



Heathrow Hub Ltd response to the National Infrastructure Commission's Call for Evidence

8th January 2016

Introduction

Heathrow Hub Ltd. is pleased to respond to the Commission's call for evidence on London's transport system, and the strategic options for future investment in large-scale transport improvements.

We are the promoter of one of the three schemes for airport expansion shortlisted by the Airports Commission and currently being considered by Government.

We suggest that the Commission considers London's transport system as part of a wider regional network. We believe that London, in its narrowest geographical sense, cannot be considered in isolation if the objective is to achieve the most economically, socially and environmentally effective and efficient overall system.

Investment in large-scale transport infrastructure improvements in London

Government has directed that the Commission is not to consider issues relating to airport capacity, stating "*the Davies Commission has already examined this issue in detail.*" However we believe the critically important issue of airport surface access should not be separated from wider considerations of London's transport network.

Heathrow suffers from poor rail connectivity compared to its major competitors, and passenger numbers will continue to grow as airlines optimise scarce capacity through use of larger aircraft. DfT forecasts terminal passenger numbers will increase in a two- runway constrained airport, from 73m in 2014¹ to c.93m by 2050.² An additional runway, if approved by Government, is forecast to increase Heathrow's terminal passengers to 170m by 2050.³

Roads are increasingly capacity constrained and background growth in rail demand places growing stress on the rail network. Separate consideration of airport and non-airport connectivity is unlikely to achieve the most efficient outcome.

Heathrow Express shows why an integrated strategy is needed. Using 20% of the Great Western Main Line's (GWML) constrained capacity, and scarce platform capacity at Paddington, it achieves a

¹ <http://www.heathrow.com/company/company-news-and-information/company-information/facts-and-figures>

² Annex E2 Terminal Passenger Forecasts (constrained), UK Aviation Forecasts DfT January 2013
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/223839/aviation-forecasts.pdf

³ Annex D8 *ibid*

very low load factor of c30% in the critical three-hour morning peak, at a time when other GWML services are operating at or above 100% capacity.⁴

As well as being inherently inefficient, this form of dedicated airport service fails to provide the best possible service for air passengers. European experience at for example Schiphol, Frankfurt and Charles de Gaulle shows that airports which are instead served by through stations on main lines provide air passengers with very high frequency services to a wide range of destinations.

Other passengers also benefit from the additional network capacity that would otherwise be inefficiently used by dedicated airport services. This is highly relevant to Government's request that *"the Commission should consider relevant international experience in major metropolitan areas, to review how other cities have responded to similar challenges and priorities, and whether there are any lessons to be learned and applied in London."*

The proven European approach has now been adopted in part for the similarly capacity constrained Brighton Main Line, where Gatwick Express services also serve Brighton in the peaks.

However, plans for dedicated airport services over a new Western Rail Access to Heathrow (WRAtH) continue to be progressed, despite the Airports Commission's analysis showing that such dedicated airport services from Reading and intermediate stations would have extremely low load factors⁵ as a result of slow journey times and the need for most passengers from the west to change trains at Reading.

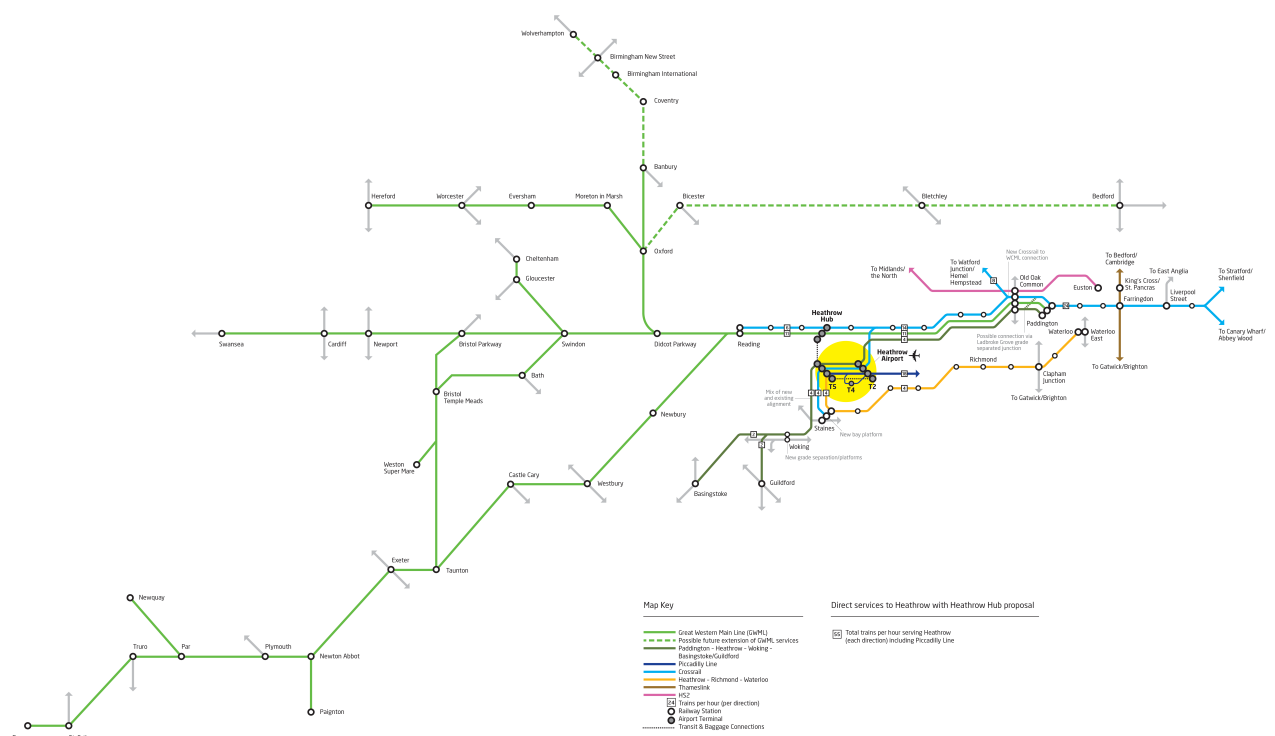
This is relevant to the Commission's consideration of London's rail network. WRAtH requires significant (4tph) capacity on the Great Western Relief Lines which, together with the need to retain and potentially increase freight paths, will act as a considerable constraint on Crossrail and prevent this very large investment from maximising its potential to the West of London. The proposed relocation of Heathrow Express's depot to Langley as part of the HS2 scheme may further exacerbate these capacity challenges, (with the additional risk that the depot could be redundant after expiry of Heathrow Express's Track Access Agreement in 2023).

Our alternative innovative and integrated approach to Heathrow's rail connectivity has two major benefits.

- It provides benefits to both airport and non-airport users, in line with Government's recognition of the need to *"consider the relative importance of, and trade-offs between, capacity, reliability, journey times and connectivity to markets"*and;
- It has a relatively low capital cost and high revenues, (as well as delivering very substantial wider economic and environmental benefits) and is therefore capable of being entirely financed by the private sector. This meets the Government's objective of *"funding and financing (infrastructure) in a way that minimises the tax payer burden."*

⁴ Table 4.2, London and South East Route Utilisation Strategy, Network Rail July 2011

⁵ "A four train per hour service would have spare capacity with the busiest sections reaching 31% of seat capacity but reducing to as little as 16% of hourly seated capacity (and 6% of hourly total capacity) at the Reading end of the WRAtH route" - Para 4.7.8, Surface Access: LHR-NWR, Jacobs for Airports Commission, November 2014



Our proposals comprise two principal elements.

1 - Heathrow Hub interchange

This road and rail interchange provides a new airport entry point and passenger processor, located on a largely unconstrained and readily developable 200 acre site c.4km north of Heathrow T5, on the Great Western Main Line (GWML) between Iwer and West Drayton stations where it crosses the M25. Fast passenger transit and baggage connections link the interchange directly to the airport campus, providing options for airside, landside or combined systems.

The station layout allows all GWML trains to call, with through lines allowing the option of Main Line non-stopping trains to pass at line speed. The station also effectively provides a dynamic loop on the Relief Lines in each direction, which, with its location roughly mid-way between Reading and Paddington, allows a new “Crossrail Express” service pattern west of Paddington. This, stopping only at Heathrow Hub and Reading, would be highly attractive to Reading passengers, incurring only a 8-10 minute journey time penalty compared to existing GWML services between Reading and Paddington.

This penalty would be more than offset by enabling passengers to avoid the need to interchange to Crossrail at Paddington. The likelihood that Crossrail will be integrated into TfL’s zonal fares structure also makes this an attractive alternative to existing GWML services, freeing these from the constraints imposed by their currently attempting to serve both commuter and long distance markets. The cross-platform interchange between stopping and express Crossrail services at the Hub would also reduce journey times for passengers from intermediate stations.

Current plans envisage 14 of the peak 24tph Crossrail service from the East turning back West of Paddington.⁶ With our proposal the extension of Crossrail to Reading allows a service pattern that unlocks the project's full potential and maximises the very considerable investment in this new infrastructure.

The Airports Commission also recognised the potential for the Hub interchange to provide air quality⁷ and road decongestion benefits⁸ as a result of dispersing road traffic entry points to the airport – an example of the benefits of an integrated, multi-modal approach to transport infrastructure planning.

2 - Southern Rail Access

This consists of two separate but related service groups.

The first, an amended version of BAA's former Airtrack scheme, provides direct services from London Waterloo to Heathrow via Clapham Junction and Richmond using a section of new rail infrastructure North of Staines between the Windsor Lines and Heathrow. We propose this would also be used by Crossrail, extending currently planned Heathrow services to terminate in a new bay platform at Staines to provide connectivity with currently un-served South Western catchments.

The second is a fast rail link from Woking to Heathrow, with trains from the South operating over a further new section of railway South of the junction with the Windsor Lines, twinned with the M25 motorway corridor and continuing through Heathrow, using the existing Heathrow Express paths, to Paddington. This overcomes the problems that contributed to the failure of Airtrack, including uncompetitive journey times and extended level crossing barrier downtime.

These combined proposals provide major benefits, those relevant to the Commission including:

- Direct trains to Paddington from the South and South West, providing an alternative London terminal with Crossrail providing excellent connections to the West End, the City and Docklands.
- Significant crowding relief to the South Western Main Line (and the LUL network at Waterloo for onward journeys). The density of operation on the Up Fast Line from Surbiton during the peak is higher than on any other single stretch of main line in the UK and Network Rail's Wessex Route Study forecasts a need for an additional 60% capacity in the high peak hour by 2043.⁹

⁶ <http://content.tfl.gov.uk/rup-20150212-part-1-item-09-crossrail.pdf>

⁷ The proposed Hub interchange "could potentially produce air quality benefits by bringing traffic off the M4 and M25 before reaching Heathrow" - Para 8.16 Final Report, Airports Commission July 2015

⁸ "The Hub has the potential to intercept traffic flows destined for Heathrow from the north and west, reducing pressure on already congested sections of the M4 and M25, plus the local roads approaching the terminals. Jacobs traffic analysis provides evidence that the approach reduces pressure on M25 junction 15, with lower peak hour flows approaching from all directions" - Para 5.3.2, Appraisal Framework Module 4, Surface Access: Heathrow Hub Station Analysis Compendium, Jacobs May 2015

⁹ "An additional 60 per cent capacity is required in the high-peak hour to meet the 2043 capacity conditional output for Main Line long distance services (conditional output CO3). This implies a need for more than 150 extra passenger vehicle arrivals at London Waterloo during the high-peak hour, which is equivalent to an additional 13 paths (assuming 12-car 20 metre vehicles configured with 3 + 2 seating in standard accommodation)" – Para 4.2.44, Wessex Route Study, Network Rail August 2015

- Significant crowding relief to LUL services at Waterloo.
- Maximising effectiveness of Crossrail investment.

More radically, this proposed service pattern could take advantage of the possible intervention identified in Network Rail's Western Route Study of a new grade - separated junction in the Ladbroke Grove area in CP6 alongside a rationalisation of the Paddington approaches.¹⁰ Subject to the detailed design of the junction, it is possible that this would allow Woking/Heathrow services to run on the Great Western Main Lines from Airport Junction, using existing Heathrow Express paths, before crossing to the Relief Lines to continue through the Crossrail central London tunnel. This would dramatically improve London's connectivity whilst also releasing valuable platform capacity at Paddington.

We commissioned modeling from AECOM (formerly URS), using, with their agreement, HAL's "LASAM" and TfL's "Railplan" models.

The results indicated an average peak loading of around 387 passengers per train between Woking and Heathrow (around 60% of capacity), the majority of whom are forecast to transfer from Waterloo services. This provides significant and highly desirable direct relief to the South Western Main Line and the LUL network serving Waterloo.

The trains would be at around 100% of capacity between Heathrow and Old Oak Common – compared with c30% for Heathrow Express currently, thus delivering effective use of scarce line capacity.

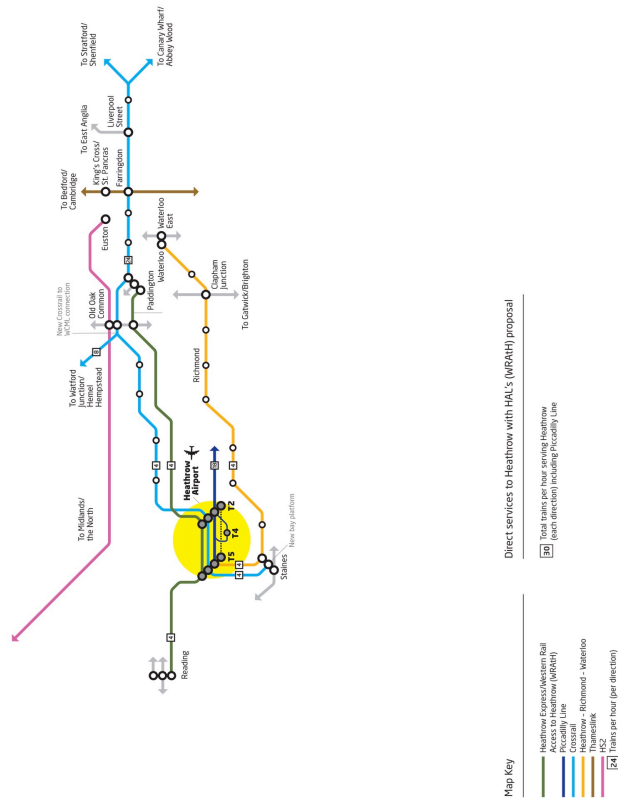
Conclusion

We believe our proposals provide overwhelming benefits and, critically at a time of constraints on public expenditure generally and on rail enhancements in particular, are capable of being privately funded.

Our proposals have been developed with a world class team of expert consultants including AECOM, Gardiner & Theobald and First Class Partnerships and in liaison with Network Rail and TfL. Heathrow Hub Ltd has also participated as a full member in Network Rail/DfT's Southern Rail Access Working Group, the report of which is due to be published shortly.

We believe it is helpful to compare our integrated proposals with the alternative rail schemes that are being separately brought forward.

¹⁰ "Grade separation of Ladbroke Grove Junction would increase the capability of the whole system, reducing the level of conflicting train movements creating greater timetable capability, increasing flexibility in the platforming and operation of services using London Paddington and associated depots"- 05, Western Route Study, Network Rail August 2015



In contrast, the current uncoordinated plans for Heathrow Express, WRAH and Crossrail achieve far fewer benefits at a high cost to the public purse, deliver a lower overall return on investment and, in the case of WRAH, are likely to require ongoing revenue support.

We have deliberately made this submission as brief as possible but would of course welcome the opportunity to engage with the Commission to discuss our proposals in greater detail.

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