

Appendix 17



West Midlands – London Review of Alternatives

Prepared by Christopher Stokes

17 WEST MIDLANDS – LONDON REVIEW OF ALTERNATIVES

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Introduction

- 17.1 The information available on the proposed full “Y” network is generally wholly inadequate to form any valid view on the effectiveness of HS2 in serving the major regions on each branch of the “Y”. For example, the impact on the East Midlands is critically dependent on the proposed location of the East Midlands station.
- 17.2 However, the detailed information provided in the consultation on Phase 1 of HS2, from London to the West Midlands, does enable a full review of the project in terms of its effectiveness in serving the West Midlands – London market.
- 17.3 This paper compares the alternative options for developing the rail market between the West Midlands and London, considering the advantages and disadvantages of construction of HS2 or development of the existing routes.

Catchment Areas of existing services

- 17.4 The West Midlands is an agglomeration of towns and cities, with a population of over 3 million. Whilst Birmingham is the most important city, its population is only about one fifth of that of the whole region, and Coventry, Solihull, Dudley, Sandwell, Walsall and Wolverhampton all have populations of over 200,000. The region is therefore multi-centred, and its InterCity rail service to London should provide good accessibility to key centres.
- 17.5 The West Coast Main (WCML) Line route meets this need very effectively, as the trains currently stop at five stations across the region:
- Coventry, a key centre in its own right and an important railhead (3 trains per hour).
 - Birmingham International, a major railhead for large parts of the region, directly linked to the National Exhibition Centre, and with a short people mover transfer to Birmingham International Airport (3 trains per hour).
 - Birmingham New Street, in the heart of the city centre, with excellent public transport links (bus, local rail and, when Midlands Metrolink is

extended, light rail). Birmingham New Street is one the region's key transport hubs, and will be transformed when the current "Birmingham gateway" project is completed (3 trains per hour).

- Sandwell and Dudley – a parkway station in the heart of the Black Country (1 train per hour).
- Wolverhampton, serving not only the city but also providing connections to Telford, Shrewsbury and Mid Wales (1 train per hour).

17.6 In addition to the WCML route, the Chiltern Line route from London Marylebone also serves Birmingham city centre, with stations at both Moor Street and Snow Hill. This provides excellent city centre distribution and connections to services to Stourbridge and Kidderminster (including some through trains to London) and Midlands Metrolink. In addition, the Chiltern Line directly serves Solihull, Warwick Parkway, a highly successful parkway station serving Warwick, Kenilworth and Stratford on Avon, and Leamington Spa, all of which are affluent areas with high levels of rail use.

17.7 The Chiltern service already operates half hourly. The Evergreen 3 project will reduce journey times by late 2011 to be comparable with WCML services between London and Birmingham (with fastest journey times of 90 minutes from Moor Street compared with 84 minutes from New Street). Rolling stock quality will also be upgraded as part of the "Evergreen 3" project. This upgrade this is being carried out at the franchisee's risk, at no cost to the taxpayer.

17.8 In contrast, HS2 only directly serves two locations:

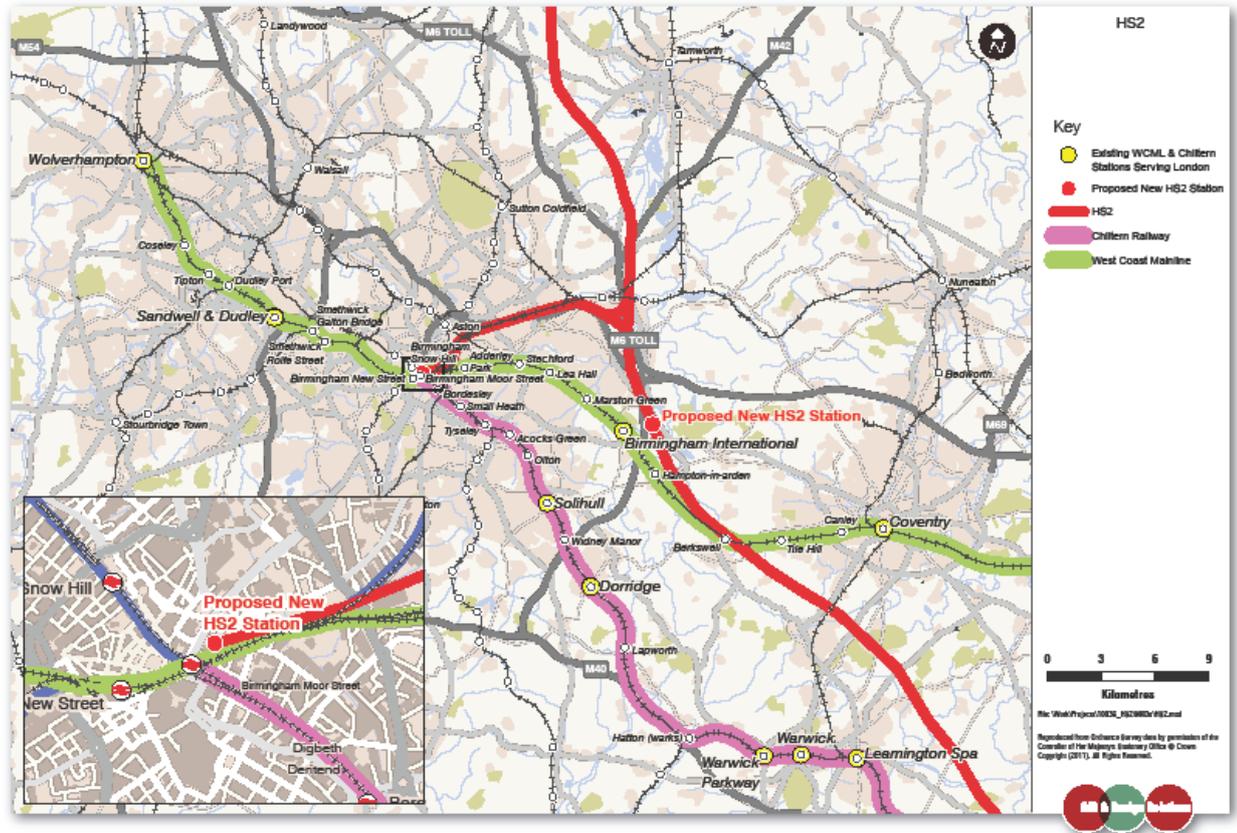
- Birmingham Interchange – essentially a park and ride station, but with a people mover link to the National Exhibition Centre (NEC), Birmingham International Station and Birmingham International Airport. Whilst broadly replicating Birmingham International, albeit with less convenient connections to the NEC and the Airport, this station will be totally ineffective as a public transport hub and have to be accessed by car.
- Birmingham Curzon Street – reasonably well located for the city centre, although less central than New Street. However, links with the suburban rail network and city bus services are focused on the "hub" at New Street, and use of HS2 would require a 10 minute transfer to Curzon

Street. For example, passengers from the prosperous northern suburb of Sutton Coldfield can access New Street by suburban rail services, and it is difficult to imagine them then choosing to walk for 10 minutes to Curzon Street, rather than simply take the WCML from New Street to London.

- The inconvenience of this transfer, and the time taken to make it, will substantially reduce or even reverse the journey time benefits for many passengers. This additional time penalty does not appear to have been assessed within the DfT business case for HS2.

17.9 Figure 1 shows the key stations within the West Midlands with good London rail services, illustrating the effectiveness of the current network in providing good access from across the region.

FIGURE 1 – KEY WEST MIDLANDS STATIONS WITH LONDON RAIL SERVICES



Impact on existing services

17.10 This issue is primarily dealt with in Technical Appendix Chapter 8, but in relation to the West Midlands specifically, the plans published by HS2 Ltd in 2010 showed a reduction in frequency of existing WCML services from Birmingham to London from three trains an hour to hourly, with journey times extended by 10 minutes, as the remaining train would stop at Rugby, Milton Keynes and Watford Junction to maintain existing journey opportunities. This will result in a dramatic deterioration of services from Coventry, for which HS2 offers no useful alternative (it is perverse to believe that anyone would drive 20 – 30 minutes in the wrong direction to access HS2 at Birmingham Interchange). Journeys from Wolverhampton and Sandwell and Dudley would also be extended by 10 minutes as a result of the additional stops.

Capacity

- 17.11 As is set out in Technical Appendix Chapter 1, capacity on the existing WCML route can be raised very significantly by incrementally increasing the number of seats in each train. At present, Pendolinos are nine car units, with four first class and five standard class cars. First class loadings are now very low, reflecting both private and public sector cut backs in first class business travel, with significant down trading to standard class, so one (possibly two) first class cars in each set could be reconfigured to standard class. In addition, all trains on the route can be lengthened to twelve cars with only minimal infrastructure expenditure.
- 17.12 These changes would increase the overall capacity of each train from 439 (294 standard) to 693 (594 standard). For standard class, where the overcrowding occurs, the capacity increase is 102%, without running more trains or incurring any major infrastructure expenditure.
- 17.13 Specifically in relation to capacity to the West Midlands, the business case for the Evergreen 3 project is predicated on Chiltern gaining a significant share of the current West Midlands – Euston market. The Evergreen upgrade, by increasing capacity and journey speeds, will directly relieve any possible future crowding pressures on the Euston route. This will not just relieve crowding from Euston to Birmingham, but also ensure that the additional train paths made available on WCML by targeted investment to relieve “pinchpoints” can be used to increase capacity to other destinations such as Manchester and the North West. However DfT’s evaluation of HS2 takes **no** account of this project.
- 17.14 Transfer of passengers to the Chiltern Line will also relieve congestion on London Underground, taking passengers away from the overcrowded Victoria and Northern Lines at Euston to the Bakerloo Line at Marylebone, which is the least crowded central London Underground line.
- 17.15 Chiltern Line trains are typically only four cars long and can be doubled in length, as demand increases, again without major infrastructure expenditure, providing an additional 550 seats per hour in each direction.
- 17.16 It is therefore clear that, taken together, capacity on the two existing West Midlands – London routes can potentially be increased from 1432 standard class seats an hour now to 2882 seats. This provides an **additional** 1450 seats in each direction per hour, well in excess of any conceivable increase in demand, as detailed in Annex 1.

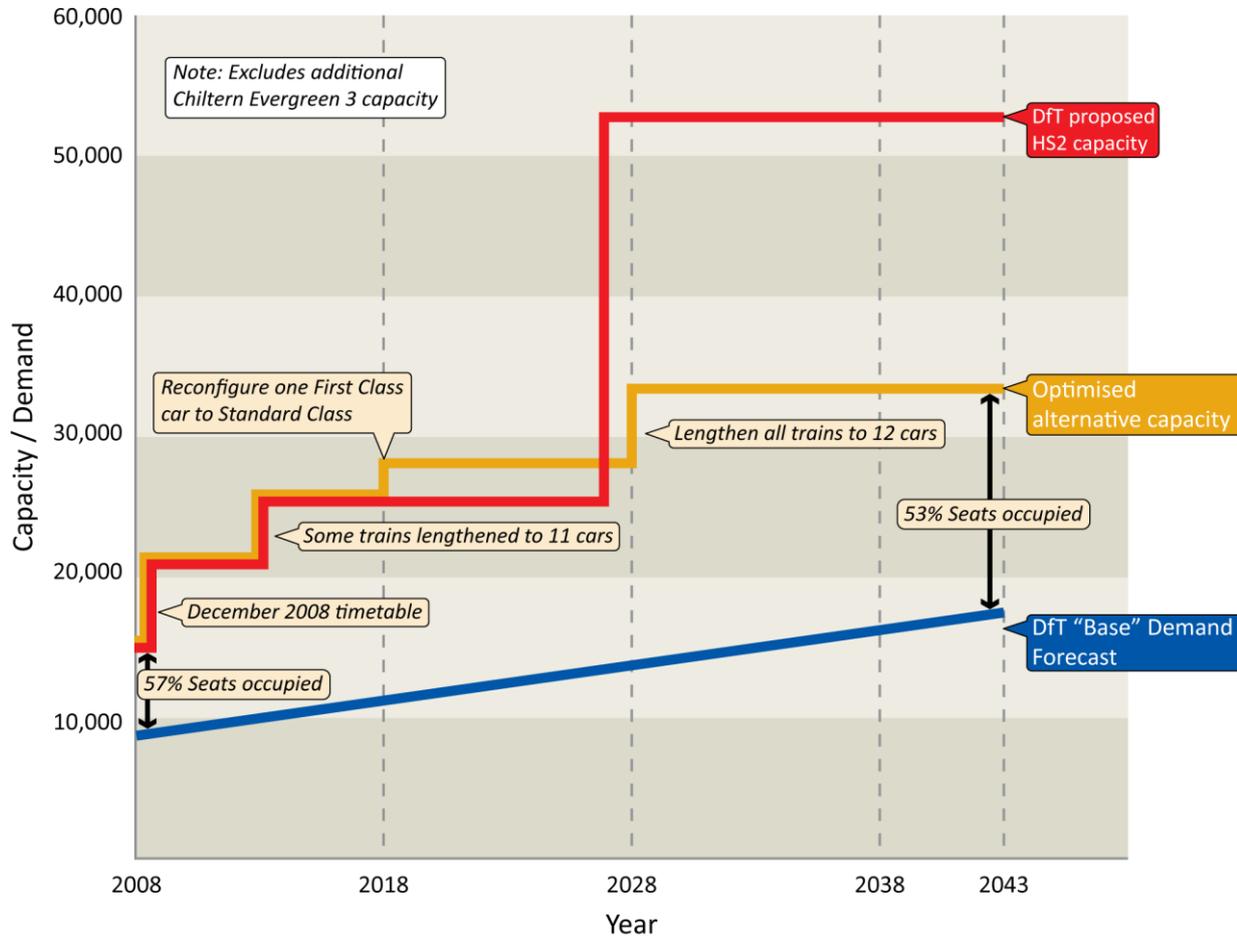
HS2 Capacity

- 17.17 It is recognised that HS2 provides a massive increase in capacity between London and Birmingham, but the issue must be whether this level of increased capacity is realistically required on any realistic forecast. Since this section of route will be operated by dedicated high speed trains, potentially with a capacity of 1,100 seats per train, and operation of four trains an hour is proposed at peak periods, the potential capacity is 3,300 all day (4,400 at peak periods), giving a total daily capacity of 55,000. This is over 10 times the 2009/10 passenger volume of 4,268 each way¹ between Birmingham (both New Street and International) and London. This level of capacity is way above any likely demand on this route, particularly as HS2 will not carry all the passengers on the current WCML route. While New Street and International passengers can mostly be expected to transfer to HS2 (although some may stay on the existing route as a result of price competition), passengers from Coventry will continue to use the WCML service, as will many Wolverhampton and Sandwell and Dudley passengers, in order to avoid transfer between stations at Birmingham.
- 17.18 Figure 2 sets out capacity and demand over time for the WCML route, allowing conservatively for transfer of 10% of demand to Chiltern on completion of Evergreen 3. This is a cautious assumption, particularly in light of the very considerable price differential between Chiltern Line prices to Birmingham and those on WCML; for example the Virgin “anytime” return fare is £149, compared with £85 for the Chiltern route. This clearly shows that the proposed incremental approach provides sufficient capacity on the route for the foreseeable future

¹ Derived from flow data in the Network Rail draft WCML Route utilisation Study (December 2010)
page 38

FIGURE 2 – FUTURE CAPACITY AND DEMAND (EXCLUDING CHILTERN CAPACITY)

Figure 2: London – Birmingham: Future capacity and demand (excluding Chiltern capacity).



Journey Times

- 17.19 It is clear that the proposed 49 minute HS2 journey time from Birmingham Curzon Street to Euston represents a substantial reduction on current times on the WCML route, which currently has a standard time from Birmingham New Street of 84 minutes, with three intermediate stops, and a fastest time of 72 minutes for one morning peak business train.
- 17.20 Nevertheless, some journey time improvements should be deliverable on the WCML route, as Pendolinos will be able to operate at their design speed of 140 mph when the existing route is resigalled to modern European standards.
- 17.21 From September this year, Chiltern will offer broadly comparable journey times to the WCML service (fastest times 90 minutes from Birmingham Moor Street, 82 minutes from Solihull), and the route will be highly attractive for the affluent catchment areas it serves, with easier access than

the WCML railheads at Birmingham International and Coventry. In the longer term, diversion of fast Chiltern Line trains to Paddington (using capacity in the main station released after the completion of Crossrail) could reduce journey times still further and provide better connections with London Underground and Crossrail.

- 17.22 As discussed above, for many journeys, the existing routes provide good access either directly to London or with a change of trains at the same station (Birmingham New Street), and use of HS2 will increase access times, including the need to transfer between stations in Birmingham in many cases. It is well established in rail planning that passengers if possible avoid transfers between stations/modes, so even if a journey involving a transfer from New Street to Curzon Street takes less time overall, many passengers will prefer to wait at New Street for the next train. Examples of comparative journey times are set out in annex 2.

Value for Money

- 17.23 Incremental development of the existing WCML and Chiltern routes can be expected to be self financing through fares revenue, as demonstrated by the Chiltern “Evergreen 3” project. In contrast, Phase 1 of HS2 has a capital cost £17 billion (assuming it is delivered to the current estimates), and will cost the taxpayer £10.3 billion net over the project life.
- 17.24 It is not clear in policy terms that there is any justification for massive subsidies for InterCity rail travel; certainly Governments of either party have for many years expected such services to be self supporting.

Conclusions

- The existing West Midlands – London rail routes provide good access across the region, in contrast to HS2, which will only have two stations, neither of which will have good public transport connections.
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- Incremental development of the existing routes can provide sufficient capacity to meet any likely future level of demand. HS2 potentially provides massive over-provision between Birmingham and London.
- Except for Birmingham itself, many journeys will become less convenient, and in some cases slower.

- Incremental improvements on the existing routes can be funded by fare revenues; HS2 represents a massive cost to the taxpayer.
- This network approach, utilising both WCML & Chiltern routes, maximises the use of current assets, as recommended in the McNulty Report *“There should be a move away from ‘predict and provide’ to ‘predict, manage and provide’, with a much greater focus on making better use of existing system capacity”*²

² Executive Summary, paragraph 23

Annex 1 London – West Midlands: capacity analysis for existing and upgraded “classic” routes

Present capacity³

The key measure is standard class capacity, as all current crowding is standard class, and load factors are higher (c50%) than in first class (c20%). Also, first class volumes have significantly reduced as a result of cuts in both corporate and public sector first class expenses paid travel.

Virgin

20 minute frequency, formed by nine car Pendolinos (145 first/294 standard seats)

Hourly capacity 435 first/882 standard/1,317 total

Daily capacity 6,960 first/14,112 standard/21,072 total

This compares with the total combined average daily demand from Birmingham New Street and Birmingham International of 4,268 each way in 2009/10. Taking other flows into account eg Coventry – London, Milton Keynes – Birmingham, total use of the trains is probably c8,000 -10,000, implying a load factor on the route of c50% at most.

Chiltern

The “Evergreen 3” upgrade of the Chiltern route will be completed this September, after which Chiltern will provide journey times not much longer than Virgin’s. The business case for Evergreen 3 is predicated on Chiltern being able to attract significant volumes from the Euston route; the scheme is being taken forward at the franchisee’s risk, at no cost to the taxpayer.

30 minute frequency, formed by four car class 168 (275 standard)

Hourly capacity 550

³ Capacity in the May 2011 timetable. This is significantly higher than that for the December 2007 timetable, used as the base for DfT’s evaluation of HS2, hence also for the 51m optimised alternative.

⁴ Derived from flow data in the Network Rail draft WCML Route utilisation Study (December 2010) page 38

Daily capacity 8,800

Combined daily standard class capacity (Virgin + Chiltern) 22,912

Potential capacity⁵

Virgin

Potential capacity with maximum train lengths and reconfiguration of one first class Pendolino car to standard

20 minute frequency, formed by twelve car Pendolinos (99 first/594 standard)

Hourly capacity 297 first/1,782 standard/2,079 total

Daily capacity 4,752 first/28,512 standard/33,264 total

Chiltern

30 minute frequency, formed by 2 x four car class 168 (550 standard)

Hourly capacity 1,100

Daily capacity 17,600

Combined daily standard class capacity (Virgin + Chiltern) 46,112

DfT's forecast for "background demand growth" by 2043 is 102%. If this is correct, total demand would grow to c16,000 - 20,000, implying a load factor of 35 - 43% for the two route combined if capacity was increased to the maximum for both routes.

⁵ This reflects the service pattern proposed for the 51m optimised alternative. This retains three trains an hour to the West Midlands, but introduces additional hourly trains to Manchester and Preston.

Annex 2 Examples of comparative journey times

Coventry – London

Upgraded existing service (additional standard class capacity and 140 mph operation – every 20 minutes, journey time of 58 minutes or less)

HS2 – residual WCML hourly service with additional stops, journey time of 73 minutes

Or

Drive to Birmingham Interchange	30 mins
Average wait time	10 mins
Train to Euston	40 mins
Total	80 mins

Sutton Coldfield – London

Upgraded existing service

Sutton Coldfield – Birmingham News Street	20 mins
Average wait for London service	10 mins
Train to Euston	79 mins
Total	109 mins with same station interchange

HS2

Sutton Coldfield – Birmingham News Street	20 mins
Transfer from New Street to Curzon Street	15 mins
Average wait for London service	10 mins
Train to Euston	49 mins
Total	94 minutes, but with a transfer between stations in Birmingham

Wolverhampton – London

Upgraded existing service – journey time of 104 minutes or less

HS2 – either:

Residual WCML Hourly service with additional stops, journey time of 119 minutes
or

Wolverhampton– Birmingham News Street	23 mins
Transfer from New Street to Curzon Street	15 mins
Average wait for London service	10 mins
Train to Euston	49 mins
Total	97 minutes, but with changing trains and a transfer between stations in Birmingham