing car parks.Scheme to be evaluated	2001	1	C E
Dunfermline Queen Margaret Station Construction of new passenger station at Dunfermline. Funded by Fife Council	2000	1	F
Edinburgh Park Construction of new passenger station.Subject to funding agreement	2000	1	C



7 Developing freight services

- 7.1 Progress in 1998
 - Table A – Review of customer requirements
 - Table B – Trends in freight activity
- 7.2 Customer requirements
- 7.3 Market growth
- 7.4 Routeing strategy
- 7.5 Gauge enhancement
- 7.6 Terminals and mothballed routes
 - Table C – Loading gauge classification
 - Table D – Programme for gauge enhancement
 - Table E – Progress with gauge enhancement
 - Table F – Potential routes for reopening
 - Table G – Freight volume, income and costs
- 7.7 Progress with our Ten-Point Plan
- 7.8 Environmental benefits
- 7.9 Summary
 - Table H – Summary of freight specific enhancement investments



This section describes our plans for the development of freight services. We set out the results of our work to understand our customers' requirements and accommodate their forecast demands – a threefold increase in freight traffic over ten years. We describe the work we have done on the freight route strategy, including the evaluation of alternative routes between London and Scotland. We set out our strategy for gauge enhancements including development of a higher W10 gauge on a network of key routes which mirror the motorway network. We have submitted an application to the Department of Environment, Transport and the Regions (DETR) to fund introducing this gauge between London and the Channel Tunnel.



Volume overall...
grew by 12% last
year and we expect
a similar increase
this year

7.1 Progress in 1998

In last year's NMS, we challenged ourselves and our partners in the freight industry to increase rail in the freight market and freight in the rail market. Early results are encouraging. Volume overall, when measured in gross tonne-kilometres, grew by 12% last year and we expect a similar increase this year. Our customers have begun to introduce new locomotives and wagons, increase their share of traditional rail freight markets and develop new ones. Together we are developing new freight terminals and bringing disused facilities back into use.

In addition, we welcome the recent publication of the Sustainable Distribution document by DETR. It contains a number of important developments which will help set the scene for the further growth of the rail industry.

We are pleased to be part of this renaissance in rail freight. We have started to increase the loading gauge on certain key routes so that the industry can address more of the intermodal market. We have streamlined the processes for developing projects and are introducing new equipment to make it easier for our customers to introduce more innovative services. In the last year, more than 100 certificates for freight equipment have been approved by our Rolling Stock Approvals Board, with the introduction of the Class 66 locomotive and the UK-built steel-coil wagon by English, Welsh & Scottish Railway (EWS), and the Class 57 locomotive and new intermodal wagons by Freightliner being particular highlights.

We have reduced the number of delays that we cause to freight trains by over 10% and have developed extra paths on the network whose departure, arrival and transit times more readily meet the market's future requirements. We have become more flexible in meeting customers' requirements by modifying our timetabling procedures to allow them to run more trains at short notice. Over the past two years, the number of freight trains run on short-term schedules has risen by 50% and is now more than half of the total, with a particular increase in trains run at less than 48 hours' notice.

These developments have been achieved largely within the current capacity and capability of the network. Spare capacity remains, for the time being, on most routes and we have identified a number of additional paths on key freight corridors. But, if our customers' market forecasts are to be

achieved, we will need to continue to invest in the infrastructure in anticipation of market demand as well as seek timetabling solutions to accommodate growth in both passenger and freight traffic.

However, in assessing the future, we must sound a note of caution. Some of the recent growth has been in traditional rail freight markets where the increase has been in distance rather than tonnage. Growth in the net tonnes carried has been more modest. The rail industry has not yet made significant advances into the core road freight markets. And, together with other industry parties, we have more work to do in developing a mechanism to keep our track access charges affordable and above our avoidable costs, while simultaneously investing to meet the longer-term market requirements.

7.2 Customer requirements

Over the past six months, we have been working closely with our customers to develop the rail freight market.

This work has included:

- a joint understanding of the market potential. We have used our customers' forecasts in this NMS to assess the potential demand for additional capacity and for improvements in capability of the network.
- a review of the economics of carrying rail freight on the network today which we have shared with key stakeholders.
- reviewing a wide range of operating and development issues. From this work, we have identified a number of areas where we can make further improvements and have agreed targets with our customers to measure our progress.

Overall, our customers have formally identified 194 requirements. We have agreed a way forward on 161. Of the outstanding issues, 14 will be covered by the standard industry processes, or by us providing further information to support our views, eg indicative timetables of future capacity on particular routes. We are developing plans for the remaining 19, having discussed them further with our customers and the Rail Regulator. We have referred to the key points in Table A opposite.

Our customers currently operate around 1,600 freight trains a day on our network for more than 500 individual traffic flows

Table A Review of customer requirements

REQUIREMENT	AGREED	BEING DEVELOPED
Completed	6	0
Process improvements	35	9
Performance	26	2
Track quality	3	1
Track access	9	0
Renewals	5	0
Enhancement feasibility	69	20
Enhancement commitment	8	1
TOTAL	161	33

Table B Trends in freight activity by commodity (millions of gross tonne-kilometres)

COMMODITY	1994/95 ACTUAL	1995/96 ACTUAL	1996/97 ACTUAL	1997/98 ACTUAL	1998/99 FORECAST	GROWTH % PA LAST TWO YEARS	GROWTH % PA NEXT FIVE YEARS	GROWTH % PA NEXT TEN YEARS
Coal	6899	6840	6711	8117	9931	22	0	0
Metals	3625	3722	4193	4531	4420	3	17	6
Construction	3709	3467	3004	3389	3871	14	10	6
Oil & Petroleum	3492	3331	3199	3265	3316	2	12	2
International	1183	2037	2311	2829	2801	10	41	15
Domestic intermodal	5009	5974	6294	7144	9088	20	15	9
Other	7713	6346	6909	7281	9915	20	39	17
TOTAL	31630	31717	32621	36556	43342	15	18	10

Source: Actual – Railtrack/Freightliner Forecast – DRSEWS
See freight growth graph in Section 6.3

7.3 Market growth

Our customers currently operate around 1,600 freight trains a day on our network for more than 500 individual traffic flows, many of which run at least once a day.

The background assumptions on market growth that we made last year remain valid. These include service improvements and cost reductions by Railtrack and the freight operators, some policy encouragement from the Government to shift freight to rail and no fundamental changes to the industry's structure.

The short-term results are in line with expectations. As shown in Table B above, a smaller volume of (imported) coal is being moved over longer distances and remains the largest rail freight activity; international and intermodal traffic are increasing rapidly and there has been good progress in other areas.

We have used our customers' forecasts for the next ten years, supported by the recent policy initiatives from the DETR, in planning the requirements to develop the network. These are also included in Table B and are about three times greater than the most recent industry-wide forecasts produced on behalf of the Rail Regulator in 1997. From this work, we have confirmed that the industry could achieve further annual growth in overall volume of at least 15% over the next five years. This growth could come, for example, from an increase of up to 200% in some current markets and from more than 200 new flows coming onto the network.

We can accommodate
all forecast demand
for at least the next
five years

This forecast would represent a tripling of rail freight activity by 2009 from the base level in 1996, against a background of sustained decline since the war.

Of the forecast:

- international traffic is expected to more than triple and become 10% of all rail freight activity.
- deep-sea intermodal is set to increase by 150% to 20% of the total market.
- new business yet to be won to rail needs to increase fivefold and become 40% of the total.
- about 10% of the increase would result from an improvement in the network's capability with three-quarters of that due to improvements in the loading gauge.

However, achieving this growth will require a reappraisal of the economics of operating and investing in rail freight. We do not expect customers to be able to commit to using current or new capacity well in advance of them securing additional traffic. It would meet the Government's policy objectives if we could keep our track access charges low, to encourage more freight by rail. This was the essence of the track access contract that we developed with EWS in 1997. Since then, rail freight volumes have increased by 12% a year while our income has grown at 2% and, in line with the policy set by the Rail Regulator in 1996, our freight business has recovered its avoidable costs in aggregate.

Committing large sums of money to capacity which is needed a long time in the future, based on high-growth forecasts, is imprudent, particularly when the economics are unattractive to the investor.

We are discussing this major issue with the industry's stakeholders, especially in the light of the proposals outlined in the Sustainable Distribution policy document (see Section 1.6). For planning purposes, we have assumed that current track-access rates will continue.

7.4 Routeing strategy

Together with our customers, we have analysed their expected increase in demand by source and destination, route section, speed band and time of day, including the benefits of improvements in the network's capability. We have then compared this demand with the current capacity and capability of individual routes and the anticipated growth in passenger traffic.

We have confirmed that we can accommodate this forecast demand for at least the next five years across the network. Looking ahead ten years, we have committed to our customers that we can carry their forecast volumes of freight together with all declared passenger requirements within our existing capacity and planned investments on 38 of our 45 routes. In total, these cover 60% of current and half of future traffic volume. We are now developing detailed timetabling solutions to confirm this conclusion.

The remaining seven routes carry significant existing freight, and the majority of the growth. So, we have looked in more detail at:

- growth on the key, longer-distance routes which handle the majority of traffic. These are the West Coast Main Line (WCML) including its connecting branches, the East Coast Main Line (ECML), the Great Western Main Line (GWML), the North London Line, the Glasgow and South Western Line (G&SW), the Midland Main Line (MML), routes between London and the Channel Tunnel, connections between Southampton and the WCML and routes via Birmingham connecting Derby to Reading and Bristol.
- a number of key multiroute flows which account for around 40% of current volume, 60% of the forecast increase and, therefore, more than half of the volume expected in 2009. These flows include Scotland to East Midlands coal, traffic via the Channel Tunnel, the development of the Enterprise network, the Royal Mail business, deep-sea container traffic, domestic intermodal business, and steel traffic within and to and from South Wales and the North East.

- the impact of these flows on several key locations on the network including Leeds, Manchester, Leicester, the West Midlands, Reading, the North London Line and the West London Line.
- the effect on our existing routes of the construction of the Channel Tunnel Rail Link (CTRL) and the opportunities to use it for freight.

From this work, we expect to be able to carry our customers' forecast freight volumes on these seven routes for the next five years, together with all declared passenger requirements. We are now producing indicative timetables for our customers to confirm this conclusion, although, inevitably, forecasting five-year timetables cannot be done with certainty.

To accommodate the highest growth forecasts on these routes for all ten years, we propose the following:

WCML corridor

Under the PUG 2 agreement, we committed to providing an additional 42 paths for passenger and freight. In the past two years, the number of freight paths used on the WCML has stayed static at around 40, while our freight customers are forecasting a demand for more than 150 on some sections by 2009. The West Coast Route modernisation works include, at the south end, the provision for an increase in train length by around 40% which will help accommodate some of this extra demand. To provide a robust solution, we have to finalise one of three options.

- Further investment in the WCML to accommodate all customer requirements which would involve substantial extra track work at a cost of at least £400M. We do not expect the traffic to be able to support this investment; it would have to come from grant funding.
- Displacing some of freight's requirements to other routes such as the MML or an orbital route that avoids London. Some further investment would then be required on those routes.
- Further restructuring of the timetable for all the lines and all operators at the south end of the WCML which could release further capacity for freight.

We will have finalised our proposals with customers and other stakeholders by July 1999, not just for the WCML but also for parallel routes such as those in Route D.

Additional capacity along the ECML Corridor

Freight operator requirements – in terms of capacity, capability and funding – are being incorporated into the upgrade of the main route. This will include the provision of a mainly four-track corridor from London to Newcastle. To achieve this, we will use some parallel routes and reopen the Leamside Line in Durham. At a number of locations, we will create grade-separated junctions to minimise conflicts between train movements. Full details are set out in Route Strategy B.

Felixstowe Port traffic

We propose to transfer port traffic to a cross-country route via Peterborough and Leicester to the WCML at Nuneaton by 2004 to reduce volume on the Great Eastern and North London Line. We also intend to enhance the gauge of this new route. We expect to have proposals by July 1999. They will require grant funding.

London-area capacity

We shall create additional capacity between the eastern end of the GWML and between Acton and Cricklewood along the west end of the North London Line. This would accommodate freight requirements, together with a possible increase in passenger traffic. We will evaluate options with all our customers during this year.

Kilmarnock–Gretna Junction

In addition to the measures already introduced, we will create additional capacity in 1999 by constructing a new loop. This will be followed by further measures to meet freight requirements and the mix with passenger traffic. We will carry out a feasibility study on Gretna Junction to ensure that one of the biggest growth areas in freight traffic can be accommodated.

These plans will include the creation of a third major route between London and Scotland

Channel Tunnel–London

We shall finalise the options for freight traffic between the Tunnel and London during the construction phases of CTRL.

While we have begun to identify the nature of this enhancement investment on these key freight routes, and in several cases started further feasibility work, we are not yet able to meet our customers' requirements to commit to all of them in detail at this stage.

In addition to this work on the key routes, we will also increase the capability of particular routes to improve the competitive position and operating performance of the traffic that they are expected to handle, for example, by enabling them to handle longer, heavier and faster trains. We are launching 'Project Elephant' jointly with EWS to assess the opportunities for customers to run heavier freight vehicles on parts of the network.

Priority freight routes

These plans will provide the needed capacity for freight on existing long-distance routes for several years. However, we would like to do more by developing a network of primary routes for freight traffic and by reopening some important freight links to the network. These plans will include gauge enhancement of a network of routes, the creation of a third major route between London and Scotland, and the reopening of several freight branch lines. We will also be bringing forward plans for developing rail freight within and through the West Midlands conurbation.

Our plans for a third Anglo-Scottish route are based on South West Scotland, the Settle and Carlisle Line (S&CL), the MML and the existing route to the Channel Tunnel via Maidstone which will be a primary freight route when the Eurostar service is transferred to the CTRL. We are currently working on options for the two key gaps in this route which are between the MML and the S&CL and around London. We have made good progress in examining, with Derbyshire County Council and its partners, the options to reopen the section of route between Matlock and Buxton to provide an alternative route between London, the Midlands and North West England.

7.5 Gauge enhancement

The current capability of the network is shown in Section 5.5. During the last year, we have continued to raise the gauge of a number of individual route sections and started a programme to assess the potential of the network to accommodate higher-gauge traffic. More than 300 route kilometres have been moved to higher-gauge categories (details are set out in Table E on page 93).

We have also begun to implement our plans to raise the loading gauge further on a network of key routes.

These include:

- the WCML from London to Glasgow including connections to Birmingham, Manchester and Liverpool.
- two routes from the Channel Tunnel to London.
- routes from the major container ports of Southampton and Felixstowe to join the WCML in the Midlands.
- the GWML from Cardiff to London making a connection to the Channel Tunnel.
- a Trans-Pennine route.
- in addition to developing our upgrade scheme for the ECML, we plan to increase the main-line gauge of both freight primary routes to W10.

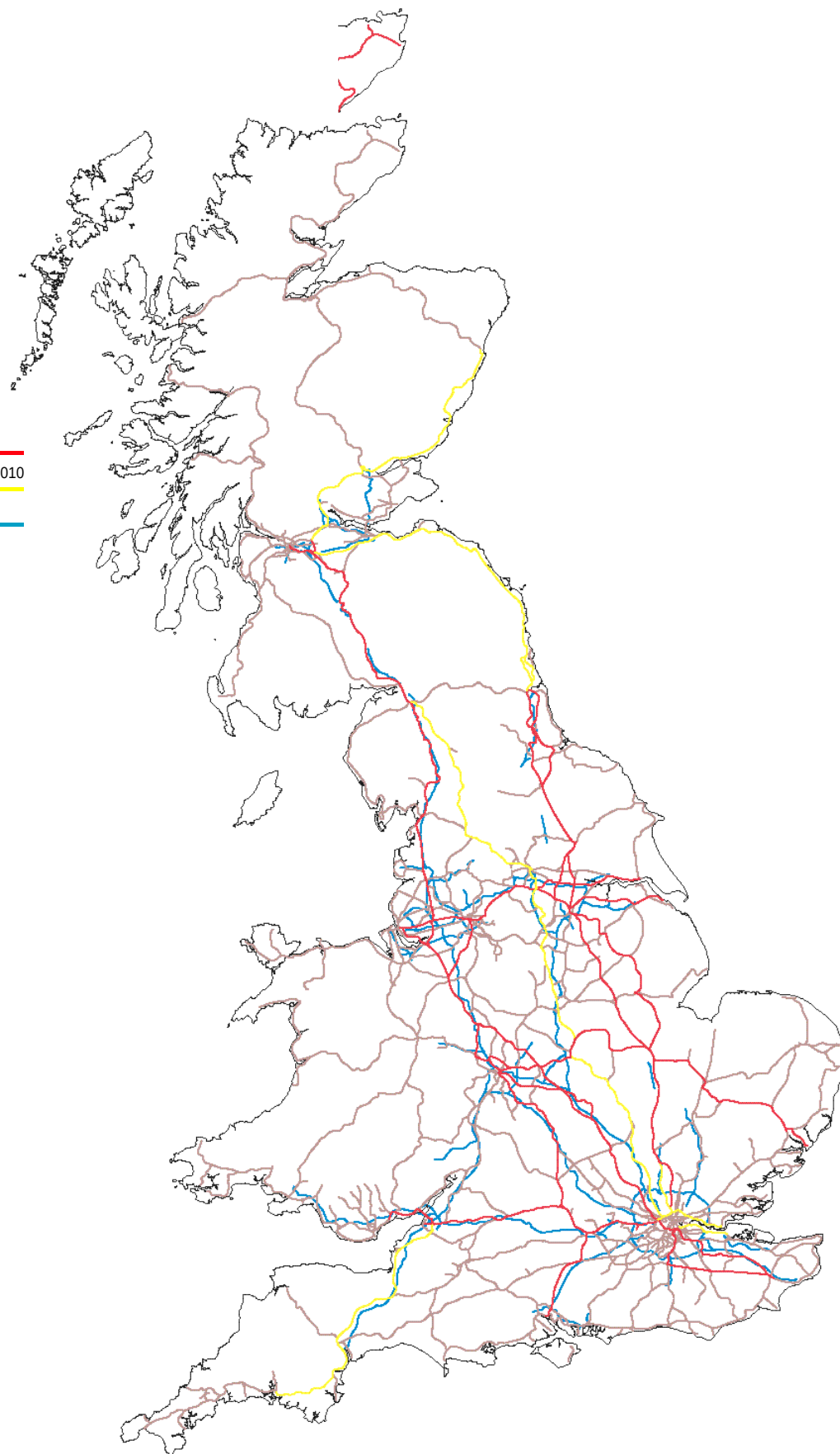
Our objective is to clear these routes initially to accommodate 2.5m-wide loads and to a height greater than UIC A gauge, the commonest gauge in Europe and 25cm higher than the W6A exception gauges for which 60% of our network is currently cleared. These increases would accommodate all the current intermodal W9 market on existing wagon designs and also allow the industry to address more of the road haulage market in piggyback mode with the new wagon designs that are now being introduced. However, where it is necessary to alter a structure, we will seek to clear it to accommodate 2.6m-wide refrigerated units and to a height equivalent to more than UIC B gauge which would allow specially adapted road trailers up to 4m high to be carried on new wagon designs. This will pave the way for the later development of this higher gauge on specific route corridors such as between the Channel Tunnel and Scotland.

**Proposed gauge
enhancements**

W10 gauge by 2005

Additional enhancements by 2010

Motorways



We will have completed the core WCML clearance to W10 gauge without grant funding by December 1999 with the first phase from Daventry–Scotland available from July 1999

At the same time, we are tidying up the nomenclature used to describe the loading gauge (see Table C opposite).

We will have completed the core WCML clearance to W10 gauge without grant funding by December 1999 with the first phase from Daventry–Scotland available from July 1999. We have submitted a funding proposal to the Department of Environment, Transport and the Regions (DETR) to clear two routes between the Tunnel and London to W10 gauge by 2004 with the affected structures moved to W11w gauge in anticipation of the later development of a W11 gauge. This will include a joint programme of work with Union Railways to clear sections of the route between Ashford and the Channel Tunnel to W11w gauge in parallel with the development of the CTRL.

Completing the rest of the programme is dependent on our agreeing further partnership arrangements with DETR. Our proposed programme is set out in Table D (opposite).

We are now reviewing the timescales to see how we can deliver the W10 network much more quickly including extension of the network to include the ECML.

When we have finished this programme, at least 1,892km of the network will be available at W10 gauge as shown in the map on page 91.

Elsewhere, we will continue to clear individual route sections for particular traffic flows in response to customers' requests. To speed up this process, we have launched a nationwide project to assess in greater detail all routes, and the 400,000 structures over them, and to ensure that clearances of more restricted structures are maintained.

7.6 Terminals and mothballed routes

We are continuing to work with a number of parties to develop more freight terminals and to reinstate disused facilities. We have also secured a number of sites and mothballed route sections that are likely to be of benefit to rail freight in the future. Last year, the number of active freight terminals was increased by 20 to 1,055. Particular features have been:

- for the Royal Mail, the completion of the core Railnet network with the opening of new terminals in Warrington and Shieldmuir and the commencement of work at Bristol Parkway. We have also started to develop plans at Peterborough.
- the reopening of the Gedling, Heathfield and East Leake branches to freight traffic.
- the return of rail freight for the first time in years to locations such as Oban, Kyle of Lochalsh, Pembroke Dock, Paignton, Hicks Lodge, Rawdon, Renishaw Park, Brynteg, Broomhill, Rhymney, Lowestoft, Carmarthen, Newton Abbot, Plymouth Friary and Grantham.
- working with developers of major new intermodal terminals at Colnbrook, Tyne Dock, Swindon, Cardiff, Bristol, Aberdeen and Southampton.
- the acquisition of 11 sites from the BRB's property portfolio. Together with our customers, we will continue to highlight this issue.
- the acquisition of a further four sites including the 113-hectare former colliery at Parkside near Wigan and adjacent to the WCML, North Trans-Pennine Route, M6 and M62.
- the publication of the third edition of our Freight Connections Guide which included, for the first time, contact details of local authorities who have identified locations for the future development of rail freight.

Unfortunately, due to changes in market conditions it is unlikely that we will see any traffic in the short term from some 15 other schemes that we have been involved in developing recently, ie Corkickle, Buxton, Agecroft, Tilbury, Clitheroe, Burntisland, Brandon, Sattley Gasworks, Castle Donington, Walsall Tasker Street, Shrewsbury, Swindon scrap sidings, Darlaston, Northampton, Nuneaton. This illustrates the nature of risks involved in the freight market.

When we have finished this programme, at least 1,892km of the network will be available at W10 gauge

Table C Loading gauge classification

RT NOMENCLATURE CURRENT	FUTURE	UIC HEIGHT EQUIVALENT	ROUTE km		STATIC GAUGE		MAX W9 HT		MAX TRAILER HT 330MM ARL***
			CURRENT	FUTURE	HEIGHT ARL*	WIDTH	MULTIFRET**	MEGAFRET**	
<W6	same		3426	3425			n/a	n/a	n/a
W6	W6				3.320	2.700	2.380	2.500	3.190
W6A 8"	W7		2864	2730	3.448	2.500	2.500	2.630	3.320
W6A 8'6"	W8		8708	7702	3.600	2.500	2.660	2.780	3.470
SB1c	W9		1524	555	3.715	2.600	2.770	2.900	3.590
n/a	W10	> UIC A	0	2147	3.896	2.500	2.910	3.030	3.770
n/a	W10w	> UIC A	-	-	3.896	2.600	2.910	3.030	3.770
n/a	W11	> UIC B	-	-	4.130	2.500	3.140	3.260	4.000
n/a	W11w	> UIC B	-	-	4.130	2.600	3.140	3.260	4.000
TOTAL			16522	16559					

* above rail level

** wagon type. Multifret @ 945mm ARL,Megafret @ 825mm ARL

*** with specially adapted suspension

Table D Programme for gauge enhancement

ROUTE	km	TO W10 OR UIC A EQUIVALENT HEIGHT			TO W11 OR UIC B EQUIVALENT HEIGHT		
		KEY STRUCTURES	COST	TIMESCALE	KEY STRUCTURES	COST*	TIMESCALE
WCML north	522	3	1.5	1999	3	66.1	2004
WCML south	120	2	0.5	1999	9	99.0	2004
WCML connections	100	3	15.0	2004	3	25.5	2004
Channel Tunnel London	133	4	29.0	2005	7	73.8	2005
Southampton–Midlands	275	4	27.0	2004			
Felixstowe–Midlands	327	1	50.0	2004			
Cardiff–London	240	3	25.0	2005			
Trans-Pennine	175	6	45.0	2005			
TOTAL	1892	26	193.0		22	264.1	

* to 2.5m wide only

Table E Progress with gauge enhancement during 1998

The following routes have been cleared to W9 (SBI) gauge: Parkeston Quay–Forest Gate, (WCML to Mossend via Shotts and Carstairs)
Newcastle–Holytown Junction via the ECML,Millerhill and Carfin, Warrington–Ditton via Widnes,Trafford Park–Allerton,(Golborne–Ordsall),
Fawley–Marchwood,(Ardwick–Diggle via Guide Bridge), Peterborough–Ely, Coatbridge–Hillington,(Earlestown to Edgehill)

W8 (W6A 8'6") gauge has been provided on Mossend–Grangemouth and to Kyle of Lochalsh via Inverness and Dingwall, Weston-super-Mare–Exeter
(Farringdon Curve–Clitheroe and Hall Royd Junction),Carlisle–Corkickle for certain wagons.

Table F Potential routes for reopening

Railtrack owned: Grimethorpe, Stirling–Cambus–Alloa–Kincardine, Caldon Low, Leamside, Claydon LNE Junction–Bletchley, Rugby–Rugby cement works,
Seaham Harbour, Pensnett,Rock Ferry–Canning St,Bootle Junction–Aintree.

Not Railtrack owned: Nuneaton avoiding line, Rugby cement works–Long Itchington,Dumfries–Maxwelltown,Greenock Princes Pier branch,
Cambus–Menstrie, Lichfield–Walsall,Stratford–Honeybourne–Cheltenham.

We are building on the opportunities that we have identified to improve the transfer of freight between road and rail

We have identified a further 17 route sections from our own and other property portfolios that we may reopen in the next few years (see Table F). Protecting disused sites and terminals is a vital challenge to everyone involved in the rail freight industry. As the Sustainable Distribution document notes it is particularly important that the relevant planning guidance recognises the need to retain locations where there is a realistic prospect of future traffic.

From the first phase of our work with the Highways Agency in England and the Scottish Office, we are building on the opportunities that we have identified to improve the transfer of freight between road and rail. We support the policy of a national framework for major freight interchanges. Our role is to secure suitable locations, facilitate their connection to our network and the agencies trunk road network, and to develop them provided that there is a sensible commercial opportunity and to the extent that others do not take the lead on individual projects.

To underpin this development work and to enable local authorities to contribute further to the development of rail freight opportunities, we will be shortly publishing a new Rail Freight Reference Book in partnership with representatives of local authorities and the freight operators.

7.7 Progress with our Ten-Point Plan

In April 1997, we summarised our initial plans to develop rail freight in a Ten-Point Plan. Since then, the industry has made enormous progress. As we have set out below, some of the issues we identified in the Plan have been addressed, while new challenges have arisen.

1. Reduction in costs

On the basis that we have previously measured our costs, we have continued to make progress in reducing them. Our unit prices to freight customers fell by 7.9% last year while our unit costs fell by 9.7% (see Table G opposite).

However, during the year, we have reviewed in more detail the composition of the fixed and variable costs that we incur in handling particular types of rail freight traffic on certain routes. Although the overall totals of prices and costs are in line with each other, and our pricing structures are

consistent with the Rail Regulator policies, we may need to restructure future track access arrangements to better reflect our new understanding of cost causation. This shows that the variability of our costs as a result of changes in the volume of traffic over the network, is much higher than the current access charges assume. We are discussing this issue with industry stakeholders who share our concern that any necessary increase in our marginal prices to reflect costs, might affect anticipated growth (see also Section 1.5).

2. Better routes for freight

In publishing the route directory in CD-ROM format and on the Internet (www.freight.commercial.co.uk), we completed the first stage of documenting the current characteristics of the network. Since then, we have begun work on assessing the network's potential capability and have set out how we want to improve it further in our freight route strategy. We have also introduced the 'Freightway' concept, a domestic version of the Trans-European Freight Freeways promoted by the EU, to identify existing capacity on the network in anticipation of market demand. The first phase of this work highlighted 27 return, long-distance paths on five key freight routes with departure, arrival and transit times that are competitive with road. EWS has since taken up two of these paths.

3. Service improvements – reduction in delays

Freight customers have also benefited from the improvements in Railtrack's service performance. In the Ten-Point Plan, we set ourselves a target reduction of 5%. Total-minutes delay in 1997/98 were reduced by 21% while the number of trains increased by 5%. Delays per train fell to less than five minutes on average. We expect these trends to continue. We have not yet been able to provide specific information about the performance of our freight-only lines but expect to have fulfilled this customer requirement by July 1999.

We have met our commitments to streamline our processes for developing rail freight-related projects

Table G Freight volume, income and costs

ITEM	1994/95	1995/96	1996/97	1997/98	% CHG 98/97
Volume (mgtkm)	31630	31717	32621	36556	12.1
Track access income (£M)	191	159	159	164	3.1
Freight income (£M)	151	148	147	148	0.7
Unit income (£M/000gtkm)	6.04	5.05	4.93	4.54	-7.9
Unit costs (£M/000gtkm)	4.77	4.67	4.49	4.06	-9.7

4. Service improvements – reduction in transit times

Two years ago, nearly 90% of the trains using our network were restricted to 60mph, often because of the rolling stock. We set ourselves the target of providing up to 20 new paths at 75mph or greater a year. Since then, our customers have introduced 25 new trains at such higher speeds and we have identified a further 22 additional return paths.

5. Development of freight terminals

As promised, we have provided more information on how to develop terminals and to protect sites. We have acquired additional sites and introduced and updated regularly the Freight Connections Guide with the latest edition including details of potential sites provided by local authorities.

6. Piggyback project

With the launch of services for Parcellforce (EWS) and Tankfreight (Freightliner), piggyback traffic is now in operation. As described, we have now started to implement a gauge enhancement programme for the widespread introduction of more higher-gauge traffic. Further development is dependent on grant funding.

7. Improved project management

We have met our commitments to streamline our processes for developing rail freight-related projects. We have simplified our project management requirements, opened up the market to new contractors and methods and improved accountability for delivery. Detailed market research has indicated that we have made a marked improvement in our ability to produce cost estimates more quickly and to complete projects to time and budget, but we are aware that this was from a low base and we still have room for improvement.

Our project portfolio includes 346 projects for delivery over the next two years, of which 51 have been generated in the last year, compared to our target of 20.

8. Open access

We have had 30 enquiries from organisations who are considering entering various aspects of rail freight operations and we are continuing to work with several parties. We will continue to minimise the commercial, technical and operational barriers for new entrants.

9. Systems development

Most of our work is focused on the Year 2000 issue. Nevertheless, we have been able to improve our systems and operations for planning access to the network to give our customers more flexibility and shorter lead times. We have also introduced new invoicing systems and are working with EWS on its introduction of its new Train Control System to support the development of wagon-load traffic. We are now starting detailed work on improved, real-time tracking systems to monitor the location and condition of consignments using satellite tracking systems.

10. Code of practice

After discussion with a wide range of parties, we introduced a Code of Practice in September 1997. A review with the key industry parties a year later did not identify any necessary changes.

The potential social value of rail freight compared to road transport could be £3.1bn per annum

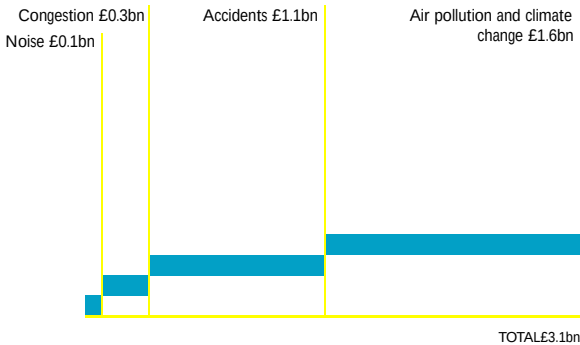
7.8 Environmental benefits

In Section 6.7, we describe the environmental and social benefits of increased use of the rail network. This is particularly so in freight, where diversion of road traffic to rail transport has a significant benefit.

If forecast annual freight growth is 9.1% until 2011, the potential social value of rail freight compared to road transport could be £3.1bn over the same period.

Growth in freight train volume – environmental impact in 2011

Source: analysis by OXERA Environmental Ltd.



7.9 Summary

The rail freight market continues to grow and we are playing our part in achieving that growth. The investments that we are planning to make in the network in the areas of track renewals and capacity over the next few years will benefit both freight and passenger operations. As a result, we are confident that we have the capacity to accommodate potential rail freight growth for at least the next five years. Now that we have our customers' detailed ten-year plans, we have started work on the additional investment required to accommodate a tripling of rail freight in ten years.

The levels of investment that are solely for local freight enhancement operations are set out in Table H.

The major investment required is in gauge enhancement to produce a W10 network, for which we need DETR support, and in further route development, some of which may be funded on the back of major route upgrades and therefore not be freight specific. In most investment in the network, we would expect to take the market and construction risks up front and be reimbursed by external parties. These figures exclude the substantial freight share of network-wide investment in maintenance, renewal and enhancement, such as the ECML upgrade. As we move through the Plan period, we would expect more investment by us and external parties in the development of terminals; current plans are focused on the next few years only.

These forecasts do not include any additional investment that we will need to make to accommodate the longer-term capacity requirements for freight, to produce a W11w capability on certain routes, or to resolve all the outstanding requirements of our customers. We will, therefore, be bringing forward further plans during 1999.

Finally, in table H opposite we have summarised our specific expenditure programme for freight services.

Now that we have our customers' detailed plans for ten years, we have started work on the additional investment required to accommodate that demand which would result in a tripling of rail freight in ten years

Table H Summary of freight specific enhancement investments

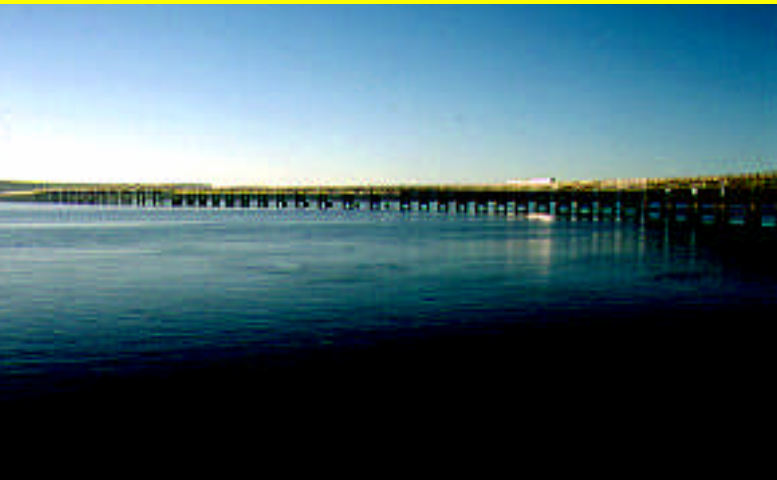
RAILTRACK FUNDING	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	TOTAL
Committed												
Terminal connection <i>etc</i>	5.87	10.84	7.25	5.00								28.96
Specific gauge enhancement schemes	1.36	0.99	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	3.25
Subject to further feasibility work												
Route development	1.37	3.09	3.94	6.86	5.73	4.00	3.05	2.90	5.91	2.56	2.62	42.01
Total Railtrack funding	8.60	14.92	11.29	11.96	5.83	4.10	3.15	3.00	6.01	2.66	2.72	74.22
EXTERNAL FUNDING												
Committed												
Terminals <i>etc</i>	1.20	11.85	2.00									15.05
Grant funding not yet secured												
Gauge enhancement		4.41	22.34	62.43	53.35	38.39	10.10					191.03
Route development				1.73	0.74							2.46
Subject to further feasibility work												
Terminals <i>etc</i>		2.98	2.47	16.28	6.67	4.10						32.50
Route development	0.60	8.50	15.10	9.99	1.40	1.11		0.50		1.25		38.49
Total external funding	1.80	27.74	41.91	90.43	62.15	43.60	10.10	0.50		1.25		279.53
TOTAL FUNDING	10.40	42.66	53.20	102.39	67.99	47.70	13.25	3.50	6.01	3.91	2.72	353.75

Note: Freight trains are approximately 10% of all train movements. Freight share in over £1.45bn of asset-related investment in 1998/99 and £710M in maintenance are excluded from the table.

Scotland

8 Scotland

- 8.1 A new Scottish Agenda
- 8.2 The Scottish rail industry
- 8.3 Investing in Scotland
- 8.4 Serving Scotland today
- 8.5 Vision for the future



This section provides a summary of the plans for the network in Scotland. It is a synopsis of a more detailed plan set out in our NMS for Scotland. We set out customer and market needs and aspirations, how we work with customers and the various branches of government to understand these, and how we are developing these inputs into a coherent plan for the rail network in Scotland.



The Scottish people in 1999 have an ideal opportunity to set a new transport agenda to serve their needs

8.1 A new Scottish Agenda

With Scotland acquiring its first Parliament in 300 years, and governments worldwide now considering environmental impacts of transport policy, the Scottish people in 1999 have an ideal opportunity to set a new transport agenda to serve their needs.

We believe that Scotland's railway industry can support a variety of policy initiatives to deliver a strong economy, a clean environment and a more inclusive society by:

- improving reliability and punctuality to make public transport a realistic alternative for more people.
- preparing the infrastructure for further growth in freight and passenger trains.
- using our own refurbishment of stations and railway linesides to encourage regeneration partnerships for communities closest to the rail network.
- increasing accessibility to rail travel for all by enhancing facilities and integrating the Scottish rail network with other modes of transport.

In this section, we report on our progress in the last year using the broad headings of performance, growth and quality. We then set out our vision for the next ten years and beyond, listing opportunities for partnership as well as confirmed commitments.

As rail infrastructure controller, Railtrack can take a longer-term perspective than some of our industry partners and accept our responsibilities as strategic leader of the Scottish railway industry. However, we are mindful that such leadership must be built around serving Scotland's people.

Scotland's transport market

The Scottish Office 1998 Transport White Paper, *Travel Choices for Scotland*, acknowledged that Scotland faces some distinctive transport challenges such as physical geography and peripherality. Within Scotland, the distances which commerce and industry must travel to do business are substantially greater than elsewhere in Britain.

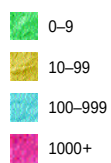
Scotland's population settlement pattern differs from England's. Scotland has one-third of the landmass of Britain but less than a tenth of the population. Two-thirds of Scotland's 5.1M population resides in the Central Belt. In these areas, there is pressure on urban road space. Conversely, good opportunities for the development of affordable public transport exist (eg Strathclyde has the largest suburban rail network outside London). Beyond the Central Belt, population density can be very sparse (see map opposite).

This comparatively low population density means that many of Scotland's passenger railways fulfil an essentially social role. Although the main Anglo-Scottish rail corridors, known as the East and West Coast Main Lines, and some parts of the ScotRail-operated Glasgow–Edinburgh–Aberdeen–Inverness express route do offer opportunities for conventional commercial schemes, many proposed enhancements to Scotland's railways will offer societal rather than commercial benefits. More than in other areas of Britain, private–public partnership is central to our investment approach.

Scotland has traditionally had lower car ownership than elsewhere in Britain. In 1997, there were 39 motor vehicles per 100 people in Scotland, compared with 48 in England and Wales. However, road is the dominant mode of transport in Scotland. In many cities and towns, congestion is a growing problem, yet roads remain vital to the communication needs of our people and industry.

It is widely recognised that too much vehicle usage is damaging the environment. Road transport is responsible for 80% of all transport emissions and is the fastest growing source of emission of carbon dioxide. GB already has a domestic target of reducing carbon-dioxide emissions by 20% from 1990 levels. For all these reasons, there is now a desire in Scotland to develop the rail network to present a realistic alternative to road for both passengers and freight.

**Population centres and
density per square
kilometre compared
with the rail network**



Base map ©MAPS IN MINUTES™1997

In partnership,
the railway can
be enhanced to
ease issues of
peripherality

The new Scottish Parliament provides a welcome opportunity to implement fresh approaches to Scottish transport policy, particularly encouraging partnerships between the rail industry and government at all levels. The 1998 White Paper included the possibility of hypothecating congestion charges to support public transport. We would welcome such an imaginative measure early in the Scottish Parliament's legislative programme.

In the past three years, we have delivered growth through commercial acumen. For example, we speculatively improved gauging on the Highland Main Line to attract potential freight customers and, in partnership with Strathclyde Passenger Transport, have submitted the very first Private Finance Initiative application for an urban railway.

We have also devoted resources to developing a detailed technical and commercial understanding of Scotland's rail infrastructure as well as the passenger and freight markets which it serves. We believe that railways have a significant role to play in relieving Scotland's current congestion 'black spots'.

There are opportunities for government to advance social inclusion and reduce rural isolation by working in partnership with Railtrack's ambitious programme of regeneration of railway stations, already under way in many Scottish communities. In partnership with Scottish local and national governments, the railway can be enhanced to ease issues of peripherality.

We now believe that, with our industry partners, we have the knowledge, vision and expertise to create the finest railway for Scotland. Before reporting on our delivery of that agenda in the past year, however, it is appropriate to provide an introduction to our key Scottish railway industry partners.

8.2 The Scottish rail industry

Railtrack, as owner of the nation's rail infrastructure, recognises its pivotal role in delivering the industry's vision for the 21st century.

Our assets in Scotland are summarised:

Route kilometres	2680
Track kilometres	4192
Electrified kilometres	1183
Number of stations	333
Number of light maintenance depots	10
Number of bridges (excluding culverts)	5198
Number of tunnels	81
Number of power signal boxes	18
Number of mechanical signal boxes	72

During 1998, our focus was on developing future strategies for our assets and routes. A major consultation exercise was undertaken with all our passenger and freight train operators to reaffirm their requirements of us, agree priorities for delivery and identify those which can be developed further, including those which will be candidates for partnerships with government. This customer-reasonable requirements exercise is described in detail in Section 1.10. Some of the key issues of importance to our major customers and their key initiatives follow.

ScotRail

ScotRail is our largest customer in Scotland, operating approximately 2,000 trains each weekday.

Their principal franchise commitments were to introduce 38 three-car electric multiple units for use on the Strathclyde Passenger Transport (SPT) network and nine new three-car diesel multiple units for use on the Edinburgh–Falkirk–Glasgow route by May 2000. ScotRail has exceeded these commitments by ordering a total of 40 electric and 24 diesel units to allow for growth and service expansion. These will be progressively introduced into service from July of this year. We are working closely with ScotRail to ensure that the network is ready to support these new trains.

A major consultation exercise was undertaken with all our passenger and freight train operators to reaffirm their requirements

ScotRail also made a commitment to provide a number of service enhancements, including doubling the frequency between Glasgow and Edinburgh to provide a 15-minute frequency service. We have work currently in progress enhancing the signalling, stations & depots to enable these services to operate.

Strathclyde Passenger Transport

As the statutory public transport authority for west central Scotland, SPT provides the specification for ScotRail services that operate in their area and monitors the quality of service provided. SPT is also responsible for developing strategic proposals for the expansion of the rail network in its area and ensuring proper interchange with other modes of transport.

We work in partnership with the SPT to develop and implement service enhancements. A major success has been the first Private Finance Initiative (PFI) application in the restructured rail industry which could bring substantial benefits to Larkhall and other communities in the SPT area.

We are actively working with SPT on further initiatives to provide more train paths, in particular, upgrading the Barrhead to Kilmarnock Line to allow a half-hourly service to operate and providing of a rail link to Glasgow Airport, possibly incorporating a cross-city link. The map on page 114 illustrates these and other key initiatives currently being developed in partnership with SPT.

Anglo-Scottish Services: Great North Eastern Railway (GNER), Virgin Trains

GNER provides long-distance services along the East Coast Main Line including selected through-services from London and North East England to Glasgow, Aberdeen and Inverness. There is significant and continuous underlying growth in demand for these services.

The East Coast Main Line between Edinburgh and London is now running out of capacity to carry more trains and meet the growing needs placed upon it. We are currently planning a substantial upgrade. This is outlined in Route Strategy B.

We are supporting GNER by providing more train paths from Glasgow and Edinburgh to London King's Cross and enhancing facilities, eg a new First-Class lounge for GNER customers at Edinburgh Waverley Station. For the longer term, we are reviewing Edinburgh Waverley Station, in an attempt to provide additional capacity and a facility suitable for the nation's capital.

On the west side of Scotland, we are working with Virgin Trains as it prepares to operate an entirely new service over the upgraded infrastructure of the West Coast Main Line. This is detailed in Route Strategy A. Virgin Trains plans to introduce new tilting trains improving both quality of travel and journey times over cross-country routes to and from varied destinations in the south.

These operators will benefit from our programme to refurbish and enhance station facilities, including those at Dunbar, Motherwell, Lockerbie, Edinburgh Waverley and Glasgow Central. Improvements have also been carried out at Craigmiles Depot.

Freight: English Welsh and Scottish Railway (EWS), Freightliner and Direct Rail Services

The freight renaissance within Scotland continues apace. Both EWS and Freightliner continue to register strong growth, in line with the 16% that was recorded last year. Freightliner's terminal at Coatbridge is now the busiest inland container terminal in the UK. The third national freight operator, Direct Rail Services has recently begun operations to Torness and Hunterston.

Network capability and accessibility are key issues for the freight operators. We are working to increase gauge clearance and axle loads for new locomotive types and provide for increased train lengths, wherever feasible. We are actively working towards upgrading the East Coast Main Line and Shotts routes to W9 (SB1c) gauge to allow Swap-body traffic and we will open the West Coast Main Line to Coatbridge for W10 gauge by mid-1999.

We have also recently improved the capability of the route between Mossend and Inverness to enable refrigerated container traffic to be conveyed.

Since 1995/96, we have reduced the total direct delays caused to our customers by 40%

8.3 Investing in Scotland

Through its contracts with train operators, Railtrack indirectly receives substantial payments from the public purse.

Railtrack's main source of income in Scotland is from ScotRail. In 1998-99, ScotRail paid Railtrack £189M for track access, station and depot leases. Railtrack also generated approximately £58M from other track access, station and depot leases.

In addition to the £79M spent on maintenance, Railtrack invested a further £171M during 1998/99 in the Scottish rail network. Further details of our 1998 investment programme in Scotland is contained at the end of this section and in our Route Strategies.

For comparison, the latest available figures for the Scottish Office motorways and trunk roads programme are 1997/98 when £170M was spent on the infrastructure of Scotland's trunk roads. Of this £88M was spent on renewals and £10M on enhancements. The remaining £72M was spent on maintenance.

To tackle the challenge of providing meaningful accountability, Railtrack and its industry partners have agreed with the Rail Regulator a series of output indicators to demonstrate the effectiveness of investment and maintenance expenditure. These are shown in Section 5. Broadly, however, these can be reviewed on delivery against the simple headings of:

- Performance: better reliability and punctuality of train services.
- Growth: more services, shorter journey times.
- Quality: more attractive stations, better lineside environment.

8.4 Serving Scotland today

Delivering performance: better punctuality and reliability

The challenge of attracting passengers and freight hauliers off the roads and onto the railway begins with a very simple but ambitious first step: ensure that the reliability and punctuality of rail services is as good as it can be.

Since 1995/96, we have reduced the total direct delay caused to our customers by 40%. During 1998/99, those delays which can be attributed to failures of the infrastructure (and thereby clearly within Railtrack Scotland's control) were reduced by a further 13%.

However, train delays caused by severe weather have increased during this winter. This included extreme flooding in October and the worst storms in 30 years on the west coast in the Christmas holiday period. Under the industry's performance regime, these delays are automatically attributed to Railtrack. This, together with the higher levels of delays caused by acts of vandalism and road vehicles striking railway bridges means that, at March 1999, our overall level of performance is on a par with the previous year.

To reduce the Scottish rail network's vulnerability to the effects of extreme weather, we have erected detection equipment for measuring wind speed on particular structures. We have also invested in remote condition monitoring equipment, which means that it is now possible, on receipt of a cold-weather warning to test from Railtrack Production Control in Glasgow whether individual point heaters are working in Edinburgh. If a failure were detected, remedial action would be taken overnight before the morning start-up.

One of the wettest winters on record has tested our flood prevention investment measures (£1.5M in 1998/99). This included the installation of new drainage systems at Corrour, Croy, Dullatur, Lochwinnoch and Winchburgh. Known trouble spots across the Scottish network such as Law Junction, Lochwinnoch, Bishopbriggs and Dalmarnock all showed marked improvement this winter. We are also looking beyond the boundaries of our own lineside, working in partnership with key organisations such as Scottish Environmental Protection Agency and the National Farmers' Union Scotland. Alteration of traditional farmfield drainage can cause flooding onto the railway line and joint solutions can help both parties.

Standards set for the integrity of railway equipment are also being reviewed and amended as our understanding of the causes of delays grows. For example, in Scotland new overhead-line electrical equipment must now be able to withstand winds of 120mph.

During 1998, the company identified the top 200 route sections which contained 2,700 items of equipment considered to be vital for performance, 93% of these comprise track circuits and points. In Scotland, we have 262 such pieces of equipment. We have agreed with our maintenance contractor that a number of these should be placed on an enhanced maintenance regime. This includes OLE equipment in and around Glasgow Central, points and track circuits at Edinburgh Abbeyhill and Princes Street, Haymarket, Monktonhall, Drem, Newbridge, Carstairs South and Glasgow Queen Street. At other locations, specific elements of the enhanced programme are being applied.

The same approach has been applied to each route in Scotland. This has created priorities for renewals or the installation of new equipment to achieve higher standards in durability and reliability. For example, axle counters were installed at Saltcoats where bad weather frequently caused delays through sea water damaging the existing electrical track circuits.

Using this increased knowledge of the performance and condition of our assets, Railtrack's ongoing objective is to reduce the impact of maintenance work on train services by improving our planned preventative maintenance with our infrastructure maintenance companies (IMCs). In Scotland, we are pioneering for the rail industry a partnership approach to maintenance contracts. Following tendering in 1998, First Engineering and Railtrack formed a Strategic Alliance for maintenance in Scotland.

These contracts provide fundamental changes in working practices to deliver a more reliable rail network in Scotland, both preventing infrastructure failures and improving our ability to recover. Instead of teams built around a single engineering discipline, First Engineering is providing multidisciplined rapid-response teams dispersed across the Scottish network closely aligned with our identified critical assets.

Railtrack and First Engineering are continuing to invest in 'next generation' maintenance equipment to improve effectiveness such as First Engineering's new welding equipment and techniques and our remote electronic monitoring equipment.

More passenger and freight trains on the network reduce the opportunities for maintenance work and therefore early detection of deterioration has become more important. Techniques, such as aerial photography to alert engineers of works required to cuttings and embankments, have been usefully employed in Scotland to identify potential failures allowing remedial work to be undertaken before failures occur. Railway assets work in a hostile environment. Parallels with industries in the North Sea have led to useful exchanges of technology including painting and access techniques for the Forth Bridge.

To reduce delays caused by road vehicles striking railway bridges, our approach has been both in terms of education and engineering. Railtrack has campaigned for road hauliers and bus companies to improve their route planning techniques, and has even sponsored the distribution of route atlases. We also continue to work closely with local authorities to help improve signage for low bridges, including trials of special lights and luminous paint. While safety remains our primary consideration, we have risk assessed all Scottish railway bridges to understand the consequences of a strike by a road vehicle. Where the engineers have established that the track will be undisturbed, bridges are specially signed indicating that they are fit to carry trains even after a bridge strike.

A combination of enforcement and education will hopefully improve safety and reduce delays caused by the misuse of level crossings. To detect and deter offenders, event recorders at selected Scottish level crossings have been installed. A Railtrack public safety awareness campaign is being initiated in spring 1999 providing Highland hotels and guest houses with leaflets to remind visitors of the proper use of level crossings.

Preparing for this growth without sacrificing punctuality and reliability is perhaps the most exciting challenge to face a whole generation of Scottish railway employees

Managing growth is always challenging and there are inevitably some areas where we could have done better. To deliver the substantial renewals and maintenance expenditure which will ultimately improve the reliability of the Scottish network, Railtrack must mobilise large numbers of engineering contractors safely on and off the network at specified times. Working with contractors, we have developed the role of the person who is responsible for a section of the railway when engineering works are being carried out, the 'Possession Manager', with the objective of making the work site safer and more efficient.

Poor planning of engineering work has led to some weekend-work over-running causing cancellations and delays to services in Scotland. We are currently working closely with identified contractors to remedy this.

The increase in rail traffic on the Scottish network has contributed to an increase in the number of broken rails. An extensive programme of inspections has been initiated and analysis undertaken to understand the causes. To minimise the impact of broken rails, more lineside staff is being trained in the use of clamps and bridging pieces. A £77M three-year programme of track renewals in Scotland is under way with priority given to minimising the impact of emergency speed restrictions due to the condition of the track.

In 1999/2000, Scotland will deliver its share of the 7.5% performance improvement target agreed by Railtrack. At the same time, there will be a rapid increase in the number of trains operating in some areas of Scotland, eg the doubling of the ScotRail service between Edinburgh and Glasgow. Preparing for this growth without sacrificing punctuality and reliability is perhaps the most exciting challenge to face a whole generation of Scottish railway employees.

Delivering for growth: investment for more services and shorter journey times

We are already investing for growth. The £2.2bn being spent on the WCML by 2005 will see a doubling in the number of trains between Euston and Scotland and a reduced journey time of under four hours. On the ECML, we predict that demand will exceed capacity. We are planning upgrades to provide the appropriate infrastructure to meet the industry forecasts, with a target journey time of 3 hours 30 minutes between London and Edinburgh.

Following the entry of ScotRail into the private sector in April 1997, the last of the British Rail Train Operating Units to be franchised, we have been able to improve its understanding of the opportunities for growth in Scotland. There are clearly developments which the commercial business case will support and those which will require partnership with government to proceed.

We have analysed the potential growth in each of the strategic routes over the next ten years. This has identified passenger growth of up to 30% on the routes connecting Glasgow–Edinburgh–Aberdeen–Inverness–Glasgow and up to 35% in the Strathclyde area.

The number of ScotRail trains per week is projected to rise from around 12,000 to over 14,000 – an increase of almost 14%. Across our West, Central and East areas, the increase in train kilometres per week is between 20% and 24% by 2001. In the North, in the summer timetable for 2000, there is already a predicted increase of 13.5% in train kilometres while the southwest area will see around 10% growth.

In our 1998 Statement, we set out our first analysis of the locations on the British network which were either currently or likely to be carrying close to the maximum number of train paths within ten years. In Scotland, these included:

- The approaches to Glasgow Central – signalling renewal will improve performance and hence capacity.
- Between Kilmarnock and Gretna – the construction of an additional loop facility for 2000 will provide additional capacity to that already made available by opening the signal boxes for longer hours.
- Between Edinburgh Haymarket & Midcalder Junction – we can cope with additional trains by adjusting the timetable in agreement with our customers.

Further details about all of these are set out in the relevant Route Strategies.

We have started a comprehensive programme of projects to deliver infrastructure that will reliably carry the predicted growth of rail traffic in the Central Belt and east coast of Scotland in the next two years. We are confident that there already exists the capacity for these additional services, including the new Class 170 Turbostar trains which ScotRail will operate from September on the Edinburgh–Glasgow 15-minute frequency shuttle service and from January 2000 on the Edinburgh to Aberdeen route.

Our current efforts are focused on improving the reliability of the network. Our goal is to eliminate disruptive engineering possessions on the Edinburgh–Glasgow route for at least two years.

At one end of the scale, we have installed more reliable, modern signalling equipment at a total cost of £25M for 21 route kilometres around Cowairs signal box with further work planned to complete this project by May 1999. On a smaller scale, we have delivered improved drainage at locations such as Winchburgh and Croy and agreed a new maintenance regime for Falkirk High Tunnel. We have worked with East of Scotland Water Board to resolve water ingress at Haymarket Tunnels which has repeatedly damaged the track-circuit equipment.

To assist in reducing journey times, we are targeting the following: Edinburgh–Glasgow (two minutes in 1999), between Aberdeen–Inverness (five minutes later this year), Edinburgh–Aberdeen (ten minutes by 2001) and a ten-minute reduction between Perth and Inverness.

A key part of supporting growth in the number of trains on the network is to find ways of improving existing journey times. Railtrack Scotland has recently attracted funding from the International Union of Railways (UIC) to promote research into new standards of track geometry which could help reduce journey times on routes throughout Scotland. The first route to benefit will be Edinburgh–Aberdeen, where Railtrack is currently investigating ways to improve speeds for ScotRail, GNER and Virgin Trains services.

This route will pioneer the application of these new standards and the funding will allow us to prepare evaluations of the cost and benefits. This data will be shared with railways in Europe. The ultimate aim of the UIC's scheme is to create design standards for trains and track which will allow complete European interoperability. Our work is recognised as making a significant contribution to that aim.

Other work on reducing journey times includes Aberdeen–Inverness where work has begun to deliver route enhancements at a cost of around £2M to reduce the journey time by ten minutes in 2000. In early 1999, we successfully ran trials for the first three-minute reduction. On the Far North Line, between Inverness–Wick and Thurso, the 'Georgemas Plunger' was commissioned in February 1999 and up to five minutes' reduction in the journey time will be timetabled shortly.

In 1998, two new stations were added to the Scottish network funded by external parties. Fife Council financed a new station at Dalgety Bay (cost £1.8M) while Strathclyde Passenger Transport financed a new station at Drumfrochar (cost £750,000) in Inverclyde. Through a partnership of Railtrack, Highland Council, ERDF, and Highland Rail Developments, Beaulieu Station will reopen during 2000, subject to Her Majesty's Railway Inspectorate approval and a successful bid in May 1999 for EU partnership funding.

Convenient facilities for freight loading are essential for growth. To support this, we have reopened two sidings at Arbroath and Lugton and two new freight sidings were added at Holehouse and Kyle of Lochalsh. Overall in Scotland, we have activated 34 sidings since 1995.

During 1998, we spent £300,000 on the clearance of Killiecrankie Tunnel and other structures to enable W8 container traffic to move on the Highland Main Line. This assisted EWS and Safeway in securing a £600,000 freight facilities grant for delivery of supermarket goods by freight train before 06.00 in Inverness. The first train will run in March 1999 and by May, there will be one train per day. This traffic alone will save 6,000 lorry journeys each year on the A9 with the potential for this to grow to 10,000 or more.

Scotland has an enviable safety record which we are continuing to improve upon year on year

Also in 1998, we connected the Royal Mail Depot at Shieldmuir to the West Coast Main Line near Motherwell, a £2.9M project financed by Royal Mail. We also facilitated trial loading on the main line at Grangemouth to test the capability of freight. We will, this year, analyse and progress the feasibility report that has now been completed into the reopening of the line from Stirling to Alloa and beyond to Longannet.

This summary of projects delivered to support growth is not exhaustive but gives a flavour of the diverse schemes which have been completed in 1998. Indirectly, however, great impact on growth can be achieved by raising the quality of the railway operating environment, and the passenger's individual experience of the rail travel product.

What we delivered in 1998 – safety and quality

As is often stated, safety is at the heart of all that we plan and implement. Usually accidents arise from a combination of mistakes by people or failure of equipment and systems. Although rail travel is recognised as one of the safest modes of transport, there is always room for improvement. Scotland has an enviable safety record which we are continuing to improve upon year on year.

Together with ScotRail and other industry partners in Scotland, we have recently introduced a 'Confidential Incident Reporting & Analysis System' – CIRAS – where mistakes and concerns can be confidentially reported and discussed.

Improved quality, as evidenced by the provision of a better experience for existing passengers in terms of station facilities or smoothness of ride, will encourage more travel. Making stations more inviting with better lighting and security measures such as CCTV and Help buttons will remove deterrents for many sectors of society. While there is ample research to show that most people need a fiscal incentive to stop using their own vehicles, in reality, unless public transport providers can improve the quality of their travel experience, any government policy will fail.

Back in 1997, we committed £128M to be spent in Scotland by 2001 to bring stations and depots back to a condition where they can be maintained by the leaseholder. In addition, £35M was allocated to Glasgow Central where the restoration of the glass roof, refurbishment of the 'Hielanman's Umbrella' and masonry repairs to this Grade A Listed Structure have been endorsed by the Glasgow City of Architecture 1999.

Edinburgh Waverley refurbishment is also additional to our original commitment. We started the programme in July 1997 with completion targeted for May 1999 which includes: better road traffic management, drainage improvements, pedestrianisation of the concourse and improvements to the shops.

In the longer term, improvements to the track layout will be required at Edinburgh Waverley to enhance the service for our customers. We are proposing a major upgrading including a significant commercial development to facilitate this. This will offer more flexibility for one of the busiest parts of the Scottish rail network and provide the capital with a first-class transport interchange close to the Holyrood site of the future Scottish Parliament building.

Given the architectural beauty and World Heritage Site status of the area surrounding the station, we are proceeding prudently in developing its concepts and eventual plans. In November 1998, a draft provisional order to ease the maximum height restriction for the station roof by two metres was submitted to the Secretary of State for Scotland. This will be subject to a Parliamentary Commissioners' Hearing during the summer of 1999. Only once the issue of the height restriction is resolved will the company begin to develop detailed plans in consultation with heritage experts and representatives of the community and the station users. These will be subject to the usual local authority planning permission processes.

Apart from these two Scottish major stations, the extent of work required varies. New stations such as Camelon require no work, while at Glasgow Queen Street Station, over £15M is being invested including the complete renewal of the roof. In the summer of 1998, Railtrack completed its 50th Scottish full-station make-over under its £128M programme and by September 1998, work had started on either the design or implementation stage at over half the stations on the Scottish network.

In 1998, regeneration work was completed at stations as diverse as Dundee and Dalmeir, Annan and Ayr, Monifieth and Milngavie, and Kingussie and Kilwinning. In some locations, additional work has been carried out either in partnership with train operators or with the local community as part of a wider policy of regeneration.

An excellent example of this partnership approach was at Aviemore where a £900,000 refurbishment of the station was combined with funds from the Aviemore Partnership to create a project of just under £2M. The steam-train services operated by the neighbouring Strathspey Railway Company have been relocated to the redundant island platform giving them a more accessible and visible passenger terminus. The careful heritage theme to the renovation was recognised by a 'highly commended' in the prestigious Ian Allan Heritage Awards 1998.

Improving the passenger's sense of personal security through CCTV and improved lighting remains high on Railtrack's agenda in Scotland. Working with ScotRail and the SPT, we are spending £3M providing CCTV. In the East of Scotland, we have provided a new CCTV control centre at Dunfermline linking 17 stations, while in the West, a further 16 stations in the SPT area are being linked back to a CCTV centre. Construction work at Dunfermline will be completed in May 1999. As part of the provision of CCTV, station lighting has been improved and Help buttons provided.

We recognise that integrated facilities at stations are important. This is not restricted to buses arriving and departing to a synchronised timetable with trains but includes easy access to timetables for all modes of transport, improved cycle facilities as well as the ability to call for taxis etc. We are working in partnership with other transport operators and local authorities to deliver such improvements.

Accessibility remains a challenge at some Scottish stations.

Working in partnership with train operators and local authorities during 1998, lifts were provided by local authorities at Stirling and at Linlithgow. Railtrack and SPT have agreed jointly to provide lifts at Paisley Gilmour Street where work should be completed in 1999. At Edinburgh Waverley, lift access to the new GNER First-Class lounge has been provided. Simpler improvements such as ramps were provided at many stations including Dingwall, Greenock Central and Invergordon.

In partnership with ScotRail, induction loops for the hearing impaired have been provided at 99 stations ensuring all manned stations in Scotland now have this facility.

Improving baby care facilities at stations is under review with Scottish train operators and, in late 1998, a new facility, accessible from the concourse level, opened at Glasgow Central. A further six stations will have similar facilities later this year.

We have recognised the customers' requirements for improved information systems and are installing new and improved systems at ten locations including Polmont, Haymarket and in Ayrshire.

In the longer term, we hope to use interactive computer technology at stations for travel information and to assist passengers to plan their journeys, we have provided timetable information on Railtrack's Internet pages. These are updated twice a week to incorporate information about engineering work.

While Scotland has among the highest quality of track (see Section 5) on the network, we regard further improvements in the quality of the ride as a priority. Track renewal totalling £36M has been carried out in 1998/99 with emphasis given to those areas which have deteriorated most. This will continue next year with additional work in Fife, on the G&SW and on the ECML.

In July 1998, Railtrack published its first Corporate Responsibility Review, an annual assessment of the way in which the company has discharged its obligations for stewardship.

Railtrack accepts its role in leading the development of a strategic agenda for the rail industry in Scotland

Working with Scottish Business in the Community and Scottish Employee Volunteering Initiative, our employees accepted a challenge to take their professional skills back into the community. Supported by a range of Scottish rail industry suppliers, Railtrack Scotland employees raised funds, secured machinery and materials, and then provided the manpower to carry out a £60,000 facelift to the grounds of Antonine Court for the Drumchapel Disabled Action Group. They also raised funds, including a sponsored abseil from the Forth Bridge, for a new computer training facility. This initiative was awarded Best Scottish Employer Supported Challenge 1998. This year, we are carrying out renovation work at 'Milestone House', Edinburgh.

Our new focus on stewardship delivered a number of pilot schemes during 1998 on environmental issues. Railtrack has pledged to meet, and exceed, its legal obligations and contribute further towards making the rail network a model of 21st-century transport. Working with Tidy Britain Group and Keep Scotland Beautiful, we are developing long-term solutions for the removal and management of waste in partnership with our lineside neighbours. As part of this policy, Railtrack Scotland has piloted Project Vista, a zero-tolerance approach to lineside graffiti, litter, fly-tipping, including operational waste and weeds.

An enhanced 24-hour-a-day Railtrack Helpline on 0345 114141 (calls charged at the local rate) is now available for those who wish to report concerns about the condition of their local railway lineside.

8.5 Vision for the future

As stated in Section 8.1, the Scottish people in 1999 have an excellent combination of opportunities to set new priorities for transport to serve their distinctive needs which arise from Scottish geography, population settlement and peripherality.

Railtrack accepts its role in leading the development of a strategic agenda for the rail industry in Scotland. Senior Railtrack Scotland managers are already participating in the National Forum for Transport and other initiatives to improve transport planning. We believe that rail can contribute not only to strengthening the Scottish economy but can become a cornerstone of the nation's policies to protect the environment and promote social inclusion.

Our vision is that transport in Scotland will be fully integrated with each mode working together meeting the needs of the customer, serving commerce and industry, improving the environment and the quality of life in Scotland and beyond.

While we recognise that any vision requires a considerable amount of effort, the railway industry is able to provide the necessary commitment, expertise and experience to realise that vision. As a provider of infrastructure for long-distance, urban, rural and freight transport, Railtrack is at the heart of the Scottish transport system.

Long distance – Anglo-Scottish services. There is now positive evidence of growth in passenger journeys, with significant increases in the number of people travelling and the number of train paths required by GNER and Virgin Trains. This is only the beginning. Our vision is of fast, frequent trains connecting Scotland's new Parliament in Edinburgh to Westminster and the Welsh Assembly in Cardiff. Indeed, with the completion of the Channel Tunnel Rail Link, Members of the Scottish Parliament in Edinburgh could be little more than a six-hour train journey for Members of the European Parliament colleagues in Brussels. Similarly, links between Glasgow's commercial centre and the manufacturing centres of England and Wales will be strengthened by high-speed train travel. Contrary to views held less than a decade ago, the advent of the computer revolution has not reduced the demand for travel. Our

There are vast areas where very few people live making the cost of providing public transport uneconomical

analysis shows that travel is growing with increases in leisure time and disposable income, allowing more people to take holidays and breaks, travelling directly by train to the English 'Riviera', the Millennium Dome, Norfolk Broads, the Welsh mountains or the Scottish Highlands. Business people can use the train to maximise their working day, with the freedom to use computers, make telephone calls or conduct face-to-face meetings, none of which can be safely or conveniently carried out using other modes of transport.

Our vision is of a railway industry that is used by a large number of people for all of these reasons and more, and at the same time benefiting the environment and the economy of the country with a reduced demand for road construction and maintenance. However, we recognise that this will only come about if the total experience is correct. This means faster trains travelling at speeds of 140mph or more, arrival times where being punctual is the norm, with levels of comfort giving a smooth ride comparable with electro-magnetic travel. It also includes stations that offer ease of access, clear and accurate information and ticketing facilities, with retail outlets that meet the needs of travellers. In summary, the station should be a centre of excellence. If our vision is realised, then we predict demand will continue to grow at an increased rate. This will lead to capacity problems as train operators request additional train paths. This is a challenge that we welcome and will meet. Current commitments and plans for the WCML and ECML, as well as other routes in Britain, will provide additional capacity. This will be achieved as our vision is turned into reality. We will be happy to be a victim of the industry's success and provide a railway befitting a modern society.

Long distance – within Scotland. With a third of the British landmass, long-distance travel in Scotland is a fact. The same principles apply as outlined for Anglo-Scottish travel except that the issues are different, and the solutions therefore cannot be the same. Although the main population centre is in the Central Belt, large numbers of people live north of Perth, but as the map on page 101 demonstrates, there are vast areas where very few people live, making the cost of providing public transport uneconomical. Equally, people and goods need to have robust communication links from the islands. Railways on their own cannot meet all the

needs and requirements, although they do reach out to many towns and conurbations. People and industry will best be served if the different modes work together as an integrated unit. Our vision is that of working in partnership with ferry and bus operators so that, not only can people from Inverness arrive in Edinburgh by train in three hours, but travelling from Aberdeen to say, the Western Isles, can be fast and easy, with seamless interchanges in clean pleasant surroundings. This would start with a fast train journey from Aberdeen to Inverness, a bus that is waiting adjacent to the train to provide an interchange at the same floor level for the onward journey to Fort William. It would be followed by a similar bus/rail connection to Mallaig where a ferry is timed to leave on the arrival of the train. Ease of travel between the east and the west, and travel to the Borders, is as vital as between the north and the south. Railways can be reestablished to Galashiels and beyond, which would be fast and efficient. We are involved in the current study into the railways in the Borders and look forward to taking an active part in exploring new links.

In seeking to meet the requirements of the public, we are keen to provide fast, efficient and reliable transport using the most appropriate mode to suit the particular circumstances that exist. Working in partnership can bring benefits to the public, providing them with a better travelling experience, to the economy by focusing scarce resources into the most appropriate transport mode, to business by providing fast, efficient links to new markets and to tourism by making the country more accessible.

Urban travel. We recognise that urban travel is all about efficiency, convenience, frequency, cleanliness and short journey times. Our vision is for such a service to be at the heart of Scotland's cities. Clearly a good model already exists in the Strathclyde area. Administered by the SPT, good north-south and east-west links are provided. We will continue to work with the SPT to deliver their aspirations, some of which are shown on page 114. Improvements such as the links to Glasgow and Edinburgh airports would be of benefit to all sections of the community, business and tourism.

The key to success will be integration with buses and rapid transport systems

Edinburgh and Aberdeen can also have highly effective systems. The current proposals from the centre of Edinburgh to Kinnaird Park and from Inverurie to Stonehaven would only be a start to our vision. The key to success will be integration with buses and rapid transport systems such as CERT. Integrated systems should provide accurate customer information about all relevant services, not just about the train at a particular station, but also about the bus and taxi service. Where appropriate, stations should have facilities for the mobility impaired, not only for the disabled but for parents with push-chairs and for the elderly, lighting levels and security protection for people and their cars provided by CCTV systems, cycle lockers and help points. In order to achieve our vision, a necessary first step is to understand the requirements of people so we have appointed a full-time manager to liaise with local authorities. Through discussions, we are identifying their aspirations some of which are detailed on page 114.

Rural. Over a third of the route kilometres and stations in Scotland are in rural areas. These are very important to us. Our vision is to provide reliable services which are fully integrated with buses and with trains to allow onward travel to larger towns and cities. Many rural stations on the West Highland, Far North and Highland Main lines have buildings which are in part or in full no longer required by passengers. Our vision is that, wherever possible, tenants for these facilities should be encouraged. Potentially, locations could support hillwalking-related tourism further, such as the provision of hostel-style accommodation as at Corrour. Other station buildings might become convenient central meeting or facilities points for students pursuing further or higher education courses through electronic or other distance learning. Our view is that these opportunities are infinitely preferable to empty buildings or demolition and are already working with the West Highland Rail Heritage Trust and informally with the Argyll Heritage Trust.

The map on page 114 identifies some of the local authority aspirations. These are in line with our vision of the future and how rural communities can be served.

Freight. We have devoted a complete section of this document to freight which identifies our plans and visions for the whole of Britain. The growth of freight in Scotland has been phenomenal over the past few years. However, there is scope for even more growth. The reopening of routes such as Stirling to Longannet could prove to be a vital link providing relief to the roads of the central area. Our vision is that of providing freight operators with the capacity to operate more frequent and longer trains with full access over the main routes connecting both the extremities to the core of the system at Mossend-Coatbridge and through to the North and South of England, Wales, Ireland and on to Europe. This would give us the ability to offer W10 gauge – piggyback-size loads over the majority of the routes in Scotland.

Funding our vision

Our vision is one of creating a railway in Scotland where reliability of service is unquestioned, and travel to all points on the network is a competitive and attractive option.

Clearly, as a commercial company, we expect the return on an investment to reflect the risk taken. In the case of the East and West Coast Main Lines, and along some of the Scottish Express routes (Edinburgh–Glasgow–Aberdeen–Inverness), the potential rewards are such that we can take the commercial and contractual risk.

Partnership covers those projects which require mixed funding, private and public through national, local or European government sources, including PFI or other funding. Here we may share the commercial and contractual risks.

Finally, there are those schemes which are funded by external resources where we act purely as a contractor taking only the construction risk or in some cases no risk at all. The new station at Dalgety Bay which was funded by Fife is an example.

Although we have taken some significant steps forward, it is not enough simply to identify those projects which will require partnership or external funding. We understand delivery may require flexibility and commercial innovation.

Today, Scotland's railways are delivering a rail service, tomorrow – in partnership with government and the community, they can deliver a transport network

In partnership with Strathclyde Passenger Transport, we have developed the first-ever Private Finance Initiative application for an urban railway to Larkhall. We look forward to formal approval. This model may become a way forward for other local authority aspirations where a conventional commercial case cannot be found. However, we are willing to work with the new Scottish Parliament and Executive to explore alternatives which provide a reasonable return for investors and better value for money to the taxpayer.

Building on the 1998 White Paper, the Scottish Parliament will shortly have the opportunity to legislate to introduce charges to combat congestion in our main cities. Uniquely, this tax may be hypothecated into funding for public transport.

Such an opportunity should not be dismissed for fear of short-term public outcry. Part of the revenue would rightly be reserved for improvements to public transport in cities. An excellent candidate might be extending the current Edinburgh CrossRail proposal to Dalkeith or even beyond, to Galashiels. The remainder should be used to improve public transport beyond into smaller conurbations and rural areas. This might range from supporting the provision of rail links to Glasgow and Edinburgh airports to improving facilities for integrated transport.

Conclusion

In this section, we shared our vision of the future for the Scottish rail network. Some of these aspirations, we can deliver ourselves, others will depend on the Rail Regulator's Review, new or extended franchises for train operators, and future priorities set for Scottish public expenditure.

Today, Scotland's railways are delivering a rail service – tomorrow, in partnership with government and the community, they can deliver a transport network befitting a country that is moving into the next century with a new Parliament.

Aspirations of local authorities in Scotland for railway enhancement

A Orkney, Shetland

Transport integration with ferry services

X Highlands

Journey-time reductions
 Alness Station relocation
 Beautiful new station
 Invershin Viaduct
 Station refurbishment at Wick & Thurso for 125th anniversary
 Community involvement in stations
 WHL turntables at Fort William–Mallaig
 Relocation of Inverness Station
 Property development at Inverness
 Accessibility – Dingwall & Muir of Ord
 Transport interchange – Aviemore, Kingussie and Fort William

W Western Isles

Transport integration with ferry services

V Argyll & Bute

Freight facilities at Oban
 Heritage issues with station buildings
 Helensburgh Central
 Station facilities improvements

T Stirling

Property development at Forthside
 Property development at Stirling Station
 Freight developments
 Stirling–Alloa reopening
 Additional car parking – Bridge of Allan and Stirling
 Accessibility particularly at Dunblane
 Transport interchange at Stirling

S Falkirk

Improved station accessibility
 Grangemouth passenger service
 Freight developments
 Additional car parking – Falkirk High, Larbert, Polmont
 Millennium Canal Link
 Falkirk Grahamston–Cumbernauld

R West Lothian

West Calder interchange
 Fauldhouse bus/rail link
 Railway Development Society study into new stations and Bathgate to Airdrie route
 Shotts line improvement

P Dumfries & Galloway

Stranraer Station relocation
 Stranraer 145
 Transport integration at Dumfries & Stranraer
 New stations at Eastriggs, Dunragit & Thornhill
 Annan footpath
 Disabled access improvements at Lockerbie
 Freight improvement/growth at Stranraer

N Midlothian

Edinburgh Crossrail
 Route to the Borders
 Bilsden Glen extension

M Scottish borders

Edinburgh Crossrail
 Route to the borders
 Freight developments

See Strathclyde
 detail opposite

Base map © MAPS IN MINUTES™ 1997

B Moray

Journey-time reductions
Freight developments
Accessibility improvements

C Aberdeenshire

Aberdeen Crossrail–Inverurie to Stonehaven
Journey time reductions (Aberdeen–Inverness)
Station facilities improvements
Installation of cycle lockers at Stonehaven, Portlethan,
Inverurie, Inch & Huntly
Property development at Inverurie
Transport interchange at Inverurie

D Aberdeen

Aberdeen Crossrail
Transport Interchange at Dyce with airport bus
Freight & station developments
Aberdeen station interchange with bus & ship
Edinburgh to Aberdeen electrification
Aberdeen to Inverness journey-time reductions



Strathclyde-area SPT aspirations

A Programme for new stations	G Paisley Gilmour Street enhancement
B Lenzie car-park extension	H Largs Station rebuild
C New line – Larkhall to Milngavie & Anniesland	J Glasgow Central Airport link
D Improvements to station car parks	K Barrhead–Kilmarnock additional capacity
E Station enhancement works	L New station at Gartcosh
F Partick Station redevelopment	M New station at Howwood

E Angus

Electrification of Aberdeen to Edinburgh
Transport integration at Carnoustie
Accessibility improvements at Carnoustie & Montrose
Facilities for Open Golf Tournament

F Dundee

Broughty Ferry Station
Dundee Station environmental improvements

G Perth & Kinross

Oudenard new station
Perth Station development
Transport interchange at Perth
Improved station accessibility
Gleneagles Station improvements

K City of Edinburgh

Edinburgh Crossrail
Edinburgh Park new station
Edinburgh Waverley developments
Haymarket lifts
Car park – Dalmeny
Park-and-ride car parks
Edinburgh suburban reopening
Edinburgh Airport link
CERT
Forth Bridge visitor centre in South Queensferry

J Fife

North Fife rail study
South Fife rail study
New stations at Dysart, Dunfermline, Queen Margaret
Accessibility Inverkeithing, Rosyth
Additional car parking at various locations
Interchange at Inverkeithing
Alloa–Dunfermline reopening
Freight interchange development
Relocation of Burntisland Station
Europarc Rosyth rail link
Link to Edinburgh Airport
Lochgelly & Cardenden – platform improvement
Heritage issues at North Queensferry

H Clackmannanshire

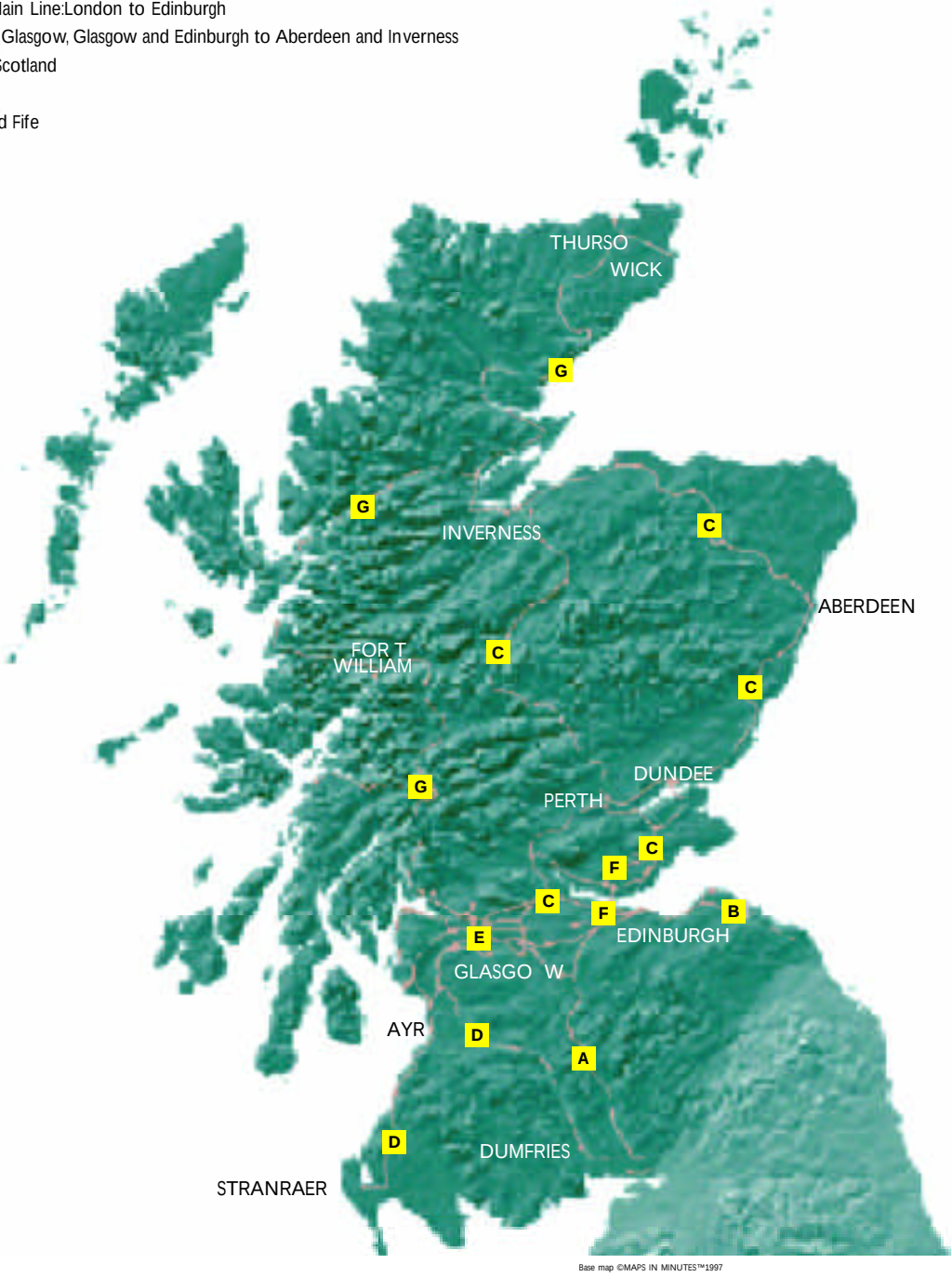
Stirling to Alloa reopening to
freight & passenger trains

L East Lothian

East Linton new station
Dunbar local service
Reopening of Haddington branch
East Lothian rail study
Half-hourly service to North Berwick
Improved station accessibility
Musselburgh parkway station

Routes shown in detail:

- A West Coast Main Line:London to Glasgow and Edinburgh
- B East Coast Main Line:London to Edinburgh
- C Edinburgh to Glasgow, Glasgow and Edinburgh to Aberdeen and Inverness
- D South West Scotland
- E Strathclyde
- F Edinburgh and Fife
- G Highlands



Maintenance expenditure e (£M – 1998/99 prices)

	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
	79	69	68	69	70	71	67	67	67	66	65

Renewals expenditure e (£M – 1998/99 prices)

TYPE OF ASSET

Track	36	23	19	24	26	29	29	28	28	29	29
Structures	22	23	27	27	21	21	18	18	17	18	18
Signalling	23	11	15	28	20	12	13	17	14	13	22
Electrification	7	6	7	12	7	4	8	8	9	6	8
Plant & Machinery	7	5	1	3	4	6	12	7	3	1	0
Telecoms	3	5	9	7	3	3	6	4	1	3	5
Stations	58	48	38	24	26	28	31	16	14	11	11
Depots	0	1	1	4	3	2	2	3	2	2	2
TOTAL	156	122	117	129	110	105	119	101	88	83	95

Renewal rates

RENEWAL

Rail renewed (km per year)	79	39	87	*	*	*	*	45	*	*	45
Sleepers renewed (km per year)	39	31	41	*	*	*	*	41	*	*	36
Ballast renewed (km per year)	39	35	42	*	*	*	*	55	*	*	55
Signals renewed (km per year)	21	50	0	*	*	*	*	80	*	*	50
Structures renewed (no. of structures)	0	8	14	*	*	*	*	12	*	*	12

*A forecast only provided for 1998/99,1999/2000,2000/01,2005/06,2008/09

Enhancement expenditure e (£M – 1998/99 prices)

TYPE OF ASSET

Track	6	3	6	14	2	0	0	0	15	15	0
Structures	1	16	17	12	32	20	1	1	1	1	1
Signalling	1	3	2	7	7	1	1	0	0	0	0
Electrification	1	2	2	4	3	0	0	0	0	0	0
Plant & Machinery	0	0	2	2	0	0	0	0	0	0	0
Stations	6	12	8	6	5	6	7	7	5	2	2
Depots	0	8	2	0	0	0	0	0	0	0	0
TOTAL	15	44	39	45	49	27	9	8	21	18	3
1998 NMS TOTAL	14	36	12	5	3	3	4	3	3	2	na

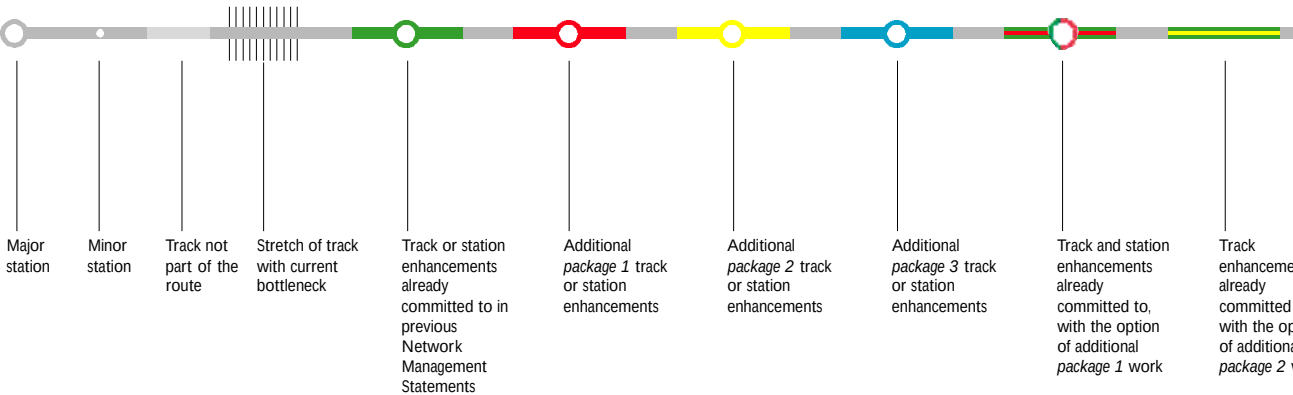
9 Route Strategies

- A** West Coast Main Line: London to Glasgow and Edinburgh
- B** East Coast Main Line: London to Edinburgh
- C** Edinburgh to Glasgow, Glasgow and Edinburgh to Aberdeen and Inverness
- D** South West Scotland
- E** Strathclyde
- F** Edinburgh and Fife
- G** Highlands
- H** Freight-only routes



Colour coding used on the Route Strategies

We have used a colour-coding system throughout the Route Strategies to identify the type of scheme. See page 77 for a fuller explanation of the different types of scheme.

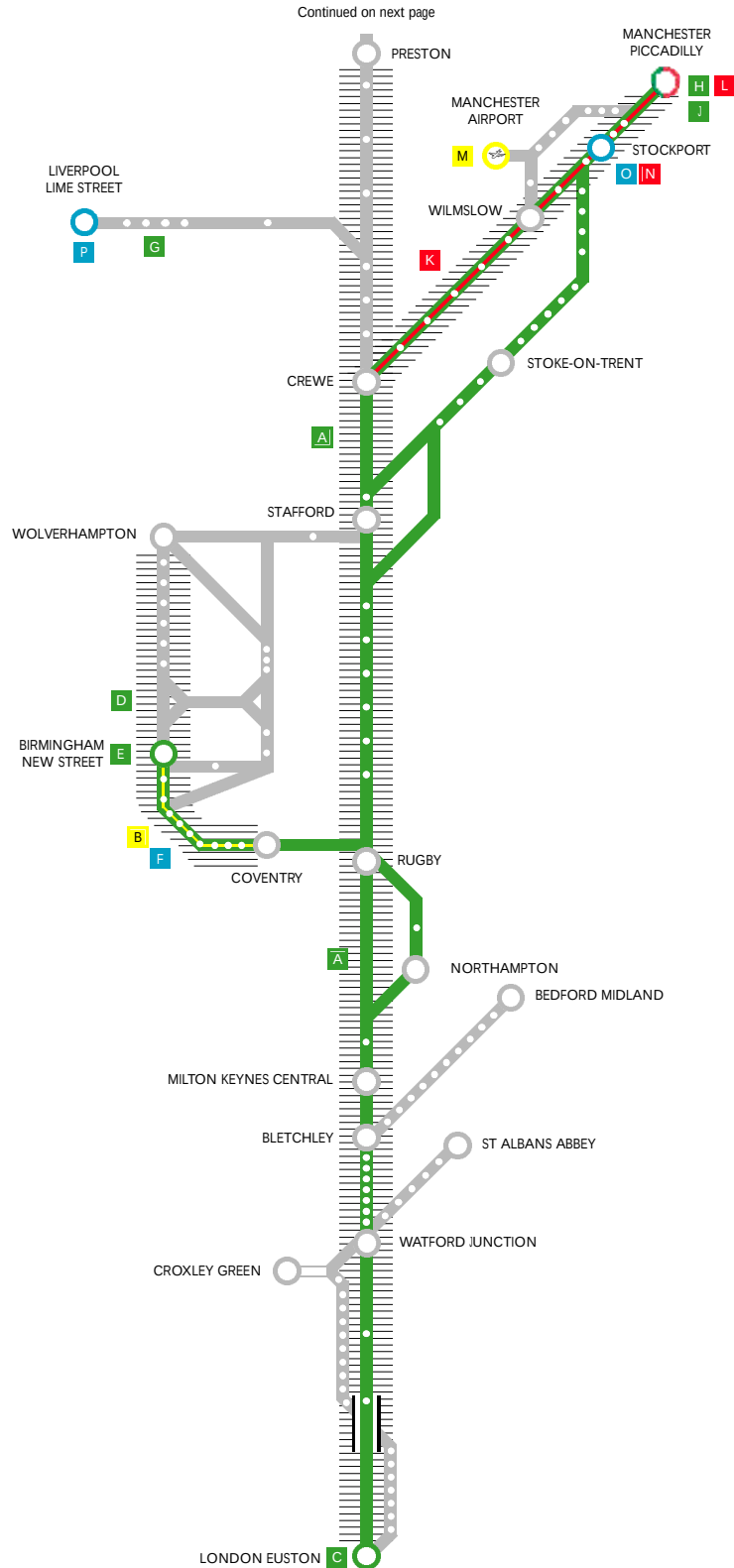


Central Trains; Connex South Central; FNW; GNER; London Underground; Northern Spirit; ScotRail; Silverlink; Virgin Trains (West Coast and CrossCountry); Wales & West; DRS; EWS; Freightliner.



- A** West Coast Main Line upgrade scheme
- B** Coventry–Birmingham – capacity upgrade
- C** Euston Station – enhancements
- D** Soho Depot – new train maintenance facility
- E** Birmingham New Street – enhancement to facilities
- F** Birmingham International – new car-parking facility
- G** Allerton – new interchange station
- H** Manchester Piccadilly – additional platform
- I** Manchester Piccadilly – enhancement to station facilities
- K** Crewe–Manchester – capacity increases
- L** Manchester Piccadilly – further enhancement to station facilities
- M** Manchester Airport – additional platforms
- N** Manchester South – renewal of signalling equipment and additional capacity
- O** Stockport Station – station enhancements
- P** Liverpool Lime Street – station 'gateway' development

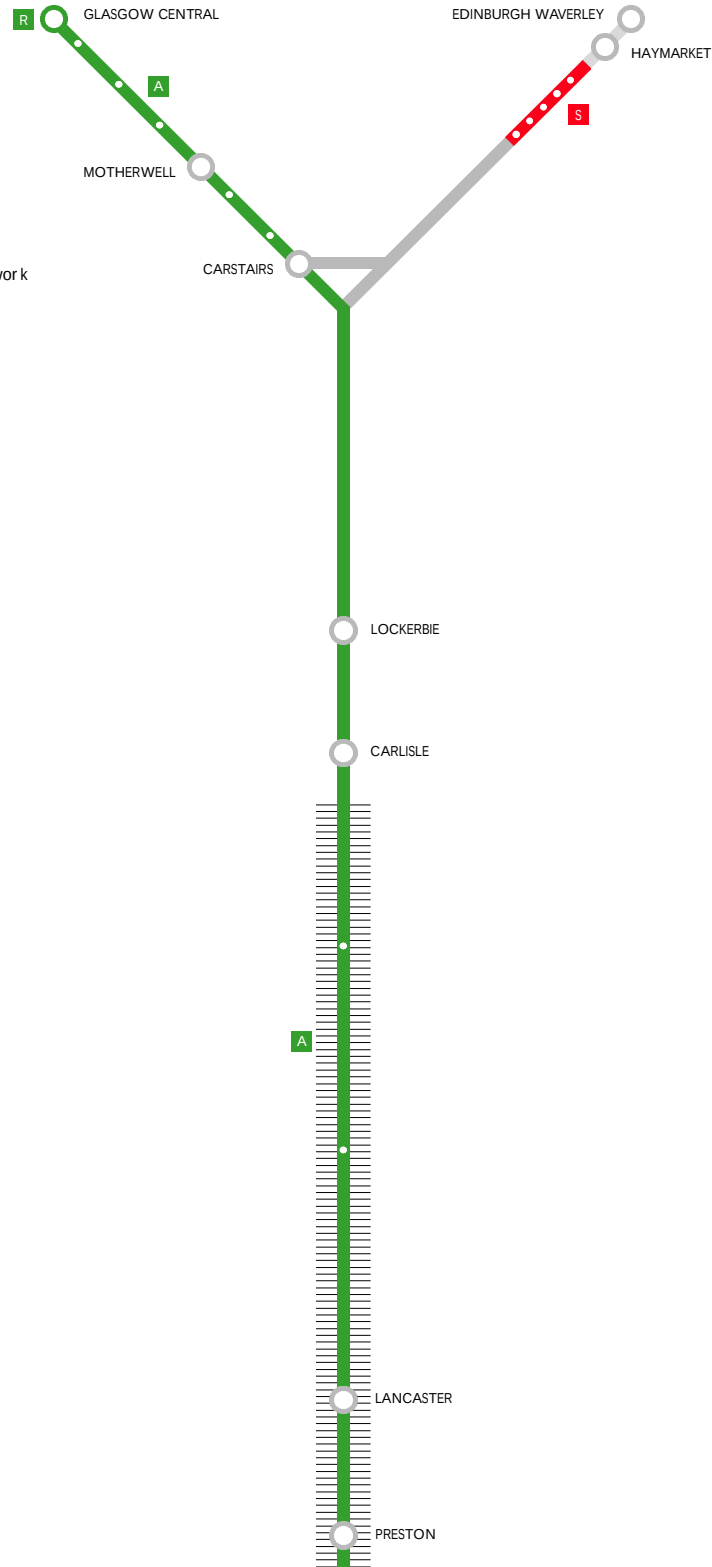
See page 119 for colour key





- A West Coast Main Line upgrade scheme
- R Glasgow Central – station regeneration work
- S Midcalder – capacity increase

See page 119 for colour key



Continued from previous page

Route characteristics

DESCRIPTION This is the principal rail corridor linking the Channel Tunnel and London, the West Midlands, North West England, Glasgow and Edinburgh. The route is electrified throughout, except from Bletchley to Bedford. The route is four track from London to Rugby (including the Northampton Loop) but beyond there is a mixture of two-, three- and four-track sections. Linespeeds vary but are predominantly 100–110mph on fast lines and 60–90mph on slow lines. The southern end of the route was renewed and electrified in the 1960s and the northern end in the early 1970s.

This route also encompasses the Primrose Hill–Watford DC lines, Watford–St Albans City, and Bedford–Bletchley. These mostly have two tracks and Primrose Hill to Watford is also used by London Underground who operates services from Queen's Park–Harrow.

The volume of passenger and freight train movements on the route is very high. A number of route sections are operating near to capacity, the principal ones being London–Rugby, Coventry–Birmingham–Wolverhampton, Stockport–Manchester Piccadilly and the approaches to Glasgow.

MAJOR STATIONS

Birmingham New Street Station Regeneration Programme (SRP) work to the platforms and dispersal bridge area is currently in progress. This work is dramatically improving the platform environment as well as improving safety and fire precaution features, represents a commitment of about £19M and is due for completion during 1999/2000. The emerging station development plan includes many customer-reasonable requirements, such as new waiting lounges, improved ticketing and information facilities, and measures to reduce traffic congestion outside the main entrance.

Glasgow Central The largest single SRP scheme in Scotland, costing £35M, is at Glasgow Central, and involves upgrading the facilities for passengers and renewing the roof. The Argyle Street Bridge renovation received a special mention in the recent Ian Allan Heritage Awards. In addition, we are reviewing the ability of the station to accommodate forecast passenger growth at this location, together with a number of customer-reasonable requirements, including improved waiting facilities.

London Euston A further phase of SRP work has continued to be progressed in parallel with additional work on how the station should develop to accommodate the passenger growth forecast in the route strategy. Our Development Control Planning process has also embraced short-term improvements to some retail facilities on the concourse, along with the inclusion of customer requirements which primarily relate to new and improved waiting lounges, customer-information and help facilities.

Manchester Piccadilly SRP work has continued with the gradual unveiling of the complete reglazing of the trainshed roof giving a foretaste of the transformation that this project will deliver at a cost of some £27M. In addition, we have undertaken further studies into the railway operating capacity requirements of this station and its relationship with the proposed urban regeneration of the surrounding areas being co-ordinated by Manchester City Council in partnership with Railtrack and others. Our Development Control Planning process takes account of a possible extension to the Metrolink and the desire to incorporate customer requirements – primarily the provision of new waiting lounges.

Route vision

Our vision for the West Coast Main Line (WCML) is of a high-capacity high-speed route that caters for the needs of all its train operators and users. We are committed to delivering much shorter journey times, for example, London–Glasgow in 4 hours 12 minutes in 2002 and London–Manchester in 1 hour 46 minutes in 2005.

As part of the European high-speed rail network, the WCML is designated as a priority Trans-European Networks (TENs) project. This reflects its strategic importance. It links the major conurbations of North West England and Scotland to mainland Europe via the Channel Tunnel. It also forms part of the links between Britain and Ireland via a number of routes. We are applying for further funding from the European Union (EU) to support the implementation, having already succeeded in gaining grant aid for the development of the project.

During the next six years, the route will be substantially upgraded to increase capacity and reliability, the latter including a reduced need for maintenance possessions. Work is being undertaken to increase the loading

gauge between Willesden and Motherwell to W10 gauge. Parts of the route will be capable of handling 750m-long freight trains. The infrastructure and control systems will support tilting trains travelling at speeds of up to 140mph.

Much of the extra capacity and speed capability is underwritten by our agreement with Virgin Trains.

Our West Coast Route modernisation (WCRM) scheme also ensures that all existing services to other customers who currently have contracted rights to operate over this route will be maintained. We are, however, aware that our customers also have a number of aspirations for additional services and reduced journey times throughout the route, for example between Edinburgh and Glasgow via Carstairs. We are working with our customers to reach agreement on these aspirations.

In 2005, there will be at least ten high-speed trains per hour leaving Euston for destinations in the Midlands, North West England and Scotland. Additional high-speed paths will be available on 'open access'.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

The route has substantial capacity as it is generally at least double track and signalled with four-aspect colour-light signalling. However, the volume of passenger and freight train movements on the route is very high. Several route sections are operating at or near to capacity, the principal ones being London–Rugby, Coventry–Birmingham–Wolverhampton, Stockport–Manchester Piccadilly and the approaches to Glasgow. Other sections of the trunk route will be operating closer to their capacity limit in the near future.

We have carried out a number of capacity analyses for the bottlenecks we identified in the 1998 NMS. In addition, in accordance with undertakings given to the Rail Regulator, we have carried out strategic capacity reviews in four areas. We have set out below the conclusions from all of these studies.

Euston–Rugby	The bottleneck constraint is caused by differential speeds and stopping patterns on the fast and slow lines, which will worsen on the slow lines when the fast lines become dedicated to 125–140mph trains. We have identified the following options to resolve the constraint. Option A Provide turnback facilities at Watford Junction, Tring and Milton Keynes to optimise slow line capacity and provide high-quality paths on the slow lines for Silverlink services, especially to and from Northampton. Option B In order to provide the minimum possible journey time between London and Northampton – about 45 minutes instead of 1 hour – this option would transfer two trains per hour on to the fast lines. This would require investment in 140mph trains and a grade-separated junction in the Hanslope area. The currently envisaged post-PUG 2 timetable requires some changes to the timetable of passenger trains on the slow lines and this option would alleviate these problems. These two actual paths consume four standard paths, which could be used by 75mph freight trains and/or other semi-fast passenger services. Option C Provide dynamic loops at Tring, Watford and quadrupling of slow lines at Bletchley. This has previously been assessed and found to further constrain the timetable pattern and operating flexibility, creating new bottlenecks. This option only creates enough capacity for additional short-distance trains, which do not satisfy the long-distance market demands on the route. Option D Provide four slow lines, ie a six-track railway from London to Rugby. This would significantly improve capacity, but gaining full benefit of this capacity would require substantial further investment in the Trent Valley, and further north. The substantial land purchase and construction costs involved are unlikely to be acceptable or fundable. Option E Lengthen the journey time of the fast Northampton trains on the slow lines from 2005. This reduces the nominal path consumption of these trains from four to two paths per hour, thereby freeing up two paths for other services. However, it increases the journey time to Northampton from 60 minutes to up to 75 minutes. Option F Reduce freight traffic over this section of the route by operating Felixstowe–West Midlands/North West England trains via Peterborough and Nuneaton and some other freight trains via Midland Main Line or via Oxford Banbury rather than on the WCML. This option is dependent upon the freight routeing strategy. It reduces differential speeds between trains, thereby enabling more passenger trains to operate on the slow lines, thus satisfying the aspirations of our customers for more capacity. Our preferred option is A, although option F is critical to the long-term management of capacity on the south end of the WCML.
Coventry–Birmingham	The number of train movements on the route between Coventry and Birmingham has been near the route's capacity for a number of years. There are both contracted commitments and customer aspirations to increase the number of train movements over the route. The present mixture of fast and slow trains over the route precludes any further train movements being accommodated without significant operational performance risk. An engineering feasibility study has been undertaken to assess the options to increase the number of available train paths on this corridor. The synopsis of the conclusions reached is set out below. To increase the corridor's capacity, it is necessary to reduce the conflict between fast trains and stopping trains. This can only be done by increasing the number of lines to provide an 'overtaking' facility. In addition, the remodelling of Proof House Junction on the approach to Birmingham New Street Station in 2000 will remove conflicting train movements between this route and those on the Walsall–Lichfield–Longbridge cross-city route. Thus, there are three options for this bottleneck. Option A Remodel Proof House as part of the WCRM project and do no other infrastructure work. Run a revised timetable with slow trains overtaken at Birmingham International Station on existing infrastructure. This would enable a maximum of 12 paths per hour, fully utilising capacity but not exceeding it. However, a number of customer aspirations would not be met. Additional freight train movements as agreed with the Rail Regulator can be accommodated. Option B Provide a four-track railway from Beechwood Tunnel to Stechford, broadly 70% of the route mileage between Coventry and Birmingham. This would enable all operator aspirations to be met. Option C Enhance option B by providing a grade-separated junction at Stechford and other works off this route to enable all WCML freight services to be routed over this corridor. Our initial analysis suggests that option A produces the best industry value even though all operator aspirations cannot be met. The trains concerned have the lowest industry value over the route. However, we have included within the partnership elements of schemes to develop the network, option B above providing the only long-term solution which would substantially increase capacity.
Birmingham–Wolverhampton	The number of train movements on the route between Wolverhampton and Birmingham has been growing and is now near its capacity. West Midlands Passenger Transport Authority (Centro) has an aspiration to further increase the number of train movements over the route. The present mixture of fast and slow trains over this route limits any future growth in train movements. In order to accommodate Centro's aspirations to increase the stopping train service from two to four trains per hour, an 'overtaking' facility would be required. We have assessed the most appropriate facility to be the creation of a four-track railway from Monument Lane Tunnel to Dudley Port. The route between these points would require very substantial reconstruction and additional land. The cost of achieving this, solely to operate two additional trains per hour is not viable for Centro. We have discussed this with Centro who no longer wish to proceed with this aspiration. The route will therefore continue to operate with the present infrastructure.

These are the route improvements we plan to deliver *continued*

Rugby–Carlisle	From Rugby to Colwich (75km), the four-track sections are interspersed with a three-track section from Rugby to Attleborough and a two-track section from Tamworth to Armitage which substantially reduces effective capacity. Crossing moves at Nuneaton, Lichfield and Colwich and stops by selected trains at Rugby, Nuneaton, Tamworth, Lichfield and Stafford further reduce capacity. The Colwich to Stafford section (9km) is partially a two-track section and is also constrained by slow line conflicts at Milford, Whitehouse and Trent Valley Junction at Stafford. From Stafford to Crewe (38km), the line is four track but effective capacity is reduced by crossing moves at Norton Bridge Junction to and from the Manchester Line and the fast and slow lines, and also at Basford Hall. At Crewe Station, various crossing moves which consume capacity cannot currently be avoided: freight trains into and out of Basford Hall yard; and trains to and from the Shrewsbury, Manchester and Chester lines have to cross many of the main lines. The Crewe to Carlisle section is two track for 85% of its 250km length. Capacity is highly used on the two-track sections between Winsford and Weaver Junction, and is further constrained by the mix of speed, the need for Liverpool–St Helens–Wigan trains to use the main line from Springs Branch to Wigan, the mixed traffic speeds on the Wigan–Balshaw Lane two-track section, the single lead junction with numerous crossing moves at Euxton, and limited slow line platforming capacity at Preston. Again, differential speeds of trains mean that many trains consume more than one 'standard path' from Preston to Carlisle. At Carlisle Station, there is limited capacity to handle freight trains. Option A Provide four miles of additional fourth track and five miles of additional third and fourth tracks between Rugby and Stafford. We will then be able to path the additional 42 freight and open access trains between Rugby and Crewe as set out in our PUG 2 undertaking with the Rail Regulator. Option B Provide four tracks throughout the Trent Valley to double capacity in this area which would require 9km of fourth track, 16km of third and fourth tracks, including creation of new track through National Trust Land, and widening of Shugborough Tunnel. This doubles the capacity in the Trent Valley, allowing an additional 14 trains per hour to be pathed between Rugby and Stafford. Option C Divert trains that exceed this route's capacity via Coventry and Walsall. The Coventry–Walsall Corridor is currently operating at full capacity and the planned improvements to capacity (under PUG 2) will be fully utilised by contracted additional services. There would be a need for heavy investment if trains were to be diverted this way from Trent Valley. Additional work would four-track the railway from Beechwood Tunnel to Stechford, provide a grade-separated junction at Stechford and need other off-WCML works. Option D Stafford–Crewe: reduce crossing moves at Norton Bridge and Crewe and thereby increase effective capacity. Grade-separated junction at Norton Bridge. Increased utilisation of independent lines and Basford Hall sidings at Crewe facilitated by improved yard arrival/departure facilities. NB: The junction layout at Crewe is proposed for improvement under PUG 2. Additionally, improved platform capacity could be provided here and, further improvements made to the layout. At Norton Bridge, a grade-separated junction would avoid approximately four crossing moves per hour and, at Basford Hall near Crewe, possible layout changes would create approximately two additional paths per hour for freight trains. However, unless works to alleviate congestion north and south of this area are undertaken, no advantage can be taken of such a capacity improvement. Option E Four track from Winsford to Weaver (eight miles). Two viaducts would also have to be widened as part of the eight-mile four tracking. Option F Avoid crossing fast lines at Euxton and encourage efficient use of slow lines between Euxton and Preston by Blackpool services. Provide grade-separation doubling of the junction at Euxton. Reallocate platforms at Preston. Option G Ease the capacity consumption caused by differential speeds over Shap summit through provision of a third track northbound between Carnforth and Shap summit, and southbound from Carlisle to Shap summit. Assuming each freight path consumes 2.5 nominal paths on the incline, all services aspired to could be accommodated. A is our preferred option as no viable potential funding package has been identified for additional capacity on this route which the other options will provide.
Manchester network development	We have analysed the current network capacity of all of our routes radiating from Manchester, together with our assessment of future market developments for both passenger and freight operations to determine an appropriate way forward. Our strategy is: (1) To invest in infrastructure between Manchester Piccadilly and Crewe, which will enable the new Virgin Trains' West Coast services (committed to in the 'PUG 2' agreement) and other operators services using current track access rights to be delivered reliably. This objective assumes that the track access rights of franchise operators that expire in 2004 are renewed in similar form. We have already remodelled the track layout at Manchester Piccadilly and restored the capacity to 12 fully operational platforms in the main trainshed. About £100M will be spent on completely renewing the signalling between Slade Lane and Cheadle Hulme, and in providing altered track configuration to optimise train path capability. (2) To provide costed options to develop further the capacity and capability of all routes which are impacted by services needing to access Manchester Piccadilly, Victoria, Oxford Road, Manchester Airport or Trafford Park freight terminal. We are using input from the Franchising Director and other customers, together with our own assessments of market demand to determine these options. There are specific interdependences with the strategies of Trans-Pennine freight developments and also local passenger services in Merseyside, Greater Manchester and West Yorkshire. Virgin Trains' investment in new high-capability diesel trains for its CrossCountry services, together with our investment at other nodal points such as Leeds provide a basis on which to identify options. We would like to agree commercial terms for some of these new requirements; in particular, those for long-distance cross-country passenger services, by December 1999 in order that the necessary infrastructure investment can be confirmed in the 2000 NMS. (3) To participate actively with Greater Manchester Passenger Transport Executive (PTE) in developing an investment strategy for heavy and light rail services in order to deliver their full potential of shifting current and future journeys from private car to public transport. We believe that the social benefits of a step change in the use of rail services could justify the land-use planning and significant investment necessary to provide a step change in capacity on the rail network. We propose to report on the outcome of this strategic review, and the commitments of the parties to the necessary infrastructure investment, in the 2000 NMS.

These are the route improvements we plan to deliver *continued*

Glasgow Central	There is a long-held perception in the railway industry that there is a capacity constraint on the approaches to Glasgow Central Station and that this may preclude the introduction of new services that our customers may aspire to. Our analysis demonstrates that both present and future aspirations for train paths can be delivered by the current infrastructure on the approaches to Glasgow Central. Depending upon the nature and volume of proposed services to Glasgow Airport, some specific enhancements for these services may be required when the full specification for such a service is established. Such enhancement would be included in the cost of the scheme. If the forecast growth in train movements materialises, the performance of the train plan during peak periods may deteriorate slightly by perturbation which cannot be recovered through available movement capacity. However, the renewal of signalling at Glasgow Central and approaches during 2000–2003 will reduce the current level of infrastructure equipment failures. This will offset any peak-hour performance deterioration through increased train movements.
Midcalder–Edinburgh	Our 1998 Statement identified this as a potential bottleneck. We have conducted a detailed analysis of the route's current capability and assessed further train path predictions. We have concluded that all known predicted train paths can be accommodated through a revised timetable structure, the existing signalling equipment, and an upgrade in traction current supply to remove the present restriction on train movements. This additional traction current capacity will be installed at Curriehill as part of our equipment renewal programme. In the next 12 months, we will conduct a detailed timetable review with our customers to test the robustness of our conclusion and agree action plans to deliver it. We will also explore opportunities for journey time reductions between Edinburgh and Carstairs.
Freight throughout the route	We have, as part of the West Coast upgrade, agreed with the Rail Regulator to make available a total of 42 additional train paths each day, each way (passenger and/or freight) over the south end of the route. If the freight operating customers bid successfully for all of these paths from 2005 this would, when added to the 1997 base figure (40 paths), more than double the number of freight trains operated between Wembley and Rugby. We will invest a substantial sum on the core section south of Crewe. This will ensure that the additional train paths can be supplied with the desired level of performance and that the additional trains can co-exist with the enhanced high-speed passenger train service operated by Virgin Trains. Since the Regulatory hearing, a number of traffic growth forecasts have been submitted by the freight operating customers. Their reasonable requirement submissions, for the year 2008, total 154 paths in each direction. Given an uneven distribution of trains across 24 hours, the forecast doubles again train path demand during most daytime hours. From 2005, both the slow and fast lines will be operating at capacity, so that the forecast growth of freight could only be handled with a further substantial expansion to the railway infrastructure. We have continued to discuss with our customers the options that offer realistic solutions. First, and as part of the overall freight routing strategy, other routes' capabilities are being examined on both an individual and network basis. Second, a number of the operators would like to use high-speed interurban trains in the two 'open-access' 140mph paths between London and Crewe which might, if traffic were transferred from the slow lines, help make capacity available for freight. Additional work is currently in hand to quantify the value of this option. Last, increased freight-train lengths can successfully address a proportion of the forecast growth.
Proposals	The proposals set out on the next page, when implemented, will give sufficient capacity to handle PUG 2, our contractual commitments as at 18 March 1998 and our commitments to the Rail Regulator.

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
London Euston–Glasgow	645	8	76mph (5hr 18min)	95mph (4h 12min)	No change	100mph (4hr 01min)
London Euston–Birmingham	182	3	71mph (1hr 35min)	86mph (1hr 18min)	No change	97mph (1hr 10min)
London Euston–Manchester Piccadilly via Crewe	304	3	73mph (2hr 35min)	94mph (1hr 59min)	No change	104mph (1hr 49min)
LINESPEEDS (km of track)						
Up to 35mph			233	230	230	230
40–75mph			840	748	748	748
80–105mph			1123	630	630	590
110–125mph			728	1316	1316	965
Over 125mph			0	0	0	391
TOTAL			2924	2924	2924	2924
GAUGE (km of route)						
W6A			1080	1080	1080	1080
W7			1071	1071	1071	1071
W8			1050	1050	1050	1050
W9			872	908	908	908
W10			0	675	675	675
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			1202	1202	1202	1202
23.5 tonnes to 25.4 tonnes			1722	1722	1722	1722
TOTAL			2924	2924	2924	2924

Our WCML upgrade scheme

ISSUE	LOCATION	COMMENTS	CHANGES TO SCHEME SINCE 1998 NMS
Layout remodelling	Euston–Camden	Work has started on site	The grade-separated junction at Camden Junction is not required
Renewal of track and signalling			
Upgrading of low-level goods lines to passenger status and provide turnback facility. New crossovers on low-level lines to slow lines at Brent Junction	Willesden area	Detailed design now starting	
New crossovers providing direct access from the WCML to and from Acton Canal Wharf Junction	Willesden–Brent	Outline design complete	The installation of the new crossovers has been deferred until we have an agreed understanding with customers on the services which would use this junction
Replacement of the double junction with a single lead junction	Willesden North Junction	Junction has just been renewed like-for-like	We have concluded that this was the most appropriate option
Track remodelling	Watford Junction	Feasibility study started	Change to the service specification has removed the need for a passing loop on the slow line
Remove junctions at Hemel Hempstead and Tring South	Bourne End	Feasibility study started	New replacement junction now required
Remodelling to introduce a centre turnback siding	Tring	Feasibility study started	Change to the service specification has removed the need for a passing loop on the slow line
Removal of junction	Ledburn Junction	Feasibility study started	Now to be retained as a high-speed junction
Remodelling of the sidings and freight loops at the south junction with a single ladder	Bletchley	Feasibility study started	
Remodelling to introduce a centre turnback facility	Milton Keynes Central	Feasibility study started	
Provide additional platforms and facilities	Rugby	Feasibility study started	
Provide new down slow	Rugby–Brinklow	Feasibility study started	
Provide grade-separated junctions	Nuneaton	Feasibility study started	Several options are under development
New slow lines to Armitage, reordering thence	Lichfield–Colwich	Feasibility study started	
Track layout changes	Crewe	Feasibility study started	
Two freight loops	Rugby–Coventry	Feasibility study started	
Remodel junction to improve capacity and reliability	Proof House Junction	Detailed design work now starting	
Resignalling & remodelling	Cheadle Hulme–Slade Lane Junction	Feasibility study under way	
Remodelling connections to platforms 9, 10, 11 & 12	Manchester Piccadilly	Scheme completed	
Resignalling replacing worn out equipment, and signals respaced for 125mph running	Meaford Crossing–Macclesfield	Feasibility study under way	
Introduction of Network Management Centres	Defined sections	Software design & development contract let	
Renewal of overhead-line equipment	Defined sections	Tender evaluation under way	
Power supplies renewal	Whole route	Feasibility study under way	
Abolition of foot and level crossings	Whole route	Feasibility study under way	Solutions include diversion, closure or bridges
Automatic half-barrier level crossings upgraded to CCTV operation	Whole route	Work has started at a number of sites and feasibility studies are ongoing for remaining sites	
Bridge repairs & replacements for condition or to permit higher speeds	Whole route	Will be undertaken as required	
Replacement of electrification control equipment	Whole route	Contract let	
Renewal of signalling equipment	Glasgow Central	Feasibility study under way	
Train Control System	Defined sections	Feasibility study under way	
W10	Willesden Junction–Coatbridge and Liverpool	Scheme authorised and work under way	
W10	Other route sections	Feasibility study under way	
W11	Willesden Junction–Coatbridge, Manchester and Liverpool	Feasibility study complete	We do not currently consider that this scheme offers value for money

During 1998, a number of additional feasibility schemes were commissioned. Some of these deal with longer-term aspirations; others either enhance existing proposals or are in connection with infrastructure to support reliability, perturbation management and maintenance issues. Further details will be provided as the studies progress in future Statements.

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
MIDLANDS ZONE					
Track	38.0	58.5	68.4	178.9	
Structures	7.6	8.4	9.3	32.2	
Signalling	46.2	137.0	182.8	624.2	
Electrification	10.5	26.1	24.6	32.5	
Plant & Machinery	2.7	0.8	0.0	0.3	
Telecoms	12.8	6.5	10.5	49.4	
Stations	22.0	29.0	20.7	30.5	
Other	0.8	0.3	4.7	6.9	
TOTAL EXPENDITURE	140.6	266.6	321.0	954.9	
NORTH WEST ZONE					
Track	13.1	10.9	16.8	40.8	
Structures	12.2	7.6	5.6	27.7	
Signalling	4.9	10.6	18.5	48.5	
Electrification	1.3	11.4	10.0	10.4	
Plant & Machinery	0.3	2.0	0.3	0.9	
Telecoms	4.1	4.2	4.5	32.2	
Stations	12.9	11.9	7.5	23.8	
Other	1.2	0.8	2.3	3.9	
TOTAL EXPENDITURE	50.0	59.4	65.5	188.2	
SCOTLAND ZONE					
Track	10.1	4.0	3.3	19.3	
Structures	1.9	8.9	4.4	19.4	
Signalling	2.0	1.5	3.1	10.0	
Electrification	2.1	5.2	5.7	14.9	
Plant & Machinery	0.6	0.2	0.4	11.0	
Telecoms	0.0	0.6	1.6	0.4	
Stations	15.3	15.1	7.5	4.8	
Depots	0.0	0.0	0.0	0.8	
TOTAL EXPENDITURE	32.0	35.5	26.0	80.6	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
MIDLANDS ZONE							
COMMITTED							
West Coast Route modernisation PUG 2	2006	8.0	38.3	76.3	388.0	1	A
West Coast Route modernisation PUG 1	2002	2.6	17.3	25.8	8.7		A
Station enhancements	2001	7.0	7.5	0.3	0.0		
West Midlands PTE enhancements	2002	0.0	0.5	4.5	5.0	1	
Euston Station enhancements	2001	0.0	0.2	2.0	0.0		C
Soho Depot new maintenance shed	1999	2.1	0.0	0.0	0.0	1	D
W10 gauge Daventry–Coatbridge	2000	0.8	0.6	0.0	0.0		
Birmingham New Street Station enhancement	2000	0.5	0.6	0.0	0.0		E
West Coast Route modernisation FUG	2000	0.4	0.2	0.0	0.0		
PARTNERSHIP							
Urban network enhanced capacity	2006	0.0	0.0	0.0	200.0	1	B
CONTRACTOR							
Birmingham International Station multistorey car park	2001	0.0	0.1	4.9	3.4	1	F
Coventry Station car park	2001	0.0	0.0	1.8	0.0	1	
FEASIBILITY							
Virgin Stations upgrade	2006	0.0	0.0	0.0	1.0		
Other schemes	Various	0.2	0.7	0.0	0.1	111	
TOTAL RAILTRACK EXPENDITURE		21.6	66.0	115.6	606.2	117	
NORTH WEST ZONE							
COMMITTED							
West Coast Route modernisation PUG 1	2002	2.6	16.6	20.4	26.1		A
West Coast Route modernisation PUG 2	2006	0.8	8.5	6.9	22.7		A
Allerton interchange (E)	2001	0.5	2.0	6.2	0.0	1	G
Manchester Piccadilly Platforms 9/10/11	1999	6.9	0.0	0.0	0.0		H
Station enhancements	2001	0.0	2.9	1.5	0.0		
Manchester Piccadilly Station enhancement	2001	1.7	0.9	0.2	0.0		J
West Coast Route modernisation FUG	2000	0.4	0.2	0.0	0.0		
Electrification improvements	2001	0.0	0.0	0.5	0.0		
COMMERCIAL							
Manchester–Crewe capacity	2005	0.0	0.5	0.5	99.0	1	K
Manchester Piccadilly Station enhancement	2002	0.0	0.4	11.0	10.0	4	L
Manchester South	2003	1.8	4.9	2.5	10.8	1	N
PARTNERSHIP							
Manchester Airport Station capacity	2002	0.0	1.0	9.0	13.0	1	M
CONTRACTOR							
Stockport enhancement	2003	0.0	0.0	0.0	5.0	7	O
FEASIBILITY							
Virgin Stations upgrade	2006	0.0	0.0	0.0	1.0	49	
Liverpool Lime Street Station gateway	2002	0.0	0.0	0.0	1.0	1	P
THIRD PARTY							
New stations & major refurbishments	2001	0.0	4.8	4.3	2.9	1	
Other schemes	Various	0.3	0.4	0.0	0.7	19	
TOTAL RAILTRACK EXPENDITURE		14.3	35.2	43.4	147.0	85	
TOTAL NON-RAILTRACK EXPENDITURE		0.7	7.9	19.6	45.2		
SCOTLAND ZONE							
COMMITTED							
West Coast Route modernisation PUG 1	2002	1.8	5.4	8.5	4.9		A
Glasgow Central Station enhancement	2001	1.8	0.9	1.4	0.0		R
Station enhancements	2001	0.0	0.4	0.4	0.1		
West Coast Route modernisation FUG	2000	0.2	0.1	0.0	0.0		
COMMERCIAL							
Edinburgh–Midcalders capacity	2003	0.0	0.0	0.0	1.5	1	S
Other schemes	Various	0.1	0.0	0.1	0.1	4	
TOTAL RAILTRACK EXPENDITURE		3.9	6.8	10.4	6.6	5	

Progress on the 1998 NMS

WILLESDEN JUNCTION INTERCHANGE Work has started to improve interchange between rail services and other modes of transport.

CROXLEY LINK The 1998 evaluation study was completed, but no subsequent agreement on the development of the scheme has been reached.

SOHO DEPOT (BIRMINGHAM) Work has started on the construction of a new electric train maintenance facility within the depot.

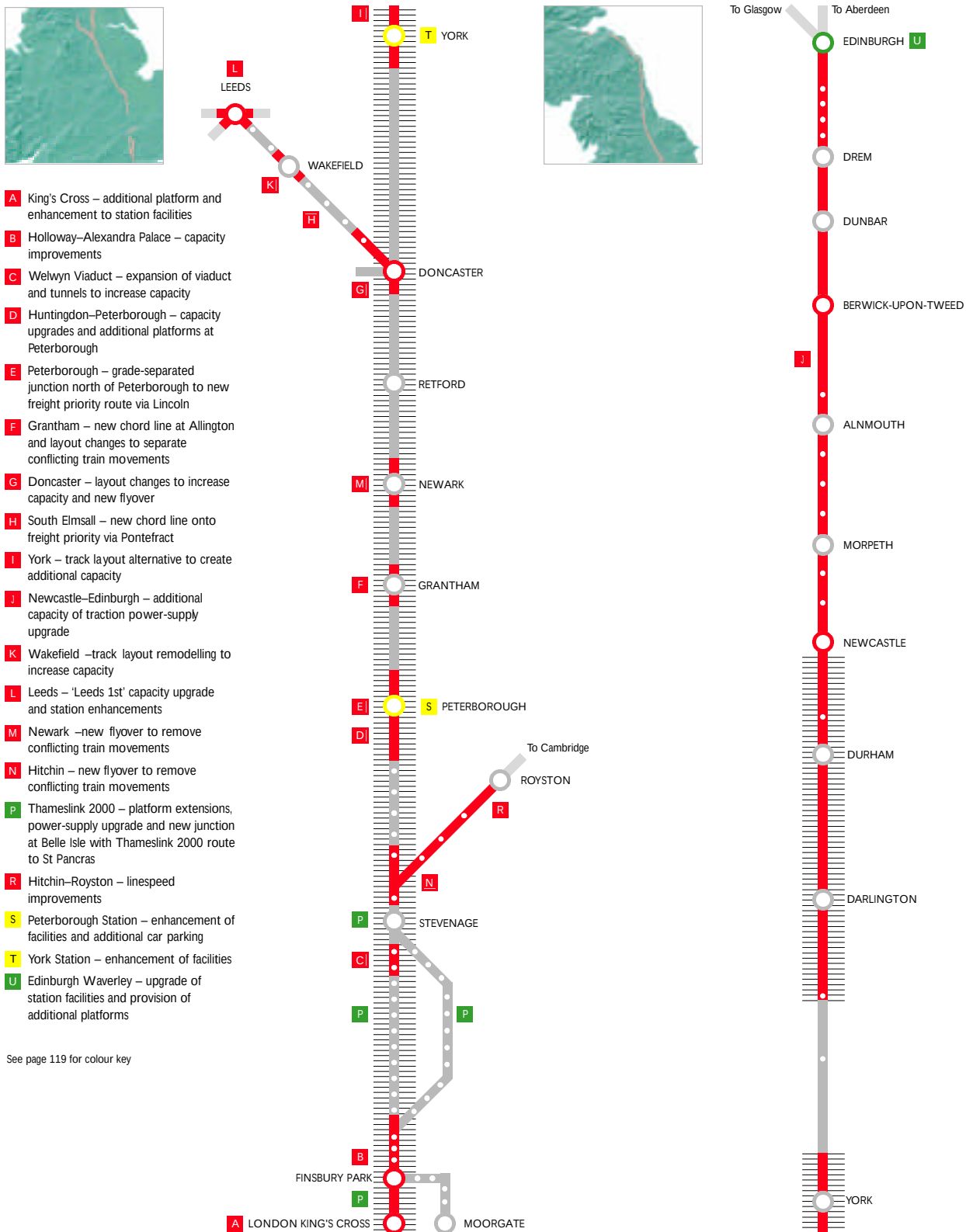
WALSALL-WOLVERHAMPTON This service was introduced in the summer 1998 timetable.

CARLISLE A new depot has been opened for DRS at Etterby near Carlisle.

EDINBURGH PARKWAY We are evaluating, with partners, a proposal for a major parkway station on the western outskirts of Edinburgh.

LIVERPOOL LIME STREET We have begun work on a major SRP scheme at the station. We are also working with our partners to undertake a major renewal of the public address and information systems to be completed in 2000. This will provide state-of-the-art facilities, enhanced coverage and assistance for disabled people.

Anglia Railways; Central Trains; GNER; Midland Main Line; Northern Spirit; North Western Trains; ScotRail; Virgin Trains; WAGN; DRS; EWS; Freightliner.



Route characteristics

DESCRIPTION The East Coast Main Line (ECML) is the high-speed link between London, Yorkshire, the North East and Scotland, and carries Britain's fastest train service. It handles cross-country passenger services and carries considerable freight and mail traffic. The lines routinely cater for 1,900 passenger trains, 200,000 passengers and 250 freight trains each day.

The route is primarily a two-track railway with four tracks in certain sections south of the Scottish border. The fast lines are generally designated for 125mph running, with the slow lines at 70–80mph. The route is electrified throughout.

MAJOR STATIONS

Edinburgh Waverley We have continued to invest in a number of short-term projects aimed at improving facilities at the station. It has been made more environmentally friendly by the segregation of pedestrians from road vehicles while at the same time improving retail outlets. The passenger waiting area has been restored including the cupola which received a special mention in the Ian Allan Heritage Awards.

Our predictions for the growth of train services at Edinburgh indicate that significant alteration will be required to the track and signalling throughout the station area, providing more and increased flexibility to platforms. This can only be accomplished by major alterations to the fabric. We propose to redevelop the station while preserving its historic character to provide Edinburgh with a modern structure befitting a capital city. We are working with all interested parties to achieve this goal.

London King's Cross London King's Cross is a highly complex location. It involves interchange with London Underground, Thameslink services and St Pancras Station. This will be further complicated when the Channel Tunnel Rail Link is completed creating international and domestic services at St Pancras station. In recognition of the expiry date of the temporary planning consent for the concourse at the front of the trainshed, we are making significant progress to prepare a Development Control Plan. This will aim to address the key interchange interfaces and to provide the station with the operational capacity needed to satisfy the forecast growth on routes served by this station. In addition, we are seeking to incorporate identified customer-reasonable requirements, including new waiting lounges, a travel centre, ticket gates and train operator staff accommodation needs.

BOTTLENECK ANALYSIS Our 1998 NMS identified the London–Newcastle portion of this route as close to capacity through projected growth in train movements. We have undertaken a detailed analysis of both market growth projections and the options for capacity enhancements to handle these projections. Our conclusions are drawn together in our upgrade scheme for the ECML set out in this route strategy. In addition, the Leeds area which interfaces with this route, is similarly constrained.

Route vision

With the level of passenger traffic in the country at its highest for 40 years, and freight traffic growing, our vision is to develop extra capacity and reduce journey times. We have taken the decision to develop the route to carry more passenger trains, faster trains and more freight services. To deliver this, we will separate the high-speed passenger trains from slower trains by creating a four-track railway for much of the route. This will include a second parallel railway to the ECML which will serve as a freight priority route. Our aim is to deliver a three-and-a-half-hour journey time from London to Edinburgh by 2003/04 for 125mph tilting trains. These improvements will also benefit through services to Glasgow, Aberdeen and Inverness. The key flat junctions on the route will be replaced by flyovers and chord lines to separate the traffic flows. Level crossings, track, and signalling systems will be upgraded to enable train operators to use tilting trains. The separation of slower and faster moving trains will allow for the possibility of raising train speeds to 140mph, reducing journey times even further.

A parallel can be drawn between our plans and the conversion of the A1 of 20 years ago, with flat junctions and roundabouts into a motorway, with grade separated junctions and extra lanes.

The development of the route in this manner will also encourage the development of local networks, which are currently constrained by the capacity of the main line. For example, it would be possible to open a new route in parallel to the present main line between Newcastle and Middlesbrough. This would provide the opportunity for a new local service and enable new stations to be opened in County Durham and Washington.

To support these network developments, we plan to enhance significantly the environment and facilities at all key stations. We are evaluating the opportunities to provide integrated transport facilities through new 'parkway' stations, new local stations and better multitransport interchanges.

In summary, passengers and freight users will enjoy a wider choice of trains, shorter and more punctual journeys, and better accessibility.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
London–Peterborough	King's Cross additional platform and station enhancements. New station junction and tracks. Holloway–Alexandra Palace and Huntingdon–Peterborough provision of extra tracks. Power supply upgrades. Peterborough additional platform capacity and station enhancements.	2003/04	A B D
Peterborough–York	Flyover north of Peterborough and at Doncaster. New chord lines at Allington near Grantham and South Elmsall. Upgrading of the GN/GE joint line via Lincoln between Peterborough and Doncaster and the route from Moorthorpe–Colton Junction Line (south of York). Remodelling of layout at Doncaster. New loop at Skellow. Power supply upgrades. Extension of loops on the ECML to increase capacity and reliability for both passenger and freight services.	2003/04	E F G H
York–Newcastle	York additional tracks and signalling alterations. Upgrade between Northallerton and Ferryhill. Restoration of the Leamside Line (between Ferryhill and Newcastle) and chord line at Bensham. Newcastle Station enhancements.	2003/04	I
Newcastle–Edinburgh	Additional capacity and power upgrade	2003/04	J
Doncaster–Leeds	Remodelling at Wakefield and Leeds	2002/04	K L
Newark	New flyover in place of flat crossing	2006/07	M
Thameslink 2000	Extension of platforms between London, Cambridge and Peterborough to accommodate longer (12-car) trains. New junction at Belle Isle (near King's Cross) and power supply upgrade.	2006	P
Hitchin	New flyovers	2008/09	N
Welwyn	Expansion of viaduct and tunnels for four tracking	2008/09	C
Throughout	Closure/diversion of occupational/footpath level crossings, power-supply upgrades, linespeed improvements, tilting trains	2003/04	

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
London–Edinburgh	631	1	99mph (3hr 58min)	No change	No change	112mph (3hr 30min)
London–Newcastle	431	0	110mph (2hr 26min)	No change	No change	115mph (2hr 20min)
London–Leeds	298	1	96mph (1hr 56min)	No change	No change	102mph (1hr 49min)
LINESPEEDS (km of track)						
Up to 35mph			134	134	134	134
40–75mph			548	548	548	548
80–105mph			482	482	482	482
110–125mph			1013	1013	1013	1013
Over 125mph			0	0	0	0
TOTAL			2177	2177	2177	2177
GAUGE (km of route)						
W6A			841	841	841	841
W7			841	841	841	841
W8			841	841	841	841
W9			0	0	0	841
W10			0	0	0	817
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			1113	1113	1113	1113
20.4 tonnes to 23.4 tonnes			832	832	832	832
23.5 tonnes to 25.4 tonnes			232	232	232	232
TOTAL			2177	2177	2177	2177

Our ECML upgrade scheme

TAKING THINGS FORWARD In line with our vision for the route and the strategy developed with the Franchising Director and our customers, we have continued our analysis of the current bottlenecks, timetables, and forecasts of demand. Set out below are our enhancement proposals to meet the growing markets for rail services on the ECML and to meet the Franchising Director-specific requirements for train frequency and journey times.

LOCATION	PROPOSED SOLUTION
King's Cross Station area	London King's Cross is a highly complex interchange location. We are drawing up a master plan to develop the station which will consider the needs of the ECML, London Underground and the adjacent St Pancras Station. It will also consider future opportunities for interchange with Channel Tunnel Rail Link, Thameslink 2000 and Heathrow Express services. The plan will develop facilities for passengers on the station to include better waiting lounges, travel centres, conference centres, restaurants and shops. It will also be necessary to build an additional platform by 2004 to provide extra capacity for longer trains running to Peterborough and destinations beyond. A brand new track layout will be built in this area just north of King's Cross Station (known as Belle Isle) to connect the ECML to the existing cross-London Thameslink route via tunnels as part of the Thameslink 2000 project. This will provide increased station capacity, more flexibility and greater reliability.
Holloway–Alexandra Palace	The existing four–five passenger tracks between Alexandra Palace and Holloway create a bottleneck in this busy section. The number of passenger tracks will be increased to six by 2004 and the junction layout at Alexandra Palace improved to the benefit of long-distance services and services via the Hertford Loop and will enable the Thameslink 2000 service to operate. Extra platforms will be built at Finsbury Park, Harringay and Hornsey.
Welwyn	The four-track railway reduces to two tracks where it passes over the viaduct at Welwyn and through the adjacent tunnels. The current maximum capacity is 17 trains per hour. Four tracking with a new viaduct and tunnels will alleviate this bottleneck and enable 30 trains per hour to operate. Current forecasts of demand indicate that this will be required by 2009/10. Feasibility work has been undertaken in the last year.
Hitchin	King's Cross to Cambridge services cross the ECML over a flat crossing at Hitchin, and a flyover will be required by 2007/08 to avoid congestion and delays with north–south trains. This will also improve the reliability of the Cambridge services. Feasibility work has been undertaken in the last year.
Huntingdon to Peterborough	This mainly two/three-track section supports a large number of commuter and longer-distance services and is close to capacity during peak periods. This line will be restored to four tracks for much of the route between Peterborough and Huntingdon by 2003/04.
Peterborough	This station is a busy passenger interchange between north–south and east–west services as well as the northern terminal for a large number of London commuter services. Present station platform capacity and track layouts are the limiting factor. Many freight trains cross the ECML here as they travel to and from East Anglian ports. Extra platform capacity is proposed for the station with junctions improved or reconstructed to provide additional capacity and reduce delays. A new flyover to the north of the station will carry both freight and cross-country passenger services over the main lines and feed trains on to the Lincoln Line. This will enhance services between the Midlands and East Anglia as well as those on the ECML by reducing congestion, improving reliability and reducing journey times. We plan to improve the station at Peterborough with better passenger facilities and more car parking in line with the growth in passenger travel from this thriving city.
Grantham area	Central Trains services for Lincolnshire use the ECML in this area and cross the main line to the north of Grantham. We will create a new junction and chord line at Allington on the Grantham–Nottingham route. This new infrastructure will increase the punctuality of both the Central Trains services from Nottingham and the main line services. It will also allow more local trains to serve Grantham, while reducing congestion and improving reliability on the main line.
Newark	Central Trains services and heavy freight trains cross the ECML here over a flat crossing and reduce the available capacity. We will replace the flat crossing with a flyover and separate the main line north–south services from freight and cross-country trains travelling east–west. This option will be required by 2006/07. Reconstruction of the Trent Navigation Bridge in 2000 will allow for future linespeed increases once the flat crossing is eliminated.
Doncaster Station and area	The junctions to the north and south of Doncaster are major bottlenecks and have constrained development of services in South Yorkshire for many years. We will fundamentally change the geometry of these junctions in two phases; building new south and north junctions by 2003/04 and a new flyover by 2007/08 to reduce congestion and improve reliability on all routes. Doncaster is a major transport interchange. We are participating in the project developing the area adjacent to the station with local partners South Yorkshire PTE in order to provide an integrated transport solution. This will provide better bus connections, improved car parking and new retail opportunities for the city.
Wakefield Westgate	We intend to build new platforms at Wakefield with a better track and signalling layout in order to cater for the mix of PTE-supported stopping services in West and South Yorkshire and the faster long-distance services. This will increase capacity and improve reliability. The station facilities will be improved and extra car parking will be provided.
Leeds	The 'Leeds 1st' project is now in hand and this represents the first phase of the upgrade of the ECML. It includes major reconstruction of the station track layout as well as several important junctions and chords in the area. These improvements will accommodate additional train services to London, Birmingham, the Leeds commuter area and other locations. The 'Leeds 1st' project also includes major enhancements of the station facilities to create a major new transport interchange with full accessibility. The works will improve capacity and reliability, and shorten journey times for both passenger and freight trains in West Yorkshire.
York	We will build an additional track through the station to Skelton Junction (north of York) and modify signalling to enhance capacity and reliability. The station car park will be enlarged and station facilities will be developed to give improved access for all.
Newcastle–Edinburgh	Freight and local services share the busy double-track Newcastle–Edinburgh Line with high-speed services. We plan to build extra capacity into this section, particularly in Scotland.

Our ECML upgrade scheme *continued*

Edinburgh Waverley	We will continue to invest in improved passenger facilities at Edinburgh Waverley. Our growth predictions indicate that significant alterations will be required to create additional capacity.
Freight priority route	The freight operators on the ECML are forecasting significant growth. Many of the proposals described above will lead to a railway that caters for the growth of high-speed train services alongside existing freight services. A fundamental part of our philosophy is to upgrade (and in one case, reopen) parallel lines as well as upgrading two- and three-track sections to four tracks to take slower-moving traffic off the main line. This will release capacity for high-speed services to the benefit of passenger and other high-speed services. The freight priority route from London to Newcastle is proposed as below: • London–Peterborough: via Hertford Loop, plus restoration of additional tracks between Huntingdon and Peterborough. • Peterborough–Doncaster: the parallel route via Lincoln will be upgraded. The flyover at Peterborough and remodelling of the layout at Doncaster is integral to this section. • Doncaster–York: reinstatement of a chord line at South Elmsall and upgrading of the Moorthorpe–Church Fenton Line and a new loop at Skellow. • Northallerton–Newcastle: upgrading the Northallerton–Eaglescliffe–Stockton–Ferryhill route, reinstatement of the Leamside (Ferryhill–Gateshead) Line and Norwood Curve at Bensham. These major schemes overcome the capacity barriers and delays to freight services imposed by the various double-track sections on the ECML. Coupled with existing and proposed four-track sections of the main line, they are equivalent to four tracking the ECML from Newcastle to the London area giving freight operators better transit times and the opportunity to increase the numbers of trains. A study into the route's capability to take larger gauge freight traffic has also been undertaken, and we are consulting with freight operators to identify realistic needs. The freight priority routes may lead to new and exciting opportunities to develop local services and new stations. An example of such would be a new passenger service via the Leamside Line from Middlesbrough to Newcastle via new stations in County Durham and at Washington. Additional funding and support is actively being sought from local authorities and PTEs to facilitate such a scheme. In addition, we are currently assessing the options to provide appropriate capacity for both existing and projected freight train volumes north from Newcastle to central Scotland.
Tilting train operation	To successfully operate tilting trains and improve journey times by moving at faster speeds, we will need to close or divert many occupational and footpath level crossings, create linespeed improvements, enlarge clearances, provide additional areas for trackside safety, enhance signalling and make track modifications.
Power upgrades	Existing overhead-line power supplies are already stretched at a number of locations and further upgrades to power supplies are required to increase capacity, reliability and improve journey times. Power supply upgrades are an essential part of the capacity upgrade as is the development of the railway layout. Particular power-supply bottlenecks exist in the Home Counties, Lincolnshire, Northumberland and Scotland.
Thameslink 2000	In addition to the above, the Thameslink 2000 project is planned to be constructed between 2002 and 2006, allowing a completely new high-intensity timetable between Peterborough, Cambridge and stations south of London including East Croydon and Gatwick Airport. As well as meeting the current needs for commuter travel to central London, the new services will create many new journey opportunities and increase the demand for travel.
Parkway stations	A number of operators, in particular Great North Eastern Railway (GNER), have identified key regions where access to rail services could be improved through building new 'parkway' stations. The introduction of such stations would also help alleviate local road congestion in the centres of busy urban areas. The feasibility of parkways to the east of Edinburgh, adjacent to the M18 in South Yorkshire, and North of London (M25) are being considered in conjunction with train operators, local authorities and passenger groups. Railtrack is considering other possible station sites.

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
LONDON NORTH EASTERN ZONE					
Track	30.2	18.9	12.5	100.1	
Structures	7.1	10.4	12.4	18.6	
Signalling	5.3	6.9	3.5	48.2	
Electrification	1.2	0.8	3.6	28.0	
Plant & Machinery	3.3	0.3	1.1	2.1	
Telecoms	0.6	2.0	3.0	0.8	
Stations	12.0	13.0	15.9	30.2	
Depots	2.1	0.9	0.2	2.5	
Other	0.1	0.0	0.0	0.0	
TOTAL EXPENDITURE	61.9	53.2	52.5	230.5	
SCOTLAND ZONE					
Track	3.3	1.8	1.5	13.4	
Structures	0.7	0.5	0.8	4.6	
Signalling	0.5	0.5	0.7	1.9	
Electrification	0.0	0.0	0.0	0.3	
Plant & Machinery	0.6	0.2	0.0	1.2	
Telecoms	0.0	0.0	0.0	0.1	
Stations	5.0	9.8	7.1	93.9	
Depots	0.0	0.1	0.1	1.1	
TOTAL EXPENDITURE	10.1	12.9	10.2	116.5	

Enhancement expenditure on schemes to achieve the route vision (EM – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
LONDON NORTH EASTERN ZONE							
COMMITTED							
Thameslink 2000	2006	0.4	2.1	2.3	57.7	1	P
Station enhancements	2001	4.6	2.2	0.0	0.0		
Peterborough–Doncaster freight loop lengthening	2000	4.0	2.0	0.0	0.0		
King's Cross Station enhancement	2001	0.0	0.1	4.2	0.0		A
Depots enhancements	2001	2.4	0.0	0.0	0.0	1	
COMMERCIAL							
ECML Route upgrade	2009	0.4	4.3	30.0	331.6	1	A to N
King's Cross Station retail development	2007	1.0	2.0	11.0	87.0		A
Hitchin–Cambridge linespeed increase	2000	0.0	0.2	0.0	0.0	1	R
PARTNERSHIP							
GNER station development	2003	0.4	5.1	0.6	6.0	1	
Peterborough Station development	2003	0.0	0.3	0.2	7.8		S
York Station additional facilities	2003	0.0	0.0	0.0	6.7	1	T
Peterborough Station additional car parking	2000	0.1	3.2	0.0	0.0	1	S
CONTRACTOR							
Peterborough Station new lifts	2000	0.0	0.5	0.0	0.0	1	
Other schemes	Various	0.9	3.0	1.3	0.5	64	
TOTAL RAILTRACK EXPENDITURE		14.0	24.1	48.5	497.1	72	
TOTAL NON-RAILTRACK EXPENDITURE		0.4	0.9	1.1	0.2		
SCOTLAND ZONE							
COMMITTED							
Edinburgh Waverley Station enhancement	2007	0.0	0.4	0.0	12.3		U
Station enhancements	2001	0.0	0.4	0.4	0.1		
Other schemes	Various	0.1	0.8	0.0	0.1	11	
TOTAL RAILTRACK EXPENDITURE		0.1	1.2	0.4	12.5	11	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.4	0.0	0.0		

Progress on the 1998 NMS

SIGNALLING We have started to upgrade signalling control equipment between York and Berwick-upon-Tweed and have provided diverse routeing for telecommunications to improve reliability and reduce delays. We have also undertaken an investigation into the condition of signalling equipment between London and Peterborough to prioritise our renewals in future years.

Points and crossings have been renewed at Birtley, Chathill, Retford, Peterborough, Carlton and Ranskill. At the latter two, we have taken the opportunity to lengthen the loops for larger freight trains, improving the capacity and capability of the line. We have also renewed the points at various locations to enhanced specification to improve reliability.

STRUCTURES We have completed repairs to King Edward Bridge at Newcastle and at Chester-le-Street Viaduct. Repairs to Welwyn Viaduct have commenced and a major bridge at Heck near Doncaster was totally reconstructed over Christmas 1998. An assessment has been completed of work necessary to upgrade the route to take larger-gauge freight traffic.

PLANT AND ELECTRICAL The point-heater programme has continued with points at all key locations now fitted to improve reliability in cold weather.

- We have strengthened the overhead-line structures across Stilton Fen south of Peterborough and provided a strengthened power supply at Welwyn Garden City to improve reliability.
- We have installed remote condition monitoring of some key plant and equipment to improve reliability and cut delays.
- New technology has been developed and installed to improve the performance of the overhead-line network and reduce delays. In addition, improved communication links for signalling systems have been installed at Hitchin and power supplies have been upgraded at Digswell.
- We have started work on a new refuelling facility at York for Northern Spirit.
- Windspeed devices have been installed to improve reliability of level-crossing barriers during storm conditions. Weather stations have been installed to help manage better train performance on the route – including, particularly, the overhead wires – in extreme weather.

PERFORMANCE Major investments as described above, a host of smaller schemes, and better performance management have improved reliability of the network. Delays from signalling and infrastructure causes have reduced by 20% on this route over the last year alone.

The work has required the development of much closer working relationships with our suppliers, including developing new analytical techniques to assess asset performance highlighting those areas requiring enhanced maintenance. Following this year's successes we are now finalising plans for 1999/2000 to achieve further improvements building on our recent 'Alliances' agreement with Balfour Beatty Rail Maintenance which will assist in driving improvements further and faster.

Work has improved the reliability of point equipment at functions, particularly during poor weather.

We have also conducted a high profile anti trespass campaign and worked with the Samaritans over the alarming increase in suicides on this route.

STATIONS Station regeneration work has continued throughout the year with most of the smaller stations in Yorkshire and the North East completed.

The first phase of refurbishment at York Station was completed on time and work is now well advanced on reconstruction of the remaining platforms.

Work is well progressed at Newcastle to refurbish the station roof and buildings. Further work is under way on the roof and platforms at Darlington.

Improved retail and waiting facilities, and segregation of road vehicles from pedestrians, are being provided at Edinburgh Waverley Station.

DEPOTS At Craigminty depot, near Edinburgh, we have installed one of the first all-weather carriage-washing plants in Britain as part of our regeneration project.

EUROSTAR Work has been completed to enable Eurostar trains to operate through to Edinburgh and Glasgow from London.

Future plans

SIGNALLING The work between York and Berwick-upon-Tweed continues and a renewal of signalling equipment (particularly interlockings) between London and Peterborough begins shortly.

These will be renewed in a manner consistent with the future ECML upgrade.

TRACK Point and crossing renewals continue at Hatfield, Hitchin, Retford, Doncaster, Darlington and at locations between Newcastle and Berwick. At Retford we are again taking the opportunity to lengthen the loop to improve the line capability and capacity by handling longer freight trains. Linespeed improvements are in hand between Hitchin and Royston. This supports the major work to reduce journey times between London and Cambridge.

STRUCTURES Work continues at Welwyn Viaduct to enable it to continue to carry intensive traffic in this section. The major bridge over the Trent Navigation at Newark will be completely reconstructed over the next two years, allowing future operation at 140mph and the ability to convey heavier freight vehicles, as well as providing the new alignment needed for later upgrade of the adjacent flat crossing.

PLANT AND ELECTRICAL We are renewing the overhead line at Scremerston in Northumberland where salt corrosion along the coast is affecting our equipment. New wind monitoring systems and other performance-related improvements will be undertaken to improve overhead-line and track performance.

STATIONS Station regeneration work continues at Newcastle, York and Darlington, and is beginning at local stations between Finsbury Park, Royston and Huntingdon. Provision of lifts at Berwick-upon-Tweed will be undertaken, together with escalator connection to the Tyne & Wear Metro at Newcastle Station.

ECML UPGRADE We have started the design and feasibility work associated with the ECML upgrade. Our analysis reveals that, in order to accommodate the forecast growth in demand, a significant level of additional infrastructure is required, including provision of further tracks, flyovers, viaducts, station improvements and upgrades to power supplies, as listed on the previous page.

The total cost of the infrastructure works proposed above would be approximately £1,000M over the next ten years, with around half of this anticipated over the next five.

In August, we submitted an extensive report to the Franchising Director, to be forwarded to the DETR, containing final proposals for the upgrade, and followed up with an intensive period of continued validation with the Franchising Director. Since then, extensive work has been undertaken in house, and with customers, in order to develop, refine and challenge the proposals.

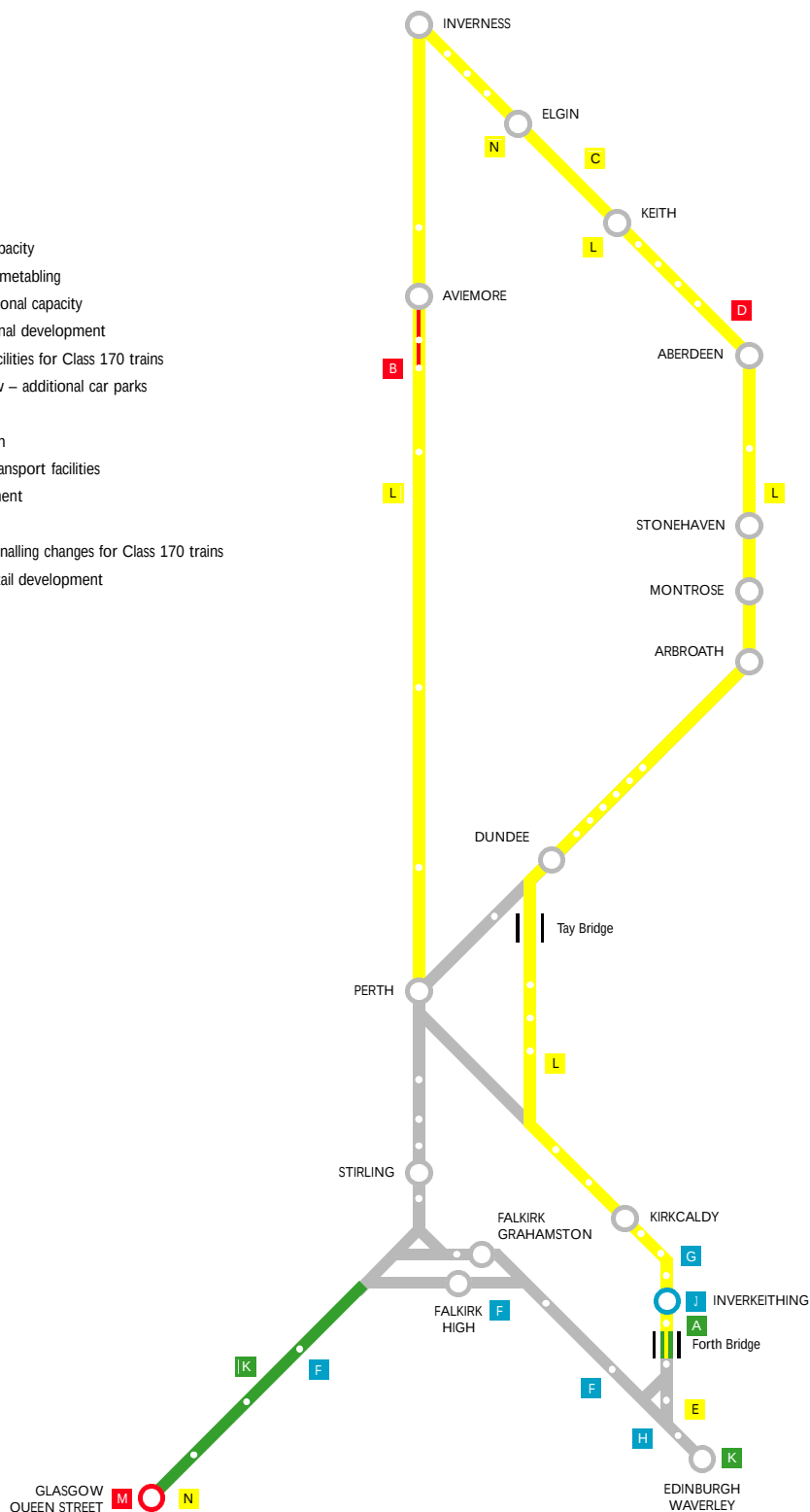
A full-time core team is continuing to take this upgrade project forward in order to retain the possibility of introducing tilting trains and the immediate capacity enhancements by 2003/04.

GNER; ScotRail; Virgin CrossCountry; EWS.



- A** Forth Bridge – additional capacity
- B** Aviemore–Dalwhinnie – retimetabling
- C** Aberdeen–Inverness – additional capacity
- D** Raithes Farm – freight terminal development
- E** Haymarket Depot – new facilities for Class 170 trains
- F** Croy, Falkirk High, Linlithgow – additional car parks
- G** Dysart – new station
- H** Edinburgh Park – new station
- I** Inverkeithing – integrated transport facilities
- K** Renewal of signalling equipment
- L** Linespeed improvements
- M** Glasgow Queen Street – signalling changes for Class 170 trains
- N** Glasgow Queen Street – retail development

See page 119 for colour key



Route characteristics

DESCRIPTION These routes are primarily two tracks but with a considerable mileage of single track, mainly Perth–Inverness and Aberdeen–Inverness. Four tracks are available between Edinburgh Waverley and Haymarket West Junction. The signalling is a mixture of semaphore and colour light. A short section of the route is electrified using 25kV OLE.

Maximum speeds range from 50mph between Winchburgh and Dalmeny to 100mph over parts of the Edinburgh–Glasgow route. Differential speeds for multiple unit trains over locomotive-hauled stock are available between Edinburgh and Aberdeen.

The Haymarket–Edinburgh Waverley area is operating at a high level of utilisation. Other busy sections near to capacity are Glasgow–Greenhill Junction, Aberdeen–Dyce, and parts of Fife.

MAJOR STATIONS We have continued to invest in a number of short-term projects aimed at improving facilities at the Edinburgh Waverley Station. It has been made more environmentally friendly by the segregation of pedestrians from road vehicles, at the same time improving retail outlets. The passenger waiting area has been restored, including the cupola, which received a special mention in the Ian Allan Heritage Awards.

Our predictions for growth of train services at Edinburgh indicate that significant alterations will be required to the track and signalling throughout the station area to provide more and increased flexibility to platforms. This can only be accomplished by major alterations to its fabric. We propose to redevelop the station while preserving its historic character to provide Edinburgh with a modern structure befitting a capital city. We are working with all interested parties to achieve this goal.

Route vision

The 'Express Route' acts as the railway artery of Scotland connecting the main centres of population and the principal cities of Edinburgh, Glasgow, Perth, Dundee, Aberdeen and Inverness. Our vision is to develop the route as the principal mode of transport between the main centres of government, commerce, industry and culture that will serve the people of Scotland into the next millennium, providing more train paths and faster journeys with greater comfort and reliability.

We have undertaken a study on behalf of the industry to establish future growth in rail travel. Analysis suggests that, between 1996 and 2008, the number of passenger journeys will grow by between 25% and 30%, the main growth being in the leisure market followed by commuting and business.

We will deliver this vision through the ability to increase the frequency and reduce journey times without significantly altering the infrastructure, through extensive works such as electrification, additional track capacity or major resignalling. Reduced journey time is a key market requirement. The improvements will be provided by judiciously combining condition-led renewals

with enhancements where there are commercial benefits. In October 1999 ScotRail will increase the train frequency between Glasgow and Edinburgh to every 15 minutes. Journey times between Edinburgh and Glasgow to Aberdeen and Inverness will be progressively reduced through a combination of track work and the utilisation of new curving rules. This is being achieved as a result of our initiative which is being taken forward with the European Union of Railways and is expected to be of benefit to many railway authorities. Our longer-term vision is to achieve a two-hour journey time using tilting trains between Edinburgh and Aberdeen.

We anticipate the continued expansion of freight traffic with the provision of new sidings. These will provide an increased ability to carry larger, longer and heavier trains, linking the north of Britain to the south and Europe via the Channel Tunnel. These measures will enable more freight to be transferred from busy roads such as the A9 and A90 to rail, benefiting the environment, allowing goods to move without congestion and helping to reduce road accidents.

Route development and customer requirements

ScotRail This year, ScotRail are doubling the train frequency to every 15 minutes between Edinburgh and Glasgow with the journey time reduced by two minutes. This is to be followed by additional services over other sections of the route. These requirements are being met by us through providing appropriate train paths and ensuring that the infrastructure is reliable through an enhanced maintenance regime over key sections of the route. They also require reduced journey times particularly between Edinburgh and Aberdeen, Edinburgh, Glasgow and Inverness, as well as Aberdeen and Inverness. As a first stage, we are working to reduce the journey time between Edinburgh and Aberdeen by ten minutes and Aberdeen and Inverness by up to ten minutes.

As part of their ScotRail 2000 project, they require improved customer-information systems, enhanced station security and extensions to selected station car parks. We have commenced works to meet these requirements. The new trains being introduced between Edinburgh–Glasgow and Aberdeen–Edinburgh require improved facilities to enable them to operate successfully. They need to be able to discharge train toilets, as well as to extend the trainshed at Haymarket Depot. The designs for these facilities are well advanced. Improved infrastructure performance and minimal interruption due to engineering work are essential to support these increases in services.

GNER and Virgin CrossCountry are primarily interested in reduced journey times from Inverness and Aberdeen to Edinburgh for their through trains

to London and southern Britain. An initial reduction of ten minutes between Aberdeen and Edinburgh could be followed by a two-hour journey time by utilising tilting trains. They also want improvements in reliability as well as maintenance of the high standard of track quality historically enjoyed in Scotland. This is being provided by enhanced maintenance at selected locations.

EWS requires improved access to operate larger, heavier and longer trains. In particular, they want to ensure that sidings for loading and unloading are available where and when requested by their customers. We are currently identifying a suitable scheme between Arbroath and Montrose.

Local authorities The key priority is to improve the accessibility of railways and station facilities. Examples include:

- new stations throughout
- local trains between Inverurie and Stonehaven providing a cross-Aberdeen service
- a reduction in journey time between Aberdeen and Inverness
- reduced journey times and increases in services between Fife and Edinburgh
- reopening of the Stirling–Alloa through to Kincardine for freight and eventually passenger services
- involvement in a new integrated transport interchange facilities at Perth and Inverkeithing.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Additional train paths over the Forth Bridge	Reduce the length of signal overlaps	1999	A
Additional train paths Aviemore–Dalwhinnie	Retimetable	In agreement with customers	B
Additional train paths Aberdeen–Inverness	Static or dynamic loop between Keith and Elgin	2002	C
New freight traffics at various locations	Track & associated signalling	2000 onwards	
Improved freight distribution in Aberdeen area	Raithes Farm development	2000	D

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Edinburgh–Aberdeen	210	8	52mph (2hr 30min)	56mph (2hr 20min)	No change	65mph (2hr)
Aberdeen–Inverness	174	8	49mph (2hr 13min)	51mph (2hr 08min)	No change	54mph (2hr)
Glasgow Queen Street–Aberdeen	249	6	59mph (2hr 37min)	63mph (2hr 27min)	No change	65mph (2hr 22min)
Edinburgh–Glasgow Queen Street	76	3	57mph (50 min)	59mph (48min)	No change	No change
Inverness–Perth	190	5	52mph (2hr 15min)	54mph (2hr 10min)	No change	57mph (2hr 05min)
Glasgow–Inverness	290	12	54mph (3hr 20min)	56mph (3hr 15min)	No change	58mph (3hr 10min)
LINESPEEDS (km of track)						
Up to 35mph			72	72	72	64
40–75mph			750	740	740	719
80–105mph			500	510	510	539
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			1322	1322	1322	1322
GAUGE (km of route)						
W6A			798	798	798	798
W7			798	798	798	798
W8			695	695	695	695
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			362	362	362	282
23.5 tonnes to 25.4 tonnes			960	960	960	1040
TOTAL			1322	1322	1322	1322

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	6.1	5.4	4.5	34.1	
Structures	13.9	9.7	15.5	43.8	
Signalling	9.2	4.3	3.2	19.7	K
Electrification	0.0	0.0	0.1	0.9	
Plant & Machinery	2.9	2.1	0.3	10.3	
Telecoms	1.2	1.5	0.5	7.1	
Stations	12.4	4.8	4.8	6.0	
Depots	0.0	0.3	0.2	5.4	
Other	0.0	0.0	0.0	0.4	
TOTAL EXPENDITURE	45.7	28.1	29.1	127.7	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	0.0	0.4	0.4	0.1		
COMMERCIAL							
Raithes Farm freight depot	2001	0.0	6.0	2.0	0.0		D
Retail development at Glasgow Queen Street	2000	0.0	0.5	0.0	0.0	1	M
PARTNERSHIP							
Aberdeen–Inverness capacity improvements	2007	0.0	0.0	0.0	10.0		C
Journey-time reductions	2007	0.0	0.5	0.0	7.0	3	L
Glasgow Queen Street signalling mods to cater for longer trains 1999	1999	0.0	1.3	0.0	0.0	1	N
Provision of train toilet discharge facilities in depots	1999	0.0	0.9	0.0	0.0	5	E
Haymarket Depot shed extension	2000	0.0	0.5	0.0	0.0	1	E
CIS enhancements	2000	0.0	0.1	0.0	0.0	1	
CONTRACTOR							
Car-park extensions at Falkirk High, Linlithgow and Croy	2001	0.0	0.8	0.3	0.0	4	F
FEASIBILITY							
General route improvements	2009	0.2	0.2	0.1	0.3		
THIRD PARTY							
Edinburgh Park new station	2000	0.3	0.8	0.0	0.0	1	H
Dysart new station	2001	0.0	0.0	0.9	0.0	1	G
SPT car parks	2001	0.0	0.0	0.1	0.0	1	
Other schemes	Various	0.6	0.7	0.3	3.4	17	
TOTAL RAILTRACK EXPENDITURE		0.6	5.3	1.1	20.8	36	
TOTAL NON-RAILTRACK EXPENDITURE		0.5	7.4	3.0	0.0		

Other route developments

LOCATION	PROPOSED SOLUTION	YEAR	REF
Haymarket and Perth – depot discharge of train toilet tanks	New controlled emission toilet facilities	1999	E
Haymarket, Perth and Inverness – improved carriage washing	New washing plant	2001/02	E
Haymarket – longer trains (Class 170)	Trainshed extension	1999	E
Falkirk High, Linlithgow and Croy – additional car parking	Extensions to existing car parks	1999	F
Improved security and safety at stations	Upgrade lighting	Ongoing	
	Install CCTV		
	Enhance customer-information systems		
Dysart – new station	Development in partnership with Fife Council		G
Edinburgh Park – new station	Development in partnership with the Development Corporation and the City of Edinburgh Council	2000	H
Inverkeithing – integrated transport facilities	Development in partnership with Fife Council	2000*	I
Improved station facilities	Improvements to waiting rooms, toilet facilities, cycle rack and retail outlets	Ongoing	

*subject to funding agreement

Progress on the 1998 NMS

SIGNALLING The renewal of signalling in the Glasgow Queen Street area based on Cowlaers signal box has continued with £19M spent this year out of a £25M total. The ROSS 1 scheme at Cowlaers, which also involves the Strathclyde route, is on schedule for completion in May 1999 and will result in the closure of seven signal boxes, including Sighthill, the last mechanical signal box in Glasgow. The completion of this scheme will help to maintain and improve performance, and it has already resulted in greater flexibility of operation in and out of Queen Street Station, including bidirectional working to and from Lenzie.

To sustain improved performance between Edinburgh and Glasgow, we have carried out renewals at three further interlockings, together with the renewal of the 'train describers' that enable signallers to position and identify trains at Greenhill and Edinburgh.

PLANT AND ELECTRICAL The points-heater programme has continued as promised in last year's NMS. The installation of new or improved systems at 33 locations involving 177 point ends has enabled performance to be maintained and improved when cold weather would have otherwise put the service to customers at risk.

Monitoring equipment has been installed, enabling the performance of vital installations at key locations to be assessed remotely by our maintenance contractor. This allows the condition of plant items such as power generation sets, pumps and air supply systems to be assessed, often before failure, thereby avoiding delays to trains. If there is a failure, the time taken to restore services is minimised, as the technician can take the appropriate spares and fit them immediately. Anemometers have been installed on the Tay Bridge giving warning of high winds.

Signalling equipment at Cowlaers, Greenhill, Polmont and Edinburgh Haymarket is being fitted with uninterruptable power supplies, so that, if the main electricity supply is lost, trains can continue to operate safely without the need to reset computer equipment, thereby avoiding delays.

STRUCTURES The five-year programme to refurbish the Forth Bridge continues, with about 25% completed. We have also taken the opportunity to provide Scotland with the largest millennium countdown clock in Europe.

Killiecrankie Tunnel has been cleared for W8 traffic, opening up the Perth–Inverness route. As an immediate consequence, EWS can now offer Safeway a daily service to Inverness. The myth that only 40-tonne articulated lorries can bring fresh, regular supplies of perishable foodstuffs to the area has been exploded.

Drainage measures have been installed at several locations. While not solving all the flooding problems that have occurred this year, they have gone some way towards reducing the effects of one of the wettest years on record, even for Scotland.

Detailed analysis has been carried out to determine what work is required on the Tay Bridge, and a work programme is being produced.

STATIONS We were pleased to take the responsibility for construction of a new station at Dalgety Bay. Sponsored and financed by Fife Council, it has already proved to be a success, so much so that additional car parking is now being considered.

The Station Regeneration Programme has continued with over 20 stations completed to date. Most notable is the completion of the roof repairs at Aberdeen Station and the ongoing work at Glasgow Queen Street with the £15M renewal of the largest single-barrel vault roof in the country.

Lifts at Stirling and Linlithgow, funded by the local authorities, were installed to improve access for many groups of people, the former being given an Ian Allan Heritage 'Highly Commended' Award. ScotRail has also taken the opportunity to carry out additional work at its own cost simultaneous to the Station Regeneration Programme, as have local authorities in upgrading adjacent facilities. This includes station lighting and the provision of CCTV equipment, providing improved safety and security at stations.

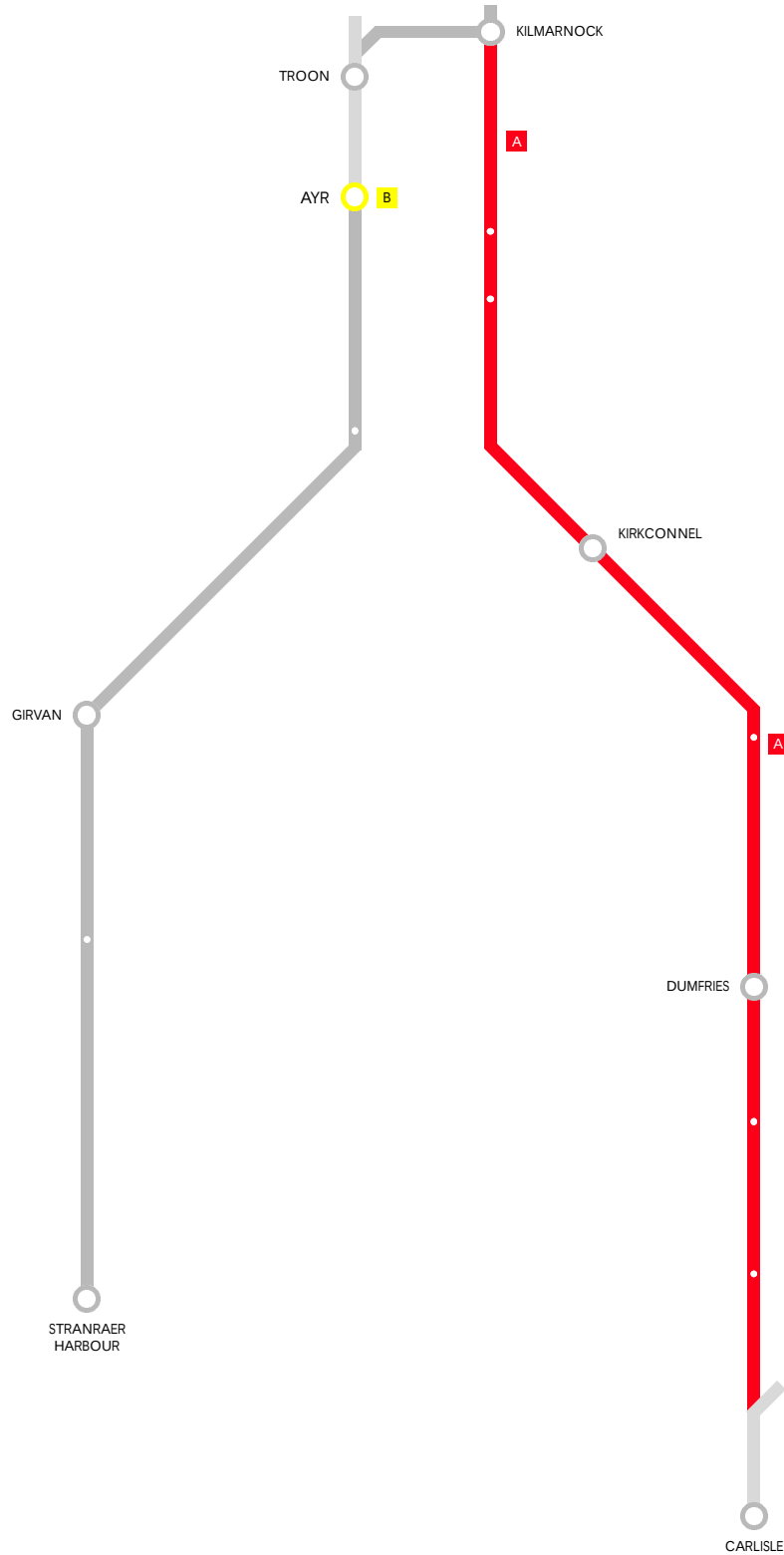
Most of the investment referred to above has been carried out as part of our continued programme of steady-state renewal, demonstrating our continued commitment to enable the daily performance of trains to be maintained and improved by our customers. As a direct consequence, the wider community benefits from a better way of travelling.

ScotRail; DRS; EWS.



- A** Kilmarnock–Gretna – capacity improvements and track renewals
- B** Ayr Depot – improvements to service new trains

See page 119 for colour key



Route characteristics

DESCRIPTION The Ayr–Stranraer route is primarily single track with passing loops. This is a passenger route providing connections with the ferry to Northern Ireland as well as an essential local service. Coal traffic runs over the northern section between Ayr and Dalrymple Junction. In contrast, the Kilmarnock–Carlisle Line is double track as far as Annan. This is a busy, mixed traffic line with very high and increasing levels of freight traffic, mainly coal en route to power stations in England, from local open-cast sites and imported via Clydeport's Hunterston Terminal. The line from Kilmarnock to Gretna Junction also acts as a diversionary route for WCML. The route is controlled from 14 signal boxes and has maximum linespeeds from 50mph to 80mph.

BOTTLENECK ANALYSIS The Kilmarnock to Gretna Junction route has several interlinked restrictions on capacity, which together create bottlenecks identified in the 1998 NMS.

The 125km route has a 13km single-line section, no passing loops, and long signalling sections which restrict train movements to a maximum of three per hour in each direction and 16–20 hours of operation per day.

The recent growth in freight train movements means that most of the route's capacity has been used.

To accommodate predicted growth in freight train movements, we have already increased the opening hours of the route, as well as introducing dedicated paths for freight train services to maintain the high-punctuality standards required by ScotRail. During 1999/2000 we will provide a passing loop facility, which will provide capacity for predicted train movements. If, however, these continue to expand above the predicted level, we will undertake a series of incremental enhancement schemes.

Route vision

The route provides links between smaller towns and larger conurbations and forms part of the Anglo–Scottish and Ireland–Scottish transport corridors. Our analysis predicts further significant increases of Anglo–Scottish freight trains, while other markets will continue to grow.

Our vision for the route is one of a very busy rural railway with a significant requirement for freight train movements. We will provide the additional train paths and the new infrastructure to support them by providing additional loops and crossovers between Gretna and Kilmarnock. The existing infrastructure will be improved to allow larger and heavier trains. The route makes an important contribution to the economic growth of South West Scotland with its important ferry services.

Our vision for passenger traffic is that it will grow, but that most of this growth will be accommodated. We are supporting this growth by providing better station facilities, and infrastructure works to provide improved reliability and performance.

We see the Ireland–Scottish Route as vital for the economy of Stranraer. We will work in partnership with our customers and the local authorities to develop, expand and improve both passenger and freight business with the objective of benefiting the community and the environment by encouraging the transfer from road to rail.

Route development and customer requirements

ScotRail is primarily seeking to maintain and improve performance. They are concerned that increased numbers of slower freight trains do not impede the movement of scheduled passenger trains. Dedicated freight train paths and the addition of a loop between Dumfries and New Cumnock will increase the capacity and maintain ScotRail's performance. ScotRail is satisfied with the current track quality. They are also keen that facilities at stations are improved.

EWS and **DRS** require the provision to operate more trains with more flexible pathing arrangements between Carlisle and Kilmarnock. EWS also desires improved access to operate larger, heavier and longer trains. Both EWS and their

customers are seeking to reopen disused sidings and provide suitable loading and unloading facilities. In partnership with EWS, we are currently investigating extensions to loops and improved operation of the Knockshinnoch branch, together with sidings at Girvan, Stranraer and in the New Cumnock area.

Local authorities want to see the facilities at stations improved as well as a faster and a more frequent level of services. This is particularly relevant at Stranraer, where the local authority is anxious to retain and expand rail links with the sea crossing to Belfast. A key issue in this area is connections from remote rural areas with major towns and long-distance services.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Kilmarnock–Gretna Junction	Optimisation of train paths and the utilisation of the route for 24hrs each day	1999	A
	Provision of loop to increase capacity and flexibility	2000	
	Additional loops and crossovers to meet future growth	2002	
Various new freight traffics	Track and associated signalling	Ongoing	

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Stranraer–Carlisle	270	10	48mph (3hr 31min)	No change	No change	No change
Stranraer–Glasgow	163	6	48mph (2hr 07min)	No change	No change	No change
Glasgow Central–Carlisle	185	8	49mph (2hr 22min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			10	10	10	10
40–75mph			315	315	315	315
80–105mph			51	51	51	51
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			376	376	376	376
GAUGE (km of route)						
W6A			242	242	242	242
W7			241	241	241	241
W8			241	241	241	241
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			0	0	0	0
20.4 tonnes to 23.4 tonnes			119	119	119	119
23.5 tonnes to 25.4 tonnes			257	257	257	257
TOTAL			376	376	376	376

Other route developments

LOCATION	PROPOSED SOLUTION	YEAR	REF
Discharge of train toilet tanks at Ayr Depot	New controlled emission toilet facilities	1999	B
Improved security and safety at a number of stations	Upgrade lighting		
	Install CCTV		
	Enhance customer-information systems	Ongoing	
Improved facilities at key stations	Improvements to waiting rooms, toilet facilities, cycle rack and retail outlets	Ongoing	

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02 to 2005/6	REF
NORTH WEST ZONE					
Track	0.2	0.4	0.3	1.4	
Structures	0.0	0.0	0.0	0.0	
Signalling	0.0	0.0	0.0	0.3	
TOTAL EXPENDITURE	0.2	0.4	0.3	1.7	
SCOTLAND ZONE					
Track	4.5	2.9	2.4	17.0	
Structures	1.1	0.7	1.4	7.4	
Signalling	0.0	0.3	0.5	17.3	
Electrification	0.0	0.0	0.0	0.0	
Plant & Machinery	0.4	0.1	0.1	2.0	
Telecoms	0.0	0.0	0.0	0.1	
Stations	6.3	4.3	4.3	1.9	
Depots	0.0	0.0	0.0	1.0	
TOTAL EXPENDITURE	12.3	8.3	8.7	46.7	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	0.0	0.4	0.4	0.1		
COMMERCIAL							
Capacity enhancements Kilmarnock–Gretna	2002	0.1	0.5	0.5	0.9		B
PARTNERSHIP							
CIS enhancements	2000	0.0	0.1	0.0	0.0		
Other schemes	Various	0.0	0.0	0.0	0.1		
TOTAL RAILTRACK EXPENDITURE		0.1	1.0	0.9	1.1		

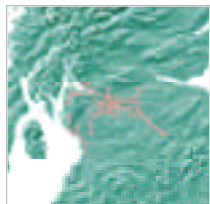
Progress on the 1998 NMS

TRACK Various renewals have been completed over the past 12 months. At these locations, the opportunity has been taken to install modern components to give increased reliability. This is of particular importance between Mauchline and Gretna where freight tonnage has significantly increased on track which has for many years only carried lightweight passenger rolling stock. A policy of strengthening the track at similar locations will continue.

PLANT AND ELECTRICAL The points-heater programme has continued, enabling our performance to be maintained and improved when cold weather would otherwise put the service to customers at risk. This has resulted in 53 point-ends being entirely refurbished at 13 locations, including installing new power supplies, strip-heaters and sensing equipment. Provision has been made for remote monitoring equipment so that, in the future, our maintenance contractor can identify potential faults and attend the site with the relevant equipment, thereby reducing the potential for delay.

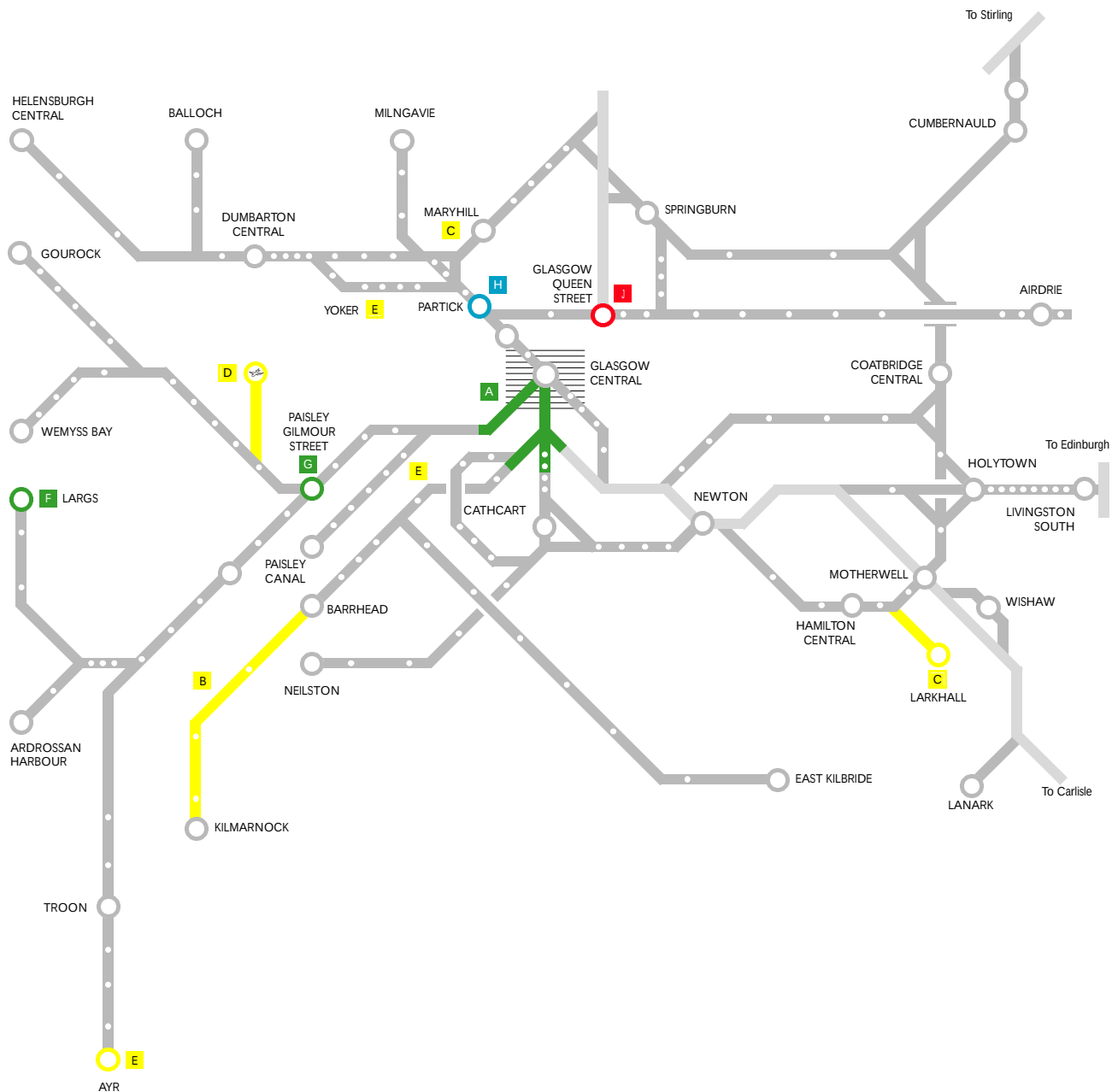
STRUCTURES The infill/repair work at U/B172 New Cumnock has been completed, thus enabling the speed restriction for freight trains to be removed and the line limit of 70mph restored. Improvements to lineside drainage have been carried out, thereby maintaining performance even in the worst conditions.

STATIONS Nine of the 12 stations on the route have had work carried out as part of the SRP. The regeneration work is being carried out by us, following full consultation and agreement over the scope of work with ScotRail and the relevant local authority and SPT. ScotRail has, in addition, taken the opportunity to carry out additional work at its own cost and at the same time, thereby minimising the extent of disruption to the travelling public.



- A** Glasgow Central – renewal of signalling equipment
- B** Barrhead–Kilmarnock – increase in capacity
- C** Larkhall–Milngavie – reopening line Larkhall–Hamilton and new service to Milngavie
- D** Glasgow Airport – rail link
- E** Depot enhancements for servicing new trains
- F** Largs Station – reconstruction
- G** Paisley Gilmour Street – station enhancements
- H** Partick Station – new transport interchange facilities
- J** Glasgow Queen Street Station – retail development

See page 119 for colour key



Route characteristics

DESCRIPTION The route is the largest suburban passenger railway outside of London, with freight carried on many of the lines. The route is mainly double track, although 23% is single line. In the Glasgow Central area, there are multiple tracks. Speeds vary considerably, ranging from 40mph to 90mph. Signalling is predominantly colour-light using route-relay interlockings. 58% of track miles is electrified using 25kV OLE.

The route is largely co-terminus with the Strathclyde Passenger Transport (SPT) area of responsibility and runs through 12 local authority areas in whole or in part.

Route vision

The Strathclyde route is the primary public transport network for the Glasgow area. Our vision is to develop the network to maintain its position and grow its share of an expanding market.

SPT is responsible for setting the service specification and standards on these routes. ScotRail is the service provider. SPT is responsible for funding these services and is keen to promote expansion where this can be viably achieved.

We envisage a dynamic urban railway providing fast, frequent and reliable services radiating out from Glasgow's city centre throughout the conurbation. The rail service plays a key role in an integrated system throughout the area, helping to improve the environment by reducing road congestion, thereby ensuring the economic and cultural growth of Scotland's largest city.

Our analysis of projected passenger travel predicts an underlying growth of up to 35% over the next ten years, much of which will be off-peak travel. SPT will need to continue its proactive marketing policy, seen as of vital importance – as is punctuality, performance and quality image. Other growth areas will be addressed by the provision of additional capacity in the form of extra train paths and services, and in the opening of new lines and stations.

BOTTLENECK ANALYSIS Two potential bottlenecks have been identified on the route: at Glasgow Central and between Barrhead and Kilmarnock.

Our analysis at Glasgow Central shows that there is sufficient capacity for all the identified existing and future services, although specific provision may have to be made to accommodate a possible 15-minute interval service to Glasgow Airport (see Route A for more details).

To accommodate the proposed service increase on the Barrhead–Kilmarnock Line, an additional loop will be needed between Stewarton and Dunlop.

Most lines in the Strathclyde Route carry freight traffic, with the main flows in terms of tonnage and traffic levels being concentrated in the Mossend–Coatbridge area where the main English Welsh & Scottish Railway and Freightliner Ltd terminals are located in Scotland. Significant traffic is now being generated by Clydeport's Hunterston Bulk Handling Terminal on the Largs Branch. Several smaller freight facilities are encompassed within this route. We forecast freight traffic will continue to expand rapidly.

Glasgow Central The largest single station regeneration scheme in Scotland costing £35M is at Glasgow Central, which involves upgrading the facilities for passengers and renewing the roof. The Argyle Street Bridge renovation received a special mention in the recent Ian Allan Heritage Awards.

In addition, we are reviewing the ability of the station to accommodate the forecast passenger growth, together with a number of customer requirements, including improved waiting facilities, and are preparing a development programme.

Route development and customer requirements

Strathclyde Passenger Transport requirements can be divided into three groups.

- Faster and more frequent services, such as Glasgow–Cumbernauld–Croy, Ayr, Kilmarnock, Paisley Canal, Whifflet, Maryhill and East Kilbride as well as Bellgrove–Dalmuir and Newton–Neilston. Railtrack has appropriate measures/plans in place to meet these.
- New stations at Howwood and Gartcosh, and improvements to the Partick interchange. Improvements in disabled access, customer-information systems, CCTV and car parking which are being delivered at some stations.
- New routes to Larkhall, between Maryhill and Anniesland, and to Glasgow Airport. We are expecting to reach a PFI agreement to allow the Larkhall extension to be built.

In addition, SPT desires include improved performance, reduced journey times and fewer interruptions due to engineering work. We have introduced an enhanced maintenance policy at key locations to improve performance.

ScotRail's requirements for this route include those of the SPT with the addition of facilities to discharge on-train toilets at Ayr, Corkerhill and Yoker, and expansion of driver-only operation for Paisley Canal, Whifflet and to West Calder. They also require the extension of the overhead electrification to Paisley Canal and between Rutherglen and Coatbridge and the construction of a new station at Abronhill.

DRS, EWS and Freightliner require the provision for piggyback services from the south to Mossend. The general ability to move larger-gauge traffic and improved performance are requirements for all routes. We have completed our assessment of their proposals at Motherwell Depot, which would provide additional facilities and we look forward to its implementation.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Glasgow Central	Improved performance arising from enhanced reliability as a consequence of the resignalling scheme	2003	A
Barrhead–Kilmarnock	Provide a dynamic loop allowing trains to pass without stopping, between Stewarton and Dunlop	In agreement with SPT	B
Larkhall–Milingavie	Construct 4.65km of electrified railway between Larkhall and Haughead Junction (south east of Hamilton) and provide three stations Reinstate a 1.65km line between Maryhill Park and Anniesland and build a new station	2001	C
Glasgow Central–Glasgow Airport	Construct a new electrified railway off the Glasgow to Gourrock line	2006	D

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Helensburgh–Drumgelloch	59	19	31mph (1hr 10 min)	No change	No change	No change
Dalmuir–Lanark	62	22	30mph (1hr 17min)	No change	No change	No change
Glasgow Central–Neilston	19	9	26mph (27min)	No change	No change	No change
Glasgow Queen Street–Maryhill	8	4	23mph (13min)	No change	No change	No change
Glasgow Central–Gourock	42	6	38mph (41min)	No change	No change	41mph (38min) Increased linespeed from 75mph to 90mph
Glasgow Central–Ayr	69	7	48mph (52min)	No change	No change	53mph (47min) If selected stopping patterns used
LINESPEEDS (km of track)						
Up to 35mph			103	105	105	105
40–75mph			694	700	700	719
80–105mph			85	85	85	85
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			882	890	890	909
GAUGE (km of route)						
W6A			468	473	473	492
W7			468	473	473	492
W8			274	278	278	298
W9			39	39	39	39
W10			0	0	0	39
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			97	97	97	97
20.4 tonnes to 23.4 tonnes			106	106	106	106
23.5 tonnes to 25.4 tonnes			679	687	687	706
TOTAL			882	890	890	909

Other route developments

LOCATION	PROPOSEDSOLUTION	YEAR	REF
Discharge of train toilet tanks at Ayr, Corkerhill & Yoker depots	New controlled emission toilet facilities	1999	E
Improved carriage washing at Corkerhill	New washing plant	1999	E
Largs Station	Reconstruction and development of the station	1999	F
Paisley Gilmour Street	Provision of lifts and enhancements	1999	G
Partick Station	Redevelopment and provision for integrated transport facilities	Subject to City Challenge funding	H
Improved car parking for the disabled	Development in partnership with the SPT	1999	
Retail development at Glasgow Queen Street	Upgrades to retail outlets	1999	J
Improved security and safety at stations	Upgrade lighting Install CCTV Enhance customer-information systems	Ongoing	
New stations at locations required by SPT	Development in partnership with the SPT		
Improved station facilities	Improvements to waiting rooms, toilet facilities, cycle rack and retail outlets	Ongoing	

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	6.1	5.0	4.0	29.7	
Structures	2.7	2.1	2.9	17.6	
Signalling	10.9	4.0	7.4	34.7	A
Electrification	4.7	0.5	1.0	22.5	
Plant & Machinery	2.3	1.2	0.2	3.2	
Telecoms	1.4	2.7	6.4	8.1	
Stations	15.9	6.1	6.1	13.6	
Depots	0.1	0.2	0.2	4.8	
TOTAL EXPENDITURE	44.1	21.8	28.2	134.2	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Paisley Gilmour Street improvements	2000	1.2	0.5	0.0	0.0		G
Largs Station rebuild	2000	0.0	1.0	0.0	0.0		F
Station enhancements	2001	0.0	0.4	0.4	0.1		
AWS	2002	0.0	0.0	0.0	0.5		
PARTNERSHIP							
Glasgow Airport rail link	2005	0.1	0.0	0.1	50.0	1	D
Larkhall–Milingavie and Anniesland	2001	0.0	10.0	14.0	0.0	1	C
CIS enhancements	2000	0.0	0.1	0.0	0.0	1	
CONTRACTOR							
Barrhead–Kilmarnock capacity improvements	2002	0.8	0.0	3.0	4.3		B
FEASIBILITY							
Station information & security	2007	0.0	0.0	0.0	1.0	1	
THIRD PARTY							
SPT new stations	2009	1.3	1.0	1.4	7.0	1	
SPT car parks	2001	0.0	0.1	0.2	0.0	1	
Other schemes	Various	0.5	0.9	0.6	9.9	10	
TOTAL RAILTRACK EXPENDITURE		0.0	10.9	14.5	7.0	16	
TOTAL NON-RAILTRACK EXPENDITURE		3.9	3.1	5.2	65.8		

Progress on the 1998 NMS

SIGNALLING The renewal of the signalling equipment based on Cowlairs signal box has continued. The completion of this scheme will help to maintain and improve reliability and performance and has already resulted in improvements in the flexibility of operation in and out of Queen Street Station, giving an improved service to the travelling public. This year £19M has been spent, out of a total of £25M. The three-year project will be completed in May this year when the Sighthill–Cumbernauld section will be commissioned. These works have seen the removal of Sighthill, the last mechanical signal box in the Glasgow area.

Detailed development has been carried out at four major signalling locations – Glasgow Central, Rutherglen, Polmadie and Mossend – allowing renewal to begin during the next 12 months.

The renewal of train describers (which enable signallers to position and identify trains) at Glasgow and Motherwell has been completed, as has the replacement of the signalling interlocking at Motherwell. Equipment to protect the signalling at Yoker from power surges has been commissioned. The equipment that detects train movements (track circuits) has been upgraded with axle-counters installed at certain critical locations to improve the reliability and performance of the system.

PLANT AND ELECTRICAL The points-heater programme has continued as promised in last year's NMS. The installation of new or improved equipment at 47 locations involving 280 point-ends has enabled performance in the Strathclyde area to be maintained and improved during periods of cold weather.

Remote monitoring equipment has been installed enabling the performance of vital installations at key locations to be assessed without a visit to the site by our maintenance contractor. This allows a variety of equipment such as power generation sets and air supply systems to be monitored and their condition to be assessed at various locations. The objective is to identify potential failures, thereby avoiding delays to trains. If a fault occurs, the time taken to restore services is minimised as the technician can take the appropriate spares and fit them immediately. Equipment being monitored also includes anemometers

at three locations, providing warnings of high winds and the consequential risk to the OLE.

OLE power supplies have been renewed at Port Glasgow, Parkhead and Dalreoch. When commissioned, they will provide improved standards and a higher quality for electric train services.

STRUCTURES Two tunnels have had significant works carried out. The first – at Knightswood – saw the renewal of the original cast-iron roof beams supporting a public road and the Forth and Clyde Canals. Construction took place during an agreed closure of the railway, the road and the canal. Disruption was kept to a minimum with the works being completed within the planned 43 days. At Abronhill Tunnel, the solution was different; the roof of the tunnel was removed and a cutting created. Both of these major works have prevented possible future collapse of the structure and will provide an assured service for more than a century. Even with regular inspections the unexpected does occur, as happened at Paisley when a retaining wall started to show signs of deterioration. Remedial work was rapidly arranged to avoid closure of the route.

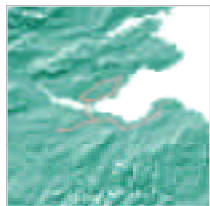
Drainage works have been completed at various locations, thereby maintaining and improving performance despite abnormally high rainfall levels.

STATIONS Drumfrochar Station was opened in May, sponsored and funded by the SPT and constructed by us.

The Station Regeneration Programme has continued, with 98 stations completed to date. The largest worksite is the roof repairs at Glasgow Queen Street. The regeneration work is carried out by us, but only after full consultation and agreement over the scope of work, with the SPT and ScotRail. Additional work has been carried out at the same time by the SPT, at its own cost, to upgrade adjacent facilities.

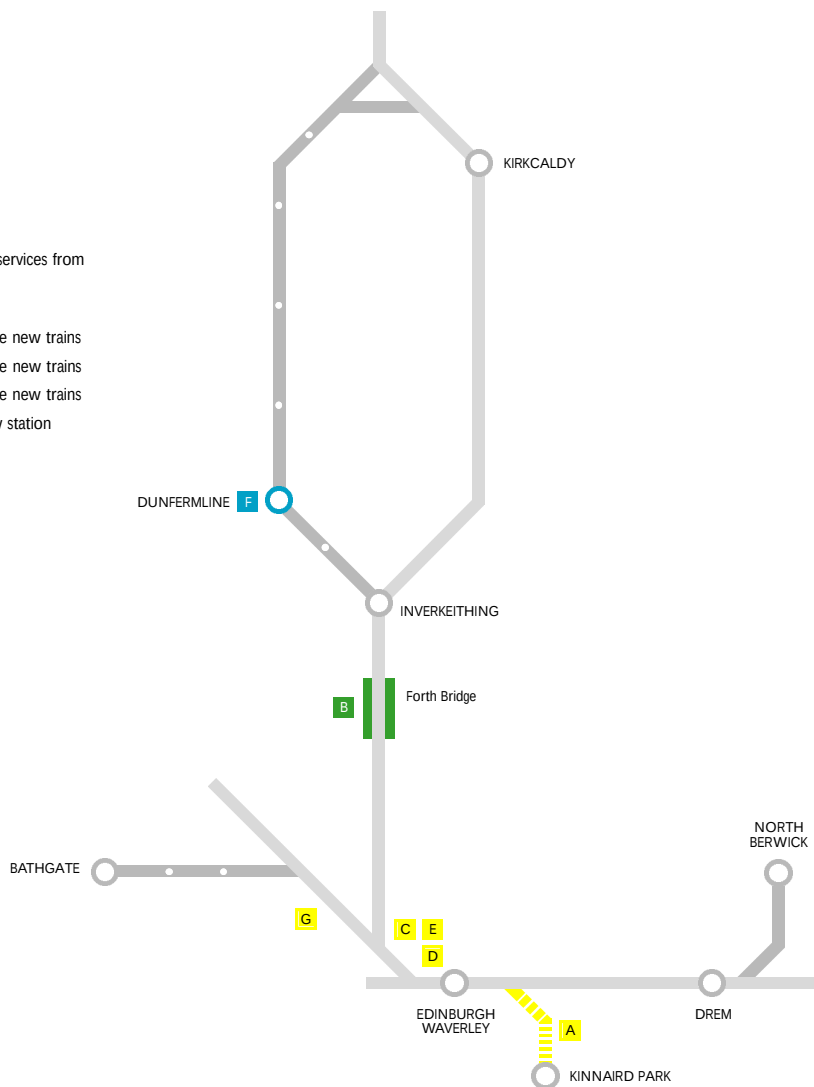
In addition to the regeneration work, improvements to station lighting and the provision of CCTV equipment at a number of stations have improved safety and security for the public.

ScotRail; EWS



- A** Edinburgh CrossRail – extension of services from Fife, Bathgate to Kinnaird Park
- B** Forth Bridge – additional capacity
- C** Haymarket Depot – facility to service new trains
- D** Haymarket Depot – facility to service new trains
- E** Haymarket Depot – facility to service new trains
- F** Dunfermline Queen Margaret – new station
- G** Edinburgh Park – new station

See page 119 for colour key



Route characteristics

DESCRIPTION The Route consists of three distinct elements, Inverkeithing Central Junction–Thornton North and South Junctions (Fife Inner Circle), Drem Junction–North Berwick, and Newbridge Junction–Bathgate.

The Fife Circle is double track used by both freight and passenger traffic. Maximum speed is 65mph with the capability to carry 25-tonne axle weights between Inverkeithing and Cowdenbeath.

The Bathgate line is a mixture of double- and single-track railway, which is primarily used by passenger trains with a maximum linespeed of 75mph, but can also carry trains up to 25-tonne axle weight.

The North Berwick Branch is a four-mile long, single-line, passenger-only railway, electrified throughout with 25kV OLE.

The signalling on the route is by colour-light signals controlled from the Edinburgh signalling centre.

Based on current projections and customer requirements, there is sufficient capacity to meet future projections.

Route vision

The Edinburgh and Fife Route is set to act as the springboard for the future public transport network of Scotland's capital, currently awaiting the establishment of the Scottish Parliament. Serving the communities of West Fife, and parts of West and East Lothian, it is well positioned to take a leading role in relieving Edinburgh's over-stretched road network, which relies heavily upon the Forth Road Bridge and on the A720 ring road. This will be achieved by improving existing services, increased frequency of service and by growing new markets.

Our vision is of a route that expands to form a network of railway lines at the core of the city's urban transport requirements. It would then enable the provision of through services from Inverkeithing, West Calder and Bathgate to Kinnaird Park, with its shopping centres and proposed housing developments, eventually extending outwards to Dalkeith, Penicuik and the Borders. This would see the renaissance of railway travel in and around Edinburgh. These and other routes, would link with the bus network with the City of Edinburgh Rapid Transit

System into an integrated transport network serving Parliament and the administration, the airport, business, and not least the community, allowing an over-congested road network to function more efficiently with consequential benefits to the environment. We also support the principle of hypothecation whereby charges for entering or parking in the City of Edinburgh could be used to pay for an enhanced railway.

The route in both its current form and in an expanded future is seen as being vital in providing feeder services to other routes connecting Fife and the Lothians to the remainder of Scotland and beyond to England and the rest of Europe.

Coal traffic in Fife has grown in recent years and we predict that this and other freight traffic will continue to expand. The route is well positioned to realise ambitions of turning Rosyth into a major East Coast Port, providing connections to and from the ECML as well as potentially to the west.

Route development and customer requirements

ScotRail has increased the frequency of trains to Bathgate and to Fife which requires a very reliable infrastructure. To ensure reliability for these services we have introduced enhanced maintenance at key junctions to maintain and improve performance.

EWS requires improved access and reliability for their trains to and from Longannet power station.

Local authorities The authorities are keen to see a growth in the use of rail passenger transport and associated facilities.

- The introduction of the Edinburgh Crossrail scheme to Kinnaird Park. In partnership with The City of Edinburgh and ScotRail, we have initiated proposals and will take these forward following a satisfactory funding agreement.

- Possible extensions to Dalkeith, Penicuik and onwards to Carlisle (The Borders Railway).
- The reopening of direct services between Dunfermline and Stirling via Alloa.
- The development of Rosyth docks with associated rail services into a major east-coast port.
- Improved station facilities.
- New stations, eg at Dunfermline Queen Margaret.

Our plans allow for these where appropriate.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Edinburgh Crossrail: Portobello Junction to Millerhill	Although not part of the actual route improvements to the track, signalling and new stations will be necessary for this new service, which is likely to be an extension of either the Bathgate, West Calder or Fife services	2002	A
Additional train paths over the Forth Bridge	Reduction in signal overlap lengths. Though not part of this route, they are vital to the growth in train services in Fife	1999	B
New freight traffics in Fife	Track & associated signalling	ongoing	

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Edinburgh–Glenrothes via Dunfermline	49	10	33mph (56min)	No change	No change	No change
Bathgate–Edinburgh	30	3	43mph (26min)	No change	No change	No change
Edinburgh–North Berwick	38	5	43mph (33min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			21	21	21	21
40–75mph			78	78	78	78
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			99	99	99	99
GAUGE (km of route)						
W6A			56	56	56	56
W7			56	56	56	56
W8			32	32	32	32
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			8	8	8	8
20.4 tonnes to 23.4 tonnes			35	35	35	35
23.5 tonnes to 25.4 tonnes			56	56	56	56
TOTAL			99	99	99	99

Other route developments

LOCATION	PROPOSED SOLUTION	YEAR	REF
Discharge of train toilet tanks at Haymarket	New controlled emission toilet facilities	1999	C
Improved carriage washing at Haymarket	New washing plant	2001–02	D
Longer trains (Class170) at Haymarket	Trainshed extension	1999	E
New station at Dunfermline Queen Margaret	Development with Fife Council		F
New station at Edinburgh Park	Construction of a two-platform station with full facilities, in partnership with the Development Corporation, the City of Edinburgh and ScotRail		G
Improved security and safety at stations	Upgrade lighting Install CCTV Enhance customer-information systems	Ongoing	
Improved station facilities	Improvements to waiting rooms, toilet facilities, cycle rack and retail outlets	Ongoing	

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06
Track	3.1	1.6	1.4	9.8
Structures	1.1	0.7	1.3	7.3
Signalling	0.2	0.4	0.4	1.6
Electrification	0.0	0.0	0.0	0.0
Plant & Machinery	0.3	0.1	0.0	0.6
Telecoms	0.0	0.1	0.0	0.1
Stations	3.3	4.4	4.5	2.7
Depots	0.0	0.0	0.0	0.3
TOTAL EXPENDITURE	8.0	7.3	7.6	22.4

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	0.0	0.4	0.4	0.1		
PARTNERSHIP							
CIS enhancements	2000	0.0	0.1	0.0	0.0	1	
THIRD PARTY							
Dunfermline Queen Margaret – new station	2000	0.0	1.1	0.0	0.0	1	F
Other schemes	Various	0.1	0.1	0.0	2.4	2	
TOTAL RAILTRACK EXPENDITURE		0.1	0.6	0.4	2.5	4	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	1.1	0.0	0.0		

Progress on the 1998 NMS

SIGNALLING Signalling improvements have been completed in the Fife area, which increases capacity to facilitate an increase in train frequency from Glenrothes to Edinburgh via Cowdenbeath.

Early development of signalling works to renew the signalling equipment at Edinburgh is ongoing and will continue in 1999 with completion in 2001. This will ensure that the reliability and integrity of the systems are maintained. The equipment that enables signallers to position and identify trains (train describers) has been renewed and updated at Edinburgh, improving the reliability of control systems.

PLANT AND ELECTRICAL Additional points heaters have been installed, completing the programme that was started two years ago. This proved to be of benefit during the cold weather last winter, helping to improve performance and reduce delays.

Remote monitoring equipment, enabling the performance of vital installations at key locations to be assessed by our maintenance contractor, has been installed. This allows the condition of plant etc to be assessed – often before it fails – thereby avoiding delays to trains. Systems to monitor signalling power supplies, generators, mains power supplies and points heaters have been provided to improve services to destinations on this route.

Equipment to deter birds from nesting on overhead wires at certain bridges has been installed on the ECML north of Prestonpans, thereby reducing the risk of disruption to services caused by short-circuiting when trains pass.

STRUCTURES All passengers travelling to Fife will have observed the scaffolding which permits the refurbishment work to the Forth Bridge. This five-year programme is now about 25% complete.

STATIONS A new station has been opened at Dalgety Bay and the development of another station at Dunfermline has been carried out on behalf of Fife Council. Completion of this second station for the town is expected in 1999.

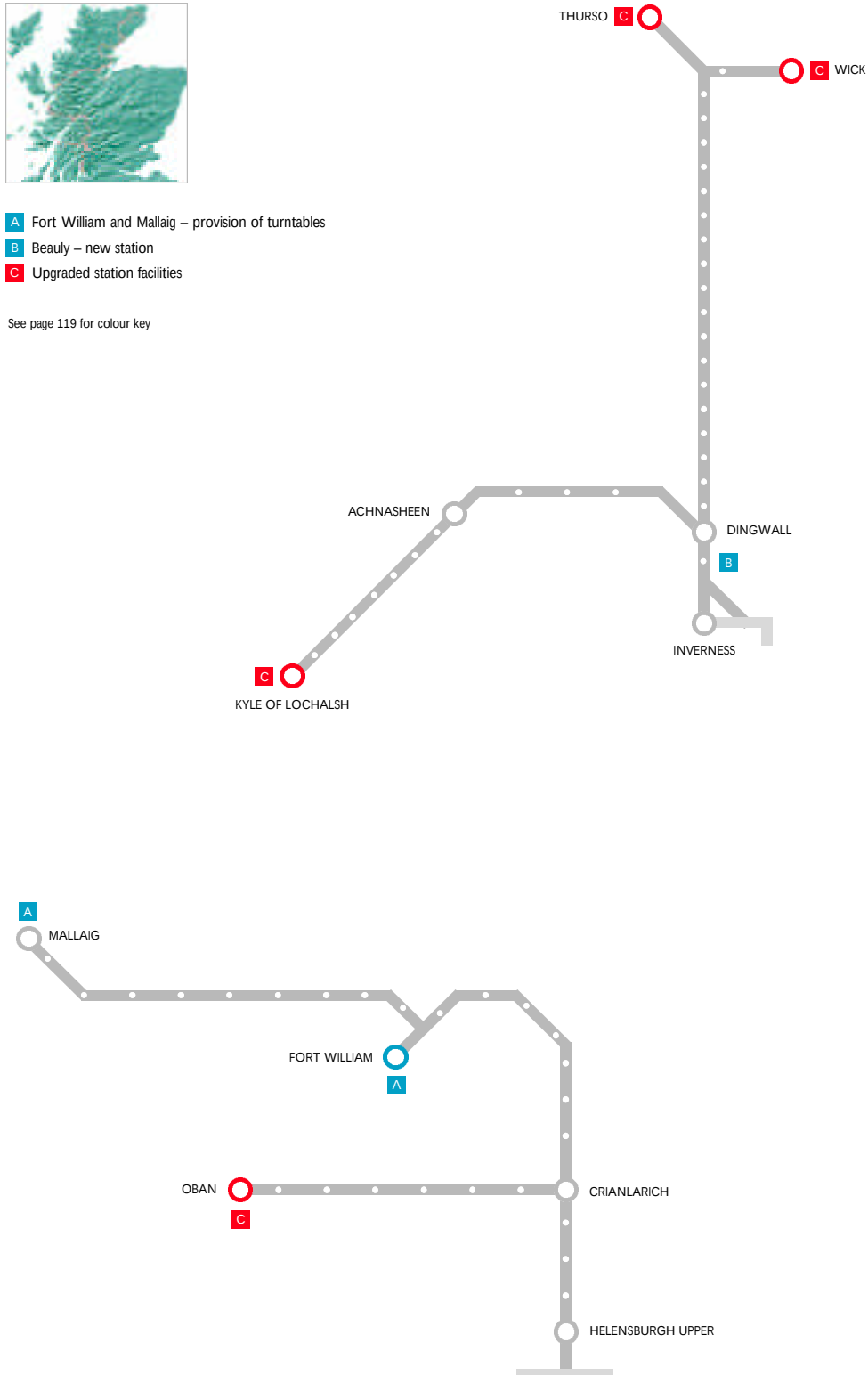
The Station Regeneration Programme has continued with five stations completed so far. ScotRail has, in addition, taken the opportunity to carry out additional work at its own cost at the same time, as have local authorities in upgrading adjacent facilities. Working in partnership has minimised the extent of disruption to the travelling public. In addition to the regeneration work, station lighting has been improved and CCTV equipment provided, including a new control centre at Dunfermline, which has allowed stations and car parks throughout eastern Scotland to be monitored. This has improved safety and security for the public.

ScotRail; West Coast Railway Co; EWS; Freightliner.



- A Fort William and Mallaig – provision of turntables
- B Beaulieu – new station
- C Upgraded station facilities

See page 119 for colour key



Route characteristics

DESCRIPTION The West Highland Line is a 180-mile-long single-track rural mixed-traffic railway with passing loops, which runs from Glasgow and terminates at Fort William, Mallaig and Oban, the last two locations being ferry terminals serving the Western Isles. The line has a regular passenger service. There is also an overnight sleeper service from Fort William to London, regular charter trains and a summer steam-hauled service. While freight traffic is predominantly concentrated in the Fort William area, there are other terminals on the line.

Similarly the line from Inverness to the north is a 231-mile-long single-track, rural mixed-traffic railway with passing loops, which runs from Inverness and

terminates at Kyle of Lochalsh, Wick and Thurso, the latter location being near the ferry terminal serving the Orkney Isles.

As well as regular passenger services, it also carries charter services. Freight traffic is now being reestablished on a more regular basis over the entire line.

Apart from a pocket of conventional signalling in the Fort William area, the route is controlled from RETB centres at Banavie and Inverness.

There are 67 passenger stations on the route as well as several rail-connected freight facilities. The railway provides a vital social lifeline.

Route vision

Our vision is that the route will continue to provide a much-valued social role of linking small towns and settlements with larger conurbations and transport hubs throughout the year, while also serving the seasonal tourist industry. These links also include the ferry terminals serving many of the Scottish Islands. The route will continue to be maintained for the existing traffic, and will be appropriately enhanced and developed in order to meet our customers' requirements.

Passenger travel is predicted to grow but is likely to require further encouragement through continued good marketing, sound reliability and the provision of enhanced journey opportunities in conjunction with the tourist industry and the opening of new stations. These will need to be selectively funded and of designs suitable for the market that they serve.

We anticipate that the summer-only steam-hauled service between Fort William and Mallaig on the West Highland Line will continue.

We plan to continue our links and working arrangements with the various bodies in the area, including the Argyle and West Highland Heritage Trusts, in order to promote and develop railway travel.

Freight traffic on the West Highland Line is well established, and we see scope for this to grow further. Although currently more sporadic, there is the potential for freight to expand and become more diverse on the Far North Line, with the possible opening of several new terminals such as that recently provided at Kyle of Lochalsh.

Route development and customer requirements

ScotRail are primarily seeking to maintain and improve performance. They require that Beaulieu Station is reopened to provide a new facility for passengers. Designs have been prepared, and construction will be completed in 2000.

The West Coast Railway require improved facilities for their steam train operations on the West Highland Lines. In particular, they require turntables at Fort William and Mallaig.

EWS require improved access to load and unload trains at times and locations to suit their customers, and to operate trains with larger loads. This year, we

will have completed works enabling trains to carry refrigerated-food containers to run directly from Mossend to Wick and Thurso, and with a ferry connection to Stromness. With European Railway Development funding, lineside loading will be expanded on the Far North Line.

Local authorities are concerned to improve station facilities and to reduce journey times. They also want a new station opened at Beaulieu. We will provide disabled facilities at various locations including Dingwall, Inverness, Strathcarron and Kingussie.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Increased freight traffic	Provision of loading points, sidings and connections as identified by customers	In agreement with customers	
Increased flexibility for steam train operation	Provision of turntables at Fort William and Mallaig	1999 in agreement with customers	A

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

JOURNEY TIMES	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Glasgow Queen Street–Oban	163	12	34mph (2hr 58min)	No change	No change	No change
Glasgow Queen Street–Fort William	198	14	33mph (3hr 42min)	No change	No change	No change
Fort William–Mallaig	67	9	31mph (1hr 20min)	No change	No change	No change
Inverness–Kyle of Lochalsh	132	13	34mph (2hr 26min)	No change	No change	No change
Inverness–Wick–Thurso	260	22	39mph (4hr 10min)	No change	No change	No change
LINESPEEDS (km of track)						
Up to 35mph			142	142	142	142
40–75mph			542	542	542	542
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			684	684	684	684
GAUGE (km of route)						
W6A			666	666	666	666
W7			666	666	666	666
W8			418	418	418	418
W9			0	0	0	0
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			629	629	629	629
20.4 tonnes to 23.4 tonnes			0	0	0	0
23.5 tonnes to 25.4 tonnes			55	55	55	55
TOTAL			684	684	684	684

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	1.8	1.4	1.1	9.2	
Signalling	0.2	0.7	0.2	4.3	
Plant & Machinery	0.0	0.0	0.0	2.5	
Telecoms	0.0	0.2	0.2	5.3	
Stations	0.0	4.2	4.2	1.6	
Depots	0.0	0.0	0.0	0.8	
TOTAL EXPENDITURE	2.0	6.5	5.7	23.7	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
Station enhancements	2001	0.0	0.4	0.4	0.1		
CONTRACTOR							
Mallaig turntable	2000	0.0	0.3	0.1	0.0	1	A
Fort William turntable	2000	0.0	0.1	0.0	0.0		A
THIRD PARTY							
Beaulieu Station reopening	2000	0.0	0.1	0.0	0.0	1	B
Other schemes	Various	0.0	0.0	0.0	0.4		
TOTAL RAILTRACK EXPENDITURE		0.0	0.4	0.4	0.5	2	
TOTAL NON-RAILTRACK EXPENDITURE		0.0	0.5	0.1	0.0		

Other route developments

LOCATION	PROPOSED SOLUTION	YEAR	REF
New station at Beaulieu	Upgrade to the disused station providing facilities to meet a specific need	1999	B
Improved carriage washing at Inverness	New washing plant	2001/02	
Improved security and safety at specific stations – Mallaig, Oban, Kyle of Lochalsh, Thurso and Wick	Upgrade lighting Enhance customer-information systems	2000/01	C
Improved station facilities at stations detailed above	Improvements to waiting rooms and toilet facilities	2000/01	

Progress on the 1998 NMS

SIGNALLING Signalling equipment at Georgemas Junction has been installed, enabling the train driver to operate the equipment. This has efficiency benefits and reduces the journey time to Thurso and Wick.

PLANT AND ELECTRICAL New and improved points heaters have been installed at junctions and loops, giving improved reliability and performance during periods of cold weather.

STRUCTURES The route has a higher-than-average number of structures often built to support the railway through difficult terrain. Much regular and routine work has taken place over the year including waterproofing of bridges over Altnafael River and the Corriemollie Burn. In addition, linings to Leachabudhe Tunnel were renewed, together with the portals.

STATIONS The SRP has continued with 49 stations completed by the end of March. Regeneration work has been carried out by Railtrack, but only after full consultation and agreement over the scope of work, with ScotRail and the relevant local authority. Agreement has recently been reached to open a new station at Beaulieu in the next 12 months. ScotRail has, in addition, taken the opportunity to carry out additional work at its own cost at the same time. Working in partnership has minimised the extent of disruption to the travelling public.

FREIGHT A new siding has been constructed and brought into use at Kyle of Lochalsh. Other mothballed facilities have been brought back into use. Laneside loading facilities for timber traffic have been introduced.

Two temporary Rail Development Officers' posts have been created by the local authority, jointly funded by local government and the rail industry covering the West Highlands and the North Highlands, respectively.

DRS; EWS; Freightliner.



Base map ©MAPS IN MINUTES™1997

Route characteristics

DESCRIPTION This route is a diverse mixture of running lines and branches, some of which are not in use. Apart from double track in the Millerhill Yard/South Suburban Complex, the route is primarily single track. Running lines account for 27% of the route, split approximately 40% double track and 60% single track. Maximum linespeeds range from 5–60mph according to line. The branches are single track with lengths ranging from 1–20km in length and with maximum speeds from 5–45mph.

The lines from Monktonhall junction to Portobello Junction via Millerhill Yard and between Whifflet and Sunnyside are electrified with 25kV OLE. Signalling is a mixture of semaphore, colour-light and various token arrangements controlled from five signalling centres and nine other signal boxes.

Route vision

Our vision is of the freight renaissance within Scotland continuing in line with the growth forecasts being made by DRS, EWS and Freightliner who have recently commenced operations to Torness and Hunterston.

All of our customers require the provision to operate more trains with improved pathing arrangements. They also require improved access to operate larger, heavier and longer trains. Both EWS and their customers are seeking to reopen disused sidings and provide suitable loading facilities as well as being involved in the construction of new loading/unloading facilities. We have taken forward the customers' proposals and will carry out implementation works at locations when agreements have been reached with all relevant parties. We accept these requirements and are working with all parties to grow the business.

We are actively working towards updating the East Coast Main Line and Shotts routes to increase capability to W10 gauge. We have put in place the facility to carry refrigerated traffic between Mossend and Inverness and on to Thurso enabling substantial volumes of traffic to be transferred from road to rail.

With increasing freight volumes and services, coupled with a raised interest by road hauliers in rail options, network accessibility is becoming a key objective. We will continue to reopen mothballed sidings and provide new connections and loading points wherever these are commercially viable. We are endeavouring to provide innovative solutions to meet customers' needs whether they are for short- or long-term duration, while promoting 24-hour access to the network.

These are the route improvements we plan to deliver

CAPACITY CHANGES TO MEET FRANCHISING DIRECTOR, PTE AND CUSTOMER REQUIREMENTS AND DELIVER ROUTE VISION

LOCATION	PROPOSED SOLUTION	YEAR	REF
Various new freight sidings and loading points	Track & associated signalling as necessary	Ongoing	

CAPABILITY CHANGES TO ACHIEVE ROUTE VISION

LINESPEEDS (km of track)	km	STOPS	CURRENT POSITION	2001 POSITION	SUSTAINING THE ROUTE	ACHIEVING ROUTE VISION
Up to 35mph			174	174	174	179
40–75mph			48	48	48	56
80–105mph			0	0	0	0
110–125mph			0	0	0	0
Over 125mph			0	0	0	0
TOTAL			222	222	222	235
GAUGE (km of route)						
W6A			193	193	193	206
W7			193	193	193	206
W8			34	34	34	47
W9			3	3	3	19
W10			0	0	0	0
AXLE WEIGHT (km of track)						
Up to 20.3 tonnes			37	37	37	37
20.4 tonnes to 23.4 tonnes			82	82	82	82
23.5 tonnes to 25.4 tonnes			103	103	103	116
TOTAL			222	222	222	235

Renewals expenditure to deliver the programme of route improvements (£M – 1998/99 prices)

PROGRAMME OF WORK	1998/99	1999/2000	2000/01	2001/02–2005/06	REF
Track	0.8	0.6	0.5	4.3	
Structures	1.1	0.5	1.1	7.0	
Electrification	0.0	0.0	0.0	0.0	
Plant & Machinery	0.3	0.1	0.0	0.6	
Stations	0.0	0.1	0.0	0.3	
Depots	0.0	0.0	0.0	0.1	
TOTAL EXPENDITURE	2.2	1.3	1.6	12.3	

Enhancement expenditure on schemes to achieve the route vision (£M – 1998/99 prices)

PROGRAMME OF WORK	COMPLETION	1998/99	1999/2000	2000/01	2001/02–2005/06	CRR	REF
COMMITTED							
New freight sidings and connections	2007	0.1	0.0	0.0	1.0		
PARTNERSHIP							
Edinburgh CrossRail	2002	0.1	0.0	0.0	12.0	2	
CONTRACTOR							
New freight sidings and connections	2004	0.0	4.1	2.0	2.4		
THIRD PARTY							
Stirling–Longannet freight service	2003	0.1	0.5	0.5	3.3		
Other schemes	Various	0.2	0.3	0.0	2.0		
TOTAL RAILTRACK EXPENDITURE		0.2	0.6	0.3	15.4	2	
TOTAL NON-RAILTRACK EXPENDITURE		0.3	4.3	2.2	5.3		

Progress on the 1998 NMS

STRUCTURES The Deanside Branch is now available for W10 traffic.

FREIGHT A new branch and coal-loading terminal has been constructed and brought into use at Holehouse, off the Waterside branch. Since 1995, a total of 34 sidings throughout Scotland have been reopened and have received freight traffic, and over half are in regular use.

We have completed the study into reopening the Stirling–Longannet route, and have concluded that this is viable, subject to sufficient levels of freight traffic. We will carry out the necessary works when appropriate funding arrangements are in place.

Investigations are continuing into the reacquisition of the closed former BR branches to Maxwelltown (Dumfries) and CPA Container Terminal (Greenock).

The former BR-owned site at Elderslie has been purchased by Railtrack Property with a view to establishing a rail-connected freight facility.

10 Appendices and glossary

Appendix 1 Extracts from Railtrack's Network Licence

Appendix 2 Other Railtrack publications

Appendix 3 Information available on Railtrack's website

Appendix 4 Customer-reasonable requirements

Appendix 5 Abbreviations and glossary



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Appendix 1

Extracts from Railtrack's Network Licence

This condition sets out our responsibilities for maintaining, renewing and developing the rail network.

Condition 7: Stewardship of the Licence Holder's Network

1 Purpose

The purpose is to secure:

- (a) the maintenance of the network;
- (b) the renewal and replacement of the network; and
- (c) the improvement, enhancement and development of the network,

in each case in accordance with best practice and in a timely, economic and efficient manner so as to satisfy the reasonable requirements of persons providing services for the carriage of passengers or goods by railway and funders in respect of the quality and capability of the network.

2 General duty

The licence holder shall carry out its licensed activities to achieve the purpose to the greatest extent reasonably practicable having regard to all relevant circumstances including the ability of the licence holder to finance its licensed activities.

3 Criteria

The licence holder shall within three months of the coming into force of this condition (or such later date as the Regulator may, after consulting the licence holder, specify) develop and publish the criteria which it will apply to comply with the duty including its method of determining the priority and timing of different types of work, the parts of the network on which it will be carried out and the basis for reviewing such priority. The licence holder shall from time to time:

- (a) review the criteria to determine whether they are fit for purpose; and
- (b) revise the criteria so as to make them fit for purpose, and shall publish any such revised criteria.

4 Annual Statement

After complying with paragraph 6, the licence holder shall prepare and publish on or before 31 March in each year (or such other date as the Regulator may, after consulting the licence holder, specify) a Statement in a form and covering a period approved by the Regulator including the information specified in paragraph 5 in sufficient detail to enable providers and potential providers of railway services to plan their businesses and to enable funders of railway services to plan their future financial and service requirements, in each case with a reasonable degree of assurance.

5 Contents of the Statement

The Statement referred to in paragraph 4 shall demonstrate the way in which the licence holder expects to carry out the duty and satisfy the criteria in respect of:

- (a) projections of future network quality and capability requirements;
- (b) planned modifications to the network;
- (c) the expected effect of such modifications on the quality and capability of the network, the quality of network services and the ability of users to provide improved services to their customers;
- (d) the estimated costs of and the method proposed for financing such requirements and improvements within its overall financial framework; and
- (e) a progress report on the matters referred to in the Statement last published under paragraph 8.

6 Consultation

The licence holder shall consult persons providing, or potential providers of, services for or in connection with the carriage of passengers or goods by railway and funders regarding their present and future proposals in the provision of such railway services.

7 Records

The licence holder shall maintain adequate information as to the actions it has taken to comply with its obligations under this condition. The licence holder shall furnish the Regulator with such information as they may reasonably require to monitor compliance with this condition.

8 Reconciliation

The licence holder shall prepare and publish on or before 31 July in each year (or such other date as the Regulator may, after consulting the licence holder, specify) a Statement in a form compatible with the Statement published in the preceding year under paragraph 4 ('the preceding year's Statement') setting out:

- (a) the works carried out by it during the year ending on 31 March in that year and the extent to which it has achieved the aims for such work set out in the preceding year's Statement;
- (b) the extent to which such works have not achieved their aim, the reasons therefore and the steps the licence holder proposes to take to remedy such failure; and
- (c) the reasons for any material changes to the works set out in that Statement.

9 Transitional

In respect of the Statements required during the year 1998:

- (a) in subparagraph (e) of paragraph 5, the reference to 'the Statement last published under paragraph 8, and
- (b) in paragraph 8, the reference to 'the preceding year's Statement'

shall be deemed to refer to the Statement published by the licence holder in February 1997 in accordance with the provisions of Condition 7 of this licence at the time of such publication.

10 Interpretation

In this Condition

'criteria' means the criteria referred to in paragraph 3;

'duty' means the duty set out in paragraph 2;

'funder' means the Franchising Director, each Passenger Transport Executive and any local, national or supra-national authority or agency (whether of the United Kingdom or the European Union) or other person who provides money by way of grant or loan with the primary purpose of securing the provision of railway services;

'licensed activities' includes the management of any estate, interest or right in the network;

'network' includes, where the licence holder has any estate or interest in, or right over a station or light maintenance depot, such station or light maintenance depot; and

'the purpose' means the purpose set out in paragraph 1.

Appendix 2

Other Railtrack publications

- Investment criteria
- Environment Policy
- Connections Guide/Freight Route Directory (CD-ROM)/Code of Practice
- 1997/98 Annual Report
- 1998/99 Interim Results
- 1997/98 Corporate Responsibility Review

Copies of these publications can be obtained by calling the Railtrack Helpline on 0345 114141 (calls will be charged at the local call rate).

Appendix 3

Information available on Railtrack's website

www.railtrack.co.uk

- 1998 and 1999 Network Management Statements
- Detailed data tables and network capability maps
- Environment Policy
- Current timetable for passenger services on the rail network.

Appendix 4

Customer-reasonable requirements. Summary of types of requirements received and discussed with customers and funders (excluding the Franchising Director).

We have included in the Route Strategies the number of customer-reasonable requirements on each route. These total 1054. In addition, there are 22 requirements that are not route specific. This gives a total of 1076. In this appendix, we have included how the 1076 requirements are split between our customers and funders. This total is derived from enhancement feasibility studies (627), enhancement planned or implemented (417) plus those still under discussion (32).

CUSTOMER OR FUNDER	NUMBER SUBMITTED	NUMBER WITHDRAWN OR COMPLETED	REQUIREMENTS RELATING TO ACCOUNT MANAGEMENT PROCESS	PERFORMANCE REQUIREMENTS	TRACK QUALITY REQUIREMENTS
Anglia Railways	85	13	10	21	5
Cardiff Railway Company	89	0	5	5	1
Central Trains	87	19	6	9	2
Centro	25	2	0	3	1
Chiltern Railways	38	4	1	4	0
Connex South Central	64	25	1	1	1
Connex South Eastern	45	4	4	5	1
Direct Rail Services	21	4	1	2	1
Eurostar	20	0	1	6	1
EWS Freight	151	1	34	19	1
EWS Passenger Charter	8	0	6	0	0
First Great Eastern	75	6	6	17	5
First Great Western	65	22	0	5	2
First North Western	30	9	8	1	2
Freightliner	22	1	0	5	1
Gatwick Express	12	1	0	1	1
GMPT	40	6	4	3	1
GNER	73	12	0	2	2
Heathrow Express	7	0	0	1	1
Island Line	10	0	2	1	0
London Underground Bakerloo Line	13	2	0	4	3
London Underground District Line	10	1	0	3	2
LTS Rail	62	3	2	3	5
Midland Main Line	68	11	2	6	5
Merseyrail Electrics	32	3	3	2	2
Merseytravel	63	2	13	3	1
NEXUS	7	0	0	0	0
Northern Spirit	7	0	1	0	2
ScotRail	71	10	2	5	1
Silverlink	153	32	0	3	4
South West Trains	48	3	6	2	5
SPTE	24	2	1	1	1
SYPT	11	0	0	0	0
Thames Trains	143	44	54	12	0
Thameslink	24	5	2	1	1
Virgin CrossCountry	34	0	6	1	2
Virgin West Coast	125	2	4	1	2
WAGN	93	3	4	6	5
Wales and West Railway	92	0	21	14	4
West Coast Railway	4	0	2	0	0
WYPT	19	0	0	0	0
TOTAL	2137	252	212	178	74

CUSTOMER OR FUNDER	REQUIREMENTS RELATING TO TRACK ACCESS	REQUIREMENTS RELATING TO RENEWALS	NETWORK DEVELOPMENT (ENHANCEMENT) REQUIREMENTS: FEASIBILITY STUDIES	NETWORK DEVELOPMENT (ENHANCEMENT) REQUIREMENTS: PLANNED FOR DEVELOPMENT OR IMPLEMENTATION	UNDER DISCUSSION
Anglia Railways	1	20	6	8	1
Cardiff Railway Company	2	10	61	5	0
Central Trains	12	14	12	12	1
Centro	1	1	13	4	0
Chiltern Railways	0	8	12	9	0
Connex South Central	0	2	28	6	0
Connex South Eastern	1	4	14	12	0
DRS	5	5	3	0	0
Eurostar	1	5	4	2	0
EWS Freight	3	0	54	6	33
EWS Passenger Charter	2	0	0	0	0
First Great Eastern	0	26	7	8	0
First Great Western	1	6	19	10	0
First North Western	1	4	2	3	0
Freightliner	1	0	12	2	0
Gatwick Express	0	1	5	3	0
GMPT	0	5	20	1	0
GNER	0	4	15	38	0
Heathrow Express	1	1	1	2	0
Island Line	0	6	0	1	0
London Underground Bakerloo Line	2	2	0	0	0
London Underground District Line	2	2	0	0	0
LTS Rail	2	15	16	16	0
Midland Main Line	0	9	22	8	5
Merseyrail Electrics	0	7	8	7	0
Merseytravel	0	7	26	11	0
NEXUS	0	1	5	1	0
Northern Spirit	3	5	51	12	0
ScotRail	14	2	22	15	0
Silverlink	1	34	70	9	0
South West Trains	1	15	7	8	1
SPTE	4	2	6	7	0
SYPT	0	0	11	0	0
Thames Trains	0	5	13	15	0
Thameslink	3	5	5	2	0
Virgin CrossCountry	2	2	2	19	0
Virgin West Coast	4	5	1	106	0
WAGN	6	10	29	30	0
Wales and West Railway	4	6	37	6	0
West Coast Railway	0	0	0	2	0
WYPTE	0	0	8	11	0
TOTAL	80	256	627	417	41

Note: 41 requirements are subject to further discussion to decide the way forward. The vast majority are with freight customers and are discussed in more detail in Section 7.

Appendix 5

Abbreviations and glossary

A	AC	Alternating current
	accommodation level crossings	Points at which private roads, farm trucks, public footpaths and bridle paths cross a railway line. There is usually no automatic warning of the approach of a train
	AHB	Level crossing protected by automatic half-barrier
	air rights development	The right to develop buildings above existing building height on land owned by Railtrack
	AMP	Asset Maintenance Plan
	ARL	Above rail level
	ATCO	Association of Transport Co-ordination Officers
	ATP	Automatic Train Protection
	AWG	Adhesion Working Group
	AWS	Automatic Warning System
B	axle-counters	Part of signalling system which detects the position of a train on a railway line
	BAA	British Airports Authority. Owner and operator of a number of airports in Great Britain and elsewhere
	balise	Trackside TCS transmitter
	bay line	A short, dead-end platform
	BML	Brighton Main Line
	bottleneck	A location on the network where the number of train movements is close to, or projected to exceed, the capacity of that location (same as pinchpoint)
	BRB	British Railways Board
	CCTV	Closed-circuit television
	CD/RA indicators	A special signal to a train driver that a train is ready to depart from a station
	Centro PT A	West Midlands Passenger Transport Authority
C	CER T	City of Edinburgh Rapid Transport
	CET	Controlled emission toilets on a train. The train's toilet empties into a tank which is emptied at a servicing depot
	chord line	Short section of line connecting two other lines, forming a triangle
	CIS	Customer-information systems
	clockface timetable	A timetable where trains run at regular intervals (eg every 10 minutes)
	Control Period	The Period (normally five years) for which the Rail Regulator fixes our access income from franchised passenger train operators
	CRR	Corporate Responsibility Review
	CRR	Customer-reasonable requirements
	CRS	Corporate Responsibility Statement
	CSC	Connex South Central
D	CSE	Connex South Eastern
	CSR	Cab secure radio
	CTR1	Channel Tunnel Route 1 (via Tonbridge)
	CTR2	Channel Tunnel Route 2 (via Maidstone)
	CTR3	Channel Tunnel Route 3 (via Redhill)
	CTRL	Channel Tunnel Rail Link
	customers	Those who use Railtrack equipment (compare passengers)
	DART	Digital Advanced Radio for Trains
	DC	Direct current
	DETR	Department of Environment, Transport and the Regions
D	disaggregation	Splitting Railtrack's plans and expenditure into seven Zonal and 45 Strategic Route plans
	DLR	Docklands Light Railway

D	DMU	Diesel multiple-unit
	DOO	Driver-only operation
	DRA	Driver's Reminder Appliance
	DRS	Direct Rail Services
E	ECML	East Coast Main Line
	ELL	East London Line
	EMS	Environment Management System
	ERDF	European Regional Development Fund
	ERTMS	European Rail Traffic Management System
	ETSC	European Transport Safety Council
	EU	European Union
	eur o	European currency unit
	EWS	English Welsh & Scottish Railway
F	FFG	Freight facilities grant
	footfall	The number of people passing through a station
	FTA	Freight Transport Association
	FUG	Freight upgrade
G	GAUGES	
	'big-box'	See W10
	SB1c	Gauge to carry Swap-body vehicles
	UIC A	European gauges
	UIC B	European gauges
	W6A	Loading gauge for standard freight vehicles
	W7	Previously called WG8 8' container gauge
	W8	Previously 8'6" container gauge
	W9	Previously SB1c gauge
	W10	Previously 9'6" container gauge
	W11	The gauge capable of handling 4m-high lorry trailers on rail wagons
	GB	Great Britain
	GE	Great Eastern
	GEML	Great Eastern Main Line
	Georgemas Plunger	A device permitting the train driver to operate the points at Georgemas Junction
	GER	Great Eastern Railway
	GLA	Greater London Authority
	GMPTE	Greater Manchester Passenger Transport Executive
	GNER	Great North Eastern Railway
	GNRTS	Greater Nottingham Rapid Transit System
	golden assets	Railway infrastructure which has the greatest potential impact on train performance
	grade-separated junction	A junction where one track passes over or under another on a bridge to avoid conflicting train movements
	G&SW	Glasgow and South Western Route
	GTE	Proposed Rapid Transit System for Oxford
	gtm	Gross tonne-miles
	GWML	Great Western Main Line

H	HML	Highland Main Line
	HMRI	Her Majesty's Railway Inspectorate
	HSE	Health and Safety Executive
	HST	High-speed train
I	ICC	International Convention Centre (Birmingham)
	IECC	Integrated Electronic Control Centre
	IMC	Infrastructure maintenance company/contractor
	IMC2	Second generation maintenance contract
	immunisation works	These protect the signalling system from high-voltage electric currents in the overhead line train power supply system
	INLORS	Inner London Orbital Route Strategy
J	JLE	Jubilee Line Extension
K	kiss and ride	Where a passenger is dropped off or collected by car at a station
	kV	Kilovolt (= 1,000 volts)
L	LIFE	London International Freight Exchange
	LMD	Light maintenance depot
	LRT	Light Rail Transport
	LTA	London Transport Authority
	LTS Rail	London, Tilbury and Southend train operator
M	M	Million
	megafret	An intermodal wagon with a platform height of 835mm to carry Swap-bodies or container
	MEL	Merseyrail Electrics Limited
	MML	Midland Main Line
	MOD	Ministry of Defence
	MPTE	Merseyside Passenger Transport Executive
	multifret	An intermodal wagon with a platform height of 945mm to carry Swap-bodies or container
	MVAIR	Manchester Victoria area signalling renewal scheme
N	NEG	National Express Group plc
	NEXUS	Tyne and Wear Passenger Transport Executive
	NLL	North London Line
	NMC	Network Management Centre
	NMS	Network Management Statement
	NRN	National Radio Network
	NTP	North Trans-Pennine
O	objective 1 areas	Area of Europe eligible for maximum grant support from EU institutions
	OLE	Overhead-line equipment
	output-based contract	A contract where the outputs and the price are defined, but not the means to achieve the end result
P	pantograph	On train equipment for collecting electricity from overhead power cable
	parkway station	A railway station with a large car park and easy road access
	passengers	Those who travel on the trains (compare customers)
	PFI	Private Finance Initiative
	PfPI	Process for Performance Improvement
	piggyback	Conveying lorry trailers by train

P	pinchpoint	A location on the network where the number of train movements is close to, or projected to exceed, the capacity of that location (same as bottleneck)
	PIXC	Passengers in excess of capacity. The Franchising Director's measure of overcrowding on train services.
	PPP	Private–public partnership
	Project Elephant	Project to assess feasibility and costs of increasing freight vehicle loads and axle weights
	PSB	Power signal box
	PTA	Passenger Transport Authority
	PTE	Passenger Transport Executive
	PUG	Passenger Upgrade
	PUG 1	Passenger Upgrade No.1 – agreement with the Franchising Director and WCML
	PUG 2	Passenger Upgrade No.2 – agreement with Virgin Trains for the capacity and capability of WCML and revenue-sharing arrangements
Q	Q-Train	Special train run randomly to catch trespassers on railway lines
R	RA	Route availability – RA1–6 up to 20.3 tonnes; RA7–9 up to 23.4.1t; RA10 up to 25.4t
	RAC	Royal Automobile Club
	radio-electronic token-block	A radio based signalling system used on some rural, single track railways
	reactionary delay	A late train delays other trains
	RGS	Railway Group Standards
	RHA	Road Haulage Association
	ROSS	Renewal of Scottish signalling
	RPI-X formula	This is the formula often used by Regulators to determine how the charges of a company will vary over time. It is the Retail Price Index less a percentage eg RPI=3% less X of 1% means that the maximum price rise that the company can levy in any one year is 2%
	RPL	Rail Property Ltd
	RSAB	Rolling Stock Acceptance Board
	RTCS	Railtrack Train Control System
	RTIA contracts	Contract between Railtrack and its maintenance contractors
	RTS	Rapid transit system
	RUCC	Rail Users' Consultative Committee
	Rules of Route	Agreement between Railtrack and train operators as to when lines can be temporarily closed for maintenance and renewal work
S	Safety Case	The documentation and systems by which all parts of the railway industry set out how they will manage the safety of their activities
	SB	Signal box
	SBI gauge	Loading gauge which permits operation of road–rail Swap-body vehicles
	SCADA	Supervisory control and data acquisition
	S&CL	Settle and Carlisle Line
	Section 54 agreement	Agreement with the Franchising Director over form/content of a future franchise
	Section 54 Support	Enables the Franchising Director to give an undertaking on how he will exercise his franchising function in the future
	SELTRANS	South East London Transport Strategy
	shoulder peak services	Train service timetable immediately before and immediately after the 'peak' period of maximum train services
	SHRT	South Hampshire Rapid Transit
	skip-stopping	Not stopping at all intermediate stations between two main stations

S	SMA	Strathclyde Manning Agreement
	SMS	Safety Management System
	SPAD	Signal passed at danger
	SPT	Strathclyde Passenger Transport
	SRP	Station Regeneration Programme
	S&SD	Railtrack's Safety and Standards Directorate
	Sustrans	Sustainable transport – an organisation primarily involved in creating a national network of cycle paths
	Swap-body	System for conveying road freight vehicle bodies on rail vehicles
	SWELTRA C	South-West London Transport Advisory Committee
	SWELTRANS	South-West London Transport Strategy Committee
	SWIFT	South Wales Integrated Fast Transit
	SWML	South Wales Main Line
	SWT	South West Trains
	SYPTE	South Yorkshire Passenger Transport Executive
T	TCS	Train Control System
	TENs	Trans-European Networks
	TERFF	Trans-European Freight Freeway
	TPWS	Train Protection Warning System
	TSR	Temporary speed restriction
	T&W A	Transport & Works Act
U	UIC	International Union of Railways (Union Internationale Chemins de Fer)
	UK	United Kingdom
	US	United States (of America)
V	V DC	Volts direct current
	VoG	Vale of Glamorgan
W	WA	West Anglia
	WA GN	West Anglia & Great Northern Railway
	WAML	West Anglia Main Line
	WARM	West Anglia Route modernisation
	WCML	West Coast Main Line
	WCRC	West Coast Railway Company
	WCRM	West Coast Route modernisation
	WELL	West London Leadership
	WLL	West London Line
	WYPTE	West Yorkshire Passenger Transport Executive
Y	Y2K	Year 2000

