TRANSPORT 2000 trust

Fog on the Runway

How calls for a Third Runway at Heathrow have overlooked the potential of High Speed Rail to meet travel demand

Prepared by Jim Steer for Transport 2000 Trust, May 2006

Foreword

By Lord Whitty of Camberwell, Vice-President of Transport 2000

Aviation is a huge issue for policy-makers. On the one hand, it brings people and businesses together and gives the chance to experience new cultures; on the other hand, its growth brings noise and pollution for those around airports and flight paths. Above all, the role of aviation in climate change, especially the impacts of emissions in the upper atmosphere, means that we cannot go on as we have done, planning for virtually unlimited growth.

All recent Governments have made promises to limit the growth of the major airports, only to break them again under pressure from the arguments that the UK needs expansion to remain competitive. This is now happening again with Heathrow: the planned Third Runway will involve significant demolition and threatens to break statutory limits in terms of air quality and noise, but it is argued that it is essential for 'UK plc'.

This report tries to seek a resolution. It argues that two separate policy debates – on aviation and on the building of a High Speed Rail link to the North – need to be brought together. It shows convincingly that High Speed Rail could serve many of the same markets as the Third Runway. And it argues strongly that good rail links for surface access to Heathrow will be needed anyway if it is to grow at all. In other words, Heathrow (and maybe other airports) should grow as transport hubs, rather than just as airports.

As a former Minister for both transport and for the environment, I can say that aviation policy is one of the most hard-fought arenas at present. This report suggests that using High Speed Rail could promote competitiveness while safeguarding the environment. As the Government reviews its Aviation White Paper, I hope it will take notice.

Lord Whitty

Contents

1. Introduction

One of several important conclusions from the Strategic Rail Authority's studies into a North-South High Speed Rail Line in 2001-2003 was that a direct link into Heathrow Airport had a sound business case. Its inclusion improved the overall business case for North-South High-Speed Rail[1].

Demand for air travel has been growing relentlessly, with a five-fold increase over the last 30 years. The expectation is that air travel will continue to grow, from 200 million passenger journeys nationally in 2003 to between 400 and 600 million passenger journeys in 2030[2].

The Government's Aviation White Paper, *The Future of Air Transport,* in December 2003 sought a balanced response to the challenge set by this level of growth, a challenge that is especially hard to meet in the south-east of England. In the South-east, Heathrow accounts for roughly half of the total passenger throughput, and its runways operate at capacity virtually all day long.

The policy set out in the Aviation White Paper identified a need for two new runways in the South-east by 2030[3]. One of these (expected to be built first) would be at Stansted; the other, subject to meeting what are described as stringent environmental standards, at Heathrow. This is unlikely to happen in practice before 2015-2020. It would be a short (2-kilometre) runway, suitable only for smaller narrow-bodied aircraft (ie the types that usually operate on shorter haul routes).

The Aviation White Paper notes that while most of the users of Heathrow Airport are travelling to or from the wider South-east, all parts of the UK benefit from the competitive advantages that Heathrow confers, a point emphasised by authorities from across the regions in the consultation process. It does not support the creation of a second hub airport in the South-east (Heathrow has more international transfer passengers than any other in the world and this helps sustain the diversity of route pattern).

The Aviation White Paper also points out that airport plans need to take into account rail investment plans. However, it suggests that while there may be some scope for High Speed Rail, the effects on air demand would only be felt at a route level[4]. Therefore, the overall conclusion with respect to the need for (and the timing of the need for) additional runway capacity in the South-east, it concluded, did not need to be modified because of the possibility of High Speed Rail.

But what if the introduction of High Speed Rail at Heathrow were to have a more widespread effect? After all, new rail infrastructure at Heathrow could be used not only to serve places that currently have domestic flights but also to offer new faster services to the near continent (using the Channel Tunnel Rail Link). Together these are some of the busiest routes serving Heathrow today.

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[1] Atkins et al, *High Speed Line Study Summary Report 2004,* DfT, London. Available on DfT website.

[2] *The Future of Air Transport, Cm6406,* Department for Transport, London, December 2003.

[3] *Ibid* p13

[4] *Ibid* p59. This point is repeated in the subsequent BAA Interim Master Plan for Heathrow of 2005.

How much of the existing shorter haul market would be affected, and would this lead to any changes in thinking on the case for, or more particularly the timing of, the Third Runway at Heathrow? Could Heathrow be equipped with a surface transport hub alongside its airside hub?

In this brief report, we set out to give some preliminary answers to these questions.

2. Heathrow development plans

2.1 Background

Prior to the possible introduction of a Third Runway at Heathrow, Government policy is to seek to get the best possible use out of an asset that will soon benefit from the opening of Terminal 5, adding capacity and improving dramatically the quality of facilities on offer to users of the airport.

To get the most out of the existing runways, consideration is being given to 'mixed use', with flexibility in the use of each of the two existing runways to combine take off and landing. This would allow throughput at the airport to be increased to 89 million passengers per annum (mppa). Currently, there are 67mppa at Heathrow[5] and over one-third of this volume comprises inter-lining travellers, reflecting Heathrow's hub status.

The airport's owner, BAA plc, is currently consulting on its interim master plan which addresses development through to 2015. It would be after that date that the Third Runway could come on-stream.

Fresh impetus to the expansion of Heathrow through construction of the Third Runway is believed to have been given by a new Government study into 'solutions' that will allow the Third Runway at Heathrow to be built[6].

2.2 Policy context

The Aviation White Paper envisages airports serving the regions in which they lie. Nevertheless, in the context of Heathrow, in the run up to the release of the Aviation White Paper, consultation responses made very clear that Heathrow had a relevance well beyond the South-east and London. Indeed, when the English Regional Development Agencies first prioritised investment that would help them achieve their economic growth and regeneration goals, they agreed that better access to Heathrow was a prime objective[7].

Heathrow's catchment, on the face of it, is dominated by the South-east, which accounts for 80 per cent of its surface access origins/destinations (see Figure 1). However, this would be to overlook two factors:

- Over longer distances, access to Heathrow is made predominantly by air rather than by surface transport modes.
- While the proportion of travel lies heavily in the South-east, the economic importance of the airport is more widely spread, as reflected in the views of the Regional Development Agencies.

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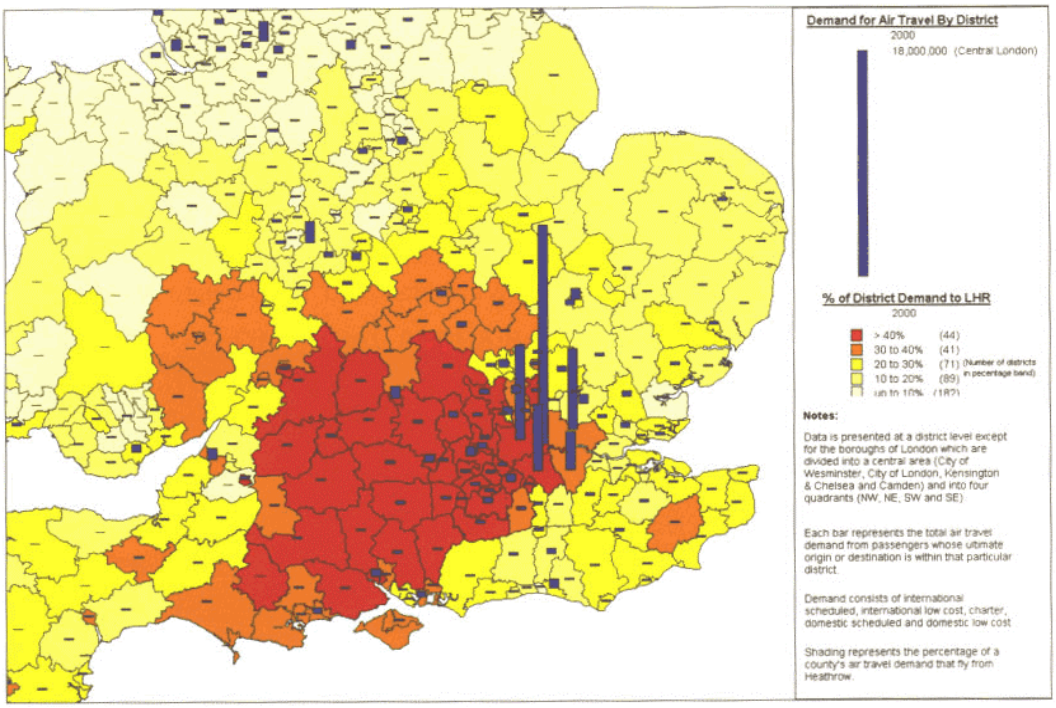
[5] Source: Civil Aviation Authority website, December 2005.

[6] *Observer* p1, 1 January 2006.

[7] Faber Maunsell and Ecotec, *Surface Infrastructure of National Importance (SINEI): A Study for England's Regional Development Agencies,* January 2004.

Figure 1: Total air travel demand by district and percentage of this demand at Heathrow



Source: Figure 7A in The Future Development of Air Transport in the UK: South East, Department for Transport, December 2003.

Moreover, air travel is statistically dominated by leisure travel and the UK is a very important leisure destination served well in this function by Heathrow with its very wide range of routes. But the policy of the British Tourist Authority is to try to encourage visits away from the overcrowded destinations in London across the nation to places better able to cope with increased demand and able to factor much needed regional economic benefit from so doing. Better rail access direct from Heathrow might be one way of reconciling Heathrow's dominance with this tourism policy objective.

In general, the Department for Transport expects to see air routes develop commercially, in response to demand. With a competitive airline industry, and provided that capacity constraints at airports are not an inhibition, this is reckoned to be a reasonable approach in most situations. But, as the Aviation White Paper acknowledges, there is a case for Government funding of air services to remote regions in certain very specific circumstances (as has been successfully employed in both Scotland and Wales already). Such 'thin' routes could become the subject of a Passenger Service Order (PSO) and attract Government funding. It is possible, as the Aviation White Paper also acknowledges, that these services could require access to Heathrow or other South-east airports, although their economics would rule this out without grant aid.

In fact, over the recent past, domestic air services to areas such as the West Country have been squeezed out of Heathrow, illustrating that there could indeed be a case for the type of Government intervention described. As this report will argue, the choices could then lie between the costs of supporting such air services (including

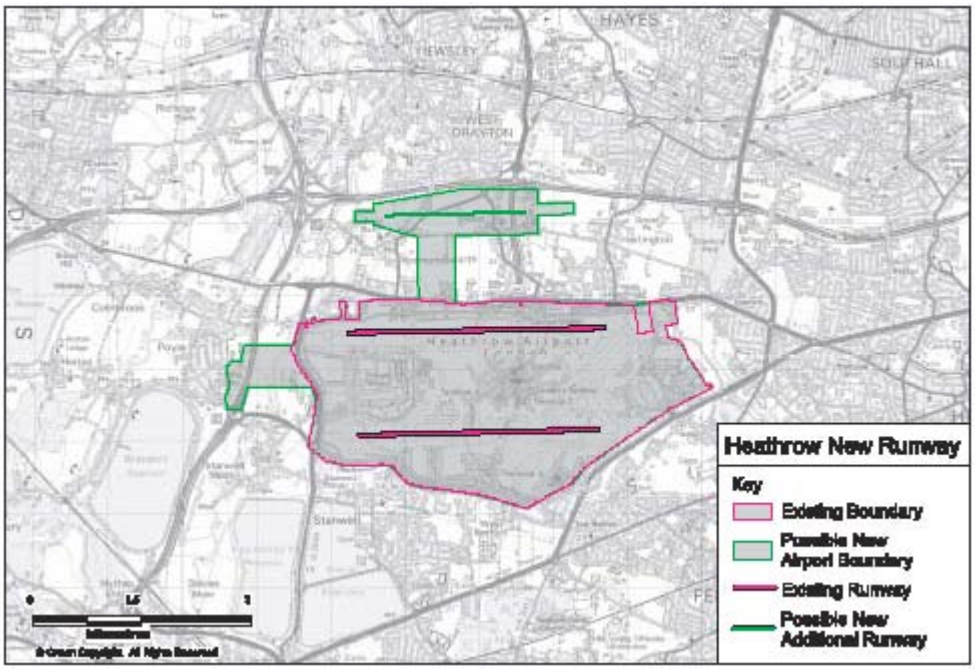
the commercial cost of use of scarce runway capacity) and the provision and support of direct rail services to the hub at Heathrow.

2.3 The Third Runway

Little has as yet been published on this scheme. An indicative plan was contained in the Aviation White Paper (see Figure 2); it was updated in BAA's Interim Master Plan of summer 2005.

Figure 2: The Third Runway at Heathrow between the A4 and the M4

It must be stressed that this map is only indicative, pending detailed design work and the submission of a planning application by the operator. The map should not therefore be taken to be a formal safeguarding map.



The consultation document for the south-east part of the airport's policy work says that the net economic benefits of the new runway, at over £6 billion, were higher than for any other runway expansion scheme examined[8]. This makes an interesting contrast with the net benefits of the North-South High Speed Line, which are reckoned to be over £27 billion[9], although the full North-South High Speed Line is a higher cost project.

The capacity impact of the Third Runway can be deduced from the Aviation White Paper consultation documents. Passenger capacity at Heathrow (post Terminal 5) would increase from a maximum of 89mppa with two runways to 116mppa with three, operating in segregated mode (rather than the higher throughput mixed-mode), according to DfT in its SERAS consultation. Air traffic movements would increase from 480,000 annually to 655,000.

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[8] *Op cit* Cm6406, p119.

[9] *Op cit* Atkins et al, Table 3.3, pB-5.

Thus, if built, the Third Runway and its associated terminal could be expected to handle about 23 per cent of the demand at Heathrow.

According to the consultation document, employment at the airport would rise from 98,000 to 147,000 (2015 base figures)[10].

In short, the suggested economic benefits of Heathrow capacity expansion are significant. There is an HM Treasury view on the airport's contribution to the national economy, described in the December 2005 Budget report in terms of Heathrow's "unique role in supporting economic growth across the country"[11].

The issue, as this report will argue, is not whether Heathrow does indeed confer this wide benefit to the British economy, but whether the Third Runway as now planned represents the best way to achieve the next stage of its expansion.

Indeed, there is a question about whether currently Heathrow *is* fulfilling its role to the maximum extent possible (within its capacity limits) as the country's primary global gateway, since its expansion of direct services to the key business destinations across the world is not happening now in the way that it once was. Part of the problem is the dependency on short-haul domestic flights to sustain the critical 'hub' role, flights which take up scarce runway capacity with relatively low capacity aircraft that could be replaced (as we will show) by High Speed Rail.

Against the considerable economic advantages of expanding Heathrow through a Third Runway are some very significant environmental concerns (which may themselves have economic costs associated with them). These are not just impacts to be set against the economic upside, but are matters of compliance with EU limits on local air pollution levels, effective from 2010.

The impact of extra aircraft noise would be significant. So would potential breaches of EU standards on air quality, in particular for nitrogen oxides (NO_x). Early analysis contained in the consultation documents suggested that the number of people exposed to NO_x emissions in excess of the EU limits would be 35,000 compared with just 14,000 under a maximum use two-runway scenario[12]. An aggressive set of policies designed to reduce the NO_x levels was said to be capable of reducing the effect to 5000 people, but it was evident, at the time of the Aviation White Paper launch two years ago, that the Government was reluctant to proceed unless there could be confidence in avoiding a breach of the EU limit (which becomes law in 2010).

It is notable that only a little over half of the NO_x emissions in the Heathrow area come from aircraft themselves. A significant part of the rest comes from road traffic, and therefore the ways of achieving improvements in air quality are not just concerned with flight volumes and changes in aviation technology.
It is interesting also to look at the assumptions made in the Department for Transport analysis of the Third Runway option with regard to surface access at the airport.

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[10] *The Future Development of Air Transport in the UK: South East,* consultation document second edition, Department for Transport, February 2003.

[11] *Op cit Observer.*

[12] *Op cit The Future Development…* Table 7.4.

These assumptions reflected the fact that there are no plans beyond those announced in 2003 to widen motorways in the area (M4 and M25). This helps ensure that increases in air pollution from private car traffic are moderated. But it means too that the increase in surface access traffic would have to be met by an expansion of the rail network. And indeed, an impressive list of schemes is identified as having been assumed to be built[13]:

- Airtrack, a scheme to connect the airport to Waterloo, Guildford and Reading via Bracknell.
- A new link to Watford and St Albans, which is said to involve new tracks between Hayes and Acton.
- Crossrail.
- The Western Connection, a scheme to connect Heathrow with Slough and Reading.
- A range of 'intercity' services to serve the regions operating from an open-air station at Heathrow suitable for diesel train services.

At present none of these schemes has funding or planning powers. It is clear that the Third Runway could not proceed, at least in the mind of the Department for Transport, without very substantial multi-billion pound investment in the rail network. While possibly less contentious than the new runway itself, there is presently a significant planning consent risk associated with these rail schemes and, unlike with the Third Runway, there is no champion in place to progress them in a co-ordinated fashion. Yet, without them there is no way that the expanded capacity at Heathrow from a Third Runway could be handled.

If the Government is serious in wanting to see the Third Runway at Heathrow, it will need to demonstrate progress on the related rail access schemes, including an answer to the question of their funding.

[13] *Ibid* §7.14.

3. High Speed Rail

3.1 The North-South High Speed Line proposal

The Strategic Rail Authority engaged Atkins, Ernst and Young and others to carry out a detailed but preliminary investigation into the case for a North-South High Speed Line in Britain. A summary report setting out their conclusions is available on the Department for Transport website.

The case for High Speed Rail has been the subject of particular interest following the inclusion of a commitment to further assessment in the Labour Party Manifesto, published in advance of the 2005 General Election[14]. Private sector interests with particular technologies to offer have canvassed particular solutions. The Railway Forum has launched a programme of regional conferences, and Greengauge21 was established to try to articulate the arguments and advance understanding to aid implementation[15].

In essence, the idea is that a new line would be built running from London to the Midlands, the North and Scotland. It would (sensibly) be built in stages. The evidence from the work by Atkins et al is that there is a strong business case for the project, with conservatively assessed benefit-cost ratios in excess of 2:1. This case evaporates if the High Speed Line fails to penetrate city centres. A High Speed Line limited to the urban periphery would fail to compete with either private car (over medium distances) or air (over longer distances).

The Atkins work established too that there was a good business case to connect the High Speed Rail Line directly into the Channel Tunnel Rail Link (CTRL) and to Heathrow. Both propositions have a bearing on this analysis. Greengauge21 suggests that what is needed is a network of High Speed Lines, linking London, the CTRL and Heathrow directly to the Midlands, the North and Scotland. In practice, this would readily provide as well for direct links between CTRL and Heathrow capable of supporting High Speed Rail services between the airport and the near-continent.

A North-South High Speed Line could, it is estimated, achieve the following journey times from Heathrow (assuming a fully built-out High Speed Line):

- Birmingham 40 minutes
- Manchester one hour 25 minutes
- Leeds one hour 20 minutes
- Edinburgh/Glasgow two hours 45 minutes

These are journey times to city centres. It would also be possible to serve other locations and key development areas. Whether in the longer term a single route would suffice, or a better approach could be found with two routes, one to the North-east and one to the North-west, will need further study: the evidence from Atkins et al is that two routes would be the better option.

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[14] See for example *The Case for High Speed Rail in Britain,* J K Steer, Institute for Economic Affairs, 4 May 2005.

[15] Greengauge21 Manifesto, London, January 2006. See also Institution of Civil Engineers, *The Missing Link,* a report on high-speed rail links in the UK, December 2004, London.

However it is contrived, to serve Heathrow as well as central London without compromising the very attractive journey times that High Speed Rail offers means this: at the southern end of the High Speed Line route, there would need to be two branches, one serving central London and the other Heathrow. The volume of trains on each of these two branches would be less than on the core trunk route to/from the North. This means that there would be spare capacity on the route accessing Heathrow from the North for services other than long distance High Speed trains. What follows is this: to create High Speed Rail access directly into Heathrow from the North will entail the creation of new rail infrastructure which will have the capacity for other new rail services to Heathrow, for instance of a regional nature. This would meet the type of capacity provision that we have just noted the Department for Transport, in its Third Runway assumptions, is striving to achieve.

In short, High Speed Rail access to Heathrow is likely to bring with it a transformation in general rail access to the airport, from the west and the North. It may open up opportunities for rail-freight access to Heathrow as well as better arrangements for air passengers/airport employees.

In terms of links to CTRL from a North-South High Speed Line, the opportunity exists to make use of the west-facing connection being built as part of the Phase II CTRL plans north of the new international St Pancras terminus. While it is no longer considered possible to fashion the direct link from St Pancras to Heathrow that BAA and others once favoured, investment in new rail links to permit through-operation on to the CTRL from a domestic High Speed Line would allow full use to be made of the CTRL and allow the introduction of services from places such as Birmingham and Manchester to Paris and Brussels at journey times that could prove competitive with airlines. These new connections could also be used to fashion a direct link from CTRL to Heathrow.

If this can be achieved, there is the prospect of a High Speed Rail (and conventional rail) hub at Heathrow, helping the economics of all services. Journey times via the new connections and the CTRL could be:

- Heathrow to Paris (city centre) two hours 35 minutes
- Heathrow to Brussels (city centre) two hours 20 minutes

The wider benefits of the High Speed Rail strategy for the UK economy are set out in Greengauge21's Manifesto; they are very substantial, especially when examined in the context of the expected pattern of economic and demographic development that the country faces in the decades ahead.[16] Rail is not dependent (as is the aviation sector) on the future availability of oil; High Speed Rail can use a variety of sources of energy, generally using electric transmission and traction.

3.2 Eurostar capacity

Eurostar UK made a submission to the consultation on the South-East England Airport Capacity work which preceded the Aviation White Paper. This showed that in future, the available capacity on the CTRL was equivalent to that created by an

[16] *Ibid,* Greengauge21 Manifesto.

additional airport runway in the South-east[17]. They also demonstrated the environmental advantages of High Speed Rail in comparison with short haul aviation. Their argument was that making further use of an investment that will shortly be completed makes more sense than expanding airports and that the capacity available is sufficient to 'save' one runway.

These arguments do not appear to have swayed the Government at the time. Part of the reason may be that the 'reach' of Eurostar, certainly on the British side, is rather limited and that in the key markets where it does compete (London to Brussels and Paris), it already has attracted the majority of the market. But in the context of a British High Speed Rail network the picture is different, and the scope to exploit further the European High Speed network as it reaches fruition is a further factor. This opens up the opportunities for direct High Speed Rail services to Amsterdam and the near parts of Germany at very competitive journey times.

[17] Eurostar UK Submission to consultation on *Future of Air Transport in the UK: South East,* 2003.

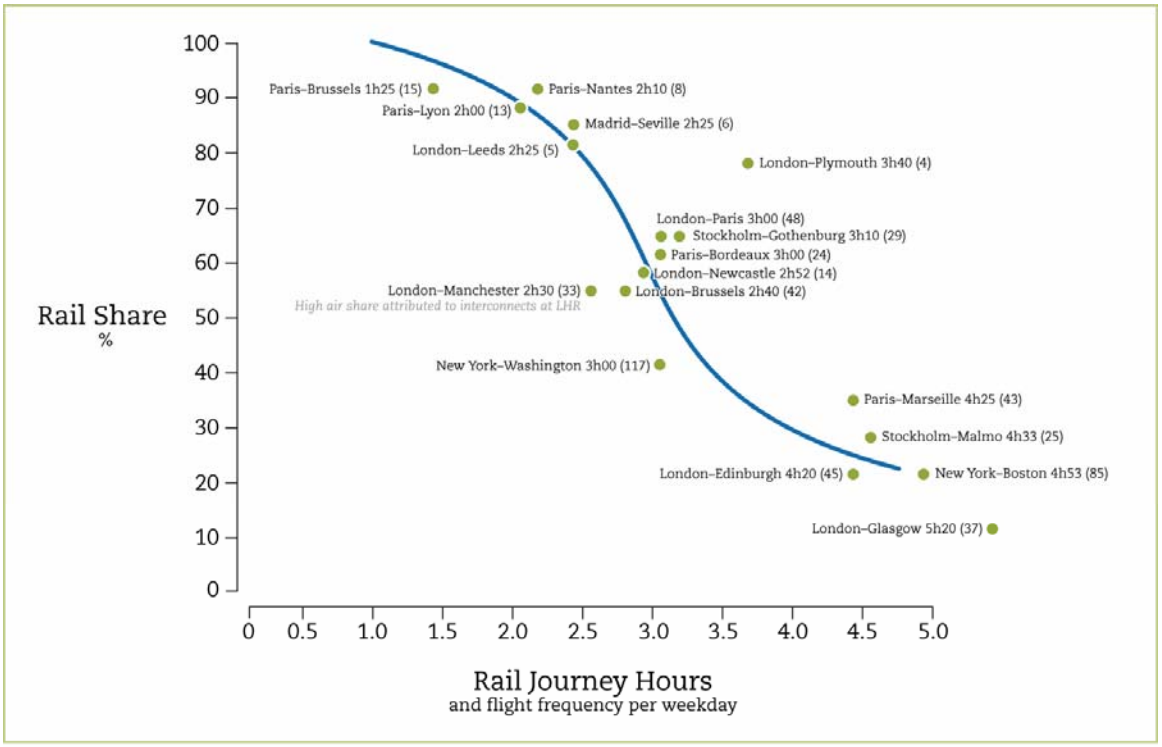
4. The potential effect of High Speed Rail at Heathrow

4.1 Background

We now turn to consider the likely effects of the introduction of High Speed Rail at Heathrow. The effects of High Speed Rail on air markets is becoming well established, and much can be deduced by inference at this stage.

It has long been established that air-rail share follows an 'S-curve' as comparative journey times shift, as shown in Figure 3, developed from data by Eurostar UK a few years ago.

Figure 3: Comparative journey times



General Commentary:

- Business/leisure mix varies by route, anywhere from 40/60 to 20/80. Rail share will be lower where business traffic is higher;
- Rail share will tend to be higher on routes with low traffic volumes and infrequent air service (eg London–Plymouth);
- Air share is higher where interconnect traffic is present (eg LHR–Manchester); ideally interconnect traffic should be excluded; and
- 3 hours is the critical turning point: little business traffic above 3 hours.

Source: Steer Davies Gleave, based on Eurostar UK analysis (1998)

Probable Curve:

- 2-hr rail journey = 85–90% rail share;
- 2.5 hrs = 75–80%;
- 3-hrs = 55–65%;
- 3.5 hrs = 30–40%;
- 4.5 hrs = 20–30%

More recent experience, taking the example of the Anglo-Scottish air/rail market is also illuminating. Over the past five years both the Edinburgh and Glasgow travel markets have experienced significant contractions of rail share in response to competition from low-cost airlines, with Edinburgh losing 9 percentage points share and Glasgow 8. So low-cost airline competition is another important factor, although it is not a key characteristic of Heathrow and in any event, longer distance rail operators, in Britain at least, are now adopting pretty much the same market pricing devices introduced by the low-cost airlines.

In general terms, the picture is as the Aviation White Paper put it: rail competes where it offers journeys in the two to three hour bracket; where the rail option is slower (such as Anglo Scotland currently), air predominates (holding 93 per cent of the Scotland to south-east England business travel market for instance)[18]. But where rail is strong, airlines find it hard to compete, as is the case, for example, on London to Brussels and Paris.

People travel for different reasons and it is necessary to be cautious in generalising. Some air passengers at Heathrow are inter-lining, for example, and it is often assumed that they are immune to the possible attractions of an alternative offer of High Speed Rail. But this need not be the case at all. In several European countries, airlines offer ticketing using High Speed Rail rather than a domestic or linking flight. There is no reason why through baggage handling cannot be offered in such circumstances.

It is also easy to assume when looking at both airline and rail travel data that all passengers wish to access city centres. They don't. As the Atkins report observes, part of the attraction of a High Speed Rail service to Heathrow, for instance, is that it broadens the rail accessibility for the wider south-east of England.

The same would be true of a Eurostar extension beyond central London to Heathrow. This would open its market appeal to those passengers in Britain for whom St Pancras, Stratford and Dartford are poor access points. The residential catchment on the west side of London is highly pre-disposed to international travel.

4.2 Potential air-rail transfer

In 2004 Heathrow handled 67 million air passengers. High Speed Rail would only impact on certain routes and the passenger volumes in 2004 on these routes, both domestic (affected by the North-South High Speed Line) and European (affected by a direct connection via the CTRL), are shown in Table 1[19].

[18] *Op cit* Cm6406 p58.

[19] Source: CAA website Tables 10.2 and 12.2.

Table 1: Heathrow air route passenger volumes at risk with High Speed Rail (2004 data; source CAA)

Domestic routes (passenger volume 000's)		International routes (passenger volume 000's)	
Durham Tees	144	Brussels	855
Edinburgh	1696	Paris	1996
Glasgow	1536	Düsseldorf	614
Leeds/Bradford	185	Frankfurt	1531
Manchester	1402	Cologne	255
Newcastle	520	Amsterdam	2006
		Rotterdam	79
Totals	**5483**		**7336**

Overall, these routes carried a total of 12,819,000 passengers in 2004. This is 19 per cent of the total use of the airport.

This is the obvious air market that is at risk from the introduction of High Speed Rail to Heathrow and (in the case of the domestic routes) to central London, a combination of some busy routes with airlines competing head to head, and other 'thin' routes, whose future may not be guaranteed without recourse to Government subsidy in due course.

Clearly, experience suggests that a significant part, but certainly not all of this demand, would switch to High Speed Rail if the connections were built to Heathrow as described. But as the pressure on landing slots at Heathrow increases over time (and their cost and value to the airlines likewise), there is the prospect of cutbacks in competing short-haul air services which would accelerate modal transfer. Moreover, the position at other South-east airports would also be affected. There are as many air travellers to the other London airports (taken together) from Edinburgh, Glasgow and Newcastle, for example, as there are to Heathrow. The demand for these air services will also be affected and this may have consequences for the overall pressure on slots at Heathrow. In addition, there are other air routes from Heathrow to more remote destinations that have been ignored in Table 1. Because of the distances and journey times involved, the level of transfer to rail for journeys to Aberdeen or to Lyon, for example, is likely to be relatively modest at the individual route level, but nevertheless, in total there would be some further, wider capture by rail.

In future, travel markets will grow (expected at the rate of 4.6 per cent internationally and 3.5 per cent domestically) and the patterns of air traffic demand at Heathrow may shift. The volume of growth over time is very substantial indeed: from 146mppa estimated in 2005 to 301mppa at London's airports by 2030[20].

[20] *Ibid*

4.3 Better rail access

Introducing High Speed Rail at Heathrow would not only reduce the demand for air services, it would also offer the prospect of better access by rail from regions closer to the airport. This may have the effect of reducing the overall air pollution in the vicinity of the airport as a modal transfer takes place, with transfers away from car/taxi/coach. However, this benefit would be lost if there was no associated demand management measure such as road user charging designed to ensure that this very congested part of the national road network did not simply experience the release of latent demand for additional car use.

The better rail access could include:

- Direct rail services from the northern Home Counties sharing the High Speed Rail connection to access the airport from around the north-west quadrant of London (eg from St Albans, Watford, Milton Keynes and Cambridge).
- Direct rail services from the west (West Country, South Wales, Bristol, Oxford and Swindon).

These would be in addition to the Airtrack services to the south of the airport, with which these new rail services could form a very important new network, a rail alternative to the M25. High Speed Rail is a complement to Airtrack, not an alternative to it.

These changes are rather more far-reaching than simply a revision of the means of accessing the airport. They represent a way to allow Heathrow to grow without threatening the achievement of air quality standards, which have been set because of concerns over human health.

The creation of a rail network for Heathrow is consistent with the vision of the airport as a driver of the wider economy. As such, it would reflect the views of those who have seen airports themselves as economic wealth generators[21].

[21] See for example Guller and Guller, *From Airport to Airport City,* ISBN 84-252-1905-1, Barcelona, 2003.

5. Conclusion

5.1 The case to answer

High Speed Rail would have a significant impact on the demand for air services at Heathrow Airport. New rail links would encourage a passenger transfer from both domestic and short haul European flights to less environmentally damaging surface transport. High Speed Rail Links would give the Midlands, the North and Scotland *and* the near-continent (France, Belgium, the Netherlands and parts of Germany) fast, direct and reliable journeys to the airport.

The role of the airport in the wider economy, and its effectiveness as a hub airport, need not be diminished by an approach which would see the necessary capacity increment provided by High Speed Rail rather than an additional runway.

If built, Heathrow's Third Runway is expected to handle 23 per cent of the airport's future passenger throughput. The air routes identified in this analysis as being susceptible to replacement by a comprehensive pattern of High Speed Rail services at Heathrow account for 19 per cent of today's demand pattern at the airport.

This means that there is a *prima facie* case to consider an alternative policy for the development of the airport. The number of passengers that could be served by High Speed Rail instead of short-haul airlines is significant, and not dissimilar to the passenger volumes that could be added to the airport with a Third Runway.

5.2 Transfer from air to rail

Not all of the susceptible demand (that currently accounts for 19 per cent of Heathrow throughput) is likely to transfer to High Speed Rail, of course. In practice, in today's deregulated market-place, some level of residual choice and competition between airlines and High Speed Rail is inevitable. But experience shows that High Speed Rail can capture very large shares of such contested markets, from two-thirds market share upwards. In some markets, High Speed Rail is so strong, there are no air services remaining to compete directly.

Another possibility is that some airlines may feel that a better way to contest a market offer of Heathrow plus High Speed Rail is to introduce or improve international services direct to regional airports. There is also the question, noted earlier, of the forward viability of 'thin' domestic air routes to Heathrow, some of which are already reduced to three services/day, and which, to be sustained in future, may require the injection of Government subsidy.

There are other air markets at Heathrow, beyond those identified in the analysis contained here, which would be affected, if to a lesser degree, especially as the European High Speed Rail network is expanded. This further demand, together with the reduced demand for domestic air services at other South-east airports if High Speed Rail is introduced, also needs to be taken into account.

It is already the case that in Europe there are airports connected directly into the High Speed Rail network (Paris CDG, Frankfurt and Schiphol, for example). This is a concept, along with the scope it offers for extending the reach of air services through

passenger transfer to/from High Speed Rail, with which airlines are becoming increasingly familiar.

5.3 The wider environmental benefit

The analysis shows too that introduction of High Speed Rail at Heathrow could have far-reaching consequences for wider surface access and road congestion issues. Because it inevitably brings with it the scope to create a surface transport hub at Heathrow, based on electrified rail services, this is an option that could bring a significant *improvement* in local air quality standards, provided appropriate traffic management measures are adopted, once those travelling to the airport (both air passengers and airport employees) are able to make the switch from road transport to rail. And of course, thinking more widely, the reduction in carbon dioxide that could be brought about from reducing short-haul air travel (the worst performing in terms of greenhouse gas emissions per passenger-kilometre) would be very helpful in meeting *national* environmental targets.

Decisions on the Third Runway are currently predicated on meeting air quality standards. This analysis suggests that it would be wise to look at the options for the development of Heathrow taking into account fully the impact of High Speed Rail, including those options that obviate the need (or at least defer the need) for a Third Runway. A deferral is particularly relevant given that compliance with emission levels in order to meet statutory air quality standards is something of a race against time: the pressure of demand growth risks out-stripping our technological ability to improve aircraft engine efficiency and our collective resolve to impose traffic demand management restraints.

5.4 Policy implications

The good sense in considering the High Speed Rail option was recognised in terms in the Aviation White Paper, but proper studies have not yet been carried out into this concept. The Aviation White Paper, of course, pre-dates the Government’s manifesto commitment in relation to High Speed Rail. There is a case here to re-visit the relationship between the rail and aviation policies of Government.

It is imperative that the relative merits of rail and short haul air are translated into meaningful long-term policies to reconcile the needs of users of the UK's transport system. Until the case for a High Speed Rail Link is considered at the same time as the case for a Third Runway at Heathrow, the UK cannot hope to compete with other European countries with nationally co-ordinated transport policies. The case for joined-up public policy making within Whitehall is an outstanding one.

If High Speed Rail is developed fully to serve Heathrow, it could remove a large part of the demand that would be met by the provision of the Third Runway. It would, however, give rise to its own planning issues, because there would certainly be a need for close inter-connectivity of the new rail services with the dispersed pattern of existing air terminals as well as the provision of the equivalent of its own terminal facility.

New High Speed Rail infrastructures with a new rail terminal facility at the airport would provide the basis for a set of regional rail services to access the airport as well as High Speed trains.

But as this report makes clear, a major expansion of rail capacity and network at Heathrow would be needed in any event, if the decision were taken to proceed with a Third Runway solution. The costs of achieving the rail infrastructure enhancement in the vicinity of the airport cannot therefore be an argument against the High Speed Rail solution. And neither can doubts about the overall business case for the North-South High Speed Line be an impediment to finding the right answer for Heathrow, because its business case has been established already.

What is urgently required is an examination of the options to create additional capacity at Heathrow, removing the unnecessarily limiting assumption that this has to be provided by a Third Runway. A proper study would look at rail access, runway use and terminal provision together. It may then be that the timing and prioritisation of investments at Heathrow can be improved over current assumptions.

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