Future Capacity Requirements of Britain's Railway Infrastructure

How do you view the current capacity situation on Britain's railways?

1.1 The greatest demand for rail travel is on short distance commuter journeys. Using the West Coast Main Line as an example, Watford Junction (approximately 20 miles from London) has double the number of passenger rail journeys to London as Rugby (some 90 miles from London). Source: Figure 3.13, West Coast Main Line Route Utilisation Strategy - http://www.networkrailmediacentre.co.uk/imagelibrary/downloadMedia.ashx?MediaDetailsID=4675

1.2 Overcrowding occurs where demand for travel exceeds supply. As expected, the most serious overcrowding occurs on those sections of route where demand is greatest. In most cases this is within a 60 mile radius of large conurbations (London, Birmingham, Manchester, Leeds and Glasgow). Source: Figure 5, Department for Transport, Britain's Transport Infrastructure, High Speed Two - http://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/pgr/rail/pi/highspeedrail/infrastructure/pdf/hs2.pdf

1.3 A more detailed study of the most overcrowded routes into London identifies ten routes. Source Appendix 2, The Big Squeeze, Rail Overcrowding in London - http://legacy.london.gov.uk/assembly/reports/transport/rail-overcrowding.pdf

1.4 Of these it appears that the most overcrowded single route is the First Great Western to Paddington, particularly from Reading onwards. This is based on DfT surveys in spring and autumn 2010. http://assets.dft.gov.uk/publications/london-south-east-overcrowded-train-services/overcrowded-trains-south-east.pdf

1.5 To summarise, the greatest overcrowding is currently experienced on commuter journeys of say 60 miles or less, into our largest conurbations. It is not confined to a single route but affects numerous routes. It is acknowledged that there is overcrowding on some longer journeys, but the evidence suggests that is it is less significant than the cases identified above.

What capacity do you believe Britain's railways will require in the future?

2.1 Passenger rail usage has increased steadily since 1995. Source: Chart 2, Department for Transport, Rail Statistics Factsheet No 1 http://assets.dft.gov.uk/statistics/series/rail/110805_Rail_Factsheet.pdf

2.2 If the price of oil rises more significantly than inflation, or car congestion deteriorates further, then more people will switch to travelling by train.

2.3 Set against that rail travel in the UK is 30% more expensive than in Europe. Source: McNulty Report - http://www.rail-reg.gov.uk/upload/pdf/rail-vfm-summary-report-may11.pdf

2.4 UK rail travel is also expensive compared to air travel. UK rail ticket prices have increased by more than the rate of inflation for several years and it appears likely that they will continue to do so.

The previously observed relationship between economic growth and increased rail travel no longer appears to exist. Source: HS2 Action Alliance. The government has ambitious carbon reduction targets which will need significant changes in travel habits if the targets are to be achieved. Working from home is an increasingly viable option for some categories of workers, with faster broadband becoming more widespread and video conferencing facilities becoming more accessible.

2.5 So it would be unwise to suggest that passenger rail usage is on an ever rising path.

2.6 If the government wants to forecast future rail demand then it should:

- Use the Passenger Demand Forecasting Handbook version 5, not earlier versions.
- Forecast for the range of years for which the model can provide e.g. 18 years at most which is in accordance with DfT guidelines, rather than 35 years.
- Use a forecasting model which takes into account cheaper alternative ways of making the same journey by rail rather than ignoring them.

2.7 The government should also be aware of the tendency to overestimate demand for high speed rail projects. Aalborg University found that nine out of ten rail projects overestimated passenger demand, the average overestimation being 106%. Source: http://seekerblog.com/2010/08/31/high-speed-rail-inaccuracy-in-traffic-forecasts/

2.8 An example of this is High Speed One which has not reached more than one third of its planned capacity. Source: IEA, High Speed Two, the next government project disaster? http://www.iea.org.uk/sites/default/files/publications/files/High%20Speed%202%20-%20the%20next%20government%20project%20disaster%20(web%20version).pdf

What is the best way of providing capacity and future-proofing Britain's rail network?

3.1 It is necessary to identify the routes which are most in need of additional capacity and provide value for money solutions for a significant number of them. While there area number of theoretical solutions, some of them would not be applicable.

- Double deck carriage seating: These are used in countries such as France, Holland and Germany but would not be workable on most of our lines as they have insufficient height clearance under bridges and through tunnels.
- More trains: Very limited opportunity as most routes already have timetables which have been optimised for capacity over many years.
- Longer trains: This is a practical solution, although in some cases it would necessitate extending platforms.
- Reducing first class capacity: Switching one or more carriages per train from first class to standard class will increase capacity as it is standard class that lacks sufficient capacity.
- Providing a taper to the end of the peak rate: This would reduce the crowding that occurs after 19:00 when the peak rate fare ends.

3.2 It is important that solutions are provided across many overcrowded lines very soon. We have major problems now and we cannot wait 15 to 20 years to address them. The Optimised Alternative (proposed by 51M) for the West Coast Main Line provides a 125% increase in standard class capacity at peak times for a cost of less than £3billion. Source: Annex 2, 51M Optimised Alternative

http://www.51m.co.uk/sites/default/files/uploads/App%201%20-%20Optimised%20Alternative%20to%20HS2.pdf
The main part of the Optimised Alternative provides 3 extra carriages per Pendolino train (making a total of 12 carriages) and converts one first class carriage to standard class.

3.3 If this solution is applied to other lines it is likely that several of the overcrowded routes into London could be addressed for the same outlay as the total cost of HS2. This would benefit significantly more passengers. It would also provide a lower risk solution as capacity could be increased in stages whereas it may transpire that more capacity has been provided than is required in the case of HS2.

3.4 It is very difficult to future-proof the capacity of a rail network when the budget is limited. Therefore it is essential to utilise high value for money solutions. If you consider that the proposed HS2 line between Birmingham and London would cost five times as much per mile as equivalent lines in Europe, then that is not spending money wisely. Source: NCE Conference Barcelona September 2011 - http://metricviews.org.uk/2011/10/spotlight-falls-again-on-the-uks-high-construction-costs/

3.5 Another aspect of future-proofing rail capacity is to build lines that will profitable. If a line needs a permanent subsidy, then that drain of resource will cripple investment in other parts of the network as has happened in France. Source: SNCF President http://www.independent.co.uk/news/world/europe/life-on-the-fast-track-thirty-years-of-the-tgv-2265455.html

3.6 It has been suggested that only two high speed lines in the world make a profit: Paris–Lyon and Tokyo-Osaka. The rest require billions of pounds of subsidy to run. Source: http://www.cc-hsr.org/assets/pdf/bnote-6.pdf

3.7 Financial issues have been experienced by operators of high speed lines in Holland, Spain, Taiwan and China. Plans to build high speed lines have been shelved, delayed or abandoned in Portugal, Poland, Brazil and three states in the USA. Source: Problems with HSR, HS2AA http://www.hs2aa.org/index.php/news/publications/category/19-business-case-international-experience

What will the effects of providing extra capacity be, beyond addressing journey supply? What would be risked by failing to provide that capacity?

4.1 Providing extra capacity may lead to a greater number of people choosing to travel by train rather than car. However that is not a reason against supplying additional train capacity. It will improve customer satisfaction; existing season ticket holders and other regular commuters can hardly be happy at present having to stand every day.

4.2 Failing to provide the extra capacity could eventually cause some people to change their work or their home. Moving to a house which is close to work, changing work so that it is closer to home or can be done from home all reduce or eliminate the need to travel by train regularly.

HS2 and Capacity

5.1 It is a misconception to claim that the West Coast Main Line will shortly be full. A survey initiated by HS2 Action Alliance in November 2011, which was independently verified, found that the average loading of Virgin Trains from Euston between 16:30 and 18:59 was 56%. The planned increase of train length from 9 to 11 carriages for many of these trains will further reduce this loading. Source: HS2AA Press Release 5/12/2011 http://hs2actionalliance.com/index.php/news/press-releases-new

5.2 The primary focus of HS2 is reducing journey times, which is not a high priority for rail passengers. HS2 will provide no increase in passenger capacity for the following destinations: York, Darlington, Durham, Newcastle on Tyne and Edinburgh. In the cases of Manchester and Stockport there is likely to be a capacity reduction from 1767 to 1650 seats per hour. Source: Annex 3, HS2 Action Alliance Review of the February 2011 Consultation Business case for HS2 http://www.hs2aa.org/index.php/news/publications

5.3 HS2 will have no scope for capacity expansion as the section from London to Birmingham is planned to carry 18 trains per hour once the phase 2 sections have been completed to Manchester and Leeds. While HS2 Ltd and the DfT have yet to provide evidence to support how such a high frequency can safely be achieved, that frequency will be needed to replicate existing frequencies of services. Trains travelling at 250 mph need greater stopping distances than trains travelling at slower speeds. The highest frequency of high speed trains run in other European countries is 12 trains per hour and this is for trains travelling at lower speeds. Source: Section 7.4 of HS2 AA document referred to in previous paragraph. It therefore appears unwise to build a high speed rail line costing in excess of £32 billion which has no expansion capability.

5.4 It has been estimated that HS2 will provide an extra 10,000 passengers per hour into the Underground network at Euston in addition to the existing 7000 per hour at peak periods. Source: Section 3.6, HS2 Ltd Route Engineering Report.
http://highspeedrail.dft.gov.uk/sites/highspeedrail.dft.gov.uk/files/hs2-route-engineering.pdf
As is well known, the Underground is another British railway system that is very short of capacity at peak times. To more than double the demand at Euston without providing additional Underground capacity is unworkable. As Transport for London has pointed out, it will require the building of Crossrail 2.

5.5 It has been suggested that the building of HS2 could allow additional trains to be run on existing "classic" lines. Firstly there is no guarantee that these additional trains will be run. Secondly part of the HS2 business case assumes that there will be £5billion reduction in the existing subsidy to classic rail, so that does not suggest additional trains will be run. Thirdly the HS2 Technical Appendix published in 2009 indicated that some stations would have fewer services taking a longer time on classic rail after HS2 is introduced e.g. Coventry.
http://webarchive.nationalarchives.gov.uk/20110131042819/http:/www.dft.gov.uk/pgr/rail/pi/highspeedrail/hs2ltd/technicalappendix/pdf/report.pdf
Lastly it has been the experience of train users in Kent that classic services have become slower and less frequent since HS1 was introduced. This was presumably an "incentive" to encourage rail passengers to switch to HS1, although the latter carries a 20% price premium.
http://www.telegraph.co.uk/journalists/andrew-gilligan/8423638/High-speed-rail-Britains-first-link-hasnt-worked-as-planned-say-critics.html

Evidence supplied by

Andrew Bodman

On behalf of South Northants Action Group

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