Available online at www.sciencedirect.com
ScienceDirect
Journal of Transport Geography 15 (2007) 198–216
JOURNAL OF TRANSPORT GEOGRAPHY
www.elsevier.com/locate/jtrangeo

Britain's national railway network: fit for purpose in the 21st century?

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Abstract

The case for developing railway networks rests on a mix of economic, social and environmental factors. A crucial factor is the relationship between the network and developing patterns of urban form and policy intentions with regard to securing modal shift from road to rail as part of the search for greater environmental sustainability. This article explores these relationships in contemporary Britain in the context of the recent attempt to privatise the railway network. It concludes that although there are serious shortcomings in the current situation, there is a case for further development of the network, but that this is now a matter for public sector leadership.

Keywords: Railway network; Planning; Regeneration

A key transport problem faced by all western European countries is deciding on the appropriate role for their mixed traffic national railway networks, in an era dominated by road transport and a context where the case for rail rests on a mix of economic, social and environmental factors which justifies some measure of public subsidy. This raises complex issues of what railways are for, how much governments are prepared to pay, and how might railways and their relationships with policy in other sectors be best managed in order to secure efficiency whilst promoting their wider roles? The aim of this article is to consider how effectively these problems are being addressed in Britain, primarily with regard to the passenger rail network and its geographical relationships with patterns of urban development and the planning strategies which drive these. Notwithstanding the importance of relative cost, it is overall journey times which define the competitiveness of transport modes, so the spatial relationship between the railway network and the ultimate origins and destinations of journeys needs to be managed so that these are as convenient as possible. Rail network development and patterns of urban development should be steered by mutually reinforcing strategies. This relationship is all the more important in the contemporary period owing to the drive for more environmentally sustainable economies which, amongst other things, involves modal shift from road to rail.

The paper begins with a summary of the evolution of network geography and then reviews the extent to which there was co-ordination between rail network development and patterns of urban form in the 1948–1994 period when the network was in public ownership and there was an effective town planning system in operation. It then moves on to consider the impacts of rail privatisation followed by an evaluation of the various components of the network and their relationships with patterns of urban development post 1994. This is set against a review of contemporary expectations about those relationships derived from a summary of national planning and regeneration strategies. The paper then offers some views as to what form network development might take and how better integration with patterns of development could be secured. It concludes that although there is a firm basis for network development as part of a wider strategy to secure a more environmentally sustainable economy, complex institutional arrangements arising out of privatisation and poor integration between network development and other planning strategies present significant barriers to rail realising its potential.

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doi:10.1016/j.jtrangeo.2006.02.015

Table 1
The British Railway Network: 1900–2004

	Route data			Passenger traffic		Freight traffic		Stations
	Total length of route (km)	Open to passenger traffic (km)	Electrified route (km)	Passenger journeys (million)	Passenger kilometres (billion)	Goods lifted (million tonnes)	Goods moved (billion tonne kilometres)	No. of stations
1900	29,783			1114		427	n/a	
1918	32,420			2064				
1928	32,565			1250				
1938	32,081			1237	30.6	270	n/a	
1948	31,593		1455	1024	37.0	277	n/a	
1958	30,333	23,621	1622	1090	35.6	247	30	4300[a]
1968	20,080	15,242	3182	831	28.7	211	23	
1978	17,901	14,396	3716	724	30.0	171	20	2356
1988	16,599	14,309	4376	764	34.3	150	18	2418
1994	16,542	14,359	4970	745	31.7	122	15	2493
2004	16,652	15,042	5167	1014	40.9	88.8	18.8	2508

Sources: DoT, Transport Statistics GB 2004.
Route data – length, open to passenger traffic and electrified shows no change 2000–2004.
NB comparison of pre- and post-privatisation data is not direct and data should be read as indicative of trends.
[a] As quoted in Beeching 1963.

1. Inherited characteristics of the historic railway network

Britain's main line[1] network was built by private companies largely between 1830 and 1870, although construction continued through to 1914 when the network comprised some 32,500 km (see Table 1). The later development was mainly urban and rural branch lines but with some new main lines, primarily to create shorter routes, or "cut offs". This produced a complex network geography[2] characterised by trunk routes radiating from London to all the major cities and ports, but with few through links across central London.[3] The radial pattern was replicated around provincial cities, particularly those in the industrial areas, usually with similar cross-town discontinuities, although Birmingham was a significant exception. Generally cross-country routes between provincial cities were of inferior quality than those to London, although notable exceptions were the east–west routes between Edinburgh and Glasgow, and across the Pennine hills linking Liverpool and Manchester with Leeds, Sheffield and beyond to Newcastle and Hull/Immingham. A longer distance cross-country route which continues to be important was that linking York with Sheffield, Derby, Birmingham and Bristol. The network extended into the coalfields and out into the rural areas in all but the remotest uplands. It was not planned by the State[4] in the public interest as, in the "laissez-faire" world of Victorian Britain, the rationale was private profit, so it grew piecemeal according to commercial priorities. Such was the profitability of rail that there was often more than one route linking urban centres, or between collieries and ports and even rural settlements had duplicate facilities.

As settlements existed before the railways arrived, stations were built, typically, towards the periphery of extant built-up areas, necessitating onward travel by another mode. The most notable example was London wherein parliament expressly prevented railway building within the existing built-up area: this produced the still familiar pattern of termini linked by the Underground network. A feature which has become a severe constraint was the loading gauge: there was no standardisation and that built was more restrictive than on Continental railways. These shortcomings did not matter much in the railway age as there was no effective competition but, eventually, they would lead to problems.

Rail's dominance ensured that market forces produced good integration with patterns of urban development (Kellett, 1979) making rail very accessible, despite the absence of state planning. CBD growth was heavily dependent on rail services for passengers and freight. Railway suburbs grew like "beads on a string" around the local stations on routes serving the cities and some of these were privately planned as garden suburbs, with the station as a focal point. Most large industrial complexes, and many smaller ones, and the ports, were directly linked to the

[1] The main line or national network is that built to the standard gauge and operating, under various ownerships, as a mixed traffic railway linking major towns and cities. It excludes the London Underground and similar localised and separate networks.

[2] For details of the places and routes referred to in the article see C. Baker, 2004.

[3] Several routes crossed the Thames in west London, but there was no route across the West End and only one route across the City which was in tunnel via Farringdon and Blackfriars Bridge. Further east the East London line crossed under the Thames at Wapping. An orbital route was built around north London to access the City and the docks.

[4] During the period known as the 'Railway Mania' in 1844/1845 there was an attempt to exercise more control over the companies' plans during Gladstone's time as President of the Board of Trade, but this was abandoned as it was an idea too far in advance of majority opinion in parliament at that time (Parris, 1965).

Table 2
1921 Railways Act: the Big Four

LMS	London Midland and Scottish Railway: London to Nottingham, Derby, Sheffield, Birmingham, Manchester, Liverpool and Glasgow
LNER	London and North Eastern Railway: London to Norwich, Sheffield, Leeds, Newcastle and Edinburgh
SR	Southern Railway: London to the South Coast including Exeter and Plymouth and north Devon and north Cornwall
GWR	Great Western Railway: London to Bristol, Devon, Cornwall and Wales

network and often had their own internal railway systems too (Simmons, 1986).

2. The inter-war years and state directed railway industry restructuring

Although the state was not centrally involved in railway planning, politically sensitive issues such as safety and charges drew it, inexorably and deeply, into the industry's affairs to the point where leading commentators saw public ownership as the logical outcome (Ackworth, 1912). However, the railway companies were adept at exerting political influence (Alderman, 1973) and, initially, nationalisation was blocked. Instead the 1921 Railway Act grouped the 15 major and 100 or so minor companies into the "Big Four" regional monopolies. Each was given a network with a hub in London and a territory out into the regions, roughly in each of the four quadrants of the compass (see Table 2).

Although the grouping produced efficiencies, the impacts on network geography were limited. Modernisation was prolific on the Southern Railway, stimulated by growth of the commuter market as London decentralised south of the Thames. This included electrification of inner and outer suburban routes and trunk routes to Brighton and Portsmouth; it included new signalling systems to reduce train headways, new branch lines, flyovers to avoid conflicting train movements across junctions, and the establishment of regular "clockface" timetables.[5] Stylish new stations were built, often part-funded by the developers of adjacent housing areas (Jackson, 1991, 1999). There was no comparable modernisation by the other companies, even around London, although there was electrification of some suburban lines in Manchester and Merseyside. Elsewhere trains remained steam hauled although there was work to increase the capacity of trunk routes. Competition from bus services was experienced out in the new suburbs and led to some station and branch line closures, but there was no wide-ranging rationalisation of the duplicated routes and/or facilities. Although much suburban growth around London was well integrated with railway development despite the continuing absence of effective state planning, elsewhere it was the geography of the road network which, increasingly, influenced patterns of development typified by "ribbon development".

[5] This involved train departures at regular times so that, whatever the frequency, the service pattern could be easily memorised by passengers, thereby obviating the need for a timetable.

3. Post-war reconstruction

During the 1939–1945 war the notion of effective, state led planning gained popularity and ambitious plans for urban reconstruction and countryside protection were developed. The most notable was Abercrombie's plan for London (Abercrombie, 1944) which was focused around the planned dispersal of population and industry from inner London to new towns, with the creation of a "green belt" to prevent further suburban growth. The plan contained extensive road proposals, but also envisaged some modernisation of outer suburban rail services. However, owing to the new towns becoming "self-contained" with people living and working in them, Abercrombie expected a reduction in demand for rail services into London. There was a longstanding dislike by planners of rail commuting (Howard, 1913; Haywood, 1997a), but their primary concern was aesthetic, the visually intrusive impact of the railway viaducts which brought lines to London's termini (Haywood, 1997b). The suggested solution was tunnelling and these ideas were referred to a railway industry body, the Railway (London Plan) Committee, which demonstrated what, with hindsight, can be seen as a more realistic perspective on the impact of decentralisation on demand for rail services:

> "…we do not believe that the expectation of a reduction from this cause is likely to be realised,…we feel that a greater dispersion of population will mean a greater volume of traffic" (Ministry of War Transport, 1944, p. 10).

The Committee's proposals included several new tunnels for the Underground and main line network, but the rationale was operational rather than aesthetic. The lack of vision for integration between town planning and railway planning exemplified by Abercrombie's plan, was a widespread feature of contemporary planning ideology.

4. Post-war nationalisation and network change

The "Big Four" companies were nationalised by Attlee's Labour government under the 1947 Transport Act and were subsequently operated as a single network: "British Railways". Initially, investment funds were very limited but some projects stalled by the war were picked up, notably the electrification of the "Woodhead" route between Manchester and Sheffield and the Shenfield route serving London's Liverpool Street station. A more comprehensive approach came as the economy improved and the Conservative government, elected in 1951, made funds available for the Modernisation Plan (BTC, 1956). This envisaged the replacement of steam by diesel and electric traction, new

rolling stock, station rebuilding, and a massive programme of mechanised marshalling yards on the 1930s model developed at locations such as March (near Peterborough) and Feltham (south London). However British Railways soon ran into financial problems as traffic leaked away to road transport. It was clear that the Modernisation Plan was flawed:

> "…apart from modest proposals for passenger withdrawals…and the closure of a number of goods depots, the modernisation plan set out to rebuild the existing railway, whether there was a demand for its services or not (Joy, 1973, p. 44)".

To accelerate the closure process and refocus modernisation plans, radical changes were made by the Conservatives in the early 1960s.[6] These created the British Railways Board (BRB) with a more commercial remit driven by Treasury concerns to cut subsidy and, in particular, saw the installation of Richard Beeching (Hardy, 1989), a non-railway businessman, as its first Chairman.[7] His notorious Reshaping Report (BRB, 1963) showed that only the long distance passenger and coal hauling services were profitable and that many routes, stations and goods facilities were doing minimal business. Beeching envisaged replacement of many rural services by buses, a process which became known as "bustitution" and proposed closure of 5000 route miles, over 2000 passenger stations and several thousand goods facilities. The quid pro quo was investment in the main trunk routes (BRB, 1965) and in those services where rail had clear potential: the inter-city passenger services and the bulk, "train load"[8] freight markets, including the movement of containers in what became known as the Freightliner service. It was realised that the new marshalling yards would never be fully utilised.

By the late 1960s, many lines and facilities were closed (by the Labour government elected in 1964), including major stations in provincial cities and almost all general goods facilities, apart from depots retained for Freightliner. The network had been removed from many rural areas and thinned out in the coalfields and conurbations. Closures[9] included main lines (Table 3) and other main lines were, controversially, reduced to single track status, such as Salisbury-Exeter and parts of the "cut off" between London and Banbury (for Birmingham) via High Wycombe. On the other hand Britain's busiest trunk route, the West Coast Main Line (WCML), was electrified (Table 4) between London and Birmingham/Manchester/Liverpool with a significant reduction in journey times and a large increase in

Table 3
Closures of main routes 1948–2005

1958	Midland and Great Northern Joint line between Spalding–Great Yarmouth
1966	Somerset and Dorset Railway between Bournemouth and Bath/Bristol
1966–1969	Great Central main line between Aylesbury–Sheffield via Rugby, Leicester and Nottingham. Aylesbury–London Marylebone retained for commuter services
1968	Cambridge–Bedford and Oxford–Bletchley sections of Oxford–Cambridge east–west route: Bedford–Bletchley and Oxford–Bicester stubs retained
1968	Matlock–Chinley section of former Midland Railway Manchester–Derby main line, leaving no direct link between the East Midlands and the North West
1968	London and South Western main line between Exeter and Plymouth closed between Okehampton–Bere Alston (near Plymouth), leaving only the former GWR coastal route to Plymouth and Cornwall which is prone to sea damage
1969	Midland Railway 'Waverley' route between Carlisle and Edinburgh via Hawick and the Borders area
1972	Exeter – Okehampton stub of London and South Western main line (except for freight trains carrying stone from Meldon quarry) – end of Okehampton's brief role as a north Devon rail head
1981	Woodhead route, part of former Great Central main line between Wath/Sheffield and Manchester. Manchester Piccadilly–Hadfield stub retained for suburban service
1982	March-Spalding and Lincoln avoiding lines
1986	Broad Street–Dalston in east London and associated Broad Street station
1991	Leamside line from Pelaw to Tursdale Junction, Durham (East Coast Main Line diversionary route)
1993	Stourbridge–Walsall cross–Birmingham freight only line

Sources: Creer (1986), Glover (1985, 1987) and Heaps (1988).
Rail industry professional journal: Modern Railways, various editions.

Table 4
Main line electrification outside BR Southern Region: 1947–2005

Route[a]	Date of opening of electric services
Wath/Sheffield–Manchester (DC system)	1952
Shenfield–Colchester–Clacton/Walton	1959
Crewe–Manchester (WCML)	1960
Crewe–Liverpool (WCML)	1962
Euston–Crewe (WCML–Trent Valley)	1966
Rugby–Birmingham (WCML)	1967
Crewe–Glasgow (WCML)	1973
Wath/Sheffield–Manchester – closed	(1981)
London Liverpool Street – to Cambridge	1987
Ipswich–Norwich	1987
King's Cross–Leeds (ECML)	1988
King's Cross–York–Newcastle–Edinburgh/ Glasgow[a] (ECML)	1991
Cambridge–Kings Lynn	1991
Crewe–Kidsgrove (strategic link on WCML)	2003

Sources: Creer (1986), Glover (1985, 1987), Heaps (1988) and Thrower (1998).
[a] Via Carstairs to Glasgow Central.

[6] Commentators have remarked that Government and the Civil Service were so shocked by the inappropriate spending under the Modernisation Plan that the whole relationship with railway management was tainted subsequently.
[7] See Gourvish (1986, 2002) for the business history of British Railways.
[8] All wagons having the same origin and destination e.g. coal mine to power station.
[9] Owing to the political nature of the closure process, not all those proposed by Beeching were implemented, and some routes not proposed by him were subsequently closed.

Table 5
BR Southern Region Electrification: 1945–2005

Route	Year opened for electric services
Gillingham–Ramsgate/Dover (Kent Coast electrification)	1959
Maidstone–Ashford (Kent Coast electrification)	1961
Sevenoaks–Ashford–Folkestone–Dover–Deal–Ramsgate (Kent Coast electrification)	1962
Woking–Bournemouth	1967
Ryde–Shanklin (Isle of Wight)	1967
Tonbridge–Hastings	1986
Sanderstead–East Grinstead	1987
Bournemouth–Weymouth	1988
Portsmouth–Southampton–Eastleigh	1990

Sources: Moody (1979) and Thrower (1998).

Table 6
Surburban electrification outside BR Southern Region: 1947–2005

Route	Date of opening of electric services
Liverpool Street–Shenfield	1949
Manchester London Rd.–Glossop/Hadfield	1954
Shenfield–Southend	1956
Liverpool Street–Hertford East/Chingford/Enfield Town/Cheshunt	1960
Glasgow Queen Street–Helensburgh/Balloch/Milngavie	1960
Glasgow Queen Street–Bridgeton/Airdrie	1960
Fenchurch Street–Southend	1961
Glasgow Central–Cathcart/Paisley	1962
South Tyneside de-electrifed	(1963)
Paisley–Gourock/Wemyss Bay	1967
North Tyneside de-electrified	(1967)
Lea Valley–Cheshunt	1969
Kings Cross/Moorgate–Welwyn/Hertford North	1976
Hertford/Welwyn–Hitchin/Royston	1977
Liverpool–Kirkby	1977
Liverpool–Garston	1977
Rutherglen–Central-Partick (Glasgow Argyle Line)	1979
Liverpool Street–Gidea Park	1980
Stockport–Hazel Grove	1981
St Pancras–Bedford	1982
Garston–Hunts Cross (Liverpool)	1983
Wickford–Southminster	1986
Paisely to Ayr/Ardrossan/Largs	1987
Thameslink	1988
North Berwick branch from ECML	1991
Hooton–Chester/Ellesmere Port	1993
Birmingham Cross City line – Lichfield–New Street–Redditch	1994
Leeds–Bradford/Skipton/Ilkley "Aire Valley" routes	1995
Paddington–Heathrow	1998

Sources: Creer (1986), Glover (1985, 1987), Heaps (1988) and Thrower (1998).

passengers.[10] There was electrification between London and the Kent Coast (Table 5) and of local services in parts of the London commuter network and the networks around Birmingham, Manchester, Liverpool and Glasgow (Table 6). Elsewhere services were diesel operated as the last steam train ran in 1968 (Allen, 1966).

5. Early post-war planning and the railways

The modern British town planning system also dates from 1947. Although subsequently railway and land-use planning were not well integrated, as planning ideology was road oriented (Tetlow and Goss, 1965), there were some exceptions (Haywood, 2001). During the post-1955 property boom (Marriott, 1967) planning policy sought to restrict the massive demand for commercial and retail developments to town and city centres which, generally, had good rail accessibility. "Air space" developments were secured above central London termini, as well as the huge scheme at Birmingham New Street associated with the WCML electrification. London's new towns were located on trunk routes and eventually all provided with stations but, showing the limits to integration with rail planning, this did not prevent closure of orbital routes linking growth centres. A notable example was the Oxford–Bletchley–Cambridge line: Bletchley became part of Milton Keynes new town. Outside the south east, new town designation did not preclude closure of all railway facilities, with Corby being the most notable example.

6. Network stabilisation and integrated planning 1970–1994

Whilst Beeching had demonstrated the case for investment in key passenger and freight services, the provision of commuter and rural passenger services was more problematic. However political debate in the 1960s led to recognition of the "social" railway, as well as the business-led railway, and the provision of subsidy was enshrined in the 1968 Transport Act. To improve overall public transport planning in the conurbations the Passenger Transport Authority/Passenger Transport Executive (PTA/PTE) structure was introduced to Birmingham, Liverpool, Manchester, Newcastle, Glasgow, Sheffield and Leeds. But, despite the many changes, the financial problems continued. This led to the 1974 Railways Act which reduced the BRB's debt and introduced a block grant subsidy system, known as the Public Service Obligation (PSO), which replaced the previous unwieldy system of granting subsidy on the basis of individual routes. The future service was to be "…comparable generally with that provided by the Board at present". Grants to help with the development of rail freight were also introduced at this time because of the growing concerns about the environmental costs of road haulage.

[10] However the political concerns to limit costs meant that, even on a prestige project such as this, certain sensible improvements were omitted: for example part of the south Manchester area was left with archaic signalling and the short Crewe–Kidsgrove line was not electrified, making its use as a diversionary route much more difficult.

As a result closures reduced and the main line network improved significantly. WCML electrification was extended to Glasgow in 1974[11] and major stations on this premier route were opened at Birmingham International (to serve the National Exhibition Centre and the airport) and Milton Keynes new town. The innovative concept of the out-of-town parkway station was developed to facilitate "rail heading" by car drivers from ex-urban areas, with Bristol Parkway as the best example. The High Speed Train (HST) was introduced in 1976 and, along with steady improvements in track condition, led to reduced journey times on the former Great Western routes and, subsequently, on the East Coast Main Line (ECML) and the Midland Main Line. A new section of the ECML was built to create a diversion around the new Selby coalfield in Yorkshire, the first main line construction since 1914. These achievements reinforced the role of the railway in providing effective competition to the car and air for access into major city centres.

Local networks in the conurbations received significant investment through the PTA/PTE structure (Table 7), including tunnelling to overcome the historic peripherality problem. Contemporary town planning policies continued to restrict the location of major retail (Table 8) and office developments to city centres to promote their accessibility by public transport. In the case of Newcastle the local network was converted to a light metro with a station underneath the new Eldon Square retail mall. In Liverpool it was on the local BR network where termini on opposite sides of the CBD were closed and replaced by an electrified route in a cross-city tunnel. In Glasgow a cross-city line closed during the Beeching era was re-opened as the "Argyle Line", with good access to the city's retail core. The Birmingham conurbation, which had notoriously embraced road building in the 1960s, witnessed a dramatic change with investment in the "Cross City Line", followed by rebuilding of the closed and demolished Snow Hill station[12] and reopening of associated suburban lines.

But the 1970s policies were ignored during the "Thatcherite" anti-planning period (Thornley, 1993) and the typical development forms of the 1980s property boom were the out-of-town shopping malls and business parks which were road-oriented and typically ignored the presence of the railway. Such schemes came on stream from the mid-1980s and were still being completed 10 years later (Table 8). However, after initial doubts as to how the railway industry would fare under Thatcherism (see Department of Transport, 1983), the more favourable policy context from the late 1980s arising from growing concerns about road congestion, pollution and suburban sprawl, led to several significant rail projects. Table 7 shows that post-1979 reopenings continued. They were not restricted to the PTA/PTE areas as local authorities in South Wales supported development of the service linking the Valleys with Cardiff and Nottinghamshire and Derbyshire county councils promoted the ambitious "Robin Hood" scheme to re-open services between Nottingham, Mansfield and Workshop closed in 1963. Even in London the Thameslink service was introduced utilising Snow Hill tunnel under the City, this having been unused since the 1970s. This represents the closest that London has got to building any of the cross-city routes envisaged in the 1940s. A rail link from Paddington to London Heathrow conceived in this period [13] eventually opened in 1998. There were closures, including the Woodhead route in 1981, but political opposition became very effective, typified by the successful campaign to prevent closure of the Settle–Carlisle route (Towler, 1990[14]).

There were a number of rail-oriented property development projects too, particularly where the market favoured rail. The biggest was London's Canary Wharf, although this was associated with the Docklands Light Railway and the Underground rather than the main line network. But there were several major projects focused on main line stations with Broadgate at Liverpool Street being the largest (Rosehaugh Stanhope Developments, 1991).[15] Other examples arose from partnership work between BR, developers, PTA/PTEs, local authorities and other bodies and included the interchange at Sheffield's Meadowhall retail centre, the station at Gateshead's Metrocentre and the stations and rail links to Manchester and Stansted airports (Table 9), as well as commercial projects at other major stations.

Another success was Mrs. Thatcher's 1986 agreement with President Mitterand to build the Channel Tunnel between England and France, leading to the 1987 Channel Tunnel Act. The increased length of haul for freight services presaged by the tunnel led to a flurry of activity for construction of inter-modal freight terminals. On the back of a long period of closures, a new generation of rail served terminals and warehouse developments was a significant change and, sometimes, challenging to planning policy as sites were often on open land outside built up areas (see

[11] As another example of the cost minimising approach, the Manchester–Preston line was not electrified as part of this project. This would have facilitated its use as a diversionary route for Anglo-Scottish services and for electrified commuter services in a corridor experiencing planned growth associated with designation of the Central Lancashire New Town, as had happened previously on the routes into Manchester Piccadilly during the first phase of WCML electrification. Liverpool similarly has no electrified link to Preston and the north.

[12] This was on the former Great Western Railway route to London which was down graded to a local railway terminating at Birmingham Moor Street following electrification of the London Euston–New Street route. Local planning policy had protected the site of Snow Hill for future rail use.

[13] This link was first mooted in Abercrombie's, 1944 Greater London Plan.

[14] Towler provides a profound insight into the complex political and administrative processes involved in railway policy making and management in a situation where commercial and public interest considerations are inseparably intertwined.

[15] The role of the British Rail Property Board, created in the 1970s out of an awareness that the disposal of redundant railway land could generate significant income, was central in the promotion of this scheme and many others at provincial stations (Biddle, 1990).

Table 7
Main post-Beeching route re-openings and new routes

Date	Length of new Ttack km (miles)	Location
1978	3 (4.8)	Liverpool Loop and Link – opening of underground cross-city centre link with three new stations
1979	8 (5)	Re-opening of Glasgow's cross city centre Argyle line with six new stations
1983	22.5 (14)	Selby East Coast Main Line diversion to facilitate Selby coalfield
1986	16 (10)	Edinburgh–Livingston–Bathgate re-opening to passenger services of former freight only route
1986	0.6 (0.35)	Opening of Hazel Grove chord to south of Stockport facilitating the routing of Manchester–Sheffield services via Stockport
1987	1.2 (0.75)	Re-opening of a rebuilt Birmingham Snow Hill station – service extended from Moor Street
1987	6.4 (4)	Morecambe–Heysham – passenger service on former freight only line
1987	16 (10)	Coventry–Nuneaton – passenger service on former freight only line
1987	8 (5)	Cardiff 'City' line with four new stations – passenger service on former freight only line
1987	16 (10)	Oxford–Bicester Town – passenger service on former freight only line
1987	11.2 (7)	Abercynon–Aberdare with six new stations – passenger service on former freight only line
1987	8 (5)	Coatbridge–Motherwell – re-opening to passenger services
1988	0.8 (0.5)	Opening of 'Windsor Link' to facilitate concentration of services at Manchester Piccadilly, including new Salford Crescent station (1987) connecting with Manchester Victoria services
1988	1.6 (1)	Re-opening of Snow Hill Tunnel between Farringdon and Blackfriars to create Thameslink cross-London service between Bedford–Gatwick Airport
1990	9.7 (6)	Glasgow–Paisley Canal re-opened to passenger services: formerly freight only
1991	5.6 (3.5)	Stansted airport link opened to provide Liverpool Street-Stansted services
1992	12.9 (8)	Bridgend–Maesteg line re-opened with six new stations
1993	2.4 (1.5)	Manchester Airport northern chord from Manchester Piccadilly opened along with a new airport station
1994	8 (5)	Channel Tunnel opened – new track from portal to Dollands Moor terminal
	12.8 (8)	Blackburn–Clitheroe 'Ribble Valley' line re-opened for passenger services with new station at Clitheroe
1995	0.8 (0.5)	New Manchester Airport south chord opened to facilitate access from Crewe
1995	6.4 (4)	Opening of Birmingham Snow Hill–Smethwick West line – three new stations at Jewellery Quarter, The Hawthorns and Smethwick Galton Bridge
1995	22.5 (14)	Nottingham–Mansfield–Mansfield Woodhouse 'Robin Hood Line' re-opened with six new stations – 3 miles of new construction, remainder formerly freight only
1997	17.7 (11)	Mansfield Woodhouse–Worksop 'Robin Hood' extension re-opened with four new stations – formerly freight only
1998	6.4 (4)	Heathrow Express electric service between London Paddington–Heathrow Airport – no intermediate stations
2002	4 (2.5)	Kingsbury-Baddesley freight only line to access 200 acre Birch Coppice Business Park and 100 acre Baddesley Business Park developed on former colliery sites (North Warwickshire)
2003	74 (46)	Channel Tunnel Rail Link phase 1: Folkestone–Fawkham junction (north Kent)
2003	4.8 (3)	Re-opening of Bristol's Portishead dock freight branch
2004	3.5 (2.2)	Knockshinnoch–Greenburn (Ayrshire) – access to opencast coal site
2005	29 (18)	Barry Town-Bridgend (Wales) restoration of passenger services on freight only Vale of Glamorgan line. New stations at Llantwit major and Rhoose (for Cardiff International Airport 1 mile)
2005	1.6 (1)	Anniesland curve (Glasgow, Scotland) – provides additional capacity to facilitate the improved Larkhall–Dalmuir/Milngavie service. New station at Kelvindale
2005	4.8 (3)	Hamilton–Larkhall to facilitate cross-city Larkhall–Dalmuir/Milngavie service with three new stations at Larkhall, Chatelherault and Merryton

Sources: Railway Development Society (1998).
Rail industry professional journals: Modern Railways, Rail, various editions.

Haywood and Greensmith, 1999; Haywood, 1999). Projects were delivered at Daventry, Hams Hall, Wakefield, Moss End (Glasgow) and in Manchester's Trafford Park industrial estate. Such was rail's overall success in the late 1980s/early 1990s that commentators spoke of a "railway renaissance".

7. Rail industry restructuring: sectorisation and privatisation

The drive to cut dependence on public subsidy in the 1980s coincided with the arrival of commercially minded managers at senior levels in BR which led to a major change to institutional structure in what became known as "sectorisation". This involved the creation of cost centres focused on key markets, as follows:

Inter-City: long distance passenger services largely focused on London but including national cross-country services focused on Birmingham New Street.
Network South East: London commuter services.
Regional Railways: – provincial commuter, cross-country and rural services.
Trainload: bulk haulage of coal, steel, petroleum and aggregates.
Railfreight Distribution: containers, cross-Channel rail ferry traffic and mail.

By 1994 each sector was a vertically integrated business unit, with its own services and control over the designated parts of the fixed infrastructure over which it was the prime

Table 8
Shopping malls over 500,000 ft^2 (46,450 m^2) built post-1969 and their relationship to the railway network

Location	Name of centre	Year opened	Size (000 ft^2)	Size (000 m^2)	Rail access situation
In-town					
Poole	Arndale	1969	631	58.6	5 min walk from station
Luton	Arndale	1972	700	65.0	5 min walk from station
Nottingham	Victoria Centre	1972	622	57.8	Built on closed station/trackbed: remote from retained Midland station
Maidstone	Stoneborough	1976	542	50.4	5 min walk from station
Manchester	Arndale	1976	1189	110.5	10/15 min walk from Victoria/Piccadilly: direct from Metrolink post-1992
Newcastle	Eldon Square	1976	830	77.1	10 min walk from Central: direct from Metro post-1984
Cardiff	St. Davids	1981	581	54.0	10 min walk from Queen Street and Central
New towns					
Runcorn	Shopping City	1971	600	55.7	Remote from station
Telford	Shopping City	1973	650	60.4	10 min walk from Telford Central opened 1986
Redditch	Kingfisher	1973	676	62.8	5 min walk from station which was rebuilt 1972
Washington	The Galleries	1977	543	50.4	No station
Milton Keynes	Central MK	1979	1065	98.9	15 min uphill walk after MK Central opened in 1982
Basildon	Eastgate	1980	517	48.0	10 min walk from station opened in 1974
Peterborough	Queensgate	1982	650	60.4	10 min walk – bridges over ring road
Out-of-centre					
Hendon	Brent Cross	1976	760	70.6	Not rail connected – 15 min walk from Underground stations – hostile route under elevated North Circular road
Gateshead	Metro Centre	1986	1630	151.4	5 min from new station opened under Speller amendment in 1987; not on Metro
Dudley	Merryhill	1989	1410	131.0	Not rail connected, but owners are proposing a link to the Midland Metro line as part of an expansion project
Thurrock	Lakeside	1990	1150	106.8	Not rail connected on opening – all weather footbridge opened 2000[a]
Sheffield	Meadowhall	1990	1100	102.2	Integrated with new station: accessible by Supertram post-1994
Bristol	Cribbs Causeway	1998	750	69.7	Not rail connected – Bristol Parkway nearest station
North Kent	Blue Water	1999	1600	148.6	not rail connected – shuttle bus from Greenhithe station (10 min)
Manchester	Trafford Centre	1999	1200	148.0	Not rail connected – shuttle bus from Metrolink light rail station at Stretford
Glasgow	Braehead	1999	1000	92.9	Not rail connected – nearest station Paisley Gilmour Street

Source: Hillier Parker: British Shopping Centre Developments, various years, plus centre websites.
Note: For centres developed in several phases, 'Size' includes all phases of development. 'Year' is that of the opening of the largest phase.
[a] Chafford Hundred station was opened in 1995 on the Upminster-Grays line to serve the adjacent new housing settlement and a shuttle bus operated between there and Lakeside, replaced by a connecting footbridge opened in 2000.

user. This was a transparent structure which reflected the commercial and public service markets. Although not without its critics, sectorisation was widely regarded as beneficial (Gourvish, 2002, p. 150) and secured with minimal disruption to customers: it is notable that several electrification projects were delivered during this period (Tables 4–6). This is in stark contrast to subsequent events.

Despite this success the Conservatives led by John Major, under the continuing influence of the Treasury, criticised BR as "deeply inefficient" and rail privatisation became a priority. The 1993 Railways Act was based on the "track authority" model (Harris and Godward, 1997; Freeman and Shaw, 2000; Shaw, 2000) and created a complex institutional structure with no single "controlling mind". To facilitate competition between train operating companies (TOCs), the fixed infrastructure was sold off to a private company, Railtrack, which became a management company as the track maintenance and renewal capability was sold off too. TOCs secured the right to operate passenger trains through a competitive bidding process for 25 franchises[16] and subsequently paid track access charges to Railtrack. Further complication was built in as locomotives and passenger rolling stock were sold to leasing companies. The intention was that competition would increase revenue, drive down costs and the need for subsidy. A strange product of the whole process is that the passenger TOCs actually own very little, staff is their major asset. The situation with regard to freight is different as the freight businesses were sold off, not franchised. The implications for integrated planning were quite profound as there was no single

[16] EU Directive 91/440 requires separate accounting systems for the fixed infrastructure and train operation; British railway privatisation can be seen as a literal implementation of this and contrasts with the approach in most other EU countries where national railways remain as publicly owned, vertically integrated industries, with accounting procedures adapted to meet EU requirements. The exceptions are Sweden which introduced separation for other reasons than Britain in the 1980s, and more recently Denmark.

Table 9
Rail access to airports 1947–2005

Date	Length of new track km (miles)	Location
1958	0	Gatwick: rebuilding of 1930s station
1966	0	Southampton Airport becoming in 1986 Southampton Parkway
1976	0	New station at Birmingham International Airport
1991	2.4 (1.5)	Metro extended to Newcastle airport largely on former freight line
1991	5.6 (3.5)	Stansted airport link opened to provide Liverpool Street–Stansted services
1993	2.4 (1.5)	Manchester Airport northern chord from the Styal line opened along with a new station at the airport
1994	0	Prestwick Airport station opened as an unstaffed halt on the Glasgow–Ayr route
1995	0.8 (0.5)	Manchester Airport south chord opened to facilitate access from Crewe via the Styal line
1998	n/a	Luton Parkway station opened
1998	6.4 (4)	Heathrow Express electric service between London Paddington–Heathrow Airport – no intermediate stations. Joint venture between BR and BAA (project began in 1993) – 4 miles of new construction from GW main line–Heathrow
2005	29 (18)	Barry Town–Bridgend (Wales) restoration of passenger services on freight only Vale of Glamorgan line. New stations at Llantwit major and Rhoose (for Cardiff International Airport – 1 mile)

Sources: Railway Development Society (1998).
Rail industry professional journals: Modern Railways, Rail, various editions.

point of control or contact for external bodies. Railtrack was charged with developing the network, but its incentivisation was poor and it became focused on short term yields for shareholders. Although it produced annual Network Management Statements containing enhancement projects, these were "wish lists" and Railtrack looked to other parties, such as local authorities or TOCs, to invest.

8. Problems with the privatised railway

Concerned about Railtrack's poor strategic planning, the New Labour Government elected in 1997 created, in 2000, the Strategic Rail Authority (SRA) to take over franchising and develop strategy. Sir Alastair Morton, formerly of Eurotunnel, was the first Chairman and encouraged TOCs to develop franchise bids containing enhancement projects to be externally funded by mechanisms termed "Special Purpose Vehicles" (SPVs). However, serious concerns about safety and costs turned the industry's gaze inwards, led to the rationale for privatisation being questioned (Wolmar, 2001), and constrained the development of a vision for an expanding network. The accident in 2000 at Hatfield, caused by the catastrophic failure of a broken rail, highlighted fundamental flaws in the institutional structure of the industry. Subsequent imposition of speed restrictions by Railtrack[17] to prevent similar accidents led to the collapse of the network timetable, something unknown in BR days. In addition there has been massive escalation of costs in maintenance and renewals and this became critical on the WCML upgrade. Initially heralded as a success for privatisation, this will have out-turn costs of around £8 bn, against an original projection of £2.2 bn, will be several years late and to a lower specification than planned. Railtrack's bankruptcy was precipitated by the Government in October 2001 and it was replaced by Network Rail, a "not for dividend" trust, which is to focus on operation and infrastructure maintenance. Many commentators saw this as tantamount to re-nationalisation although the government vehemently denies this, not wishing to be associated with "Old Labour" ideology.

There have been difficulties with franchising too as a pattern developed wherein TOCs which have not been able to operate profitably have been given higher subsidy, provoking debate about who is taking the risk and what franchises are for. Richard Bowker (formerly of Virgin Trains) replaced Morton as head of the SRA in 2002 and the approach to franchising changed, with an emphasis on shorter time scales tied to more rigorous service delivery targets, with minimal TOC investment in the fixed infrastructure. There is also a strategy to reduce the number of TOCs, with, for example, having all services at London's Liverpool Street provided by one operator.[18] This is evidence that one of the central goals of privatisation, internal competition, has been dropped. Accidents, cost overruns and falling reliability were the background to the SRA taking control of the management and development of the network through a complex sequence of initiatives as shown in Table 10. The network returned to public sector control.

[17] The general response of rail companies to accidents has been to deny responsibility in order to limit the financial consequences. Railtrack protected its commercial interests post-Hatfield by the widespread imposition of 20 mph speed restrictions which transferred the risk to rail passengers who, because of the consequent service collapse, transferred to other modes.

[18] In addition management of the largely self-contained Merseyrail network was handed over to the PTA in 2003, with Network Rail responsible for maintenance, and services provided by a new franchisee.

Table 10
SRA rail network capacity management initiatives

Title of publication	Date
Appraisal Criteria: A Guide to the Appraisal of Support for Passenger and Freight Services	2003
Capacity Utilisation Policy: Network Utilisation Strategy	2003
Strategy for the West Coast Main Line	2003
Specification of Network Outputs	2003
Midland Main Line Route Utilisation Strategy	2003
Brighton Line Route Utilisation Strategy	2004
West Coast Main Line: Progress Report	2004
Great Western Route Utilisation Strategy	2005

9. Railways, land-use planning and the post-1994 drive for sustainable development: a missed opportunity

Since the early 1990s British land-use and transport planning policy (DOE & DOT, 1994) have sought to reduce road traffic growth and its associated negative impacts by, amongst other things, securing modal shift from road to rail. In a geographical context characterised by dispersed land-use patterns, increased car ownership and a road-dominated logistics industry, a key problem facing the industry is how to enhance rail's accessibility, given its spatial inflexibility: the railway is, largely, where it is. On the passenger side, its utility depends on convenient spatial relationships between stations and the places that passengers wish to travel to and from. Securing this requires careful integration of planning for other transport modes[19] and land-use planning with rail planning. Privatisation made this problematic. There are many interfaces between the railway players which creates "friction" in decision making processes and confusion amongst external organisations. The short term of most franchises means that TOCs are not resourced to interface with external local authority land-use and transport planning regimes. It is difficult to embed the *existing* railway, let alone additions, into the evolution of local land development and movement patterns (Batty and Haywood, 2002; Haywood, 2005).

In the early years of the New Labour government, when integration was the watchword, transport planning, regional planning, urban regeneration and land-use planning were brought together in a Department for Environment Transport and the Regions (DETR). However the failure to deliver transport improvements led to these being separated again in 2002 and the Department for Transport (DfT) became responsible for transport planning, whilst the Office of the Deputy Prime Minister (ODPM) took responsibility for regional spatial planning, urban regeneration and land-use planning. The promotion of environmentally sustainable development forms is a core ODPM policy goal and rail transport is crucial to this. Provincial city centres have been successfully regenerated in recent years and urban design strategies to promote access to stations have been encouraged (Urban Task Force, 1999). Planning policy guidance (DETR, 2001; ODPM, 2005) directs local authorities to promote patterns of development which reduce dependency on road modes. Strategically, to provide for the huge demand for housing in the economically dominant south east region, the Sustainable Communities Plan (ODPM, 2003) has identified growth areas in the Milton Keynes/South Midlands corridor, the Harlow–Cambridge corridor, and the areas north and south of the Thames in the Thames Gateway. A "Northern Way" strategy (ODPM, 2004a) for eight northern city regions invited the relevant regional development agencies (RDAs) to show how the North could unlock its growth potential. The improvement of connectivity is an important element of the emerging response. Manchester and Leeds are perceived as having the most potential to become successful European cities and proposals include the development of a Manchester rail hub and the improvement of east–west trans-Pennine rail links (Northern Way Steering Group, 2004, 2005). Furthermore, changes to statutory development plans will see Regional Spatial Strategies and Regional Transport Strategies replacing county level Structure Plans (ODPM, 2004b). The regional focus is potentially good for rail but it is notable that the loss of Structure Plans poses a threat as they integrated land use and railway planning quite well.

But the network has not been developed in response to these expectations. In the late 1990s re-openings declined and the electrification programme came to a virtual standstill. Several major projects completed post-privatisation are the product of BR era planning: the Robin Hood Line and Heathrow Express are obvious examples. Railtrack "projects" such as the proposed re-doubling of parts of the Salisbury–Exeter route have been abandoned. However the more modest redoubling of the Princess Risborough-Aynho section of the London–Banbury route previously singled by BR, is a product of the passenger growth secured by Chiltern Trains. But, generally, the concerns over costs[20] led the SRA to promote a very downbeat view of the scope for service and network enhancements, especially outside London and the South East. It began managing the network on the revised assumptions of a 20–30% growth in passenger kilometres and 25–30% growth in freight tonne kilometres between 2001/2002 and 2010/2011

[19] This includes, in particular, planning for walking and linking the creation of safe and efficient pedestrian routes to stations with a general improvement in the quality of the walking environment and the public domain. British planning with regard to land-use, transport and urban design has been particularly weak in these respects.

[20] The Regulator reported (ORR, 2003) on his stance towards Network Rail's proposed expenditure which, owing to a proper control over costs, he considers can be cut by a third from its projected level of around £6 bn pa between 2003/2004 and 2005/2006.

Table 11
Post-privatisation capacity improvement works

Date	Length of route km (miles)	Location
1998	29 (18)	Re-doubling of Princess Risborough–Bicester section of Chiltern main line (Chiltern Trains)
2002	16 (10)	Re-doubling Bicester–Aynho Junction section of Chiltern main line completed – Project Evergreen1– came in at £53 m (Chiltern Trains)
2004	12.1 (7.5)	Probus–Burngullow doubling between St. Austell-Truro – previously singled by BR as a cost cutter. £14.3 m (SRA)
2004	n/a	Filton Junction Improvement (Bristol) (SRA)
2004	n/a	Cherwell Valley resignalling (18.5 miles Leamington–Banbury) – with extended goods loop to increase capacity to 15 trains per hour (SRA)
2004	1.2 (0.75)	Reinstatement of flyover to avoid at grade crossing of WCML at Nuneaton (closed 1991) for Birmingham–Leicester services (SRA)
2004	n/a	Completion of £40 m gauge enhancement work on Felixstow/Harwich/Tilbury/Purfleet–London–Nuneaton route for 9′6″ containers, including work through to Hams Hall and Birmingham (SRA)
2005	0.45 (0.28)	Allington chord – to enable Nottingham–Skegness services to access Grantham without crossing the ECML

Sources: Rail industry professional journals: Modern Railways, Rail, various editions.

(SRA, 2003a).[21] It prioritised early completion of the WCML project whilst reining back costs, replacement of all the 1950s/1960s rolling stock on the south London commuter lines,[22] and supporting Network Rail in containing costs and taking a firmer lead on operational matters. To justify its London focus, the SRA pointed out that 70% of rail trips begin or end in London and 68% of all rail trips are on London and south east commuter services (SRA, 2002). SRA priorities on network capacity are concerned with resolving conflicts between various types of traffic so that existing capacity can be fully utilised, with no major investment: this has led, in particular, to conflict between local and long distance services and concerns about capacity for freight. On the positive side the crisis has highlighted the cost effectiveness of small capacity improvements of the sort carried out by Chiltern Trains cited above and the SRA sponsored a number of schemes (see Table 11). The long standing mechanism of freight facilities grants and a new Rail Passenger Partnership fund have been very successful in levering external finance to secure network benefits, but funding for the former has been severely cut back in England and the latter has been scrapped.

In 2005 following a further government rail review (DfT, 2004b), the SRA was abolished, evidencing the continuing institutional instability. Its passenger franchising, freight grant and strategic planning functions have been absorbed into a new Railway Directorate within the DfT and Network Rail is the lead operational body. With regard to integrating rail planning with the other planning activities of the ODPM and local bodies, the loss of the SRA could create a vacuum at critical policy making interfaces. The SRA had developed a planning capacity which produced town planning policy advice (SRA, 2001a,b), and had begun to produce Regional Planning Assessments (SRA, 2003b) to engage with regional spatial policy making. It is difficult to see the DfT acting as an independent champion for the industry and the fear is that the new structure is, in effect, more rigorous Treasury control. This could be a worst case scenario for network development and raises severe doubts as to whether reasonable expectations resulting from planning and regeneration strategies seeking alternatives to road transport will be met.

Despite the problems, traffic grew considerably in the late 1990s, levelled off post-Hatfield and is now growing again. This seems to be the product of economic growth, rising congestion on the road network and the better services and marketing offered by some TOCs (Knowles, 1998). Total passenger journeys post-privatisation have increased by approximately 25% and are now higher than in 1950, and passenger kilometres are actually ahead of the 1950 figure.[23] This suggests that with development and integrated planning, network utilisation could grow further. Therefore the paper will now go on to appraise the current situation with regard to the various components of the national network, before moving on to sketch out how they could be developed with better integration with the urban development patterns which are the intended outcomes of planning and regeneration strategies.

10. Network evaluation: the main line passenger network focused on London

Although originally there was no new high speed line to London associated with the Channel Tunnel, John Major's

[21] Although abandoned by the Government in its 2004 Transport White Paper (DfT, 2004a), its 10 Year Transport Plan (DETR, 2000) envisaged growth of 50% in passengers and 80% in freight, but arguably these are reasonable expectations if policy makes rail more attractive.

[22] This also involved some heavy investment in electricity supply infrastructure as the new rolling stock draws more power than its predecessor. This problem was not addressed successfully by Railtrack and the SRA had to step in and drive through a programme of works.

[23] Changes in data recording methods by the industry make precise measurements difficult, but there is general acceptance of the underlying growth trends.

government promoted a Channel Tunnel Rail Link (CTRL) and the chosen alignment had a strong regeneration rationale. This tunnels under the Thames at Dartford and runs through the north Thameside regeneration area before entering a 38 km (23.6 miles) tunnel which terminates at St. Pancras station on the northern edge of central London. In addition to the international station at the growth centre of Ashford in southern Kent, there will be international stations at Ebbsfleet in north Kent (easily accessible from the M25 motorway) and at Stratford in East London which will serve as development foci (Perren, 2005). There is to be a major commercial development at Stratford International on former railway land and the station is a crucial element of the successful London bid for the 2012 Olympics. The area around St. Pancras and the adjoining King's Cross station is very run down and the project has triggered major regeneration. The CTRL is really a British branch of the French TGV system[24] and phase one (70 km (46 miles) long) was opened in 2003 on time and within budget of just over £1.9 bn. When phase 2 is completed in 2007 total length will be 109 km (68 miles) and journey times will be reduced significantly to give an air competitive 2 h 20 min service from London–Paris and 2 h to Brussels. The current service from Waterloo station is unattractive to travellers from north of London and diverting the service to St. Pancras offers a significant improvement.[25] In addition to the international services there is to be, from 2009, a high speed service for Kent commuters along the CTRL, without which the line would be significantly underused (Glover, 2005). The access to Stratford, and from there to Canary Wharf, will be beneficial and, if the declining north Kent towns get this service, it could stimulate their regeneration too.

Commentators have noted the financial efficacy of the CTRL as compared with the WCML and suggested that there are important lessons here. The point has also been made that the investment in the CTRL is of no benefit to city regions outside the south east. However, there is currently no firm proposal for extension of the high speed railway to the north from London and the prospects for enhancement of the main line network are poor. The WCML project as currently specified will only be a 125 mph railway. Although the 2 h 10 min journey time between London and Manchester is competitive with air, London–Glasgow journey times will still be around 4 h 30 min, so low cost air services will continue to be very competitive, despite their high environmental costs. Other projects which were mooted by Railtrack and/or various groupings of local authorities, such as electrification of the Great Western and Midland Main Lines are now off the agenda. The re-franchising process for the ECML envisages no acceleration of services and proposed works to remove bottlenecks, such as grade separation at conflicted junctions, have been dropped. However a short extension of the electrified network between Leeds and Hambleton Junction on the ECML is planned to provide increased capacity at Leeds station by removing the need for trains to reverse to make the return journey to London (Table 13).

Investment by Chiltern Trains between London Marylebone and Birmingham shows what can be achieved with modest investment by a TOC with in-house civil engineering capacity and finance (the company is a subsidiary of Laings). This builds on work in the late BR era which saw the re-opening of Snow Hill and "total route modernisation" after closure of Marylebone had been fought off. Chiltern has reinstated sections of double track, opened a new station at Warwick Parkway (Batty and Haywood, 2002) and is extending capacity at Marylebone and its approaches: this project was the only SRA SPV scheme to get off the ground. The Chiltern line runs in the economically buoyant London–Oxford–Birmingham M40 motorway corridor and Chiltern has responded to rising demand by, in effect, reinstating an inter-city service. A successful privatisation would have produced many similar private sector initiatives, but Chiltern is a unique company operating in a particularly favourable corridor, so this has not happened. Even Chiltern's success is marred by evidence of a lack of resources and/or poor planning, as an expanded Moor Street station in Birmingham funded through a regeneration scheme, has remained unused for nearly 2 years because of Network Rail's inability to make the necessary network connections.[26]

11. Network evaluation: London commuter and airport services

The Central London Rail Study (DoT et al., 1989) envisaged improvements to the capacity of the central London sections of Thameslink so that new routes, such as to Cambridge and Kings Lynn, could be hooked in, a project which became known as Thameslink 2000. It is indicative of the slow progress that this scheme is still not funded. As a regional project, it sits uncomfortably in English governance structure where most regional bodies are advisory. Another example is the East London Line which was identified by New Labour as a "quick win" in 1997, and has only just had funds committed (Abbott and Sully, 2005). This is despite the fact that this project merely links an operational cross-Thames railway[27] with an abandoned trackbed in Hackney and Tower Hamlets (the most deprived parts of the East End) to provide access to job

[24] So a tried and tested technical specification is being applied as well as the French model of running a railway along an existing motorway corridor, in this case the M2. This is quite different to the WCML where part of the cost escalation resulted from the abandonment of Railtrack's attempt to utilise revolutionary signalling technologies.

[25] Onward travel in Belgium and France for British passengers usually necessitates a change to host country services, so even London is not hooked into the European rail service in the way that continental cities are.

[26] A similar situation exists at Stockport station near Manchester.

[27] This is part of the Underground at the moment although the ELL will be part of the national network.

opportunities in the City and Docklands. This project is now being driven through by Transport for London (TfL) which is part of Mayor Ken Livingstone's Greater London Authority created in 1999. This emphasises the continuing importance of well resourced, local, public sector bodies to the development of local networks and is leading to consideration of whether the GLA should take London's commuter railways under its umbrella.

A major project from the Central London Rail Study which has considerable support is Crossrail. The central element is an east–west tunnel under central London linking commuter services which currently terminate at Liverpool Street and Paddington (Abbott, 2005). As originally envisaged this would be accessed by long distance commuter trains originating 30 or more miles outside London. However, under the influence of TfL there has developed an intra-London focus which, as currently envisaged, will terminate at Maidenhead and Heathrow in the west and in the east at Shenfield (on the Liverpool Street–Ipswich main line) and, south of the Thames, at Abbey Wood (with a change of trains to access the new station at Ebbsfleet on the CTRL). Crossrail will serve Canary Wharf and Stratford as well as the City and West End but is not linked to existing outer metropolitan growth corridors focused on Basingstoke (on the London Waterloo–Southampton main line) and Reading (on the London Paddington–Bristol main line), or the areas included in the Sustainable Communities plan where new residents will need easy access to a wide job market. The Government is supporting a hybrid parliamentary bill to progress Crossrail, but remains concerned about a £2 bn gap in the funding. This has led to a recent proposal by rail industry specialists[28] for a more broadly conceived network called "Superlink" (Thomas, 2005), which would connect in lines serving the outer growth corridors and thereby, it is claimed, generate traffic which will increase financial viability. Although this proposal raises additional costing and planning problems, it is more in tune with strategic planning goals for the London city region than the current proposal.

Although the ODPM claims that its Sustainable Communities strategy will not stimulate demand for access to central London's job market, this would seem to presage a rerun of the 1944 Abercrombie plan and its unrealistic dependence on "self-containment". The problem is not just the absence of links with Crossrail. For example Corby new town still has no rail service and no funding is committed (Schopen, 2005), despite it being part of the Milton Keynes/South Midlands growth corridor. Also there is no funding allocated for a local authority backed plan to re-open the Oxford–Milton Keynes–Cambridge orbital route, despite this linking designated growth areas and providing excellent interchange opportunities with services on the trunk routes which it crosses. Lord Rooker regeneration minister (quoted in C. Baker, 2004,) has said: "This railway line is fundamental to the growth strategy. But the Department for Transport and the Strategic Rail Authority are saying they have not got any money for it." At the time of writing the Government has set up the Communities Initiative Fund to support transport infrastructure investment for the Sustainable Communities initiative, but this only totals £200 m and will only fund minor enhancement projects.

There is a need for more rail access to Heathrow as construction of Terminal Five is now underway. An Air Track Forum, led by Surrey County Council, has developed a project to help the British Airports Authority achieve its target of 50% surface access by public transport. This involves a new rail line to Staines to the south west of Heathrow to connect with routes from Windsor, Woking and London Waterloo, and a new link to the Great Western main line to connect with services from the Reading direction. The estimated cost is £425 m but the project is at an early stage with no statutory approval and no funding. Gatwick Airport has had a dedicated train service from London Victoria for 20 years. But, as evidence of the depth of the funding crisis facing Britain's railways, the SRA (2004a) proposed ending this so as to free off capacity for through trains to Brighton which having trains terminate at Gatwick restricts. This threat to a model service because of a prior failure to invest has met with excoriating criticism in the railway press (Modern Railways, 2005). Given the government's commitment to growth in air transport and its desire to see a curb on associated road traffic growth, there is a clear fault line across transport policy on the issue of surface access to London's airports.

12. Network evaluation: inter-regional and local networks in the regions

Given that the network priorities are the London focused long distance and commuter services, it is with regard to inter-regional and, especially, local services in provincial city regions that the shortcomings of integrated network planning are most obvious. It is indicative of the British approach that the high cost/high profile WCML upgrade has not had an accompanying station upgrade strategy, let alone one for local transport and land-use planning around key stations on this strategic corridor. One of the (partial) successes of privatisation has been the improvement of the national cross-country network operated by Virgin with Birmingham New Street as the hub for NE–SW and NW–SE services. In 2002 Virgin introduced a £390 m fleet of "Voyager" trains with a 125 mph capability with a £200 m track upgrade by Railtrack to facilitate higher speeds. There has been a significant increase in the number of services too and Virgin claim high growth in passenger trips 2002–2004: 63% between Birmingham–Newcastle for example. But, again, there has been no accompanying national strategy for integrated planning around stations in the 115 regional towns and cities served by this network. Such has been the increase in services that

[28] This includes John Prideaux, former head of BR's Inter-City sector, who first proposed the CTRL route via Stratford when the BR board was focused on the shortest, least cost option.

Table 12
Committed re-openings, route revivals and new routes

Target date	Length of new route km (miles)	Location
		Scotland
2006	20.9 (13)	Stirling-Alloa–Kincardine for passenger service to Alloa and freight (coal to Longannet avoiding Forth Bridge, so more passenger services over latter)
		Wales
2006	29 (18)	Ebbw Vale–Blaenau Gwent Council to fund re-opening of former freight route – single line but some two track sections. To be six new stations at Rogerstone, Risca, Crosskeys, Newbridge, Llanhilleth and Ebbw Vale Parkway
		England
2007	33.8 (21)	Channel Tunnel Railway Line (CTRL) Phase Two – Ebbsfleet–St. Pancras, new stations at Ebbsfleet and Stratford
2006	n/a	Chiltern Railways Evergreen Phase 2 – remodelling and extending of London Marylebone station and approaches
2008	n/a	Completion of Rugby–Stafford 'Trent Valley' capacity enhancement section of West Coast Main Line upgrade
2010	4 (2.5)	East London Line – existing London Underground line to be extended along disused formation to Dalston Junction. New stations proposed at Shoreditch High Street, Hoxton and Haggerston, and Dalston. Southern extension from New Cross to Crystal Palace/West Croydon on existing lines

Sources: Rail industry professional journals: Modern Railways, Rail, various editions.
Also transport policy professional journal, Local Transport Today, various editions.

the capacity of Birmingham New Street has become a major constraint: it was rebuilt in the 1960s to handle 640 trains per day yet in 2003 it handled 1350. There is no immediate prospect of any capacity increase funded by the DfT, although such is the local importance of New Street that local authorities and regeneration bodies are proposing a £350 m redevelopment, although this is several years into the future.

Services between provincial cities not on the Cross Country network are operated by companies other than Virgin and, typically, the quality of the routes and services are not as good. Nevertheless, the renaissance in northern city centres and new airport links have triggered increased demand for rail: for example, the Association of Train Operating Companies claims 1994–2004 growth of 75% between Manchester and York. There have been proposals over the years to increase capacity on inter-regional routes through junction improvements or electrification (Haywood and Richardson, 1996). However, currently there are no committed major enhancement projects, despite the importance of improved rail links for the Northern Way initiative.

Experience shows that development of local networks around provincial cities is crucially dependent on co-operation between railway management and local authority transport and land-use planning: these services account for 20% of network ridership. The review of the pre-privatisation era showed the surge in investment following the creation of the PTA/PTE structure and how this rippled out to other areas dependent on all purpose county councils. However it is also clear that, more recently, a good deal of effort has gone into developing light rail as a cheaper alternative to heavy rail in metropolitan areas such as Manchester, Sheffield, Newcastle and Birmingham (Steer Davies Gleave, 2005). Also the fact that PTEs concentrate on services within their areas and parts of city regions may actually lie outside PTE operational boundaries means that the suitability of the network for travel between cities which are often quite close to each other, is often overlooked.[29] Whereas the city centre renaissance has been associated with station development, it is difficult to identify any development nodes in suburban areas outside the south east region which have been anchored around railway stations as opposed to major roads. There is a half heartedness about planning around rail in British practice (Haywood, 2005). Nevertheless demand for rail services has grown significantly and various capacity problems (often arising from earlier cost cutting rationalisations) and gaps in the electrified network are apparent. Good examples of the latter would be the routes between Manchester and Liverpool, the Manchester–Preston–Blackpool corridor, and Leeds–York. Local authorities have been encouraged to develop transport and land-use policies to promote greater environmental sustainability and various junction improvements, electrification schemes, new stations and route re-openings have been mooted in local authority planning documents, but few have received funding and, currently, the prospects are bleak, particularly in England.

Table 12 shows that, since the creation of devolved bodies in Scotland and Wales, a significant difference has opened up between investment there and in England.

[29] The termination of Liverpool's local electric services at Kirkby and Ormskirk rather than them continuing through to Wigan and Preston respectively is a good example.

Whereas several re-opening schemes are complete (Table 7), funded by the elected bodies, such schemes have largely come to a halt in England outside London and the south east. It is not just that large scale projects such as cross-city tunnels are not the subject of serious discussion. There is currently no commitment by government to even modest infrastructure works, even where these involve strategically important projects such as increasing capacity around central Manchester, at Manchester airport, or on important cross-country routes linking provincial city regions. Currently there is no vision for an inter-city service between the major northern cities comprising anything other than three car diesel multiple units.

13. Network evaluation: rural routes

Post-Beeching areas such as north Cornwall, north Devon, north Norfolk, the north Pennines and the Scottish Borders were left without rail services. This had a particularly severe impact on access to national parks and other areas of natural beauty to which demand for access by car has since grown markedly. However the 1974 PSO settlement brought stability to the retained routes and the Regional Railways sector of BR became adept at working with local authorities to draw in support, develop station infrastructure and promote rail. Post-privatisation political support for rural lines has developed significantly, encouraged by the Countryside Agency[30] and aided by the creation in 1998 of the Association of Community Rail Partnerships (ACoRP), with recognition that social exclusion caused by poor mobility is particularly acute in rural areas (Social Exclusion Unit, 2002). Local promotion has led to some significant increases in ridership, but continuing government concern over costs led to publication in late 2004 of the Community Rail Development Strategy (SRA, 2004b). Although widely portrayed in the national press as a veiled closure threat, this seeks to draw local authorities and communities into the promotion of rural lines to secure their retention and there is a basis for optimism around the work of ACoRP. However the issue is whether or not *existing* routes can be retained and, perhaps, improved in some cases. Nevertheless, there is support amongst rural bodies for re-openings with Matlock–Chinley, Exeter–Okehampton, York–Beverley as examples, although these have the odds stacked against them. It will be particularly interesting to see, by way of contrast, whether or not the Scottish authorities secure the re-opening of passenger services along the former Waverley route between Edinburgh and the Borders towns (see Table 13).

Table 13
Uncommitted schemes

Scotland
Edinburgh south suburban line re-opening to passenger services with nine new stations – studies
Partial re-opening of Waverley route Edinburgh–Galashiels with terminus at Tweedbank: stations proposed at Shawfair, Eskbank, Newtongrange (Midlothian) and Galashiels and Tweedbank (Borders) – local authorities and Scottish Executive
Glasgow airport link to Glasgow Central including 2 km of new track – Scottish Executive has funded a £3 m study
Glasgow Crossrail via High Street curve to link S/SW services with north-side. (£0.5 m study by SPTE funded by Exec end 2003)
Edinburgh airport link – study
Airdrie–Bathgate reinstatement of 20.9 km (13 miles) of track with four new stations to provide a through service from Edinburgh Waverley to Glasgow Queen Street Low Level
England
Coventry–Oxford–Southampton 9′6″ gauge enhancement works to existing line – SRA
Nuneaton–Leicester–Peterborough–Ely–Felixstowe 9′6″ gauge enhancement works to existing line to provide alternative route to east coast ports avoiding London – SRA
Thameslink 2000 – enhancement of central London section to facilitate addition of Kings Lynn and Guildford/Dartford routes to existing Bedford-City–Brighton axis
Crossrail – 2004 approval by government for hybrid bill – eastern links to Shenfield and Abbey Wood, west to Maidenhead/Heathrow
Electrification of 15 miles of existing line between Leeds and Hambleton Junction on the ECML to secure increased capacity at Leeds Central station. Part of Great North Eastern Railway's successful franchise renewal bid
AirTrack – South western approach to Heathrow Terminal 5 from Staines; estimated cost £424.6 m – Surrey County C leads the AirTrack Forum which was formed in 2000
Central Railway – high gauge freight railway from Liverpool/Manchester–London–Channel Tunnel: mix of existing routes, re-opening of part of the former Great Central main line and new construction around London – private company plan
Matlock–Chinley via Bakewell re-opening of former Midland route through the Peak District promoted by Derbyshire County Council to relieve road traffic congestion and promote accessibility. Various studies instigated by Derbyshire CC in the 1990s
East–West (Oxford–Cambridge) – studies began 1996 – related to Sustainable Communities plan for Milton Keynes expansion
Uckfield–Lewes – floated as part of the failed re-tendering of the South Central franchise in 2001 (one of Morton's SPVs) to create alternative route to Brighton
Skipton–Colne: local authority proposal to re-open this 'missing link' between West Yorkshire (Aire Valley lines) and East Lancashire
Re-opening of Leamside line from Pelaw to Tursdale Junction, Durham County Council plan

Sources: Rail industry professional journals: Modern Railways, Rail, various editions.
Also transport policy professional journal Local Transport Today, various editions.

14. Network evaluation: the network for freight

Despite an increase in freight moved the industry has had only limited success in attracting new business such as food, drink and fast moving consumer goods. Although the causes are complex they are partially concerned with shortcomings in the network such as the lack of inter-modal

[30] The Countryside Agency has promoted research to demonstrate the wider financial benefits of subsidised public transport to other public service sectors and this should be part of the development of the case for rural rail routes, and indeed many serving urban communities too (see Batty et al., 2005).

distribution facilities around London, and the restricted loading gauge which precludes larger loads on many routes and piggy-back haulage of trucks and trailers throughout. Whereas Network Rail has completed a project to facilitate haulage of 9′6″ containers[31] from Felixstowe to Birmingham via London, this is not possible on the projected alternative route via Peterborough and Leicester or, currently, on the existing key route from the port of Southampton to Birmingham. Although associated with mainly non-containerised traffic, there are also capacity problems on the route to Immingham on the Humber which is claimed to carry 25% of Britain's rail freight. With globalisation, inbound container traffic through British ports is increasing but there is no government strategy to accommodate this, rather there has been a series of ad hoc planning inquiries into privately promoted expansion projects: expansion at Southampton has already been denied whereas that at Shellhaven on the lower Thames estuary looks set to go forward.

In order to secure a step change in rail modal share a private company, Central Railway (www.central-railway.co.uk), has been developing a strategy for a privately funded high gauge railway from the north west of England to the Channel Tunnel via London. This would allow the Tunnel's piggy-back operation to run to locations north of London, thereby relieving the motorways. This project includes re-utilisation of part of the disused trackbed of the former Great Central railway between Leicester and north London. It requires parliamentary powers but the government refused to support this because of fears that it may need public moneys.

The CTRL will have capacity for freight but an issue is the lack of sites for large scale inter-modal distribution hubs along the route. One of the successes of the Strategic Rail Authority was the formation of a freight group which developed a freight strategy (SRA, 2001c, 2003c) and showed itself capable of promoting liaison between private sector freight customers, rail freight TOCs and the various public planning bodies who seek modal shift to rail. However, there are no committed projects to address the problems cited above and the SRA's financial problems led to the curtailment of freight grants in England (although not in Scotland and Wales where the devolved bodies continue to provide funds). There is now a great risk that the SRA's freight planning capacity and leadership will be lost following its demise. Overall the prospects for the enhancement of the network for freight look poor. This is very ironic, given that this is a part of the privatisation experiment which has worked well as there has been significant private investment and there are now several competing companies.

[31] The maritime industry is moving to 9′6″ high containers and, owing to the restricted loading gauge inherited from the Victorians, it is necessary to raise the headroom under over-bridges and tunnels to facilitate their passage.

15. A vision for an enhanced network, better integrated with development patterns

It has been shown that the current situation is characterised by a focus on cost cutting and there is a clear gap between government rhetoric about sustainable development and its commitment to enhancement of the railway network. Therefore it is reasonable to ask, what would be a realistic vision for Britain's railway network and its relationship with patterns of urban development?

With regard to most inter-urban services a feature of Britain's geography is that the major conurbations are closely spaced as compared with, for example, France. It would seem therefore that the Swiss model (Ringli, 1997) of emphasising the regularity, reliability, high capacity and quality of rail services linking city centres, suburban and ex-urban nodes would be more suitable to Britain than the goal of developing a segregated, very high speed network on the French model. Whereas arguably something like this model exists in the south east region focused on London, the network and service pattern linking provincial cities, even where closely spaced as in the trans-Pennine region, hardly begins to approach what is required. Around the hubs, local land use and transport planning processes should continue to concentrate high trip generating development and integrating other transport services, but do this more effectively than hitherto and to limit such development in non-rail accessible locations. The nodes would include airports, secondary urban centres and areas of intensive new development, as well as city centres. The experience of the high costs generated by aiming for 140 mph on the WCML, suggests continuous maintenance and closely specified upgrades of the type which have been carried out recently[32] are more cost effective. Effective local planning to make access to stations quicker and more convenient can reduce *whole* journey times anyway, making rail competitive for longer distance journeys, whilst also improving things for local passengers.

Recent British experience strongly suggests that building a new route is the best option to secure large improvements in capacity and, as it happens, this can also more easily deliver higher speeds. So the case for construction of a new "high speed" route from London to the north would seem to rest upon the ultimate capacity of existing routes and the high costs of them acquiring more. Moderate speed enhancement is probably necessary to reinforce rail's competitiveness in the longer term where improvements in road capacity might threaten this. The importance of improved rail links with London to regeneration of the northern cities is already apparent. So if such a route were to be built then the TGV model of an alignment parallel to a motorway, probably the M1, would be best, with spurs off to ultimate destinations which should include Manchester and Leeds.

[32] As previously carried out by BR on the ECML in the 1970s and early 1980s for example.

With a link to the CTRL this could even see English provincial cities linked to the Continental system and rail being substituted for air for trips such as Manchester/Birmingham to Paris/Brussels: this may well be more cost-effective than extending a new high speed route to Scotland in order to give rail a time saving advantage for London–Scotland journeys. Whether or not the UK economy could support a new passenger route and a new high gauge freight route such as Central Railway is questionable, but the CTRL model suggests one railway could perform both tasks. Without such investment the ceiling for rail freight looks lower, but it is notable that the road haulage industry is already beginning to lobby for 60 tonne trucks which will certainly stimulate debate about freight transport policy.

There does seem to be a consensus that if London is to continue as a world city, then Crossrail, and the improved access to Heathrow are very desirable. Thameslink 2000 offers regional benefits but, in the absence of effective regional government, does not seem to have a champion at the moment. Arguably all these projects are essential from the strategic perspective and, if compared with Paris, amount only to a catching up exercise. More attention should be paid to linking them to the new growth areas specified in the Communities Strategy if the latter is not going to provoke massive increases in car travel in outer London. The need to increase capacity on existing routes through facilitating longer trains, or perhaps in some cases European style "double deck" trains, should not be overlooked either.[33]

Outside London the scope for the small but effective projects will probably run out quite quickly leaving a need for more ambitious, but closely specified, projects to increase capacity. These would include selective enhancements such as relieving some key bottlenecks, extensions of the local electrified networks around regional cities such as Leeds and Manchester and linking them together to facilitate inter-city working and, for freight, enhancement on routes to the main ports. Making modest investments to secure more flexibility in the network by selective re-openings would improve overall reliability by supplying diversionary routes, whilst providing useful new services between areas poorly served at the moment and, perhaps, providing rail access to popular rural areas as an added benefit. Table 13 shows that there are any number of projects calling for support; what is needed is government commitment, a strategic perspective and an equitable appraisal system.

16. Conclusions

When the British railway network was at its zenith there was, arguably, too much railway for the job it was expected to do. Although there was no effective, state led town planning in this period, market forces ensured good integration between the network and patterns of urban form. The 1923 Grouping could have produced modernisation and rationalisation but, with some notable exceptions, this did not happen. Town planning ideology in this period became increasingly hostile to rail oriented planning. Following nationalisation came the flawed Modernisation Plan, followed by excessive rationalisation in a period when integration between the network and developing patterns of urbanisation continued to be poor. Subsequently, despite the positive outcomes for much of the retained network, it took years of work by partnerships between BR and various local authorities to partially restore local networks that were undeveloped during the 1963–1974 period and to secure better integration with local land-use planning. Despite the hiatus of the Thatcher era, by 1994 the policy context was, arguably, more positive for rail network development than at any time post-1947. Through sectorisation, the industry structure facilitated interaction with commercial customers and public sector planning bodies and delivered many positive outcomes. But this growth capacity was destroyed by privatisation. Subsequent experience suggests that further development of the network so that it can play a fuller role in the strategies to promote sustainable development, requires public expenditure and, outside the south east, this is not forthcoming, especially in England. Even in the south east the pace of investment is slow and current commitments are not in tune with wider planning strategies.

Also despite their broadly supportive stance towards rail, there are shortcomings in planning and regeneration strategy documents as they do not overtly embrace rail planning concepts such as the corridor perspective, the balance to be struck between local and long distance services, and the desirability of promoting reverse flows and off-peak travel. As the guidance is not prescriptive or quantified in any way, there is plenty of latitude in its interpretation and local authorities may just ignore it. There is therefore a need, at least, to make national planning policy guidance more prescriptive and more firmly tied to rail accessibility measures, and for this to cascade down through the various regional and local policy documents.

So over the past 50 years British governments have made a poor fist of managing the railway network and securing its integration with developing patterns of urban form. The last decade has seen major setbacks at a time when prospects were very favourable. With the recent traffic growth having taken place during a period of institutional chaos with limited network development, it would seem that an improved network, better integrated with the areas it serves, could make an even more significant contribution. The network is not currently fit for purpose.

Whether or not the sort of vision outlined in this article is perceived to be affordable depends on the railway industry getting its costs down and demonstrating that investments already made are yielding greater reliability and efficiency and securing wider benefits for society. There are signs that this is happening. The simplification of institu-

[33] South of the Thames in London there could be scope to replace some inner suburban services by extensions to the underground network, which would free up capacity on routes into main line termini.

tional structures has a role to play here and the Government is already delivering closer co-operation between Network Rail and TOCs in what is called Virtual Vertical Integration. Scotland and Wales benefit from having single franchises for internal passenger services and devolved governments with powers to invest. But it is also clear that as far as English local and inter-regional passenger services are concerned, there is a need for institutional structures which are more simple, operationally appropriate and facilitate more involvement by local and regional bodies. This article has shown that, even during a period when it was a substantially bigger industry,[34] rail had in the Big Four a more simple institutional structure than currently.

These structures and relationships are all the more important as there is a growing debate about the sources of funding for infrastructure development in Britain and there is already evidence that central government is trying to push the costs of developing the railway network on to regional bodies. This is also leading to a closer financial link between land-use planning and transport development through the mechanism of developer contributions to infrastructure costs when they receive planning permission and enjoy a subsequent increase in the value of their land. This is not the place to pursue this but, suffice it to say, that debate over the relationships between planning control, land value increase and taxation is long standing (Ministry of Works, 1942; Parker, 1985) and, in the view of most commentators, has not been resolved. But it needs to be if broad initiatives such as the Sustainable Communities Strategy and the Northern Way are to be delivered successfully, given the reluctance of government to commit central public funds to infrastructure development.

Securing better control over costs, simpler institutional arrangements and effective funding mechanisms over the next few years are critical to deciding whether the railway network will expand to fulfil its potential over the longer term, or whether there will be more missed opportunities and, perhaps, another bout of contraction. That would be a tragic outcome. Despite many changes to the British economy and society, the underlying features of urban geography which informed the geography of the railway network are still recognisable and relevant. The impacts of contemporary planning and regeneration strategies for more sustainable development forms will reinforce them, particularly if they are refined to become more rail oriented. The opportunity for further development of the railway network is there to be grasped. An important conclusion for international observers of British railway management is that the attempt to place responsibility for the railway planning side of this relationship in private sector hands has failed. The issue in Britain now is whether politicians have the vision and commitment to lead the public and private components of the railway, planning and regeneration sectors in developing an improved and expanded network.

[34] The total industry turnover now is less than that of a major UK supermarket company: it would be informative to compare the management structure of the two industries.

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