# HS2 - the Case Against

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# The issues

- Background
- Economic benefits
- The Business Case
- Environmental impact
- Technical specification
- The opportunity cost
- **Demand growth and capacity**
- The alternative

# Background (1)

- Britain had been an interested observer of high speed in Japan, France and elswhere
- Eddington (2006) argued against HSR
  - Journey times in Britain already good
  - Better case for incremental improvements, particularly in congested areas
- 2007 White Paper also rejected HSR
- Lib. Dems, Conservatives started advocating HSR
- Lord Adonis appointed Secretary of State – and strongly advocated HSR

***A Political consensus***

# The political consensus

HSR looks good to the politician on the Clapham omnibus

- Green
- Capacity
- Airports
- Speed
- Regeneration
- Everyone else is doing it

***A sexy, dynamic legacy project!***

# Economic benefits

- Time savings – standard methodology, but assumes no productive work on trains
- North-South divide; not supported by serious academics
- Tendency to benefit the hub (in this case London)
- Zero sum game in the regions

Professor Roger Vickerman (Transport Select Committee 6/9/11):

*"Obviously, if you feel that something is going to do good for you, you big it up. We saw that with HS1 in Kent as well, as to all the effects it was going to have. I have to say, they are not visible to the naked eye"*

# The Business Case

- Has deteriorated: Phase 1 BCR has moved from 2.7 (12/09), to 2 (2/11), now 1.7 (8/12), including "Wider Economic Benefits)
- On normal criteria, excluding WEI, now 1.4
- Further downsides: latest OBR forecasts, PDFH 5.0, value of time ⟶ a BCR of around 1.0 or less
- DfT categorise 1.0 – 1.5 as "low", below 1.0 as "poor"
- Normal pass mark for rail schemes is c2.0

# Heathrow and HS1 Links

- Heathrow
  - Spur to T5
  - 6,500 journeys daily, but only 14% of these are air passengers. Others for West London and Reading (!)
  - No quantified case presented: “there is a strong case for trains to run directly to Heathrow”
- HS1 link
  - No business case presented
  - The Economic Case states HS1 connection has been evaluated on the basis of trains terminating at Old Oak Common.
  - The specification shows **no** trains to HS1
  - But the Decisions paper states “HS2 passengers will be able to travel directly to Heathrow and the Channel Tunnel without having to change trains” and “there is a strong strategic case” for the link to HS1

# The Financial Case (Phase 1)

[Update to the economic case, August 2012]

| 2011 present value and prices | £bn |
|---|---|
| Capital cost | 18.8 |
| Operating costs | 8.2 |
| Increase in rail revenue | 13.2 |
| Cost to the taxpayer | 13.8 |

# Challenges to the evaluation:

- Outdated PDFH v 4.1 still used – this significantly overstates long distance demand compared with the approved v5.0
- Business case does not include HS1 services – these will reduce frequency to Euston and significantly worsen overall financial performance
- Unrealistic value of time used for business passengers
- Pricing not modelled (eg impact of Chiltern Line upgrade)
- Impact of MML electrification and ECML HLOS improvements not modelled – these reduce incremental benefits of HS2
- Journey time savings overstated, particularly on ECML
- Optimism bias applied to increase “classic” operating cost savings
- Impact on existing Great Western passengers not modelled

**Taken together, these will have a major impact, certainly reducing the BCR below 1.0**

# Environmental impact

- At best neutral
- Small proportion of HS2 passengers forecast from air (3%) and car (8%)
- 24% generated traffic
- High speed drives up energy consumption
- Few slots released at Heathrow, and will certainly be taken up by long haul flights

***HS2 isn't Green!***

# Technical specification

- Real doubts about 18 trains per hour – highest elsewhere is 13/14
- Reliability impact of trains from “classic” routes (2 Edinburgh/Glasgow, 2 Newcastle, 2 Liverpool)
- 350 kph looks over specified – minimal time savings compared with 250/300 kph, but major energy penalty

# Opportunity Cost

- So far, Government has maintained/enhanced high levels of investment on the existing network
- But WCML is **not** the priority: less overcrowded and with greater scope for longer trains than GWML, GEML, BML, ECML
- HS2 will inevitably squeeze out other, potentially better major rail projects

# Morning peak demand and capacity

[Network Rail London and South East Route Utilisation Strategy July 2011]

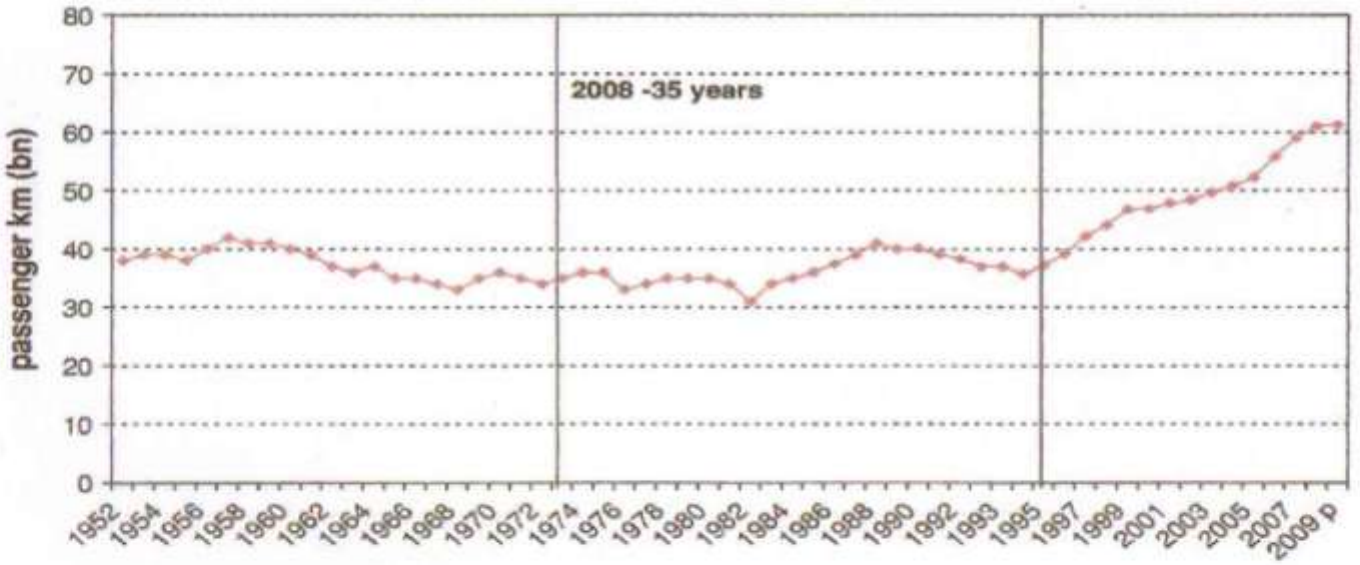
| Service group (long distance services into London) | Load factor (3 hour morning peak - 2010) |
|---|---|
| Paddington (Main Line and other fast trains) | 99% |
| Euston (long distance) | 60% |
| St.Pancras (Midland Main Line) | 80% |
| St.Pancras (HS1 domestic) | 41% |
| Kings Cross (ECML long distance) | 65% |
| Liverpool Street (Great Eastern Main Line) | 78% |
| Victoria (fast trains via East Croydon) | 72% |
| Waterloo (South West Main Line) | 91% |

# Demand Growth

- Static rail volumes for 50 years after World War 2
- But strong growth in rail demand over the past 15 years
- Rail mode share increasing
- Total transport demand no longer rising with GDP
  - High fuel prices?
  - Congestion?
  - Saturated car ownership?
  - Alternatives to transport?

***Suggest we need to understand what's happening before committing £33 billion!***

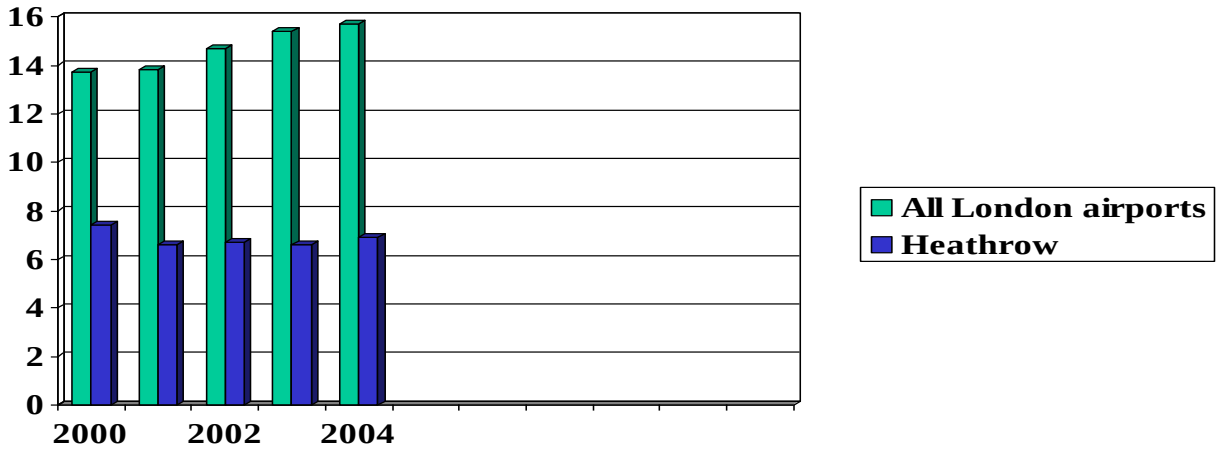
# Historic Rail Demand




Source: Transport Statistics of GB, 2010 release, Table TSGB0101

# Domestic Air Traffic (1)

Inexorable growth…(CAA 2004 data)

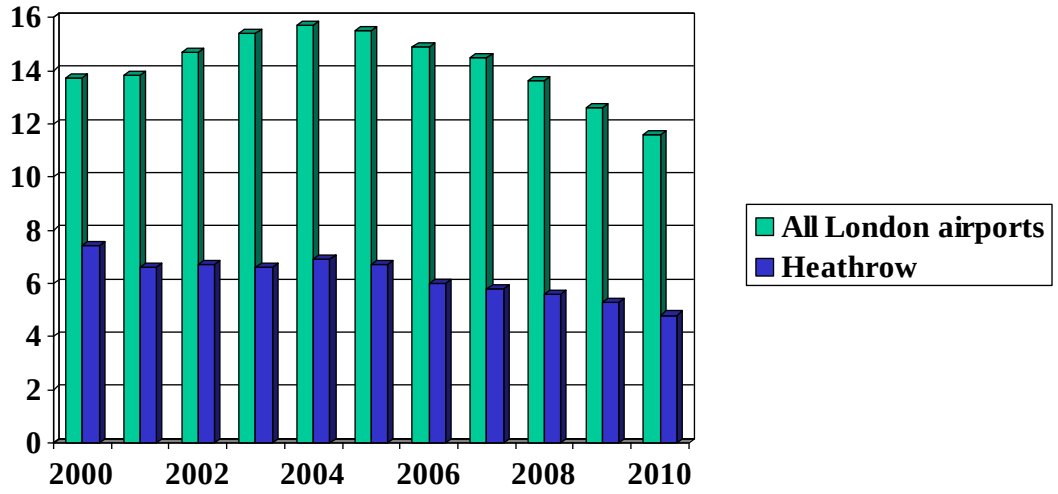



HS2 Review

2

# Domestic Air traffic (2)

….then inexorable decline? (CAA 2010 data)




HS2 Review

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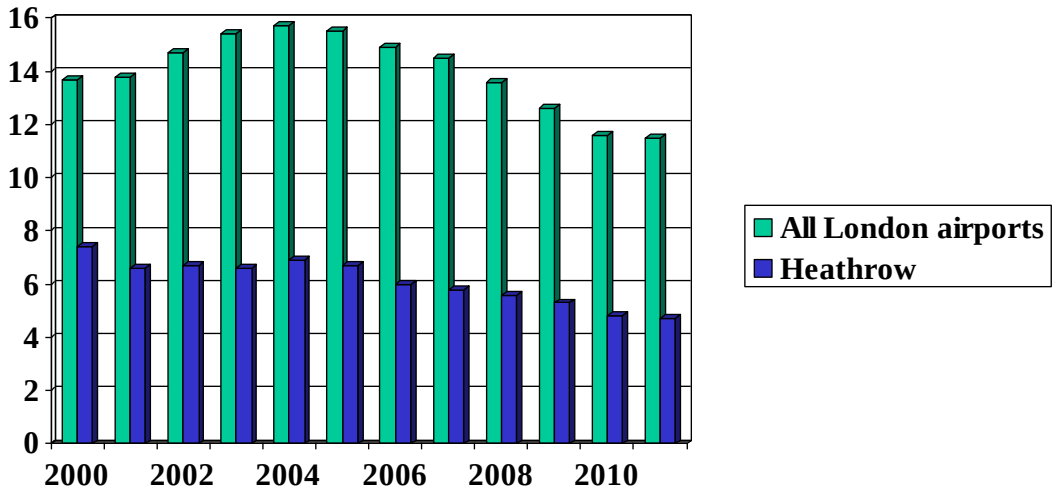
# Domestic Air traffic (3)

….but now may be stabilising (CAA 2011 data)




HS2 Review

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***Forecasting until 2086?***

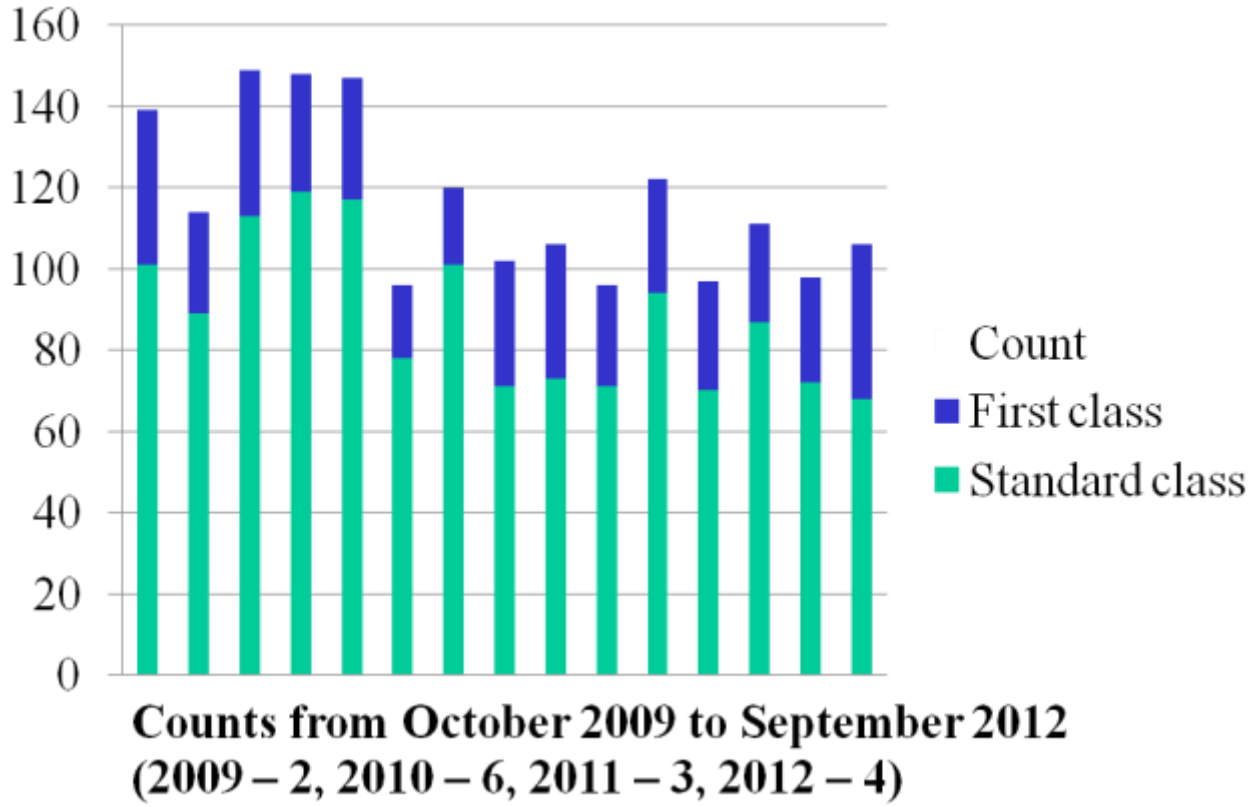
# Is business travel declining? (1)

- Virgin Rail have stated growth is concentrated on off-peak and at weekends
- Euston evening peak load factors for Virgin only 56%
  - HS2AA counts November 2011 – before any 11 car sets introduced
  - DfT refuse to release count data because of "commercial confidentiality"
- "25% decline in business flights since 2000" (Health Protection Agency report)
- Lloyds Bank :
  - "Increased volume of teleconferences by 73% in 2010, to 1.9 million"
  - "Reduced journeys by 143,000"

# Is business travel declining? (2)

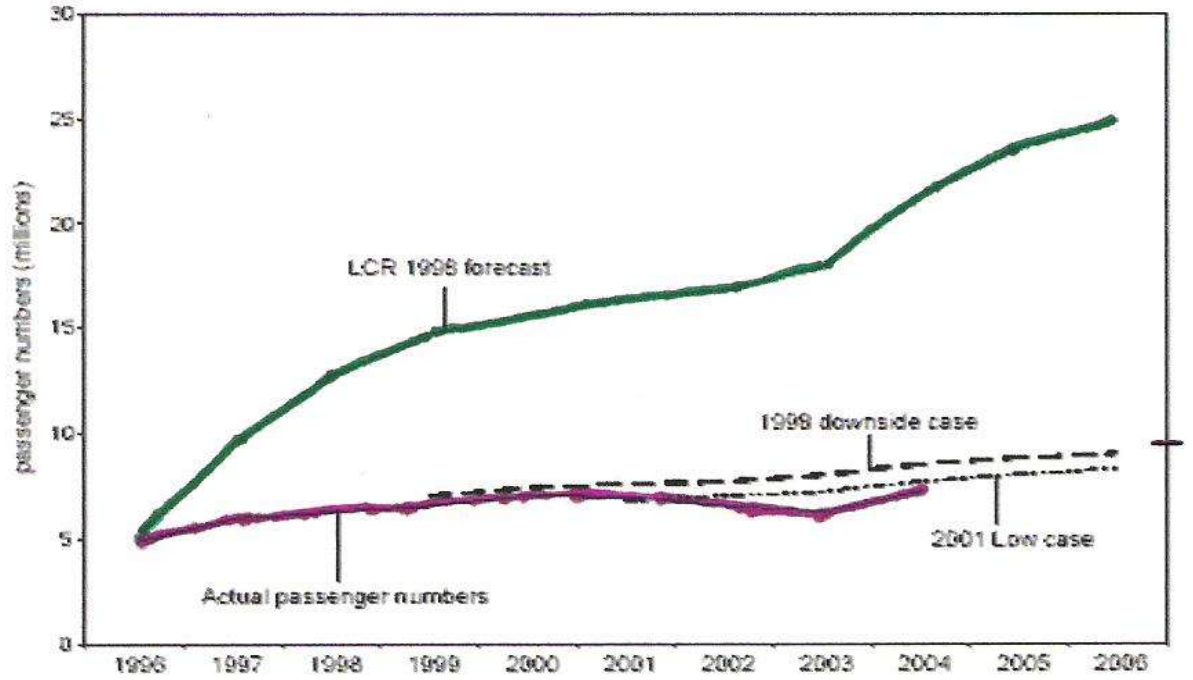
## Anecdotal evidence: 0820 Euston – Manchester

(Loading from Milton Keynes)



# The Eurostar experience (1)

**CTRL passenger numbers**




*Source: C&AG's Reports (HC 302 of Session 2000/1, Fig. 6; HC 77 of Session 2005/6, Fig. 8)*

# Eurostar – DfT explanation

"Demand and forecasting for HS1 was particularly challenging as it provided a completely new international service, meaning there was less evidence on which to base passenger numbers"

"In addition services began at around the same time as changes in the aviation sector…this meant that HS1 services were unexpectedly competing with…low cost airlines"

[Review of the Government's strategy for a National High Speed Rail Network (January 2012) para 3.3.14]

# A cautious hypotheses on rail growth….

- WCML growth driven by step change following completion of the upgrade
  - parallel with 1960s electrification
- One-off modal shift, especially from air to rail in Manchester – London market
- Significant growth in off-peak and weekend travel
- Business market becoming saturated?
- High mode share to central London – so future growth dependent on growth in total travel demand, not mode shift?

# Euston peak loadings

HS2 Action Alliance carried out independently audited evening peak counts at Euston in November 2011 (DfT have declined FOI requests)

[Note – counts carried out before any 11 car sets introduced]

| Peak trains (1630 – 1843) | Average load factor |
|---|---|
| Manchester (7 trains) | 44% |
| Liverpool (4 trains) | 42% |
| West Midlands (7 trains) including MK passengers | 72% |
| West Midlands (7 trains) excluding MK passengers | 66% |
| Preston/Glasgow (6 trains) | 63% |
| Chester/North Wales (2 trains) | 50% |
| **All peak trains** | 56% |

# Recent Virgin West Coast business results

- Passenger mile growth [Stagecoach Annual report]
  - 2009/10 - 20.4%
  - 2010/11 - 9.3%
  - 2011/12 - 4.6%
- Revenue growth for 12 weeks to 22nd July 2012 - 0.6% [Stagecoach interim results]
  - implies a drop in volume or a major decline in yield
- East Coast revenue growth 2011/12 – 2.8% [DOR report and accounts]

# In summary, there is strong evidence to challenge the “capacity” case for HS2

- Existing WCML services have lower load factors than other long distance routes from London even before the majority of trains are lengthened to 11 cars
- There is emerging evidence that growth on WCML is sharply declining now the benefits of the 2008 upgrade have been captured
- There are real questions about future demand for business travel

# …and there are alternatives which increase capacity on the existing route

Start with a logical assessment of options to increase capacity/reduce overcrowding:

- Rolling stock reconfiguration, for example conversion of some first class vehicles to standard class
- More effective demand management, including use when appropriate of obligatory reservations
- Operation of longer trains, to the extent that this is possible without major infrastructure expenditure
- Targeted infrastructure investment to clear selected bottlenecks to enable frequencies to be increased
- Construction of new infrastructure (HS2)

**Not "HS2's the answer; what's the question?"**

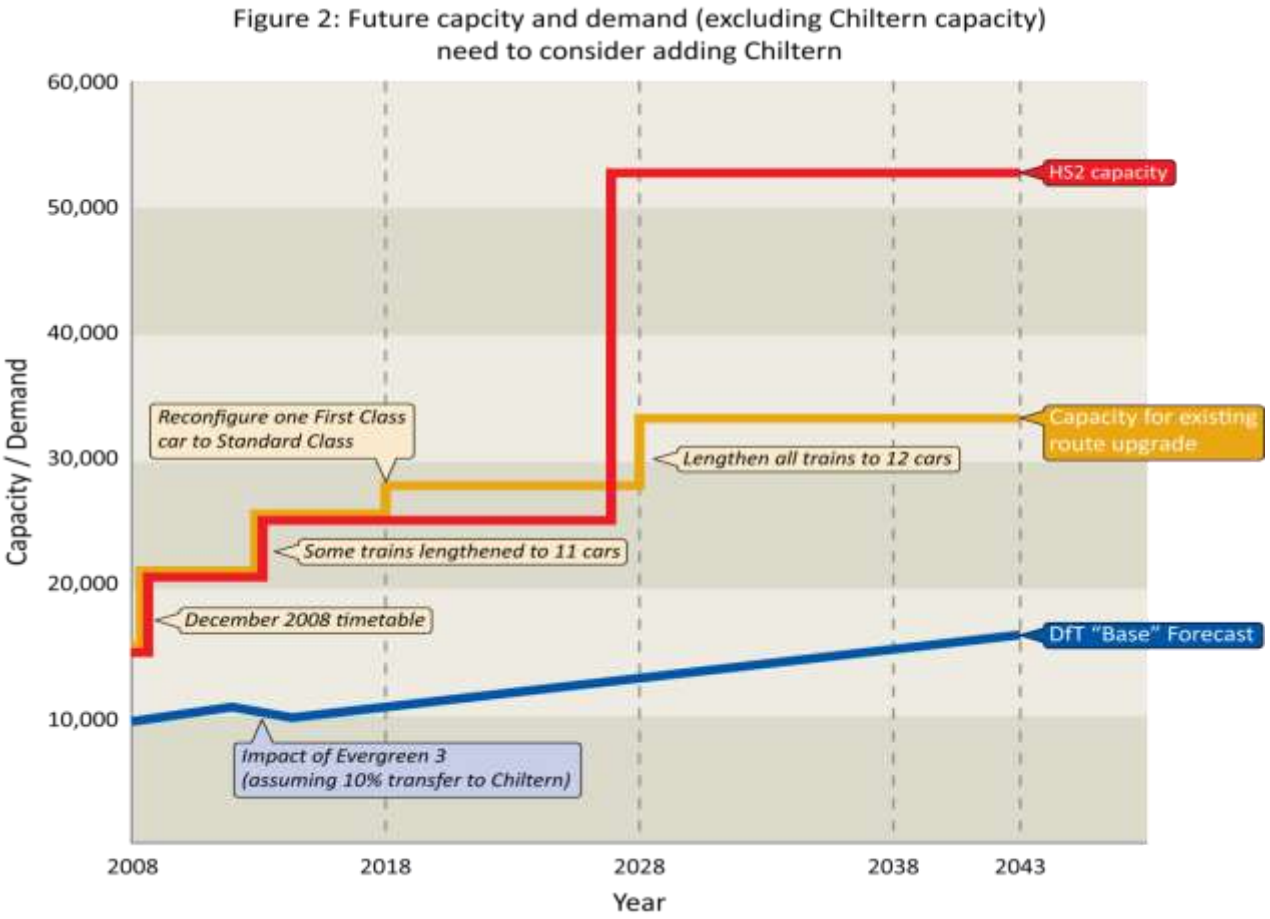
# 51m Alternative (1)

- Reconfigure one first class to standard
- Longer trains – 12 car except for Liverpool (stays 11 car because of constraints at Lime Street)
- Seats per set change from 145/294 to 94/594 (Standard class increase of 102%)
- Grade separate Ledburn Junction and introduce IEP or equivalent for Milton Keynes/Northampton fasts: peak commuter capacity from 2 to 4 tph (before 2026!)
- Second down track between Brinklow and Attleborough
- Stafford by-pass

# 51m Alternative - Outputs

- 12 InterCity trains an hour in peak hours
- Doubled peak capacity to Milton Keynes and Northampton
- Overall increase of 215% in InterCity capacity compared with HS2 “base”
- Segregation of InterCity/freight operation throughout from Euston to Crewe
- 10% of the capital cost of HS2
- Can be delivered flexibly and quickly as and when needed – in contrast HS2 is an “all or nothing” solution, with no benefits until 2026

# West Midlands capacity



# 51m Alternative

- Business case results – BCR of 6.06 including WEI, 5.17 without ("High Speed Rail Strategic Alternatives Study", Atkins for DfT, January 2012)
- Network Rail review (November 2011) used by DfT to seek to dismiss 51m alternative, but:
  - No fundamental flaws – timetable "broadly acceptable" and "timings…seem appropriate"
  - No like for like comparison with HS2 – concern about 51m alleged disruption impact on Euston, but ignored 8 year total reconstruction for HS2
  - 51m capacity implicitly accepted for intercity services, but claimed inadequate for outer suburban routes – again, no acknowledgement that HS2 provides **no** additional commuter capacity until 2026

# Conclusion

- No case has been made for HS2 on economic, financial or capacity grounds
- The 51m alternative should be **objectively** evaluated before any decision is taken to take HS2 forward