

N e w I n q u i r y :

H I G H S P E E D R A I L

R e s p o n s e b y

**T r a n s p o r t - W a t c h U K t o t h e
T r a n s p o r t C o m m i t t e e**

Transport-Watch is an independent association not connected with any business or political party initially funded by a trust and dedicated to making the best use of land already committed to transport in the interests of the Community as a whole.

Contact details

12 Redland Drive, Northampton NN2 8QE

Phone 01604 847438

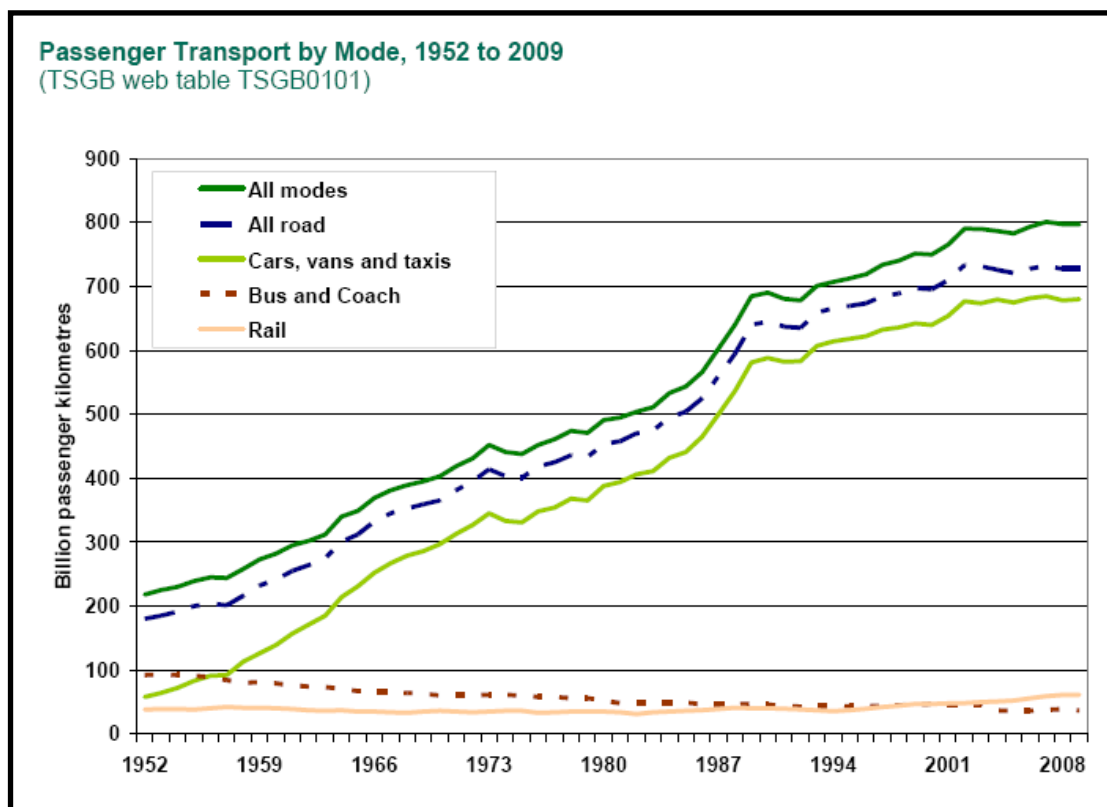
e-mail Info@Transport-Watch.co.uk

It ain't what you don't know but what you know that just ain't so as does the hurtin' – Mark Twain

In this note HSR means the proposed High Speed line from Euston to Birmingham, known as HS2, plus the extension to Leeds and Manchester illustrated in the DfT's Consultation document.¹ HS2 plus the extensions are known as the core network, or "the Y".

1. What are the main arguments either for or against HSR?

- 1.1 Without providing any real evidence the Consultation document claims the proposal will transform the economic geography of the nation, provide a once-in-a-generation opportunity, will be a catalyst for growth, will cut the north-south divide, has unique potential etc.
- 1.2 Part 1, under the heading 'The Case for High Speed Rail', carries the inspirational sub-heading "The Fast Track to Prosperity". There follows a clarion but baseless call that HSR can play a key strategic role in delivering economic growth, creating the right environment for private enterprise to flourish and rebalancing the economy. The propaganda is relentless and typical of the railway industry - France, Spain, Germany and Japan are called on in support – we must not be left behind. "The central role played by the country's rail links cannot be overstated" and so on without end.
- 1.3 However, the truth is that national rail's contribution is trivial. It carries less than 2% of the nation's passenger journeys and less than 6.5% of its passenger-miles. The figure below, taken from the DfT's Transport Statistics Great Britain, illustrates the point. Appendix 1 provides other devastating comparisons which demonstrate the extent to which the nation's belief in the efficiency of rail is misplaced.



- 1.4 Further the claim is made that the West Coast Main Line is running out of capacity and that HS2 is the best solution.

¹ High Speed Rail: Investing in Britain's Future, February 2011 DfT

1.5 The arguments against are:

- (a) The flamboyant claims cited above are unsustainable.
- (b) The shortfall, if any, in capacity on the West Coast Main Line could be made good at a fraction of the cost, and incrementally, by Rail Package 2, RP2. That is one of the options examined by the DfT. It delivers a better net benefit ratio than HS2 (3.63) and costs about £2 billion instead of £17 billion. It would have the advantage of delivering the benefits incrementally and of enabling demand to be tracked as it increases, rather than having to rely on long range forecasts.
- (c) HSR would cost tens of billions of pounds and would make a loss in the tens of billions.
- (d) HSR would be used overwhelmingly by the better off.
- (e) The business case is deeply flawed, see below.
- (f) The passenger forecasts are unbelievably high, see below.

2. How does HSR fit into the Government's transport policy objectives?

- 2.1 The Government's transport objectives should be to benefit the nation as a whole, to maximize the benefits per pound spent and to benefit the many rather than the few.
- 2.2 Trips by rail in excess of 100 miles amount to only 5% of all rail trips and to less than one in a thousand of all motorised trips². Optimistically, half of those rail trips may use the HSR.
- 2.3 Likewise, 50% of national rail journeys are less than 20 miles long and, as above 95% are less than 100 miles long. The corresponding distances by car are 6 miles and 20 miles³. It is those relatively short journeys that support the nation, not the 1 in 2000 that would use HSR. It is not the distance travelled that matters. Instead it is the action or production achieved on arrival.
- 2.4 Against that background it seems extraordinary that HSR has been seriously considered.

3. Business case

- 3.1 The construction cost of HS2 plus the first cost of the trains is £19.6 billion⁴. That should be inflated by the market prices adjustor of 1.209⁵ yielding £23.7 billion. The £23.7 billion is equivalent to £900 for every household in the land. The loss to the government, after accruing fares and costs over a 60 year evaluation period ending in 2085, is £10.3 billion at the 2009 price and discount base⁶. Rolling that up at the Treasury discount rate of 3.5% to the opening year of 2026 provides £19 billion, or over £700 for every household in the land, yet it could only be those within reach of the stations in Birmingham, Manchester, Liverpool and Glasgow who could possibly benefit.
- 3.2 The "Y" is to cost £37.5 billion including the trains⁷. Multiplying by the market prices adjustor of 1.209 yields £45.3 billion, equivalent to over £1,700 for every household. The financial loss, after 60 years ending in 2092, is £17 billion at the 2009 discount base⁸. Rolling the latter up to the 2030 base (the Extension is to open in 2032/3) yields £37.5 billion, or £1440 per household.
- 3.3 Nobody denies that the HS2 and the "Y" will make losses in the tens of billions of

² National Travel Survey

³ Op cit

⁴ Tables 7 and 8 of The Economic Case for HS2: The Y Network and London – West Midlands Feb. 2011, DfT

⁵ Paragraph 4.2.5 of the WEB TAG <http://www.dft.gov.uk/webtag/documents/expert/unit3.5.9.php>

⁶ Table 10 of The Economic Case op cit

⁷ Paragraph 2.2.6 op cit

⁸ Table 2 op cit

pounds. Nevertheless, the economic analysis shows that the social benefits, in terms of time savings etc., outweigh the costs to the Government by a factor in the range 1.5 to 3.5 according to whether wider economic benefits are included and according to whether it is HS2 or the “Y” that is considered.

- 3.4 However, that analysis contains a fatal and fundamental flaw, namely: it is **the loss, instead of the resource cost**, that is compared with the supposed benefits. The loss amounts to the cost minus the so called incremental rail fares. Those incremental fares are the HSR fares minus those lost by the rest of the railway. However, the theory reduces to the absurd when it is realised that the incremental fares can be varied by arbitrarily altering the economic boundary.
- 3.5 For example, widen the boundary to capture the losses to the airlines and filling stations and the incremental fares fall correspondingly. Alternatively, presume the railway is privatised. The losses to rail would then be ignored, as are the losses to airlines today. The fares revenue subtracted from costs would then be the full fares taken by HSR, thereby greatly reducing the “**loss**” and improving the “economic” case no end. I comment, an analysis that produces a different answer every time an administrator strokes his pen is indeed absurd, but it is just such a system that supports HSR and other rail expenditure.
- 3.6 The correct place to draw that economic boundary is not round the railway, or the Government, but around the nation as a whole. When that is done the incremental fares fall to zero and the economic case collapses.
- 3.7 Putting it otherwise, the mere transfer of fares from customer to the railway does no more to create wealth than if the reader were to give a £100 note to his neighbour. Instead there is a zero sum transfer that has no place within an economic analysis.
- 3.8 The present theory, known as the “willingness to pay calculus”, is the child of Professor Sugden of the University of East Anglia. I comment, if customers were “willing to pay” then rail as a whole, and HSR in particular, would make a profit in the financial sense of the word. Probably this “willingness to pay” theory has been cooked up because, without it, and in Phillip Hammond’s words, “no railway scheme would ever see the light of day”.
- 3.9 All that is before considering the cascade of improbable assumptions to do with the value of time and its exponential growth, the 60-year evaluation period and above all the passenger forecasts which underpin the business and economic case. For example:
 - (a) The forecasts for the year 2043 with the “Y” in place require a train every 3 minutes 20 seconds in both directions all day throughout the year. That is four times as many as those currently using the railway and who would use HSR if it existed now. The number seems entirely unbelievable. Probably it is on target to beat the forecast made for the channel tunnel rail link. That forecast was three times too high.
 - (b) The forecasts depend largely on assuming that growth in rail use will continue exponentially until 2043 and that that growth is driven by growth in GDP. However, between 1950 and 1995 GDP grew by 200% but there was no growth in passenger rail whatsoever whereas between 1995 and 2010 GDP grew by 36% and rail usage by 70%. That suggests that the relationship between GDP and rail use is weak or non-existent. Instead the growth since 1995 is probably due to improved services. It follows that rail use may well flat-line rather than continuing to grow. The consequence for the HSR business and economic case is dire.
 - (c) The value of time is inflated exponentially within the analysis, which spans the 60 years ending in 2085 for HS2 and the period ending in 2092 for the remainder of the “Y”. If that growth is set to zero then the supposed benefits are nearly halved.

- (d) If the evaluation periods were shortened to 30 years then 40% of the computed benefits would be lost. Even a 30 year time horizon takes us to a future which we can only guess at.
 - (e) Whereas costs are inflated for risk and optimism bias no such factors are applied to the passenger forecasts or to the benefits computed. Prudently those should be divided by at least two.
- 3.10 Any of the above would see HSR abandoned. Taken together they are overwhelming. If the nation continues to pour tens of billions of pounds into loss making projects on the basis of such analyses then the economy will be weakened and employment in that part of the economy that makes a genuine profit will be lost.
- 3.11 As for the European comparisons, France and Spain have higher unemployment than the UK and Lille and Marseille, both served by High Speed rail, have higher unemployment rates than France as a whole. Perhaps those countries would have done better if they had left the vast resources required to fund HSR projects in private hands.

4 Economic rebalancing and equity

- 4.1 The costs and losses set out above have to be borne by the taxpayer. Nowhere in the analysis is any reference made to the number of jobs that such vast financial losses will destroy. Instead there is the unsubstantiated claim that the “first phase” may create over 40,000 jobs⁹ and that HS2 alone will create 22,000 jobs in London and 8,000 in the West Midlands,¹⁰ a total of 30,000. These are trivial numbers compared with the costs. For example, dividing the cost of HS2, £23.7 billion, by the 30,000 jobs yields over £800,000 per job – perhaps the most expensive job creation scheme that can ever be conceived.
- 4.2 Furthermore, since most of the “created” jobs would be in London it is difficult to maintain that the proposal would reduce the north-south divide. In fact the data suggests precisely the reverse. Worse still, the jobs may in fact be relocated from other areas rather than wholly new ones.
- 4.3 As to the passengers, (a) 99% of the population will use the system less than once a year¹¹ and (b) those from the top quintile of household income travel four times as much by rail as do those from either of the bottom two quintiles¹². Consequently the vast subsidies required will benefit a minute proportion of the population and the better off rather than the poor.
- 4.4 Hence, far from rebalancing the economy, promoting equity and generating jobs this project will achieve precisely the reverse.

5 Impact (Emissions)

- 5.1 Even on the optimistic assumptions of the proposers HSR would be carbon-neutral. Nevertheless, on the basis of attracting 6% of its passengers from air and 7% from cars, the pretence is made that the proposal is indeed green or supportive of cutting carbon emissions. Worse still, if HSR reduced the demand for domestic flights the slots vacated at airports would be taken by the international ones of longer distance, thereby increasing rather than decreasing emissions.
- 5.2 If large-scale electricity consumption extends the life of coal-fired generation then the emissions from the coal-fired should be used in calculations rather than the industry

⁹ Page 7 of the Consultation document, High Speed Rail: Investing in Britain’s Future February 2011

¹⁰ Page 22 op cit

¹¹ National Travel Survey data shows (a) 45% of people use rail less than once a year (b) 5% of rail journeys are over 100 miles long. The implication is that 2.3% of people use rail for the longer journeys more than once a year. Optimistically half would use HS2 and the extensions to the north. Hence circa 99% will use the system less than once a year.

¹² National Travel Survey.

average. Subject to carbon capture, coal-fired generation emits double the industry average. If that point is taken then HSR would be an “emissions disaster”.

5.3 The truth is that the continued pretence and appeal to the Green lobby is shameful propaganda with no basis in fact.

6. **Conclusion**

6.1 The case made for HSR by the railway lobby is a marketing exercise masquerading as an in-depth analysis by parties acting in the interests of the nation as a whole. Not only do the underlying principles of the economic analysis lead to absurdities but (a) the passenger forecasts upon which the supposed benefits depend are unbelievably high and (b) the underlying assumptions to do with the value of time and the evaluation period are difficult to defend.

6.2 The truth is this project can do nothing for the nation beyond satisfying vanity. If built it will be a millstone round the necks of taxpayers for ever, destroying jobs in that part of the economy that makes a real profit and doing nothing to reduce the North-South divide and nothing to reduce carbon emissions.

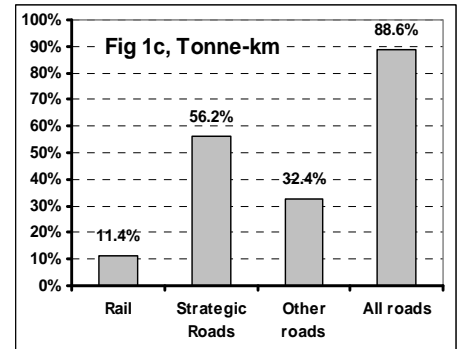
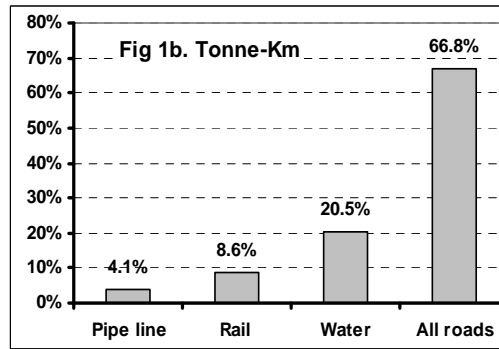
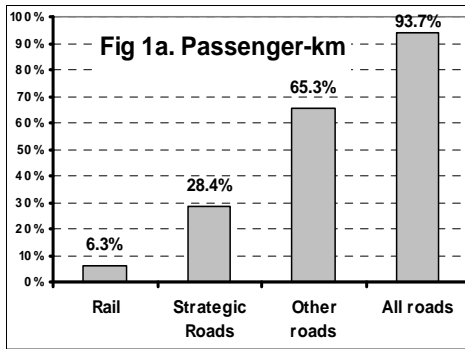
6.3 The alternatives to HSR is Rail Package 2 or to raise fares. The latter would balance supply and demand whilst reducing subsidy enjoyed by the better-off. Rail package 2, would be far less costly than HSR and would allow an incremental approach that would greatly reduce risk.

6.4 At a more general level the Government should shed itself of the sentimentality that is used to support rail. Only then will a sensible Transport Policy emerge.

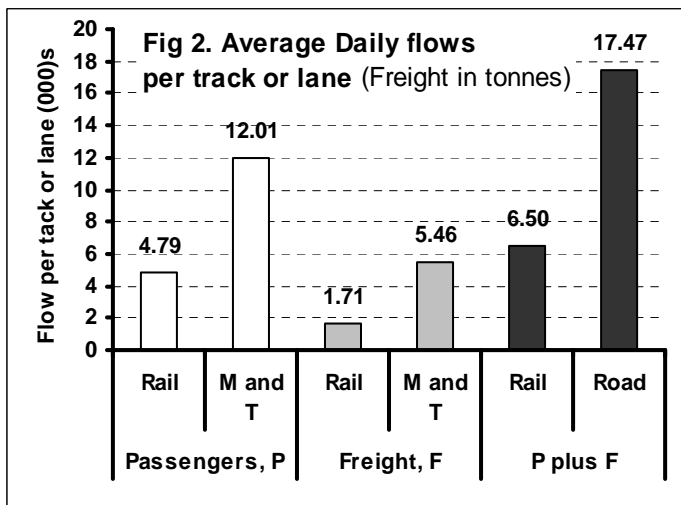
6.5 Appendix 1 illustrates that the gap between reality and the railway myth is so large as to beggar belief. For that reason the truth is ignored. The consequence is nowhere more apparent than in expenditure on safety where over 50 times as much may be spent to save a life on the railways as is spent on the roads. The consequence for the nation is misplaced expenditure in the tens, if not hundreds, of billions of pounds.

Appendix 1: Diagrams and comment which speak for themselves.

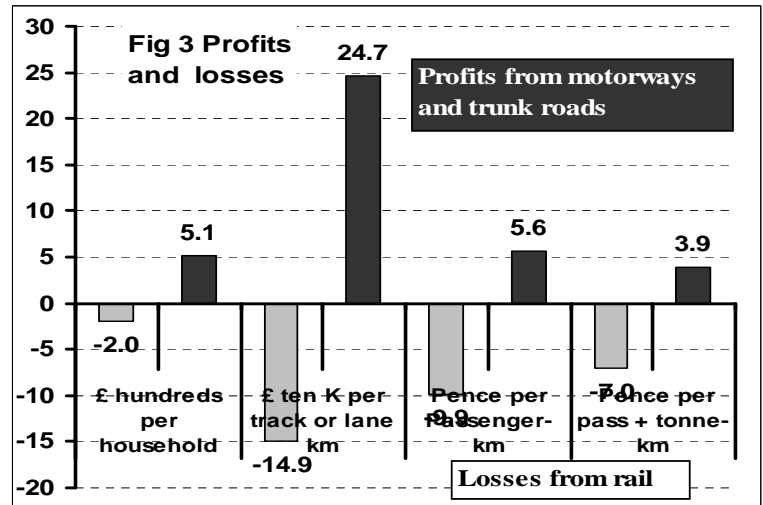
Sources are Transport Statistics Great Britain and related Government publications.



MODAL SPLIT DATA



USE OF TRACK



PROFITS AND LOSSES

Further:

- The strategic road network uses its resources five to six times as intensively as does rail. The aptly named professor Remy Prud'homme of Paris 12 found similarly for France. The calculation which demonstrates the fact is to divide the capital or maintenance cost for rail track by the passenger-km or tonne-km carried and to do the same per lane-km for the strategic road network. The unit costs for rail turn out to be five to six times those for the strategic road network - and that is before taking account of the relatively low value of rail freight, most of which is bulk raw materials.
- In central London and in the peak hour the surface rail network is, in highway terms, used to between only one fifth and one seventh of its capacity. The calculation is simple and impossible to overturn: 500,000 surface rail passengers alight at central London terminals in the three hours 7 am to 10 am. Hence 250,000 is a generous estimate of the peak hour arrivals. There are 25 pairs of tracks. Hence the peak hour passengers per track number 10,000. They would all find seats in 200 50-seat coaches or in 150 75-seat coaches. The capacity of one lane of a motor road is at least 1,000 coaches per hour (at 60 mph, 100kph, the headways would average 100 metres). A practical example is the contra flow lane serving the New York bus terminal. It carries 700 45-seat coaches in the peak hour, offering over 30,000 seats. In comparison the trains carrying the 30,000 crushed rail commuters that arrive at Victoria Main Line in the peak hour require four inbound tracks.
- To appreciate the inefficiency of rail consider the motorway and trunk road network paved with railway lines. The place would be at a near standstill as is the railway in highway terms.