HS20003

Written evidence submitted by William Barter

Introduction

I have nearly 50 years' experience in the rail industry, first as a front-line operations manager, then moving into operations and project planning. After leaving British Rail in 1993 I worked as a consultant in operations planning and management, in the UK and overseas, and from 2012 to 2019 undertook operations planning and 'proof of concept' timetabling for HS2 Ltd. as a contractor to one of their professional services consultants. I have also published a number of articles and peer-reviewed papers on rail operations planning, have acted as a tutor on the Chartered Institution of Railway Operators (CIRO) degree programme, and am a Fellow of the CIRO.

Summary

Until Euston's HS2 station becomes available, the HS2 project cannot deliver meaningful benefits. Old Oak Common has a valuable role for a minority of passengers, but whilst it is the only London terminal for HS2 services, more passengers would be inconvenienced than advantaged by conversion of existing InterCity services to HS2.

Moreover, in the absence of Euston as the HS2 terminus, the key benefit of releasing capacity on the West Coast Main Line (WCML), allowing its services to be repurposed around local, interurban and freight services is frustrated, as a service terminating at Old Oak Common is not sufficiently attractive as to capture significant InterCity traffic from the WCML.

The absolute priority in order to capture any value from the HS2 project is to enable the Phase 1 service of some 10 trains per hour (tph), serving Birmingham, Liverpool, Glasgow and Manchester, to run to Euston at the earliest possible opportunity. This requires a minimum of six platforms for HS2 trains.

The complete station at Euston must have 11 platforms if it is not to constrain the potential capacity of the whole HS2 network.

Background

The HS2 Phase 1 (London West Midlands) Bill presented plans envisaging a two-stage build at Euston. As the first stage, to cater for the Phase 1 service of 10 tph, six platforms would be constructed on cleared land outside the footprint of the current Euston station. Once Phase 1 operations commenced, they would replace some services currently using Euston station, freeing space to enable additional HS2 platforms to be constructed for additional services to Glasgow, Leeds and York[1].

For reasons that are not clear to me, about two years ago a decision was taken to substitute a single-stage build, so that no transfer of trains from WCML to HS2 could take place until completion of the whole build instead of after a first stage. As this meant that the full WCML station would have to remain operational until completion of the HS2 station, the size of the HS2 station was reduced, by cutting the number of platforms from 11 to 10, and narrowing the width of those that remained.

[1] Modern Railways, April 2021, 'Planning HS2 Operations'.

On a previous occasion you were told that reducing the number of platforms would not create a capacity constraint. However, this is not true. In my professional opinion[2], the maximum realistic capacity with 10 platforms is 16 tph, not the 17/18 tph shown in HS2 train service specifications[3], as reliable operation depends on keeping a free platform at the terminus to cater for trains arriving seriously (meaning more than 10 minutes) late, which is a real risk when around half the service has travelled over conventional mixed-use lines for part of its journey. If more than 16 tph are to operate, the consequence will be either severely reduced reliability of operation, including terminating short at Old Oak Common on an ad hoc basis, or other measures to offset that loss of reliability, such as[4]:

- Extended journey times;
- Infrastructure capital spend elsewhere on the rail network;
- Reduced turnround times for the longest distance trains (which is itself a reliability risk).

Old Oak Common station is a new interchange located in London's Zone 2, where the HS2 route runs alongside the Great Western Main Line and Elizabeth Line. For passengers alighting from HS2, it provides a convenient route to West London and Heathrow, as well as to the City of London and Docklands. However, for passengers heading to destinations North and South of central London, or the immediate Euston area, it is more convenient to travel by way of Euston and LUL/bus services, and travelling via Old Oak would incur an additional interchange.

Old Oak Common station

Until Euston station becomes available to HS2 services, it is now proposed that its trains will terminate at Old Oak Common.

Old Oak Common will have six platforms. However, compared with Euston the track layout is more restrictive, being specified originally simply for emergency turnback situations, and is all that can be accommodated within the hybrid Bill Limits of Deviation[5]. It therefore cannot reliably accommodate even the 10 tph of HS2 Phase 1. The number of trains that could terminate at Old Oak Common depends in part on the extent to which it is possible to rewrite the national rail timetable on that basis, as opposed to relatively short-term temporary modifications of the existing or a future timetable, but mainly on which trains make commercial, economic and operational sense to operate there.

HS2 Ltd's modelling has concluded that with the full HS2 system in operation, one-third of passengers would choose to travel via Old Oak and two-thirds via Euston. Some, travelling to central London, essentially Tottenham Court Road, would be indifferent, but it is clear that, for the majority of passengers, travelling by way of Old Oak presents no advantage over the existing rail service to Euston.

Old Oak will also be highly inconvenient for anyone with heavy luggage or having mobility issues, thus preferring to continue their journey by taxi. Travelling via Old Oak imposes another 5 miles, or approximately £30, each way, compared with Euston.

HS2 train services at Old Oak Common

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[2] Modern Railways, May 2021, Letters page
[3] DfT, Full Business Case, High Speed 2 Phase One, April 2020, p133.
[4] https://www.newcivilengineer.com/latest/explained-why-11-platforms-are-needed-at-hs2s-euston-terminus-07-09-2021/
[5] Modern Railways, April 2021, 'Planning HS2 Operations'.

The DfT 'modelling assumption'[6] is that, in the absence of Euston, six trains per hour would terminate at Old Oak, namely:

- 3 tph from Birmingham (Curzon St HS2 station);
- 1 tph from Liverpool;
- 1 tph from Glasgow;
- 1 tph from Manchester.

Liverpool, Glasgow and Manchester trains would join the HS2 infrastructure at Handsacre (near Lichfield), or, given Phase 2a, at Crewe.

Operationally, the Birmingham trains present no problem, as they are self-contained to the HS2 infrastructure and have no interaction with the existing network. Commercially, they will advantage some current users of the WCML, and may capture new traffic. They can thus be seen as potentially adding value over and above present services.

By contrast, picking one train out of the existing Liverpool and Manchester service groups presents a service pattern that is commercially unattractive as the effective service frequency reduces to the hourly HS2 service which would overtake the remaining conventional services en route. It is also operationally impracticable at locations on the conventional WCML such as Manchester Piccadilly as an efficient platforming pattern is disrupted. The Glasgow passengers are those most likely to travel with luggage and thus need a taxi for their onward journey.

However, converting a complete service group such as the Manchester 3tph pattern, for the sake of operational convenience, deprives all passengers of their Euston option and thus inconveniences the majority. Manchester - London being the heaviest revenue-earning flow on the UK rail network, a lot of fares income is at risk from providing a sub-optimal service.

Diversion to Old Oak Common of existing services originating on the conventional WCML therefore on balance does not add value.

Released capacity

Use of Old Oak Common as the London terminus of HS2 is therefore unlikely to attract sufficient passengers from existing services on the conventional WCML as to allow those services to be repurposed around local, interurban and freight services.

This released capacity is a key benefit of HS2[7], potentially radically increasing connectivity between locations such as Watford, Milton Keynes and Rugby and the West Midlands, and on the Trent Valley line connecting locations such as Nuneaton, Lichfield and Tamworth with Milton Keynes and London. This benefit arises even in Phase 1, and increases as HS2 infrastructure is extended. Especially once HS2 Phase 2A is added, additional capacity for freight services can also be created.

However, the DfT has never presented serious plans for potential services, and such 'modelling assumptions' as have been published are operationally impracticable and commercially irrational[8]. The likelihood therefore is that the benefits of released capacity are being underestimated in analysis surrounding Euston station.

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[6] DfT, Full Business Case, High Speed 2 Phase One, April 2020, p131.
[7] Modern Railways, October 2019, 'West Coast Capacity Study'.
[8] Modern Railways, July 2020, 'What is the Best Service Pattern for HS2'

It has been said that one reason for reduction of Euston to 10 HS2 platforms is that in a single stage build this was necessary in order to keep the full complement of conventional platforms available to Network Rail during construction, regardless of the fact that fewer platforms would be needed on completion of the HS2 part of the station. However, another feature of the single-stage build is narrowing of the HS2 platforms, and if this is indeed acceptable, could be designed into a two-stage build with 11 HS2 platforms.

Conclusions

Value for Money of the HS2 project depends on availability of Euston station to HS2 services.

Obtaining this Value for Money in anything like a reasonable timescale requires an initial stage in which sufficient platforms for the Phase 1 HS2 service are available.

This staging also meets the Government's apparent objective of postponing costs that do not reap immediate benefits, by allowing additional platforms to be built later as and when the requirement is confirmed.

Ultimately, if its London terminus is not to constrain capacity of the whole HS2 network, 11 platforms are required for HS2 services at Euston, as this matches the capability of the HS2 core route to present 18 trains per hour to the terminus.

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