



Railways: West Coast Main Line

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This note sets out the background to the West Coast Main Line (WCML) project and details the challenges it has faced in terms of rising costs and constantly changing strategies during its construction phase. The Project was completed in December 2008 and later the same month Virgin West Coast began operating its new timetable along the route.

Further information on rail issues and projects can be found on the Railways topical page of the [Parliament website](#).

Contents

1	Background, -1995	2
2	Railtrack's original proposals, 1995-1999	6
3	Strategy development, 2002-08	8
	3.1 Infrastructure and passenger services	8
	3.2 Freight services	13
4	Completion, December 2008	16

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1 Background, -1995

The West Coast Main Line (WCML) runs from London Euston to Birmingham, Manchester, Liverpool and Glasgow, and also connects with Edinburgh with a route mileage of some 700 miles. It is the busiest mixed railway route in Europe and carries 43 per cent of the country's freight:



The track was originally built in the 1830s and 1840s and most of the route was electrified between 1955 and 1975:

The WCML is the most important trunk route on Britain's rail network. It links London and the South East with the largest English conurbations (Birmingham and Manchester), as well as with Liverpool, North Wales, the North West, Cumbria and Scotland. The route is the core national long distance freight route, and has significant commuting flows around London, Manchester, Glasgow and Birmingham. The route was electrified in the early 1960s south of Manchester and Liverpool as a focal point of British Railways' Modernisation Plan. There was extensive re-modelling, electrification, re-signalling with power boxes and station re-building. The route from Weaver Junction, north of Crewe, to Glasgow was electrified, re-modelled and re-signalled in the early 1970s. The route from Carstairs to Edinburgh was electrified in 1991 (as part of the East Coast electrification project).

Although the route was extensively renewed and upgraded as part of these major investment schemes, work carried out since has been limited. Financial constraints meant that maintenance and renewal work, essential to protect the value of the original Modernisation Plan investment, was not undertaken. Infrastructure assets deteriorated steadily to the point where, at the time of privatisation, significant remedial work was required.¹

In July 1993 Hambros Bank Ltd was asked to develop a proposal for renewing the infrastructure of the WCML which would be attractive to the private sector and still fall within the Government's published guidelines for joint ventures. These meant that control of the

¹ SRA, [West Coast Main Line Strategy](#), June 2003, paras 1.1.1-1.1.2

venture would rest with the private sector, which would also be expected to take on genuine risk in return for an appropriate share of revenues.²

The then Chancellor of the Exchequer, Ken Clarke, announced in his 1993 Budget statement that the Government had decided that the modernisation of WCML would be taken forward as a privately managed and financed investment as part of the private finance initiative (PFI).³ On 1 December 1993 the then Secretary of State for Transport, John MacGregor, gave more details:

My right hon. Friend the Chancellor of the Exchequer announced in his Budget statement that the Government have decided that the modernisation of the west main line will be taken forward as a privately managed and financed investment as part of the private finance initiative. The investment made by the private sector will be additional to the investment which Railtrack will be able to fund under the public expenditure plans announced in the Budget.

Principles for using private sector management and finance have been agreed between the Department of Transport and Railtrack following a study carried out by Hambros Bank Ltd. Under these:

Railtrack will be responsible for project definition and will draw up performance standards for the line in association with the private sector. Railtrack will be inviting expressions of interest in the next few days.

Once the new performance standards have been set, a competition will be held in late 1994 to select a private sector consortium to modernise the line and to maintain it for a defined period. The responsibility for project management and design will also rest with the successful consortium.

The successful consortium will be remunerated by service payments from Railtrack during the contract period. These payments will be subject to penalties and bonuses linked to the performance of the consortium in meeting the new performance standards and the consequential impact this will have on revenue losses and gains on the line.

The new standards will stipulate minimum performance criteria. Where commercially justified, the InterCity west coast franchises (and, possibly, other train operators) will be able to contract for linespeed and other improvements in exchange for increased access payments.

To facilitate this the InterCity west coast franchise will be let at the earliest practicable date.

The principles have been devised to transfer risks out of the public sector to those who can control them best. The risk that the infrastructure fails to perform to specification will be transferred to the private sector consortium. That consortium will also bear revenue risk insofar as it is affected by the performance of the infrastructure. The bulk of the remainder of the revenue risk will be transferred to the train operating companies and the providers of private sector funds.

² [HC Deb 13 July 1993, c421W](#)

³ [HC Deb 30 November 1993, c932](#); further information on PFI generally can be found in [HC Library Research Paper RP 03/79](#)

This approach will bring together private and public sector expertise to modernise the line in a way which will ensure that its full potential is realised without the capital cost coming out of public funds.⁴

In 1992 British Rail (BR) estimated that £400 million was needed to improve the WCML's infrastructure, but had to abandon that scheme because of shortage of revenue caused by the recession.⁵ The new proposal announced by the Secretary of State was estimated to cost between £400 million and £600 million and to take seven to ten years.⁶ Of the 42 groups who expressed an interest in the £3 million feasibility study, six pre-qualified and the WCML Development Company Ltd was selected on 24 March 1994 to review the entire upgrade strategy.⁷

Railtrack took over responsibility for infrastructure from BR in 1994 following rail privatisation.⁸ Railtrack and WCML Development Co Ltd sent their report to the Secretary of State in December 1994 and a summary was published on 22 March 1995. The report considered 60 options but decided on a core programme of improvements costing £1 billion over seven years, involving new upgraded power and track, restored structures, and a state of the art signalling and control system. This was a more radical modernisation of the line than originally planned but was considered to be justified by the large savings which would be made on maintenance costs. The original proposals concentrated on the oldest section between London and Crewe with the section to the north to be improved at a later, unspecified date. The consultants estimated that with annual maintenance costs of £150 million and a further £60 million a year spent on track renewals, an upgrade of the entire route would achieve an overall cost saving of ten per cent over 20 years. Further improvements, including removing track bottlenecks and modernising rolling stock, could be made if the train operating companies (TOCs) using the track were willing to pay for them.

The proposals were summarised in the report as follows:

The task was to produce a single viable option for modernising or upgrading the line. However, it became apparent that one option in itself would be insufficient to meet the needs of a modernisation or upgrade. So the study developed a solution tiered to meet the modern needs of the railway.

- a core investment programme comprising the optimum modernisation works that Railtrack alone can carry out
- plus market driven investment options for upgrading the line, presented as a series of options for discussion with Train Operating Units and the Office of Passenger Rail Franchising

The core investment programme is designed to significantly improve safety and reliability, improve journey times and reduce costs. The enhanced upgrade options would permit significant journey time reductions for both passenger and freight services.

⁴ [HC Deb 1 December 1993, cc533-34W](#)

⁵ this was part of a bigger £800m plan to improve both the rolling stock and infrastructure

⁶ "Backing sought for West Coast rail line", *The Independent*, 2 December 1993

⁷ the Development Company was comprised of Babcock & Brown, Booz Allen & Hamilton, Brown & Root and Sir Alexander Gibb & Partners (Railtrack, *The West Coast Main Line: progress on the feasibility study*, June 1994)

⁸ Railtrack went into administration and its responsibilities for rail infrastructure taken over by Network Rail in October 2002; for more information see HC Library standard note [SN/BT/2129](#)

The core investment programme includes:

- the introduction of a cost-effective transmission-based train control system, broadly in line with the European Train Control System level 3 replacing existing lineside signalling
- Automatic Train Protection as an inherent capability of the train control system
- the development of a single integrated control centre (with back-up centre nearby) for the whole WCML
- modernisation of other infrastructure elements, such as the improvement of power supplies to meet system performance standards
- an implementation programme involving minimum disruption to train services

The core programme represents the first stage of a modernisation programme that goes beyond bedrock and recovery.

Incremental enhancements to the core programme, to meet further aspirations of customers and other users, are contained in a series of market driven investment options:

The key options are:

- reduced journey times through a combination of track improvements (removed permanent speed restrictions for example), the benefit of the new technology (signalling, control and power), and the possibility of new rolling stock (such as tilting trains)
- the potential for improved freight services including a wider clearance gauge to incorporate piggy-back and the possibility of longer freight trains

The core programme meets many of the key aspirations of our customers, but the market driven enhancements go further and bring extremely attractive opportunities to operators and users.⁹

The project was to be fully financed by the private sector. The cost would involve a radio-controlled signalling system, Automatic Train Protection (ATP) which overrides the driver if he passes a red light, and a single control centre for the entire line. The signalling and control system would contribute more than half the cost savings expected from the upgrade by removing the need for trackside wiring and signals. Upgrading the line would allow it to take trains running at speeds of up to 125 mph, although some stretches might still be restricted to lower speeds. There were no plans to run very high speed trains like the French trains capable of up to 186 mph. Railtrack believed the programme would allow cost reductions, improve train reliability and, in the longer term, increase the potential for radical improvements to passenger and freight services, via a range of market-driven enhancements identified in the study.

BR's plans for financing the line were thrown into uncertainty by the Government's decision to bring forward the privatisation of Railtrack to 1996. This gave the company a strong incentive to take the project 'in-house' and fund it from borrowings and its own balance sheet.

⁹ Railtrack, *A Railway for the Twenty First Century - The West Coast Main Line Modernisation Project*, March 1995

The Government gave its approval for the plans in March 1995.¹⁰

2 Railtrack's original proposals, 1995-1999

Railtrack proposed that the entire line would be updated in two phases:

- **Phase 1** would allow higher speeds of up to 125 mph by 2002, with the possibility of tilting trains
- **Phase 2** would allow for 140 mph trains between London Euston and Crewe by 2005

An agreement with Virgin Trains envisaged the use of tilting trains with on-board signalling to achieve the proposed speeds. So, for example, it was assumed that journey times would be cut between London and Glasgow to 4hr 12min by 2002 and between London and Manchester to 1hr 46min by 2005.

Uncertainty over the planned upgrading of the WCML and its financing meant that train operating companies were initially reluctant to run services on the line. An information memorandum was issued in October 1996 inviting bidders to put forward offers for a 15-year franchise based on improvements to journey times and frequencies. This upgrade was negotiated with Railtrack by the Office of Rail Passenger Franchising (OPRAF)¹¹ and assumed a new fleet of trains and an increase in running speed to 200km/h. Originally known as Passenger Upgrade 1 (PUG1) and now as WCML Phase 1, it was costed at £150 million and included strengthening the electrical supply and introducing higher quality track to accommodate faster trains.

The Virgin Group was awarded a 15-year franchise on 19 February 1997, with a more ambitious proposal. It agreed to invest in new high speed 225km/hr active tilting trains, which would reduce journey times over the following five years, and to double train frequency on the busiest section of the route. It also agreed to invest in station improvements and a rolling programme of service enhancements, such as new business and leisure tickets, Internet bookings and in seat videos. Virgin proposed to convert a subsidy of £77 million in year one of the franchise to a payment of £220 million in 2011.¹²

WCML Phase 2 was negotiated between Railtrack and Virgin. The £600 million cost was to be jointly financed by the two, partly through conventional track access charges (funding about 65 per cent of total cost) and partially by a revenue sharing agreement. Railtrack agreed to:

- upgrade the infrastructure for 140mph/225kmph operation by tilting trains on fast lines and for 160kmph trains on slow lines;
- upgrade the track to improve ride quality;
- remove level crossings;
- introduce new power supplies possibly with auto transformers;

¹⁰ DoT press notice, "Watts approves PFI signalling scheme for West Coast Main Line", 22 March 1995 [PN 84]

¹¹ OPRAF became the Strategic Rail Authority (SRA) which in turn was wound up in 2005 and its franchising responsibilities transferred to the Department for Transport; for more information, see HC Library standard note [SN/BT/1343](#)

¹² OPRAF press notice, "High speed tilting trains to slash West Coast journey times", 19 February 1997

- install new overhead line equipment; and
- invest £127 million in freight-related infrastructure work.

To meet its business plan, Virgin West Coast had to double its ridership to 25 million passengers a year.

Phase 2 was approved by the Franchising Director and the Rail Regulator on 8 June 1998. The Regulator did not approve the original proposal, which allowed Virgin 100 per cent sole use of the fast lines. Railtrack had to agree to provide additional capacity for all passenger and freight operators, in addition to allowing Virgin to run faster and more frequent services with new tilting trains.¹³ However, the necessary schedules and reports were not produced on time and in November 1999 OPRAF threatened an enforcement order against Railtrack on the grounds that it had not completed adequate strategic reviews as set out in the Phase 1 agreement.¹⁴ Railtrack refused to agree a modified enforcement order in early 2000, causing the Regulator to serve an enforcement Order on the company.¹⁵

Central to Railtrack's plans for WCML was to have been the new Train Control System (TCS). This would have been the first British control system to be fully compatible with the new European Train Control System and European Rail Traffic Management System (ETCS and ERTMS).¹⁶ WCML was to have been fitted with Level 3 of the new system, technically the most advanced, and a step above ETCS and ERTMS. However, a decision to install moving block signalling was reversed in late 1999 due to spiralling costs. Instead, a new Train Protection and Warning System (TPWS) was installed at 900 signals on the route. Railtrack Chief Executive Gerald Corbett said the moving block technology was being abandoned because "the system has not developed as anticipated, [and] is unproven on a route of this scale".¹⁷

A £1.25 billion order for a new fleet of 52 tilting trains was signed on 9 February 1999.¹⁸ Virgin describe their trains as follows:

The state-of-the-art 125mph Pendolino trains emit on average 76% less carbon dioxide per seat than domestic airlines and are also saving energy and reducing pollution as they return energy to the electrical feeder stations every time they brake. The 52 tilting trains, designed, built and maintained by Alstom, are fitted with electronic control systems that cause the traction motors to provide braking effort by generating electricity back into the supply system. The generated electricity which is put back into the supply system achieves an overall energy saving of 17 percent.

Regenerative braking used on the Pendolino trains also reduces the use of the friction brakes, dramatically reducing brake-pad dust and pollution, to provide a double environmental benefit.¹⁹

The SRA gave the following succinct summary of what had happened over this period in its 2003 strategy document for the WCML:

¹³ OPRAF press notice, "[Increased service frequencies complement West Coast upgrade deal](#)", 8 June 1998

¹⁴ OPRAF press notice, "Regulator acts on Railtrack's plans for the West Coast Main Line", 5 November 1999

¹⁵ ORR press notice, "[Railtrack refuses to consent to Rail Regulators modified West Coast Main Line enforcement order](#)", 27 March 2000; and: "[Broad support for West Coast Main Line enforcement action](#)", 4 May 2000

¹⁶ for more information on these systems, see section 7 of HC Library standard note [SN/BT/605](#)

¹⁷ "Railtrack cuts signal plan," *Financial Times*, 5 November 1999

¹⁸ OPRAF press notice, "[Multi million pound trains deal aids West Coast regeneration](#)", 9 February 1999

¹⁹ Virgin Trains press notice, "[Penny the Pendolino makes it one-and-a-half-million](#)", 20 October 2009

Although British Rail contemplated upgrades during the 1980s, no investment plans emerged until driven by the service outputs of the PUG 1 (Passenger Upgrade 1) contract agreed between Railtrack and the Office of Passenger Rail Franchising (OPRAF) in 1996. As part of its successful bid for the West Coast Trains franchise in 1997, Virgin Rail Group (VRG) took the view that significant increases in capacity would be needed for its 15-year franchise. A modified Track Access Agreement known as PUG 2 (Passenger Upgrade 2) was subsequently agreed between VRG and Railtrack, endorsed by OPRAF and approved by the Rail Regulator in June 1998. The commitments made by Railtrack in PUG 2 included carrying out the backlog maintenance and renewal work as well as upgrade and enhancement work.

From the outset, the cost of making good the arrears of maintenance and renewals, which had built up over the previous 30 years, was known to be dominant in the Project.

The enhancements agreed in PUG 2 were to increase capacity for West Coast Trains' services from five or six trains off-peak per hour to eight/nine in May 2002 and then to 10/11 in May 2005. Journey times would be reduced through the introduction of tilting trains as in PUG 1, with line speeds increasing from 110 mile/h to 125 mile/h in 2002, but with the addition of a further increase to 140 mile/h in 2005. Performance reliability was also to be dramatically improved.

The PUG 2 agreement also aimed to protect existing commuter and regional passenger capacity, existing mail and freight capacity, and provide additional freight-compatible paths to accommodate growth.

In the years since then much work has been carried out. For example, many miles of track and overhead line have been renewed, capacity improvement works at Proof House Junction Birmingham, and the re-signalling and re-modelling of Euston Station in London, Willesden and the Stoke area have all been completed.

However it became clear in late 1999 that the commitments made by Railtrack under the PUG 2 contract were not fully achievable.

The project suffered from a reliance on new technology. The original intention was to install moving block signalling. Most industry experts would now agree that major upgrade projects such as this should not be dependent for successful realisation on blue sky technology.

An attempt by Railtrack and VRG to resolve matters in September 2001 was almost immediately followed by Railtrack being put into Railway Administration. The SRA was invited by Government to intervene, to assess the position and find a clear way forward.²⁰

3 Strategy development, 2002-08

3.1 Infrastructure and passenger services

Following the collapse of Railtrack in 2001²¹ there were reports that the WCML project was in the mire and that it had contributed to Railtrack's financial problems. For example, the *Financial Times* reported:

It is commonly said all disastrous projects go wrong from the start. The west coast main line certainly did, as it quickly became clear the infrastructure was in much worse

²⁰ op cit., *West Coast Main Line Strategy*, paras 1.1.3-1.1.10

²¹ for more information on Railtrack and its collapse, see HC Library standard note [SN/BT/1224](#)

a state than had been assumed. Some blame poor preliminary work by British Rail. But people involved at the time claim the original costs included "a number of major assumptions", notably about the state of the existing infrastructure; the assumed success of moving block signalling; and the specification of speeds, journey times and capacity. "It (the cost) was going up from day one," says one person involved. "The assumptions were very quickly established to be major additions on the price."

Even so, with hindsight, many are astounded Railtrack signed such an onerous contract, using untested technology, on what claims to be Europe's busiest mixed passenger and freight railway, with no proper knowledge of its condition.

[...]

The question that bothers many is how the troubled scheme festered so long without the company or the many watchdogs taking decisive action to speed up work and stop the losses.

John Armitt, Railtrack's new chief executive, believes a central problem was that the company became both contractor and client, which removed the controlling commercial tension. "Engineers will go on forever trying to get a bit more in ... make it better and better," says Mr Armitt. "Somebody has to say: 'We can't afford that'." The ink had hardly dried on the original agreements before the other 14 other passenger and freight operators using the line began lobbying for their own interests - and today there is still no definitive agreement about final outputs. "The business case was constantly revisited, re-formed, reworked, rejustified to suit different train operating companies," says the insider. "It was a mess."

There was also a constant merry-go-round of senior Railtrack managers. The project started under Professor Brian Mellit, Railtrack's engineering director, and then went through a dizzying spin of 12 senior directors and managers. Meanwhile, Brown & Root was usurped by Parsons Brinckerhoff, another US project management group. Reviews were ordered from Nicols Consulting, Ernst & Young and McKinsey & Co.

New people were constantly brought in, so at one point Railtrack had 50 of its own staff and a reported 250 people from various consultancies and agencies on the project. A steering group of four people was proposed to streamline decisions. But it grew to 18 members because so many Railtrack departments wanted a say. "That shows you the level of focus, attention and interest in this project - precisely zero," says one former manager.

Reviewing this tangle of people and interests, there appears to have been a devastating lack of leadership. One Railtrack director says a significant problem was that "outside" managers such as Mr Corbett and Mr Marshall never got enough experience to challenge "bland assurances" from railway professionals. This problem was exacerbated by the increasing difficulty recruiting high-quality people. "The guys right at the top hadn't the faintest bloody clue what they were doing," says the director. "However intelligent you are, ultimately you are dependent on railway guys to give you credible answers. They are wonderful guys, but they aren't realistic. They want to please their master, and they know their master next year will be different."

Underlying this was a structural weakening of the company's skills and knowledge base as a result of the widespread outsourcing of engineering work at privatisation and afterwards. It was known that, for several years, Railtrack had no engineering department on the floor plan in the lifts at its Euston head office in London. "The organisation put in by John Edmonds was, I think, based on quite a serious fallacy that Railtrack wouldn't do anything," says one industry director. "It would be a procuring organisation, so you wouldn't need engineers, you needed commercial negotiators."

You could buy in your engineering and you would even buy in safety... in that lies the seeds of destruction."

The ways the industry did not work together are also revealing. Railtrack claims that regulatory enforcement powers blocked its way out. The regulator says he was only insisting on Railtrack's duty to renew the line. Critics of the Strategic Rail Authority say it dodged responsibility because it could not afford to renegotiate Virgin's £1bn franchise payments. Meanwhile, the problem was too distant and sensitive for politicians to worry or want to intervene. "The last thing (then transport secretary, John) Prescott wanted was a headline saying he stopped the west coast main line," says one insider.

The picture that builds up is of a company and industry where nobody was clear who had ultimate responsibility for the railway. "That's the real problem," says one Railtrack insider. "There was nobody taking a view: 'Was that the right project to spend the public's money on?' The whole thing is symptomatic of a railway out of control. It's a microcosm of the whole thing." In spite of the catalogue of failures, it is still difficult to grasp why no one in authority called a halt on proceedings. But one Railtrack executive says the scale of the disaster was too big to grasp. "We were convinced once the Treasury got hold of the numbers it just wouldn't happen. So there was no point in getting worried about it." ²²

In June 2003, the Strategic Rail Authority (SRA) published the *West Coast Main Line Strategy*. The document explained the SRA's role in getting the project back on track:

In early 2002, the SRA initiated a detailed review of the West Coast Route Modernisation (WCRM) programme, its outputs, schedule and costs, and co-ordinated discussions between the main industry parties involved. When this review had clarified the way forward, although with a number of detailed points still outstanding, a draft Strategy document was produced in October 2002.

Work continued in evaluating the scope of the WCRM Project, from a location-specific and functional perspective. A revised specification for the work was produced, to which Network Rail is now working. The SRA is acting as sponsor, with implementation of infrastructure changes the responsibility of Network Rail.

A high proportion of total expenditure and activity is devoted to the renewal of much of the track, signals, and electrical equipment, together with the replacement of much of the foundations of the railway. The Strategy for this renewal work has been developed further by Network Rail, the ORR and the SRA since the draft was first published. Costs are being controlled and methods of delivery have been further refined. ²³

The Strategy also outlined what the SRA expected of the WCML project in terms of future key outputs and set out a schedule of works and milestones that would have to be met. These included:

- new and amended track access agreements to be negotiated by train operators;²⁴
- new enhanced outputs of the route to be checked against the current Passenger Service Requirements (PSRs);

²² "Ill-conceived deal that was to drive Railtrack towards disaster", *Financial Times*, 27 August 2002

²³ op cit., *West Coast Main Line Strategy*, paras 1.2.1-1.2.3

²⁴ ORR, *Access charges review: final conclusions*, December 2003

- revised Project Governance arrangements to be formalised, with highest level participation from Network Rail and the SRA and the presence of the Rail Regulator in an observer role;
- the SRA to be the client and sponsor of the Project (i.e., Network Rail to be responsible for the condition management of infrastructure assets; the Rail Regulator to ensure that renewals are efficient; and the SRA to determine the functionality of the railway – including enhancements or simplification schemes and the outputs from renewal);
- further work required to introduce the new high speed tilting trains and other new trains to sustain the route's outputs and carrying capacity;
- development of resilient timetables for the route, concentrating initially on the timetable for 2004 to 2007 (the first step would be an initial 'standard hour' pattern followed by a 'core' Mondays to Fridays 0600-2000 timetable by June 2003; and the timetable for the remaining hours and days of the week by September 2003, reflecting the needs of maintenance, renewal and upgrading up to 2007 as assessed by Network Rail. The completed West Coast timetable would be published for Autumn 2004 operation);
- finalisation of the build functionality by autumn 2003 (including feasibility work for the Rugeley, Colwich, Stafford, and Norton Bridge areas to understand the best long term value for money option);
- following the finalisation of the outputs available from the network on project completion, work would take place on the longer term timetable options (typical accelerations envisaged to be of the order of five minutes to the West Midlands, the North West, North Wales and Scotland for West Coast Trains' services);
- Network Rail to develop a long term maintenance and renewal plan; and
- specific renewals of signalling to be assessed, prioritised and have scheme plans developed (in the medium term affecting much of the West Midlands, Crewe area and the whole of the Warrington to Motherwell section of the route).²⁵

The SRA published a progress report in April 2004, at a time when there was increasing criticism of the WCML project. For example, at the beginning of April 2004 *The Guardian* dedicated fifteen pages to what it called "the most expensive non-military project ever undertaken in Britain... the outrageous scandal of the West Coast Main Line".²⁶ The progress report, however, announced areas of 'significant' progress since the publication of the 2003 strategy document including: the finalising of a new improved timetable; cost reductions; the completion of four major route section upgrades; and the introduction and operation of half the Pendolino tilting fleet.²⁷

A further progress report published in May 2006 found that the WCML project had met the timetable set out in the 2003 Strategy, with each of the key output improvements in 2004 and 2005 delivered on time:

²⁵ *ibid.*, paras 7.15-7.26

²⁶ "The £10 billion rail crash," *The Guardian*, 1 April 2004

²⁷ SRA press notice, "[West Coast Main Line strategy, properly delivered](#)," 27 April 2004

- September 2004 – 125 mph tilting trains on all Virgin West Coast routes;
- June 2005 – full Pendolino timetable implemented, including extra trains and a fully revised morning peak service; and
- December 2005 – line speed improvements and 125 mph running through to Scotland cut journey times between Glasgow and London to 4hr 24min.²⁸

During the first four months of 2006 Virgin West Coast achieved an average of 89.5 per cent of all trains arriving within ten minutes of the scheduled arrival time, ahead of the 88 per cent target for 2006.²⁹ In April 2006 Virgin announced that passenger numbers on the WCML had increased from 13.6 million in 1997-98 to 18.7 million in 2005-06.³⁰ The largest growth in passenger numbers was on the Manchester to London route.³¹

Chapter 2 of the report summarised the expected enhancements which remained for the completion of the project:

Additional line speed improvements are planned, including 100mph on the London – Northampton ‘slow’ lines, further work on Stoke and Crewe lines, sections of the Liverpool and Glasgow lines. Enlargement of Milton Keynes and Rugby stations, widening of the Trent Valley route along with changes at Nuneaton and on the Crewe – Weaver Junction route are programmed for delivery by the end of 2008. A new train maintenance depot will shortly open at Northampton. In addition, around 5,000 additional car parking spaces are planned at major stations on the route, broadly doubling the car parking capacity.³²

In addition, a fully revised timetable would be implemented following the completion of the project at the end of 2008, of which the key features would be:

- London to West Midlands to be served by a train every 20 minutes to Coventry, Birmingham International and Birmingham New St, with a standard journey time of 1hr 23min;
- London to Manchester frequency increased from every half hour to every 20 minutes and accelerated to an end to end time of 2hr 6min (the fastest train to take less than 2 hours);
- decreased journey time between London and Liverpool of around 20 minutes with extra peak trains;
- increased frequencies between London, Lancashire, Cumbria and Scotland with decreased journey time to Glasgow of around an hour;
- new regular hourly service linking London and Chester with extra trains to North Wales;
- new regular hourly services between London and Wilmslow and between Northampton and the north;

²⁸ DfT, *West Coast Main Line: Progress Report*, May 2006, pp18-19

²⁹ *ibid.*, p19

³⁰ Virgin press notice, “‘We’ve started ... so we’ll finish’, says Sir Richard”, 24 April 2006

³¹ *op cit.*, *West Coast Main Line: Progress Report*, p20

³² *ibid.*, p7

- regular hourly services linking the important intermediate locations on the route; and
- major improvement in weekend services throughout the route, with journey times and frequencies close to weekday levels.³³

In November 2006 the National Audit Office (NAO) published a report on the modernisation of the WCML and concluded that the project had, by and large, delivered for passengers:

Carrying out the upgrade to a tight timescale, in order to achieve early passenger benefits, put pressure on costs, but Network Rail has improved its cost control. Problems in implementing new signalling and train control technologies increased costs by over £35 million and 8 per cent of the time the track was booked for engineering work was unused in 2005-06. But, between 2003-06, programme track renewal unit costs fell from 60 per cent to 14 per cent above the network average.

So far, the programme has delivered its planned benefits to passengers. The fastest journey between Manchester and London has been reduced by 36 minutes and from London to Glasgow by 42 minutes. Punctuality and passenger satisfaction are much improved and the number of passenger journeys on Virgin West Coast increased by 20 per cent in 2005-06, which was 4 per cent more than expected in the business case. The programme's remaining key projects will increase capacity for passengers and freight, but the industry consensus is that the line will not be able to sustain current growth levels beyond 2015-2020. There also remains uncertainty about the expected lifespan of some of the equipment on the upgraded line.³⁴

The House of Commons Public Accounts Committee followed this report with an inquiry and a report of its own, published in June 2007. The Committee concluded that the WCML project to 2006 had delivered increased passenger numbers and reduced journey times but that the original aims of the project were “overly ambitious” and work had taken longer and cost more than originally envisaged. The Committee also foresaw capacity problems in the future, stating that “some parts of the route are already at or near capacity and by 2015-20, the line may not have enough capacity to meet demand, while other routes are also overcrowded with passengers often having no seats”.³⁵

In early 2008 there were serious problems with maintenance overruns on the WCML that had a serious knock-on effect for passengers. Network Rail was fined £14 million by the Regulator for the overruns.³⁶

3.2 Freight services

In February 2000 Railtrack published its Freight Routing Strategy for the WCML. The document proposed three options for developing the network to accommodate freight growth to 2009. It was envisaged that the proposed upgrade project to the WCML would provide an additional 42 freight train paths in each direction above the 40 utilised freight train paths in 2000. These would be delivered by 2005. The 42 additional freight paths were identified during the project definition phase as being sufficient to meet customer requirements.

³³ *ibid.*, pp7-8

³⁴ NAO press notice, “[The modernisation of the West Coast Main Line](#)”, 22 November 2006; full report also available on the [NAO website](#)

³⁵ PAC, [The modernisation of the West Coast Main Line](#) (thirtieth report of session 2006-07), HC 189, 14 June 2007, pp5-7

³⁶ for full details, see section 7 of HC Library standard note [SN/BT/2129](#)

At the time, the three freight operators on the WCML ([Freightliner](#), English Welsh and Scottish Railway (EWS)³⁷ and [Direct Rail Services \(DRS\)](#)) forecast actual train numbers for the year 2008-09 of 154 train services each way per day from London to Rugby (the most congested section). This created a shortfall in the WCML capacity provision of 72 train paths. In its Strategy document, Railtrack stated that the dramatic increase in the forecast was due, in part, to factors such as: improved national economic conditions; more aggressive marketing strategies from the rail freight companies; and Government strategies for modal shift. Railtrack proposed three potential solutions:

- accommodate all growth on the WCML (cost: £1.83bn)
- use the WCML and upgrade Felixstowe to Nuneaton (cost: £1.48bn)
- use the WCML, upgrade Felixstowe to Nuneaton and provide an additional London to Glasgow route by enhancing and developing the current network (cost: £1.61bn)

It did not address the question of funding or affordability.³⁸

In its June 2003 strategy document, the SRA identified three fundamental issues to face if freight growth was to be deliverable:

There was inadequate capacity enhancement work and consequently no viable timetable plan to provide adequate capacity for freight traffic, either for existing flows or for growth in the daytime period, with freight having to be transferred in the main to night hours.

Route maintenance requirements had been underestimated and much of the night time line capacity would still be reduced because of this critical activity.

No provision had been developed for the freight traffic growth to be accommodated north of Crewe, particularly with the enhanced Cross Country services superimposed on the fast West Coast ones.³⁹

The April 2004 progress report indicated that the SRA had continued with the objective of providing capacity for up to 60 to 70 per cent more trunk freight paths on the WCML with provision for longer trains and increased gauge clearance. It stated that the majority of the planned gauge enhancement works on the WCML and on the link through East London and Ipswich to Felixstowe would be completed by September 2004, enabling 9' 6" containers to be carried on conventional wagons.⁴⁰ The May 2006 report found that freight customers had benefited from the enhanced loading gauge provided by the project and volumes of high-box containers had increased as a result.⁴¹

Network Rail's Freight Route Utilisation Strategy was published in March 2007; this set out plans for freight on the WCML as follows:

The key capacity gaps and the flows driving them on the West Coast Main Line are:

³⁷ now [DB Schenker Rail](#)

³⁸ Railtrack, *West Coast Main Line Freight Routing Strategy*, February 2000

³⁹ op cit., [West Coast Main Line Strategy](#), para 2.7

⁴⁰ SRA, [West Coast Main Line: Progress Report](#), April 2004, p33

⁴¹ op cit., [West Coast Main Line: Progress Report](#), May 2006, p59

- Northern end of the route: Carlisle – Preston driven by continued operation of Class 6 services over the gradients in the Up direction plus some projected Class 4 intermodal growth (deep sea and domestic).
- Further south: Winsford – Weaver Junction, Stafford station, Brinklow – Attleborough and Rugby – Wembley Central driven by the volume of additional Class 4 deep sea intermodal services projected (up to 18 extra trains per day in each direction on some sections).

Short term:

Network Rail is developing a new West Coast Main Line timetable with FOCs and passenger operators for implementation in December 2008. The timetable will seek to meet the freight operators existing needs and on some route sections provide some additional headroom for growth.

[...]

Medium term

In the medium term two recommendations are made covering the northern and southern end of the route.

At the northern end of the route three options were assessed to accommodate the industry's projected growth in Class 4 intermodal and Class 6 bulk traffic over the gradients between Preston and Carlisle. A looping strategy was considered with an extended/new loop between Tebay and Carnforth to increase the opportunities for regulating existing and longer trains. A routeing option was also considered. It routed existing daytime Up Class 6 coal trains away from Shap via the Settle and Carlisle and Hellifield to Clitheroe lines. This would allow additional Up daytime paths over Shap for projected Class 4 intermodal growth and other diesel hauled traffic. Finally an electric traction strategy between Preston and Carlisle was considered, assessing the additional paths that could be generated if electric traction was used for future growth traffic.

This latter option, greater use of electric traction for growth services over Shap (both Class 4 and Class 6) is recommended as the best option for meeting the industry growth forecast. The differential between the sectional running times of diesel and electric locomotives means that diesel hauled paths for growth in between the passenger service in the Up direction over Shap will be difficult to find even with a new/extended loop in the fells.

Subsequent changes to passenger timetables could also change the optimum location for a new looping facility.

In addition, haulage by a Class 92 electric or similarly powerful design will allow longer trains over the section as well as more paths. For example, 1357ft trailing length coal trains (eg. 23 HTA wagons) could be accommodated as could some longer intermodal services.

The routeing option via the Settle and Carlisle and Hellifield – Clitheroe also shows a positive business case and could represent a sensible medium to long-term strategy for slower moving Class 6 freight in the Up direction. This option could be a cheaper solution for the FOCs than electric traction. The option could not be implemented regularly until the Medium term due to the extent of work required on structures and track south of Hellifield.

At the southern end of the route, timetabling work has shown that by the end of the 10 year forecast period there could be difficulty in pathing some of the intermodal growth projected by the industry. The RUS therefore recommends medium-term implementation of gauge clearance and an initial capacity scheme on the Felixstowe – Nuneaton route to remove some growth originating at Felixstowe/ Bathside Bay from the West Coast Main Line south of Nuneaton [...]

Long term

Consideration of the long term requires a detailed understanding of forecast passenger demand beyond the introduction of the 2008 timetable. The West Coast Main Line RUS will consider these issues. In the meantime a number of options are clearly worthy of further analysis with a view to possible longer term implementation.

Lengthening of some intermodal services to and from the Haven Ports has some relatively limited productivity benefits in terms of train paths saved on the West Coast Main Line but does show a positive business case. Lengthening of a significant number of services would require some infrastructure works [...]⁴²

4 Completion, December 2008

The estimated cost of the WCML upgrade has veered between an initial figure of £1.5 billion and a projected cost of approximately £13 billion, before the SRA was asked to intercede in 2002. In its 2003 strategy document the SRA put the projected final cost at £9.9 billion.⁴³ In the end, this turned out to be an accurate estimate. The Government confirmed, upon completion of the project in December 2008, that:

The estimated full cost for the upgrade of the west coast main line remains £9.9 billion as set in the 2003 Government Strategy for the route. £8.8 billion has been spent to date and £1 billion is being provided for the 2009 to 2014 period for power supplies, Stafford and Bletchley works.⁴⁴

Network Rail summarised the project's successes as follows:

In total Network Rail has invested £9bn in the biggest rail improvement scheme ever in Britain. The project is now completed. From December 2008, more than 1,000 extra trains will be able to run every week between cities like Liverpool, London, Manchester and Birmingham.

The project team has worked 94m hours (4800 people working every day for 7 years) on:

- Changes to all 13 major junctions on the route, including a significant bottleneck at Rugby, enabling trains to travel at up to 125mph
- Laying more than 36 kilometres of new track through the Trent Valley, meaning that four tracks now run nearly all the way from London to Crewe
- 174 new or altered bridges
- 53 new or extended platforms at places like Milton Keynes and Manchester Airport

⁴² Network Rail, *Freight Route Utilisation Strategy*, March 2007, section 9.3.3

⁴³ op cit., *West Coast Main Line Strategy*, p9

⁴⁴ [HC Deb 17 December 2008, c784W](#)

- Replacing over 800 points (the bits of track that move trains from one line to another)
- Line speed improvements across the whole line, including between Preston, Carlisle and Motherwell and between London Euston and Wembley
- Work on 11,400 overhead line structures⁴⁵

As mentioned above, Virgin won the 15-year West Coast franchise in March 1997, to terminate in March 2012. Following the problems with Railtrack and its failure to deliver on its commitments regarding the WCML, a 'Letter Agreement' was put in place between Virgin and the Government for the operation of the West Coast franchise. The franchise 'proper' was reinstated in December 2006. The subsidy for the remaining two years of the franchise is approximately £430,000 in nominal terms.⁴⁶ In August 2007 it was reported that Virgin was seeking a franchise extension beyond 2012 in return for investment in new rolling stock; but the Government had declined the proposal.⁴⁷

The Virgin West Coast franchise agreement and service level agreements are available on the [Department for Transport website](#). The new [Virgin West Coast timetable](#) came into effect on 14 December 2008.

In September 2008 Network Rail published its West Coast Main Line Route Utilisation Strategy scoping document.⁴⁸ The study commenced in December 2008 so as to allow the new December 2008 timetable to be used as the 'baseline' and to pick up any issues emerging from the timetable as they arise. The work was estimated to last for approximately 22 months incorporating a formal consultation period. The output will be the rail industry's preferred strategy for railway regulatory Control Periods 4 (2009–2014) and 5 (2014–2019) in the context of strategic priorities and considering likely requirements over a 30-year period from 2009.⁴⁹

⁴⁵ Network Rail, [West Coast: Overview of Project](#), December 2008

⁴⁶ DfT, [Franchise agreement reinstated for West Coast services: Stock Market statement](#), 13 December 2006

⁴⁷ "Virgin hits buffers over west coast line", *The Sunday Times*, 26 August 2007

⁴⁸ RUSs are designed to achieve the 'route utilisation objective', as defined in Condition 7 of Network Rail's Network Licence: the effective and efficient use and development of the capacity available, consistent with funding that is, or is reasonably likely to become, available during the period of the route utilisation strategy, and with the licence holder's performance of the duty; there are 19 such documents

⁴⁹ Network Rail, [West Coast Main Line Route Utilisation Strategy: Scoping Document](#), September 2008