

TRANSPORT FOR LONDON

ENVIRONMENT, CORPORATE AND PLANNING PANEL

SUBJECT: UPDATE ON HIGH SPEED 2

DATE: 23 FEBRUARY 2012

1 PURPOSE AND DECISION REQUIRED

1.1 The purpose of this paper is to update the Panel on the issues surrounding the new High Speed Two (HS2) rail line. In particular, this paper focuses on TfL's position following the recent Government announcement to proceed with the scheme.

2 BACKGROUND AND SUMMARY

2.1 The Government (on 10 January 2012) gave the go-ahead for plans for a new high speed rail link to be progressed towards a hybrid bill submission in late 2013. The plans are summarised below:

- (a) the first phase of the scheme would see a new line between London and the West Midlands constructed;
- (b) there would be an interchange with Crossrail at Old Oak Common in west London, which would provide access to Heathrow. A dedicated spur to Heathrow for services from the north would be included in Phase 2 of the scheme, which would also include extensions beyond the West Midlands to Leeds and Manchester;
- (c) Euston station would be redeveloped and extended to cater for 400m-long HS2 trains; and
- (d) there would be a new link to High Speed 1, in order to allow trains to operate through London from HS2, potentially to Europe, utilising the existing North London Line.

2.2 In responding to the Secretary of State's initial consultation on the high speed rail proposals, the Mayor and TfL expressed support for the principle of high speed rail but identified a number of essential conditions that would have to be met for this line to serve London properly and for the impacts of the line in London to be acceptable.

2.3 The Mayor and TfL are very pleased to see that the Secretary of State has acknowledged the important issue of reducing the impact on Londoners and agreed to do further work in this regard and in particular, committed to increasing the amount of line that will be in tunnel through the Ruislip area.

- 2.4 Certain areas of the route have not been mitigated and the Government is still proposing a new viaduct across the Colne Valley in Hillingdon. TfL and the GLA will, however, continue to work closely with the promoters of the line, HS2 Ltd, to ensure environmental impacts in London are kept to an absolute minimum.
- 2.5 The Mayor is disappointed that the Secretary of State has not outlined plans to enhance adequately onward capacity at Euston and will continue to press this issue with her as a matter of urgency. TfL officials need to work closely with HS2 Ltd to ensure that this issue is resolved effectively.
- 2.6 The Mayor and TfL are pleased that the Secretary of State has acknowledged the need to enhance connections at Old Oak Common in her statement and the Mayor will ensure that TfL works closely with HS2 Ltd and local boroughs to progress plans for a new station that fully addresses its long term potential in terms of regeneration and connectivity.
- 2.7 The Mayor has asked the Secretary of State to consider alternative options for linking HS2 to HS1 that would avoid conflicts with the North London Line. The Mayor and TfL are pleased that the Secretary of State has acknowledged this issue and TfL will work closely with HS2 Ltd to examine all options.

3 SPECIFIC ISSUES

Euston

- 3.1 The first phase of the proposals will put pressure on the already strained underground system at Euston. The full HS2 network (i.e. with Phase 2) exacerbates this issue and results in more than double the number of people wishing to access the Underground at Euston over the AM peak period (compared to today). Any time savings on journeys from Birmingham / Manchester to London will be lost with people queuing to access the Underground station at Euston unless further capacity is provided, and background demand is reduced.
- 3.2 HS2 Ltd analysis has assessed the impact at Euston across the total capacity of the underground network, rather than the impact on specific lines. TfL analysis has focused on the Victoria Line and Northern Line southbound – these are links of critical importance now, and will become even more so in the future. Our analysis has investigated the effects of both Phase 1 (London to Birmingham) and Phase 2 (the full Y-network) separately.
- 3.3 Some mitigation measures have been incorporated in the HS2 plans to date. Old Oak Common station is included in the HS2 plans and is essential to remove HS2 demand from Euston. We estimate that Old Oak Common reduces the overall number of arrivals (classic and HS2 services) at Euston by 9,000 passengers in the AM peak, or 20 per cent. In addition, a new direct link to Euston Square would help to spread the dispersal of passengers from Euston onto other less congested Underground lines, particularly on the corridor towards the City and Crossrail at Farringdon. We are making the case that this should be incorporated in the Phase 1 design of Euston station – we understand that the latest HS2 Ltd plans include provision for this link.

3.4 TfL has undertaken analysis investigating the likely wait times for Northern and Victoria lines (southbound) from Euston based on the forecast increase in demand at Euston. The analysis suggests that maximum wait times on the Victoria line could exceed 30 minutes, as indicated below. The base case for each of the HS2 scenarios below assumes that Old Oak Common and a connection to Euston Square are in place.

Table 1: Forecast wait times for underground connections at Euston with HS2

AM peak Scenario	Maximum wait for Northern line train SB (mins)	Average wait for Northern line train SB (mins)	Maximum wait for Victoria line train SB (mins)	Average wait for Victoria line train SB (mins)
2011	2.5	1.2	7.5	1.4
2033 reference case	9.5	2.6	8.0	1.9
2033 + HS2 Phase 1 demand	11.0	3.1	9.0	2.6
2033 + HS2 Phase 2 demand*	21.0	6.6	31.5	14.5

Phase 1 mitigation requirements

3.5 TfL has investigated a number of additional options required to mitigate this impact at Euston. The following measures are required:

- (a) ensure the new Euston station is planned in such a way as to maximise the potential for onward dispersal by foot and other non-LU modes. However, given the ultimate destination of many passengers, an onward journey by Underground is inevitable for the majority of journeys; and
- (b) reduce background national rail demand at Euston by diverting some of the shorter distance commuter services from locations such as Tring and Watford onto other routes, thus reducing non-HS2 demand at Euston. A new link from the West Cost Main Line (WCML) to the Great Western Main Line (GWML) around Old Oak Common would allow outer suburban services that currently terminate at Euston to instead switch onto Crossrail, removing demand from Euston and reducing pressure on Underground lines¹. The effect of this intervention is dramatic – as many as 10,000 passengers could be removed from Euston in the AM peak period (07:00-10:00).

3.6 With this mitigation in place, the impact of HS2 demand would be as displayed below in Table 2.

¹ This scheme is supported by Network Rail in their London and South East Route Utilisation Strategy

Table 2: Forecast wait times for underground connections at Euston with mitigation options for Phase 1

AM peak Scenario	Maximum wait for Northern line train SB (mins)	Average wait for Northern line train SB (mins)	Maximum wait for Victoria line train SB (mins)	Average wait for Victoria line train SB (mins)
2011	2.5	1.2	7.5	1.4
2033 reference case	9.5	2.6	8.0	1.9
2033 HS2 no OOC	23.0	3.8	19.0	10.5
2033 HS2 with OOC	11.5	1.9	10.5	4.9
2033 + HS2 Phase 1 demand	11.0	3.1	9.0	2.6
2033 + HS2 Phase 1 demand + WCML link	4.0	1.3	7.0	1.5

3.7 However, as discussed in 3.1, above, the most substantial impacts of HS2 on passenger dispersal at Euston come about with Phase 2 in place. We believe further mitigation is required to cater for the full HS2 network demand. Without this, passengers will be subjected to substantial delays to make onward underground journeys.

Phase 2 mitigation requirements

3.8 Even with the above mitigation measures in place, we believe there is a residual problem at Euston station with HS2 Phase 2 demand that requires further mitigation. Taking the Victoria line southbound, with the above mitigation in place, average wait times would be nearly 10 minutes, with many passengers have to wait 20 minutes (as displayed in Table 3, below). This is highly likely to lead to station closures on a regular basis to control the flow of people arriving on the Victoria Line southbound platform. While the design of the station may be able to assist with this in terms of spreading demand and managing flows away from the platform, with this level of demand, we would expect underground station closures during the AM peak period (07:00-10:00) to be common.

Table 3: Forecast wait times for underground connections at Euston with mitigation options for Phase 2

AM peak Scenario	Maximum wait for Northern line train SB (mins)	Average wait for Northern line train SB (mins)	Maximum wait for Victoria line train SB (mins)	Average wait for Victoria line train SB (mins)
2033 reference case	9.5	2.6	8.0	1.9
2033 + HS2 Phase 2 demand*	21.0	6.6	31.5	14.5
2033 + HS2 Phase 2 demand* + WCML Crossrail extension	13.0	3.8	19.0	9.4
2033 + HS2 Phase 2 demand + Crossrail 2	15.5	4.6	5.5	1.9

- 3.9 Further analysis suggests that full separation of the Northern line would reduce crowding on the Bank branch by around 11 per cent south of Euston. However, this scheme does very little (if anything) to relieve the Euston – Victoria corridor.
- 3.10 The Mayor’s Transport Strategy identifies the need for longer term additional rail capacity in the form of Crossrail 2, along the north east to south west corridor passing through central London. TfL is currently undertaking a review of the safeguarded alignment to identify whether there is a need to serve Euston, which is not on the current safeguarded route.
- 3.11 Further analysis has suggested that Crossrail 2 would address the predicted long wait times on London Underground services caused by HS2 demand. Average wait times for southbound Victoria line services at Euston drop to just two minutes with Crossrail 2 in place – equivalent to reference case levels.
- 3.12 Clearly the introduction of HS2 does not justify delivery of the whole Crossrail 2 line, but TfL analysis suggests that is a necessary requirement for the successful delivery of HS2 Phase 2. With Crossrail 2 in place, wait times for Victoria line trains fall to just two minutes, equivalent to reference case levels. However, even with Crossrail 2 in place, there remains a problem on the Northern line. Future analysis will establish whether full separation of the Northern line is sufficient to relieve this, or whether something more substantial is required, such a DLR extension to Euston from Bank.
- 3.13 TfL believes that the potential for HS2 is only fully realised when the route is extended northwards to Leeds and Manchester. HS2 Phase 2 is planned to be delivered at a later stage; having the station box for Crossrail 2 included at Phase 1 would avoid significant disruption and redesign of the station arrangements.

Old Oak Common

- 3.14 The High Speed Two proposals also include plans for a station in west London allowing for interchange between High Speed Two and Crossrail services. Under these plans, the 14 Crossrail services per hour currently planned to terminate at Paddington would be extended to Old Oak Common.
- 3.15 As mentioned above, Old Oak Common is crucial to the success of High Speed Two. The interchange with Crossrail is forecast to be used by one third of HS2 passengers, substantially relieving pressure at Euston.
- 3.16 However, in order that Old Oak Common’s potential is fully maximised, the proposals for the station have to be integrated with the rest of London’s transport network. This requires further investment in road and rail connections. TfL has aspirations to link the London Overground network into Old Oak Common. By bringing the North London Line and West London Line into a new interchange, large swathes of south, west and north London would benefit from improved access to HS2 services.
- 3.17 In addition to public transport connections, Old Oak Common needs to be well connected to the highway network. The current highway proposals for the interchange are inadequate, especially if HS2 provides a catalyst for large-scale regeneration at Old Oak Common. These issues will be picked up in the

Opportunity Area Planning Framework (OAPF) transport study for the Old Oak Common / Park Royal area.

- 3.18 There is also a critical interface between the Crossrail scheme and the HS2 proposals at Old Oak Common. The Crossrail depot and approaches will have been constructed and will be in operation by the time HS2 construction commences. There is a need to ensure that the HS2 proposals do not interfere with these operations. In addition, further work is required to understand how the additional 14 Crossrail trains per hour are integrated into the GWML service pattern.

HS2 – HS1 Link

- 3.19 The remit for HS2 requires a connection to be made between the two UK high speed lines to allow the through running of services from the UK to the Continent. While of significant interest and benefit to the UK regions, this could also offer benefits for London by reducing interchange between Euston and King's Cross St Pancras. However, while developing the case for the link, High Speed Two Ltd have not considered the potential for regional services to use the connection; for example, new domestic high speed rail links between Kent and the Midlands/the North.
- 3.20 While supporting the principle of this link, especially in allowing new through-London high speed rail services, TfL is primarily concerned about the impact of the current proposal on the operation of other rail services, including both passenger and freight. The current proposal is for the HS2 project to provide a link between HS2 and HS1 using sections of the existing North London Line. This would involve high speed trains operating on existing tracks for a short distance, currently used by London Overground services and freight trains.
- 3.21 This proposal would impact on the reliability and performance of the London Overground, limiting existing services as well as the potential for future enhancements in capacity and frequency on this line.
- 3.22 TfL believes very strongly that if a link between HS2 and HS1 is necessary then this should be delivered in a way that does not impact on current Overground operations or prevent future enhancements on this line taking place. The current proposal to utilise existing infrastructure does not achieve this and places too great a limit on the potential for future growth in demand for through-London high speed services.

4 NEXT STEPS

- 4.1 The Secretary of State has agreed that HS2 Ltd should work closely with TfL officials to ensure all of the above issues are addressed before a hybrid bill is submitted. The Mayor will also ensure that the next stage of planning addresses those issues that are of critical importance to London.
- 4.2 The Government's current timeline for the progression of the scheme is set out below:

Throughout 2012: HS2 Ltd to work with TfL to provide detailed specification of required engineering works;

Oct 2013: Hybrid bill submission;

May 2015: Hybrid bill passed;

2016: Construction work starts;

2026: Phase 1 of the scheme opens; and

2032/33: Phase 2 of the scheme opens

5 RECOMMENDATION

5.1 The Panel is asked to NOTE the paper.

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