

PROPOSAL TITLE:	National (Rail) Network	Group:	Other
SUBMITTED BY:	Greengauge21, MERLIN, Quaestus (Poppleton)	Reference No.:	59

PROPOSAL

The proposal is to substitute domestic flights from UK regional airports into the main London airports by high speed rail requiring the construction and operation of a high speed rail network connecting the catchment areas of the regional airports to the main London airports. These freed slots would then be given over to international flights increasing the UK's international aviation connectivity. A high level analysis looks at the impact of expanding the existing High Speed network by a factor of 2 or 3 (additional line to the West, additional spine to the HS2 network up the east coast and extensions from HS2 to Scotland). A cheaper alternative of an incremental expansion of high speed rail capacity around the key constrained airports and key regional catchment areas is also considered. This would be comprised of an HS2 spur to Heathrow which is then extended to Gatwick and a northern extension of the current route to Newcastle, Glasgow and Edinburgh. This implementation could offer journey times to Heathrow by dedicated high speed trains of a little over an hour from Manchester / Liverpool / Leeds, 2 hours from Newcastle and 2½ hours from the Scottish Central belt.

ASSESSMENT COMMENT

Air-rail substitution offers additional aviation connectivity where it frees domestic slots at capacity constrained airports; therefore mainly for Heathrow and Gatwick in the current scenario. These slots can then be used to increase the international connectivity of the UK with more frequent or additional services. It would be possible for most domestic services from UK regional airports that can be connected to London within a reasonable travel time i.e. flights from Glasgow, Edinburgh, Newcastle, Leeds, Manchester and Newquay to Heathrow, Gatwick, Stansted and Luton. Substitution from the north of Scotland (Aberdeen, Inverness), Isle of Man, Northern Ireland and the Channel Islands would likely be less feasible. Analysis of current routes indicates that at its maximum extent, assuming 100% substitution of domestic traffic from the above airports, could free no more than 6.7% of slots at any one London airport and in total no more than 55,000 movements¹.

There are several issues that will likely reduce this number such as the extent to which there are limited constraints at Luton, and Stansted to prevent those additional services being provided now beyond factors which are unlikely to change after surface transport investment such as the profitability of new routes, available fleet, bilateral agreements etc. The proposed transport investment may open up demand at some of these airports by improving access, however, this is likely to be small along with the economic benefits of any new routes at these unconstrained airports otherwise the new routes would be operated already on simple commercial grounds. Were larger aircraft used to back fill the freed domestic slots, this would result in a reduction in the number of "new" ATMs reflecting the greater aircraft separation required, c 1 mppa additional passenger throughput may however, be possible.

Potentially one of the biggest risks associated with this proposal is that passengers do not use the newly provided rail links and that the current demand for internal UK air connectivity remains. Regulatory intervention to force substitution from air to rail is unlikely to be effective if the underlying proposition is not attractive to passengers and is likely to be difficult to establish within the current European and international competition and aviation legal frameworks. Such an intervention is also likely to have a perverse incentive in that it may reduce traffic at regional airports, thereby incentivising them to try to retain their traffic by, for example, promoting alternative non-London destinations for point-to-point traffic and also promoting onward connectivity through non-UK hubs. Risks are also associated with the construction and delivery of the rail infrastructure and operations needed to provide the high speed network.

From an aviation perspective the benefits are limited and do not appear to justify the proposal, which would rely more on the surface transport benefits to justify its development.

¹ Source: Sabre MIDT data

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OVERVIEW

Proposal	National network or rail links connecting airports.		
Approach	To substitute domestic flights into the main London airports from UK regional airports by high speed rail.	Capital Cost	
		Airport Transport	0 £40-150+ bn additional to HS2
Benefits	<ul style="list-style-type: none">▪ Approx. 80 slots per day could be freed at Heathrow if all appropriate domestic flights are substituted (6.7% of ATMs).▪ Approx. 40 slots per day could be freed at Gatwick if all appropriate domestic flights are substituted (5.7% of ATMs).▪ Approx. 14 slots per day could be freed at Stansted if all appropriate domestic flights are substituted (3.6% of ATMs).▪ Approximately domestic 12 slots per day could be freed at Luton if all appropriate domestic flights are substituted (4.5% of ATMs).▪ These slots could be transferred from domestic to international routes with potential positive economic impact for the airline, airport and economy in general.▪ Were larger aircraft used to operate the freed slots, allowing for adjustment of slot capacity reflecting the larger average aircraft, c 1 mppa additional passenger throughput may be achieved.	Airport	Net
		Runways	0
		ATM	0
		pax	0
Key Issues & Risks			
Surface Transport	<ul style="list-style-type: none">▪ Requires the development, implementation and operation of a comprehensive high speed rail network covering the majority of the mainland UK population centres and connecting them to the London airports.▪ There is a substantial risk that such a network would not be perceived to be cost effective and would be beset by planning, programme and cost risks.		
Environment	<ul style="list-style-type: none">▪ The proposal would not result in additional flights but could involve a transfer of slots, particularly at Heathrow and Gatwick, from domestic to international flights possibly resulting in the use of larger aircraft with marginally increased noise and emissions footprints.▪ The proposal would result in a reduced number of flights from UK regional airports reducing noise and emissions impacts at those airports. Flight reductions, based on current schedules would be:<ul style="list-style-type: none">○ 58 movements per day at Edinburgh (20% of total movements)○ 44 movements per day at Glasgow (22% of total movements)○ 26 movements per day at Manchester (6% of total movements)○ 16 movements per day at Newcastle (13% of total movements)○ 6 movements per day at Leeds Bradford (7% of total movements)▪ No change or marginal increase in noise impacts at London airports but a slight reduction at UK regional airports.▪ Significant environmental impacts associated with construction and operation of high speed railway lines.		
Strategic Fit	<ul style="list-style-type: none">▪ This proposal would not deliver any additional airport capacity but would instead free up some existing capacity to possibly deliver greater international aviation connectivity.▪ Aviation benefits of the proposal are limited in comparison to the surface transport benefits and so proposal would be better considered separately to aviation question.		

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Economy	<ul style="list-style-type: none"> To the extent that a high speed rail network is provided, airlines may transfer some slots from domestic to international, (c.f. reduction in air traffic from London to Paris and Brussels following HS1 implementation), which would result in some economic benefit, but likely to be small as the quantum of slots made available would be modest. Forcible transfer of slots to international beyond that voluntary point could risk a net economic loss. Implementation of the proposal would result immediately in a reduction in point-to-point traffic, with associated disbenefits (e.g. loss of revenue (APD), reduced direct, indirect, induced and catalytic impacts) for the London airports. However, this traffic may be replaced quickly by other routes. Implementation of the proposal would result in a significant reduction in traffic (e.g. up to 30% for Edinburgh and Glasgow, and up to 60% for Newquay) for the regional airports as their traffic to London is substituted to rail. This would have a negative impact on the local economies and employment, potentially offset by new intensive rail services. 	
People	<ul style="list-style-type: none"> Negative impact on employment at regional airports. Positive impact, i.e. reduction in noise and emissions at regional airports. Potential increase in noise and emissions at London airports as domestic flights are replaced by international flights using larger aircraft. 	
Cost	<ul style="list-style-type: none"> Large capital cost, potentially £100-150+ billion, associated with coverage of the majority of England and Southern Scotland with a high speed rail network connecting city centres to other city centres and to the London airports, with station facilities able to facilitate quick transfers from rail to air. A more limited implementation could potentially cost in the region of £40bn to provide connectivity from Gatwick to Heathrow and up an extended HS2 network to reach Newcastle, Glasgow and Edinburgh. 	
Operation	<ul style="list-style-type: none"> No significant aviation impact. Requires operation of a comprehensive, reliable high speed rail network. 	
Delivery	<ul style="list-style-type: none"> Large planning, programme and cost risks associated with the high speed rail network, including provision of sufficient additional terminal capacity in central London. Ensuring transfer of passengers from air to rail would likely require some regulatory levers, such as traffic distribution rules, that may be open to legal challenge. Connectivity would be maintained either by retaining feeder services reserved for connecting passengers from the regional airports or by seamless intermodal through journeys with a rail-air connection. The former is likely to be of limited applicability as the relatively low proportion of connecting passengers on the routes considered may make them commercially unattractive from the airlines' perspectives and the low frequency of connections may make connectivity unattractive from the (business) passengers' perspectives. On the other hand, to be attractive to connecting passengers, the rail-air system would need to provide seamless journeys for passengers and baggage from their true origin, through the London airport to destination otherwise there is a risk that instead of substituting to the rail system, passengers will continue to fly but through other non-London hubs rather than London. Such airport-high speed rail facilities will come at a considerable cost. In the absence of partnerships between airlines and rail operators to capture passengers at point of origin, it is likely that there will be a loss of market share of connecting traffic through the London hubs as passengers make interline connections through foreign hubs rather than rail-air connections. Airline-rail operator partnerships might be subject to competition rules to prevent creation of monopoly positions. Political risks associated with delivering a large high-speed rail network, especially transiting many areas that would not directly benefit from it. 	

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ECONOMY

Impact on Industry (summary commentary) Negative impact on airports due to reduction in passengers as air-rail substitution takes place. The impact on London airports is likely to be short-lived as Heathrow and, to a lesser degree but certainly during peak periods, Gatwick are generally slot-constrained, and international traffic would move into the vacated slots. However, the reduced ability to provide a domestic connection may, in the longer run, result in a loss of traffic to continental airports that provide air distribution to UK regional airports. It is also likely to reduce the viability of some air routes that are dependent on interlining transfers to be viable.	
Airports	<p>There is likely to be a negative impact on (reduction of) passenger throughput at airports, particularly significant at regional airports, where substitution from air to rail takes place. As commercial entities, these airports are likely to pursue strategies to counter this effect, including the marketing of connecting services through other international hubs as well as capturing London point-to-point traffic for other destinations. There will be a risk of leakage of passengers using London hubs to other competing international hubs as departure of domestic airlines allows market access by competing international airlines, e.g. passengers that currently fly from Edinburgh to Heathrow as a hub reject the future opportunity of train from Edinburgh to Heathrow in favour of flying from Edinburgh to Amsterdam to connect onward.</p> <p>In terms of onward connections, typically 80% to 90% of traffic from the above origins to Heathrow¹ is point-to-point traffic with 10% to 20% therefore connecting at Heathrow to typically over 100 different destinations. For Gatwick¹ the figures are 85% to 95% point-to-point traffic and 5% to 15% hub traffic connecting to up to 60 onward destinations. Based on the point-to-point ratios, under this proposal:²</p> <ul style="list-style-type: none"> ▪ Heathrow would lose approximately 2.5 to 3.0 mppa point to point passengers from domestic destinations, potentially retaining only 300,000 to 400,000 connecting passengers per year from those destinations if they could be captured through rail links or retaining feeder flights for connecting passengers only. There is a risk that a proportion of these connecting passengers would be lost through alternative, non-UK hubs. ▪ Gatwick would lose approximately 1.4 to 1.6 mppa point-to-point passengers from domestic destinations potentially retaining up to approximately 250,000 connecting passengers per year from those destinations if they could be captured through rail links or retaining feeder flights for connecting passengers only. Gatwick might lose some further traffic to Heathrow's freed slots. ▪ Stansted would lose approximately 600,000 passengers per year from domestic destinations. It might lose some further traffic to the slots freed up at Heathrow and Gatwick. ▪ Luton would lose approximately 500,000 passengers per year from domestic destinations. <p>The loss of these point-to-point passengers (at Heathrow and Gatwick at least) would likely be replaced by passengers from other destinations enabled by the freeing up of the domestic slots. The low level of connecting passengers remaining would prejudice the provision of connecting-only services. These would themselves be threatened by commercially unviable volumes or unattractive frequencies</p>
Airlines	<p>There would be expected to be a reduction of traffic from regional to London airports, potentially offset by additional passengers from London airports to other destinations. Possible loss of market share of incumbent airlines as rail substitution may facilitate leakage of passengers to competitors, both point-to-point competitors, and those who provide connections through foreign hubs. However, airlines would retain grandfather rights to the slots that they have already been allocated. This is likely to predominantly benefit BA, easyJet, Ryanair and Virgin Atlantic.</p>
Passengers	<p>There would be a significant loss in passenger user benefit from preventing passengers from flying on domestic routes even in the presence of high speed rail links connecting the airports as an alternative. For example, even though both Amsterdam and Paris-Charles de Gaulle airports are connected into the high speed rail network, and the cities directly connected by a high speed line, AMS-CDG is the third busiest air route at Amsterdam with around 1.1m passengers in 2012.³ Even if only point-to-point is impeded, there would be a major reduction in frequency (and competition) on domestic routes, which would be a loss of benefit to the connecting passengers also.</p>

² Source: CAA airport statistics 2012

³ Source: Schipol Airport at <http://trafficreview2012.schipholmagazines.nl/assets/traffic-review-2012.pdf>

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National Economic Impacts (summary) The main national impact is providing a large scale high speed railway network around the country, a matter which mainly relates to the internal surface transport of the country. Some substitution of internal aviation to rail mode would occur. Potentially small positive impacts of transfer of domestic slots at Heathrow and Gatwick to destinations that result in greater economic leverage, e.g. in terms of trade and inward investment, to the extent this is natural and not forced. Increase in international destinations and connectivity generally, proportionate to the size of freeing of at most around 6% of the slots at the major London airports. Loss of aviation business to foreign hubs that provide distribution to UK regional airports. Such an extensive national high speed railway network is likely to require on-going subsidies to remain in operation.			
Local & Regional Economic Impacts In terms of the UK regional airports affected by this proposal, there would be likely losses of passengers ⁴ of approximately: <ul style="list-style-type: none"> 2.6 million passengers per year or 30% of total passengers for Edinburgh airport to/from Heathrow, Gatwick, Stansted and Luton; 2.0 million passengers per year or 30% of total passengers for Glasgow airport to/from Heathrow, Gatwick, Stansted and Luton; 1.0 million passengers per year or 5% of total passengers for Manchester airport to/from Heathrow, Gatwick, Stansted and Luton 0.5 million passengers per year or 11% of total passengers for Newcastle airport to/from Heathrow, Gatwick, Stansted and Luton; 0.1 million passengers per year or 60% of total traffic for Newquay airport to/from Heathrow, Gatwick, Stansted and Luton. This proposal could prejudice the commercial viability of Newquay airport. (As the Leeds-Bradford-Heathrow service has only recently restarted figures are not yet available.) The proposal may, therefore, likely have a significant negative impact on the regional airports and the associated economies through loss of the direct, indirect, induced and catalytic effects associated with airports and an associated reduction in employment. One potential reaction by the airports concerned will be to try to avoid loss of traffic by marketing connections through other international hubs and trying to capture London-bound traffic to other destinations in contradiction to the objectives of the proposal. <p>However, positive regional impacts also related to improved internal connectedness by surface transport through improved domestic rail connectivity.</p>			

ENVIRONMENT

Air Quality

Not quantified but reduced emissions due to reduced number of flights at regional airports.

Noise

Not quantified but reduced noise due to reduced number of flights at regional airports. Train noise might be an issue depending on the routes selected for the high speed rail network.

Climate Change

Substitution of air by rail might reduce greenhouse gas emissions, although further work would be required to confirm this.

PEOPLE

Employment

Likely reduced airport-related employment at regional airports. Increased employment on the rail network.

Quality of Life

Reduced noise and emissions at regional airports. Likely impacts of much more distributed high speed train noise throughout the country.

⁴ Source: CAA airport statistics 2012

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COST

Summary Comments

Simple scaling from the current costs being quoted for HS2 (order £50 billion) indicates that a comprehensive high speed rail network could incur a cost of around an additional £100-150 billion+ (on top of the costs of HS2) assuming the comprehensive network is 2-3 times the extent. A more limited implementation could cost in the region of £40bn.

This would have substantial risks associated with planning and programme as well as overall costs. The overall economic justification will not be possible based on aviation benefits alone – indeed aviation substitution is generally assessed to be a small part of the benefits of high speed railways even where they directly connect airports – and is likely to be uncertain based on more general cost benefit analysis. It is likely that the greater part of the costs would need to be taxpayer funded. Therefore an extremely high capital cost proposal that will require significant, if not total, public funding.

The cost benefit case on pure aviation grounds would appear very weak and taking the proposal forward would need to be based on the standalone benefits of the high speed rail network. There is also no reason to suggest that such a proposal to improve the internal surface connectivity of the UK could be considered in separate from the aviation connectivity debate.

OPERATIONAL VIABILITY

Resilience, Efficiency and Reliability

No impact

Passenger Experience

No impact if rail-air substitution is seamless, otherwise potentially significant negative impact.

Safety

No impact

Scalability

Would not be scalable as no additional capacity is created.

Airspace

No impact

DELIVERY

Timescale	Likely to reach completion around 2030 to 2040 at the earliest
Sources of funding (e.g. airlines, passengers, taxpayers)	Likely to require 100% public funding.
Scale, nature & timeframe of public funding requirement	Order of £100-150 billion for potential full scheme or c £40bn for a more reduced scope.
Asset lifespan & ownership	Mixed lifespan and ownership of infrastructure (presumably Network Rail) and rolling stock (presumably train operating companies) for high speed rail network. Lifespan likely to be 50+ years for infrastructure and the length of the franchise for the rolling stock
Key demand & revenue risks & proposed allocation	Not known. However, revenues from passengers are unlikely to be sufficient to cover operating costs and capital renewals.
Commercial Deliverability	Unlikely. Political resistance from areas transited by high speed rail infrastructure.