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PROJECT PROFILE

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Channel Tunnel Rail Link

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OMEGA Centre

Channel Tunnel Rail Link Case Study:

Project Profile

(updated August 2008)

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A INTRODUCTION

Type of Project

CTRL represents a 'meta' Transport Project comprising:

- Line haul - double track high speed rail link between Channel Tunnel and London St Pancras International (opened 14th November 2007)
- Stations & Termini
  - London Terminus - International Station at St Pancras
  - Intermediate Stations are located at: Stratford International (East London); Ebbsfleet (North Kent), and; Ashford International in mid-Kent.
- Major Development/regeneration hubs associated with CTRL at:
  - King's Cross/St Pancras Station in Central London
  - Stratford International Station in East London
  - Ebbsfleet International Station in North Kent
  - Ashford International Station in mid-Kent

The High Speed Rail link incorporates viaduct, bridge and tunnel structures together with the construction and remodeling of main station termini and intermediate stations. Total 113 km - Section 1: 74km; Section 2: 39km. 60% of the route (55km) is built within existing road or rail transport corridors. There are 152 bridges along the route and 25% (26km) of it is in tunnel (51% of CTRL Section 2 is in tunnel). Section 1 runs essentially across open countryside with numerous bridge crossings, it does however include massive cut-andcover works required to bring the CTRL through the centre of Ashford and the North Downs tunnel.

The CTRL is a priority project of the TEN-T High-speed railway axis Paris-Brussels-Cologne-Amsterdam-London (the 'PBKAL network) and comprises a double-track line constructed to Union International de Chemin de Fer (UIC) GC gauge (Figure 1 overleaf).

Location

Located in South-East England (Figure 2), CTRL forms a high-speed link from the Channel Tunnel portal in Kent to its Central London terminus at St Pancras International Station. St Pancras International Station is the largest of its kind in Europe and is expected to handle some 50 million passengers per year.

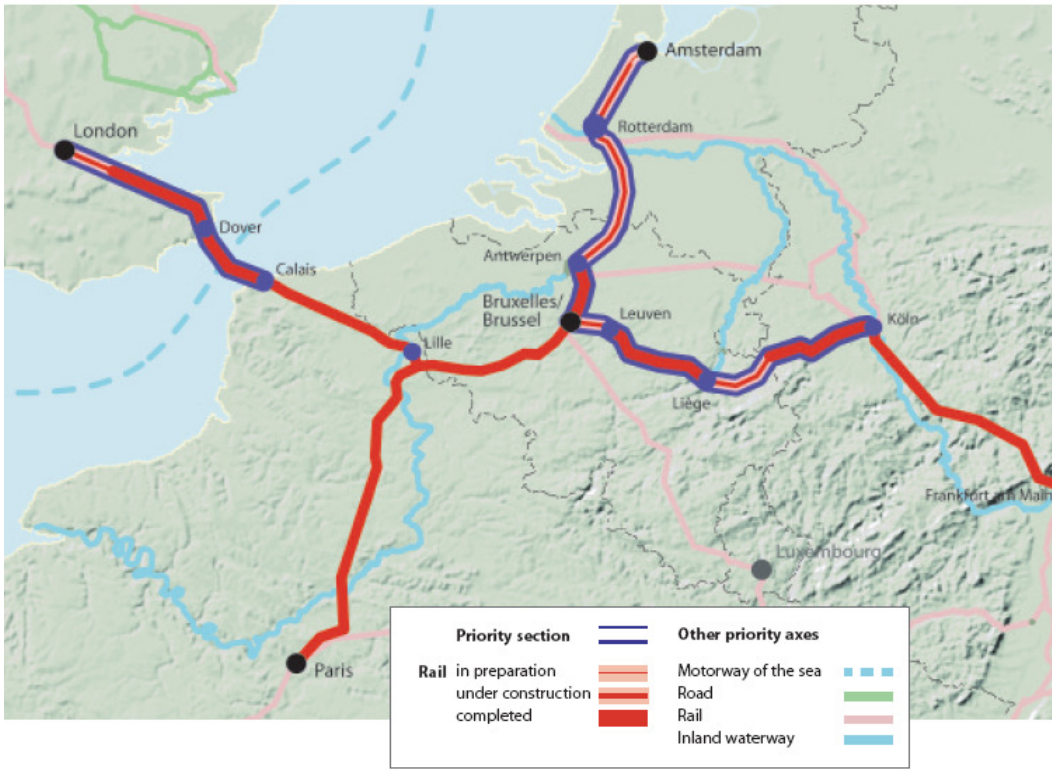
[Source: London and Continental Railways 'LCR – An Incredible Journey', available from: www.lcrhq.co.uk, accessed 24/10/2006]

Source: DfT - Channel Tunnel Rail Link, Route Description and Simplified Maps

Figure 1: TEN-T Priority Axes and Projects 2005

Priority section	Type of work/status	Distance (km)	Timetable	Total cost as of end 2004 (million EUR)	Investment up to 31.12.2004 (million EUR)	TEN-T contribution, including studies, up to 31.12.2004 (million EUR)
Channel Tunnel–London	Rail (new)	113	1999–2007	8 011	7 080	255.9
Brussels–Liège–Cologne	Rail (new)	210	1996–2007	2 734	2 062	78.2
Brussels–Rotterdam –Amsterdam	Rail (new)	187	1998–2007	6 319	5 635	81.3
Amsterdam station			2008–14	270	0	0
Rotterdam station			2006–10	123	0	0
TOTAL		**510**		**17 457**	**14 777**	**731.4 (1)**
Projects that were part of the original list of 14 priority projects (1996)						
Lille–Brussels	Rail (new)		1992–2006	1 423	1 341	0 (1)
Cologne–Frankfurt	Rail (new)		1990–2004	6 015	6 015	148.8

(1) Note that the total TEN-T contribution includes EUR 316 million, which has been allocated to the Netherlands and Belgian sections (e.g. Lille–Brussels) in general, and cannot be associated with a specific section of the axis.



[Source: Trans-European Transport network: TEN-T priority axes and projects 2005, European Commission, Luxembourg: Office for Official Publications of the European Communities, 2005. Downloaded from http://ec.europa.eu/ten/transport/projects/doc/2005_ten_t_en.pdf on 26th April 2007]

Current Status

In terms of construction phasing, the CTRL was split into two principal sections (Figure 2):

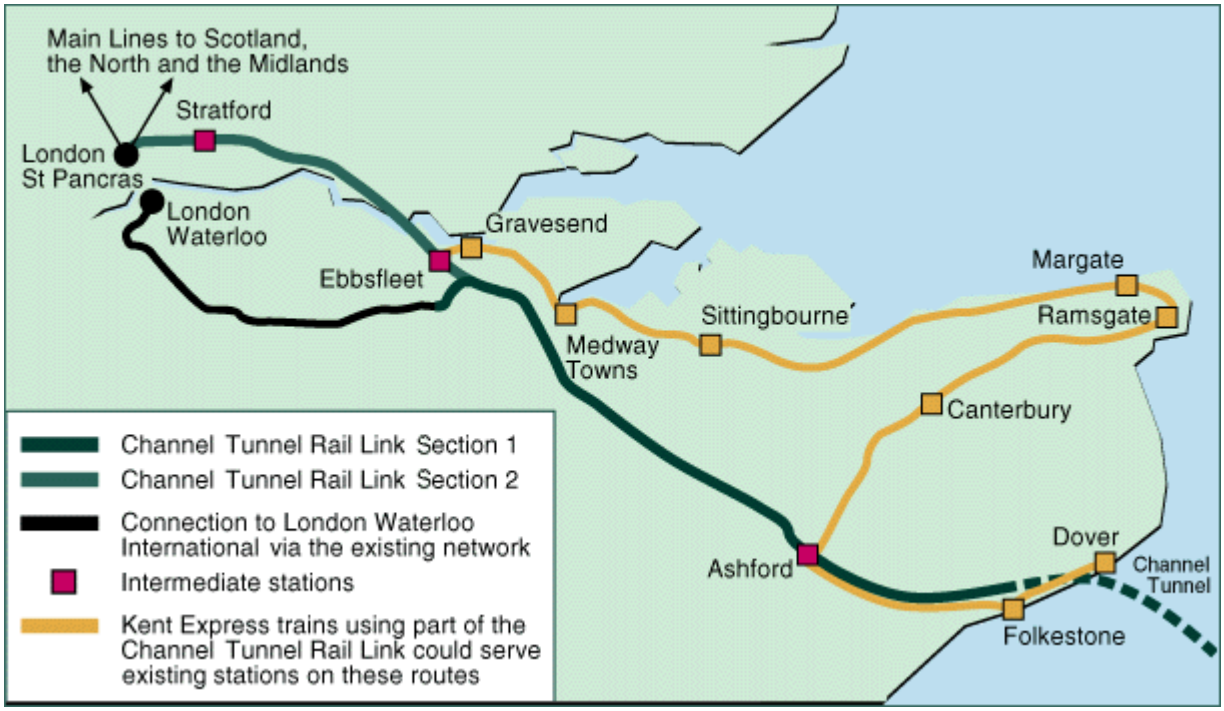
- Section 1 – Channel Tunnel to Fawkham Junction. Construction commenced in October 1998 and opened for use in September 2003 (earlier international services made use of primarily existing lines and connected the Channel Tunnel with Waterloo Station which was the temporary London Terminus for Eurostar services from 1993 until St Pancras opened in November 2007)

- Section 2 – Southfleet Junction to St Pancras. Construction commenced in July 2001 and was completed in November 2007

CTRL carries up to 8 Eurostars per hour and (from 2009) up to 8 Domestic Services per hour as well as the possibility of 2 other 'open access' paths.

[Source: London and Continental Railways 'LCR – An Incredible Journey', available from: www.lcrhq.co.uk, accessed 24/10/2006]

Figure 2: Overview of CTRL Route

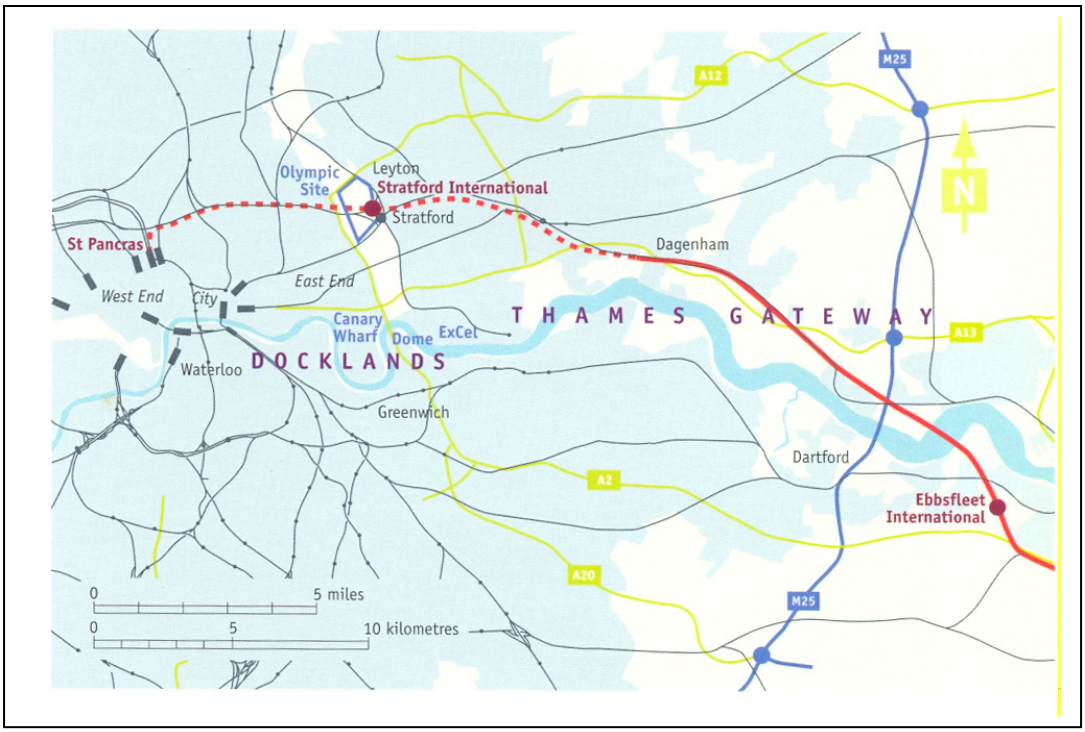


[Source: Department for Transport (www.dft.gov.uk) - "The Channel Tunnel Rail Link", accessed 25/10/2006]

Figure 3: London, Kent & the Thames Estuary

[Source: Faith, N. (2007) The Right Line: The politics, the planning and the against-the-odds gamble behind Britain's first high-speed railway, Segrave Foulkes Publishers, London, p.22.]

Figure 4: London, Stratford, the Thames Gateway and HS 1



[Source: ibid, p.13.]

B BACKGROUND TO PROJECT

Principal Project Objectives

Key objectives for the CTRL have been variously quoted as follows:

Principal *Government* objectives (1990):

- a 50% increase in link capacity between London and the Channel Tunnel;
- ability to maximise use of the new line for domestic rail users;
- regeneration and redevelopment values should be maximised by the design of the route and location of the stations. In particular, to maximize the positive regeneration benefits of CTRL termini at Ebbsfleet (Kent Thames Gateway), Stratford (East London) and King's Cross (particularly in regard to the former King's Cross Railway Lands).

[Source: Gambrill, B. (May 2003a) Channel Tunnel Rail Link: 1971 to 1990. In: ICE Civil Engineering 156, pp. 4-10, Paper 13210.]

London & Continental Railways objectives

- Build extra rail capacity between the Channel Tunnel, Kent and London.
- Reduce international and domestic journey times.
- Stimulate regeneration in inner London, the Thames Gateway and Kent Thameside.

[Source: London and Continental Railways 'LCR – An Incredible Journey', available from: www.lcrhq.co.uk, accessed 24/10/2006]

Key objectives as articulated by Mike Glover, Tech Director of Rail Link Engineering (source: "Channel Tunnel Rail Link section 1 : an overview" – Mike Glover, Paper 13470, Institution of Civil Engineers – Proceedings, May 2003

- **International railway link**. Forming the railway link between London and Continental Europe, with the provision for high-speed services beyond St Pancras to the north of England via the west-coast and east-coast mainlines. On completion of the CTRL the current journey time from the Channel Tunnel to London will be halved to 35 mins, resulting in journey times from St Pancras to Paris of 2 h 15 min and to Brussels of 2 h.
- **Commuter and freight capability**. Providing an increase in commuter capacity and improvement in the quality of journeys between Kent and London by providing the fixed infrastructure for the domestic operator to run high-speed commuter trains on the CTRL. Journey times from north Kent could be reduced from in excess of 1 h 15 min and those from Ashford halved. The railway will also provide the capability to carry freight trains on the CTRL.
- **Urban rejuvenation**. Providing the transport spine for the east Thames corridor development, shifting development pressure from the west to the east of London and providing stimulus to the rejuvenation of three derelict areas—Ebbsfleet, the inner city areas around Stratford and Kings Cross—and to reinforce the growth of the area around Ashford. At the heart of each of these areas will be a CTRL station to facilitate the creation of a multi-modal transportation hub for the wider area.
- **Thameslink 2000**. Creating a new core station and interchange for Thameslink 2000 at St Pancras including the associated tunnelled rail link with the east-coast mainline which will greatly increase the functionality of the Thameslink system.
- **London Underground**. Providing the extended London Underground Ltd (LUL) underground station at Kings Cross and St Pancras (as required by the 1987 Fennel report1) combined with new easy-access linkage to the mainline railway stations.

Notwithstanding the above, it can be seen from the Project Timeline (Section D), that early project objectives were restricted primarily to the creation of a rail link from the Channel Tunnel into Central London, to be funded by the private sector. Objectives associated with matters such as urban regeneration emerged somewhat later when increasing attention was paid to securing an acceptable route for CTRL through the Thames Gateway – an area in need of significant renewal (see also Section C regarding Ebbsfleet International Station Hub).

Key Enabling Mechanisms and Decision to Proceed

Construction of the CTRL rail link resulted from the decision by France and the UK to proceed with the construction of the Channel Tunnel in the late 1980s. The subsequent CTRL Act (1996) was first introduced to the UK Parliament via a Private Members Bill in 1994.

It should be noted that from an early stage Government took the view that the rail link should be

provided by the private sector. Indeed, Section 42 of the Channel Tunnel Act (1987) specifically said that no Government financial support would be forthcoming for the construction of a new rail link. Accordingly, from the early 1990s work was undertaken by Government and British Rail (and its subsidiaries) to position CTRL as a potential 'Private Finance Initiative' (PFI). Following competitive tendering, London and Continental Railways (LCR) was appointed to build, manage and operate CTRL in 1996. However, project financing soon ran into trouble as a result of (primarily) lower than forecast passenger numbers and escalating costs. This meant that in 1998 Government had to 'rescue' the project by offering enhanced financial guarantees.

[See Project Timeline Section D and Project Funding/Financing Section E below for more detail]

In his book "They Meant Well – Government Project Disasters" (The Institute of Economic Affairs, 2007, Chapter 6 The Channel Tunnel (1985-1994-2007), pages 131-132) D R Myddelton notes that the decision to proceed with the Channel Tunnel (and by association the CTRL) spanned several different governments in the UK, as follows:
"In the twelve years 1964-75 the party in power in the UK changed three times and there were six different ministers of transport. Given BR's lukewarm attitude towards the Tunnel, so much chopping and changing can hardly have helped. But the project itself was not party-political. Douglas-Home's Conservative government started it, Wilson's (first) Labour government signed an agreement 'in principle', and Heath's Conservative government signed legal contracts and the Treaty. Finally Wilson's (second) Labour government cancelled the first high quality rail link to London, then the Tunnel itself.
In the early 1980s Mrs Thatcher expressed interest in a fixed link between England and France, which she had supported as a member of the Heath government. The French were keen, in order to regenerate the Nord-Pas de Calais region. At first she and Francois Mitterand, the French President, preferred a road to a rail link (as had Heath): he wanted a bridge while she favoured a drive-through tunnel. But she ruled out any government finance, and doubted whether a private enterprise tunnel would pay."

An overview of the timeline associated with the key enabling mechanisms is presented as follows:

- Feb. 1986 The Channel Tunnel Treaty is signed by Margaret Thatcher and François Mitterand.
- Feb. 1987 The Channel Tunnel Act receives Royal Assent.
- March 1993 UK Government announces that CTRL is to constructed as a public/private joint venture.
- Nov. 1994 The CTRL Bill is introduced to the House of Commons.
- Feb. 1996 London and Continental Railways (LCR) appointed to build, manage and operate CTRL following tender process.
- Dec. 1996 Royal Assent is granted for the Channel Tunnel Rail Link Bill.
- Jan. 1997-April 1998 Government announces that LCR are unable to raise the necessary funds to construct CTRL (due to escalating costs and lower than forecast passenger numbers). LCR work on a restructuring of the financial deal for the project.
- Jun. 1998 The Government accepts LCR's restructuring proposals for the construction, operation and financing of the CTRL. DoT, LCR, and Railtrack sign a Statement of Principles to this effect.

Main Organisations Involved

As shown below, the organisational arrangements associated with the preparation, implementation and operation of the CTRL are highly complex, involving a large number of public and private sector interests. It may be argued that this was necessarily the case given the high profile/high risk nature of the project, the breadth and depth of sectoral interests involved and also the lengthy period required to plan and deliver the project.

With the above in mind, the following seeks to identify what are believed to be the more *influential 'players'* involved in CTRL project planning, delivery and operation, pending further investigation.

See also Project Timeline for more detailed information on timing of organisational involvement.

Central Government Bodies/Departments

The following concentrates primarily on those Government Bodies/Departments that played a pro-active role in driving forward the CTRL project. As a result, it does not cover in-depth the role played by regulatory bodies such as the Treasury though they were doubtless extremely influential.

The main Central Government bodies involved in the planning and delivery of CTRL were as follows:

- *UK Parliament*
  The passage of the CTRL Act through Parliament involved scrutiny of the proposals by Select Committee in both the House of Commons and House of Lords. Several hundred objectors used the opportunity to petition against the Bill in order to seek assurances from Parliament that their interests would be protected. These petitions could address a wide range of issues from environmental concerns leading to requests for detailed changes to route alignment to requests for safeguards in terms of land-take and access through to parties seeking special consultation and dispute resolution arrangements. Those petitions that could not be resolved between the CTRL project promoter and the affected party became the subject of the reports that the Select Committees issued and which in many cases required the promoter to incorporate additional measures in its design, construction arrangements or compensation offers. All the petitions are referenced in a Register of Undertakings and Assurances which is, in effect, a series of conditions on which Parliament sanctioned the CTRL project.
- *Forums & Meetings*
  A 'High-Level Forum' was set up in 1992. Chaired by the Minister of Transport, the High-Level Forum met annually and comprised representatives from all local authorities along the route. It was supported by 'level 2' working groups south and north of the Thames and complemented by 'level 3' meetings between local authority technical officers and members of the project design team. This process produced unanimity among the authorities and the Government over the basic specification for the new line. The Planning Forum was a crucial part of the management mechanism enabling the local authorities along the route to play a part in design, problem solving and briefing local communities. It also enabled individual authorities to put particular local objections into a wider perspective and helped ensure an overall consistency in decision making. This contrasts sharply with earlier attempts at consultation which had merely provoked hostile reaction – see Project Timeline.

  The Planning Forum (PF) was formally established by the High Level Forum (HLF) in early 1997 following the enactment of the CTRL Act in 1996. It developed from meetings between the promoters and local authority officers while the CTRL Bill was under preparation. A Shadow PF was formed following the HLF agreement of December 1994 to establish a formal PF for qualifying authorities (as set out in the Planning Memorandum) once the CTRL Act was passed. The Shadow PF focused on preparation for CTRL construction so that key works could start as soon as possible after the CTRL Act was passed.

  The Terms of Reference for the PF were essentially:
  – regular dissemination of current information concerning progress on CTRL works to qualifying authorities affected by them;
  – enabling a consistent and co-ordinated approach to the interpretation of powers in the CTRL Act when dealing with submissions for approval under the Act or construction

issues;
- to develop procedures to facilitate the handling of submissions under the CTRL Act and community liaison during construction (notification of public enquiry and complaints system etc.)
- to enable issues/problems of common concern or cross boundary concern relating to both the planning and construction stages to be discussed and resolved with minimum delay.

The 1996 CTRL Act suspended the normal planning process and put in its place a simplified and streamlined planning regime designed to expedite the project, alongside numerous parliamentary undertakings on generic and site-specific concerns. Within an overarching commitment to numerous Environmental Minimum Requirements, a Planning Memorandum set out the standards that both the promoter and local authorities were to follow in requesting and determining planning applications under the CTRL Act regime.

Local Authorities that signed up to the Planning Memorandum in 1997 as 'qualifying authorities' were able to exercise limited powers (defined in Schedule 6 of the CTRL Act) including the right to receive applications and exercise limited controls over a wide range of CTRL construction works and arrangements.

The PF was generally considered by participants to have achieved a number of important results:
- it helped establish a special planning regime in the CTRL Act which provided for effective joint working between the promoters and designers, local authorities, government and other interested parties. This included influencing the Planning Memorandum which established the responsibilities of the promoter to engage in consultations including before submissions, and the qualifying authorities to put in place internal decision making arrangements, including greater delegated powers so as to meet the timetable for determination of submissions (within 8 weeks, or less wherever possible);
- establishing a common form and content for submissions to the authorities affected by the route which was a significant advantage to the promoters who were then not faced with manifold different requirements;
- the PF enabled authorities to learn from each other as construction progressed from one area to another;
- some 2000 submissions were made for HS1, of which most were determined within the timeframe to meet a demanding construction programme, and only a handful went to an appeal;
- contractor's representatives took part in the PF which enabled a synergy in design and construction (e.g. including the re-use of spoil);
- common designs were agreed for both important features of the railway (e.g. bridges and noise barriers) and for other lesser matters which were important during the construction period (e.g. hoarding and fencing for construction sites);
- where cross boundary issues were raised (e.g. concerning the provision of a facility needed at only one or a few sites on the route, such as a maintenance depot) the PF was able to give a considered view on the location options;
- regular reports were received from the promoters on the operation of the Public Enquiry System, and the resolution of complaints and operation of the small claims scheme was reported by the Complaints Commissioner;
- the PF produced more than 50 Guidance Notes on matters ranging from submission procedures in the early stages, to the return and disposal of land following construction.

The PF was seen to have created a genuine partnership between the parties involved. This was greatly assisted by the continuity given by the majority of the nominated staff being involved in the PF throughout.

- *Department of Transport (DoT)*

The DoT and its successors following various government re-organisations (i.e. Department of

the Environment, Transport and the Regions (DETR) and Department for Transport (DfT)) was the main sponsor of the CTRL project , responsible for overseeing all aspects of the preparatory work undertaken by British Rail (BR) (see below) including negotiations with the private consortium appointed to deliver the project. Key roles and responsibilities were:
  - assessing the capacity of the existing rail network to accommodate international services (1987 Kent Impact Study) and forecasts of future capacity needs;
  - sponsoring the 1994 hybrid (Public & Private) Parliamentary Bill to obtain powers for the CTRL;
  - overseeing the competition to find a private sector developer to build and operate Eurostar services (DETR);
  - assessing CTRL route options/termini and subsequent route protection/safeguarding;
  - assessing project viability and preparing for CTRL to be undertaken as a Private Finance Initiative (PFI);
  - issuing (1994) pre-qualification documents for bids to deliver and operate the CTRL and assessing those bids;
  - overseeing the appointment of private sector company to deliver and operate CTRL in 1996 (London & Continental Railways);
  - conducting detailed negotiations with London and Continental Railways in subsequent financial re-structuring (1998);
  - commissioning of independent reviews of CTRL travel demand forecasts (1998).
- *Department of the Environment* (DoE) – in the early 1990s, the DoE were closely involved in examining the development potential in the East Thames Corridor and subsequently published (1995) RPG9a the 'Thames Gateway Planning Framework'. The CTRL was seen as a key element of the planning framework and the DoE were particularly keen to see the project routed through the Thames Gateway so as to stimulate investment and regeneration.

Sources:
dft.gov.uk – The need for a Channel Tunnel Rail Link – How the need for a CTRL developed
dft.gov.uk – Environment and heritage regarding the Channel Tunnel Rail Link

dft.gov.uk - The Channel Tunnel Rail Link

<u>Local Government</u>

The roles/functions played by Local Authorities is the subject of further investigation by the OMEGA Centre and the following consequently represents only a brief overview.

Local authorities affected by the CTRL route and station options development process were variously consulted throughout the project preparation period. Their prime focus was on avoiding and mitigating potential environmental impacts within their areas.

[See Project Timeline (Section D) for information concerning consultation periods/processes]

However, special mention needs to be made of role played by Newham Council (East London) which, from the late 1980s/early 1990s, successfully lobbied in conjunction with the Stratford Promoter Group for the development of a CTRL International and Domestic Station at Stratford as part of a wider urban regeneration scheme.

Sources:
dft.gov.uk - The need for a Channel Tunnel Rail Link - How the need for a CTRL developed
Urban Regeneration in Stratford, London" (2001) – Planning Practice & Research, Vol 16, No.2, pp 101-120 - Florio (Simona) & Edwards (Michael)

<u>British Rail</u>

British Rail (BR), the UK's nationalised railway provider up to the mid-1990s (when it was split up and sold off), played a pivotal early role in all aspects of the preparatory work for CTRL. In particular, BR worked closely with DoT as well as other Ministers and Cabinet Members to advise on the need and viability of the CTRL.

Examples of BR's key roles and functions are:

- BR worked with French Railways (SNCF) from 1971 on a combined scheme for the Channel Tunnel and respective rail links to their capital cities;
- BR was a co-sponsor in 1994 (together with the DETR) of the hybrid (Public & Private) Parliamentary Bill to obtain powers for the new link;
- BR undertook numerous capacity studies of existing railway infrastructure in the late 1980s;
- BR sought to identify new routes/station options for the high-speed link in the late 1980s/early 1990s to address financial, environmental and political pressures. During this period BR carried out frequent iterations of route and station selection;
- BR carried out a series of project viability and feasibility assessments and cost and funding estimates during the late 1980s – early 1990s;
- BR prepared engineering studies and undertook engineering design management;
- BR carried out public consultation on route options;
- BR undertook station development (Ashford International Station);
- BR examined development possibilities for the former Railway Lands at King's Cross

BR's chief subsidiaries responsible for detailed work on CTRL were Rail Link Project Group and Union Railways Ltd. However, it should also be noted that BR worked with the private sector during the preparatory work for CTRL and in fact established a joint venture in December 1988 with Eurorail (Trafalgar House and BICC) to develop and implement CTRL proposals – the JV was disbanded in 1990 when Government found their CTRL project proposals too costly.

The role of BR as a railway infrastructure provider was taken up by the private sector in the form of Railtrack (1993 to 2001 i.e. until it entered administration) and subsequently Network Rail. Both these private companies played an important role in CTRL as partners in the provision of the high-speed link railway infrastructure. As noted by Gourvish (see below), up to 1994 BR, and subsequently Railtrack/Network Rail, invested a total of £1.5 billion in infrastructure works and rolling stock to accommodate the international passenger and freight services.

Terry Gourvish's book 'British Rail 1974-97: From Integration to Privatisation' (Oxford University Press, 2002) provides many in-depth insights into BR's role in developing the CTRL project. The following, summarized from Chapter 9 – 'Investment and the Channel Tunnel' are particularly pertinent in helping to demonstrate the central role played by BR:

Section 9.4 Investing in the Channel Tunnel

- regarding implications for BR stemming from Channel Tunnel: "…..the Board and its partner SNCF took on substantial obligations to provide infrastructure and rolling stock, to plan rail services and to pay specified tolls (both fixed and variable and subject to a guaranteed minimum usage charge), and a proportion of the tunnel's operating costs, in return for half of the tunnel's operating capacity." (pages 319-320);
- the necessary infrastructure for CTRL was to be in place by the target commencement date of 15 May 1993. I.e. sufficient to carry annually 17.4 million passengers and 8.1 million tones of freight. (page 320);
- procurement of rolling stock was to be a joint effort by UK, French and Belgian railways. In 1989 BR committed to buy 14 Eurostars. They were complex trainsets and were sourced from 17 different factories. During 1989 the cost estimate for these rose from £230m-£336m, and suppliers had problems meeting delivery and reliability specifications. Ultimately the trainsets arrived late and were much less reliable than promised (which led to a major dispute with suppliers GEC Alsthom and TransManche). (page 325).

Sect 9.5 The High Speed Rail Link: slow progress

- Provision of the high speed rail link and second London terminal involved 3 periods of BR activity:
  - Period 1: 1988-1990: initial identification of possible routes and establishment of a JV with Eurorail
  - Period 2: 1990-autumn 1991: further study of possible routes (which government rejected)
  - Period 3: BR's subsidiary (Union Rail) undertook further development work until government announced its preferred route in 1994.
    (page 328)

- Period 1 - when the Channel Tunnel Act was passed in 1987, BR thought that additional capacity for international traffic would not be needed for the foreseeable future. But, the DoT's Kent Impact Study took the opposite view. Hence BR carried out a study of route and terminal capacity – 'Channel Tunnel Train Services' (July 1988). (page 329)
- Period 1 - Section 42 of the Channel Tunnel Act stated that no government grant would be available for international services. Consequently BR sought a JVP to participate on a risk sharing basis in construction and operation of the link. 6 consortia were invited to tender. Discussions were held with 2 of these – Acer/BAA/P&O/Canadian Pacific/Hambros Bank; Eurorail (Trafalgar House and BICC). Both consortia said that the scheme was not financially viable without government support (the viability gap ranged between £1.4bn-£1.6bn) and it was felt that the best way to achieve a positive return would be to limit the scheme to the above-ground section from Cheriton to Swanley. In November 1989 BR announced that Eurorail was its preferred partner. The limited scheme approach was rejected following legal advice. BR decided to defer deposit of a private Bill for the link until November 1990 (which meant that the final route had to be published by March 1990 – which was very tight). Consequently, BR sought to quickly refine the 1989 route to reduce costs. The new alignment between Upper Halling and Hither Green (London) promised savings of £300m. Even so, in March 1990 the cost of the scheme was still £2.65bn and the rate of return was 3% (i.e. some £1.2-£1.5bn short of commercial returns expected by the private sector. (page 332);
- Period 2 - saw further work on route selection, the aim being to maximize benefit to both domestic and international travelers. For BR, the principal activity was to try and reduce costs by re-examining the old line between Upper Halling and London. In parallel, 2 of the unsuccessful bidders for the JV (Rail Europe – Laing/Mowlem/GTM; and, Hanover/Bechtel) promoted RACHEL and TALIS (RACHEL which was an all tunnel line from Dover to Rainham, TALIS which was an easterly route through the Medway to Tilbury and Stratford). Both had been rejected by BR in 1989. At the same time Ove Arup (promoters of KentRail) put forward a route running via Stratford to King's Cross. Also Newham BC continued to lobby for a second terminal in Stratford, to be connected to BR's southerly route. (page 333);
- From April-May 1991 BR evaluated 4 route options:
  – BR's southerly route to King's Cross
  – Ove Arups easterly route to King's Cross
  – Rail-Europe's easterly route to Stratford
  – LB Newham's southerly route to Stratford.

  (Pages 333-334)
- The main emphasis from early 1992 was to translate government's broad conceptual alignment into a fully developed scheme. Staff/management changes early in this period were intended to ring fence the project in light of its possible privatization, improve accountability and help boost morale. Over 40 consultants were involved together with the Treasury, DOE and DTp. (page 335)

Finally, it is interesting to note Gourvish's concluding remarks on BR's position during the CTRL preparation process (page 340):

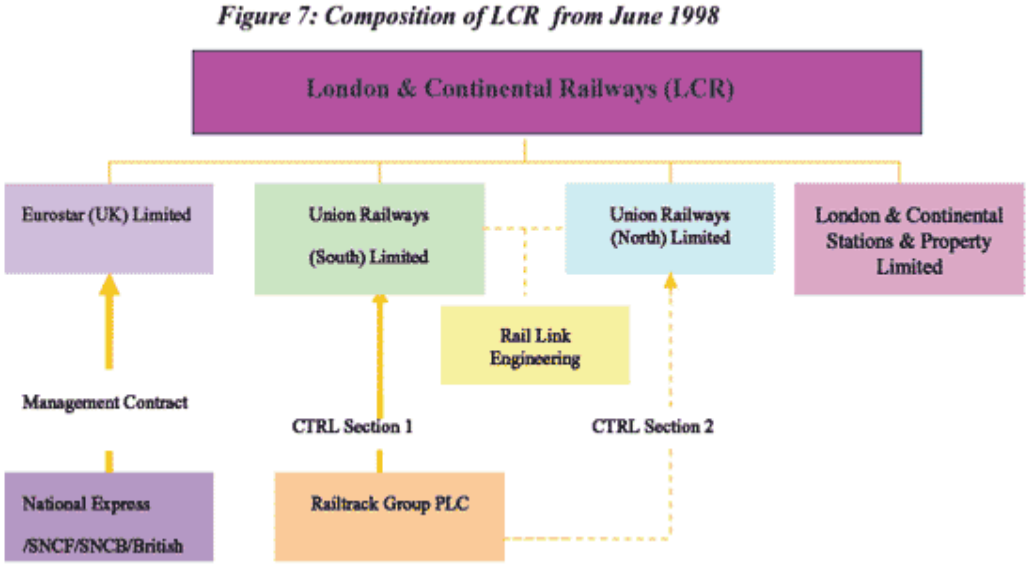
"While some railway managers were dubious about the need for additional capacity for international services, the Board, ever obedient to its political masters, did its best to progress the scheme. It was all the more irksome, then, to find that the hoops through which it was forced to jump were numerous than expected. Frequently disconcerted, and shunted around by the government as it wrestled with changes of route, vociferous protesters, and the complexities thrown up by armies of consultants, British Rail made a substantial commitment to the Channel Tunnel in terms of investment, resources and management time. Some of its actions in the early stages of the process may be criticized, and a sizeable amount of public money was wasted. However, most of the blame rests with the government, where the perceived need to appease interests in Kent, South-east London, and the Regions produced the number of vicissitudes, while the anxiety to open the way to private-sector ownership of ten flew in the face of the economic realities."

Sources:
London and Continental Railways 'LCR – An Incredible Journey', available from: www.lcrhq.co.uk, accessed 24/10/2006
Gambrill, B. (May 2003a) Channel Tunnel Rail Link: 1971 to 1990. In: ICE Civil Engineering 156, pp. 4-10, Paper 13210.
Terry Gourvish's - 'British Rail 1974-97: From Integration to Privatisation' (Oxford University Press,

2002)
dft.gov.uk - The need for a Channel Tunnel Rail Link - How the need for a CTRL developed

London and Continental Railways (LCR)

Figure 5: Composition of LCR



Source: Department for Transport (www.dft.gov.uk) - "The Channel Tunnel Rail Link", accessed 25/10/2006

- *Appointment* - LCR was appointed (following a competitive tender process) in 1996 to design, build, finance and operate the CTRL - with LCR acquiring ownership of Union Railways Ltd (by then a Government company) and European Passenger Services Ltd (the UK arm of the Eurostar train services). The overall administrative structure is shown by Figure 3.
- *Main Shareholders* - at the time of their appointment (1996) LCR shareholders were as follows:
  - Bechtel – 19%
  - SG Warburg – 19%
  - Virgin Group – 18%
  - National Express – 17.5%
  - SNCF – 8.5%
  - London Electricity – 8.5%
  - Arup – 3.5%
  - Halcrow – 3.0%
  - Systra/Sofretu/Sofrerail – 3.0%
- *Project Delivery* - responsibility for the overall delivery of CTRL lies with LCR's two subsidiaries:
  - CTRL Section 1 – Union Railways (South) Ltd;
  - CTRL Section 2 – Union Railways (North) Ltd.
- *Property Development* – London & Continental Stations and Property (LCSP) is the property subsidiary of LCR. It is developing the new international stations on the CTRL. LCSP has responsibility for the multi-billion-pound regeneration of land around the CTRL stations in partnership with developers and in close co-ordination with Government agencies, local authorities and communities. It is also playing a crucial role in enabling the London 2012 Olympics and in delivering homes and jobs in the Thames Gateway. In addition, LCSP has responsibility for the acquisition of land required for the CTRL and manages all of LCR's commercial and residential properties. LCSP is responsible for the assembly of land required for the construction of the CTRL and controls land at King's Cross through agreements with the Secretary of State for the Environment, Transport and the Regions. At Stratford, the Stratford City Development Limited (SCDL) is the development partner consortium of London & Continental Railways and is owned by Stanhope and Duelglide. Duelglide in turn is owned by Westfield, Multiplex and Aldersgate.
- *Design and Project Management* - formed in 1997, Rail Link Engineering (RLE), a consortium made up of the engineering shareholders in LCR—Arup, Bechtel, Halcrow and Systra—

became the project manager responsible for the design, project management, procurement, construction and commissioning of the CTRL under an engineering, procurement and construction agreement with LCR, administered by Union Railways, a subsidiary of LCR.

- *Operation and Maintenance* - of CTRL Section 1 is now being undertaken by Network Rail (CTRL) Ltd for LCR subsidiary CTRL (UK) Ltd

Sources:
Channel Tunnel Rail Link section 1 : an overview – Mike Glover, Paper 13470, Institution of Civil Engineers – Proceedings, May 2003
London and Continental Railways 'LCR – An Incredible Journey', available from: www.lcrhq.co.uk, accessed 24/10/2006
Gambrill, B. (May 2003a) Channel Tunnel Rail Link: 1971 to 1990. In: ICE Civil Engineering 156, pp. 4-10, Paper 13210.
Terry Gourvish's - 'British Rail 1974-97: From Integration to Privatisation' (Oxford University Press, 2002)
dft.gov.uk - The need for a Channel Tunnel Rail Link - How the need for a CTRL developed
Argent plc website: http://www.argentkingscross.com/live/index.cfm?page=people2 accessed 3rd April 2007
http://www.lda.gov.uk/server/show/ConWebDoc.1325 Press Release dated 15th November 2005

Pressure Groups

As noted in the Project Timeline (see below), between the late 1980s and early 1990s various pressure/lobby groups formed in response to BR's publication of CTRL route options. Many of these were very vocal and well organised and a number put forward alternative route alignment options, as follows:

- In mid-late 1989 a series of pressure groups emerged which put forward a number of alternative routes. These mainly comprised:
  - (a) realignment of route proposed by BRB:
    - (i) SABRE – alignment away from existing line at Sellindge and Bonington in east Kent.
    - (ii) PEARL – (Peckham Against the Rail Link), a new route to avoid Peckham Rye.
  - (b) wholesale changes to the BR route:
    - (i) RACHEL (Rainham to Channel Tunnel) – a straight tunnel from Channel Tunnel to Rainham
    - (ii) TALIS (Thames Alternative Link International Scheme)
- Gourvish notes (page 333) that:
  - two of the unsuccessful bidders for the JV (Rail Europe – Laing/Mowlem/GTM; and, Hanover/Bechtel) promoted RACHEL and TALIS (RACHEL was an all tunnel line from Dover to Rainham, TALIS was an easterly route through the Medway to Tilbury and Stratford). Both had been rejected by BR in 1989.
  - In 1989 Ove Arup (promoters of KentRail and later LCR Shareholder) put forward a route running via Stratford to King's Cross which won favour with those within Government who were keen to see the Thames Gateway promoted as a major regeneration and economic development initiative.
  - In the early 1990s Newham Council continued to lobby hard for a second CTRL terminal in Stratford.

A more detailed assessment of activism associated with the CTRL is provided in a Paper prepared by Christopher Rootes, Debbie Adams and Clare Saunders of the Centre for the Study of Social and Political Movements, Darwin College, University of Kent at Canterbury: Centre for the Study of Social and Political Movements, Working Paper 1/2001 - Local Environmental Politics in England: Environmental activism in South East London and East Kent compared (Section 4 - The campaigns against the Channel Tunnel Rail Link (CTRL))

Sources:
Gambrill, B. (May 2003a) Channel Tunnel Rail Link: 1971 to 1990. In: ICE Civil Engineering 156, pp. 4-10, Paper 13210.
Terry Gourvish's - 'British Rail 1974-97: From Integration to Privatisation' (Oxford University Press, 2002)
dft.gov.uk - The need for a Channel Tunnel Rail Link - How the need for a CTRL developed

Contractors

The main civil engineering contractors employed on CTRL comprise the those high profile firms that are present on many of the large infrastructure projects in the UK, Europe and elsewhere - for examples see Table 1.

Table 1: Main Civil Engineering Contractors CTRL Section 1

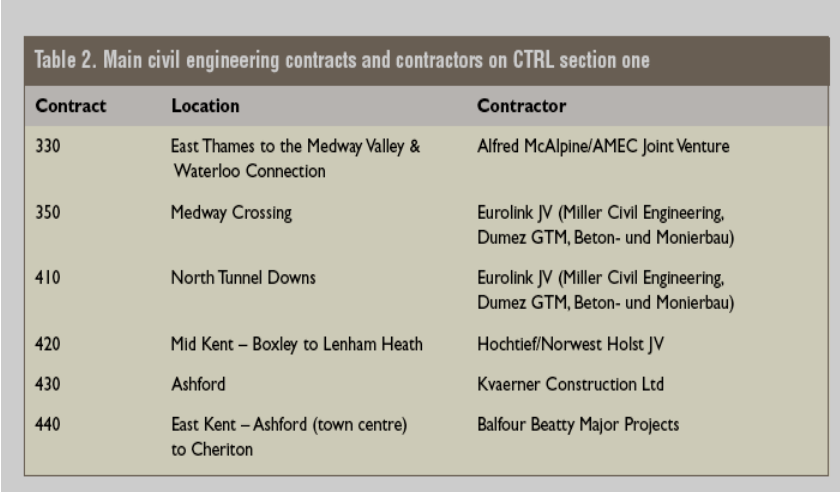


Table 2. Main civil engineering contracts and contractors on CTRL section one

Contract	Location	Contractor
330	East Thames to the Medway Valley & Waterloo Connection	Alfred McAlpine/AMEC Joint Venture
350	Medway Crossing	Eurolink JV (Miller Civil Engineering, Dumez GTM, Beton- und Monierbau)
410	North Tunnel Downs	Eurolink JV (Miller Civil Engineering, Dumez GTM, Beton- und Monierbau)
420	Mid Kent – Boxley to Lenham Heath	Hochtief/Norwest Holst JV
430	Ashford	Kvaerner Construction Ltd
440	East Kent – Ashford (town centre) to Cheriton	Balfour Beatty Major Projects

Source: Setting out the Channel Tunnel Rail Link, C. Kelly, ICE proceedings, Paper 12436, May 2001

A more complete list of contractors for CTRL is given below (Table 2):

Table 2: Civil Engineering Contractors CTRL

Formwork: Simpra
Project management: Rail Link Engineering
Contract 102 Edmund Nuttall Ltd.
Contract 103 Co-contractor Edmund Nuttall Ltd., Kier Construction
Contract 104A Westinghouse Signals Ltd
Contract 104B Motherwell Bridge Construction
Contract 104C Tales Telecommunication Services Ltd
Contract 104E Westinghouse Rail Systems Ltd
Contract 104F Mowlem Railways
Contract 104G Westinghouse Rail Systems Ltd
Contract 104H John Mowlem & Company
Contract 105 (Saint Pancras Station) EMCOR Drake & Scull & Co-contractor Bachy Soletanche Group Limited, Costain, O'Rourke Civil Construction
Contract 124 Railtrack Midland Zone
Contract 135 Edmund Nuttall Ltd.
Contract 137 Fujitec UK
Contract 138 Escalators Otis Elevator Co.
Contract 220 (London Portal) Skanska Construction UK Ltd; Co-contractor Nishimatsu Construction Co. Ltd.
Contract 230 (Stratford Box) Skanska Construction UK Ltd
Contract 240 (Stratford - Barrington Road) Co-contractor Bachy Soletanche Group Limited, Costain, Skanska AB
Contract 250 (Barrington Road - Ripple Lane) Co-contractor Edmund Nuttall Ltd.,
Kier Construction Wayss & Freytag Ingenieurbau AG
Contract 302 Co-contractor AMEC Civil Engineering, Alfred McAlpine Construction
Contract 303 Kier Construction
Contract 310 Co-contractor Morgan Est, Vinci Construction Grands Projets
Contract 320 (Thames Tunnel) Co-contractor Hochtief AG, J Murphy & Sons
Contract 330 Co-contractor AMEC Civil Engineering, Alfred McAlpine Construction
Contract 339A GrantRail
Contract 339B Westinghouse Signals Ltd
Contract 339C Seebord Contracting Services
Contract 340 Construction management Rail Link Engineering
Contract 342 Co-contractor Hochtief (UK) Construction Ltd, Norwest Holst Construction
Contract 361 Contractor J Murphy & Sons
Contract 365 AMEC Civil Engineering
Contract 410 (North Downs Tunnel) Co-contractor Beton- und Monierbau Gesellschaft.m.b.H.
Morgan Est, Vinci Construction Grands Projets
Contract 420 Co-contractor Hochtief (UK) Construction Ltd, Norwest Holst Construction
Contract 430 Skanska Construction UK Ltd
Contract 434 John Mowlem & Company
Contract 440 Balfour Beatty Construction
Contract 550 Amey Rail Ltd, Co-contractor Corning Communications Ltd, CSEE Transport
Contract 552 Westinghouse Signals Ltd
Contract 556 CSEE Transport
Contract 557 Optilan (UK) Ltd
Contract 570 AMEC Spie Rail Systems Ltd
Contract 576 Co-contractor Alstom Transportation Projects Ltd, Carillion Construction Ltd, Travaux du Sud-Ouest
Contract 588 EMCOR Drake & Scull
Contract CTRL M01 Carillion Rail
Source: (Source: International Database and Gallery of Structures, http://en.structurae.de/projects/data/index.cfm?ID=p00038) More information about contract contents and contractors of Section 1 are in Glover (2003) Channel Tunnel Rail Link section 1- an overview. In: ICE Civil Engineering 156. pp.10, 11

CTRL Operations

- Channel Tunnel - Trans Manche Link (later Eurotunnel) was granted the concession for the Channel Tunnel in 1986
- Services on the CTRL are operated by Eurostar which is part of London & Continental Railways. LCR appointed the consortium of SNCF (the National Railway of France), SNCB (The National Railway of Belgium), British Airways and National Express to operate the Eurostar service. The contract will run until 2010 when it will either be renewed or transferred to a new operator. The Eurostar operation will return to Government ownership in 2086. The original concession awarded to LCR had been for 999 years. It is now reduced to less than 90.
- In 1994 when international rail services commenced, The Channel Tunnel carried a shuttle service between the two mainland terminals for cars and lorries operated by Eurotunnel.
- European Passenger Service Ltd (EPSL), as it was then called, first ran channel tunnel passenger services in 1994 with routes between London and Paris and London and Brussels in partnership with SNCF and SNCB, French and Belgian national railways.
- Freight services through the Channel Tunnel are operated by Railfreight Distribution, which is owned by English, Welsh & Scottish Railways.

Sources:
dft.gov.uk – Facts and figures on the CTRL
Channel Tunnel Rail Link section 1 : an overview – Mike Glover, Paper 13470, Institution of Civil Engineers – Proceedings, May 2003

Unsuccessful Consortia

- In 1994 four consortia pre-qualified for consideration to deliver and operate CTRL: Eurorail CTRL; Green Arrow; London & Continental Railways, and: Union Link.
- In 1995 only Eurorail CTRL and LCR were invited to proceed to the final stage of tendering.

Source: Terry Gourvish - 'British Rail 1974-97: From Integration to Privatisation' (Oxford University Press, 2002)

Planning and Environmental Regime

The CTRL Planning Regime

- The CTRL Act 1996 provided outline planning consent to build the CTRL and for the related works to be undertaken along the designated route. It set out the CTRL planning regime which reserved details of design and construction arrangements to local planning authorities along the route.
- The planning regime also linked to the CTRL Development Agreement which sets out a number of requirements related to the design and construction of the scheme and environmental impact. The key obligations which LCR operate by are:
  - Undertakings & Assurances
  - NEWT (Not Environmentally Worse Than)
  - Environmental Memorandum
  - Code of Construction Practice
- The regime implied that planning permission has been granted for the core works to be undertaken. However, the finer details relating to planning and consent are the reserved responsibility of the local planning authorities along the route of the CTRL, as they would need comprehensive plans to support decisions made.

Sources:
dft.gov.uk - Environment and heritage regarding the Channel Tunnel Rail Link
dft.gov.uk – Facts and figures on the CTRL
www.lcrhq.co.uk - Channel Tunnel Rail Link - Delivering Environmental Excellence

http://www.highspeed1.co.uk/downloads/22/EnvironmentalSustainabilityPolicy.pdf

CTRL (UK) Policy Statement on Environment and Sustainability

In managing "High Speed 1" (HS1), CTRL UK recognises its actual and potential effects on the environment, natural resources, the community, and the economy. It will strive to achieve high levels of environmental and sustainability performance taking account of our stakeholders needs and which is also compatible with operating and maintaining a profitable railway.

The EMS applies the following principles:

- Defined environment and sustainability objectives and targets, so that our performance may be measured and priorities established for improvement;
- Adequate resourcing to be available to consistently implement this policy;
- The necessary information, training and motivation to ensure that this policy is implemented throughout HS1 maintenance and that our employees and contractors understand its implications;
- Monitoring and auditing of compliance with the requirements and assessing the effectiveness of NR(CTRL) EMS.

The commitment to environment and sustainability will be achieved by applying the following principles to the operation and maintenance of HS1.

Sustainability management

- Compliance with all relevant environmental legislation and consent conditions;
- For completion activities and any new works implement the CTRL Environmental Policy Statement for Construction;
- Report internally and publicly on progress towards achieving the sustainability objectives on an annual basis and through this, promoting the sustainability of rail over other transport modes.

Sustainable communities

- Ensure HS1 is managed in a socially responsible manner through maintaining good channels of communication with stakeholders, and that the particular importance of communities within the vicinity of the stations is recognised;
- Facilitate through NR(CTRL) accessibility and safety of our stations and creation of new employment and local business opportunities.

Climate change and energy

- Ensure that the carbon footprint for HS1 is assessed and a plan for carbon reduction is implemented for key HS1 assets in line with relevant stakeholders;
- Encourage reductions in energy use and promotion of renewable energy sources.

Natural resource protection and environmental enhancement

- Ensure that measures are in place to reduce adverse environmental effects and that positive effects of significant environmental impacts are promoted;
- Promote sustainability initiatives among our contractors and use environmental criteria in the choice of contractors. Seek improved environmental performance of the materials products and services purchased and encourage the adoption of sound environmental practice throughout the supply chain.

This policy will be reviewed annually.

Paul Chapman
Managing Director, CTRL(UK) Ltd.
February 2008

HIGH SPEED

The Environmental Statement and the Environmental Minimum Requirements

- The CTRL Environmental Statement that accompanied the CTRL Bill set out how the full Environmental Impact was assessed and provides a baseline against which the project's final design and construction arrangements could be judged.
- The CTRL Act was accompanied by a full Environmental Impact Assessment that was considered by Parliament. The measures to preserve the environment along the CTRL route are detailed in the Environmental Minimum Requirement (EMRs).
- The promoter is obliged to adhere to a series of Environmental Minimum Requirements (EMRs). The EMRs are enforced through the CTRL Development Agreement, the contract between the Government and London & Continental Railways. The EMRs ensure that the environmental protection observed is no worse than the "baseline" standard set in the Environmental Statement even if design and construction arrangements are changed. One of the EMRs is referred to as- "NEWT" - a principle to ensure that the design and construction effects of the CTRL are not materially worse than those set out in the Environmental Statement.
- The Requirements also provided for the establishment of a number of consultative forums including the annual High Level Forum (see above), the Planning Forum and the Environment Forum.
- LCR's representatives produce an annual Environmental Report.www.lcrhq.co.uk

Sources:
dft.gov.uk - Environment and heritage regarding the Channel Tunnel Rail Link
dft.gov.uk – Facts and figures on the CTRL
www.lcrhq.co.uk - Channel Tunnel Rail Link - Delivering Environmental Excellence
Johnson, P. (2003) Channel Tunnel Rail Link section 1: environmental management during construction. In: Proceedings of ICE, Civil Engineering 156, pp. 16-20.

The Rail Link Countryside Initiative (RLCI)

- The RLCI was set up as an independent charity to support local communities, landowners and organisations to realise their ideas for environmental enhancement along the CTRL route. The Initiative received initial funding of £2m from the CTRL developers.

Sources:
dft.gov.uk - Environment and heritage regarding the Channel Tunnel Rail Link
www.lcrhq.co.uk - Channel Tunnel Rail Link - Delivering Environmental Excellence

Channel Tunnel Rail Link - Delivering Environmental Excellence: from www.lcrhq.co.uk

Introduction
Section One's 74km route lies completely within the `Garden of England`. Apart from a relatively short section through the centre of Ashford, the route crosses undulating land rich in agricultural, ecological and landscape resources and holding an enormous archaeological heritage. Therefore, a comprehensive Environmental Statement was prepared and then, as authorisation was obtained through the Parliamentary process that resulted in the CTRL Act, a series of 'environmental standards' were agreed.

Environmental Standards
These are set down in various documents that define undertakings and minimum requirements covering landscape, ecological and heritage objectives, the control of noise and dust, minimisation of waste, protection of water and being a good neighbour during construction. A key principle underlining these requirements is that the project must be designed and constructed with environmental effects `not environmentally worse than` those described in the Environmental Statement.

Key Landscape/Ecology Features
Sympathetic Landscaping
• 7,900,000 m3 of surplus excavated material re-used in landscape mitigation schemes;
• Virtually all planting material is native stock of southern England provenance

Ecological Mitigation
• 1.2 million native trees planted
• 230 ha of woodland created
• 25 ha new woodland on translocated ancient woodland soils
• 370 ha of grassland created
• 80 ha of new wildflower meadow created
• 40 km of hedgerows planted
• 3 land bridges to act as wild-life corridors across the CTRL
• 7 ponds created
• 2 wetlands created

Ecology
From the start of the project, the potential delaying effect of ecology on the construction programme was viewed as an extremely high risk and thus ecological issues were integrated into the CTRL project from the outset (impacting both route selection and detailed design). For example:
• over 200 studies have been undertaken to identify nature conservation interest along the route; • a specially constructed reserve has been created for the rare plant, the Grey Mouse Ear.
• much of the land used temporarily for construction, including that planted as woodland will be returned to original landowners, leaving a minimum operational corridor
• extensive post-construction monitoring of translocated species and important habitats has been undertaken

Cultural Heritage
The planning and construction of the CTRL has the largest archaeological investigation ever undertaken in the UK. CTRL archaeologists worked closely with English Heritage and Kent County Council in a programme of systematic desktop surveys and fieldwork evaluations to determine the potential impact of construction. Many known areas of archaeological interest were avoided for example by alterations to the design at an early stage. Where the CTRL crosses known archaeological sites they were subject to detailed archaeological excavation/recording.

Community Involvement
More than 500 submissions were made to the planning authorities and environmental and highway agencies covering detailed project design and construction arrangements for new earthworks and bridges, highway arrangements, drainage, noise barrier designs etc. Formal and informal consultation, liaison with individual authorities, and a Planning Forum were set-up to reach route-wide agreement on key issues (an Environment Forum has performed a similar function for the environmental agencies).

The above was accompanied by a dedicated Community Relations team based on site with the Contractors, Rail Link Engineering and Union Railways teams. The team presented information about the project to residents groups, schools etc. and also represented the first point of contact in responding to calls received from the public.

Noise, Vibration and Air Quality
Noise and vibration issues were amongst the most significant environmental risks to the project. Noise control is addressed through the use of earthworks bunding or where this is not practicable, noise barriers. The monitoring of noise, vibration and dust levels and requirement for contractors to obtain local authority consent for hours of work and construction methods were used to manage construction activities.

Countryside Restoration
One project commitment was to ensure that the 200 hectares of 'best and most versatile' agricultural land taken temporarily for construction was restored to its previous quality. Strict controls were imposed to ensure that on the 100 parcels of high grade agricultural land, top-soils and sub-soils were stripped, stored separately, and carefully replaced in dry conditions to prevent damage to soil structure.

In addition to agricultural restoration, two Countryside Management Schemes have been established in CTRL Phase 1. The Rail Link Countryside Initiative has been endowed with £2 million in funds to develop environmental enhancement projects in the rural CTRL corridor and has commenced over

100 environmental initiatives brought forward by local communities.

Environmental Management System (EMS)
EMS provides a comprehensive management structure and code of practice to address environmental risks associated with the CTRL. It established environmental plans and procedures to be adopted during the design and construction phases of the CTRL.

Regeneration, Archaeology and Heritage

Regeneration:

- Regeneration to be encouraged around the main international stations along the CTRL route
- Growth of the Thames Gateway area will be boosted by fostering additional development estimated to be worth about £500 million. Over 8,000 people have been employed in the construction of the CTRL
- An estimated 50,000 jobs plus will be created in East London and the Thames Gateway as a result of the rail link's wider regeneration benefits
- Over 20,000 new homes are to be built on brownfield land to revitalise local communities
- Over 20 million sq.ft. of new office space to encourage business development where previously local businesses were in decline
- The CTRL is a catalyst for developments with an estimated post construction value of £8 billion

Archaeology and Heritage:

- Listed buildings have either been moved (eg Bridge House), renovated or where necessary dismantled and reconstructed
- St Pancras Chambers a Grade 1 listed building will be refurbished and converted into hotel and luxury flats
- Two Boys Hall Road in Ashford was dismantled and taken into storage
- Old and Water Street Cottages in Maidstone were dismantled in 1999 and passed to the Museum of Kent Life for re-erection
- Brockton Barn was fully recorded and dismantled for re-erection in Tenterden
- The archaeological investigation programme for the Channel Tunnel Rail Link (CTRL) is the largest of its kind ever undertaken in Britain.
- Over 45 archaeological sites have been investigated during construction

Sources:
The Channel Tunnel Rail Link (Environment, Regeneration and Heritage) - dft.gov.uk Environment and heritage regarding the Channel Tunnel Rail Link, dft.gov.uk – Facts and figures on the CTRL, accessed 28th October 2006

The CTRL Complaints Commissioner

The CTRL Complaints Commissioner was established as a result of an Assurance given to Parliament during the passage of the CTRL Bill. Based on the model created for the Channel Tunnel, the Complaints Commissioner has an independent and impartial role to undertake investigations, mediate and adjudicate on unresolved complaints or damage claims from members of the public. The Commissioner's remit covers all the Works authorised by the CTRL Act, namely:

- Channel Tunnel Rail Link
- A2/M2 Widening - Kent
- London Underground Redevelopment - King's Cross/St. Pancras

The Complaints Commissioner, Professor Tony Kennerley, appointed by the then Secretary of State for Transport in September 1997, and support staff are funded principally by the CTRL developer, Union Railways and also by local authorities along the route of the CTRL, the Highways Agency (HA), and London Underground Ltd. (LUL). The Commissioner reports annually to the High Level Forum Sub-Group which is made up of: UR, local authorities, representatives of the Department for Transport, LCR, LUL and the HA.

For more information on the role of the CTRL Commissioner visit: www.ctrlcc.org.

Sources:
The Channel Tunnel Rail Link (Environment, Regeneration and Heritage) - dft.gov.uk Environment and heritage regarding the Channel Tunnel Rail Link, dft.gov.uk – Facts and figures on the CTRL, accessed 28th October 2006

Land Acquisition

In 1989 a 240 m wide voluntary purchase zone was announced within which the British Railways Property Board would buy residential property under certain conditions. The housing market was falling sharply at the time and this scheme proved popular with those owners inside but not those just outside the zone. The combination of the market fall and the likely loss of market value caused by the rail link caused ‘perceived blight’ and increased the acrimony of the public debate on the new line.

Land acquisition for Section 1 was carried out by Union Railways (South) as agent of the Secretary of State, using powers granted under the Channel Tunnel Rail Link Act 1996. Acquisition of land for both Sections of the Link had to be completed before these powers expired in December 2001. All land acquired is owned freehold by the Government, reflecting the time-limited nature of LCR's interest and the Government's need to protect its long-term ability to continue Eurostar UK operations if the Development Agreement is terminated. There was a considerable amount of surplus land, comprising individual properties acquired for old routes or because they are seriously affected by construction activity. Most of the former have now been sold while the bulk of the latter will be held over until construction is complete and then sold.

Implementation of the project required the compulsory acquisition of some 12,000 separate interests – around 300 houses had to be purchased (though less than 100 were demolished).

Sources:
Gambrill (2003, p.4-10)
dft.gov.uk – The regeneration benefits of the CTRL

C PRINCIPAL PROJECT CHARACTERISTICS

Route Description

The CTRL project was split into two principal sections (Figure 2):

- **CTRL Section 1 : Channel Tunnel to Fawkham Junction**
  CTRL Section 1 leaves the Channel Tunnel complex at Cheriton, and its two tracks separate to pass either side of the Dollands Moor international freight yard. The railway follows the existing railway corridor towards Ashford to reach Ashford International station in the centre of the town. There are junctions at Ashford to enable domestic express trains from east and north east Kent to join the new railway. West of Ashford the new railway crosses the M20 and follows the motorway corridor to Detling in the Boxley valley north of Maidstone. The railway then passes beneath the North Downs in a 3.2km (2 mile) twin-track tunnel, emerging alongside the M2 to the south of Rochester. It then follows the M2 corridor, crossing the River Medway on a viaduct alongside the existing motorway bridges. The railway continues alongside the M2 and A2 as far as Pepper Hill, between Gravesend and Southfleet. Here, a junction enables Section 1 of the railway to turn south along the alignment of the disused Gravesend West Branch railway, to join the existing network at Fawkham Junction, approximately 8km (5 miles) east of Swanley. From Fawkham Junction, Eurostar trains used existing tracks to reach the international terminal at Waterloo until the opening of Section 2 in 2007.

- **CTRL Section 2 : Southfleet Junction to St Pancras**
  Section 2 of the new railway starts at Southfleet Junction and runs North West through the Ebbsfleet Valley. From Ebbsfleet, the new railway passes under the Thames in two 3km (2 mile) single-track tunnels (Thames Tunnel) and emerges in West Thurrock just to the east of the Queen Elizabeth II Bridge. The new railway 'threads the needle' passing neatly between the QEII Bridge approach spans and over the exit from the Dartford Tunnel, before running alongside the Purfleet By-pass and the existing railway through Rainham to Dagenham. At Dagenham the new railway has a junction with Network Rail lines for use by freight trains. From Dagenham the new railway runs through the 18.5km (11.5 mile) London Tunnels, ultimately reaching the King's Cross Railway Lands north of St Pancras. The twin single-track tunnels run largely beneath the corridors of existing railway lines and have ventilation shafts, which will also serve as emergency access points, at roughly 3km (2 mile) intervals. The tunnels rise to reach the Stratford Box, and Stratford International Station. From there, the railway carries on through the London Tunnels, approaching the King's Cross Railway Lands, and emerges from the tunnels just to the east of the East Coast Main Line railway. It crosses the East Coast Main Line and York Way before swinging south over the Railway Lands towards St Pancras.

- There is planned to be a direct route between the new railway and the West Coast Main Line, using a link to the North London Line across the Railway Lands. The East Coast Main Line will also have a connection to the Channel Tunnel Rail Link, via St Pancras.

Source: London and Continental Railways 'LCR – An Incredible Journey', available from: www.lcrhq.co.uk, accessed 24/10/2006

Main Termini and Intermediate Stations

King's Cross/St Pancras Hub (see also Figures 4-6)

Introduction

The principal London Terminus for CTRL is St Pancras Station which is located alongside King's Cross Station in Central London. Both stations are important components of the 'King's Cross Opportunity Area' (designated in the London Plan – see below) where new development on former railway lands is expected to confirm the area as a major growth node. The arrival of the Channel Tunnel Rail Link at St Pancras and the associated infrastructure investment, for example London Underground improvements and the completion of a new underground station for Thameslink, results in the area increasing its role as a major gateway to the city and a key public transport interchange.

Planning Context

The London Plan (Spatial Development Strategy for Greater London, February 2004, Greater London Authority), represents the strategic planning framework for integrated social, economic and environmental development of the city over the next 15–20 years. This 'high level' strategy:

- integrates the physical and geographic dimensions of other strategies, including broad locations for change and providing a framework for land use management and development, which is strongly linked to improvements in infrastructure, especially transport
- provides the Londonwide context within which individual boroughs must set their local planning policies
- sets the policy framework for the Mayor's involvement in major planning decisions in London
- sets out proposals for implementation and funding
- is London's response to European guidance on spatial planning and a link to European Structural Funds.

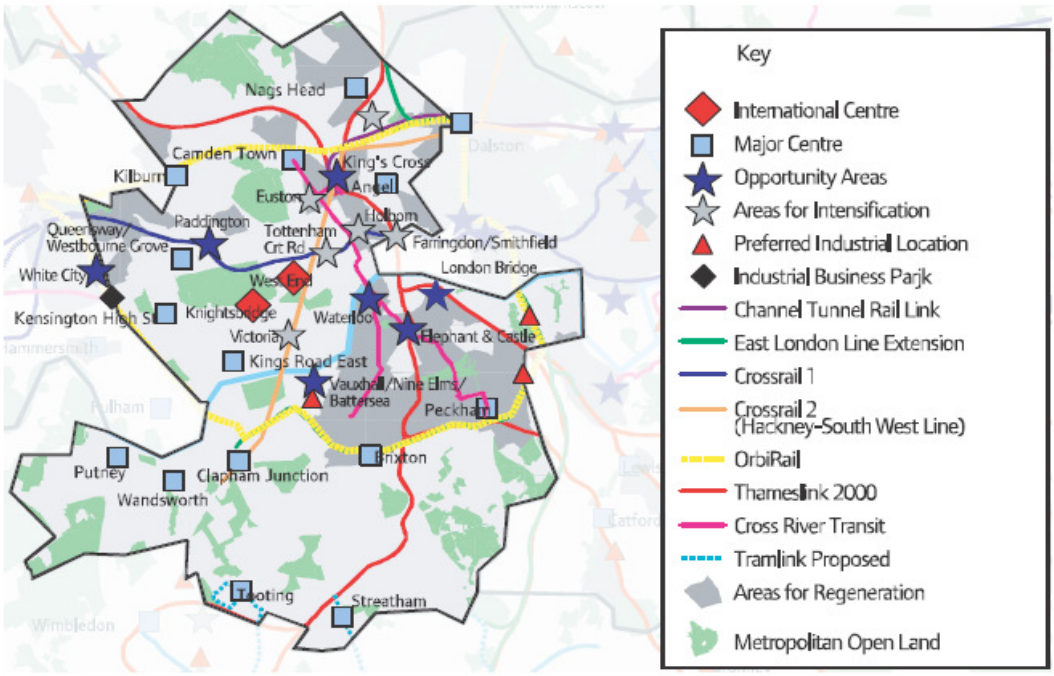
The King's Cross Opportunity Area is located within the London Plan 'Central London Sub-Region (see map 5B.1 – Figure 4) where the strategic priorities include (Policy 5B.1):

- to promote and protect the vital mix of culture, government, leisure and commerce together with its historic buildings, housing, open spaces and public realm that are central London's unique attraction for residents, visitors and business
- to sustain, enhance and promote the unique scale and mix of activities and settings of the Central Activities Zone which form the core of London's wider offer as a world city and as a capital city
- to identify capacity to accommodate new job and housing opportunities and appropriate mixed-use development. This is especially important in relation to the Central Activities Zone, Opportunity Areas and Areas for Intensification;
- to maximise the number of additional homes, including affordable housing;
- to promote and intensify retailing, services, employment, leisure and housing in town centres and opportunities for mixed-use development
- to plan for and secure the necessary financial resources to deliver planned transport infrastructure for the sub-region including local schemes that improve public transport, walking and cycling connections to town centres and employment locations. Particular priorities for the sub-region are the CTRL, Crossrail 1, Crossrail 2, Thameslink 2000 and Cross River Tram, the Central London Congestion Charging scheme and upgrades at several major rail stations.

In describing the King's Cross Opportunity Area, the London Plan notes that (para. 5.37) "King's Cross has the best public transport accessibility in London. This will improve further with the completion of the CTRL, Thameslink 2000 and the Cross River Tram. Construction of the CTRL will release 20 hectares of underused land. Its central location and unique public transport accessibility offer particular scope for high-density business development, as well as housing."

Figure 6: London Plan (2004) – Central London Sub-Region Designations

map 5B.1 Central London sub-region



source GLA 2002

The London Plan growth estimates for the King's Cross Opportunity Area are as follows:

Opportunity Areas	Area (ha)	New jobs to 2016	New homes to 2016
Waterloo	39	15,000	500
London Bridge	30	24,000	500
Elephant and Castle	23	4,200	4,200
Vauxhall/Nine Elms/Battersea	78	7,600	1,500
King's Cross	53	11,400	1,250
Paddington	30	23,200	3,000

Source: London Plan, GLA 2003 - table 5B.1 Opportunity Areas in Central London - indicative estimates of growth.

Proposed Development

As indicated by Figure 6, the area is currently the subject of major planning applications for new commercial, housing and community uses. These proposals extend to the north and south of the Regents Canal, within the London Boroughs of Camden and Islington. The majority of the site is controlled by London and Continental Railways who are constructing the CTRL. The other major landowner is Exel, with a landholding primarily concentrated immediately to the north of the Regents Canal.

LCR and Exel are working with Argent (King's Cross) Limited to deliver the proposed mixed use development at King's Cross Central. The scale of the development is very significant as evidenced by the following outline characteristics:

- 25 acres of new public routes and open spaces
- 750,000 sq m (8m sq ft) of mixed use development
- 50 new buildings
- 5 new squares
- 250 new businesses

- 30,000 jobs
- Up to 2,500 new homes
- Up to 50 eating establishments.
- Refurbishment of 20 historic buildings

Source: London and Continental Railways 'LCR – An Incredible Journey', available from: www.lcrhq.co.uk, accessed 24/10/2006

Figure 7: King's Cross Hub – Development Proposal by Argent plc. (in conjunction with London & Continental Railways)

Source: http://www.argentkingscross.com/live/planning_application/index.cfm?id=148 accessed 3rd April 2007

Figure 8: Aerial View of King's Cross Opportunity Area

Source : dft.gov.uk – The regeneration benefits of the CTRL

Stratford International Station Hub (see also Figures 8-9)

Introduction

Development at and around Stratford International Station is seen as a key regeneration catalyst for east London as it lies within two regeneration priority areas – The Thames Gateway and The Lea Valley.

Already served by regional rail services into Liverpool Street, the North London Line, the Central and Jubilee Lines and the Docklands Light Railway, Stratford accommodates an International and Domestic Station on the CTRL in as well as a significant interchange on the proposed Crossrail line.

Planning Context

The London Plan (Spatial Development Strategy for Greater London, February 2004, Greater London Authority), represents the strategic planning framework for integrated social, economic and environmental development of the city over the next 15–20 years. Stratford International Station is located in the London Plan 'East London Sub-Region' (see map 5C.1 – Figure 7) where the key strategic priorities include (London Plan policy 5C.1):

- to deliver the London element of the government's priority for the Thames Gateway for development, regeneration and transport improvement;
- to promote the sub-region's contribution to London's world city role;
- to promote and plan for the Olympic bid and, if successful, enable the necessary development for a successful sustainable Olympics in 2012;
- to promote and enable the comprehensive development of Stratford as a new commercial, retail and residential area of London, making the most of its European links and its pivotal role connecting the London-Stansted-Cambridge corridor and Thames Gateway growth area;
- to identify capacity to accommodate new job and housing opportunities and appropriate mixed-use development. This is especially important in relation to the Opportunity Areas and Areas for Intensification;
- to maximise the number of additional homes, including affordable housing;
- to promote and intensify retailing, services, employment, leisure and housing in town centres and opportunities for mixed-use development
- to plan for and secure the necessary financial resources to deliver planned transport infrastructure for the sub-region including local schemes that improve public transport,

walking and cycling connections to town centres and employment locations. Particular priorities for the subregion are CTRL, Crossrail 1, East London Line extension, DLR extensions, improved bus services, Greenwich Waterfront and East London Transit schemes, new river crossings and Crossrail 2.

Stratford International Station is located in one of the London Plan's Opportunity Areas. Against this background the London Plan states that (paragraph 5.68-5.69):

"5.68 Stratford is already one of the best connected places in London in terms of public transport. This will be improved by the CTRL and Crossrail 1. The new A12 extension has greatly improved road access. As well as the rail lands, Stratford town centre offers considerable scope for intensification. Regeneration through a properly structured partnership could provide an opportunity to redress some of the greatest concentrations of deprivation in the country, which are found in nearby communities.

5.69 The planning framework for the area should build on existing proposals to harness transport, development and labour market capacity and create a major new commercial centre at Stratford, drawing on the CTRL links to establish a new mixed use European Business Quarter for London. This could accommodate some 600,000 square metres of office space over the next 10 to 15 years, generating over 30,000 jobs. It should be complemented by strategically significant new retail and leisure provision sufficient to ensure that Stratford develops as a new 'Metropolitan' town centre (as defined in Annex 1) for East London and at least 4,500 new homes to suit a range of requirements. Close integration of new development on the rail lands and rejuvenation of the existing town centre, including physical links, is crucial."

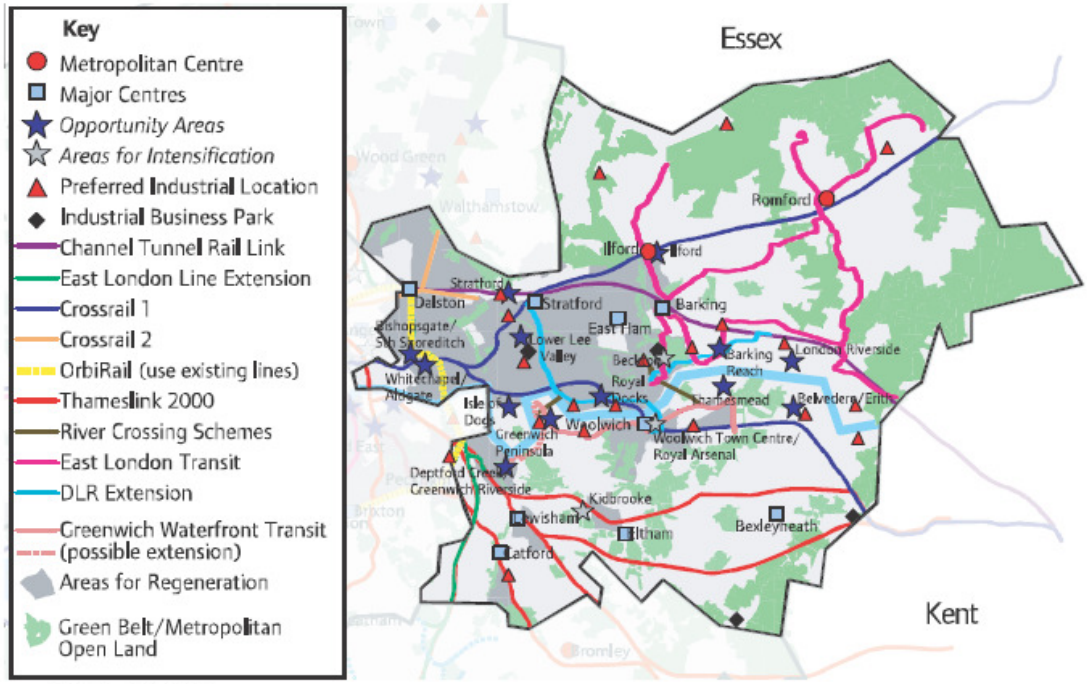
Paragraph 5.58 in the London Plan also notes that "……..Phase II of the CTRL will deliver enhanced international accessibility to Stratford and also increase the capacity for commuting from outside London into the sub-region and central London. It is currently under construction and completion is due in 2007. It is the responsibility of Union Railway."

Table 3: London Plan - Development Envisaged in Stratford Opportunity Area:

Opportunity Areas	Area (ha)	New jobs to 2016	New homes to 2016
Bishopsgate/South Shoreditch	35	16,000	800
Whitechapel/Aldgate	31	14,000	700
Isle of Dogs	100	100,000	3,500
Stratford	124	30,000	4,500
Lower Lea Valley	250	8,500	6,000
Royal Docks	368	11,000	5,500
Barking Reach	210	200	10,000
London Riverside	418	4,000	3,000
Deptford Creek/Greenwich Riverside	72	5,500	1,000
Greenwich Peninsula	104	15,000	7,500
Belvedere/Erith	242	5,000	1,400
Thamesmead	121	1,500	3,000
Ilford	56		5,500
Total	1,812	210,700	52,400

Source: table 5C.1 Opportunity Areas in East London – indicative estimates of growth, London Plan 2004.

Figure 9: London Plan 2004 Designations for East London Sub-Region



Source: map 5C.1 East London sub-region, London Plan 2004

Development Proposals

In 2007, it will take just 7 minutes to get from St Pancras to Stratford International station, which is a platform for creating Stratford City - the largest single mixed-use urban regeneration project in Europe.

The upgraded transport infrastructure was instrumental in London winning the bid to host the Olympic Games. LCR and Stratford City will be working with the London Development Agency to construct the Olympic Village and Olympic International Zone. Accommodation for 17,000 athletes will be re-engineered into residential communities. That means a further 2,300 homes will be delivered for Stratford City, making more than 7,000 homes in total.

Stratford International station is a 'bridge' station spanning the giant 'Stratford Box' which is 1km long. Two million cubic metres of spoil have been excavated from the London Tunnels to create the platform on which to build Stratford City. Phase 1 of the development programme will deliver 140,000 sq m (1.5m sq ft) of retail space, 37,000 sq m (400,000 sq ft) of leisure space and 500 homes by 2010.

For the Olympic Games, the new fleet of CTRL domestic 'bullet' trains will provide the 'Olympic Javelin', moving 25,000 spectators every hour between central London and Stratford. All four platforms at Stratford International will be dedicated to the Javelin trains. During the Olympics, Eurostar will only stop at Ebbsfleet and St Pancras International stations.

The Stratford City site includes over 73 hectares (180 acres) of former railway marshalling yards. This area of brownfield land is adjacent to excellent transport links and in a regeneration priority area. It consequently offers a prime opportunity for major regeneration development to benefit both local people and east London as a whole. The development will establish a new, dense, urban quarter, phased over time, but anchored by major retail and leisure facilities for east London, together with significant new office development and around 4,850 new homes (7,000 homes after the 2012 Olympics). Community facilities will also be provided including schools, health care, adult education and community leisure.

The development will include new open space and community provision as well as links into surrounding areas, and should act as a catalyst for further regeneration across east London.

Key features of the Stratford City Development are:

- 1.25 million sq m (13.5m sq ft) of regeneration
- £4 billion investment
- 4,850 new homes of which 1,455 will be affordable housing
- 930,000 sq m (10m sq ft) of commercial & residential property
- 140,000 sq m (1.5m sq ft) of retail
- 37,000 sq m (400,000 sq ft) of leisure space
- 2,000 hotel bedrooms
- 34,000 new jobs generated for the regional economy

Source: Source: London and Continental Railways 'LCR – An Incredible Journey', available from: www.lcrhq.co.uk, accessed 24/10/2006

Figures 10-11: Illustrations of Stratford City Development

Figure 10

Source: 2012 Games website: Newham
http://www.newham.com/2012Games/news/newsscdplanning2.htm, accessed 3rd May 2007

Figure 11

http://www.communities.gov.uk/pub/25/MakingithappenThamesGatewayandtheGrowthAreas_id1140025.pdf - Office of the Deputy Prime Minister 2003, accessed 3rd May 2007

Figure 12 : The Stratford International Station under construction in 2007

Stratford International Station lies at the centre of the vast area of reclaimed land being developed for the London 2012 Olympics. The River Lea, in the foreground, forms the spine of a regeneration zone which runs from the Thames up into North-

Source: Faith, N. (2007) The Right Line: The politics, the planning and the against-the-odds gamble behind Britain's first high-speed railway, Segrave Foulkes Publishers, London, p.160.

Ebbsfleet Hub – Ebbsfleet International and Kent Thameside

Introduction

Major work for the new six platform Ebbsfleet International Station was completed in September 2006. In 2007, it opened for Eurostar services and in 2009 it will open for domestic passenger services provided by a new generation of high-speed commuter trains.

The Department for Transport explains the importance of CTRL to the development of the Ebbsfleet hub as follows (from The Regeneration Benefits of the CTRL, dft.gov.uk, accessed 28th October 2006):

At Ebbsfleet, the new station with its extensive "park and ride" facilities and convenient access to the national motorway network will complement the regeneration of the Ebbsfleet Valley with a new commercial and retail development promoted by Land Securities. CTRL Domestic services will be a key driver in the regeneration and growth of the Kent Thameside and Medway areas of the Thames Gateway. Over the period to 2016, the Office of the Deputy Prime Minister has identified the potential for 20,000 homes and 40,000 jobs in Ebbsfleet/Kent Thameside and 15,000 new homes in Medway. CTRL Domestic services will give opportunities for both new and existing communities and is a key driver for growth elsewhere along the route where smaller development opportunities are being realised as a result of the catalyst provided by the CTRL.

The Channel Tunnel Rail Link present the opportunity to provide high speed services for commuters into London, with significantly reduced journey times. This will attract new business and employment opportunities and open up access from Kent for employment opportunities in Stratford, the Lower Lea and Docklands, and opportunities for reverse commuting. A new Integrated Kent Franchise will deliver the high speed train services from Kent to St Pancras and will support the new housing developments and economic opportunities in the Thames Gateway Growth Area. These services are planned to commence in 2009. The new services will also play a crucial role in the 'javelin shuttle' in London's Olympic transport bid which will move spectators from central London to the Olympic Park in Stratford in under 8 minutes.

Planning Context

Ebbsfleet Station is located within a major development area that forms part of the 'Kent Thames Gateway' which has been selected as the key development opportunity within the 'Thames Gateway' – a regional and national priority area for growth and regeneration (see Figures 10-14). The principal focus is on developing Ebbsfleet Valley for new commercial and housing development in support of London's growth needs. In this respect, Ebbsfleet's locational advantage relative to CTRL is of prime concern.

Since the 1980s the 'Thames Gateway' has been seen as a major regional planning and regeneration initiative. In 1995 the then Department of the Environment published 'The Thames Gateway Planning Framework' (RPG9a) which identified the objectives for the area as follows (paragraph 1.8):

- to improve economic performance, enhancing London's position as a major World and European city;
- to maximize the opportunities for new economic activity and jobs, created by the improving transport connections to continental Europe;
- to work with the market, building on existing economic and community strengths, reinforcing the economic base, and at the same time attracting new economic investment, strengthening existing communities as well as attracting new residents;
- to encourage a sustainable pattern of development, optimizing the use of existing and proposed infrastructure and making the fullest possible use of the many vacant, derelict and under-used sites which previously supported other activities;
- to safeguard and enhance natural and man made environmental assets and, where necessary, raise the quality of the local environment, to encourage the highest quality in the design, layout and appearance of new developments.

The above objectives essentially remain applicable today. Indeed, the Thames Gateway is identified as a major Growth Area in the Government's Sustainable Communities Plan ('Sustainable communities: building for the future', Office of the Deputy Prime Minister, 2003, p52-53) which explains as follows:

"The Thames Gateway presents a huge opportunity. Its growth potential was recognised over 10 years ago. It covers an area 43 miles long by 20 miles across and:

- Is close to London.
- Is in a strategic location on major transport links to the continent.
- Has one of the largest concentrations of brownfield sites in the country.
- Offers the opportunity to regenerate existing deprived communities through access to
- 300,000 new jobs that could be accommodated by 2031.

The regeneration of the Gateway is a broad-based project that needs to tackle brownfield development, economic growth, environmental improvement and urban renewal in an integrated way. The Government is keen to realise the potential of the Gateway, working in partnership with local authorities, the GLA, the Regional Development Agencies and other stakeholders in the region. The Housing Corporation and English Partnerships as key national delivery agencies also have important roles.

The Thames Gateway Partnership, which has been in existence for over two years, provides strategic direction for the project. It is chaired by a Government Minister and includes key Government departments and other key stakeholders. The Partnership has developed a series of initiatives covering, for example, education, health, innovation, transport and environment programmes, to take forward key strategic issues. It has identified the xones of change which will be the focus for development planning and regeneration. These form the framework for the local delivery arrangements which are now being put in place.

Ebbsfleet and Eastern Quarry

At the heart of Kent Thameside, Ebbsfleet and Eastern Quarry will be a model of mixed-use urban development, centred on a new international passenger station on the Channel Tunnel Rail Link. The two schemes together should provide some 10,000 new homes and 5.5 million sq ft of commercial space, with a new commercial centre at Ebbsfleet. In addition, over two million sq ft of retail, leisure, community and supporting space will be provided. The new developments could create over 20,000 new jobs. (SEERA News Release 15th April 2003)

The projects are underpinned by a series of economic, social and environmental initiatives designed to ensure the sustainability of the new communities and enhance the quality of life for both existing and new residents:
http://www.communities.gov.uk/documents/communities/pdf/146289

- *They are built around a new public transport infrastructure including local, national and international connections, all within easy reach.*
- *They are built upon previously used land.*
- *They will offer a broad range of lifelong learning opportunities to all.*
- *They will offer the opportunity to live and work within close proximity, reducing travel and improving quality of life.*
- *They provide for extensive open space and parkland to support recreation, leisure and sport, while conserving and enhancing the ecology of the sites.*
- *Social and community facilities will be provided throughout the site.*
- *There will be a high quality civic environment for the enjoyment of all.*

In addition, the inward flow of investment to the area – generated by such extensive re-development – will benefit the region as a whole and go a long way towards delivering the Government's objectives for stimulating the regeneration of the Thames Gateway.

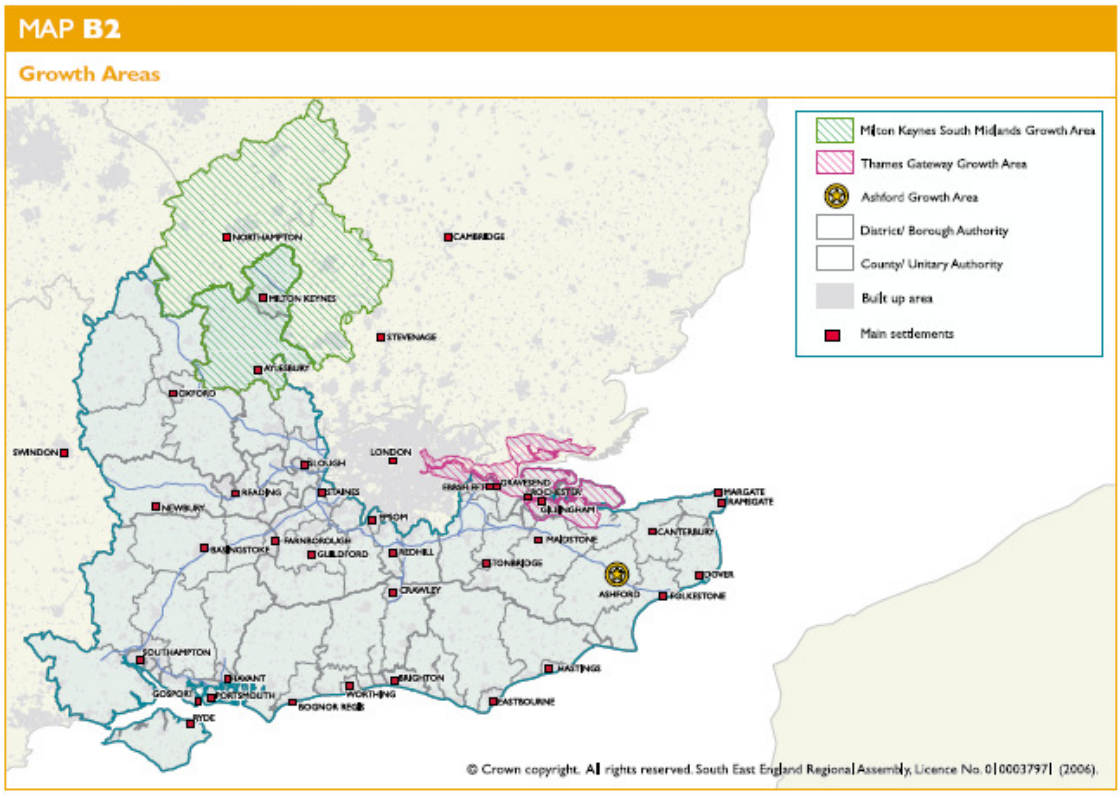
In the South East Regional Assembly's policy document ('A Clear Vision' for the South East', The South East Plan Core Document, March 2006, South East England Regional Assembly), Ebbsfleet is defined as follows (see also Figures 11-12):

- Section D1 (paragraph 1.22) – as a 'Regional Hub' which is one of a number of centres which should be the focus of economic activity and transport services;
- Section D9 (Policy TC2 – Strategic Network of Town Centres) – together with the Bluewater Shopping Centre, Ebbsfleet is seen as a Primary Regional Centre

Clearly Ebbsfleet and its surrounding development is seen as a core component of the regional strategy for the South-East. Key highlights extracted from the Core Document which help to explain both the CTRL and Ebbsfleet's significance are as follows (from South East Plan core Document, Section E4 – Kent Thames Gateway Sub-region):

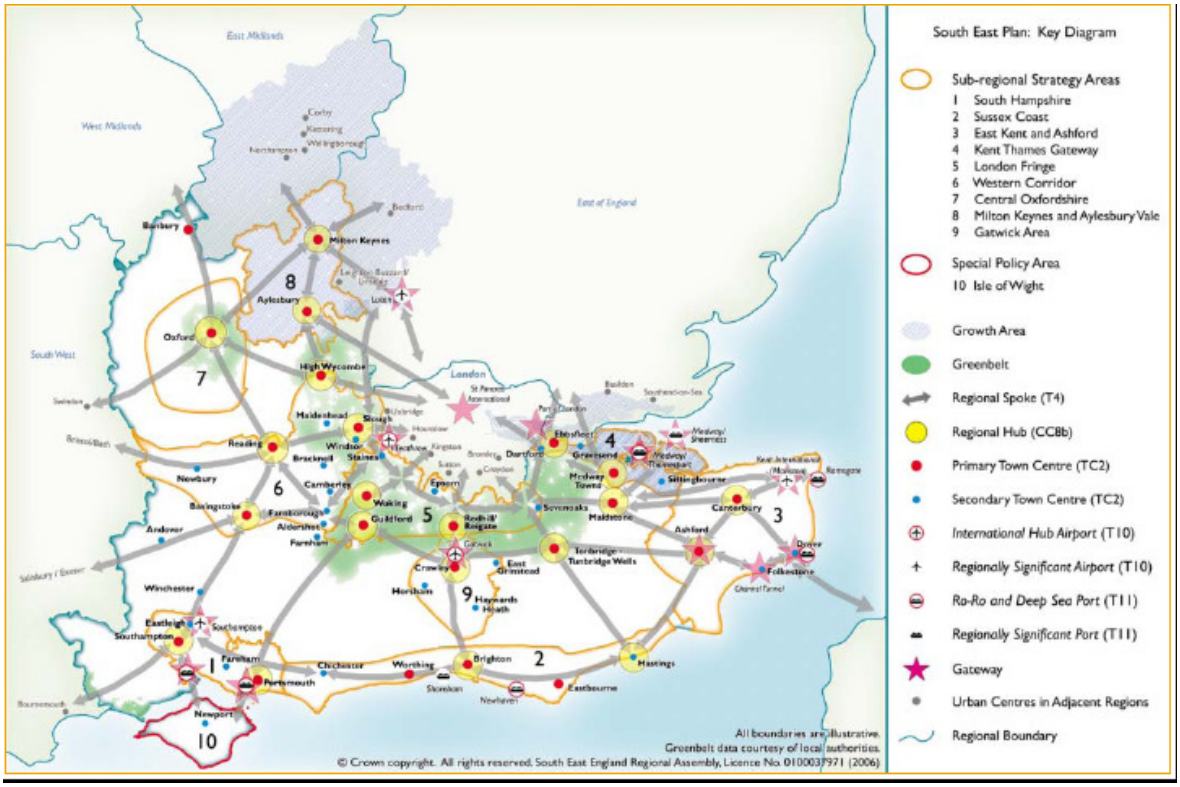
- Paragraph 2.3 – 48,000 new dwellings to be built between 2006 and 2026 in Kent Thames Gateway (an increase of 35% in the rate of completions in recent years)
- Paragraph 2.5 - Concentrations of new dwellings, employment and services at major regeneration locations, including Ebbsfleet
- Policy KTG4 (Economic Growth and Employment) - Ebbsfleet will be developed as a major office centre of more than 20,000 jobs linked directly to central London and other European capitals, drawing its workforce from Thameside and beyond
- Paragraph 2.20 - Locations served by domestic services on the Channel Tunnel Rail Link should have increased attraction for commercial and residential development, but particularly at Ebbsfleet where major development is planned to take advantage of a frequent and fast service from an accessible station with a connection to international services.
- Policy KTG7 (Locational Criteria for Subregionally Significant Development) – includes, to exploit the potential for housing and business at locations served by the CTRL domestic services, especially Ebbsfleet and Chatham

Figure 13: SEERA Growth Areas



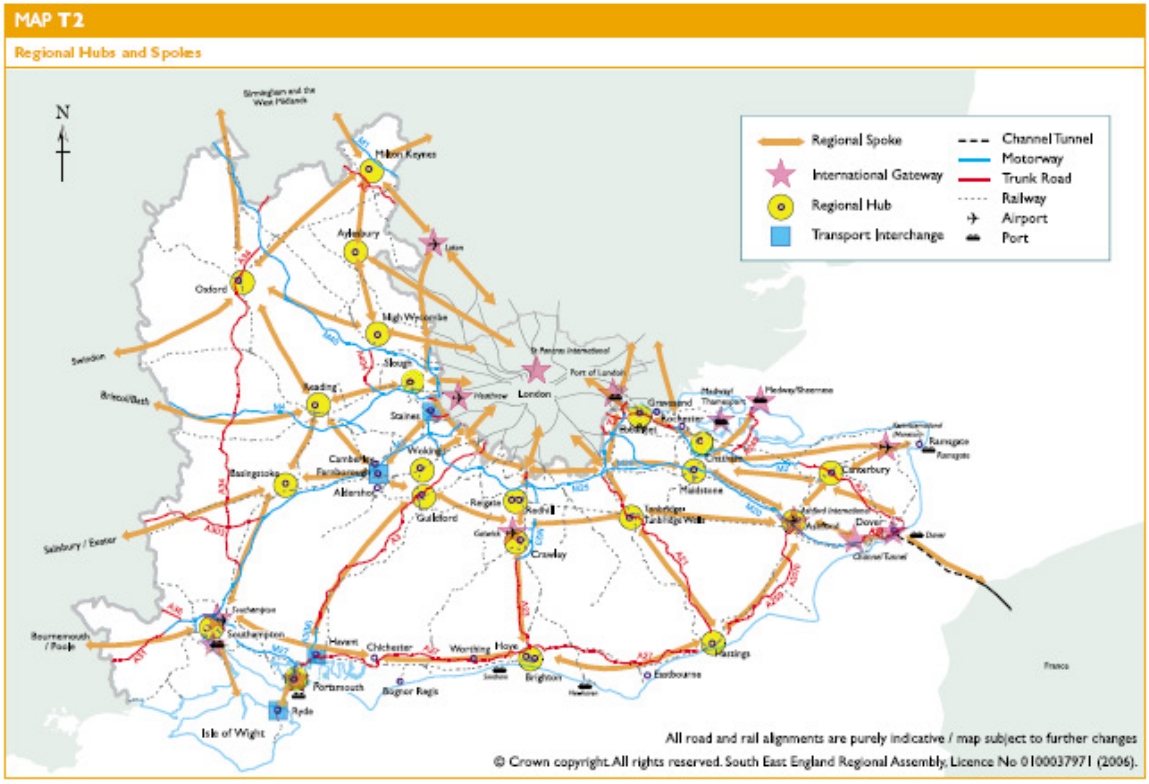
Source: Map B2, 'A Clear Vision for the South East', The South East Plan Core Document, March 2006, South East England Regional Assembly

Figure 14: SEERA South-East Plan Key Diagram



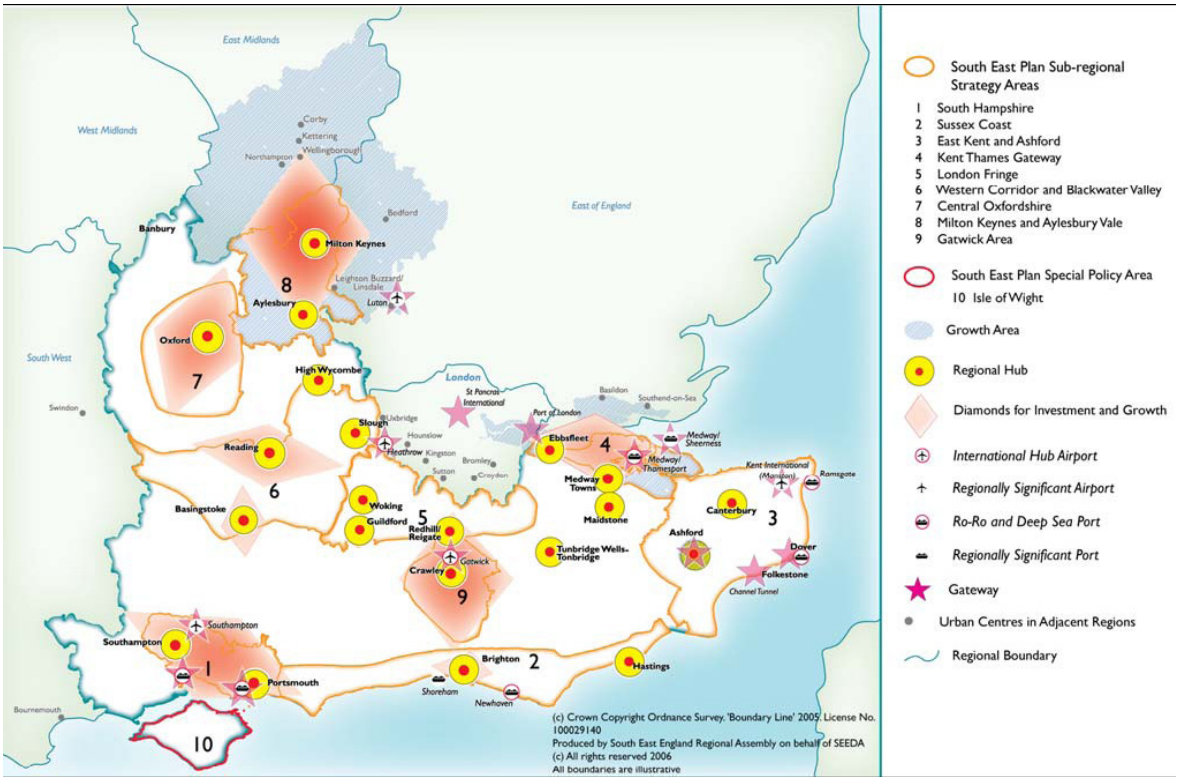
Source: A Clear Vision' for the South East', The South East Plan Core Document, March 2006, South East England Regional Assembly

Figure 15: SEERA South-East Plan Regional Hubs and Spokes



Source: A Clear Vision' for the South East', The South East Plan Core Document, March 2006, South East England Regional Assembly, Map T2

Figure 16: South East 'Diamonds' (Focii) for Investment and Growth



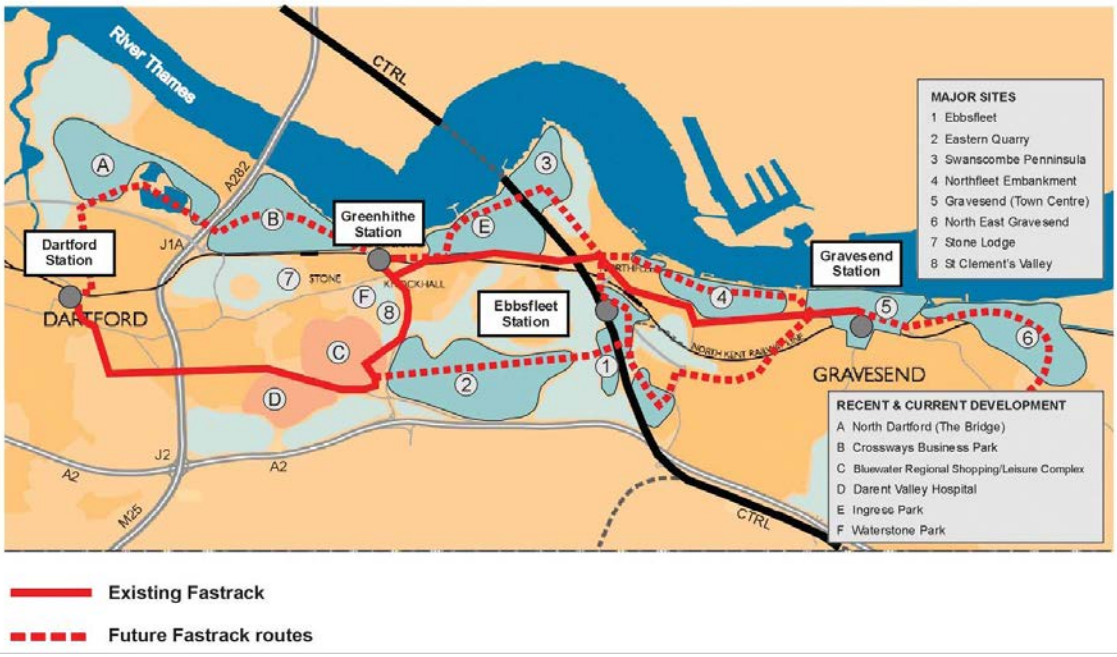
Source: Regional Economic Strategy 2006-2016 - The Evidence Base, SEEDA, October 2006

The Kent and Medway Structure Plan 2006 (Kent County Council and Medway Council, Chapter 3 - Area Policies) provides further strategic planning guidance in respect of Ebbsfleet, as follows (see also Figure 17):

- Paragraph 3.10 - Kent Thameside (including Ebbsfleet) is one of the two principal focal points for development identified in *RPG9a* for the whole of the Thames Gateway. This will be focused upon major areas of previously used or damaged land. Achieving development of the right form and quality here will be one of the keys to ensuring the success of regeneration across the wider Thames Gateway. The scale and close proximity of these locations provide a unique opportunity to introduce a pattern of development that provides for higher density, improves the environment and makes good use of public transport. Optimising the potential of these areas will depend upon the provision of an enhanced public transport network and a major upgrade of infrastructure, community facilities and services. This includes *Fastrack*, which will form the basis of a network of high quality and frequent bus services linking Dartford and Gravesend town centres, the Bluewater regional shopping centre, major development sites and existing communities. *Fastrack* will help complete the links and services at Ebbsfleet to reflect its role as a designated regional transport hub.
- Paragraph 3.12 - The provision for new housing in Kent Thameside is substantially above demographic and household growth trends.This reflects the strategic role of Kent Thameside within the Kent Thames Gateway growth area, its economic development and employment potential and the concentration of development and regeneration opportunities, particularly within the Dartford area.
- Paragraph 3.16 - The area accounts for a significant share of Kent's overall housing provision because of the amount of previously developed and otherwise damaged land it has available for development. This provision will underpin substantial population growth that will help support the area's potential for creating new jobs.

Figure 17: Major Development Areas and Transport Network Around Ebbsfleet

KENT THAMESIDE MAJOR DEVELOPMENT AREAS AND TRANSPORT NETWORK

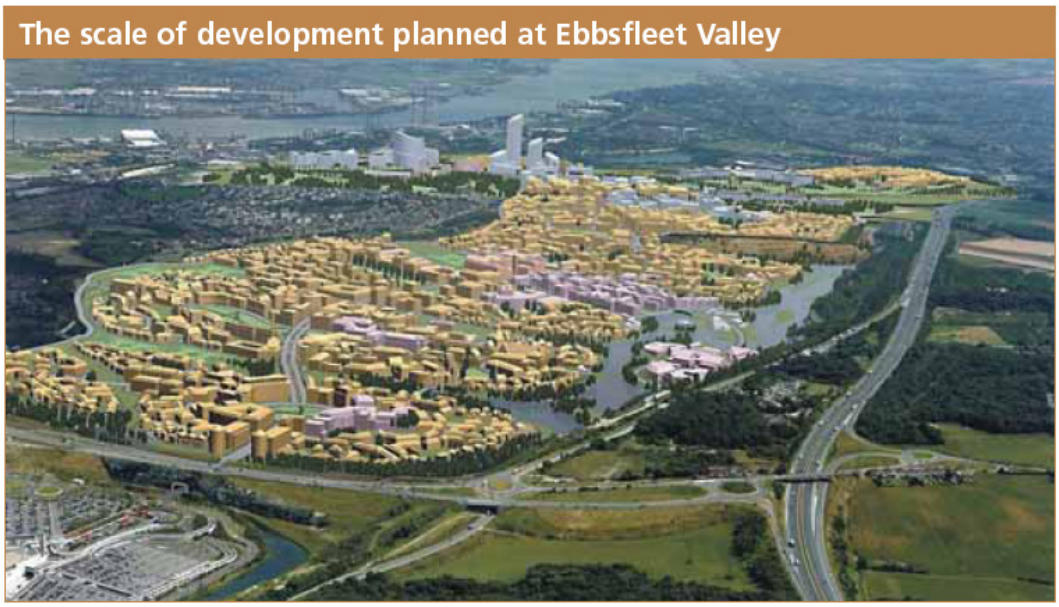


Source: The Kent and Medway Structure Plan 2006 (Kent County Council and Medway Council, Chapter 3 - Area Policies)

Policy DG1 (Kent and Medway Structure Plan, Chapter 3): Dartford and Gravesham encompasses Ebbsfleet International Station and surrounding development. The salient points of this policy are as follows:

- major mixed use developments based on brownfield land at and between the urban areas of Dartford and Gravesend/Northfleet, including appropriate measures to integrate new development with existing communities, and phased in conjunction with the availability of infrastructure and other services.
- high quality bus-based public transport network (*Fastrack*) linking Dartford and Gravesend town centres, Bluewater and the main Strategic Development Locations identified by this Plan (including Ebbsfleet).
- Strategic development locations include those at:
  - (a) Ebbsfleet as the location for development of a combined domestic and international passenger station on the Channel Tunnel Rail Link, a new business centre, major residential development and community facilities. Development should reflect a high standard of civic design and landscaping and be integrated with new and improved transport networks including *Fastrack* and Crossrail
  - (b) Eastern Quarry for a series of linked and integrated communities with an emphasis on housing provision, together with social and community facilities and business development to be developed in accordance with a Master Plan and integrated with a new and improved public transport network (*Fastrack*)
  - (c) North Dartford, to the west of the A282, for business, housing, leisure and recreation uses
  - (d) Crossways Business Park, to the east of the A282, for continued mixed commercial development involving office, industrial and distribution uses
  - (e) Swanscombe Peninsula (East and West) for a new mixed use community, predominantly for housing, taking full account of the area's relationship with the River Thames, the Channel Tunnel Rail Link, other physical constraints to development including ground conditions and flood risk and integrated with a new and improved public transport network
  - (f) Gravesend/Northfleet Riverside and North East Gravesend involving the reuse of previously used land and premises and in the case of North East Gravesend, provision of the Denton Relief Road.

Figure 18: Development at Ebbsfleet Valley



Source: Thames Gateway Interim Plan – Development Prospectus, Department for Communities and Local Government, 2006.

Ashford International Station Hub

Introduction

Ashford International Station was completed in early 1996 and consequently represented the first CTRL station built outside London offering international services.

The town of Ashford (2001 population approximately 50,000) has featured as a growth point in a succession of regional, sub-regional and county wide strategic plans – e.g. Kent County Structure Plan (various editions – see below), Regional Planning Guidance for the South East (RPG9, March 2001) and the subsequent Sustainable Communities Plan (2003). The reasons for this are predominantly because the town is:

- a transport node and can maximize government investment in key transport infrastructure such as the M20 and the CTRL;
- a key driver for economic development in disadvantaged east Kent, and
- one of the few areas in the south east that has real space to grow.

The Department for Transport's document 'The Regeneration Benefits of the CTRL' (dft.gov.uk, accessed 28th October 2006) identifies the importance of the rail link to Ashford as follows:

CTRL Domestic services will also be a key driver in the development of Ashford, one of the four growth areas identified in the Sustainable Communities Plan. Ashford's strategic location and role as a gateway to Europe will be strengthened with the completion of CTRL Domestic services. As set out in Regional Planning Guidance for the South East (RPG9) Chapter 12, between 2001 and 2016, Ashford Growth Area will deliver 13,000 new houses and 10,300 new jobs. Over the longer term, the Ashford's Future Study concluded that a rate of growth of 31,000 homes supported by 28,000 new jobs to 2031 is realistic.

Major strategic infrastructure links, of which the most influential is the CTRL, are the key to driving change in the Thames Gateway and maximising the area's potential for regeneration and growth. Additional information on the progress made on Thames Gateway projects can be viewed at: www.odpm.gov.uk/tha mesgateway.

Planning Context

In the period up to 2011 Ashford has a RPG strategic allocation target to deliver 9,750 houses, of which up to 35% should be affordable, and 5,900 jobs. Since December 2005 the Borough Council has issued outline permissions for over 3,000 new homes.

Over the next 25 years the Borough council is committed to doubling the size of the town by attracting major investment for business and development. The Greater Ashford Development Framework (GADF) builds on the town's locational attributes at the centre of a major transportation corridor. Key objectives include (by 2031):

- unlocking Ashford's Growth Plans for 31,000 new homes by 2031
- creating 28,000 new jobs by 2031 contributing an additional £700M GVA each year
- maximizing Ashford's opportunity to exploit the launch of Channel Tunnel Rail

Source:London & Continental Railways (2006e)

In the South East Regional Assembly's policy document ('A Clear Vision' for the South East', The South East Plan Core Document, March 2006, South East England Regional Assembly), Ashford is defined as an International Gateway and as (see also Figures 11-12 above):

- (paragraph 1.22) – as a 'Regional Hub' which is one of a number of centres which should be the focus of economic activity and transport services;
- Section D9 (Policy TC2 – Strategic Network of Town Centres) – as a Primary Regional Centre

Sections E3 and D9 of the Core Document (East Kent and Ashford Sub-region) explain that:

- (Section E3, paragraph 2.6) – the preferred spatial strategy (inter alia) concentrates development and investment at Ashford
- (Section D9, paragraph 1.28 - Sub-regional Strategy Area 3) – the sub-region encompasses the Growth Area of Ashford and an arc of nine coastal towns from Whitstable to Hythe. There is significant planned housing and employment at Ashford. The sub-regional policies identify that Ashford should undergo urban renaissance including improvements to its public realm, linked to additional provision of well-managed public space.
- Section E3, paragraph 2.8 – east Kent and Ashford Sub-Region, Amount and Distribution of Housing) – the strategy provides for new housing at the main urban areas throughout East Kent, but depends on the provision of infrastructure and services to support growth and a balance between jobs and housing. This applies particularly to Ashford where the strategy considerably increases the rate of house building. At Ashford, failure to bring forward infrastructure or to attract employment should lead to a review of the dwelling numbers, which may need to be reduced to a level that can be supported.

Section E3 of the Core Document also contains a number of Ashford-specific policies that highlight the strategic importance of the town. The key points are summarized as follows:

- Policy 1: Scale of Growth - The Ashford Growth Area should seek to deliver the following

levels of housing provision and jobs over the period 2001-2016:

	2001-2011	2011 -2016
Housing	7900	5200
Jobs	5900	4400

To achieve the longer-term potential growth in the area which, subject to testing through the RPG process, is envisaged in the Communities Plan, active pre-planning is necessary, to achieve capacity increases in strategic infrastructure, particularly in respect of water supply, waste water treatment, health and education facilities and sustainable transport.

- Policy 2: Spatial Framework - New development in the growth area will be delivered through urban intensification and the development of new sustainable urban extensions integrated with the provision of new and enhanced bus-based public transport and interchanges. At present there is sufficient planned employment land supply to meet forecast demand to 2016. To support sustainable growth, the provision of infrastructure should take place in parallel with development. Key transport improvements that are likely to be required by 2016 (subject to further detailed appraisal and statutory procedures) include frequent domestic services on the new CTRL (with links to East Kent) and a south Ashford rail station. Further work is required to examine the linkages between infrastructure provision and development and these linkages need to be investigated to inform the identification of priorities and the timing and sequencing of growth.

The Kent and Medway Structure Plan 2006 (Kent County Council and Medway Council, Chapter 3 - Area Policies) provides further strategic planning guidance in respect of Ashford, as follows:

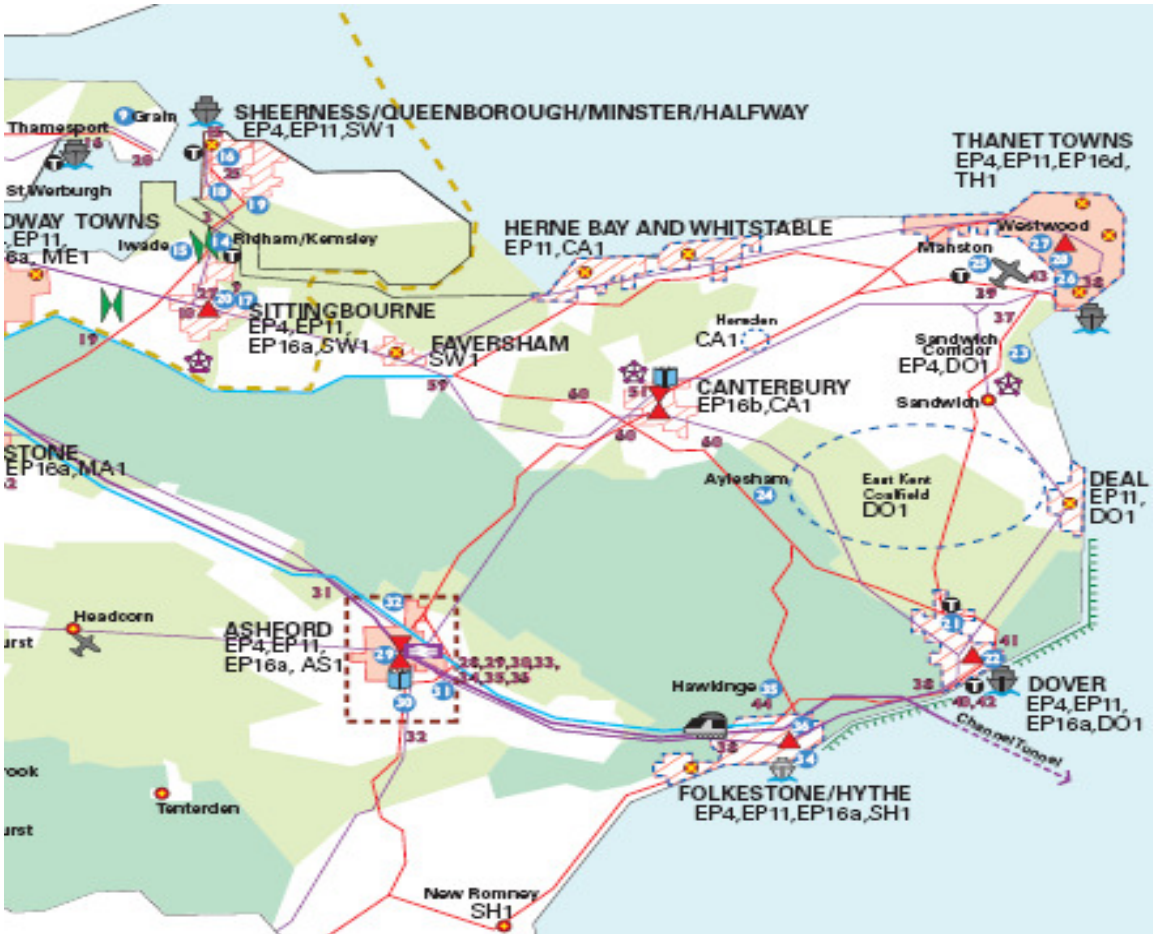
- Paragraph 3.30 - Ashford has long been identified for significant growth within successive Kent Structure Plans, and the town is now one of the regional growth areas identified by Government in its *Sustainable Communities Plan (2003)*. Implementing the *RPG9* provisions for the Ashford Growth Area will have significant subregional implications, and the strategy for this must not prejudice other regional and strategic priorities for economic regeneration elsewhere within East Kent.
- Paragraph 3.37 - Ashford is recognised in *RPG9: Ashford Growth Area (2004)* as a regional focus for growth, both to help stimulate inward investment to East Kent and to assist in addressing the region's wider employment and housing needs. Local economic performance has lagged behind a rising rate of housing development despite a generous supply of employment land. There will be additional labour market pressures caused by improved rail commuting capacity and faster rail journey times to London after the Channel Tunnel Rail Link is completed in 2009.Targets for employment growth under *Ashford's Future* and *RPG9* are ambitious. If housing and employment are to be more balanced, as envisaged by the Structure Plan, it will require a major increase in investment supported by a boost in vocational skills provided by the town's further education sector.
- Paragraph 3.38 - On the basis of the *Ashford's Future* study, the *Sustainable Communities Plan (2003)* and *RPG9 (2004)* this Structure Plan envisages a substantial and accelerating scale and pace of growth at the town. If this is to be achieved, a number of infrastructure and resource constraints need to be tackled, and essential improvements secured, early in the implementation of growth.
- Paragraph 3.39 - The provision for new housing in Ashford is set well above the amount indicated by demographic and household growth trends. It provides for an accelerating rate of net inward migration and local population growth consistent with Ashford's growth area role. A close relationship between economic performance and housing provision is essential if Ashford is to achieve balanced growth in line with regional and strategic objectives.
- Paragraph 3.40 - The housing provisions in Policy HP1 are for the borough as a whole. However the approach to the regional growth area at Ashford and the requirements of Policy SS1 mean that the great majority of housing should be provided at the Ashford urban area. *RPG9 (2004)* envisages provision being made for 13,100 dwellings in the growth area between 2001 and 2016, along with 10,300 additional jobs.
- Paragraph 3.41 - Continuing the rates of housing development provided for in the *Kent Structure Plan 1996* and accelerating them beyond 2006 in line with the conclusions of the *Ashford's Future* study will need major investment in infrastructure as set out in Policy AS1.

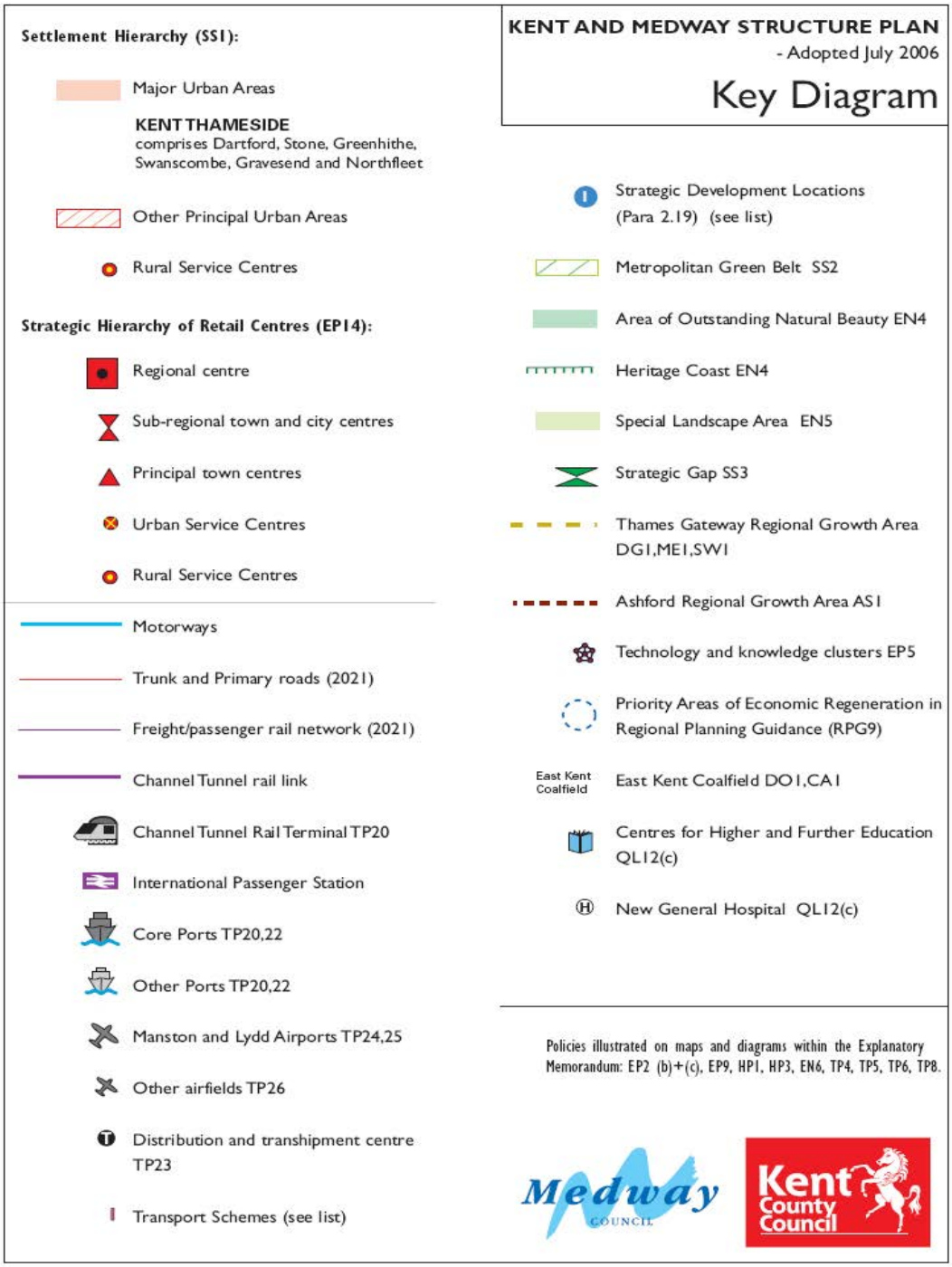
Strategic housing provision reflects a staged approach to growth beyond 2006 that supports an average rate of development of approximately 1,100 homes per annum by 2016. Growth will be strongly concentrated at the Ashford urban area.

Key points arising from Structure Plan Policy AS1: Ashford are:

- Expansion will be focused on high quality and sustainable developments in and around central Ashford and, where further Greenfield development is required, within a broad area of search to the south of the town between the M20 and A28 progressing from the south east and south towards the west.
- Provision will be made for additional land for business development to meet requirements beyond 2011 for balanced employment and housing growth.
- Major investment in physical infrastructure, social and community facilities, public transport enhancement, other sustainable transport initiatives and environmental management will be required to support the growth in residential and business development proposed and the existing community.

Figure 19: Extract From Kent and Medway Structure Plan Key Diagram





Source: Kent and Medway Structure Plan – Key Diagram

HST Investment at 4 Hubs and Associated Urban Development

The information shown below is extracted from the HST Impact Study Final Report published by the HST Impact Study Consortium in April 2008. This study focuses on the HST investment region in North-West Europe. The extract in this section concerns the four stations along the CTRL:

"3.8 Ashford
Ashford is a medium-sized town in the South-East of England with a 2001 population (including surrounding districts) of 102,661 (estimated figure for 2006 was 111,200). Ashford has been designated as a growth area for the South- East region and its population is expected to double by 2031. The International Station at Ashford was built in 1996 at a cost of around €120 million. Since 1996 (some two years after the start of Channel Tunnel Rail Link (CTRL) services), Ashford has been served by Eurostar trains, with a daily service (up to 14/11/2007) of six trains to/from Paris and four to Brussels (but six from Brussels). In total this represented 22 trains a day, a reduction on earlier timetables which provided 30 trains a day (seven to Paris, five to Brussels and nine return trains each). Since November 2007, services have been reduced to three peak trains to Paris and one train to Euro Disney with no direct services to Brussels. Domestic High Speed services are not expected to commence until late 2009.

EU money (around €960,000) together with funding from the UK Government (including the Growth Area Fund) is being used to improve the connections between the town centre and the station, the station forecourt and part of the Ring Road. This involves the re-paving and pedestrianisation of Bank Street to ease the movement of people between the town centre and stations. The detailed design for Bank Street was completed in March 2006 whilst construction started in the middle of 2007."

"3.10 Ebbsfleet
The new International Station at Ebbsfleet opened on 19th of November 2007, with 9,000 parking spaces (compared to the 2,000 provided at Ashford International). It is located on a brownfield site in the Kent Thameside area of South-East England (south of the River Thames). Kent Thameside is located within the Thames Gateway, placing it amongst one of the largest regeneration projects in Europe. The Thames Gateway is Europe's largest and most ambitious regeneration initiative and is the Government's national regeneration priority. Ebbsfleet is strategically located close to the M25 (London Orbital Motorway). It is expected to act as a Park-and-Ride station for much of south London, which is now deprived of the International terminal at Waterloo. Ebbsfleet is currently served by six trains to/from Paris and four to Brussels (but six from Brussels). Frequent domestic high-speed services to London are proposed from December 2009.

Construction costs for the International Station are estimated to be around €150 million (2006 prices). The developments in Kent Thameside (still at an early stage) will be largely funded by the private sector, albeit stimulated by around €45 million investment in transport infrastructure. This involves the Fastrack bus rapid transit system that links the International station with adjacent development sites and the towns of Dartford and Gravesend."

"3.12 London St. Pancras
King's Cross/St Pancras has the best public transport accessibility in London with 4 mainline stations within short walking distance (King's Cross, St Pancras, King's Cross Thameslink and Euston), six underground lines and extensive bus connections. There is currently inbound rail and LUL capacity in the am peak hour of around 306,300 passengers of which 73% is currently used on average. The area is also well connected by 17 local bus routes, however, cycling and walking facilities and connections are relatively poor. "High Speed 1" (or HS1) began commercial services out of St Pancras on 14th November 2007 after being officially opened by the Queen on 6th November 2007 following a €1,2 billion facelift of the station. HS1 has reduced travel times to Paris and Brussels by 20 minutes to 2 hours 15 minutes and 1 hour 51 minutes respectively. St Pancras station has been substantially expanded while retaining the famous Victorian structure, to create a new international gateway to London. An extended station deck was created to take the 425-metre Eurostar and domestic trains, the construction of a new sub-surface station for the Thameslink cross-London regional rail service, and connections to the London underground station. The

foundation of the new Thameslink station has been built underneath St Pancras station, below Midland Road. In addition, the historic St Pancras Chambers at the front of the station is being restored in part to its original use as a deluxe hotel whilst the upper part of the building has become residential apartments. The development now provides: six international Eurostar platforms; three domestic platforms; Thameslink station; Midland Mainline station (now Stagecoach East Midlands); and links to underground services. This development is being accompanied by the development of the railway lands behind St Pancras and King's Cross (King's Cross Central) - an area of some 29 hectares. New high speed services from Kent to St Pancras will commence December 2009.

The opening of St Pancras International was accompanied by the closure of Waterloo International, which had been the terminus of Eurostar services since November 1994. There are no direct Underground services between King's Cross/St Pancras. The Bakerloo / Victoria lines provide the best Underground connection with a 'platform to platform' interchange. The Cross-River Tram service which is being developed linking Camden (in north London) with Brixton and Peckham (in South London), via Euston and Waterloo, with a spur to King's Cross/St Pancras will provide a direct (overground) tram link. However, this service in not expected to be operational until 2016, at a cost of around €690 million."

"3.14 Stratford

The former Rail Lands at Stratford (over 72 hectares (180 acres) of inner-urban brownfield development land) represent an important regeneration opportunity in East London. Westfield (zone 1), Lend Lease and London and Continental Railways (LCR) (zones 2-7 – Olympic related areas) are the developers for the project. Prior to the development, the land comprised of active and disused railway sidings, storage warehouses and vacant land. This area of land had created severance effects as the site did not enable or encourage public access which has led to its neglect by developers and transport networks. The redevelopment has accommodated the new international terminal at Stratford. The project (known as Stratford City) will provide some 1.2 million m2 of mixed-use development as well as good transport infrastructure bringing benefits for existing and future residents.

Stratford had long been seen as a development opportunity with its public transport accessibility (one of the best outside central London) and significant land assets. The site is served by National Rail, two London underground lines, the Docklands Light Railway (DLR) and a major bus/rail interchange outside the station. There have been problems for many years in bringing the land into productive use which have included a negative market perception of Stratford. The new International terminal (along with the development in Docklands) has been the impetus required for such a project. The development will be centered around the domestic and international stations and will link the new retail development with the existing town centre. In addition, since the announcement of London's winning bid to host the 2012 Olympic Games, the Stratford City site has been partly subsumed into the Olympic Park Masterplan Area which now includes the Olympic village along with key routes and assembly areas for the Games.

The International Station and other developments are particularly important as thousands of spectators will be heading to and from the site to access the Olympic Park for the Summer Olympics in 2012. However, international services calling at Stratford would add eight minutes to the journey between London and Paris (stopping 7 minutes after leaving St Pancras) and LCR have been considering using it for domestic services only, which many believe would undermine the large investment (London Travel Watch, 12 September 2006).

As the area around the international station will be a construction site until 2011, it is considered that bringing passengers through such a zone could have negative consequences in terms of image and business development for Eurostar. However, the company are on record as stating that they do want to commence international services to Stratford once building work has been completed.

South Eastern train operating company will operate a high-speed 'Javelin' service from December 2009 between London's St Pancras and Ashford (stopping at Stratford and Ebbsfleet), travelling at speeds of 186 mph. This service will operate as a high-speed shuttle between central London and Stratford during the Olympic Games in 2012 (Transit, 1st June 2007).

The Stratford City project involves a total investment of £4 billion. Within HST integration the European Regional Development Fund (ERDF) has contributed €0.3 million to the pre implementation works led by Newham Borough Council, with the ERDF funding focused on the public realm right at the centre of the key integration route. Meridian Square is the forecourt to Stratford regional station, providing the gateway to Stratford rail and developments on the one side and Stratford town centre on the other. A development link will bridge the great Eastern mainline, which will enable access between Stratford rail lands, the international station, the regional station and the town centre.

A new £104M entrance and extension will be built for the regional station in addition to a new westbound platform for the Central line underground link and various subway works as part of the Olympics upgrade. Work commenced in 2007 and will greatly improve access, capacity and circulation (This is Local London, 26th November 2006).

The ticket hall will be extended with Westfield constructing a further Northern ticket hall (as past of Stratford City) to provide a new station entrance on the site to cope with projected demands from retail shoppers, visitors and future workers (www.futurestratford.com)."

Table 3.15.1: General information on cases

Country	Belgium	France	Germany	The Netherlands			United Kingdom						
Case	Leiedal	Arment.	Aachen	Maastr.	Heerl.	Hague	Ashf.	Dover	Ebbs.	Hast.	Pancr.	Read.	Stratf.
Part of Interreg HST-project…	Integration & connect	Connect	Integration & connect	Connect	Integration	Integration	Integration	Connect	Integration	Connect	Integration	Connect	Integration
Total HST integration / Connect project investments (million)	€ 7.0	€ 3.3	€ 2.6	€ 1.8	€ 6.0	€ 0.17	€ 2.4	€ 0.58	€ 45,3	€ 3,2	€ 690	€ 5.0	N/K[2]
Funding by EU (Interreg IIIb grant in million)	€ 3.3	€ 3.1	€ 0.9	€ 0.9	€ 3.0	€ 0.09	€ 0.9	€ 0.15	€ 3,0	€ 0,8	€ 2.0	€ 2.0	€ 1.5
Physical investments in (HST) station areas are finished in…	2008	2008	2006	2006	2008	2011	1996	2007	2007	2008	2007	2005	2010
Investments in HST connectivity are finished in…	2008	2008		2007	2007	2009	2011	2007	2020	2008	2016	2008	2010

Short description of investments in the HSTintegration and HST Connect projects

	Population of city/region	HSTintegration/connect investments
Cases on the primary HST network		
Aachen	250,000	Refurbishment of station forecourt and illumination of Burtscheider bridge
The Hague	475,000	Feasibility study for an HST Travellers Lounge at The Hague Central Station
Ashford	103,000	Improved pedestrian links between the town centre and the international station.
Ebbsfleet	182,000	Development of the Fastrack bus service to provide links to the adjacent towns of Gravesend and Ebbsfleet
St. Pancras	374,000	Development of a Cross River Tram linking St Pancras International with the former Waterloo International. (due to be completed 2016)
Stratford	244,000	Development of an urban access route between Stratford International and Regional Centres and the Town Centre.

Project Costs

In common with many other MUTPs worldwide, the CTRL project has seen costs escalate significantly over time. The following presents various cost estimates produced by different sources.

British Rail

From: British Rail 1974-97: From Integration to Privatisation, Chapter 9 – Investment and the Channel Tunnel,
– Terry Gourvish, Oxford University Press, 2002 (page 321-322)

- **January 1986** Government advised British Rail (BR) to consider its estimate of **£400m** for the rail link as a maximum (based on use/upgrading of existing infrastructure) as a maximum.
- By **mid-1987** the BR Board was considering a new minimum figure of **£700m**. Consequently, BR split the costs so as to be compatible with government's figure - **£450m for Phase 1** (which covered investment necessary to operate services from May 1993), **£250m for Phase 2** (covered proposals for running international services north of London) and **£200m for Phase 3** (covering works necessary for a high speed link).
- **In August 1987** Government approved **£550m expenditure for Phase 1** (excluding the international station at Ashford which government felt could not be justified commercially) but said it could not commit to Phase2.
- Cost estimates continued to rise for Phase 1:
  – **February 1989: £707m**
  – **July 1989:£885m**
  – **October 1989: £905m** (£1.1bn inc. contingencies).
  Government's response was that such increases were unacceptable.
- **In 1990**, John Brown Engineers and Constructors were appointed to review the status of Phase 1 and to provide project management support. By **July 1990**, estimates for **Phase 1** had risen to **£1.255 billion**.

Gourvish also notes the differing costs associated with the route options considered by Government and BR as follows:

Table 4: Route Options Costs Assessed by BR (extract from Chapter 9, (Table 9.6 Channel tunnel High Speed Rail Link; route evaluations, May 1991), Investment and the Channel Tunnel, British Rail 1974-97: From Integration to Privatisation, Chapter 9 – Investment and the Channel Tunnel – Terry Gourvish, Oxford University Press, 2002 (page 334)

Option	Capital (£m.)	Total cost (route & stations) (£m.)	Relative cost (£m.)	Relative benefits (£m.)	Cost/benefit[a] (£m.)
BR south to King's Cross	3,425	3,565	Base	Base[b]	Base
Ove Arup east to King's Cross	3,905	4,245	-680	-205	-885
Newham south to Stratford	2,945	3,105	+460	-580	-120
Rail-Europe east to Stratford	3,570	3,940	-375	-760	-1,135

Original Source: BRB, Memorandum, June 1991, Appendix 1, Table 1, in BRB, *Rail Link*, June 1991
[a] Discounted at 8% (discount at 4% also evaluated).
[b] Not published.

Faith (2007) identifies the impacts of BR's southern route and Arup's eastern route on homes as follows:

Effects of the competing routes on homes

Houses	BR's final southern alignment	Arup's eastern route
Demolished	24	0
Acquired	127	2
Within a 100m corridor	1,900	5
Within a 200m corridor	5,900	115

Source: Malcolm Rifkind MP, Secretary of State for Transport, Hansard 14 October 1991

Source: Faith, N. (2007) The Right Line: The politics, the planning and the against-the-odds gamble behind Britain's first high-speed railway, Segrave Foulkes Publishers, London, p.137.

London & Continental Railways (LCR)

From: LCR Website – LCR An Incredible Journey www.lcrhq.co.uk, downloaded 8th May 2007

The total cost for the CTRL is variously quoted on LCR's website as £5.8bn and £5.2bn (Section 1: £1.9 billion Section 2: £3.3 billion).

National Audit Office Reports

- London and Continental railways (LCR) and Department of Transport (DoT) agreed a target cost for CTRL Section 1 of £1,930 million in cash outturn terms (£1,670 million at January 1997 prices, plus a £260 million allowance for inflation) and a target cost for Section 2 of £3,303 million in cash outturn terms (£2,513 million at January 1997 prices, plus a £790 million allowance for inflation) – pp. 11.
- The actual cost for Section 1 was £1,920 million (cash out-turn) – pp. 16-17
- Within the 1998 target cost for Section 2 (£2,513 million (1997 prices)), LCR and Rail Link Engineering included a target construction cost for Section 2 of £2,215 million (1997 prices) - pp. 32

Table 5: NAO Report on Costs 2005 (1)

6 Despite the cost of construction being slightly higher than estimated in 1998, savings made elsewhere and contributions from others resulted in Union Railways beating the target cost

	Union Railways' Budget – March 1999 £ million (cash out-turn)		Union Railways' estimate[1] of the Final Cost £ million (cash out-turn)	
Construction costs				
Construction contracts				
North Kent Works	200		300	
Kent Works	620		610	
Track, signalling and commissioning Works	230		360	
Contingency to construction Works	180		40[2]	
	1,230		1,310	
Project Management (Rail Link Engineering's Services)	450		440	
Insurance	30		20	
Total construction costs		1,710		1,760[3]
Project client costs		110		100
Property costs		110		80
Advance Works for Section 2		Included above		10
Rail Link Engineering's Bonus/(Overrun contribution)		0		(20)
Third party and other income		Included above		(20)
		1,930		1,920[3]

Source: Union Railways

NOTES

1 The Final Cost remains an estimate because, amongst other things, it includes an allowance of receipts Union Railways has yet to receive for the disposal of land that is no longer required for the project.

2 The remaining contingency is held against under recovery of insurance claims for bad weather affecting the project in 2000/2001.

3 There are rounding errors affecting these sums.

Source: National Audit Office (2005), Progress on the Channel Tunnel Rail Link, p.17

Table 6: NAO Report on Costs 2005 (2)

17 The Department estimated that, under the 2001 Mid Case forecasts for Eurostar UK's passenger revenues, accepting the LCR/Bechtel proposal would increase the 1997 present value of public sector support through the access charge loan facility by £40 million (1997 prices) compared to the case of the Department bearing Section 2 construction risk

Proposal	Forecast of Eurostar UK's passenger revenues	Ownership of Link		Cost of Construction		Access charge loan (£ million, 1997 present value in 1997 prices)
		Section 1	Section 2	Section 1	Section 2	
Railtrack Group does not exercise its option to purchase Section 2 but manages construction of the section and carries some construction risk	2001 Mid Case	Railtrack Group	LCR	Target Cost	Target Cost	220
	2001 Low Case	Railtrack Group	LCR	Target Cost	£300 million overrun	980
LCR/Bechtel proposal	2001 Mid Case	Railtrack Group	LCR	Target Cost	Target Cost	70
	2001 Low Case	Railtrack Group	LCR	Target Cost	£300 million overrun	820
LCR backed by the Department	2001 Mid Case	Railtrack Group	LCR	Target Cost	Target Cost	30
	2001 Low Case	Railtrack Group	LCR	Target Cost	£300 million overrun	820

Source: The Department

NOTE

In putting forward its proposal Railtrack Group sought concessions from the Department that would: (1) increase track access charges for Section 1 in line with the increase that it would have received had it exercised its Section 2 option; and (2) compensate Railtrack Group for likely delays to the start of domestic usage of the Link. The Department estimated that the impact of the concessions added £180 million to the 1997 present value of public sector support through the access charge loan facility. At the time of its analysis, the Department was uncertain whether Railtrack Group would demand similar concessions if the Department went ahead with the LCR/Bechtel proposal.

Source: National Audit Office (2005), Progress on the Channel Tunnel Rail Link, p.31

<u>BR report in 1993</u>

All costs estimates are in £millions and are at 4Q1992 price levels
Costs estimates relate to Cases as described in the text. The grand totals include stations and

junctions where appropriate and are therefore not directly comparable.

Title	Route Costs only											
	Sec. 1	Sec. 2	Sec. 3	Sec. 4	Sec. 5	Secs Sub Total	London Terminus	Servicing Depot	Power Supply	Sub Total	Inter-mediate Stations and Con-nections	Grand Total
Published Route	630	490	450	100	390	2060	500	50	65	2675	20/ 375	2695/ 3050
Board Reference Case	605	420	290	75	305	1695	500	50	65	2310	100	2410
Board Policy Case	605	420	290	75	305	1695	500	50	65	2310	195	2505
Additional Environmental Mitigation Options to above cases			+15	+25	+85	+15						+15
			+30 +140			+320						+340
Additional tunnels Options	+40	0		+25	+85						+20	
			-60 +85			+175						+195

Notes:
1. Published route costing £2695m includes Kings Cross Low Level Station and Tutt Hill Junction only. Published Route costing £3050m also includes optional stations at Medway, Rainham and Stratford, and a Medway Junction.
2. Figures include project management costs spread among the items.
3. Property acquisition costs and disposal proceeds are not discounted.

Source: Union Railways (1993) British Railways Board Report, March 1993, p,43

International Comparison of Costs for High Speed Rail Links

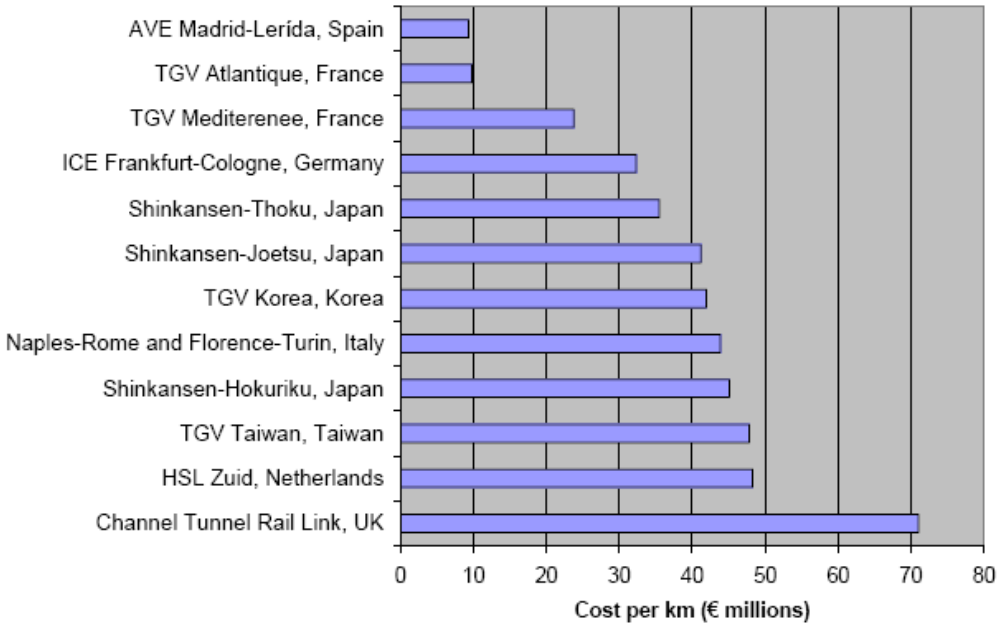
Interestingly, the UK's Commission for Integrated Transport compares the relative cost of constructing the CTRL with similar projects from around the world, as follows:

From: UK Commission for Integrated Transport - The Cost of High Speed Rail Projects, 2004 (Chapter 4, available from www.cfit.gov.uk/docs/2004/hsr/research/pdf/chapter4.pdf, downloaded 3rd March 2007)

4.3 The cost of high-speed rail construction in Britain appears to be much greater than in other countries. Some of this difference is probably unavoidable: land costs, for example, are greater in Britain than in other countries and these in turn are affected by wider differences in the structure of the countries' property markets. However, we have found that some cost differences between Britain and other countries are rather hard to justify. Costs are likely to be lower if countries undertake major high speed rail construction programmes, in a number of stages over time, rather than construct a oneoff high speed line. In Britain, the construction of a high speed line from London to Scotland could constitute such a programme, as the line would probably be constructed in several stages. If Britain adopted such a programme, we estimate that cost savings in the region of 20-30% should be possible. The operating costs of highspeed railways are also likely to be lower than would be assumed from extrapolation of current operating costs, as these appear to have been inflated in recent years.

The scale of the difference
4.4 The total cost of the Channel Tunnel Rail Link is estimated at £5.2 billion (€7.4 billion), approximately £50 million per kilometre. The figure below shows that this is much more expensive than any other high speed line that has been constructed anywhere in the world: CTRL is expected to cost 7.6 times as much, per kilometre, as the high speed line between Madrid and Lérida which opened at almost exactly the same time as the first phase of CTRL.

Figure 20: High Speed Line Construction Costs per km



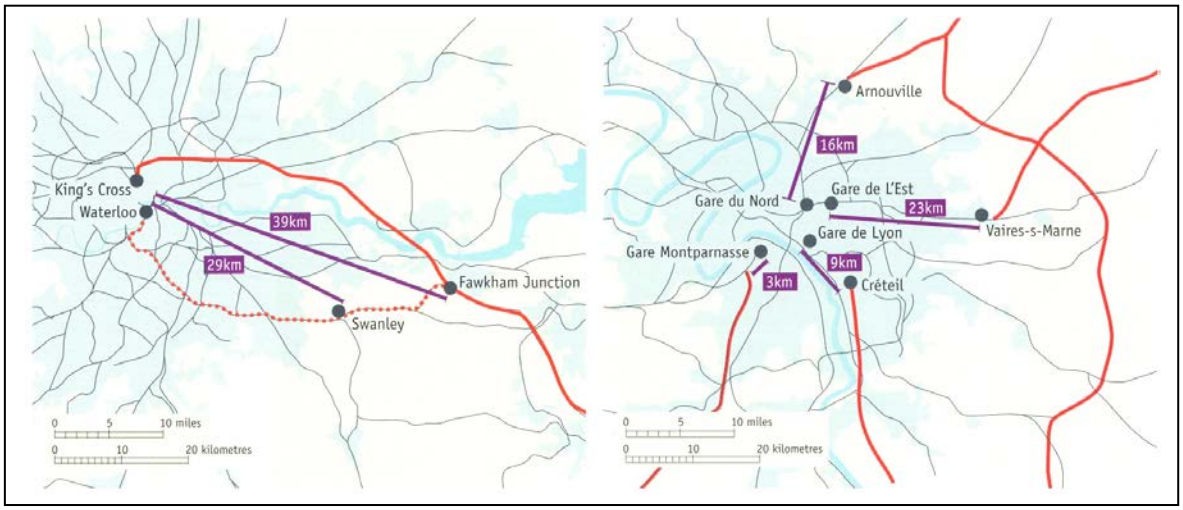
Source: UK Commission for Integrated Transport - Figure 4.1, The Cost of High Speed Rail Projects, 2004 (Chapter 4, available from www.cfit.gov.uk/docs/2004/hsr/research/pdf/chapter4.pdf, downloaded 3rd March 2007)

Several factors which result in the different costs of High Speed Rail Projects in France and the UK are mentioned in the book by Faith, N. (2007) The Right Line: The politics, the planning and the against-the-odds gamble behind Britain's first high-speed railway, published by Segrave Foulkes Publishers, London, p.52-55. The factors are summarised below:

- France is a big country, with more space to build and fewer people to object.
- French authorities believe that 'tout passe par Paris' – the only important lines are those which fan out from the capital. The result is that France's network of traditional railway routes has been largely neglected over the past three decades, with fewer and fewer trains travelling at ever-slower speeds even between major centres as the quality of the track deteriorates.
- The French had one fundamental advantage: when it came to the line itself they had only to build through deserted countryside between Lille and Calais – and indeed between the outskirts of Paris and Lille.
- Costs in France are also reduced by the way that their LGVs can join normal tracks some miles from their Parisian terminals, thus eliminating the need for – inevitably highly expensive and contentious – lines through the approaches to their final destination.
- The French had ample capacity on the lines leading to their Paris termini, available thanks to the lack of any serious commuter traffic into Paris on the historic rail network – a mere nothing compared with the hordes who descend on London's termini every day. Similarly, the Japanese could reach the centre of their cities on lines through land still vacant before post-war reconstruction when routing their Shinkansen.

- Rail consultant Alan Dyke: "SNCF does not account for all its costs or charges when it uses its existing assets when building a new line, while BR had to pay market price for all assets used. The taxation system used in the UK is also quite different from France, so our contractors had to include more tax costs than SNCF." The main difference in construction costs between northern France and southern England was the terrain and population centres. Labour rates between the two were also somewhat different, being much higher in southern England.

Figure 21: CTRL access to central London & TGV access to Paris



Source: Faith, N. (2007) The Right Line: The politics, the planning and the against-the-odds gamble behind Britain's first high-speed railway, Segrave Foulkes Publishers, London, p.54.

Project Programme

Notwithstanding the difficulties and lengthy period required to determine key aspects of the CTRL, such as its route and location of stations/termini, funding method and appointment of private sector partner (see Project Timeline), it is clear that once implementation of the project commenced, delivery has essentially met target dates – as shown by Table 7 below.

Table 7: Principal Project Dates

Decision to proceed with project - 1996 (CTRL Act)			
		Forecast	Actual
Construction Start	CTRL Section 1	1998	1998
	CTRL Section 2	2001	2001
Construction Completion	CTRL Section 1	2003	2003
	CTRL Section 2	2007	2007
Commencement of Use	CTRL Section 1	2003	2003
	CTRL Section 2	2007	2007

Sources:
dft.gov.uk – Chronology of the Channel Tunnel Link
Arup Journal 2004 - CTRL Chronology, http://www.arup.com
LCR http://www.lcrhq.co.uk/

Main Engineering Features

Overview of Main Engineering Features

Engineering:
- 25% (26km) of the route will be in tunnels, of which 51% of CTRL Section 2 is made up of tunnels.
- 60% of the route (55km)is built within existing road or rail transport corridors.
- 152 bridges along the route.
- Normal minimum curve radius:
- 4000m in the 270 km/h section
- 2400m in the 225 km/h section

Construction:
- Over 50 million man hours have been worked during the construction
- Over 16.5m cubic metres of earth has been excavated, enough to fill Wembley Stadium over a dozen times
- Over 11,500 piled foundations have been installed
- Over 500,000 cubic metres of concrete has been poured
- Eight giant Tunnel Boring Machines were used for the Thames and London tunnels on Section 2.

Signalling and Headways
- Advanced signalling controls with Automatic Train Protection (ATP) and in-cab signal display will allow high capacity with a three minute headway between trains

Source: The Channel Tunnel Rail Link - dft.gov.uk, accessed 23rd October 2006

Table 8: Key Engineering Statistics for CTRL

Table 1. Key engineering statistics for the Channel Tunnel Rail Link

Parameter	Type/location	Quantity
Track width	Double-track formation	14 m
Tunnel lengths	London	19 km
	Thames	3 km
	North Downs	3 km
Viaduct lengths	Thurrock (beneath Queen Elizabeth II bridge)	1·2 km
	Medway	1·2 km
	Ashford	1·4 km
Bridges (section one)	Rail	41
	Road	53
	Foot	23
Earthwork volumes (section one)	General	12 Mm^3
	Structural fill (formation of embankments/increase height)	5 Mm^3
	Mitigation fill (formation of landscaping bunds to reduce air borne noise)	7 Mm^3

Source: Setting out the Channel Tunnel Rail Link, C. Kelly, ICE proceedings, Paper 12436, May 2001

Figure 22: CTRL Section 1 – Main Engineering Contracts

Numbered blocks refer to the contract number for the major civil engineering work carried out in the area. The yellow dots note the contract boundaries.

Source: DfT - Channel Tunnel Rail Link, Route Description and Simplified Maps

Figure 23: CTRL Section 2 – Engineering Contracts

Numbered blocks refer to the contract number for the major civil engineering work carried out in the area.

Source: DfT - Channel Tunnel Rail Link, Route Description and Simplified Maps

Main Contracts and Contractors

Table 9: Main Contracts and Contractors

Contract 102 Edmund Nuttall Ltd.
Contract 103 Co-contractor Edmund Nuttall Ltd., Kier Construction
Contract 104A Westinghouse Signals Ltd
Contract 104B Motherwell Bridge Construction
Contract 104C Tales Telecommunication Services Ltd
Contract 104E Westinghouse Rail Systems Ltd
Contract 104F Mowlem Railways
Contract 104G Westinghouse Rail Systems Ltd
Contract 104H John Mowlem & Company
Contract 105 (Saint Pancras Station) EMCOR Drake & Scull & Co-contractor Bachy Soletanche Group Limited, Costain, O'Rourke Civil Construction
Contract 124 Railtrack Midland Zone
Contract 135 Edmund Nuttall Ltd.
Contract 137 Fujitec UK
Contract 138 Escalators Otis Elevator Co.
Contract 220 (London Portal) Skanska Construction UK Ltd; Co-contractor Nishimatsu Construction Co. Ltd.
Contract 230 (Stratford Box) Skanska Construction UK Ltd
Contract 240 (Stratford - Barrington Road) Co-contractor Bachy Soletanche Group Limited, Costain, Skanska AB
Contract 250 (Barrington Road - Ripple Lane) Co-contractor Edmund Nuttall Ltd.,
Kier Construction Wayss & Freytag Ingenieurbau AG
Contract 302 Co-contractor AMEC Civil Engineering, Alfred McAlpine Construction
Contract 303 Kier Construction
Contract 310 Co-contractor Morgan Est, Vinci Construction Grands Projets
Contract 320 (Thames Tunnel) Co-contractor Hochtief AG, J Murphy & Sons
Contract 330 Co-contractor AMEC Civil Engineering, Alfred McAlpine Construction
Contract 339A GrantRail
Contract 339B Westinghouse Signals Ltd
Contract 339C Seebord Contracting Services
Contract 340 Construction management Rail Link Engineering
Contract 342 Co-contractor Hochtief (UK) Construction Ltd, Norwest Holst Construction
Contract 361 Contractor J Murphy & Sons
Contract 365 AMEC Civil Engineering
Contract 410 (North Downs Tunnel) Co-contractor Beton- und Monierbau Gesellschaft.m.b.H.
Morgan Est, Vinci Construction Grands Projets
Contract 420 Co-contractor Hochtief (UK) Construction Ltd, Norwest Holst Construction
Contract 430 Skanska Construction UK Ltd
Contract 434 John Mowlem & Company

Contract 440 Balfour Beatty Construction
Contract 550 Amey Rail Ltd, Co-contractor Corning Communications Ltd, CSEE Transport
Contract 552 Westinghouse Signals Ltd
Contract 556 CSEE Transport
Contract 557 Optilan (UK) Ltd
Contract 570 AMEC Spie Rail Systems Ltd
Contract 576 Co-contractor Alstom Transportation Projects Ltd, Carillion Construction Ltd, Travaux du Sud-Ouest
Contract 588 EMCOR Drake & Scull
Contract CTRL M01 Carillion Rail
Source: International Database and Gallery of Structures, http://en.structurae.de/projects/data/index.cfm?ID=p00038

Major Civil Engineering Components of CTRL Cited by LCR

MAJOR TUNNELS

- London Tunnels:
  - Overall length (Islington to Dagenham): 18.5km
  - Longest single tunnel (Stratford to Dagenham): 10.5km
- Thames Tunnel: 3km
- North Downs Tunnel: 3.2km
- Stratford 'box': 1km long, 20 metres deep
- Ashford 'box': 1.7km

MAJOR VIADUCTS

- Thurrock Viaduct (beneath the QEII bridge): 1.3km
- Medway Viaduct (alongside the existing M2 bridge): 1.2km
- Ashford Viaduct: 1.4km
- Aveley Viaduct: 670m
- Rainham Viaduct 520m

BRIDGES

- Total number of bridges: 152
- Rail bridges: 60
- Road bridges: 62
- Foot bridges: 30

Source: www.lcrhq.co.uk

Table 10: Other Major Civil Engineering Components Associated With CTRL (cited by International Database and Gallery of Structures, http://en.structurae.de/projects/data/index.cfm?ID=p00038)

Ashford International Station Box (2007) 1.7km
Barrington Road-Stratford Tunnel
Ebbsfleet-Saint Pancras Thames Tunnel (2007)
ECML Bridge
Ripple Lane-Barrington Road Tunnel
Saint Pancras Station Upgrade
Stratford Station Box (2007)
Stratford-London West Portal Tunnel
Thurrock Viaduct
Waterloo International Station (1993)

Table 11: CTRL Key Facts and Figures

<table>
<tr>
<td>Distance
Channel Tunnel to St Pancras: 109km
Section 1: Channel Tunnel to Fawkham Junction: 74km
Section 2: Southfleet to St Pancras: 39km
Distance in tunnel: 26km (25% of route)
Maximum design speed: 300km/hour
In July 2003 a Eurostar train broke the UK rail land speed record on Section 1 of the CTRL, reaching 334.7km/hr.</td>
<td rowspan="2">Performance:
Section 1 (September 2003 to 2007)
Maximum usage: Up to four Eurostars/hour each way
Journey times:
Waterloo to Channel Tunnel: 55 minutes
Waterloo to Paris: 2 hours 35 minutes
Waterloo to Brussels: 2 hours 25 minutes
Whole line (2007 onwards)
Maximum usage: Eight Eurostars/hour each way
Journey times:
St Pancras to Channel Tunnel: 35 minutes
St Pancras to Paris: 2 hours 15 minutes
St Pancras to Brussels: 2 hours
St Pancras to Channel Tunnel: 35 minutes
St Pancras to Lille: 1 hour 20 minutes
St Pancras to Stratford: 7 minutes
St Pancras to Ebbsfleet: 17 minutes</td>
</tr>
<tr>
<td>Tunnels
London Tunnels (Islington to Dagenham): total 19km
Longest single London Tunnel: 10.5km (Stratford to Ripple Lane)
Thames Tunnel: 3km
North Downs Tunnel: 3.2km
Stratford Station Box: 1.1km
Ashford International Station Box: 1.7km
A Eurostar takes 38.4 seconds to go through North Downs Tunnel at 300km/hr.</td>
</tr>
<tr>
<td>Quantities
Ballast used: 850 000 tonnes
General excavation: 14Mm^3 (enough to fill London's Wembley Stadium 12 times)
Structural fill: 5Mm^3 (formation of embankments/increase height of embankments)
Mitigation fill: 7Mm^3 (formation of bunds for landscaping and to reduce airborne noise)
Material transferred to non-CTRL uses: 1Mm^3</td>
<td>Bridges and viaducts
Rail bridges: 60
Road bridges: 62
Footbridges: 30
Thurrock Viaduct: 1.3km (beneath the Queen Elizabeth II Bridge)
Medway Viaduct: 1.2km (alongside the existing and new M2 bridges, with a main span of 152m)
Ashford Viaduct: 1.4km (over Great and East Stour Rivers and
Ashford-Canterbury line)
The CTRL has a total of 152 bridges.
A Eurostar train takes 15 seconds to cross the Medway Viaduct at 300km/hr.</td>
</tr>
<tr>
<td>Broad orders of cost (at 2006 prices):
Section 1 = £1.9 billion
Section 2 = £3.3 billion
Total = £5.2 billion
The regeneration value of the project is estimated by London & Continental Railways (LCR) to be at least £9 billion.</td>
<td></td>
</tr>
<tr>
<td colspan="2">Employment
CTRL project workforce totaled some 8,000 persons (max)
when completed, CTRL will have consumed some 50 million man-hours.</td>
</tr>
</table>

Sources:

- Department for Transport (www.dft.gov.uk) - "The Channel Tunnel Rail Link", accessed 25/10/2006
- London and Continental Railways 'LCR – An Incredible Journey', available from: www.lcrhq.co.uk, accessed 24/10/2006
- Institution of Civil Engineers – Proceedings, May 2003, Channel Tunnel Rail Link section 1 : an overview – Mike Glover, Paper 13470
- Arup Journal Vol.39 No.1, 1/2004, Editor: David J Brown, available from http://www.arup.com, accessed 25/10/2006:
  - CTRL Chronology (author not specified)
  - Contracts and Contractors (author not specified)
  - Cut-and- cover tunnels - David Twine
  - The CTRL and Arup: Introduction to the history - Mike Glover, Technical Director and Deputy Project Director, Channel Tunnel Rail Link
  - St Pancras Station and Kings Cross Railway Lands – Ray Bennett, Ian Gardner,
  - Martin Gates-Sumner, Alastair Lansley

D. PROJECT TIMELINE

The following project timeline has been assembled from a number of sources. It is constantly being updated as new evidence concerning the decisions/events surrounding the planning and implementation process for is identified.

Year	Month	Type of Decision/Event	Key Decision/Event
1961	-	Project Initiation	• UK applied to join the Common Market – the prospect of a Channel Tunnel was a minor element in the talks.
1964	Feb	Project Initiation	• British and French Governments agreed that a bored rail tunnel under the Channel would be a good investment.
1966	July	Project Initiation	• An agreement 'in principle' was signed for the private sector to build and finance a tunnel – Government-guaranteed loans would cover most of the cost.
1971	-	Project Initiation	• British Railways (BR) worked in conjunction with French Railways (SNCF) on a combined scheme for the Channel Tunnel and respective rail links to their capital cities.
		Line Haul & Hubs	• BR proposed a new terminal - none of existing London terminals had sufficient capacity for expansion. Initial proposals were West London at Kensington Olympia or Clapham Junction. • An Interchange in Sellindge (Kent) was also proposed by BR should French trains not be able to penetrate further into UK without the construction of a new line.
1972	Nov	Project Initiation	• The UK and French governments, SNCF, BR and the British and French tunnel companies signed contracts, which ;later resulted in a Treaty (1986)
1973		Project initiation	• With Anglo-French agreement on Stage Two of the preliminary studies for the Tunnel, the project was given impetus from the top: the Conservative government had come to feel that a fast rail link would be essential.
1974	-	Line Haul & Hubs	• BR's proposals for a new line were published and public consultation was undertaken on a number of routes through South London & Kent. • Major public opposition resulted, in light of fears about the impact of faster and more frequent trains.
1975	-	Line Haul & Hubs	• BR's studies of SE England's rail network identified constraints but confirmed that existing links had sufficient capacity for extra traffic (against the background of an overall decline in rail usage in the UK).
		Project Initiation	• The Government abandoned the Channel Tunnel idea and decided to concentrate instead on building Concordes with France, which was an easier political option.
1981	-	Project Initiation	• BR and SNCF reached agreement to build a tunnel. At this stage there was no mention of a new rail link as existing lines were felt to be adequate.
1984	Nov	Project Initiation	• Secretary of State for Transport and his French counterparts announce both governments willing to give the necessary political guarantees to facilitate fixed link – providing this is financed without public support of government financial guarantees.
1986	-	Project Initiation	• Channel Tunnel Treaty signed by Margaret Thatcher & Francois Mitterand. • The Channel Tunnel concession was awarded to Trans Manche Link (later Eurotunnel) and the enabling legislation, in the form of the Channel Tunnel Act was prepared.
1987	-	Line Haul & Hubs	• A House of Lords Committee announced that King's Cross Station is the ideal site for the terminus of the Channel Tunnel Rail Link
Year	Month	Type of	Decision/Event

		Decision/Event	
1987	Feb	Project Initiation & Financing	• Channel Tunnel Act passed. • The Channel Tunnel Act (S42) specifically said that no Government support would be forthcoming for the construction of a new rail link. • The fixed link was to be privately financed, owned and operated – no public subsidy could be given. But, under the Channel Tunnel act the public sector was legally obliged to: - procure, at its own expense, substantial (connecting) new and upgraded infrastructure works plus rolling stock for international passenger and freight services; - set (jointly with SNCF) fixed tolls (subject to a guaranteed minimum) revenue to Eurotunnel for a given period in return for half the operating capacity (necessary for Eurotunnel to raise finance).
	Feb	Line Haul & Hubs	• S40 of the Channel Tunnel Act required BR to produce a plan (by end-1989) showing how it intended to secure the provision of international through services to various parts of the UK. BR consequently published a report 'International Rail Services for the United Kingdom' which envisaged running trains from Paris to Manchester, Wolverhampton, Leeds and Edinburgh. • At this point Government continued to believe that existing routes would have sufficient capacity to handle additional European traffic. • Government & BR consequently focused on preparing existing lines to absorb new international traffic. In conjunction with Eurotunnel, BR worked towards acceptance of new freight & passenger services on designated routes to London – particularly to Wembley freight operating centre & Waterloo Station. Waterloo was to be remodeled to make it fit for purpose as an International Station (e.g. to accommodate longer trains and enhanced security measures). • Constraint points for passenger services at Ashford were to be remodeled and a new International Station constructed.
	July	Line Haul & Hubs	• BR began the search for additional rail capacity to cope with Channel Tunnel trains. • Kings Cross Station selected by BR as a second London terminal.
	Sept	Line Haul	• BR appointed Sir Alexander Gibb & Partners to prepare engineering studies and to act as engineering design manager . They prepared plans to improve existing networks and the construction of new facilities in case traffic through the Channel Tunnel exceeded the capacity of works already authorised. • BR formed a group to undertake the investigation of a new rail link between London and the Channel Tunnel (known as "Phase 3"). This was solely to examine the provision of additional railway capacity, not increased speed or reduced travel times. • BR Consultants completed a route study within a wide corridor between Channel Tunnel & Central London. • Dept of Transport's "Kent Impact Study" highlighted sufficient capacity on existing lines to the end of the century but after that a new high speed link would be needed.
	Dec	King's Cross	• Four different developers submit plans to British Rail for the development of the King's Cross Railway lands

Year	Month	Type of Decision/Event	Decision/Event
1988	Jan	King's Cross	• 'The King's Cross Railway Lands: A Community Planning Brief' is published, Camden Council's first Planning Brief for the Railway Lands; it notes the need to improve the transport interchange, provide housing, employment and recreation for local people, respect the character of the area, safeguard local and strategic views. Office provision should depend on the scale of community benefits the development should demonstrate how regeneration can be achieved through co-operation • The number of potential developers of the railway lands is reduced to two: Speyhawk/McAlpine and the London Regeneration Consortium which is a partnership between The National Freight Corporation and Rosehaugh Stanhope. • Rosehaugh is now worth an estimated £750 million + ; Stanhope are valued at £260 million
	Jun-July	King's Cross	• British Rail choose the London Regeneration Consortium to become the developers of the 135 acres of derelict railway lands at King's Cross; LRC declare that Foster Associates are the chosen Masterplanners; the developers estimate that 29,700 - 32,100 jobs will be created. 26,500 - 28,900 of these jobs will be in offices. • King's Cross Railway Lands Community Development Group has a series of meetings with LRC: disagreements soon become apparent
		Line Haul & Hubs	• The internal BR Phase 3 report was published – this confirmed that additional facilities for the rail link would be required. Forty two London terminal sites were considered - 10 were retained for further analysis. The study reduced the terminal options to four: White City, King's Cross, London Bridge and Stratford. • Route options were confined to those capable of accommodating Eurostar (300km/hr running speeds). • Four possible route corridors through Kent were proposed: - Route 1 (terminating at Sidcup) intended to enter a tunnel to either of the 2nd International Terminals being assessed at King's Cross or Stratford or to follow existing lines to Waterloo from Nunhead. - Remaining 3 routes were to follow surface routes to Waterloo or White City, or to King's Cross via tunnel. • The report stated that detailed negotiations would be needed with Kent County Council, the London Planning Advisory Committee, London Regional Transport and other authorities, and include environmental assessments for each option. The conclusions were based on the need to choose the right route for financial, environmental and transport reasons rather than from any community consideration. Public meetings on Phase 3 Report were offered – to inform about route choices and to get feedback on detailed alignments. • But public reaction was wholly adverse – national media interest, protest groups formed. Demonstrations by S. London & Kent communities which culminated in a major demonstration in Trafalgar Square. This was seen to be because the project team had little to tell the public about the impacts of routes.
	Nov	King's Cross	• 282 petitions lodged in Parliament against Private Bill authorising construction of CTRL Terminal at King's Cross
	Dec	Financing & Implementation	• Government established the principle of private sector involvement in the CTRL. • Six consortia were invited to tender for a build, operate and transfer scheme. • Eurorail (Trafalgar House and BICC) were selected as BR 's partner.
1989	Jan	King's Cross	• BR announced that King's Cross would be the location for the second terminal (after Waterloo) – because of interconnectivity to 5 London Underground lines, East Coast Mainline, West Coast Mainline and Thameslink. The development/regeneration potential offered by (redundant) King's Cross Railway Lands was also a key consideration.
	Feb	Line Haul	• Kent County Council undertook widespread consultation and appointed independent consultants to study. In consequence Kent County Council rejected each of the routes contained in the BR report in July 1988.
	March	Line Haul	• The preferred route corridor for the CTRL was announced together with details of the consultation process.
	April	King's Cross	• LRC submitted an outline planning application for the 135 acre site at King's Cross Railway Lands

Year	Month	Type of Decision/Event	Decision/Event
1989	March-Nov	Line Haul	• Engineering and parliamentary drawings were developed by BR with a view to submitting a Private Bill for the Channel Tunnel Rail Link in November 1989. • Public reaction was again hostile and several alternative routes were put forward by rival Pressure Groups.
	June	Line Haul	• Announcement in the House of Commons on the proposed route and associated construction sites.
	Aug	Line Haul	• The 'final' set of engineering plans for CTRL were announced at a public exhibition in Maidstone which 'incorporated many of suggestions made during consultation'.
	Sept	Line Haul	• BR issued a refinement of the selected route that was to form the basis of the private Parliamentary Bill. This included major change to the London-end tunnel to avoid Swanley and a new surface alignment from Farningham Rd and Fawkham Jct.
	Oct	Line Haul & Stratford	• Arup (shareholder of London and Continental Railways who eventually won the bid to construct CTRL) proceeded to examine alternative route alignments due to perceived difficulties of tunneling under or building the above-ground line through SE London.
	July-Oct	Financing & Implementation	• BR launched a competition to select a joint-venture partner for the development of the CTRL. A consortium formed specifically for the bid, comprising Trafalgar House and BICC and known as Eurorail Limited, was selected as BR's JVP.
	Mid-late 1989	Line Haul	• A series of pressure groups emerged which put forward a number of alternative routes. These mainly comprised: (c) realignment of the BR-proposed route: (iii) SABRE – alignment away from existing line at Sellindge and Bonington in east Kent. (iv) PEARL – (Peckham Against the Rail Link), a new route to avoid Peckham Rye. (d) wholesale changes to the BR route: (iii) RACHEL (Rainham to Channel Tunnel) – a straight tunnel from Channel Tunnel to Rainham (iv) TALIS (Thames Alternative Link International Scheme) RACHEL & TALIS did not allow access to Waterloo, involved higher cost and longer journey time (had to use existing lines).
	Sept	Line Haul	• BR issued a refinement of the selected route which included major change to the London-end tunnel to avoid Swanley and a new surface alignment from Farningham Rd and Fawkham Jct
	Nov 1989-April 1990	Line Haul	• The joint-venture team (BR & Eurorail) worked to refine the design - to remove costs while retaining the levels of environmental mitigation established along the basic route through Kent from the River Medway to Cheriton (Folkstone). • BR set-up a separate team to progress a new subterranean station at King's Cross (BR's favoured London terminal site).
	Nov	Line Haul & Stratford	• Newham became a serious opponent of the King's Cross Bill, and in November 1989 organised a conference, 'A National Focus on the Channel Tunnel', as part of its efforts to promote an easterly approach with a station rather than a terminus at Stratford – an idea supported by John Prescott, the Labour shadow Secretary of State for Transport.
	Nov	Financing & Implementation	• The joint venture announced on 3rd November 1989 that the Channel Tunnel Rail Link alignment presented by BR in March 1989 had risen in cost due to 'extensive consultation which led to detailed proposals designed to overcome the main environmental concerns'.
1990	March	Line Haul & Stratford	• Arup published alternative route proposal which proposes to penetrate London from the east via Stratford.
	April	Project Initiation	• The BR-Eurorail joint venture declared that the new CTRL line would be in operation by 1998.
		Financing	• The joint venture said that the proposal could not be funded commercially due to high tunneling costs and it was decided to defer the CTRL Bill (and to submit an alternative Bill in November 1990).

Year	Month	Type of Decision/Event	Decision/Event
1990	April	Hubs	• The joint venture also agreed that the 2nd London terminal should be at King's Cross. In addition, a West Kent Parkway was proposed at Swanley in Kent, close to M25 to improve viability.
	June	Financing & Implementation	• Government Transport Secretary (Cecil Parkinson) announced that he was unable to accept the Joint Venture's proposal for the high speed line (mainly on cost grounds). The joint venture was consequently disbanded and responsibility for the CTRL project returned to BR who initiated further studies on the London end of the route.
		Financing	• Eurorail consortium dissolves as government refuses further subsidy, saying that the consortium wanted up to £2 billion
		Line Haul	• The Transport Secretary also agreed that part of the CTRL route between Halling and Cheriton in East Kent should be safeguarded under planning directions and asked that consultation be undertaken on that section. For the first time the boroughs, districts and parishes and action groups were brought together for consultation.
	July	Line Haul	• Secretary of State Cecil Parkinson announces that BR will study routes to King's Cross via Stratford: the Arup and RailEurope (formerly TALIS) plans.
	Aug	Line Haul & Stratford	• BR invited Arup and two other promoters to develop their alternative route proposals for more detailed evaluation. • RailEurope consortium formed to develop RACHEL/TALIS concepts for an eastern approach. • This decision also influenced by lobbying from Newham Council and other surrounding councils for a new station at Stratford – as a major regeneration initiative/stimulant.
1991	Apr	King's Cross	• King's Cross Railway Lands - Rosehaugh & Stanhope declare financial problems and sell assets to reduce borrowing.
	May	Line Haul & Stratford	• BR reported to the Government that its proposed route into London (via south-east London) is superior in economic terms, whilst the Arup route is the best alternative for an alignment through east London. • Arup challenges BR conclusions.
	Oct	Line Haul & Stratford	• Government preference is announced for a route 'along the lines' put forward by Arup – the route through east London. Government took the view that an approach to London from the south-east would not realize the full potential of the international connection for the Capital and would have a major environmental impact on SE London. • The eastern route into London was heavily promoted by cabinet member Michael Heseltine since it was seen as the key spine for Thames Gateway development to further sustain London's growth and economic needs and regeneration. • Therefore, in October 1991 Government announced that an approach from East London was preferred – it favoured a Thames crossing in the Dartford Area and approach along A13 corridor, then in tunnel to King's Cross. • Government 's selection of east London route meant that marginal Conservative constituencies in south east London could be avoided. • The east London route was extensively supported by lobby groups such as the Stratford Promoter Group • Government actually chose the more expensive option – the east London route – despite the £175m abortive expenditure by BR on the route through south east London. The east London route also meant an increase in travel time for passengers (by some 20mins).
	Dec	Financing & Implementation	• The BR & Eurorail joint venture had originally required £1,900 million of public sector money to be either committed or placed at risk during the early stages of construction. The Government felt that some of the risks could be better managed by the private sector and therefore decided that the project should proceed as part of the Private Finance Initiative (PFI). • Department of Transport formed a team to consider ways of involving the private sector and to propose a structure which would make the most of what a private sector promoter could offer. The investment bank, Samuel Montagu and civil engineers W.S. Atkins were appointed as consultants, while the Private Finance Panel of the Bank of England participated in the development of the policy.

Year	Month	Type of Decision/Event	Decision/Event
1992	March	Line Haul & Stratford	• BR's Rail Link Project Group is reorganized to refine the east London route. • Arup joined the project team.
	July	Implementation	• Union Railways (URL) is formed to pursue the project – it is a BR agency company comprising public and private sector staff. Arup is one of 6 consultancies involved. The team's remit comprises the safety, business strategy, environment, design, operation, planning and consultation for the east London route.
	Oct	Implementation	• Infringement Proceedings are brought against the United Kingdom Government by the EC Commissioner for the Environment in respect of the implementation of EC Directive 85/337/EEC on the Environmental Impact Assessments of a number of projects including the Channel Tunnel Rail Link
		King's Cross	King's Cross - Rosehaugh ceases trading, insolvent
1993	March	Implementation	• Railtrack is created to operate, maintain and develop the railway infrastructure of England, Scotland and Wales. • Union Railways is appointed to monitor the Channel Tunnel Rail Link project, announces initial plans for its construction
		Financing	• The Secretary of State for Transport reported to Parliament, confirming that the CTRL project will go ahead as a public/private joint venture following public consultation.
		Line Haul & Hubs	• BR published a report on the route options and told the Government that the immediate issue was 'to select the route option that Ministers wish Union Railways to take forward for public consultation.' It emphasised that the report only described and analysed the options: it made no recommendations and left the choice entirely to the Government. • The route for public consultation was defined as passing north of Ashford, following the Arup alignment on a bridge across the Medway, and including two alternative routes from the Barking Portal to London Kings Cross/St Pancras • Government's preferred route (east London) accompanied by 2 options for London terminal (King's Cross/St Pancras)
	May	Line Haul	• Eurostar International Terminal (architect: Nicholas Grimshaw) opens at Waterloo • But, the trains are delayed for a year because they are not yet built
	June	Line Haul	• First test train arrives in UK through Channel Tunnel
	March-Oct	Line Haul	• Once the decision on the route to be taken forward to public consultation was announced in March 1993, there was a six-month consultation with local authorities
	Oct	Line Haul	• URL reports to Government on 'refined route', including option appraisal and mitigation following consultation.
		King's Cross	• The Government and BR were unable to decide between the two terminal options presented, namely King's Cross or St Pancras.
		Stratford	• Stratford Promoter Group submitted (to Secy of State for Transport) proposals for a combined International and Domestic Station at Stratford.
1994	Jan	Line Haul & Hubs	• Secy of State for Transport confirmed the preference for the east London route, St Pancras as the London terminus and (subject to financing), the provision of an intermediate station between Ashford and London. • In early 1994 the route was determined in sufficient detail to enable safeguarding to be carried out to protect it from conflicting planning proposals and the draft of a Hybrid Bill for CTRL was introduced in November 1994.
	Feb	Financing & Implementation	• Launch of competition to appoint private sector promoter to design, build, finance and operate CTRL.

Year	Month	Type of Decision/Event	Decision/Event
1994	Jan-March	Line Haul	• Public consultation on preferred route.
	March-April	Financing & Implementation	• The Department of Transport issued pre-qualification documents - nine consortia responded to the invitation to design, build, finance and operate CTRL.
	May	Project Initiation	• Channel Tunnel opens.
	June	Financing & Implementation	• Four of the consortia pre-qualify: Eurorail CTRL, Green Arrow, LCR and Union Link, invited to tender for the project. • After the pre-qualification round of the competition, the Department of Transport informed the bidders that there were two principal criteria for evaluating bids: (1) amount of Government contribution required; (2) willingness of tenderer to accept risk.
	Aug	Financing & Implementation	• Government also launches the competition to select the private sector consortium that will deliver and operate the CTRL. Bid documents are issued to the four pre-qualifying groups. • Tenders were required to reflect 3 different bases: – No station at Stratford – A Stratford International and Domestic Station – An International-only station at Stratford.
		Ebbsfleet	• The Government announces that an intermediate station would be located at Ebbsfleet.
	Nov	Project Initiation	• The Hybrid Bill to authorise the CTRL was introduced to Parliament in November 1994. • The House of Commons convened a Select Committee, which had the power to require changes to the project, following its consideration of petitioners' cases during 1995. A similar process was undertaken in the House of Lords. • November 14: Public Eurostar services commence with 2 services each way to Paris and Brussels
1995	-	Line Haul & Hubs	• Government published RPG9a – Thames Gateway Planning Framework which envisaged major new housing and economic development in east London and extending into north Kent (including Ebbsfleet).
	March	Financing & Implementation	• Full bids were submitted by the pre-qualified consortia. After evaluation of the bids Eurorail CTRL and LCR were invited to proceed to the final stage of the competition.
		King's Cross	• 230 local residents and businesses petition Parliament against the present form of the Channel Tunnel Rail Bill
	June	Financing & Implementation	• Govt announces that LCR and Eurorail are shortlisted.
1996	Jan	King's Cross	• The House of Commons agrees that the Channel Tunnel Rail Link should be tunnelled through Islington
		Ashford Hub	• Ashford International Station opens – cost approx £80-£100m
	Feb	Financing & Implementation	• The Government and London & Continental Railways (LCR) sign the contract for the project to design, build, finance and operate the CTRL, with LCR acquiring ownership of Union Railways Ltd (by now a Government company) and European Passenger Services Ltd (the UK arm of the Eurostar train services).
	May	Implementation	• Formal transfer of project to LCR.
		Stratford	• With the appointment of LCR comes the decision to include the station at Stratford, which is to be a key part of its commercial strategy (LCR given development rights at Stratford).
		Stratford	• A potentially significant change affecting Stratford IPS was the agreement by both the Government and LCR in 1996 that a new link should be created between the West Coast Main Line (WCML) and the CTRL.

Year	Month	Type of Decision/Event	Decision/Event
1997	June	Implementation	• Government announces that DoT and Railtrack have signed an agreement in principle regarding the latters' input to the project.
	Oct	Implementation	• Construction of Section 1 begins.
	Nov	-	• The Channel Tunnel fire in November 1996, just over five months after LCR took over Eurostar UK, severely disrupted Eurostar services for two months and continued to impact upon the efficiency of the service for a further five months.
	Dec	Implementation	• Royal Assent granted to CTRL Bill.
	-	Financing & Implementation	• Rail Link Engineering (RLE) formed (subset of LCR Shareholders) to undertake detailed design and project management of CTRL Ph1 (and later Ph2). • LCR planned to raise the necessary private sector finance through a mixture of debt and equity including a stock market flotation. However, Eurostar revenues were not as great as forecast by LCR in its bid. As a result, there was growing concern within the capital markets that LCR's traffic projections and consequent revenue stream were unrealistic. The risk associated with the project without the surety of the original forecast revenue stream was simply too great, resulting in a shortfall of potential investors or debt providers.
	Jan	Finance	• January 29: John Prescott, the Deputy Prime Minister, announces that LCR are unable to raise the finance for the Channel Tunnel Rail Link
	Feb	Financing	• The DoT is notified by LCR that its plans for a public flotation would be delayed from October 1997 to April 1998, and that LCR would exhaust its funds from the initial financing in January 1998. To bridge this gap, LCR proposes selling the eleven Eurostar train sets it still owned and leasing them back from the new owner. LCR's access to these funds was, however, prevented under the contract. • LCR informed the Department that to convince investors of the soundness of the Eurostar UK business following the Channel Tunnel fire there was a need to collect more Eurostar UK revenue data.
	April	Implementation	• The first tenders are issued for constructing the CTRL.
	May	Financing	• LCR approached the Department of Transport to obtain a relaxation of the contract – this effectively asked the Department to increase its financial risk in the project by £230 million.
	Sept	Financing	• LCR communicated findings of financial problem to Government. While LCR was considering how to bridge the funding gap, it received a report on future passenger demand for the Eurostar UK service - Eurostar UK was expected to lose £750 million more in the medium term than LCR had forecast in its bid. The size of this expected loss put the second stage financing beyond LCR's reach. • In late 1997, however, LCR had discarded all options that did not include bringing Railtrack into the project. Negotiations with Railtrack commenced, but in January 1998 LCR realised that a deal was unlikely. • Immediately following LCR's announcement in September 1997 that second stage financing could not be reached, the Department of Transport considered its options and instructed its advisers to scrutinise the demand forecasts for Eurostar UK.
	Dec	Line Haul	• Inauguration of Belgian high speed line reduces London-Brussels journey to 2hrs 40mins.

Year	Month	Type of Decision/Event	Decision/Event
1998	Jan	Financing	• The Department of Transport (DoT) commissioned an independent review of the CTRL travel demand forecasts. • LCR publicly approached the Department of Transport with a request for £1,200 million of additional direct grant. The Deputy Prime Minister refused to agree to this request and directed LCR to find risk-sharing partners. • The DoT was aware that the best deal would be won through restructuring the existing deal with LCR as early as Nov. 1997, but decided to wait until the LCR Board publicly announced that it was in difficulty before taking the initiative. • The Deputy Prime Minister made a special statement to the House of Commons on 28 January, announcing the failure of LCR to raise funds to build the CTRL without a further sum of £1.2 billion from the Government. LCR would have 30 days to find the money some other way, failing which, the company's operations would have to be taken over by the Government until other arrangements could be made. Reaction to this statement was predictably along party lines - Labour party members generally gleeful at this failure of private enterprise and Conservative members either insisting that the whole idea should be dropped or that no more public money should be spent. • Tory spokesman Sir Norman Fowler wanted confirmation that there was "absolutely no intention whatever of making it a publicly financed project and that it will go ahead with the help of only private investment." • Mr Prescott reiterated that it was the view of the House that "we want to be connected to Europe by a fast, modern railway system." He was prepared to consider any further proposals LCR may have but they were not getting any more public money.
	Feb	Financing	• LCR presented the outline of a financing proposal that the DoT found acceptable enough to grant an extension to the 30-day cure period granted in January 1998. • LCR's submitted solution met the following objectives which the Department had set for LCR: (1) construction of the entire CTRL; (2) the injection of new private sector management into Eurostar UK; (3) the commitment of third parties with the financial strength to meet their obligations; (4) the achievement of a true Public Private Partnership with each risk allocated to the party best able to manage it and with rewards commensurate with the risks. • This solution won LCR an extension of the cure period so that details of changes to the contract could be considered. The Department agreed the sale and lease back of Eurostar train sets in order to keep LCR solvent, but with proceeds paid into an account over which the Department and LCR had joint control. The Department acquired powers to scrutinise LCR's outgoings. The Department also won concessions from Bechtel Limited, SG Warburg & Company Limited and Railtrack. The two shareholders in LCR agreed to defer charges for their work and Railtrack agreed to defer existing Eurostar UK track access charges until the conclusion of the restructured deal. These charges were at risk if the negotiations broke down and the contract terminated
	April	Financing	• The Department was provided with two new scenarios for future Eurostar UK revenues forecast, a central case and a downside case.

Year	Month	Type of Decision/Event	Decision/Event
1998	June	Financing & Implementation	• John Prescott announced a complicated restructuring and financial deal with LCR to continue construction of the CTRL. • The CTRL was now to be constructed in two stages instead of the original one: Stage 1 from the Channel Tunnel to Fawkham Junction in Kent, Stage 2 from Ebbsfleet to St Pancras via Stratford • LCR appointed the consortium of SNCF (the National Railway of France), SNCB (The National Railway of Belgium), British Airways and National Express to operate the Eurostar service. The contract will run until 2010 when it will either be renewed or transferred to a new operator. The Eurostar operation will return to Government ownership in 2086. The original concession awarded to LCR had been for 999 years. It is now reduced to less than 90. • The new arrangements did not require any significant increase in public sector support, but lead to the restructuring of LCR and the division of the project into 2 sections. Railtrack underwrote construction of Section 1, and had an option to do so for Section 2. • In recognition of the unique features of the project, and of the Government's continuing commitment, £3.75 billion of privately raised debt is Government backed to reduce the overall cost of financing. • While the DoT accepted an increase in long-term financial risks for the taxpayer, many short-term risks remain with the private sector. In some cases these have been spread beyond LCR to companies capable of bearing the risks. • Railtrack informed the DoT that it could not commit to purchase the entire CTRL link until the outcome of the Rail Regulator's access charge review for the domestic network was known.
	Oct	Implementation	• Work began on site to construct Section 1 under a five-year contract to complete by 30 September 2003.
1999	Feb	Financing	• Re-financing completed with a successful bond issue (£2.65bn) and signature of agreements between LCR, Railtrack, RLE, DETR and Inter Capital and Regional Railways (Eurostar Management Consortium).
	Dec	Implementation	• The first contract for advanced works for Section 2 – C365, valued at £1M, to construct undertrack crossings at Ripple Lane, Dagenham – is awarded to AMEC Civil Engineering Ltd, with works beginning in January 2000.
2000	-	King's Cross	• Argent St George are appointed developers of the King's Cross Railway Lands
	Oct	Stratford	• The formal decision to build a CTRL Station at Stratford is made
2001	Jan	Implementation	• First major contracts are awarded for Section 2.
	April	Implementation	• The Deputy Prime Minister signs agreement to secure completion of the CTRL.
	July	Implementation	• Construction of Section 2 of CTRL commences.
	Oct	Financing	• Railtrack enters administration
2002	June	Financing	• LCR reaches agreement with Railtrack Group PLC to acquire the entire share capital of Railtrack (UK) Ltd for £375M
	July	Line Haul	• Start of direct services from Waterloo and Ashford to Avignon
	Oct	Financing	• LCR enters into an agreement to acquire Railtrack's interests in Section 1 with a back-to-back agreement to sell the operator agreement to Network Rail.
	Oct	Stratford & Ebbsfleet	• Tender invitations sent out for Stratford International Station and Ebbsfleet International Station.
2003	July	Implementation	• A Eurostar breaks the UK rail land speed record on Section 1 of the CTRL, reaching 334.7km/hr.
	August	Implementation	• The main CTRL route from Fawkham Junction to Cheriton (excluding Ashford and the Freight chord into Dollands Moor) is accepted - CTRL Section 1 is now considered an operational railway.
	Sept	Implementation	• The Prime Minister opens Section 1 for commercial services 'on time and on budget'.

Year	Month	Type of Decision/Event	Decision/Event
2004	March	Implementation	• Track laying commences CTRL Phase 2.
	May	King's Cross	• Argent St George submit 2 outline planning applications, 8 Conservation Area Consent Applications and 31 supplementary documents to develop the railway lands: they are applying for 486,000 square metres of the available 720,000 square metres of built up area to be office space
	June	Stratford	• Outline planning consent obtained for Stratford City Development.
2006	Sept	Ashford	• Eurostar announces reduction of International Services from Ashford: – Ashford to Paris - three trains instead of six – Ashford to Brussels - service discontinued – Ashford to Disneyland Resort Paris train retained – Ebbsfleet to Paris - seven services – Ebbsfleet to Brussels and Lille - five trains
2007	Nov	Implementation	• Opening of Section 2 and completion of the CTRL.
2009	?	Implementation	• Commencement of domestic services from Ebbsfleet

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Route Options and Appraisal (1987-1993)

The following points are extracted from studies on route and station options conducted by BR's subsidiaries and appointed consultants:

The Union Railway and the Environment Appendix to the British Railways Board Report

- In October 1991, the Government announced a preferred route corridor for the high-speed rail link between the Channel Tunnel and London based on the conceptual alignment proposed by Ove Arup and Partners.
- Union Railways Limited, the agency company established by British Rail to take forward the planning of the project, was asked to define a detailed alignment along this corridor to the point at which public consultation could be undertaken and the land involved safeguarded.
- Union Railways was asked to identify a "reference case" route, based on the alignment which would maximise the return to the project, taking into account both costs and revenues, whilst nevertheless meeting the environmental standards generally applied to other major infrastructure projects in this country. In addition, where local variations would bring additional environmental or regeneration benefits or greater benefits to commuters, Union Railways was asked to report on those cases and options.
- In response to the Government's remit, Union Railways developed a range of options to fulfil these aims. They are termed:

  – the Board Reference Case;
  – the Board Policy Case;
  – the Regeneration Options;
  – the Options for Additional Environmental Mitigation; and
  – the Additional Tunnels Options.

- Environmental Resources Limited (ERL), with the assistance of Llewelyn-Davies and a team of environmental consultants covering specialist topics, was commissioned by Union Railways to carry out environmental appraisals of the Board Reference Case, the Board Policy Case, the Options identified above and the St Pancras alternative route.
- The report is NOT the Environmental Statement required by the European Community (EC) Directive on "The assessment of the effects of certain public and private projects on the environment", and the appropriate UK implementing legislation.
- There are requirements for the environmental effects of major projects to be assessed and described in an Environmental Statement. Guidance on assessment is provided in the Department of the Environment's Planning Policy Guidance Notes, although no specific standards are set down.
- In the absence of pre-defined environmental standards, the environment team has used three means of ensuring that the Board Reference Case meets the standards generally applied to other major infrastructure projects in this country:

  – by defining design aims;
  – by undertaking a review of other major infrastructure projects; and
  – by utilising the experience of specialists in the environment team.

- The conclusions of the review of other major infrastructure projects are that the environmental acceptability of a project depends upon the project's strategic importance and whether there are affordable ways of avoiding the effects, for example by taking a different route or adopting effective mitigation measures.

- Throughout the process of route development, environmental input was provided by the Union Railways Environment Department and the Environmental Assessment Consultants (EACs) listed in Table 12.

Table 12: The Environmental Assessment Consultants

STUDY	**COMPANY**
General Environmental Assessment Consultant	Environmental Resources Limited assisted by Llewelyn-Davies
Specialists	
Agriculture	Michael Boddington Associates
Aquatic	Scott Wilson Kirkpatrick and Partners
Atmospheric	Arup Environmental
Community	The MVA Consultancy
Contaminated Land	Aspinwall and Company
Ecology	Cobham Resource Consultants
Historic and Cultural	Oxford Archaeological Unit
Landscape and Visual	Shankland Cox Limited
Planning	Arup Economics & Planning
Noise	Ashdown Environmental Limited
Socio Economic and Development	PIEDA plc
Traffic and Transport	Mott MacDonald Environmental Consultants
Vibration	Ashdown Environmental Limited
Waste	Mott MacDonald Environmental Consultants

[Sources: Environmental Resources Limited (March 1993) The Union Railway and the Environment Appendix to the British Railways Board Report.]

Comparative Environmental Appraisals

Route alignments considered are defined as follows:

- *The Board Reference Case route* is a combination of sub-routes which produces an alignment from Cheriton through to London which would maximise the financial return to the project, taking into account both costs and revenues, while meeting the environmental standards generally applied to other major transport infrastructure projects in the UK.
- *The Board Policy Case route* follows the same combination of sub-routes as the Board Reference Case route and includes additional junctions, connections and stations which are required to maximise the economic benefits of the scheme.
- *The Published Route* is that published by the Department of Transport in October 1991.
- *The Safeguarded Route* is the alignment, predominantly on the surface, from Cheriton to Detling which remains subject to a safeguarding direction made in September 1990.
- *The formerly Safeguarded Route* is the surface alignment between Detling and Upper Halling which was subject to the same safeguarding direction made in September 1990 but subsequently de-safeguarded in October 1991.

- The Published route is a conceptual proposal for which much less detail is available than for the other route. It therefore requires the use of a simplified approach to the appraisal exercise.
- Some of the methods used to appraise the environmental effects of the routes have progressed and changed since 1990.
- This exercise should be considered as an appraisal of each route's environmental performance rather than the establishment of a preferred choice of route on environmental grounds.
- Criteria for Comparative Environmental Appraisal are as follows:

  - Characteristics of the Route
  - Agriculture
  - Contaminated Land
  - Ecology
  - Historic and Cultural
  - Landscape
  - Spoil Disposal
  - Aquatic
  - Residential Property
  - Noise
  - Re-radiated Noise
  - Visual
  - Commercial Premises
  - Visitors and Users of Public Facilities
  - Board Policy Case

- Each route was separated into 5 sections for the comparative Environmental Appraisal.

Because some part of the Published route was a conceptual proposal, the Published Route and the Board Reference Case (including the Board Policy Case) routes in section 6 of this report have been evaluated generally using the simplified Framework. Sections 4 and 5 of this report have been evaluated using the Full Environmental Framework.

For more information about the environmental appraisal please see the report: Environmental Resources Limited (March 1993) The Union Railway and the Environment Appendix to the British Railways Board Report.

Figure 24: BR's 1973 Routes

Source: Faith, N. (2007) The Right Line: The politics, the planning and the against-the-odds gamble behind Britain's first high-speed railway, Segrave Foulkes Publishers, London, p.27.

Figure 25: BR's 1986 Routes

Source: Faith, N. (2007) The Right Line: The politics, the planning and the against-the-odds gamble behind Britain's first high-speed railway, Segrave Foulkes Publishers, London, p.39.

Route options & comparison: British Railways Board Report June 1991

- On 14 June 1990, the Secretary of State for Transport made a statement in the House of Commons concerning the proposals for the new high speed rail link from London to the Channel Tunnel. The Government was not satisfied with BR's solution so far. There was broad agreement on the right corridor for the new line between the North Downs and the Channel Tunnel, which the Government proposed to safeguard by planning directions. BR was asked to complete its studies, with the aim of maximising the benefits to international passengers and commuters alike, concentrating particularly on options for the route from the North Downs to Waterloo and Kings Cross.
- The Secretary of State's consideration of a number of route options by BR between 1988 and 1991 are described in BR's report entitled "Rail Link Project: Comparison of Routes" published in June 1991.
- The report compared four route options which had been developed in 1990 and 1991: One approached Kings Cross from the South while another – the Ove Arup option – approached from the east via Stratford. The other two terminated at Stratford, again approaching from the south and the east respectively. (Please see FigureX)
- BR Board conclude that considering the costs and benefits appraisal, the southerly route to King's Cross is the preferred option; if consider the environmental impacts, the easterly route has less impacts, although the report suggests the impacts are in very small difference between these schemes. If consider socio-economic and development impacts, an easterly approach would be preferred and within those easterly schemes, the Ove Arup route is preferred. However, at the same time, the report suggests the regeneration benefits generated from the high speed link are relatively small.
- The BR Board have considered the choice of route and terminals based on the following four studies:

  – A report by the Rail Link Project Group team, which included a financial comparison of the different schemes.

  - A report by Environmental Resources Ltd on the environmental impact of each of the schemes.
  - A report by PIEDA Plc on the Socio-Economic impacts of each of the schemes.
  - A dossier containing the formal views expressed by the Local Authorities affected by each of the schemes.

- W S Atkins produced a short-list comprised schemes put forward by Ove Arup and Partners, Rail-Europe and the London Borough of Newham, together with a southerly approach route to Kings Cross via junctions at Bourne Wood and Warwick Gardens.
- The main conclusion of the BR Board Report in June 1991 is that schemes to Kings Cross generate much greater revenues and commuter benefits than those which have a terminus at Stratford. In the same terms, a southerly approach to King's Cross generates more revenues and commuter benefits that an easterly approach.
- Costs have been estimated at end 1990 prices. The southerly approach to Stratford has the lowest capital cost. The southerly approach to Kings Cross is considerably less expensive than the easterly approach. It should be noted that the costs of the Stratford schemes do not include the additional cost of developing the Thameslink 2000 scheme without the Rail Link being routed to Kings Cross (nor contribution to any of the costs of Crossrail or Jubilee Line Extension both of which the Board consider are essential to the success of any Stratford scheme).
- It has been strongly argued, notably by LPAC and SERPLAN, that the Rail Link could assist in the regeneration of the East Thames Corridor. Some have suggested that adopting an easterly approach is fundamental to this objective. Accordingly the Board commissioned PIEDA plc to assess the socio economic impact of constructing the rail line along each of the main route corridors. The main conclusion suggests that the regeneration benefits cannot fully justify the easterly route.
- International service at Waterloo was later abandoned due to train operation and service reason in 2004.

[Source: BR Board (June 1991) Rail Link Project: Comparison of Routes]

<u>Summary of W S Atkins study for BR Board</u>

- W S Atkins were appointed by the British Railways Board on 1st November 1990 to undertake an Independent Review of the work of the Rail Link Project (RLP). Their study concerned only with issues that affect the comparison – and not the viability – of schemes
- The issues they discussed in this study are:
  - RLP's Remit
  - Planning and development impact
  - Property policy
  - Railway engineering and operations
  - Environmental impact
  - The comparison of schemes

- The main conclusions were:

Quite often RLP's work has been restricted, sometimes by Government, or by the remit, but also by RLP's own actions. … The programme of work since June 1990 could have been better structured. The framework assessment of schemes should have been attempted earlier. A comparison which evaluates each scheme against the Do-Minimum alternative is desirable.

RLP's role is to make a clear statement of the consequences in each case. We are nevertheless satisfied that the Board has taken a view of the wider impacts of each scheme and that the work that has been carried out by RLP provides the Board with a reliable basis for making its recommendations to Government.

- Key points relating to each of the above issues are:

RLP's Remit

- In investment appraisal, BR are obliged by statute to consider (only) business considerations, "externalities" and environmental impacts. RLP are not best placed to carry out some of the other tasks required by a social cost-benefit analysis of the type that we recommend.

- W S Atkins are satisfied that, in the time available, the uncertainties surrounding passenger traffic and revenue forecasting have been tackled satisfactorily by Coopers & Lybrand Deloitte (C&LD). WS Atkins suggest the complexities of the exercise are probably understood by C&LD better than any other group, because of their long history in Channel Tunnel traffic forecasting.

- In reality the importance that the international demand forecasts attach to relatively small time savings may be misplaced; but W S Atkins fully acknowledge their significance to the revenue forecasts, given the requirements of BR's Revenue Sharing Agreement with its operating partners – W S Atkins have assumed that the Agreement is firm.

- Both W S Atkins and BR are aware of the forecasts are uncertain.

Planning and development impact

- Planning in the South-east should not be project-led, but be in accordance with defined policies and strategies. The absence of statutory policies has encouraged interested parties to put forward alternative CTRL proposals, most of which address wider issues, outside RLP's remit. The performance of the Project team should be assessed against this background.

- Pieda's findings point towards the long-term nature of any benefits that CTRL will generate in the East Thames Corridor; and to the low financial impact as a result. The importance is highlighted of development potential; of the "right" market conditions; and of supporting policies and investments, to successful development in the Corridor and to the attainment of benefits offered by CTRL. So too is the issue of dilution from elsewhere in the South-east. Pedia have taken a pragmatic rather than visionary approach to potential impact and have not attempted to place values on long term aspirations. Whilst we have queried some elements of detail, W S Atkins have found no basis on which to disagree fundamentally with Pieda's overall conclusions.

Property policy

- W S Atkins appointed Debenham, Tewson and Chinnocks as their specialist property advisers. RLP's property policy has been reviewed but not the detailed assessment of property costs for each route. They consider that BR's property purchase policy for the Eastern Section has been very generous. They suggest that there is a possibility that earlier decisions on property may have had a minor influence on the selection of options, but we are satisfied that the consequences of the intended policy have been included correctly in the overall scheme comparison.

Railway engineering and operations

- In the case of East-West Crossrail and its potential link with an Eastern Approach, a more complete presentation of operations and costs (and benefits) is required.

The comparison of schemes

- W S Atkins would have preferred to have seen all schemes compared with the "Do Minimum" scenario though they accept that this might raise problems of confidentiality if the work were to be made public. Most notable in this respect is the Kings Cross Terminal and Thameslink and all that these involve in terms of cost-sharing between NSE, EPS, Inter-City and the developer consortium. W S Atkins are satisfied that RLP's approach to defining the Do-Minimum (for the assessment of viability) is on the right lines.

– It would have been advisable for RLP to include this analysis in their report of the comparison of schemes and also to set out the Phase 1 costs at Waterloo and those for Stratford, Crossrail and the Jubilee Line in the same way. RLP's treatment of sunk costs has been correct; to have set them out would have helped to overcome objections that the station strategy in London has not been evaluated fairly.

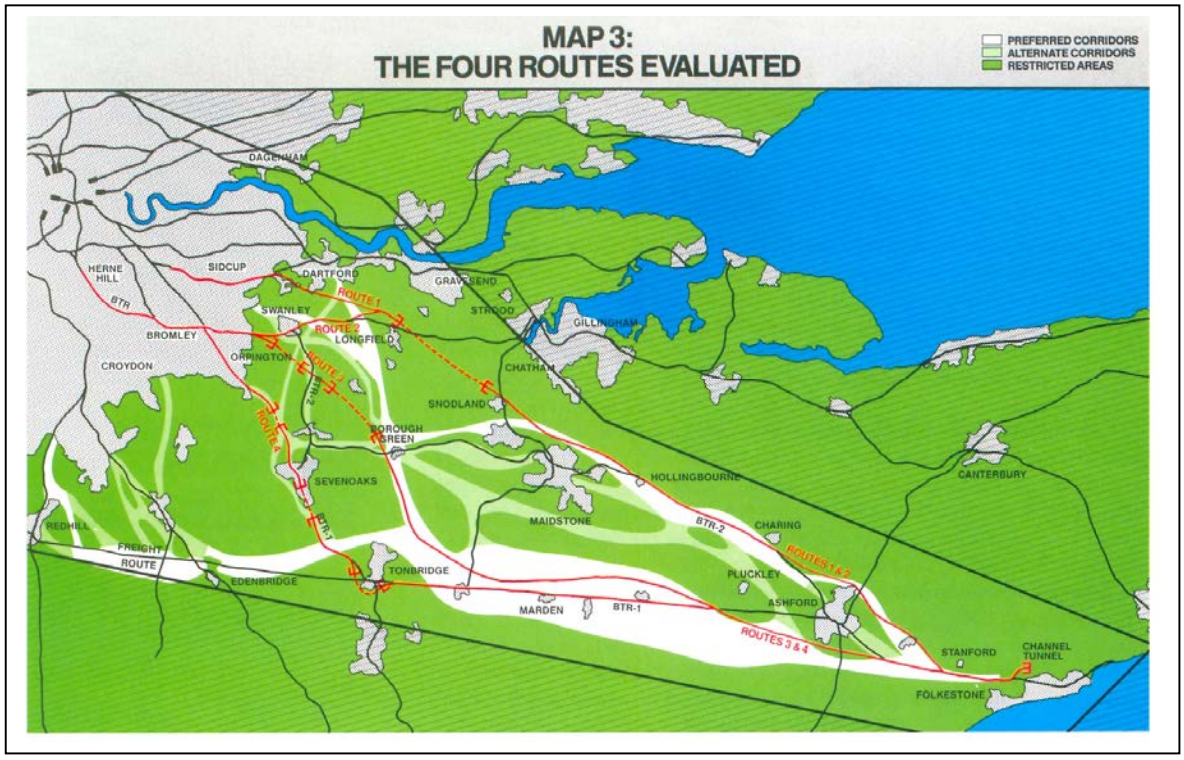
[Source: W S Atkins (June 1991) Independent Review: Final Report prepared for British Railways Board]

Comparison of Routes May 1991: Report to BR Board by Rail Link Project (RLP)

Route and Terminal Studies: 1987-1990

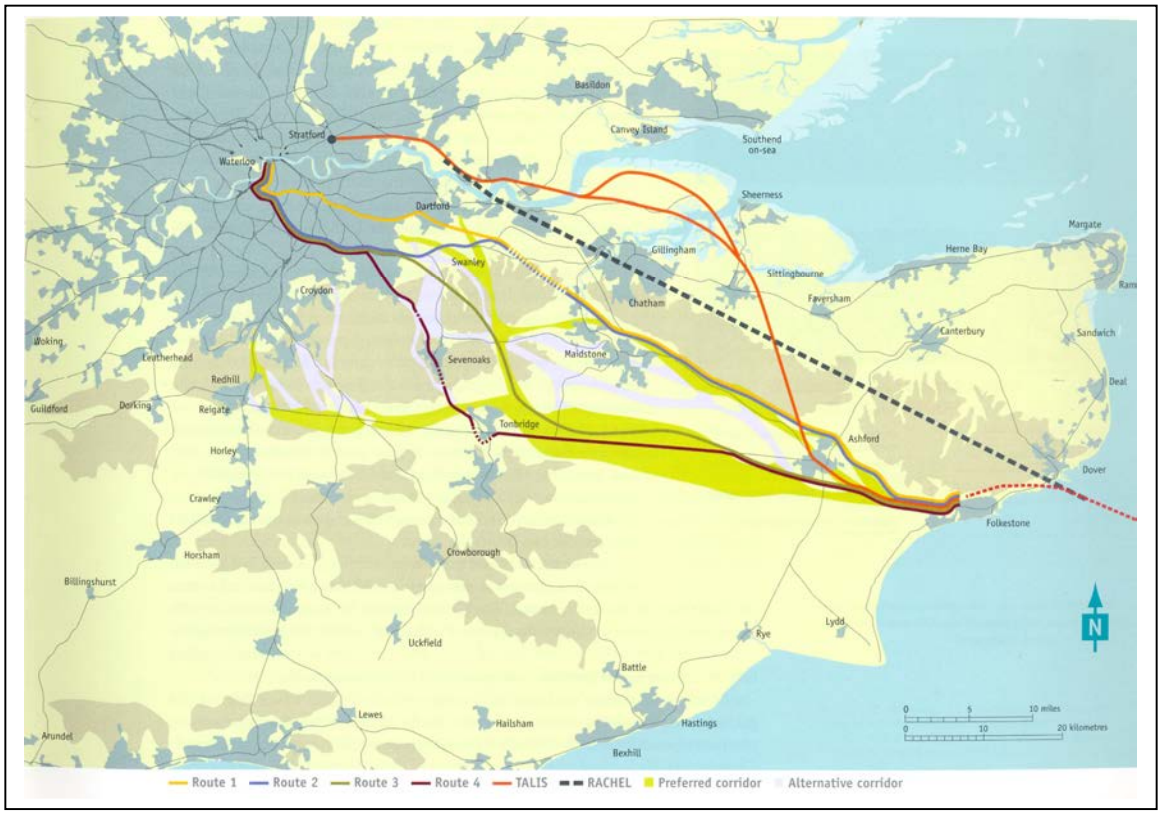
- At the time of submission to Parliament of the Channel Tunnel Bill, BR took the view that additional infrastructure was not required in the foreseeable future for international traffic to meet the traffic growth forecasts.
- In August 1987, the Kent Impact Study was published by the Department of Transport**.** It questioned BR's view that new infrastructure was unnecessary until well into the next century. It concluded that the capacity of the Channel Tunnel routes could constrain the growth of rail traffic earlier than BR anticipated.
- BR responded to this by setting up a Task Force to study options for augmenting capacity. In parallel, an assessment was to be carried out to identify when the additional capacity would be required. Task Force published 4 route options in his report "Channel Tunnel Trains Services" in July 1988.
- Task Force also identified that any additional international capacity will have to be at another location. It would only be possible to run more trains from Waterloo International by providing additional platforms, thus reducing the facilities available for domestic services.
- Task Force claim that it is unlikely that there is a single location in central London of sufficient size to accommodate the total forecast international passenger requirement and to replace Waterloo. This requirement is not only for the provision of platforms and rail access but also for adequate passenger dispersal. A terminal that is complementary to Waterloo is therefore required.
- Environmental Resources Ltd were appointed to advise the Task Force on environmental matters during all steps of route planning.
- Potential terminal sites were: King's Cross, St Pancras, Stratford and White City
- In transport forecasts, 1987 BR projections varied substantially from those of the other two sets of forecasts of traffic growth over a 30-year period and hence the year when demand might exceed available capacity. BR remained convinced that its forecast was robust. (BR's number is lower than the other two sets of forecasts, eg. In year 2023, BR's number for passenger trips is 25.9 million/year but SETEC's number is 31.9 million; again the freight in BR's forecast is 8.5 tonne, but for SETEC, the number is 16.4 tonne.
- In response to continued public concern and at the Governments' behest, BR accelerated the process for selection of the proposed route with the aim of announcing it in March 1989. Concern among residential property owners along the corridors announced in July 1988, which was aggravated by the first signs of a fall in the property market, led to the introduction of a voluntary purchase scheme in November 1988. The principal criterion for purchase was hardship arising from an inability to sell, provided that the sale was for reasons other than the impact of the Rail Link.

Figure 26: July 1988 The Four Routes Evaluated



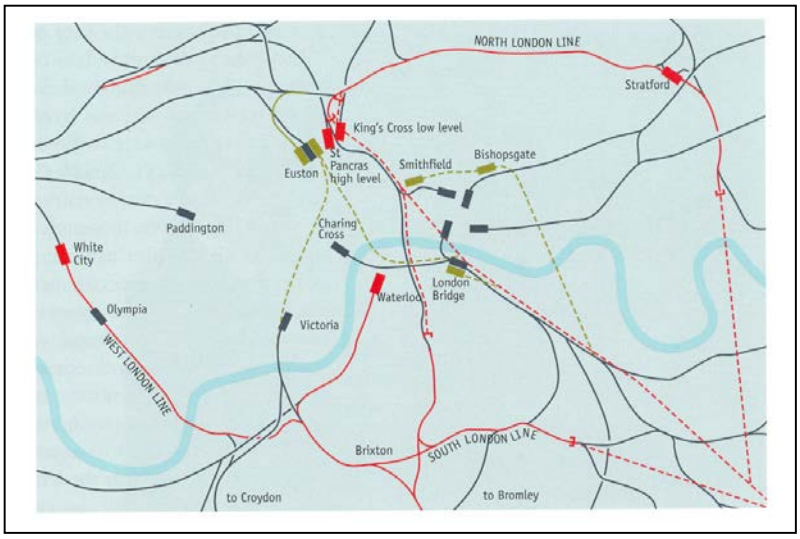
[Source: Faith, N. (2007) The Right Line: The politics, the planning and the against-the-odds gamble behind Britain's first high-speed railway, published by Segrave Foulkes Publishers, London, p.60.]

Figure 27: 1988 Routes: BR, TALIS & RACHEL



[Source: Faith, N. (2007) The Right Line: The politics, the planning and the against-the-odds gamble behind Britain's first high-speed railway, published by Segrave Foulkes Publishers, London, p.63.]

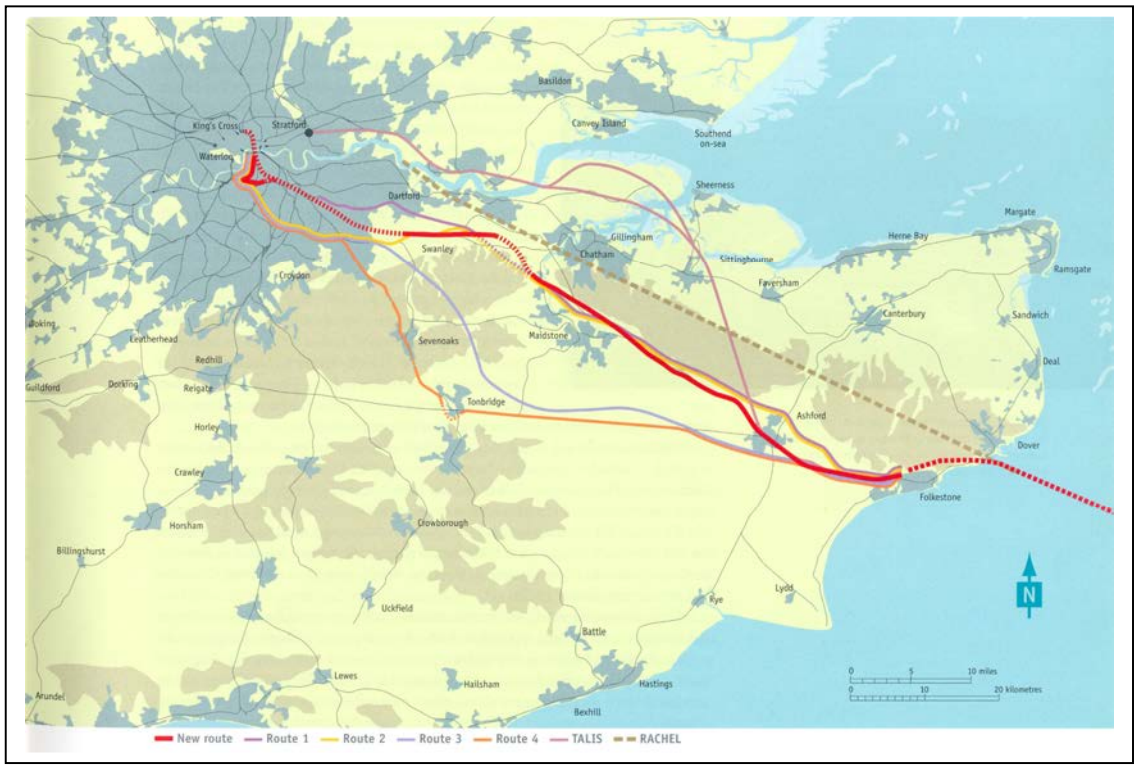
Figure 28: July 1988 Options for a second London Terminus



BR's July 1988 report ruled out several possibles (show in green above) for a second terminus. Shortlisted were (in red): St Pancras, King's Cross Low Level, White City and Stratford.

[Source: ibid, p.67.]

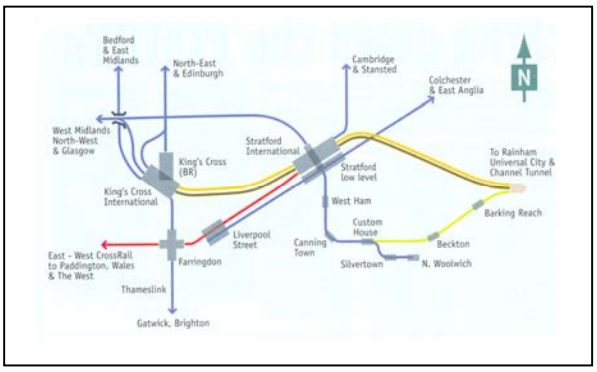
Figure 29: British Rail's March 1989 Route



[Source: ibid, p.71.]

Comparative Route Studies: June 1990 to April 1991

- A southerly approach to Kings Cross via Warwick Gardens offers the opportunity to maximize the benefit of the Thameslink improvement scheme for commuters. The direct routes to Kings Cross and the Ove Arup and Partners scheme offer less commuter improvement opportunity. With the London Borough of Newham and Rail-Europe schemes, Thameslink will need to provide a freestanding low level station at Kings Cross, if commuters are still to enjoy the benefits of the improved Thameslink scheme

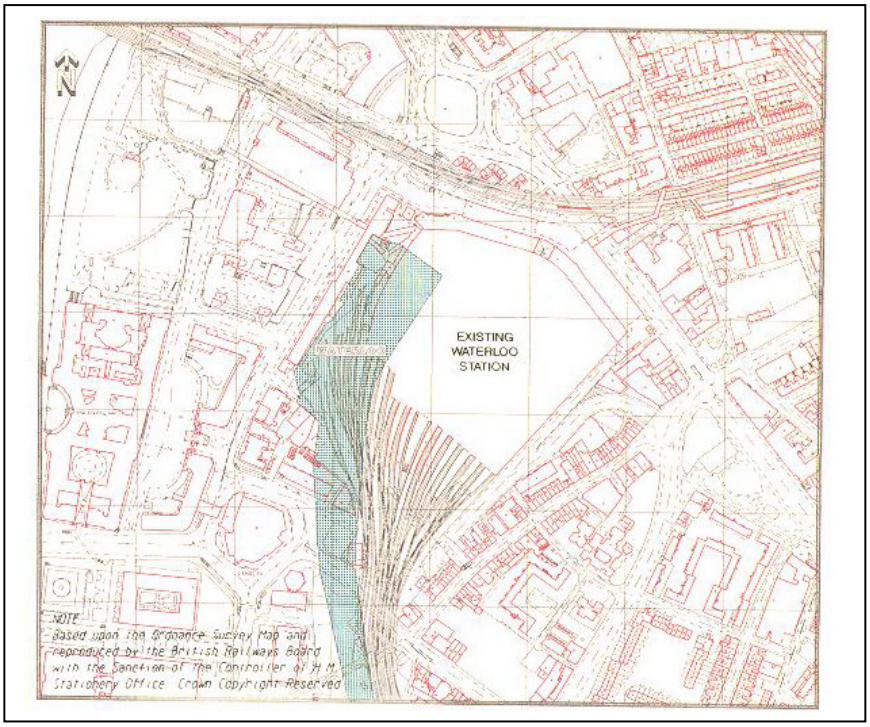


In Arup's vision, Stratford International would be a major hub, with links to Crossrail, the North-West main line and Eastern England. King's Cross International would lik to both north and (via Thameslink) south. A freight spur would link with the Gospel Oak-Barking line, connecting it to the reset of the BR network.

- International passenger traffic
- Outer commuter traffic
- Inner commuter traffic
- Proposed East-West Crossrail
- Existing BR traffic

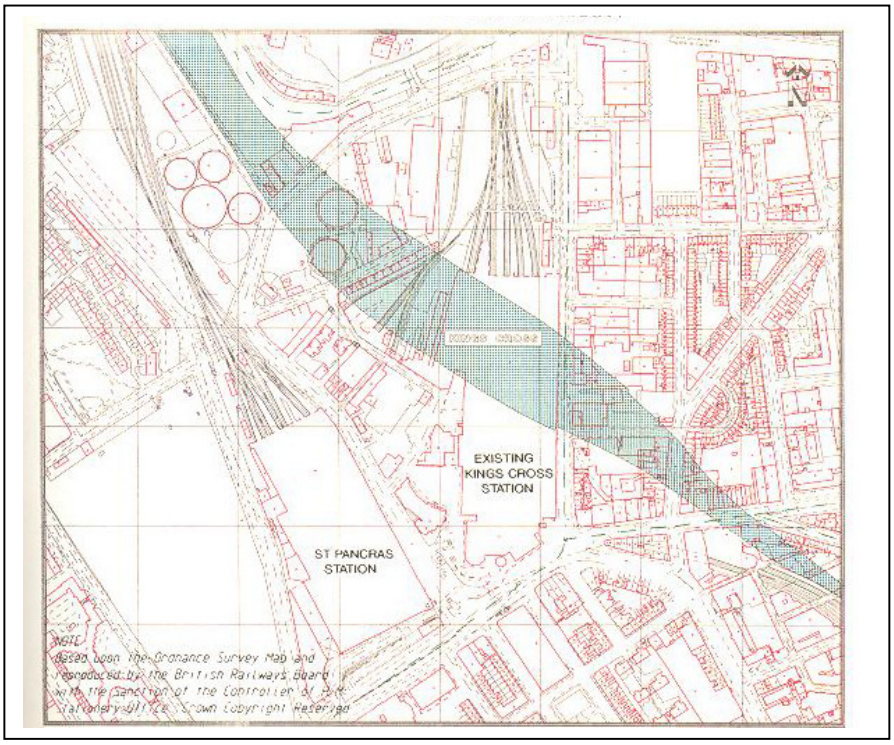
[Source: ibid, p.120.]

Figure 30: 1991 Waterloo International Terminal (under construction at the time)



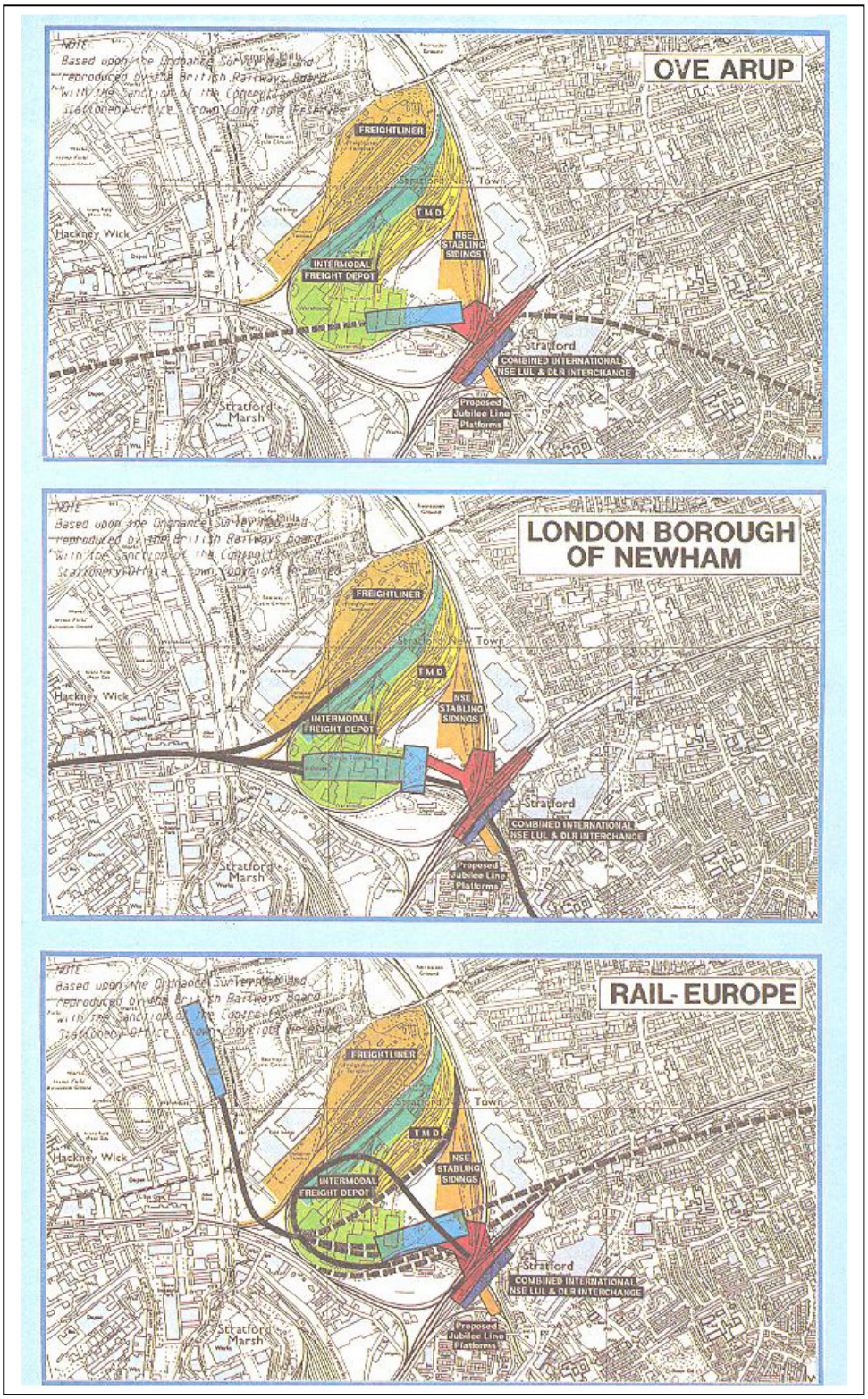
Source: RLP (1991) Comparison of Routes, p. 42

Figure 31: 1991 BR Proposed King's Cross Low Level Station



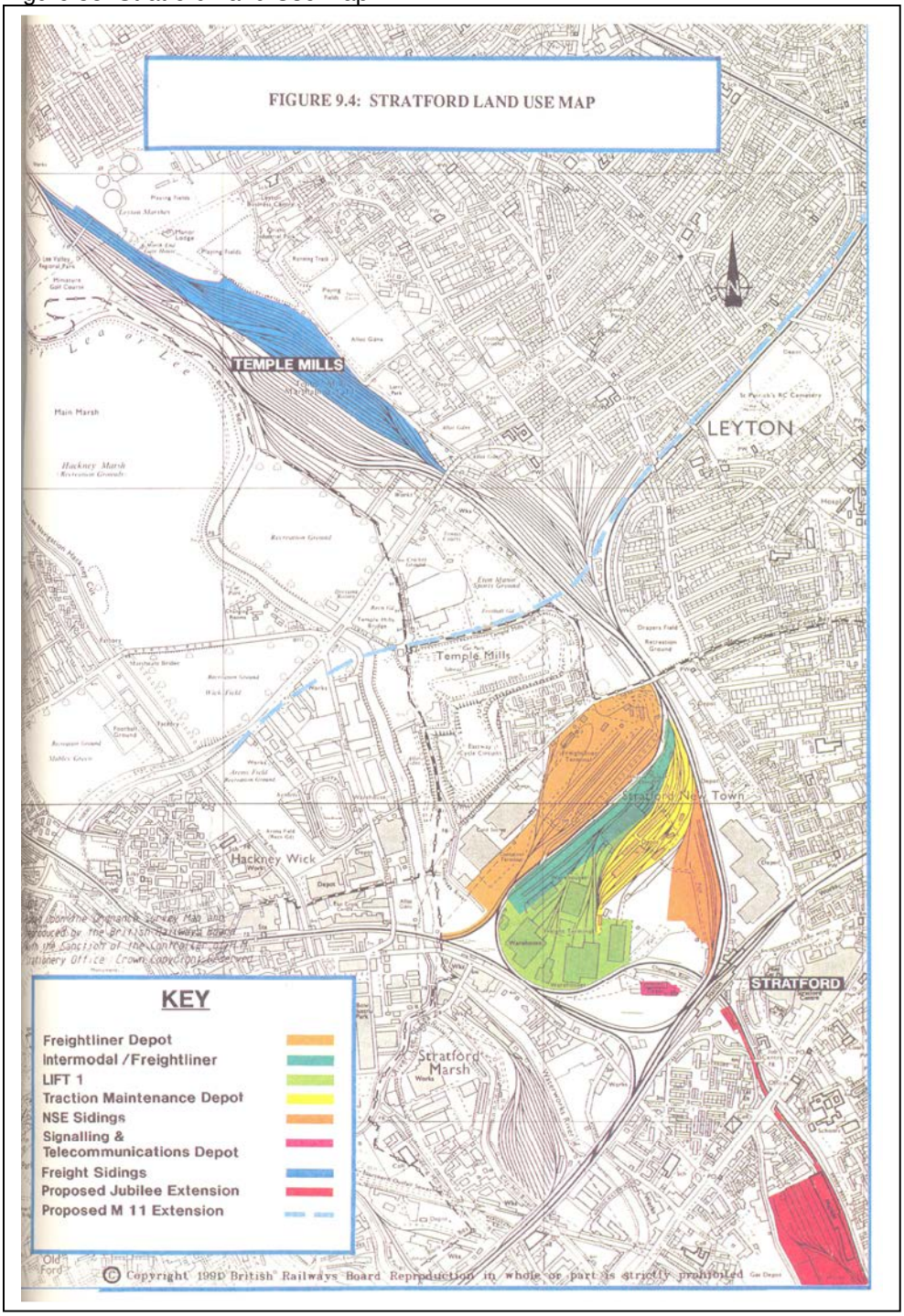
Source: RLP (1991) Comparison of Routes, p. 42

Figure 32: 1991 Stratford Station Options



Source: RLP (1991) Comparison of Routes, p. 43

Figure 33: Stratford Land Use Map



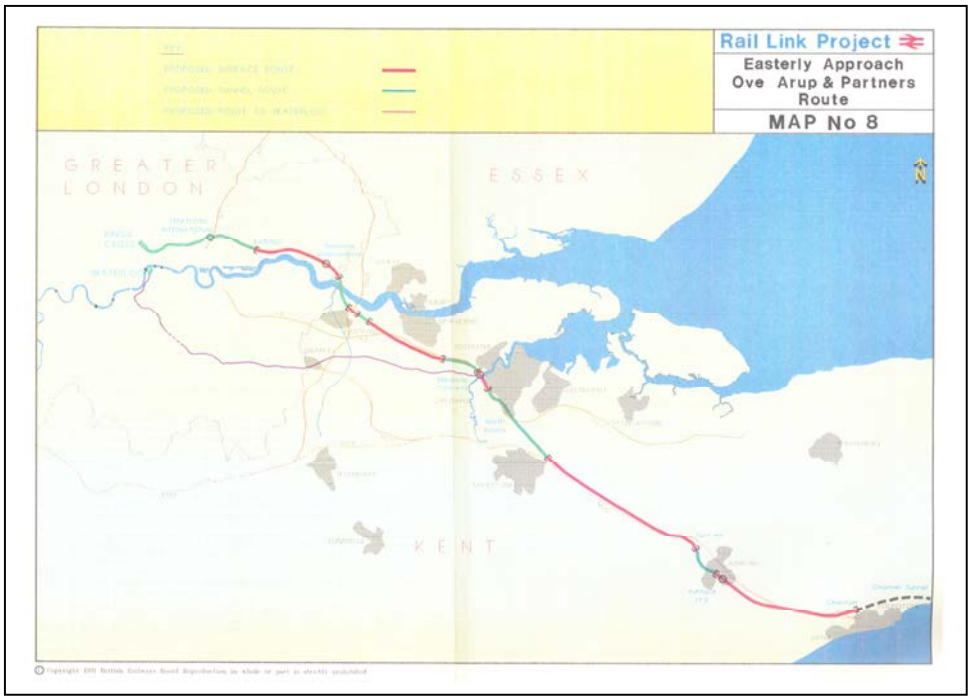
There are clear commercial benefits if it can be located near the existing depot and warehouses. It is therefore planned to construct the depot, together with a “freight village” of modern warehouses, on the London international Freight Terminal and Traction Maintenance Depot site.

Source: RLP (May 1991) Comparison of Routes, Report to British Railways Board, p.44

Figure 34: Southerly Approach to King's Cross (BR Revised alignment) and Southerly Approach to Stratford (London Borough of Newham)

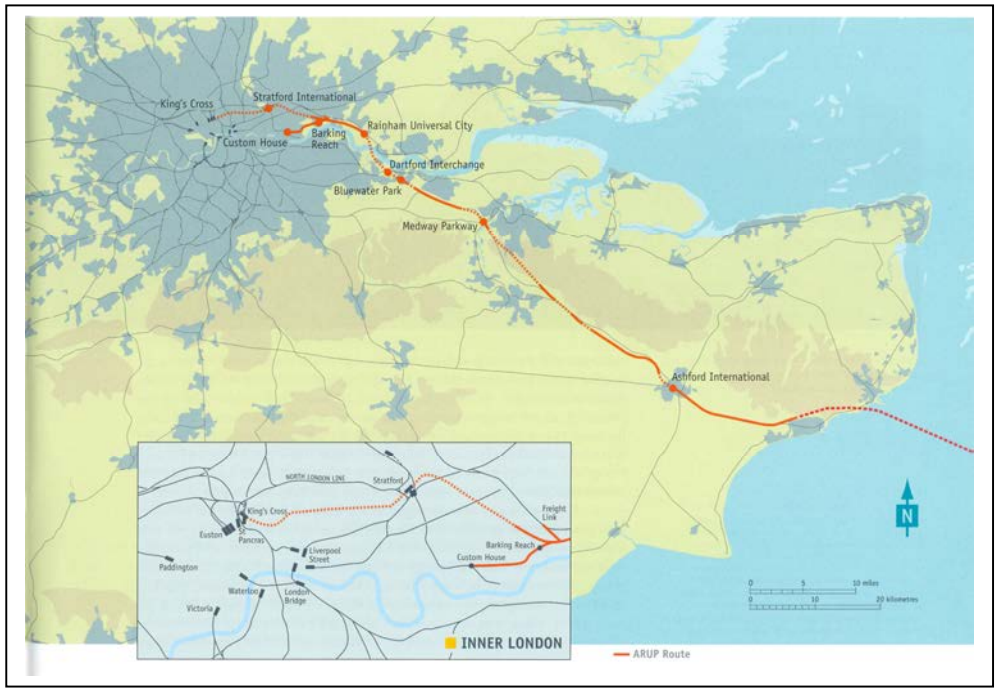
Source: RLP (May 1991) Comparison of Routes, Report to British Railways Board, p.47

Figure 35: Easterly Approach to King's Cross (Ove Arup and Partners)



Source: RLP (May 1991) Comparison of Routes, Report to British Railways Board, p.48

Figure 36: Arup's Route, March 1990

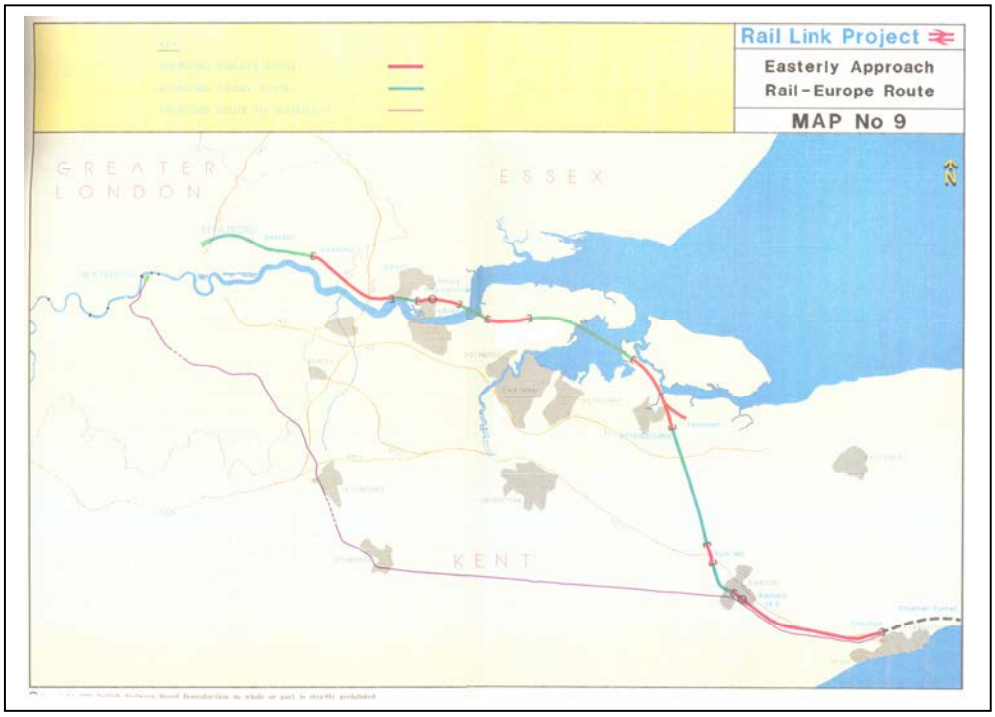


Source: Faith, N. (2007) The Right Line: The politics, the planning and the against-the-odds gamble behind Britain's first high-speed railway, published by Segrave Foulkes Publishers, London, p.121.

Figure 37: Arup's Amended Eastern Route, December 1990

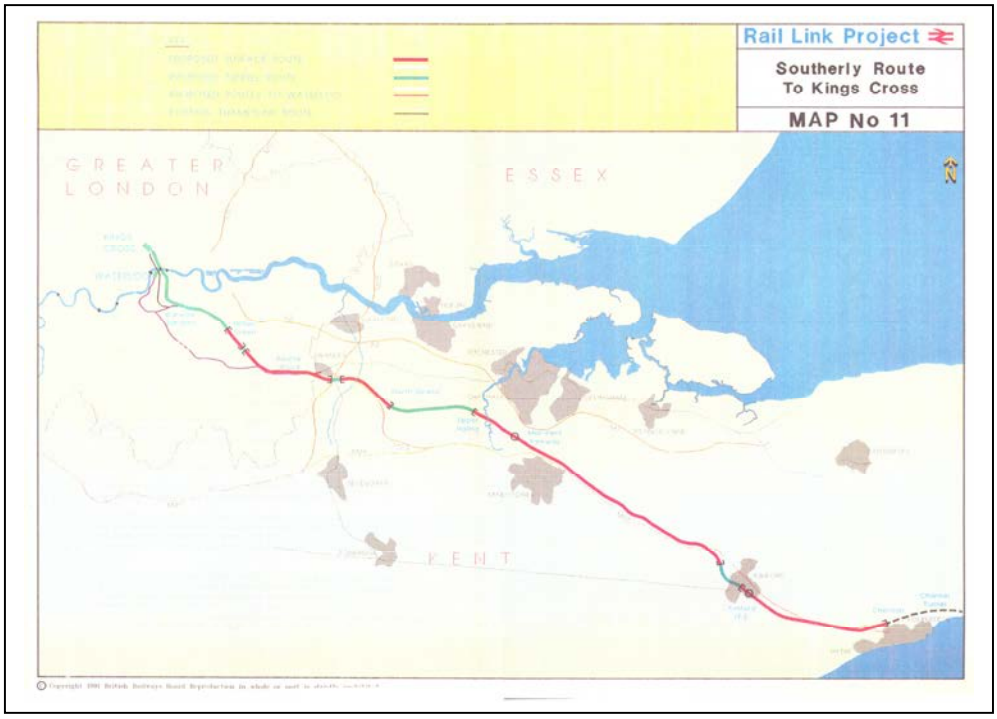
Source: Faith, N. (2007) The Right Line: The politics, the planning and the against-the-odds gamble behind Britain's first high-speed railway, published by Segrave Foulkes Publishers, London, p.135.

Figure 38: Easterly Approach Rail-Europe Route



Source: RLP (May 1991) Comparison of Routes, Report to British Railways Board, p.50

Figure 39: Southerly Route to King's Cross



Source: RLP (May 1991) Comparison of Routes, Report to British Railways Board, p.56

Table 13: Summary of Benefits and Costs Comparison of 4 Options in 1991-at 8% discounted rate

SUMMARY OF RELATIVE BENEFITS AND COSTS (DISCOUNTED AT 8%) (£ million)				
	Routes to Kings Cross		Routes to Stratford	
	Southerly approach	Ove Arup and Partners	London Borough of Newham	Rail-Europe
EPS[1] net revenue reliability[2]	Base	-85	-420	-535
	Base	-30	-20	-10
NSE[3] net revenue and benefits	Base	-45	-115	-140
InterCity net revenue	Base	-5	-15	-25
Parcels net revenue	Base	-40	-10	-50
TOTAL RELATIVE BENEFITS	Base	-205	-580	-760
Capital cost (route and stations)	3425	3905	2945	3570
Additional freight cost for mixed traffic	N/A	100	N/A	150
Property Cost	140	240	160	220
Total Costs	3565	4245	3105	3940
RELATIVE COST	Base	-680	+460	-375
TOTAL OF RELATIVE BENEFIT AND RELATIVE COST	Base	-885	-120	-1135

Notes:
★ Costs and Benefits are at End 1990 prices and discounted to mid year of construction period.
[1] European Passenger Services Ltd
[2] Effect on net revenue of different reliability.
[3] Network SouthEast revenues, passenger benefits, and external benefits.

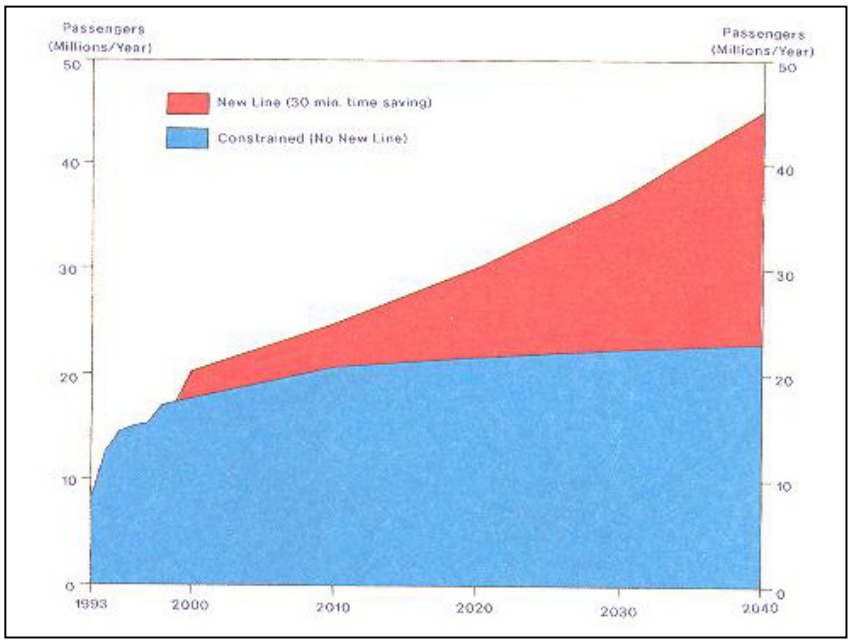
Table 14: Summary of Benefits and Costs Comparison of 4 Options in 1991-at 4% discounted rate

SUMMARY OF RELATIVE BENEFITS AND COSTS (DISCOUNTED AT 4%) (£ million)				
	Routes to Kings Cross		Routes to Stratford	
	Southerly approach	Ove Arup and Partners	London Borough of Newham	Rail-Europe
EPS[1] net revenue reliability[2]	Base	-155	-825	-1030
	Base	-60	-40	-20
NSE[3] net revenue and benefits	Base	-45	-250	-275
InterCity net revenue	Base	-10	-30	-50
Parcels net revenue	Base	-80	-20	-100
TOTAL RELATIVE BENEFITS	Base	-350	-1165	-1475
Capital cost (route and stations)	3425	3905	2945	3570
Additional freight cost for mixed traffic	N/A	100	N/A	150
Property Cost	140	240	160	220
Total Costs	3565	4245	3105	3940
RELATIVE COST	Base	-680	+460	-375
TOTAL OF RELATIVE BENEFIT AND RELATIVE COST	Base	-1030	-705	-1850

Notes:
★ Costs and Benefits are at End 1990 prices and discounted to mid year of construction period.
[1] European Passenger Services Ltd
[2] Effect on net revenue of different reliability.
[3] Network SouthEast revenues, passenger benefits, and external benefits.

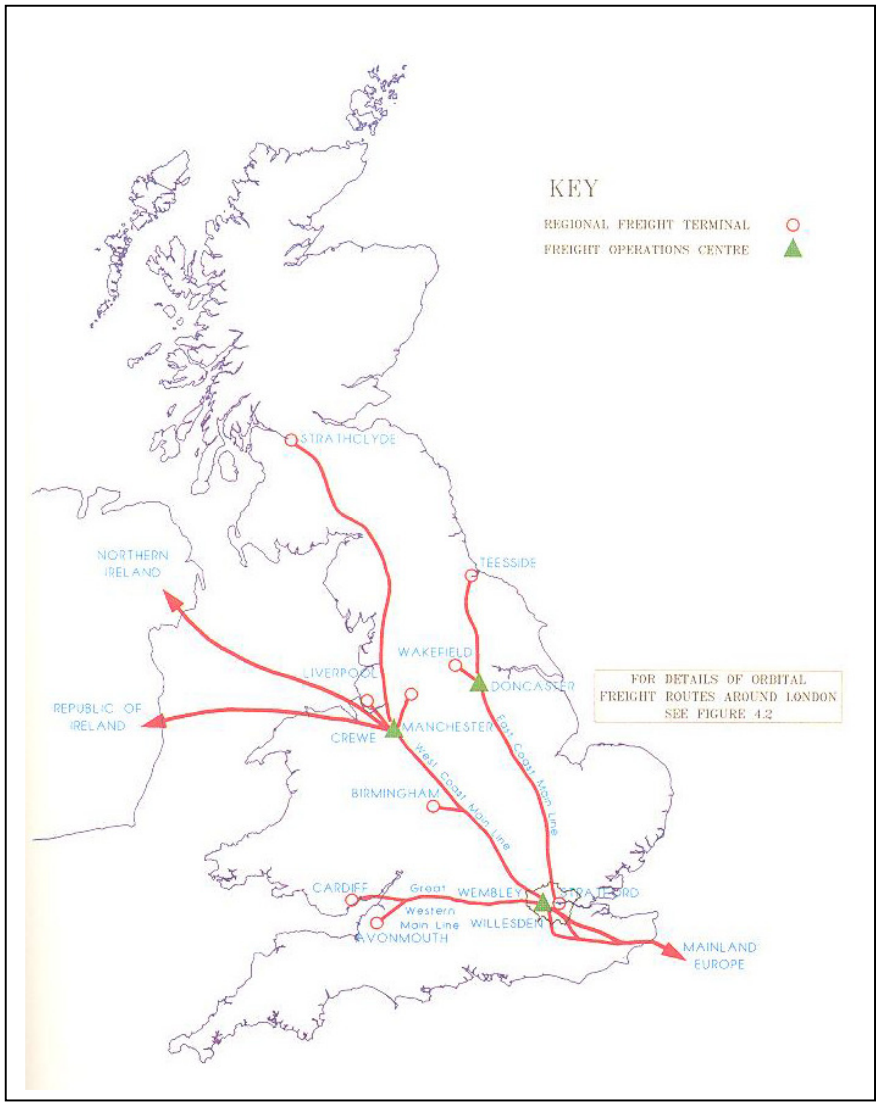
Source: RLP (May 1991) Comparison of Routes, Report to British Railways Board, Appendix 1

Figure 40: BR's forecasts of international passenger traffic (based on the work of Coopers & Lybrand Deloitte)



Source: RLP (May 1991) Comparison of Routes, Report to British Railways Board, p.13

Figure 41: BR proposed locations of regional freight terminals and operations centres post 1993



Source: RLP (1991) Comparison of Routes, report to BR Board, p.9

Socio-Economic and Development Impacts

- The study carried out by PIEDA claimed that it did not aim to provide a cost-benefit appraisal of each scheme. Rather, it provided a comparison of socio-economic and development impacts as an input to the overall evaluation process.
- The main conclusion of this report was:

On the basis of available evidence, proposals which have a second London terminal at Kings Cross to complement Waterloo will provide speedier and more convenient interchanges for regional passengers than a combination of Stratford and Waterloo. This would be further enhanced by the provision of 'people-movers' between Euston and Kings Cross. The combination of stations at Kings Cross, Waterloo and Stratford would have the potential to maximize regional accessibility, subject to operational feasibility (Sec. 48).

… routes which follow an Eastern Approach would create more beneficial socio-economic and development impacts than a Southern Approach. The socio-economic impacts of the Rail Link, however, form only part of the appraisal of route options. Of the Eastern Approach routes, the combination of

stations at Kings Cross, Stratford and Rainham would, on balance, make the Ove Arup scheme more attractive than either the Rail Europe or London Borough of Newham schemes (Sec. 67).

- The report focused on the following types of impact:
  - Labour Markets
  - Housing Markets
  - Land Use Policy
  - Development and Employment
  - Freight
  - Regional Issues
- The main components of work were:
  - baseline studies of economic and property market prospects, transport infrastructure plans and proposals and the policy and planning
  - examination of comparative experience from overseas, particularly that of the TGV in France
  - assessment of the 'primary' impacts of the Rail Link on the travel behaviour of international and domestic passengers and the 'secondary' impacts on employment and housing markets
  - assessment of the 'secondary' impacts of the Rail Link on development and employment creation
  - assessment of freight and regional issues

Issues raised in this study are summarised below:

Generic

Available evidence suggests that maximization of the economic development potential from rail investment occurs when a combination of key economic, political and physical factors exist – namely a strong demand for development, public incentives accompanied by supportive planning policies and the availability of potential development sites of appropriate size, location and quality, and a proactive approach to maximizing development gain by the railway operator.

Evidence from the TGV experience in France, to date, and the less directly comparable experience of the rapid rail transit systems in the UK, Germany and North America, suggests that rail investment itself is unlikely to stimulate economic development, but it may be a catalyst in the process if other favourable conditions exist: that is, rail investment will not itself spark a substantial process of economic development, but it can be used as an instrument to exploit development potential.

Case specific

The likely impacts of different terminal locations are hard to assess because of uncertainties:

1. uncertainty about what land can be released from railway operations for development at Stratford and the costs of doing so
2. uncertainty about the costs of development at Stratford and the extent to which an international terminal and its related development might transform the negative location and image of Stratford as a business location
3. difficulties in assessing the implications of different terminal options for the long term (20 years plus) development of London and the South East.

At King's Cross: the Rail Link terminal is unlikely to be critical to contribute to the realization of the Kings Cross Railway Lands development; the development would probably proceed if the terminal were located elsewhere. Any additional development pressure is unlikely to be welcome by local planning authorities.

At Stratford: any positive development impacts rely on not only the international station there but also considerable additional public sector investment in the wider Stratford and Lea Valley area. Furthermore, any proposed office development would be launched into a market that currently threatens to remain oversupplied for over 10 years and in which there are numerous intervening opportunities in both central London and Docklands.

Comparison of development impacts

The Ove Arup scheme is likely to contribute more than the other route options to strategic planning goals.

In estimating land value enhancement, the approach adopted has a number of biases which mean that the figures are likely to represent the upper end of the range. Also, it should not be assumed that the enhanced land values attributable to the Rail Link can be captured and make a financial contribution to the project. Generally, this will apply only when the land is in BR ownership.

Land value enhancement associated with the different Rail Link proposals is unlikely to vary by more than £100 million.

Jobs associated with development stimulated by the Rail Link will largely represent a redistribution of economic activity in Kent and London rather than the creation of new economic activity.

It is overstating the case to argue that all jobs associated with the development stimulated by Rail Link should be credited to the Rail Link, rather than the other public sector expenditure incurred on improving access and to deal with poor ground conditions and environmental problems.

Source: Pieda (1991) The Socio-Economic and Development Impact Study

- Some summarised on the Pieda study in the "Memorandum of Rail Link Project: The consideration by the British Railways Board and conclusions" in June 1991 BR report:

"31. It has been strongly argued, notably by LPAC and SERPLAN, that the Rail Link could assist in the regeneration of the East Thames Corridor. Some have suggested that adopting an easterly approach is fundamental to this objective. Accordingly the Board commissioned PIEDA plc to assess the socio economic impact of constructing the rail line along each of the main route corridors. … The main conclusions are:

i There is unlikely to be any significant difference between the various schemes in terms of their impacts on labour and housing markets in Kent other than the fact that the Rail Europe scheme does not serve Mid Kent.

ii All schemes are likely to contribute similarly to the development of East Kent.

iii The easterly approach schemes provide greater opportunities for urban regeneration, reflected in land value enhancement, with no significant differences between the three routes which serve Stratford. The additional land value enhancement from any of these three schemes is unlikely to be more than £100M. Construction of the Rail Link on an easterly approach route in itself is neither a sufficient nor a necessary condition for the regeneration of the East Thames Corridor and is unlikely to be a significant factor in redressing the imbalance of economic activity in West and East London.

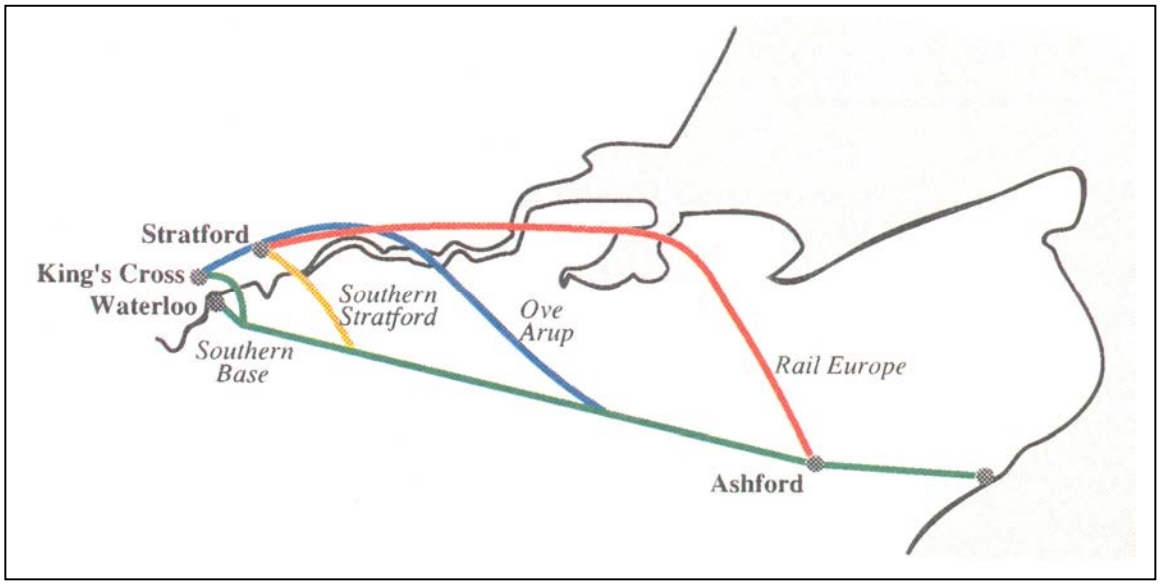
iv The estimates of enhancement of land values imply that the easterly approach schemes provide greater opportunities for development-related employment creation, though this would largely represent a redistribution of economic activity in Kent and London rather than the creation of new economic activity.

vi There remains uncertainty about the through services from and to the Midlands, the North and Scotland. This increases the importance of the quality of provision for interchange, for which a Kings Cross terminal would be better than a terminal at Stratford.

vii Considering only at the socio-economic and development impacts, an easterly approach

would be preferred to a southerly approach. Of the schemes which follow an easterly approach, focusing only on economic and development impacts, the Ove Arup route should, on balance, be preferred to the other schemes. However regeneration of the East Thames corridor may be better promoted by other measures (eg. Provision of domestic rail services, improved road access, site preparation at public cost)."

Figure 42: Illustration of route options



Source: Pieda (1991) The Socio-Economic and Development Impact Study, p.2

Route options & comparison: British Railways Board Report March 1993

The following highlights are quoted from Sir Bob Reid, Chairman of British Railways Board:

"For some years after the Channel Tunnel has opened, the existing rail network in the South East will be sufficient to handle all the expected traffic. More than £1.5 billion was spent to make the new international services possible. The new terminal at Waterloo was delivered by BR on time and within budget.

The BR Board identified some five years ago (1988) that a new link between London and the Tunnel would be needed to meet the growing demands.

The Board confirmed King's Cross as its choice for a second international terminal in January 1989 and later that year published its proposed route for the new line. Attempts to create a joint venture with a private sector consortium to construct the line were aborted in 1990. A revised proposal was submitted in 1991. In October 1991, the Govt. asked BR to develop proposals for an easterly route into London, terminating at Kings Cross."

He claimed that the further work is needed to develop fully the project definition, alternatives for the terminal and the associated regeneration schemes for the Kings Cross Railway lands.

In October 1991 the Secretary of State for Transport announced that he was inviting the British Railways Board to develop a route for a new railway between the Channel Tunnel and Kings Cross via Stratford, in the London Borough of Newham. The Secretary of State indicated that:

"The second London terminus should be at Kings Cross, which offered especially favourable connections both to destinations beyond London and within the capital"

Ministers preferred the Ove Arup route corridor (despite its additional cost) in particular because it was expected to minimise the impact on the environment and on residential property and to maximise the development potential.

The analysis has been prepared at a series of levels, at which additional layers of benefit are taken into account:

- Level 1: A purely financial measure of the return
- Level 2: to which the economic benefits of domestic services are added
- Level 3: followed by the economic benefits arising from the transfer of freight from road to rail
- Level 4: followed finally by the addition of economic benefits to international passengers. This corresponds broadly to a cost/benefit analysis of the project

In this study, it is assumed that the Jubilee Line Extension, CrossRail and Thameslink 2000 schemes are completed. If any of these schemes were not undertaken, the results of the evaluation would be materially different. The analysis is presented both on a purely incremental basis and a whole business basis. The latter includes all Channel Tunnel international passenger services.

All the work has assumed that an International Passenger Station is provided in the centre of Ashford, and the new rail way will make provision to allow the international trains to continue to serve that station. (In September 2006, Eurostar announced to halve Ashford's train links with Paris and stop Ashford service to Lille and Brussels completely in 2008)

As a result of this report, the estimated cost of the scheme has been reduced to £2.4 billion (in 1993 price).

The evaluation assumes that the Thameslink 2000 scheme for domestic services is authorised in advance of the Union Railway and meets about half of the total £1.3 billion cost of the railway works associated with the Low Level Station scheme at Kings Cross.

During the work of this report, representatives of local authorities have been consulted on a confidential basis by both the Government and Union Railways.

Objectives of Union Railway:

- To provide the main railway link between Britain and continental Europe
- To provide a major increase in the capacity and improvement in the quality of journeys between Kent, Essex and London
- To provide the transport spine for the East Thames Corridor development, shifting development pressure from the West to the East of London

The Business Opportunities - the benefits of the Union Rail way to the international and domestic passenger businesses are substantial. Taken together, and including other related rail revenues (InterCity, Freight and LUL), the revenues are up to £1.4 billion NPV at 8%, or £0.8 billion at 12.5%. In addition some £1.1 billion NPV of economic benefits have been identified associated with domestic passenger traffic, which might be considered by the Government as a possible basis for grant.

The estimated benefits and rates of return are summarised in Table 15:

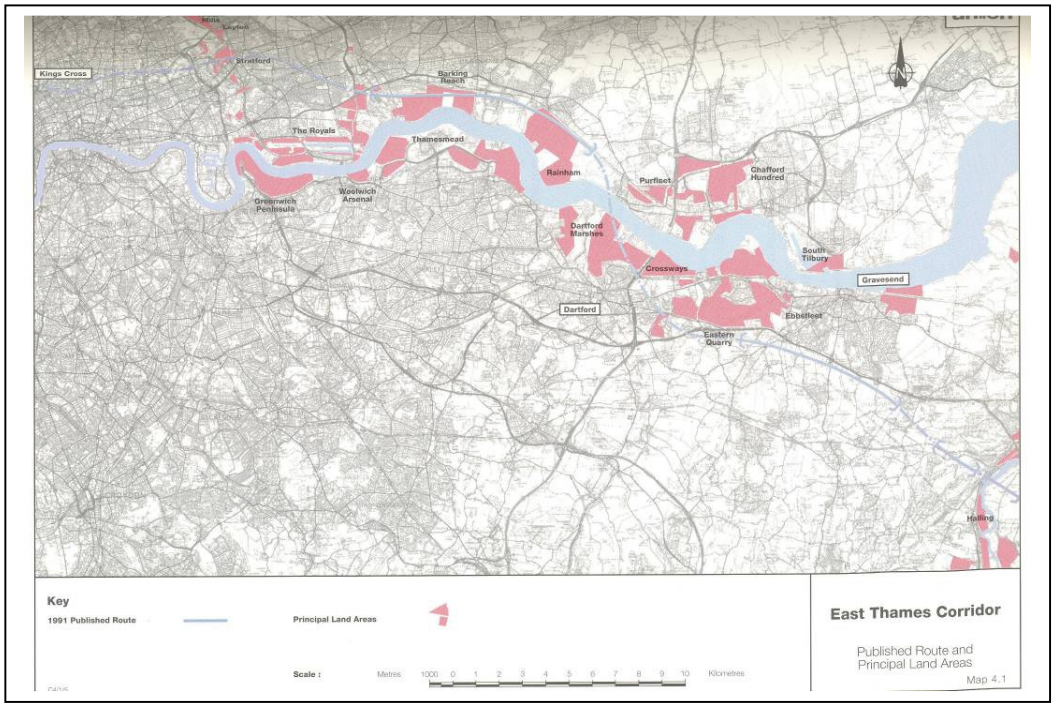
Table 15: 1993 The CTRL estimated benefits and rates of return

	NPV £ billion Revenue Discount Rate		Cumulative Rate of Return (rounded)
	8%	12.5%	4%
Total financial Return	1.4	0.8	
Add: Domestic Economic Benefits	1.1	1.1	
Total Revenues and Domestic Benefits	2.5	1.9	8%
Add: International Economic Benefits	1.6	1.5	
Total Benefit	4.1	3.4	11%

Source: Union Railways (March 1993) British Railways Board Report, p.18

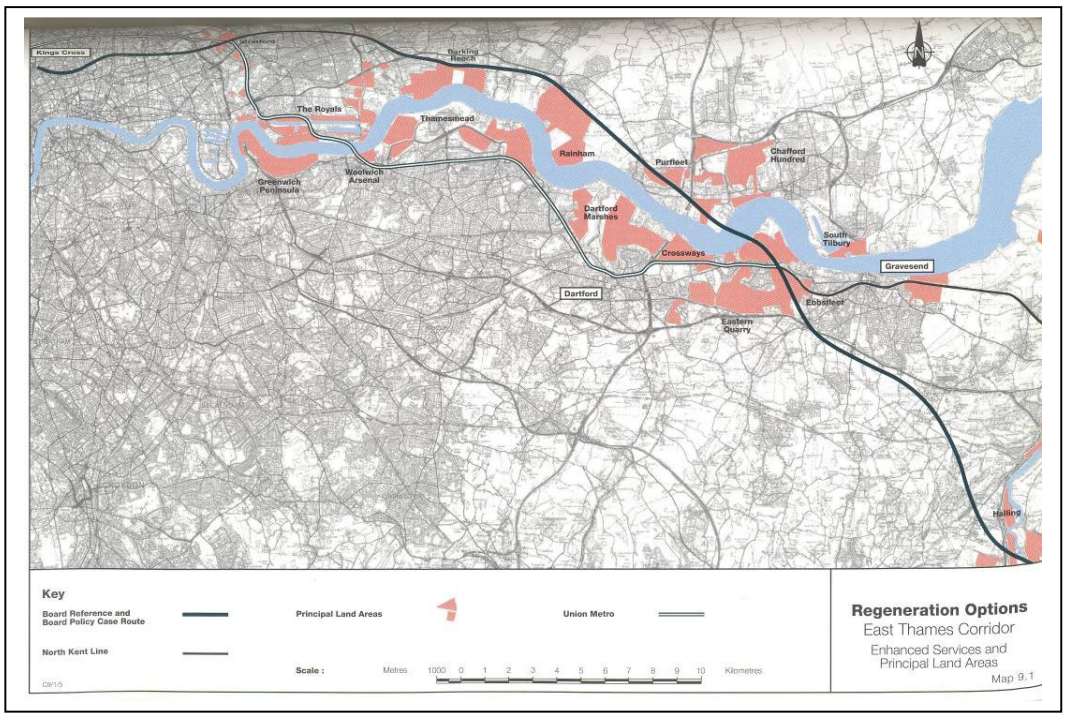
- Route options compared with the BR published route:
  Board Reference Case
  Board Policy Case: majority of the trains on the line will be domestic rather than international. This includes a connection to CrossRail.
  Regeneration Options: A distinct but allied scheme among the Regeneration Options – 'Union Metro' – offers further opportunities for improving access within the East Thames Corridor and between the Corridor and London, Paris and Brussels.

Figure 43: 1991 Published Route and Principal Land Areas: East Thames Corridor



Source: Union Railways (March 1993) British Railways Board Report, p.22

Figure 44: Regeneration Options Route and East Thames Corridor



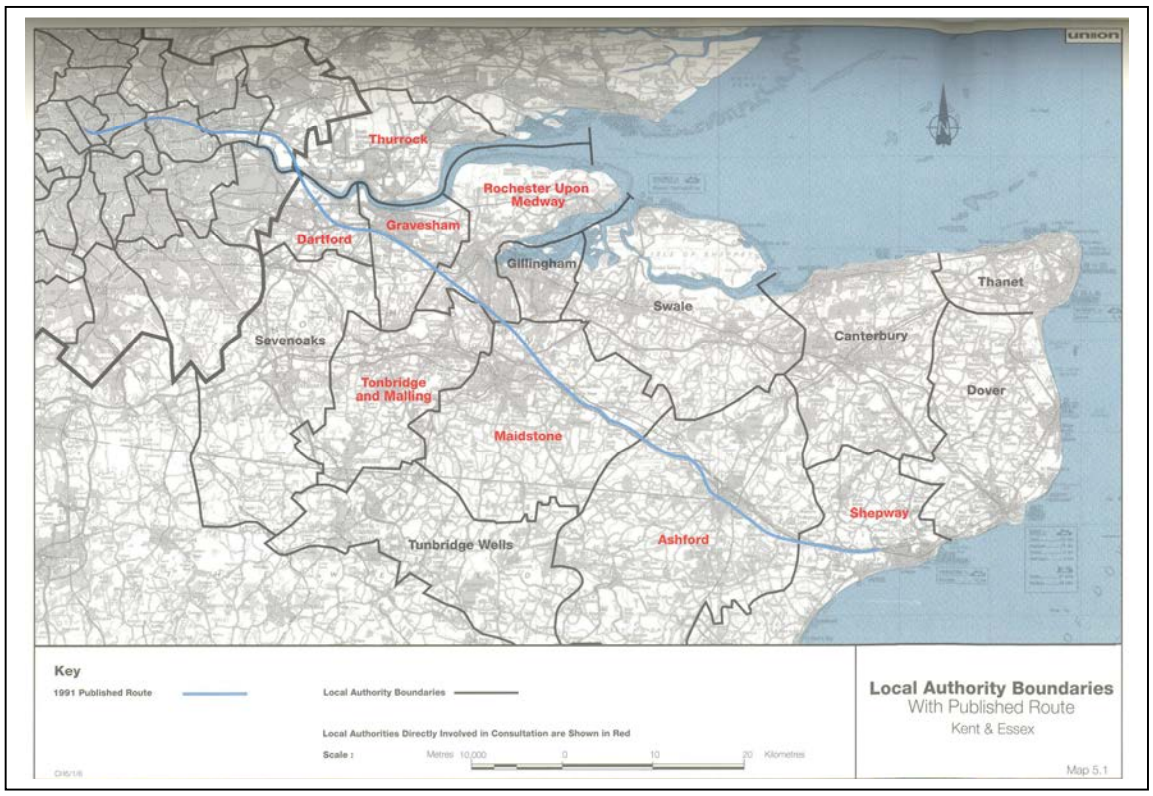
Source: Union Railways (March 1993) British Railways Board Report, p.56

The evaluation concludes that the financial return in the Board Reference Case would be about 4%. The return including the economic benefits of domestic services in the Board Policy Case would be about 8%, with a total cost/benefit return including economic benefits to international passengers of the order of 11%.

A whole-business evaluation suggests a financial return of about 10% allowing for the costs of the project and for the forecast total net revenues of BR's international passenger business, but before taking account of the historic costs of that business (some £1.4 billion) or of the social benefits of the domestic services on the new line.

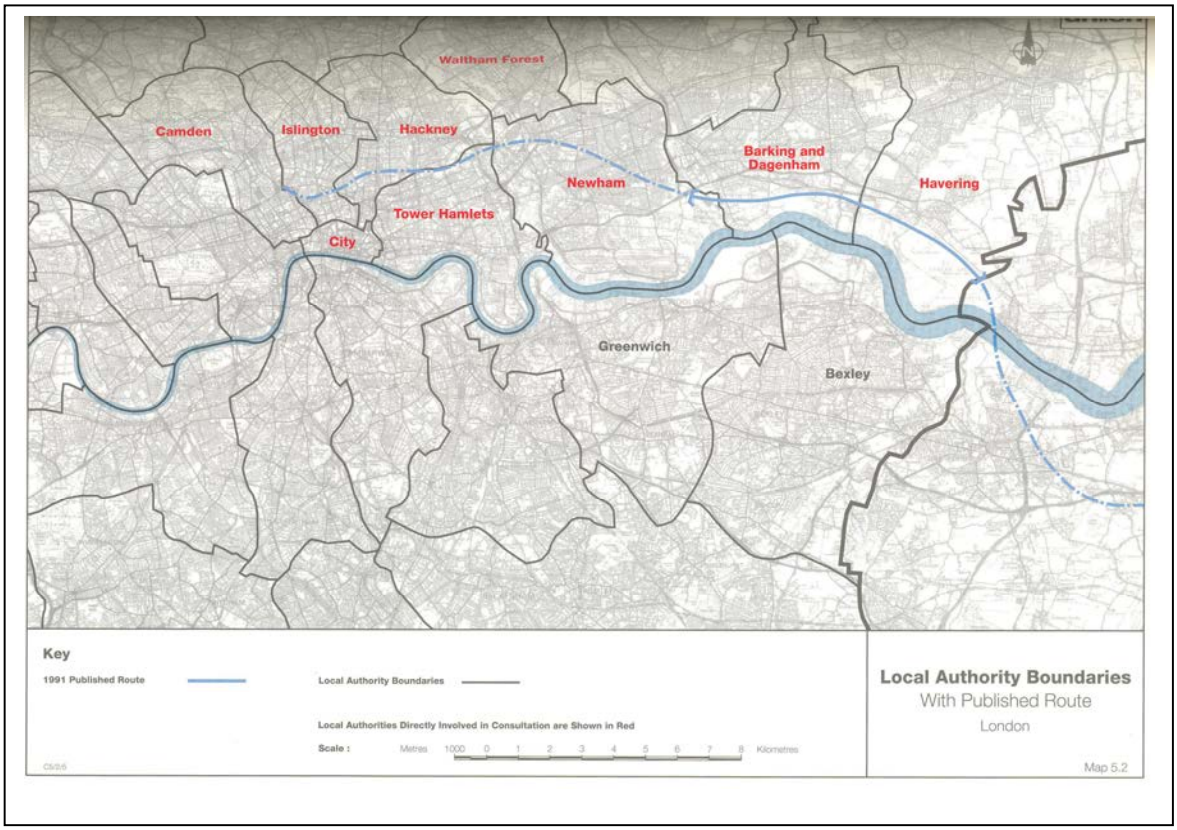
Following submission of the report to the Secretary of State in January 1993, further work was undertaken to address an alternative option from Stratford to a terminus at St Pancras. This work is merely described in one chapter (Chapter 14), and is not taken into account elsewhere in the report.

Figure 45: Local Authority Boundaries with Published Route - Kent & Essex



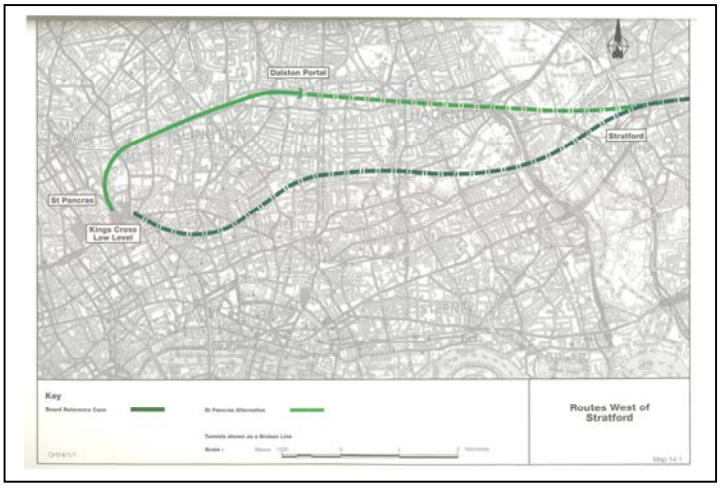
Source: Union Railways (March 1993) British Railways Board Report, p.25

Figure 46: Local Authority Boundaries with Published Route - London



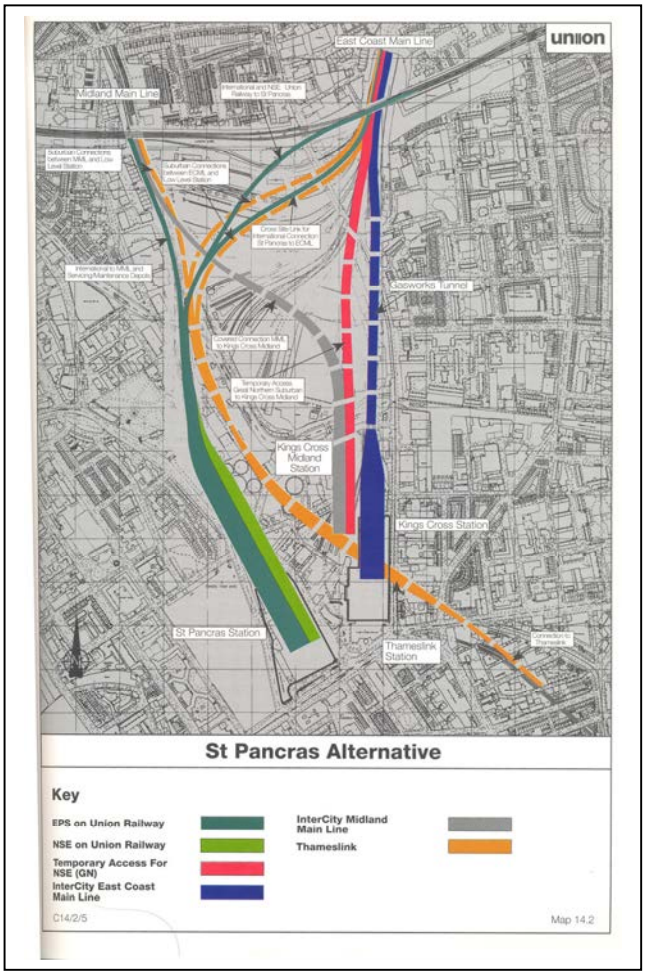
Source: Union Railways (March 1993) British Railways Board Report, p.26

Figure 47: Routes West of Stratford: St Pancras Alternative



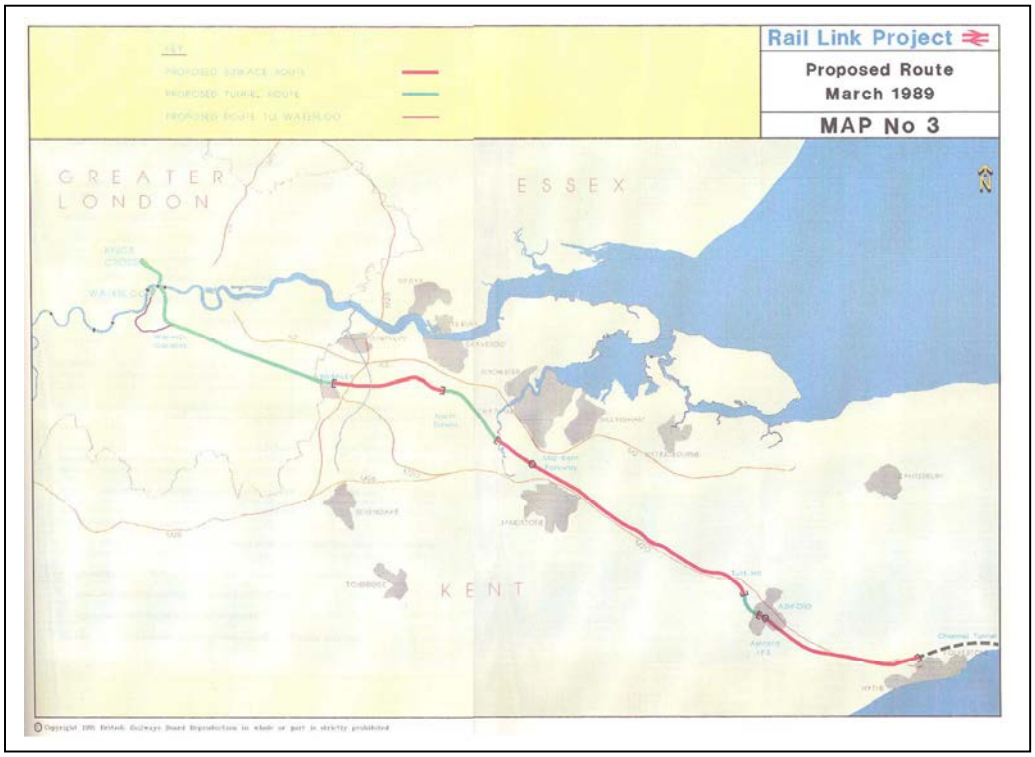
Source: Union Railways (March 1993) British Railways Board Report, p. 80

Figure 48: St Pancras Alternative



Source: Union Railways (March 1993) British Railways Board Report, p. 81

Figure 49: March 1989 BR Proposed Route

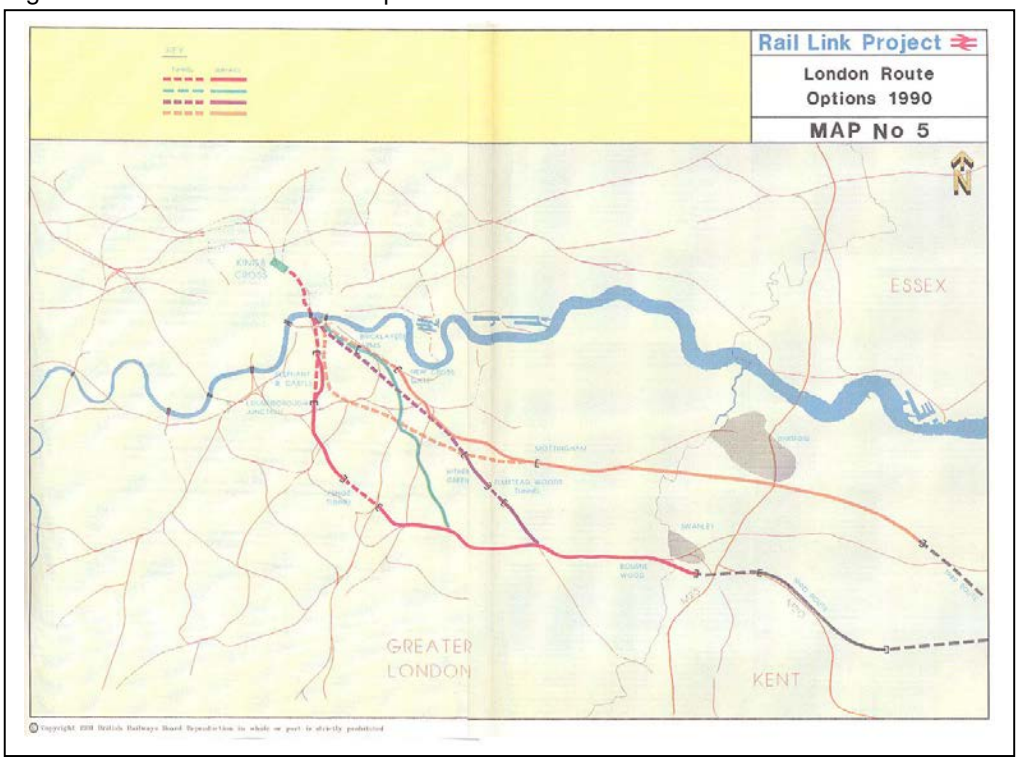


Source: RLP (1991) Comparison of Routes, p. 27

Figure 50: September 1989 BR Preferred Route

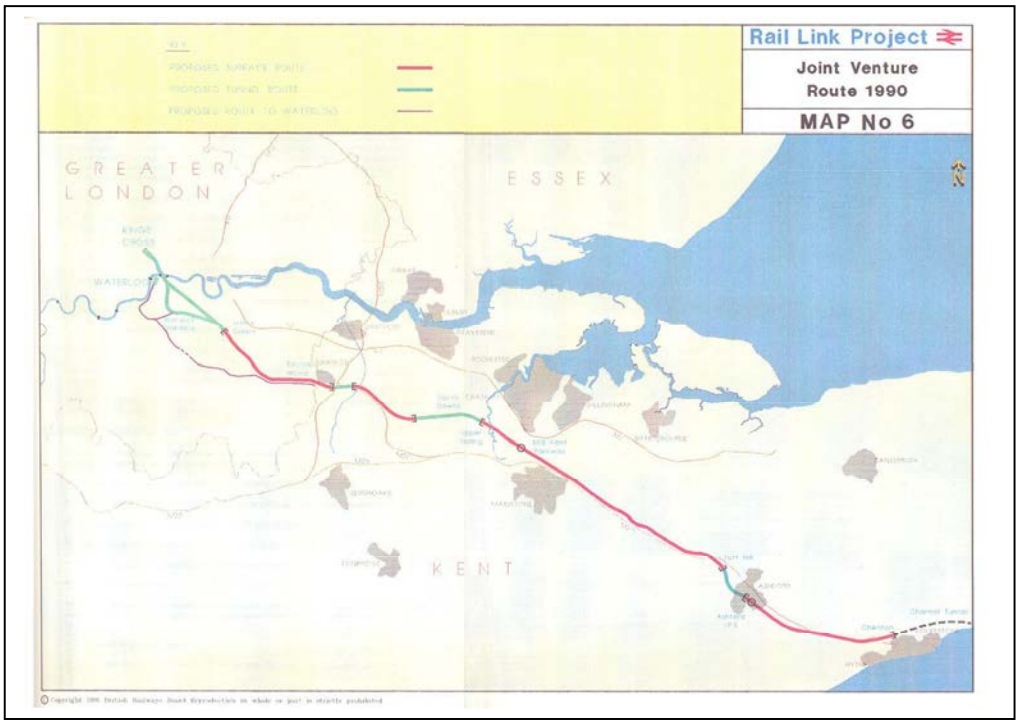
Source: RLP (1991) Comparison of Routes, p. 31

Figure 51: 1990 London Route Options



Source: RLP (1991) Comparison of Routes, p. 33

Figure 52: 1990 Joint Venture Route



Source: RLP (1991) Comparison of Routes, p. 35

- **Project Timeline – Some Key Issues**

The whole process of planning, financing and implementing the CTRL proved to be both lengthy and extremely complicated (and it must be noted that the project timeline presented here represents only a high level overview - for a more detailed analysis of the events and decisions associated with CTRL see Gourvish 2002, 2006), involving many stakeholders and many iterative stages.

Some of the key points that emerge from the Project Timeline are:

1. CTRL Route, Termini and Stations
   - Broadly, there seems to have been four key periods in the route identification process:
     - between 1981 and 1987 the principal (government and BR) activity centred on preparing the *existing* rail network to accommodate traffic generated by the Channel Tunnel;
     - following completion of the DoT's Kent Impact Study (1987), it became clear that additional capacity would be needed and also that CTRL should be planned as a high-speed link. From 1987-1989 BR consequently worked to identify new routes – those that penetrated the capital via South-east London were seen to be most favourable. However, there was considerable public hostility to the BR proposals.
     - between 1989 and 1991 there emerged strong support for an alternative route into London via the east of the city and including a new International Station at Stratford in East London. ARUP put forward these proposals with strong support from local lobby groups in Stratford. By 1991 government was minded to support this alignment in view of its potential to aid regeneration and support the emerging plans for the Thames Gateway. As noted above, there is some suggestion that government's preference may have been swayed by the fact that the Arup route avoided marginal constituencies in south-east London.
     - The period 1991-1994 saw further development/refinement of the east London route leading to its eventual confirmation in 1994 by government, which published the Thames Gateway Planning Framework (RPG9a) in the following year.
   - Given the above, it can be argued that government's original objectives were simply confined to providing a rail link between the Channel Tunnel and a terminal in London as cheaply as possible and by making use of the existing network. Indeed, early investigations were principally concerned with 'capacity', not the identification of a high-speed link.
   - However, it would appear that the route selection process was latterly influenced by the emergence of other competing agendas – notably the very substantial strategic development and regeneration potential offered by the Thames Gateway (in support of London's continuing role as a 'world city') and, more locally, the very strong lobbying that took place for a new station at Stratford (also in support of regeneration). To this may be added the advent of a political imperative to avoid marginal constituencies affected by the former south-east London route in the run-up to a general election. Thus, the wider role of CTRL as a key agent of strategic change and regeneration appears not to have been a consideration at the commencement of the project.
   - This apparent lack of a wider set of strategic objectives for CTRL (which only emerged relatively late in its planning) may well have encouraged the advent of new (and perhaps) competing agendas to the extent that the project became something of a hostage to them – at least in terms of route selection. Indeed, even amongst key sponsors/promoters in the route selection process (e.g. DoT, BR and politicians), there appears to have been little common ground apart from an overall need to minimize cost. Witness, for example, the number of iterations that took place concerning route selection during the years that the project was pursued by BR and its subsidiaries and the organizational changes that took place in the name of increased management focus and productivity.
   - As a corollary, it would seem that there was considerable debate about the location for the key London Terminal (although King's Cross/St Pancras was a front-runner almost from the start) and other intermediate stations – as noted above Stratford emerged only in the late 1980s/early 1990s, whilst Ebbsfleet was only confirmed as a key station in the mid-1990s (presumably on the back of the Thames Gateway proposals).

- All hubs on the line have very significant development and regeneration components that are strongly linked to the real estate potential created by implementation of the CTRL. Moreover, it is clear that the development areas at King's Cross/St Pancras and Stratford have become a key financial component of the deal that government struck with LCR. Again, it can be argued that the initial lack of strategic development/restructuring objectives for the CTRL enabled new real estate agendas to emerge which sought to maximize the locational advantages offered by the project to realize returns. Interestingly, while Ashford was an early 'winner' in terms of the implementation of CTRL (access to the CTRL services being one of the key planks of its status as a strategic growth area), recent developments concerning the reduction of services may undermine its continuing attractiveness to investors.
- As noted in the timeline, S40 of the Channel Tunnel Act required BR to produce a plan (by end-1989) showing how it intended to secure the provision of international through services to various parts of the UK. This 'regional service' role has never been fully exploited by the provision of a direct link between the CTRL and cities such as Birmingham, Manchester and Edinburgh.

2. Project Financing/Funding
- From a relatively early stage it was intended that, like the Channel Tunnel, the CTRL was to be privately financed, owned and operated – S42 of the Channel Tunnel Act (1987) specifically said that no Government support would be forthcoming for the construction of a new rail link.
- Equally, it is clear from statements made by BR during the pre-appraisal work that there was significant doubt about the project's financial viability – for example, in 1990 BR's Joint Venture explained that the CTRL could not be funded commercially due to high construction costs (especially the costs associated with the extensive tunneling required).
- Despite this, successive governments maintained the view that the CTRL could and should be undertaken as a PFI project and consequently appointed a private consortium to carry out the project. In the course of doing this the consortium was granted significant property development rights (King's Cross and Stratford) to support project viability.
- Only approx 12 months after LCR was appointed, in 1997 the consortium communicated serious financial difficulties to the government – mainly as a result of lower than expected passenger numbers. Reacting to this, government was at pains to maintain its support for the project by (inter alia) providing for £3.75 billion of privately raised debt to be government backed to reduce the overall cost of financing. The government-LCR 'restructured deal' was announced in mid-1998. In light of this it would seem that much of the financial risk associated with the project had in fact passed to government – seemingly in contravention of S42 of the Channel Tunnel Act.
- It would seem that government support for the restructured deal can be seen as a reflection of its desire to secure:
  - increases in consumer surpluses of fare reductions;
  - long-term capacity increases;
  - time saving benefits;
  - environmental benefits of rail versus road;
  - regeneration benefits at King's Cross, Stratford and Ebbsfleet.

- Fundamentally the original 'deal' between government and LCR was greatly dependent upon the achievement of passenger numbers that even today have not been reached. This matter has been the subject of much debate and investigation (not least by the National Audit Office – see Section E below) to the extent that government commissioned its own set of forecasts. These proved to be more pessimistic than those used by LCR in making its bid for the project. It is therefore surprising that no independent assessment of the forecasts were made before the deal between government and LCR was signed in 1996.

3. Consultation/Stakeholder Involvement
- It is readily apparent that throughout the route planning process for CTRL, BR faced stiff opposition from the public and pressure groups which captured national media attention. Given the nature of the area through which the CTRL was to pass (predominantly rural, high value farmland with attractive landscape features) such reactions could and should have

been anticipated. Instead it would appear that the consultation process was bedeviled by inadequate information being made available to stakeholders, raising considerable misgivings on the part of protesters.

- Indeed, it can be surmised that stakeholders were mainly seen as a problem to be 'managed' rather than as a source of input and involvement in respect of route development.

E PROJECT FUNDING/FINANCING

Introduction

It is important to note that, when Channel Tunnel Agreement was signed between UK and France (1985) it was made clear that there was to be no public money spent on the Channel Tunnel (and, by extension, the CTRL). This stance was reflected in the Channel Tunnel Act 1987 – S42 specifically exempted international rail services provided by BR from Government subsidy under existing legislation. The CTRL fixed link was consequently to be privately financed, owned and operated. However, the public sector was legally obliged to procure infrastructure and rolling stock for international and freight services and to set toll revenue for Eurotunnel for a given period in return for half the operating capacity.

At a relatively early stage, estimates showed that scheme was likely to be of marginal economic value in cost-benefit terms – and would require a subsidy of some £1.5bn-£2bn. Notwithstanding this, Government maintained that construction and operation of the CTRL would be undertaken by the private sector. However, Government did promise substantial financial support in respect of (a) regeneration; (b) domestic passenger traffic (c) international traffic – which appeared to contravene S42 of Channel Tunnel Act.

It is also important to note that, in 1997, Government did not have a standard set of criteria for approving major new railways (though this was addressed later by SRA in 1999). Moreover, when LCR were in trouble a new Government had just come to power who were keen to demonstrate commitment to securing private sector funding of public sector projects.

Background to Funding/Financing CTRL

Private Finance Initiative (PFI)

Like the Channel Tunnel, delivery of the CTRL was seen by successive governments (Conservative and Labour) to be most appropriately achieved through the use of the PFI mechanism. PFIs essentially represents a means to enable public requirements to be satisfied through private investment which are taken-up in response to a contract - in which the public sector body undertakes to pay, over a period of (say) 10–30 years, enough to reward the investors with a good profit.

"This provides an 'off-budget' treatment of capital spending (so it does not show up as state investment), while mortgaging future revenue to pay for the facility. "

Source: Urban Regeneration in Stratford, London (Planning Practice & Research, Vol. 16, No. 2, pp. 101–120, 2001) – Simona Florio & Michael Edwards

This philosophy consequently underpins both the financial positioning of the CTRL by successive governments and the nature of its expectations of and relationship/negotiations with the successful bidder for the project (London & Continental Railways (LCR)).

The following extract from the Department for Transport's document 'The Channel Tunnel Rail Link' (available from the DfT websitewebsite www.dft.gov.uk, downloaded 25th October 2006) explains how funding for the project was seen by government.

Finance and management of the CTRL construction

It was always accepted that construction of the CTRL would not be viable without a mixture of private and public finance. The cost of construction could not entirely be recouped from service revenues and land re-developments to encourage an entirely privately financed project. Furthermore, the benefits to the country and regeneration in east London and the Thames Gateway - in particular meant that there was justification for a level of public investment to be directed into the project. The Government, therefore, decided that the entire project should be a Public Private

Partnership (PPP), using a mix of public sector support and private sector funding. In 1994, an open competition was undertaken to find the appropriate private sector partner to part fund and manage the project.

The total cost of the project is expected to be approximately £5.2 billion, of which the Department for Transport is committed to give a total of £1.8 billion (NPV)of grants after taking account of the expected net recoveries from the Government's share of property sale profits and rental income. It was agreed that the remainder of the money would be raised by the promoter who would be given permission to issue Government Guaranteed Bonds to raise £3.75 billion.

Private finance studies: 1991-93

As a joint venture, public sector grants would be either committed or placed at some risk during the early stages. The Government of the day felt that this risk could be better managed by a PPP (public-private partnership) and that the project should proceed as part of its Private Finance Initiative (PFI). By doing this the financing, management and risks of certain infrastructure projects would be transferred to the private sector. This would reduce the Government's capital spend and spread the risks to those parties best able to manage them. Revenue risks, for example, are more acceptable to the private sector if it is given a significant length of time to manage them. The Government of course was best placed to manage the legislative risks, given the need for a Hybrid Bill to be passed to provide the necessary powers to construct and operate transport infrastructure of this magnitude. The Government also concluded that the risks presented by the project could be better spread if the CTRL's assets were effectively privatised.

To consider the benefits of PPP and what the private sector promoter could offer, in December 1991 the then Department of Transport formed a team: Merchant bank Samuel Montague and civil engineers W S Atkins were recruited as consultants, while the Private Finance Panel of the Bank of England participated in the development of the policy. By the end of 1993 the team had reviewed the key features of other private finance projects and had identified the factors that contributed to their success or demise. A consultation exercise and a number of other studies were also undertaken in order to discern how best to motivate the selected promoter to deliver the results that the Government wanted.

During this period, prior to the selection of the successful bidder, Union Railways Limited (URL), which was funded by the European Commission under the Trans-European Networks (TENs) programme, fine-tuned the route that had been announced by the Secretary of State in October 1991. Union Rail Limited prepared supporting documentation that sufficiently detailed the route's alignment to be placed before Ministers and then Parliament. This involved examining alternative routes totalling more than ten times the actual route length. A few promising options were further refined which resulted in a report to Government in March 1993, followed by a public consultation exercise and a further report in October of that year. In January 1994, the Government then took a number of decisions in principle on the route based on the outcome of this work that resulted in safeguarding being carried out to protect the route, from conflicting planning proposals during the passage of the Hybrid Bill through Parliament, which confirmed the Government's support for the project.

Overview of Key Stages in Funding Approach

- **The Launch** – in November 1993, Government announced that a competition would be held to find a private sector promoter to develop CTRL. The competition, launched in March 1994, required the successful bidder to take over those British Rail (BR – the public sector railway operator) divisions charged with building and operating CTRL at that time. (Gambril, 2005, p.16)
- **Award of Concession** – in February 1996 Government and London and Continental railways (LCR) sign contract. Later that year the CTRL Act was passed. (Gambril, 2005, p.17)
- **Financing Delays** – in February 1997 LCR told the Department of Transport (DoT) that

2nd stage financing would be delayed until April 1998 and 1st stage funds would be exhausted in January 1998. To address this shortfall, LCR proposed a 'sale & leaseback arrangement' of Eurostar trainsets.(NAO, 2001, p.38)

- **Reduced Eurostar Traffic Forecasts** – between June and December 1997 much lower forecasts of Eurostar traffic emerged which, in turn, resulted in drastically reduced income forecasts (some £750m less in the medium term). Consequently LCR entered negotiations with Government and Railtrack (successor to BR) to restructure the original deal (Railtrack were not interested).(NAO, 2001, p.38)
- **Restructuring the Deal** – in January 1998 LCR requested Government to provide an additional £1.2bn in direct grants – this was rejected. One month later (February 1998) LCR presented an alternative proposal which included a 'sale & leaseback' arrangement for Eurostar trainsets which Government found acceptable as a basis for negotiation. Later, in June 1998, the Deputy Prime Minister announced that DoT, LCR and Railtrack had signed an 'in principle' re-structuring agreement and construction of CTRL Phase 1 commenced in October 1998.(NAO, 2001, p.38)
- **A New Eurostar Operator** – under a competition in 1999 (between ICRR and Virgin Group) ICRR was appointed under a new management agreement to run Eurostar from 2000-2010 (Eurostar remains a part of LCR). In awarding the contract, it was felt that ICRR demonstrated the greatest ability to reduce operating costs and thus manage operating (revenue) risks. In 1999, ICRR shareholders comprised: National Express – 40.0% (also LCR shareholder); SNCF – 35.0% (also LCR shareholder); SNCB – 15.0%; British Airways – 10.0% (NAO, 2001, p.38)

Traffic Forecasts and Financing/Funding Response

Revenue from CTRL's operations has continued to be disappointing - LCR forecast that in 1996-97, Eurostar UK's second full year of operation, 9.5 million passengers would use the train service. The actual number of passengers using the service in that year was 5.1 million (NAO report, 2001).

Indeed, it may be concluded that both LCR and Eurotunnel's forecasts of traffic growth were overly optimistic and led to a consequent over-estimate of future revenue. As shown by Table 16 (below), the worse than expected growth in passenger numbers has significantly affected Eurostar's financial performance.

Table 16: Eurostar Turnover, Costs and Operational Losses

£ million	1998	1999	2000	2001*
Turnover	159	167	187	204
Costs	(257)	(243)	(235)	(248)
Operational Loss (before depreciation)	98	76	48	44

* Budgeted figure

Source: The Department and LCR

Source: NAO report, 2001. p. 13

Fundamentally, Eurotunnel, Eurostar and LCR thought they would attract more business than leisure traffic. This proved to be wrong, and in regard to the latter the ferry operators fought strongly to attract passenger numbers while, more recently, low-cost airlines have proved to be the main competitor.

During the original bid competition in 1996, LCR used the number of passengers expected to travel on Eurostar UK over the assessment period. The Department of Transport (DoT) did not undertake

an independent assessment of all bidders' passenger forecasts because they considered that previous passenger forecasts prepared in conjunction with British Rail were consistent with LCR's projections and could be relied on. However, the Department realized all the forecasts were over-optimistic and the failure to achieve them contributed towards the near collapse of the original deal later on. The Government employed transport consultants Booze-Allen & Hamilton to provide an independent review of the revised forecasts and to produce their own forecasts of Eurostar UK patronage and revenues (from NAO 2001 report, pp. 31-37).

Overall, there were four main forecasts of Eurostar UK patronage. Two forecasts were prepared for LCR, and two were prepared by the Government's advisers, Booze-Allen & Hamilton. The forecasts provided estimated passenger numbers and revenues per passenger (known as Yields):

- ***The LCR Management Case***: This was LCR's view of the most likely level of demand and revenues. It assumed there would be an increase in passenger numbers of seven per cent on the opening of Section 1, 7.5 per cent on completion of the Link and that there would be an uplift of 4.9 per cent in revenue per passenger at the opening of each Section.

- ***The LCR Downside Case***: This assumed lower passenger and revenue uplifts and represented LCR's pessimistic scenario. It assumed a 5.6 per cent uplift in passenger numbers at Section 1 opening, a further five per cent uplift on completion of the Link and that revenue per passenger would increase by 2.45 per cent at the opening of each Section.

- ***The Government Central Case***: This was the forecast of expected passenger numbers and yields per passenger that formed the basis of the value for money assessment of the project. As Booze-Allen & Hamilton considered that LCR's forecasts were optimistic, the Government Central Case used lower estimates of passengers and, in particular, revenue per passenger. The Central Case assumed a 6.7 per cent increase in passenger numbers for Section 1 and 11 per cent for Section 2. The increases in revenues per passenger, however, were much lower at 1.4 per cent for Section 1 and 2.5 per cent on completion of the Link.

- ***The Government Downside Case***: This was the pessimistic scenario. It assumed a 5.7 per cent increase in passengers for Section 1 and a 9.7 per cent increase on completion. The increases in revenue per passenger were one per cent for Section 1 and three per cent on completion.

See also Table 17 below.

Source: NAO report, 2001, p. 16

Table 17: Summary of Forecast Increases in Passenger Numbers and Revenues Per passenger Assumed Under the Four Scenarios

LCR (% annual increases)

	Management Case		Downside Case	
	Passengers	Yield	Passengers	Yield
Section 1	7	4.9	5.6	2.45
Section 2	7.5	4.9	5	2.45

Government (% annual increases)

	Central Case		Downside Case	
	Passengers	Yield	Passengers	Yield
Section 1	6.7	1.4	5.7	1
Section 2	11	2.5	9.7	3

Source: NAO report, 2001, p. 16

As explained above, Booze-Allen & Hamilton produced forecasts for two main scenarios:

- a **Government Central Case**: it was somewhat lower than LCR's Management Case, formed the basis of the value for money assessment and the main calculation of the level of public sector support (see Table 18 below).
- a **Government Downside Case**: it represented a more pessimistic scenario, which was used to test whether public support for the Link was still justified if fewer passengers than expected use Eurostar UK services

The final Government Central Case estimate of May 1998 showed that the total public sector contribution to the project was £2,300 million, and the total benefits were around £3,000 million. The Government Downside Case was also shown to be justified, but the Department recognized that this was very marginal with a benefit cost ratio of only 1.1:1.

Source: NAO 2001 report, pp. 31-37

Table 18: The Final Government Central Case Value for Money Assessment of May 1998
The figure shows that the government estimated that the Link is economically justified under the Government Central Case

Type of benefit/cost	**Government Central Case (£ million, present value[1])**
Benefits	
International non-financial benefits	**1800**
Domestic non-financial benefits	**1000**
Road decongestion	**30**
Environmental freight benefits	**90**
Regeneration benefits	**500**
Reduced Thameslink 2000	**0**
Total benefits	**Around £3000**
Costs	
LUL and A2/M2 costs2	**0**
Government direct grants (less land rentals)	**(1800)**
Access charge loan facility	**(100)**
Office of Passenger Rail Franchising subsidy	**(400)**
Net Eurostar UK revenue foregone	**(440)**
Repayments of Eurostar UK debt	**400**
Additional costs of Thameslink 2000	**240**
Project wind up costs	**110**
Total net Government contribution	**(1,990)**
Net present value	**1,010**
Benefit cost ratio	**1.5:1**

Notes:
1 The Department's value for money assessment rounded the figures for benefits and costs. In particular, the estimated total benefits figure was rounded down by some £400 million in recognition of the inevitable uncertainties surrounding such estimates.
2 Under the Channel Tunnel Rail Link Act 1996, powers were secured to upgrade part of the A2/M2 which runs parallel to the route of the Link
(*Source: The Department in the NAO report 2001)*

The National Audit Office reworked the May 1998 Government Central Case using amended assumptions. The following Table shows that these adjustments reduce the net present value of the project from the Government's figure of around £1,000 million to some £220 million, with a benefit-cost ratio of 1.1:1 (Table 19 below):

Table 19: Financial Justification for Public Sector Support

Financial Justification for Public Sector Support - Costs Forecast (NAO reworking of May 1998 Government Central Case) (date?)	Government Central Case NAO assessment (£ millions rounded, present value) Define?	Government Central Case NAO assessment (£ millions rounded, present value), excluding regeneration benefits Define?
London Underground Ltd and Roads A2/M2	0	(170)
Government direct grants (less land rentals)	(1800)	(1800)
Access charge loan facility	(100)	(140)
Office of Passenger Rail Franchising subsidy	(400)	(250)
Net Eurostar UK revenue foregone	(440)	(440)
Repayments of Eurostar UK debt	400	400
Additional costs of Thameslink 2000	240	240
Project wind up costs	110	110
Total	**3,490**	**3,550**
Total net Government contribution	**(1,990)**	**(2,050)**
Source: NAO - Progress on the Channel Tunnel Rail Link – Report by the Comptroller and Auditor General, 21st July 2005		

Other earlier traffic forecast provided by the British Rail and Eurotunnel are as follows. These are quoted from Faith, N. (2007) The Right Line: The politics, the planning and the against-the-odds gamble behind Britain's first high-speed railway, Segrave Foulkes Publishers, London, p.48-49. It also shows the outcomes of cross-channel traffic from 1998 to 2006:

Table 20: Earlier Cross-Channel Traffic Predictions

CROSS-CHANNEL TRAFFIC:
PREDICTIONS:

1882: Sir Edward Watkin				
Passenger journeys between Great Britain and France				
Rail/ship				0.46
With Channel Tunnel, predicted, first year				4.5
The 1970s: unexpected decline				
Total market, air and surface, between Great Britain and mainland Europe				
			1973	1974
Passenger journeys			30	28
1986: BR's predictions				
Total market, air and surface, between Great Britain and mainland Europe				
		1983 (actual)	1993	2003
Passenger journeys		46	67	98
Rail share (Tunnel from 1993)		3.1	15.6	20.4
1993: Eurotunnel's predictions				
Total market, air and surface, between Great Britain and mainland Europe				
	1995*	1996*	2003+	2013+
Total cross-Channel journeys	74	78	101	136
Tunnel (Eurostar) share	9	11	17	22

Source: * Eurotunnel; +Traffic & Revenue Consultants

All figures in tables above are passenger journeys in millions

Table 21: Cross-Channel Traffic Outcomes 1998-2006

CROSS-CHANNEL TRAFFIC: … AND OUTCOMES:	
Channel Tunnel actual (Eurostar) *	
1998	6.7
1999	7.0
2000	7.0
2001	7.0
2002	6.6
2003	6.3
2004	7.3
2005	7.5
2006	7.9

* Excludes passenger journeys by car/coach on the Shuttle
Figures are passenger journeys in millions

Funding Sources

The original 1996 agreement between Government and LCR was for £1.733bn in grants (1995 prices), as follows:

- a capital grant of £796m payable in quarterly instalments starting 3 years after financial close
- a deferred grant of £603m payable in 4 instalments starting 6.5 years after financial close
- domestic capacity grant of £334m paid in 34 half yearly instalments starting 6.5 years after financial close provided an operating licence for the new line had been issued.

In view of the loss of confidence in Eurostar's performance and LCR's relatively small level of risk capital, Government had to guarantee any further long-term funds raised for the project in order to lower the borrowing cost. Short-term funds were raised (as suggested by LCR) through 'sale & leaseback' of Eurostar trainsets.

Railtrack's liability for the finance cost of CTRL Phase 1 was fixed at 7% on monies provided by LCR for actual construction. Although this was backed by £1bn of Government *guaranteed* 4.75% bonds, LCR could still be out of pocket if construction cost is slow and interest rates fall significantly. Therefore it was deemed sensible to hedge against a fall in interest rates. Accordingly, under an 'Interest Rate Swap' variable interest rate receipts from Railtrack could be converted into a fixed sum (at a price). However, other parties would require security from LCR to meet its obligations under the swap agreements. The Government decided to guarantee these obligations as well.

Since 1995, the project has received from the European Commission installments of a project development grant because the Link forms part of the Trans-European Network of transport corridors across the European Union. When LCR won the contract in 1996, it became the recipient of the payments, which have amounted to £141 million (cash). Under its contract with the DoT, LCR agreed that the amount received from the European Commission would be deducted from the Capital and Deferred Grants.

Source: NAO - "Progress on the Channel Tunnel Rail Link" – Report by the Comptroller and Auditor General, 21st July 2005)

To fund the construction of CTRL and losses incurred by Eurostar, LCR sourced private sector finance as follows:

- CTRL Phase 1 - two sources of private finance were used:
  - a bank debt guaranteed by Railtrack Group.
  - the issue of Government Guaranteed Bonds (GGBs) - bonds issued by a party other than the Government, in this case LCR, but carrying a Government guarantee to honour the bond if the issuer defaults.

- CTRL Phase 2 - LCR planned to use the proceeds from its sale of Section 1 to Railtrack Group and to issue a second tranche of GGBs.

LCR's original financing plan from private sector investors had two tranches:

- "Financial Close 1" in May 1996 raised £430 million of debt and £60 million of equity for the design and enabling works of the Link, LCR head office costs and Eurostar UK losses up to "Financial Close 2";
- "Financial Close 2" would have raised a further £1,000 million of equity and £3,000-£4,000 million of debt to repay the existing debt, fund construction of the entire Link and to make good any continuing Eurostar UK losses.

The change of financing plan from private sector investors of restructured deal is that "Financial Close 2" should only raise funds for the construction of Section 1. A third tranche of funds (Financial Close 3) would be raised at a later date to fund construction of Section 2 of the Link.

In order to enable LCR to remain solvent during negotiations on the shape of a restructured deal as a result of the delay to "Financial Close 2", short-term funding was required. This was achieved by the sale-and-leaseback of eleven Eurostar trainsets, backed by a Government guarantee that LCR's obligations to make lease payments would be fulfilled until the sale-and-leaseback could be terminated when full funding became available.

In June 1998, under the restructured deal between LCR and the Department, Railtrack was invited to participate in the project. During discussions, Railtrack informed the Department that it could not commit to purchase the entire Link until the outcome of the Rail Regulator's access charge review for the domestic network was known. The restructured deal therefore divided the construction of the Link into two sections. The Government guaranteed bonds issued by LCR and Railtrack agreed to provide guarantees that would allow LCR to borrow up to £700 million of commercial debt, during the construction of Section1.

In 1999 ICRR agreed to operate and manage Eurostar UK until 31 December 2010 in return for a management fee of two per cent of turnover, equating to some £3.7 million in 2000. There was also a risk sharing mechanism based upon an operating cashflow bid by ICRR. This is distinct from revenue risk because ICRR can mitigate revenue shortfalls by cutting costs, something it achieved in 1999 and 2000. If Eurostar UK's cashflow runs below ICRR's bid line, ICRR must share the downside risk with LCR. Payments by ICRR to LCR are capped at £100 million over the life of the contract and limited to a maximum of £20 million in any one year, subject to any payment obligation greater than £20 million being carried over to the following year. There is also a sharing of the upside, capped at £250 million over the life of the contract. Nevertheless, while LCR has transferred revenue risk to other parties, the majority of the risk has been retained.

Funds which LCR has accessed:

- the staged payments of direct grants paid by the Department
- a right to issue further Government guaranteed bonds
- the purchase proceeds from Railtrack for Section 1 of the Link.

To ensure that there is the finance to satisfy its obligations, including to finance the construction of Section2 and projected Eurostar UK losses, LCR must raise approximately £600 million of commercial debt, although the exact amount will depend on LCR's cash position at the time.

LCR is able to raise commercial debt to fund the construction of Section 1 because Railtrack guaranteed the debt. Railtrack has not committed itself to purchasing Section 2, but does have an option to do so which it can exercise at any time up to July 2003. Incentives for Railtrack to commit support to Section 2: (1) an upward adjustment of the access charges payable, giving it a greater rate of return; (2) a right to purchase a share of profits from the development of land at King's Cross and Stratford.

Source: NAO - “Progress on the Channel Tunnel Rail Link” – Report by the Comptroller and Auditor General, 21st July 2005)

Table 22: Loans for the First Stage of Financing Under the Original Deal

Loans for the first stage of financing under the original deal

Bank Loans:	Amounts (£ million)	
Commercial Banks Facility[1,2,3]		
United Bank of Switzerland	66 ⅔	
Dai-Ichi Kangyo Bank	66 ⅔	
Dresdner Bank (Luxembourg)	66 ⅔	
Citibank	55	
Credit Foncier	45	
	300	
European Investment Bank (EIB)[4,5]	100	
Kreditantstalt für Wiederaufbau (KfW)[4,5]	30	
TOTAL		**430**

Notes:
1. Bank Facility Agent was the United Bank of Switzerland.
2. The Commercial Banks Facility could be used to fund Eurostar UK operations, for designing and developing the Link and for the purchase of land necessary for its construction.
3. The term of the Commercial Banks Facility was 90 months from 31 May 1996.
4. The EIB and the KfW Facilities could only be used to fund the design and development of the Link and the purchase of land necessary for construction. LCR could not use these funds for Eurostar UK.
5. The term of the EIB and KfW Facilities was 120 months from 31 May 1996.

Source: NAO report, 2001. p. 13

Table 23: Direct Grants to LCR Under Original Deal

Breakdown of the direct grants to LCR under the original deal

Grants	Present value of grants (£ millions at 1995 prices)	Dates when payments would have been due
Capital Grant	796	This grant would have been paid in 12 quarterly instalments, the first being £103.96 million and the remaining eleven each being £100 million. The first payment would have been due on the later of either the third anniversary of Financial Close or when construction of the Link was 68 per cent complete.
Deferred Grant	603	This grant would have been paid in four equal quarterly instalments of £270 million. The first payment would have been due 78 months after Financial Close, provided the final permit to use had been issued.
Domestic Capacity	334	This grant would have been paid in 34 equal half-yearly instalments of £26.10 million. The first payment would have been due 78 months after Financial Close, provided the final permit to use had been issued.
TOTAL	**1,733**	

Notes:
1. Financial Close was to have been the later of the date upon which the funding agreements for the second stage of financing were executed or the date the lenders' agent certified to the Department that all conditions precedent to draw down the second stage financing had been complied with or waived.
2. Rebasing the grants to 1997 prices produces a present value of £2,014 million.
3. The Domestic Capacity Charge would have been paid to LCR for providing capacity on the Link for other train operating companies to run services between London and north and east Kent.

Source: The Department

Source: NAO report, 2001. p. 12

Table 24: Types of Public Grants Under the Restructured Deal

The types of public grants for the Link

Type of grant	Amount (£ millions)
Direct grants: construction	1,619
Direct grants: domestic capacity	395
TOTAL GRANTS	**2,014**
Less: Land rentals (note)	(266)
NET TOTAL	1,748

Note: Land rental payments will be made to the Government, beginning in 2030.

Source: The Department

Source: NAO Report, 2001, p.31

The Financial Deal Between Government and LCR

The article 'National Accounts Classifications – London and Continental Railways Ltd' (NACC decisions – NACC case 2001/05 20 February 2006, Office of National Statistics, Helen Shanks and Martin Kellaway (ONS), available from the ONS website http://www.statistics.gov.uk/about/Methodology_by_theme/national_accounts_classifications.asp) provides a clear and concise explanation of the background to, and structure of, the financial deal between the Government and LCR – and how it evolved over time. Accordingly, extracts from the relevant section of the article are reproduced below.

5. The history of the CTRL project and LCR

5.1 Establishing the CTRL project and LCR

5.1.1 In 1987 the British Railways Board began a study for a Channel Tunnel rail service. In 1991 the route was chosen, from the Channel Tunnel to St. Pancras in London, and the Government decided there should be a substantial private sector involvement. In 1992 the British Rail project team was formed into a company, Union Railways Ltd. Union Railways was classified in the National Accounts as a public corporation (initially as a subsidiary of the British Railways Board public corporation and then as a stand-alone public corporation when British Rail was separated into different units prior to its privatisation).

5.1.2 In March 1994 the Government invited competitive tenders for the concession to design, build, finance and operate a new high-speed rail link between the Channel Tunnel and St Pancras station. The concession was a Private Finance Initiative (PFI) deal, so the Government was looking for a private sector partner.

5.1.3 LCR was formed to bid for the concession. It is an unquoted company (e.g. not listed on a stock exchange) owned by mainly private sector shareholders, which include among others Bechtel Ltd, UBS, National Express Group plc, EDF Energy plc (formerly London Electricity plc) and subsidiaries of the French railway company SNCF.

5.1.4 LCR won the bid and signed a contract, the Development Agreement, with the Government in February 1996.

5.1.5 The contract was a concession agreement in line with the principles of PFI. LCR would finance, build and operate the link, drawing on revenues primarily from the Eurostar service and additionally from use of the link by domestic train operators. As part of the deal LCR acquired Union Railways Ltd and became owner and operator of the UK arm of the Eurostar1 train operator (then known as European Passenger Services Ltd, now Eurostar (UK) Ltd (EUKL)). This was a relatively new and recently privatised service with routes between London and Paris and London and Brussels.

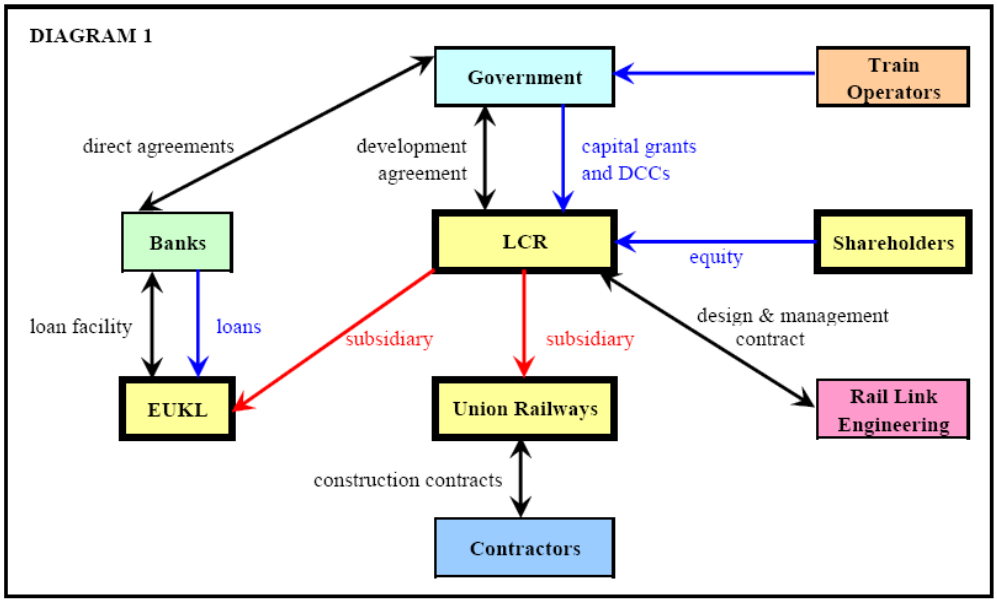
5.1.6 In common with a number of PFI concessions there are claw-back arrangements in place. These allow the Government to recover any excess value created in LCR. The Government is entitled to a 50 per cent share in any profit over development costs for LCR's development land interests. However, the Government is not entitled to trigger these claw-back arrangements.

5.1.7 The legal title to the rail link is held by the Government, which originally signed a 999-year lease with LCR. When the project was restructured in 1998, the length of the lease was reduced to 90 years, ending in 2086.

5.1.8 LCR was granted the train operating franchise for the link until 2086, although for the 17 years following completion of the link the Government purchased, at pre-agreed prices, some slots from LCR, with the intention of sub-leasing them to other domestic train operating companies. The rentals LCR receive for this are referred to as Domestic Capacity Charges (DCCs).

5.1.9 LCR was initially capitalised with £70 million of equity contributions from its founder shareholders and £430 million of bank facilities secured on EUKL revenues. As LCR did not have the commercial strength to raise these loans the Government supported them through a Direct Agreement with the banks. This specified that if the agreement with LCR was terminated the Government would take over and operate EUKL. If EUKL reverted to another operator and could not meet its debt servicing and operating costs the Government would cover these operating costs and the term of the debt would be extended.

5.1.10 Diagram 1 shows the original contractual structure of the deal and the financing.



5.1.11 From the start of the project it was known that private finance would be insufficient by itself, but the Government was willing to partially fund it due to the wider policy benefits. Under the contractual agreement the Government agreed to pay LCR £1.7 billion2 in the future (the values quoted are in 1995 prices but the actual payments are discounted to net present value at an annual rate of six per cent). The payments were a combination of capital grants (£1.4 billion) and DCCs (£0.3 billion) and were dependent upon financing dates and completion milestones. LCR was also given the leasehold on St. Pancras station and other railway lands. Part of the agreement was that LCR would pay land rents to the Government in later years.

5.1.12 LCR's original financing plan to fund construction of the CTRL and the trading activities of EUKL envisaged that it would raise £0.8 billion of equity through an initial public offering of shares in the company, accompanied by raising debt of £3 billion to £4 billion. However, by August 1997 it had become apparent from the due diligence programme for the initial public offering that Eurostar forecast revenues were not achievable. LCR's attempts to raise private finance would thus have faced difficulties because of the markets' view of the potential risks and the projections of passenger revenue.

5.1.13 To develop alternative funding arrangements, LCR entered into discussions with the Government in early 1998. To keep LCR solvent while these discussions progressed, the Government agreed to LCR conducting a sale and leaseback of some of the Eurostar train fleet.

5.2 The 1998 restructuring

5.2.1 Revised financing and risk-sharing arrangements were agreed in 1998 and these are referred to in this article as 'the 1998 restructuring'. Under these arrangements:

- there were no increases to the amount of government grants and DCCs payable under the

previous agreements;
- construction of the link was split into two sections;
- the construction risk and EUKL revenue risk were separated;
- the Government agreed to guarantee £3.75 billion of LCR debt and to provide a capped loan facility (the Access Charge Loan facility); and
- Railtrack was brought into the project as the intended future owner of the CTRL, with the Government guaranteeing the track access charge revenue stream from EUKL to Railtrack.

5.2.2 In return for its assistance the Government obtained Special Share rights in LCR.

5.2.3 The 1998 restructuring split the construction of the Link into two sections: Section 1 (the southern part, from the Channel Tunnel to near Ebbsfleet on the outskirts of London) and Section 2 (the northern part, from near Ebbsfleet to St. Pancras). For contractual purposes the construction of the sections were undertaken in separate LCR subsidiaries: Section 1 by Union Railways (South) Ltd and Section 2 by Union Railways (North) Ltd.

5.2.4 The private sector Railtrack group, which included the Railtrack plc subsidiary that held the licence to own and operate British rail infrastructure, was brought in to assume the CTRL construction risk. Railtrack agreed to guarantee an additional £0.7 billion of LCR debt with banks and assumed the CTRL construction and operating risks for Section 1, taking control of Union Railways (South) Ltd. Railtrack agreed to purchase Section 1 of the link from LCR on its completion, for the actual cost of constructing and financing the section less grant payments. Railtrack also secured an option to enter into a similar arrangement to purchase Section 2. In return, LCR assigned to Railtrack the DCCs allocated for Section 1 and the equivalent track access charges from EUKL. The EUKL payments were guaranteed by the Government for a period of 50 years from the opening of Section 1.

5.2.5 The government-guaranteed bonds were to be issued in two main tranches. The first tranche of £2.65 billion was issued in February 1999. The second tranche of £1.1 billion was for later issue, when funding was required for construction of Section 2.

5.2.6 The Government also guaranteed the tunnel access payments to Eurotunnel. The tunnel itself is jointly owned by the UK and French governments, which have leased it to Eurotunnel, a joint venture between British and French companies. The tunnel access agreements are between British Railways Board and Eurotunnel, with British Railways Board reimbursed by EUKL.

5.2.7 The Access Charge Loan facility was designed to fund EUKL's payments of track access charges if LCR had insufficient funds to make these payments. It also provided a buffer against the government guarantees to Railtrack being called.

5.2.8 Inter-Capital and Regional Railways Ltd (ICRR), a consortium of National Express, SNCF, SNCB and British Airways, was awarded a contract for the management of EUKL. Under this contract LCR paid ICRR a management fee and ICRR took the revenue rewards and risks on EUKL performance until 2010. Although the Government is not a party to the contract it has a Special Share in ICRR to protect its interests and this entitles it to receive five per cent of any profits.

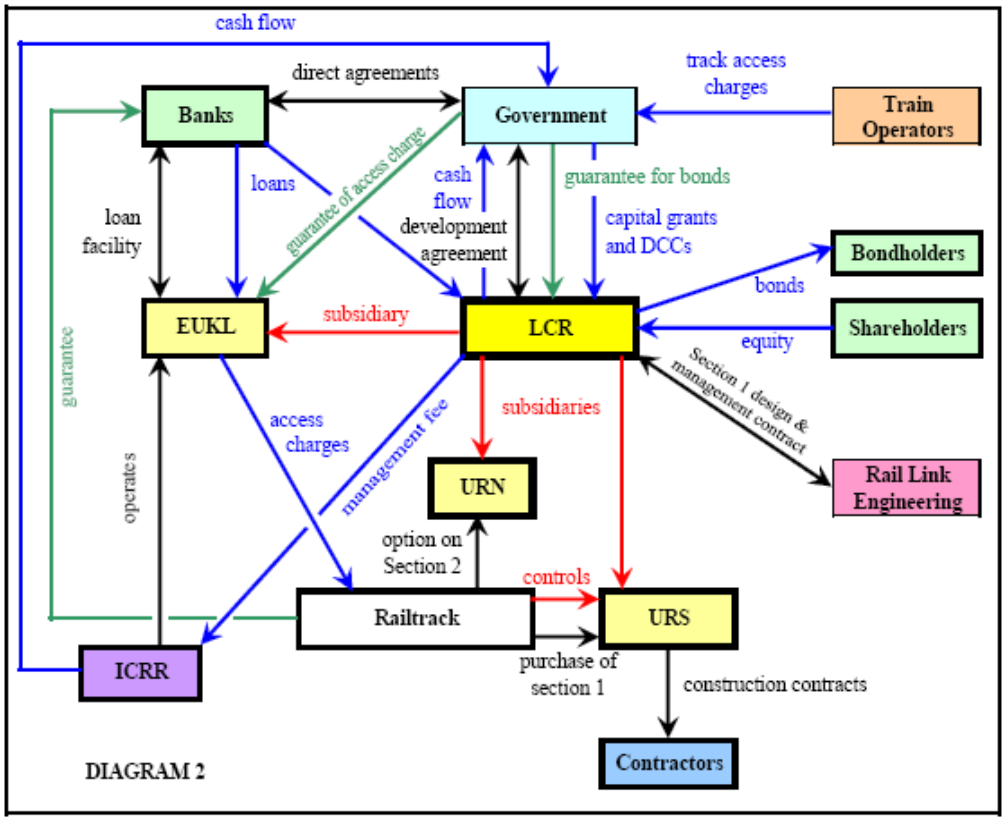
5.2.9 In providing the guarantees for LCR's bonds and EUKL's track access charge payments the Government faced a contingent but potentially large liability if significant problems emerged in the construction project or in EUKL's business. The Government was also concerned that LCR's shareholders should not profit excessively from their investment if LCR became highly profitable on the back of the financial support that the Government had provided. Therefore, the Government sought to protect its interests and claw-back any windfall gains that the 1998 restructuring might have created.

5.2.10 Accordingly the Government took some rights over LCR. These included:
- a first-ranking charge over all LCR's assets as security for the guarantees;

- controls and restrictions over LCR and its shareholders; and
- claw-back mechanisms.

5.2.11 Included within the rights contained in the Government's Special Share in LCR was the right to appoint a non-executive director of LCR. LCR's shareholders continued to appoint the other directors.

5.2.12 Diagram 2 shows the updated situation after the 1998 restructuring.



5.2.13 Although the restructuring was agreed in principle in June 1998, it first needed State Aid clearance from the European Commission. As a result, the 1998 restructuring was implemented on 18 February 1999. This is the National Accounts reclassification date.

5.2.14 The LCR shareholders converted 95 per cent of their ordinary share equity into preference shares in Union Railways (South) Limited. 50 per cent of the preference share capital would be redeemed, together with associated rolled-up interest, upon the opening of each section.

5.3 The 2001 and 2002 restructurings

5.3.1 In 2001 construction of Section 2 was due to begin. Railtrack indicated that it was unwilling to exercise its option on Section 2 as the option was no longer economically attractive. However, Railtrack continued to manage the construction of Section 1 with the intention of purchasing that section on completion but alternative arrangements were needed for Section 2. Railtrack entered into new contracts to provide construction services for Section 2. LCR transferred some risk on this section by entering into a Cost Overrun Protection Programme with Bechtel Ltd and a group of insurers. Under this programme, LCR paid Bechtel Ltd and insurers to bear £315 million of the risks of cost overruns spread over the first £600 million of cost overruns. LCR and the Government, through its exposure to LCR from the guarantees, shared the risks for amounts beyond this limit.
5.3.2 LCR needed to replace the bank loan guarantee that Railtrack had previously provided. As a result, the Government made the first four instalments of the deferred investment grants

unconditional. This gave security to the lenders.

5.3.3 In June 2002 LCR issued a further £1.1 billion of government-guaranteed bonds.

5.3.4 The Railtrack Group had run into financial difficulties and its subsidiary Railtrack plc had been placed in Railway Administration. In October 2002 Railtrack Group sold Railtrack (UK) Ltd, the holding company for its interests in the CTRL, to LCR. This included the contractual commitment to purchase Section 1 on completion and the subsidiary that benefited from the government guarantee of EUKL's track access charges payments. Therefore, the Government agreed to transfer to LCR the EUKL track access charge guarantee that it had given to Railtrack Group in the 1998 restructuring.

5.4 Post-2002 events

5.4.1 In 2003 LCR sold the rights to operate the completed CTRL and the concession to manage St Pancras station to Network Rail, the successor company to Railtrack plc as infrastructure licence holder. Network Rail's role is thus less than that of Railtrack, which was expected to own and operate the CTRL. Network Rail will only operate it. In September 2003 Section 1 of the link was opened on time. The forecast completion date for Section 2 is 2007.

5.4.2 In November 2003 LCR issued bonds securitised on future flows from government and EUKL. These are effectively guaranteed by government. The securitisation raised £1.25 billion. The resulting debt was classified as government borrowing by ONS. This is the subject of a separate classification article, dated 2 August 2005, at www.statistics.gov.uk/lcr .

5.4.3 Diagram 3 shows the current structure of the project and financing.

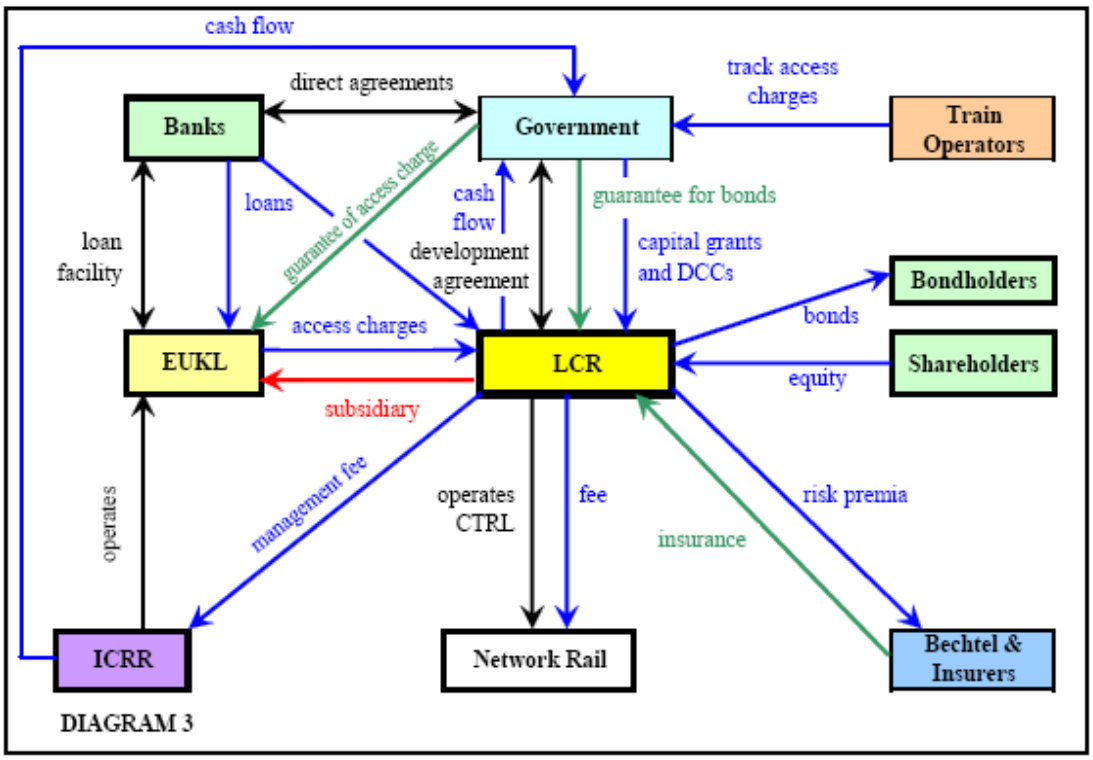


DIAGRAM 3

Commentary on Funding/Financing of CTRL

Against the above background it can be seen that early estimates showed the CTRL scheme to be of marginal economic value in cost benefit terms and would require subsidy of some £1.5bn – £2bn. Notwithstanding this, Government maintained that construction and operation of the CTRL would be undertaken by the private sector. However, Government did promise substantial financial support in respect to a) regeneration; b)domestic passenger travel c) international travel (contravening S42 of the Channel Tunnel Act).

CTRL was a project finance deal dependent on Eurostar revenues (in 1997 banks were unhappy to go ahead because of Eurostar's poor revenues to date). With this in mind, Government persuaded Railtrack to purchase CTRL Phase 1 from LCR (at cost), which meant that the bulk of finance required from banks was the short-term funding of the construction phase. In return, Railtrack would take control of Union Rail South since it was now bearing construction cost risk. This way, risk stayed in private sector and Railtrack undertook to guarantee part of the construction lending.

However, when Railtrack went into insolvency in 2001 (replaced by Network Rail) risk effectively returned to public sector.

Government wanted to take management control away from LCR shareholders, but at the same time wanted them to have a continuing economic interest in the project. Therefore they insisted that they convert their equity to Preference Shares which carry lower risk (and voting rights) than equity capital (but a higher risk than bank loans). Additional ordinary equity capital was raised but no dividends are payable before 2021.

Overall, the 'Restructured Deal' left the financing and construction of Phase 2 as a problem to be resolved later. The problem was solved later - but not to Government's advantage.

Government supported the restructured deal with LCR for a number of reasons:

- increases in consumer surpluses of fare reductions;
- long-term capacity increases;
- time saving benefits;
- environmental benefits of rail versus road;
- regeneration benefits at King's Cross, Stratford and Ebbsfleet.
- by fulfilling Phase 1 and 2 of works planned under the Channel Tunnel Act 1987, the government fulfilled its legal obligation to Eurotunnel

It is also important to note that

- in 1997 when negotiations were taking place to restructure the deal with LCR, the government did *not* have a standard set of criteria for approving major new railways (CTRL being the first project of this nature for some 100 years in the UK);
- the government was keen to secure private finance for a number of public sector deals and therefore did not want to antagonise financial institutions when it was preparing to launch these on a fairly widespread basis.

Accordingly, even taking account of the potential regeneration benefits associated with CTRL, the financial case for supporting it may be seen as somewhat fragile because of the assumptions about Eurostar passenger growth rates – the most pessimistic of which have yet to be achieved.

The following extracts from D R Myddelton's book "They Meant Well – Government Project Disasters", The Institute of Economic Affairs 2007, Chapter 6, The Channel Tunnel (1985-1994-2007), provide an interesting insight into the whole approach to financing and funding the CTRL:

- page 149: "And Mrs Thatcher herself said that users of the new line should pay for the full costs, including environmental costs. So it was *not* 'always envisaged that the Link would not be commercially viable without a substantial government financial contribution' [as

stated in the NAO Report 'The Channel Tunnel Rail Link' HC 302 Session 2000/01, 28 March 2001, p.6]. Indeed, Section 42 of the Treaty explicitly ruled out government grants in support of international services."

- Page 150: "More than one study showed there was no business case for the CTRL project, but – like the Channel Tunnel itself – it was a vital element of the high-speed London-Paris railway. Also, there were environmental benefits and 'governemnt saw the project as one of national prestige'. Without any government subsidy, BR's CTRL project would not pay its way. But the Channel Tunnel Treaty ruled out a government subsidy *only* for the state-owned BR, not for a *private sector* CTRL project!"
- page 153: "The CTRL's cost was extremely high. So one way or another, the government had to provide probably at least £3,000 million to subsidise it, out of total costs of at least £5,750 million. Lack of transparency makes it very hard to measure the CTRL's total costs or the government's total contribution towards it. But compared with the implied target of zero government spending for a 'fully commercial' project, this clearly represents a significant cost overrun."

F OPERATIONS - TRAFFIC VOLUME

Traffic forecasts clearly played a key role in determining the overall approach to funding and the nature of the eventual 'deal' that was struck between government and London and Continental Railways (LCR) – as explained above in Section E.

There were four main forecasts of UK patronage two prepared for LCR, and two prepared by the Government's advisers, Booze-Allen & Hamilton. The forecasts provided estimated passenger numbers and revenues per passenger (known as Yields):

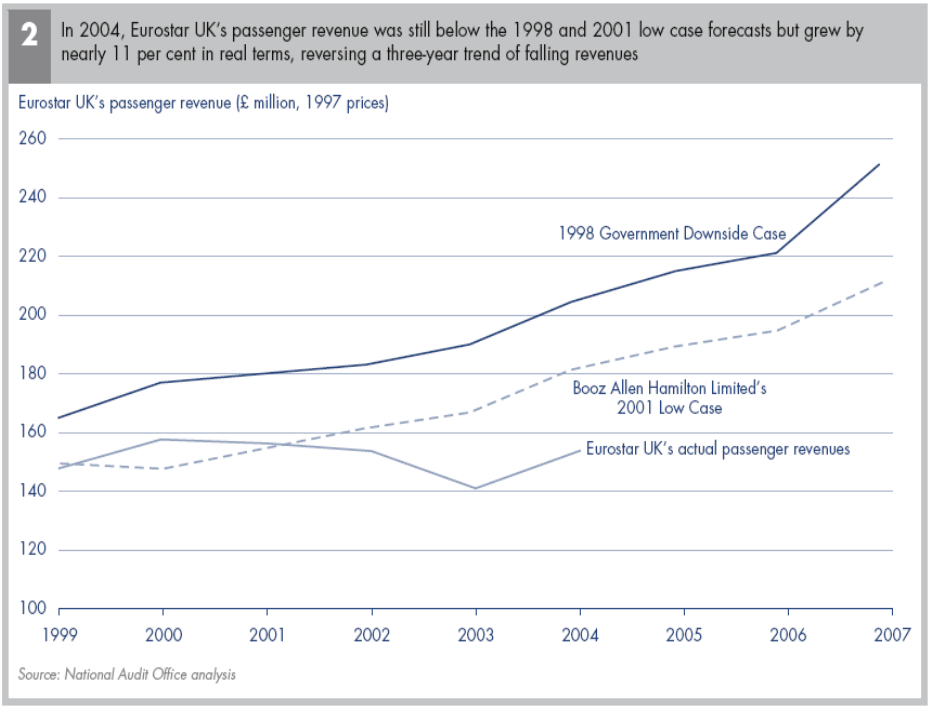
- LCR Forecasts
  - The LCR Management Case: representing LCR's view of the most likely level of demand and revenues. It assumed there would be an increase in passenger numbers of seven per cent on the opening of Section 1, 7.5 per cent on completion of the Link and that there would be an uplift of 4.9 per cent in revenue per passenger at the opening of each Section.
  - The LCR Downside Case: assumed lower passenger and revenue uplifts and represented LCR's pessimistic scenario. It assumed a 5.6 per cent uplift in passenger numbers at Section 1 opening, a further five per cent uplift on completion of the Link and that revenue per passenger would increase by 2.45 per cent at the opening of each Section.

- Government Forecasts
  - The Government Central Case: was the forecast of expected passenger numbers and yields per passenger that formed the basis of the value for money assessment of the project. As Booze-Allen & Hamilton considered that LCR's forecasts were optimistic, the Government Central Case used lower estimates of passengers and, in particular, revenue per passenger. The Central Case assumed a 6.7 per cent increase in passenger numbers for Section 1 and 11 per cent for Section 2. The increases in revenues per passenger, however, were much lower at 1.4 per cent for Section 1 and 2.5 per cent on completion of the Link.
  - The Government Downside Case: This was the pessimistic scenario. It assumed a 5.7 per cent increase in passengers for Section 1 and a 9.7 per cent increase on completion. The increases in revenue per passenger were one per cent for Section 1 and three per cent on completion.

Source: NAO report, 2001, p. 16

As shown by Table 25 below, actual passenger revenues up to 2004 have fallen well below the above forecast levels.

Figure 53: Eurostar Passenger Revenues



Source: NAO report, 2005, p.5

Further information relating to CTRL patronage is shown in the Tables below:

Table 25: Channel Tunnel: traffic to and from Europe: 1994-2005

6.8 Channel Tunnel: traffic to and from Europe: 1994-2005

Thousands

	1994 [1]	1995	1996 [2]	1997 [2]	1998	1999	2000	2001	2002	2003	2004	2005
Vehicles carried on Le Shuttle:												
Passenger	82	1,246	2,135	2,383	3,448	3,342	2,864	2,605	2,408	2,351	2,165	2,124
Freight	65	391	519	268	705	839	1,133	1,198	1,231	1,285	1,281	1,309
All vehicles	147	1,637	2,654	2,651	4,153	4,181	3,997	3,803	3,639	3,636	3,446	3,433
Passengers on Eurostar and Le Shuttle	315	7,081	12,809	14,653	18,405	17,550	17,018	16,313	15,252	14,699	15,064	15,527
Through-train freight tonnes	452	1,411	2,361	2,925	3,141	2,865	2,947	2,447	1,487	1,743	1,889	1,588

1 Opened for freight services in June 1994 and for through passenger services in November. Passenger shuttle services opened in December.
2 Figures for 1996 and 1997 were affected by a fire on 16 November 1996. Tourist shuttle resumed services on 10 Dec 1996 with full freight services resuming on 15 June 1997.

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The figures in this table are outside the scope of National Statistics
Sources - Eurotunnel, Eurostar and EWS International

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Source: DfT Transport Statistics Great Britain – 2006 Edition (September 2006)

Table 26: Traffic Volume Through Channel Tunnel 2000-2005 (Including Eurostar)

	Eurotunnel Shuttle Services					Eurostar	Rail Freight (SNCF/EWS)
	Trucks	Estimated tonnes of road freight carried (in million)[2]	**Cars**	**Coaches**	Estimated passenger number (in million)[3]	**Passengers**	Tonnes of rail freight (in million)
2005	1,308,786	17	2,047,166	77,267	8.2	7, 454 ,497	1.6
2004	1,281,207	16.6	2,101,323	63,467	7.8	7, 276 ,675	1.9
2003	1,284 ,875	16.7	2,278,999	71,942	8.5	6,314 ,795	1.7
2002	1,231,100	16	2,335,625	71,911	8.7	6,602 ,817	1.5
2001	1,197,771	15.6	2,529,757	75,402	9.3	6,947,135	2.4
2000	1,133,146	14.7	2,784 ,493	79,460	10.1	7,130,417	2.9

[2] Estimated figure calculated on an average of 13 tonnes of goods carried per truck.

[3] Estimated figure calculated on an average of 2.52 passenger per car and of 38.75 passenger per coach.

Source: Traffic volumes over 5 years - http://www.eurotunnel.com/ukcP3Main/ukcCorporate/ukcAboutUs/ukcTraffic/ukpTraffic.htm

Further information available from the above website:

Since commercial services started progressively from May 1994, 177 million people have travelled through the Channel Tunnel. In 2005, Eurotunnel carried 1,308,786 trucks, 2,047,166 cars and 77,267 coaches on its shuttle services. It also provided access through the Tunnel for 7,454,497 Eurostar passengers and 1,587,790 tonnes of rail freight.

The frequentation figures include passengers travelling onboard Eurotunnel shuttles by cars, campervans, motorcycles, coaches or trucks as well as on Eurostar trains going through the Channel Tunnel. The above figure can be broken down into 108 million passengers on Eurotunnel shuttles and **69 million passengers on Eurostar**. This represents an average of over 47,000 passengers travelling through the Channel Tunnel each day of 2005.

To these volumes, we must add 25 million tonnes of freight carried by International rail freight services (SNCF and EWS) through the Channel Tunnel since June 1994.

Summary traffic information

	2005	2004	2003	2002	2001	2000
Trucks	1,308,786	1,281,207	1,284,875	1,231,100	1,197,771	1,133,146
Cars	2,047,166	2,101,323	2,278,999	2,335,625	2,529,757	2,784,493
Coaches	77,267	63,467	71,942	71,911	75,402	79,460
Eurostar passengers (1)	7,454,497	7,276,675	6,314,795	6,602,817	6,947,135	7,130,417
Rail freight tonnes	1,587,790	1,889,175	1,743,686	1,463,580	2,447,432	2,947,388

(1) The number of Eurostar passengers in this table includes only those travelling through the Channel Tunnel, and therefore excludes passengers travelling between Paris-Calais or Brussels-Lille.

The following is from a Eurostar Press Release dated 11th January 2007 (downloaded on 10th May 2007 from http://www.eurostar.com/UK/uk/leisure/about_eurostar/press_release/2007_01_11_record_year.jsp)

Record year for Eurostar as more travellers switch from airlines

--Sales of £518 million – up 11% on 2005
--7.85 million travellers carried – up over 5%
--17% year-on-year increase in business traveller numbers
--Punctuality reaches 91.5% - up from 86.3% in 2005

Eurostar, the high-speed passenger train service that links the UK with France and Belgium, saw record sales and traveller numbers in 2006 as it attracted thousands more travellers from the airlines. Sales topped half a billion pounds for the first time, rising 11.7% from £463.8 million to £518.3 million.

In total 7.85 million travellers chose Eurostar in 2006, up 5.4 % on 2005. Leisure traveller numbers rose by 4.5%, while the largest increase was in business traveller numbers, rising over 17% and generating an 18% increase in business sales revenue.

Eurostar continues to see strong year-on-year growth. It is now carrying 28% more travellers than in the 12 months before the opening in September 2003 of the first section of the Channel Tunnel Rail Link, now named High Speed 1.

Increased security at airports since the summer and foggy weather in the UK before Christmas meant that thousands of passengers switched from the airlines to Eurostar. Many of these travellers were using Eurostar for the first time and it is estimated that 1000 business customers a week have now permanently transferred from flying to high-speed rail.

Eurostar benefited from its global partnership with The Da Vinci Code blockbuster film that is set in London and Paris, encouraging tourism to both capital cities. The partnership was largely responsible for a 10.6% increase in international sales.

Punctuality in 2006 was a record 91.5%, far outstripping airline competitors on the London – Paris and London - Brussels routes. Latest figures from the Civil Aviation Authority show that punctuality at London's airports remains around 70%, as in previous years.

Richard Brown, Chief Executive, Eurostar, said:

"These are record results on sales, traveller numbers and punctuality. I am delighted at the strong growth in the number of business travellers, who are discovering the punctuality and productivity advantages that Eurostar offers compared with the experience of flying. Many more travellers are being attracted by the environmental benefits of using high-speed rail instead of short-haul air.

"We are increasing traveller numbers both in and beyond our three core countries. We are making good progress in attracting more travellers from across Western Europe, particularly in the Netherlands and Germany, where travellers are discovering that international connections are easier than they imagined. I am also pleased that our international sales continue to increase. The US is our principal market, whilst sales from Asia-Pacific are growing strongly.

"We expect 2007 to be another good year, with events such as the Tour de France in July and the Rugby World Cup in the autumn already generating strong demand in the groups market."

The move from Waterloo International and the launch of services from St Pancras International on 14 November 2007 will make journeys between the UK, France and Belgium even quicker and open up Eurostar to millions of new travellers. Eurostar will minimise disruption by moving

overnight, in the biggest change in the company's history.

Eurostar will also open a new parkway station at Ebbsfleet International, just off Junction 2 of the M25, near Bluewater shopping centre and Dartford in north Kent. This station will serve a catchment of over 10 million people and, together with Ashford International, will lead to a 45% increase in Eurostar services serving Kent.

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