

HS1 – HS2 connection: A way forward

Greengauge 21
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1. Introduction

The Case for a HS1 – HS2 link

In June 2013, Greengauge21 published a report on the HS1 – HS2 link. It showed that the business case for its inclusion in HS2 Ltd's plans was based on an improbable premise – that there would be sufficient international demand for high-speed rail services from the HS2 catchment to European destinations to justify its construction.¹

On the other hand, the report showed that the demand for *domestic* travel over the link had been overlooked by HS2 Ltd, and for this the potential demand was substantial. Providing domestic services across a HS1-HS2 link would also:

- Provide a means for travellers from Scotland, the North and the Midlands to access international services at a station on HS1 (such as Ebbsfleet) already equipped with border control facilities and served by international trains
- Provide a real alternative to travel around London on the M25 by making cross-London journeys possible without the need for double interchanges.
- Generate *per passenger carried* greater benefits than would arise for travellers to/from Euston using HS2 because a HS1-HS2 link would result in much higher levels of diversion from more carbon intensive and more congested travel modes (especially private car).

In effect, services over a HS1-HS2 link would provide rail connectivity between – on the one hand – Scotland/the North/the Midlands – and on the other – London Docklands/East & Southeast London/Essex/Kent. By using the planned interchange at Old Oak Common, the report also concluded that the cross-London market could be further widened, adding a Heathrow and Thames Valley/West of England catchment on the western side.

¹ <http://www.greengauge21.net/publications/travel-market-demand-and-the-hs1-hs2-link/>

The 2013 Greengauge 21 report estimated that the international demand over the HS1 – HS2 link, while smaller than domestic demand was also significant:

International Market	2033 Annual HSR demand <i>mppa</i>
Europe – Midlands/Northern England	1,893,000
Europe – Stratford (an intermediate station stop on services to Midlands/North/Heathrow)	4,434,000
Europe – Heathrow	1,639,000

The report made clear that that if direct *international* services were to be provided, they would most likely not be as frequent or offer the same range of destinations as operate in practice to/from St Pancras and other HS1 stations. But using *domestic* high-speed services over the HS1 – HS2 connection and cross platform interchange at (say) Ebbsfleet on HS1, rail could be expected to capture as much as a third of the available (air/HSR) market. Provision of direct international services would only increase HSR market share by around a further 5 percentage points.

Instead of being seen primarily as a connection for direct international services, we concluded that there was a need to examine fully the role of the HS1 – HS2 link in supporting long distance cross London *domestic services*, for which demand is substantial. International services using the HS1 – HS2 link could then be considered as an overlay.

We examined a range of markets for domestic services. The majority of the projected domestic passenger flows over the HS1 – HS2 link would join/leave at Old Oak Common Interchange. Evidence suggested that there was demand for perhaps a 4 train/hour service (in each direction) over the HS1 – HS2 link.

The Higgins Review

The Higgins Review published March 2014 concluded that a single track HS1-HS2 link as proposed as part of the HS2 Phase 1 plans would be an imperfect compromise and concluded that the design was unsuitable and didn't have a business case – although no mention was made of its possible use for domestic services. The Review recommended the Government consider whether the link was good value for money or whether it would be better to consider an alternative.

The Secretary of State for Transport announced, in response to the Higgins Review, that the version of the connection as proposed in HS2 Ltd's plans will be withdrawn from the Phase 1 hybrid Bill. He also announced that a study will be commissioned to look into ways to improve connections to the continent.

Purpose of this report

The purpose of this further report is to help inform such a study by developing thinking on the HS1 – HS2 issue.

It includes further consideration of the border control issue that affects the viability of international HSR services. It also incorporates further and revised thinking on how services could develop over a HS1 – HS2 link, drawing on recent work by Greengauge 21 for the South East LEP, in effect from the stand-point of how to get best use from the existing capacity available on HS1.

It has been prepared for the same client group that commissioned the original work.² Greengauge 21 would like to acknowledge the assistance given by Eurostar and by a major UK airport in researching this document in respect to the border control issue. The report and its opinions remain, of course, the sole responsibility of Greengauge 21.

² Essex County Council, Kent County Council, LB Newham, South East Local Enterprise Partnership, PTEg

2. Border Controls and High Speed Rail

The border control issue has so far frustrated the development of more than a handful of international HSR services beyond the initial Eurostar pattern of London – Paris/Brussels. Indeed, for a time, the question of whether these existing services would be allowed to continue to carry passengers between Brussels and Lille was in some doubt.

The nations of continental Western Europe are signatories to the Schengen convention. This allows for movement of people between nations without passport and security checks. The UK is not a signatory to this agreement.

Border control is exercised for UK–international HSR services using a reciprocal arrangement with destination countries. This ensures that anybody who would not be granted permission to enter a destination country is stopped from travelling, rather than apprehended at destination and 'returned'. With a limited number of destinations, this arrangement works reasonably well. French border control staff are located at St Pancras for departing passengers, for example and UK border control staff at stations such as Paris, Lille and Brussels.

With more remote destinations such as those served on limited frequencies by Eurostar such as Alpine ski resorts, on-train border control has to be used for travellers to London. The Eurostar trains have special facilities to detain travellers should the need arise. But on-train arrangements are only acceptable to the UK Border agency on a limited, low volume basis. So when new regular all-year round direct services are introduced as Eurostar now plan from Marseilles, Aix-en-Provence, Avignon and Lyons to London next year, passengers are expected to be required to 'de-train' at Lille to complete border control formalities. Journey times will be extended significantly as a result. This can be expected also to impact plans for services from:

Amsterdam/Schiphol/Rotterdam/Antwerp, and from
Frankfurt/Köln/Aachen/Liege in due course.

However, the proposed arrangements mean that it will be possible to accommodate – in addition to London passengers – those travelling between intermediate French stations. This is extremely important for the overall economics of the service. The inability to carry domestic passengers put paid to the original Eurostar service plans for direct international services from locations such as Manchester (to say Paris); travellers between Manchester and London, for example, could not be carried.

Outbound services are not expected to need to de-train passengers as domestic passengers are not carried in the UK and there is a single starting point that is already staffed by French/Belgian staff at St Pancras (and Ebbsfleet and Ashford).

The current position has evolved from early concerns over the threat of terrorism and illegal immigration via the channel tunnel; the creation of the Schengen agreement has highlighted a sharp differential in border control practice. The net effect is a reality that makes more extended cross-channel high-speed rail travel difficult to arrange efficiently. Whether better arrangements using newer detection techniques can be deployed remains to be seen. While there can be no certainty that the current arrangements, which amongst other things preclude extending UK Border Control staff deployment to new European locations, will continue into the decades ahead, it is necessary to plan on the basis that they might.

Implications for HS1-HS2 International Services

When it comes to looking at the type of international services that could use a HS1 – HS2 connection, border control needs consideration from the outset.

In general it would be costly to provide trains that can accommodate both domestic and international passengers (although not impossible, as the plans for new Eurostar services indicate). And, in general, the deeper into either the continent or mainland UK a service penetrates, the greater the relevance will be of the domestic component of the travel market if services are to be viable.

For services operating within the UK from locations north of London, and this only applies to the southbound (outward) journey, there will be strong pressure to segregate domestic and international passengers. Otherwise there is a risk that French/Belgian border control staff will be faced with processing domestic UK passengers – expensive and time-wasting, and illegal too, quite probably. There is also the question of security risk related to travellers who would leave the train before its passage through the channel tunnel. We have previously identified the possibility of physically separating a domestic and international section within a single train. In practice, this would limit seat utilisation levels, and mean that provision of such services for both domestic and international travellers would be likely to carry a cost premium.

So it would seem likely that, for outbound journeys, an equivalent arrangement to that being adopted in mainland Europe for the extended Eurostar services would apply. This means all passengers de-training so that domestic travellers may exit and international travellers can be made subject

to border control inspections at the last station at which it is possible to exit the train before the border crossing (channel tunnel).

The process time for this type of arrangement could extend to at least 30 minutes. This could place significant stress on platforming – and indeed at Lille, it is expected that a major extension of the station will be needed partly at least prompted by this procedure. If such an arrangement were adopted at Stratford, for example, it would probably mean in practice that service frequencies could not exceed one train/hour. This may appear sufficient for the overall market, but at peak travel times, with more than one continental destination, it would be a constraint and from the perspective of the passengers would involve in perception terms the equivalent of an interchange - even though it would be a matter of getting back onto the same train. Still, with through running lines at Stratford, at least this operation could be carried out without impeding the flow of other HS1 services.

But the majority of international demand from the North for continental European destinations could be much more efficiently addressed by a higher frequency domestic HSR service that provided for easy interchange on to existing London – Europe HSR services at a HS1 station – most likely Ebbsfleet (where there are existing border control facilities) or at Stratford International (where facilities would need to be added).

Another approach – as we shall see – could be to develop new international services and these would allow for direct passenger interchange to/from HS2 at Old Oak Common – or indeed at Heathrow, once the HS2 connections are provided. Either way, there is demand and a need for an acceptable version of a HS1-HS2 connection.

3. HS1 – HS2 connection: a way forward

The immediate response to the Higgins Review has been the Secretary of State's agreement to withdraw the HS1 link from the HS2 Phase 1 hybrid Parliamentary Bill. It is to be expected that fresh consideration will be given to the ways in which Euston and St Pancras International can be better linked with some form of transit system. In practice, this will serve a multitude of purposes – for instance, a valuable connection from Euston onto the Thameslink network. International travellers between HS1 and HS2 services are just one of many groups to be considered and their specific needs (traveling with luggage, multi-lingual signing systems etc) will need particular attention.

Work will no doubt be put in hand to address this challenge. But work has also been carried out by Transport for London (TfL) to examine ways in which a revised HS1 – HS2 scheme could be introduced in due course. TfL has identified a tunnelled option that supports a mix of international, inter-regional and airport demand and that avoids the adverse impacts of the original HS2 Ltd scheme.

An option such as this would require its own powers (through a further Parliamentary Bill or perhaps the Transport and Works order process). Its adoption would have a bearing on the way the Phase 1 HS2 scheme is built, in particular at Old Oak Common. Passive provision for a future connection at Old Oak Common, and the design of the interchange at Old Oak Common in Phase 1 therefore remain key questions that need to be addressed.

This report argues that a HS1 – HS2 link needs to be regarded as an opportunity that should not be missed. The opportunity is threefold:

- (1) overcoming the difficulty of getting across London for longer distance travel;
- (2) better opportunities for interchanging from HS2 onto international services; and
- (3) linking Heathrow into HS1, given the benefits of a reduced need for short haul aviation.

As this report shows, a solution that addresses these three opportunities can also give rise to an even wider set of benefits and improve the business case for HS2.

Scoping the Challenge

It is clear that the HS1 – HS2 link is not only or even primarily about through international HSR services.

A resolution of the problem with the HS1-HS2 link as designed requires consideration of all traffics that could use a re-specified connection. As we have seen, domestic travel would in practice dominate, and our earlier study envisaged that an extension of the Southeastern 'Javelin' high-speed service or the extension of HS2 services to provide for cross London markets would bring substantial benefits, and would appear likely to improve the business case and value of HS2, as well as allow HS1 to operate closer to its full potential.

The Higgins Review has, however, argued that the paths that through HS1 services would consume on HS2 could be better used by, for example, adding in HS2 services from London to other destinations that have not been so far considered such as North Wales.

A design solution is needed that provides and facilitates *passenger interchange* between HS1 and HS2 services at Old Oak Common but does not require that any significant number of services from HS1 be extended to operate over HS2.

The consideration of potential markets for HS1 – HS2 link services can be summarised as follows:

1. For the international market, over 75% of the demand would be met by a service operating from just two locations in the UK – Heathrow and Stratford. There is known to be a long-standing commercial interest in being able to offer direct Heathrow – Paris services by HSR, and their provision would reduce short-haul demand from Heathrow, from which Paris is a top 5 destination, despite the existence of the service offer by Eurostar from St Pancras
2. The international market from locations further north will in general not be able to compete strongly with air services in times of journey time, but the existence of such connections is nevertheless seen by stakeholders as an important potential attribute of HS2; and whether or not the aspirations can be met by creating a suitable user-friendly transit connection between Euston and St Pancras (where border control formalities would need to be carried out) remains to be seen
3. There would be significant constraints on the throughput of international services from the North if it was found necessary – as

would seem likely – for passengers to de-train on their outbound journey, so that domestic and international passengers can be segregated and the latter subject to security and passport checks

4. The greatest value from a connection between HS1 and HS2 in practice, in any event, derives not from international demand but from domestic demand, and the majority of the benefits can be obtained provided it is possible for services from the east of London using HS1 to call at Old Oak Common where interchange on to a wide range of services would be possible (including, of course) HS2. Indeed, such a provision would add significantly to the purpose and value of the planned HS2 Old Oak Station
5. It would be poor planning to devise a scheme in which services from the east are required to terminate at Old Oak Common and return to whence they had come. This would mean additional platforms would be needed to provide for layover/turnback (adding to capital costs as well as operating costs), and passenger benefits for travellers from locations west of Old Oak Common would be reduced, since all travellers would incur a need to interchange en route.

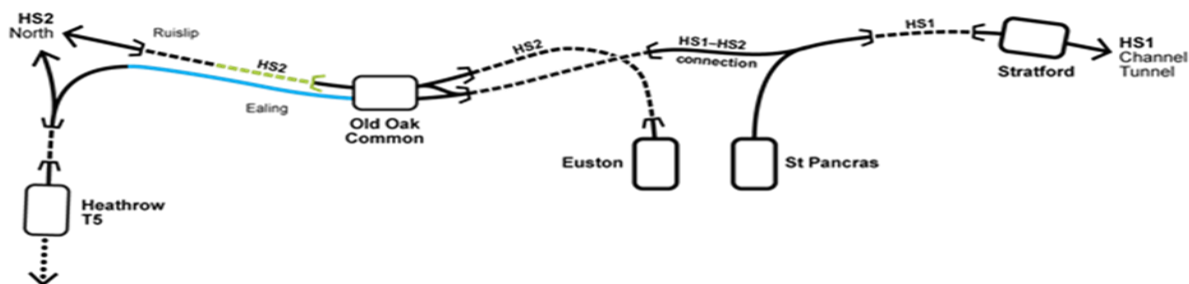
There is a conceptual solution that addresses these key points – and adds further benefits too.

4. The Opportunity Addressed

It goes without saying that a suitable HS1 – HS2 link would need to avoid adverse impacts on rail operations in the Camden area and have sufficient capacity. It is also important to ensure that its use does not damage the operational integrity of either HS1 or HS2.

The way that this can be achieved is by creating a link that serves the Old Oak Common interchange. Services using such a link are best regarded as extensions of HS1 services. To maximise value, they need to serve markets north and west of London. This can be achieved by having the route westwards from Old Oak Common proceed on the (effectively unused) surface corridor that remains available for conventional main line services between Old Oak and Ruislip.³

None of the connection would be designed for high-speed operation and, given the likely incremental costs, would not be designed to accommodate the larger gauge trains that are permitted on European HSR lines either. Instead it would be designed for use by UK gauge trains (such as both types that operate over HS1 today, and will be used on HS2 ('classic compatible')). It could also connect with the eastern chord planned for HS2 Phase 2 to reach Heathrow Airport as illustrated in the following diagram.



As this diagram shows, services using the HS1 –HS2 connection would, to the west of Old Oak Common, proceed over a surface railway (shown in blue) and then continue to Heathrow, potentially adopting the published alignment of the eastern HS2 spur to access the planned HS2 station at the airport itself (T5). The existing surface railway in question provides currently for one service/day, and would need to be brought back to main line railway

³ This surface corridor was originally intended for the route of HS2 itself, but the need for high-speed operation and larger structure gauge led to a tunnelled solution being adopted instead.

standards (it is the former Great Western Railway route from Paddington to Birmingham, in effect abandoned).

If there are to be direct HS1 services from HS2 using the link – and that remains an option to be considered – then a connection of the type shown in the diagram at the east side of Old Oak Common interchange (in practice a crossover(s)) would be needed.

The core concept is that direct services from mainland Europe could call at Stratford International station (where passengers for Canary Wharf and the City could disembark to complete their journeys) and continue via Old Oak Common to Heathrow. Here, of course, border control staff are employed extensively for international air services, so the incremental costs are more easily contained, and existing back up facilities can be utilised. In the outbound direction, international passengers would travel from Heathrow, Old Oak Common and Stratford, at each of which border control facilities would be needed, and domestic passengers would not be carried. The domestic market would be served by a separate train service, operated as an extension of the Southeastern Trains Javelin trains operating a Heathrow – Old Oak Common – Stratford – Ebbsfleet – Ashford core route that could also serve wider Kent destinations.

International passengers from Scotland/the Midlands/the North would be able to transfer to the international trains either at Heathrow (provided, of course, the connection into Heathrow is provided as part of the Phase 2 HS2 plan using the two paths/hour set aside for HS2 services from the north to Heathrow) or Old Oak Common. Border control facilities would not be needed at locations across the HS2 network of stations with this approach, and passengers would avoid the inconvenience of the Euston – St Pancras transfer. The ability to route HS2 services in future directly on to the HS1 – HS2 link and thence mainland Europe – should, for instance, new methods be found that overcome the costs of the current border control arrangements – would be protected. It might be that, in any event, limited direct international services from the north could be operated without compromising HS2 capacity (avoiding times of peak London demand).

Heathrow and its relevance

The business case for HS2 services at Heathrow will no doubt be influenced by the findings of the Davies Commission. Its interim report of December 2013 makes clear that the idea that Heathrow should close is not being considered: it will either be a 2 runway global hub airport or a 3 runway global hub airport.

This means that consideration of the HS2 Heathrow link that was deferred in the face of uncertainty over the Davies Commission outcome now needs to be brought back into play. Formal consultation should take place without delay on the Heathrow element of the HS2 proposals, led, as have been the other aspects of the Phase 2 proposal, by DfT. One reason to do so is because – as we have shown here – a decision on Heathrow access from HS2 has an inter-relationship with a decision on a future HS1 – HS2 connection. A key western destination of HS1 – HS2 trains could be Heathrow Airport for which we know there is significant demand, but to reach the airport would mean the construction of the HS2 station planned for T5 and one of the two Heathrow spurs – with the adoption of the eastern spur for use by HS1 services.

In looking at the proposals for HS2 at Heathrow, no doubt account will be taken of the planned western rail connection which is now being implemented and of the possible southern connection – which the Davies Commission has asked to be examined without delay and ahead of its final conclusions in 2015. The way in which these various schemes could interact and add value to each other – in effect creating a surface rail transportation hub at Heathrow Airport has been set out in Greengauge 21's earlier work.⁴ It was also a conclusion of the Mawhinney Review that reported in 2010 that there should be an overall strategy for rail development at Heathrow instead of a costly scheme by scheme incremental approach.

All of the competitor hub airports of Schiphol, Frankfurt and Paris CDG are provided with a through HSR station so that airport demand is only one component market for HSR services at the airport stations and the catchment served by them is 'double-sided' and more extensive. Access to international gateways is not a problem for London, with its choice of airports and provision of Eurostar services but it is a problem for much of the rest of the country which is served by a number of excellent airports each of which inevitably has more limited international flight connections (many of which access hubs in other countries). HS2 infrastructure in the London area is crucial to overcoming this problem.

The HS2 links to Heathrow have suffered as has the HS1-HS2 link from a deficient appraisal to date, with assumptions of limited service frequency terminating at the airport, and little (if any) apparent consideration of the wider attraction of accessing HS2 at Heathrow for anything other than airport demand. Unsurprisingly, this would appear to leave the business case for the connections into Heathrow in some doubt as far as HS2 Ltd is concerned. But

⁴ <http://www.greengauge21.net/publications/the-heathrow-opportunity-2/>

the proposal outlined here could profitably generate as many as (say) 4 trains/hour operating into the planned HS2 Heathrow station from HS1 – and do so without impinging on core HS2 route capacity.

The question of wider rail access at Heathrow also needs to be brought into the appraisal. Since HS2 Ltd carried out its analysis, a decision has been taken on progressing direct western access to the airport. And as the Greengauge 21 work has pointed out, it makes much better sense to provide HS2 services from the north to Heathrow that continue onwards over a new conventional speed link to connect with the South Western main line. This allows long distance cross country services from the north and midlands to gain the transformational journey time savings of HS2, serve Heathrow airport and then proceed to destinations such as Southampton. Unlike with the central London HS2 services, this would achieve a very significant shift in demand from private car use, and significantly broaden the benefits of HS2.

5. Serving the Chilterns too

An elaboration of the HS1 – HS2 service concept was developed further in a recent study by Greengauge 21 for the largest Local Enterprise Partnership in Britain, the South East LEP.⁵ This study sought to examine the range of ways in which greater use could be developed from HS1 to help the development of the Kent/Essex/East Sussex economies. This report concluded as follows:

“We believe that the HS1-HS2 link is an opportunity to provide better access to the South East area, and that SELTB/SELEP should seek ways to promote it as an opportunity of potentially major regional economic benefit. Its successful development will also expand the South East’s access to HS2 services significantly. But clearly the specification of the HS1-HS2 link needs a re-think.”

The report also set out what a re-specified HS1-HS2 link should look like and what it could achieve. It would need to have the following capabilities:

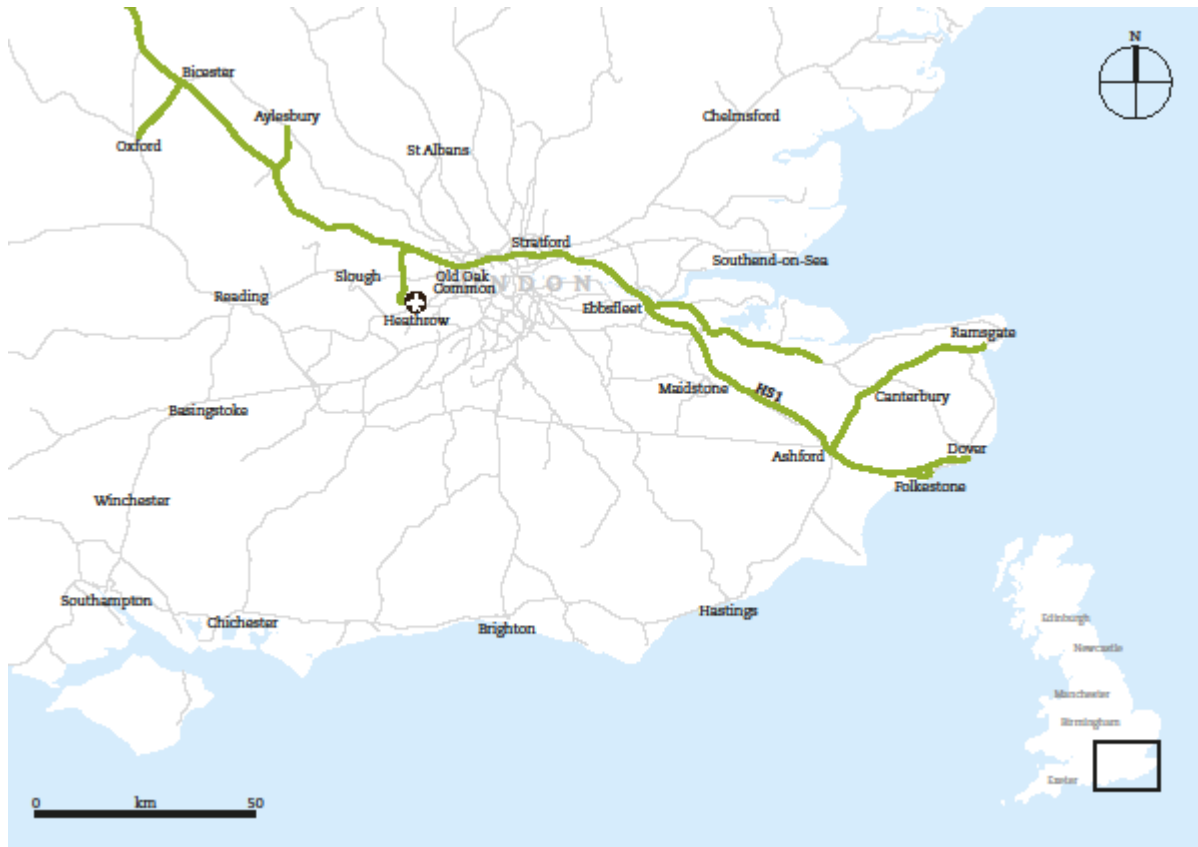
- i. It should be developed as a double track connection
- ii. It should be designed to UK (rather than EU) loading gauge⁶, reducing its cost and potentially making alternative designs more feasible
- iii. It should provide for passenger interchange at Old Oak Common
- iv. It should be connected to the existing railway west of Old Oak Common to allow a high-value cross-London train service specification to be developed, avoiding reliance on the future availability of spare HS2 train paths.

In practice, the report suggested, this might be achieved *either* by a re-specified Camden Road scheme that avoids the need for viaduct widening for gauging reasons, *or* by a tunnelled approach if such a solution can usefully be developed.

West of Old Oak Common, the report relied on the same solution as already described above – the use of the underused surface rail corridor, but with an important elaboration. Services should not only be considered to serve Heathrow: they could also operate over the Chiltern Line, as illustrated below.

⁵ High Speed Rail in the South East Greengauge 21 February 2014, SE LTB and SE LEP.

⁶ This would be suitable for ‘Javelin’ Class 395 trains, for example, but not the next generation of Eurostar trains. This does *not* preclude use of the link by international services, since the original Eurostar fleet is built to existing UK structure gauges and the majority of HS2 trains (‘classic compatible’) will be designed to operate on UK gauge railways.



Kent HS1 stations and Stratford would gain a connection with places served by the Chiltern line, which would need to be electrified and upgraded; services would be operated by Class 395 units or their successors. Heathrow would be accessed as already described above, using the planned Phase 2 connection from HS2 (which would be connected to the surface railway near West Ruislip rather than the parallel HS2 line).

Services could operate to/from Kent to destinations such as Oxford, Aylesbury, High Wycombe, Birmingham and Heathrow. These direct connections should be of great value to the economies of the South East area (and to Stratford and Docklands) because of the increased accessibility they will provide to places west of London.

The main commuter towns in the Chilterns would gain a direct feed into Crossrail (at Old Oak Common) as well as a fast route to Stratford (for Docklands and Canary Wharf) and Kent – with the scope to use such services for connection into international services, transferring at a suitable HS1 station.

6. Conclusions and Recommendations

To date, consideration of the HS1 connection to HS2 has been regarded as an adjunct to HS2, and as a means to provide international HSR services for the North. The proposal included for the connection in the HS2 Phase 1 hybrid Bill is unsatisfactory and has now been withdrawn as a result.

We propose here a different approach that can be characterised as an extension of HS1 rather than of HS2. Its provision has important interfaces with HS2 at Old Oak Common and Heathrow, and its adoption improves the value of both of these planned HS2 stations and of HS2 itself.

While no doubt better arrangements can be devised for passenger transfer between St Pancras and Euston – and these would be welcome by a wide range of passengers – we conclude that it would be wrong to abandon the idea of a properly designed HS1 – HS2 connection.

This is because:

1. Full use of the capacity and capability of HS1 depends on utilising an HS2 connection built to allow services to proceed westwards and bypass St Pancras International which has insufficient platform capacity to accommodate all the services that could run over HS1
2. There is very substantial demand for services between East/South East London, Docklands, Essex and Kent – on the one hand – and Heathrow, the Thames Valley, the West Country, Milton Keynes/South Midlands and the North on the other. Without good and (where possible) direct rail links, much of this demand uses the M25
3. Provision of the HS1 - HS2 link that would support such services will generate a lot of additional demand for HS2 services by interchange at Old Oak Common, and strengthen the HS2 business case and its wider value
4. It is possible to devise a suitable scheme that avoids unwanted incursion into HS2 capacity while leaving open the prospect of limited direct north of England to Europe connections. Part of the proposition is that there could be a direct Heathrow – Paris HSR service that would reduce the volume of short-haul flights at Heathrow – and also give Heathrow a competitive boost against its European rivals by extending its surface catchment
5. It is also possible then to provide for an international service from Old Oak Common and Stratford International as well

6. The Chilterns can also be provided with new cross London services over the link. This would also provide Chiltern line stations with a direct single change access to Crossrail.

The benefits of a re-designed HS1 – HS2 rail link are that it:

- Maximises the value of HS1
- Increases the value of HS2 investment and of the Old Oak Interchange in particular
- Allows Heathrow – Paris HSR services
- Allows direct HSR access from the North to a suitable interchange station with continental European services
- Protects the possibility of direct services from the North to continental Europe without constraining the best use of available HS2 capacity
- Provides flexibility for future arrangements for international travel by HSR, and for a number of service options
- Takes pressure off the M25
- Brings the international platforms at Stratford into use
- Provides the Chilterns with a cross-London service and with direct access to international HSR services and with Crossrail.

We therefore recommend that:

1. A revised HS1 – HS2 link proposal, building on the technical work that has been carried out by TfL, but also considering other options, is fully developed. It should include provision for passenger transfer at Old Oak Common, such that its impact can be considered during the progression of the HS2 Phase 1 hybrid Bill
2. The surface rail corridor from Old Oak Common to Ruislip is protected from development and encroachment by the HS2 tunnelled scheme (or other changes)
3. DfT commences consultation on the planned HS2 links to Heathrow (omitted from its 2013 Phase 2 consultation) and consults as well on the outline proposal contained here to connect the Heathrow HS2 station to the east to the surface corridor rather than to HS2 itself – and thence to HS1.