

**New Inquiry:**  
**TRANSPORT and the ECONOMY**

**Response by**

**Transport-Watch UK to the  
Transport Committee**

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.

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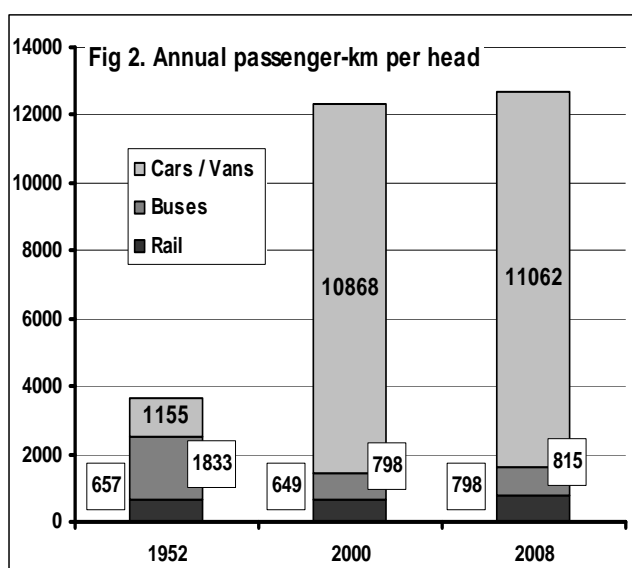
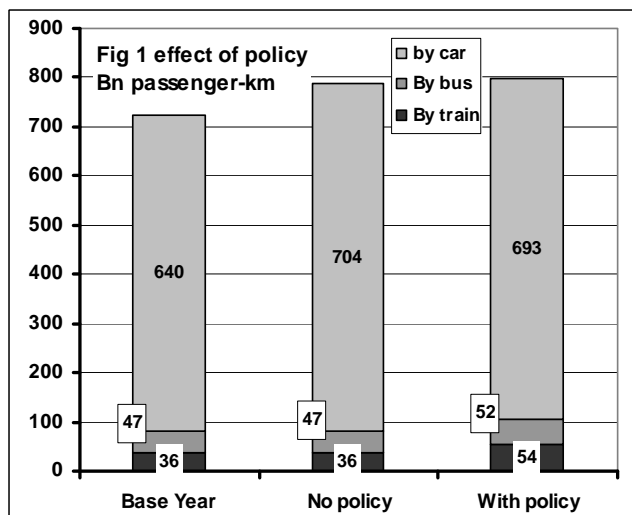
# Transport and the economy

## The ten year plan

1. The last Government's Ten Year plan envisaged that congestion could be greatly reduced by increasing rail use by 50% and bus use by 10%. Consequently vast sums have been spent on public transport.
2. However, the policy was, at its inception, deeply flawed. Firstly, it was always obvious that, since rail accounted for only 2% of motorised journeys and since rail and bus each carried only 6% of passenger-miles, large increases in those percentages could have only a trivial effect on car journeys. For example, increasing rail use from 6% to 9% (a 50% increase) and bus travel by from 6% to 6.6% (a 10% increase) would increase public transport's share by less than four percentage points. Fig 1 illustrates the potential effect. It assumes half of the increase in public transport use would come from the car and that car use would otherwise rise by 10% over the 10 year period. Clearly the effect of the policy would be difficult to discern.

3. Further, the car has enabled a dispersed land use that is difficult or impossible to serve by bus let alone the train. If it were otherwise that land use distribution would have arisen in the past and it did not.
4. As for road and rail, the train is used by people reaching the hearts of our largest cities because there is, for those people, no other practical way of reaching the destinations. Half of those journeys are more than 20 miles long and 10% are more than 80 miles long. Similarly, the bus may get a passenger to a town centre but seldom anywhere else except at great inconvenience. In contrast the car serves out of town locations; half of all such journeys are less than 5 miles long and 90 % are less than 17 miles long.

5. Supposing that left any doubt as to the foolishness of the policy, consider figure 2. The idea that the car trips that have arisen since 1950 could ever be swept into buses and trains is clearly absurd.



## What have they done?

6. Despite the above, vast sums were spent promoting public transport. For example, for the decade Government expenditure on rail will amount to circa £50 billion, equivalent to £2,000 for every household in the land. That at a time when nearly half of us use a train less than once a year and when those from the top quintile of household income travel four times as far by rail as do those from either of the bottom two quintiles.
7. Simultaneously, road capacity has been reduced by a series of minor adjustments at junctions. E.g.
  - a) Setting stop lines back from the opposing curb line by several car lengths.
  - b) Lengthening the all-red times at traffic lights.
  - c) Channelisation schemes that ensure the busiest turning movement may be congested whilst the lanes reserved for other movements are empty.
  - d) Banned turns and one way systems that force long diversions on the motorist.
8. These measures were driven partly by the desire to reduce road accidents, partly to assist pedestrians at all costs and partly, on the mistaken idea that if motorists are delayed they may well go by bus. However, the costs have been very large. Here are the numbers based on the DfT's values for time.
  - a) A one minute delay to one thousand vehicles/day costs £83,700 per year. Two minutes added to all vehicle trips would cost £12 billion annually.
  - b) Adding 1 km to 1,000 journeys per day (e.g. by banning turns), where the speed is 40 kph (25 mph), costs £189,000 per year. Adding 1 km at 40 kph to all vehicle trips would cost £13.5 bn annually.
  - c) Reducing the speed of 1,000 cars per day from 25 to 20 mph over 5 miles would cost £234,000 per year. The same for all cars and vans on urban roads would be £12.6 bn. A 5 mph speed reduction on cars and vans on all roads would cost £17.1 bn annually.

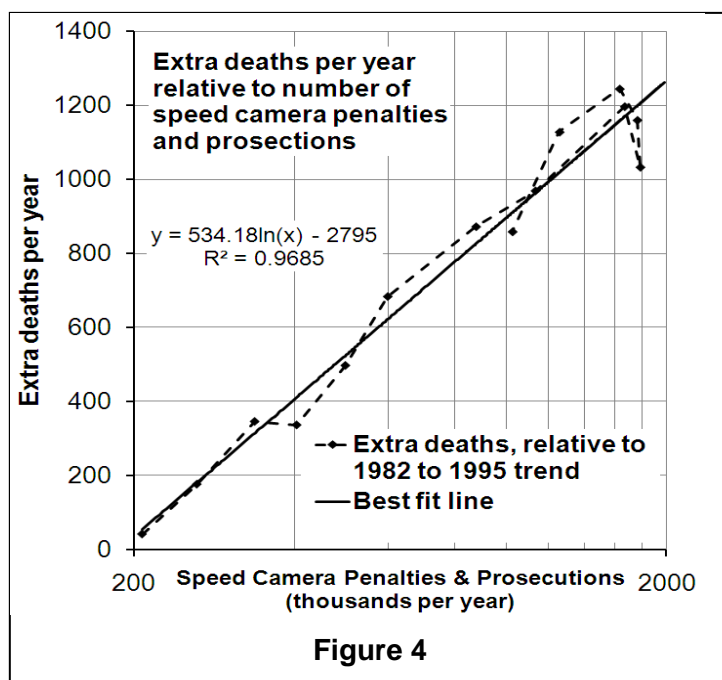
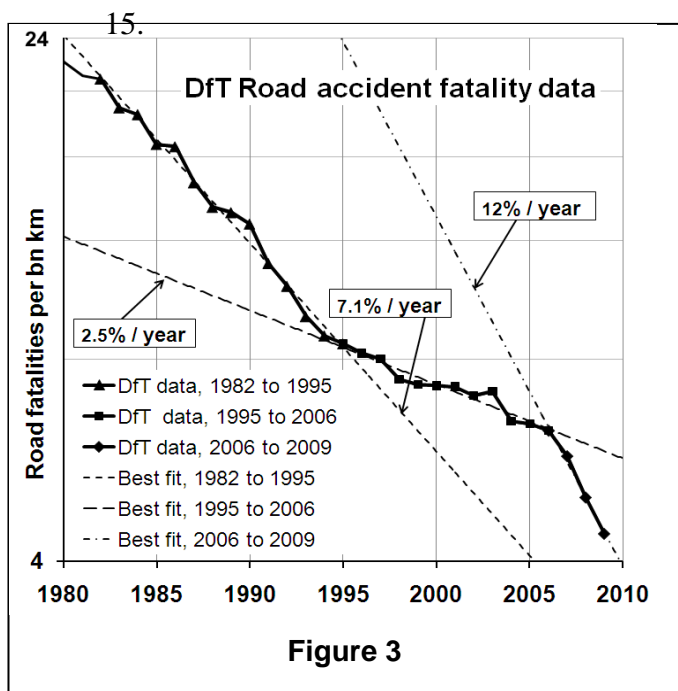
Detailed calculations are available at <http://www.transport-watch.co.uk/transport-pdfs/topic9.pdf>.

9. The cost of reducing speed is of particular interest since speed has been blamed as the cause of road accidents. Consequently motorists have been subjected to ever lower speed limits and the punitive speed camera regime. For example, the current advice, DfT Circular 01/2006, is that speed limits should be set at the average speed rather than, as previously, at the speed below which 85% of motorists travel (the 85<sup>th</sup> percentile). That implies (a) a universal speed reduction in the range 5 mph to 10 mph and (b) that 50%, rather than 15%, of us will be travelling more slowly than we would otherwise choose.

10. How many accidents might such a speed reduction save and what would be their cash value? TRL notes 421 and 511 suggest a range of savings that are often summarized as a 5 % reduction in casualties per 1 mph reduction in average speed. If that is applied to the 230,000 casualties in 2008, along with the average casualty cost of £53,000 then the saving following a 5 mph speed reduction would amount to £3 billion, far below the £17 billion delay costs implied by the speed reduction.
11. Since the values of time and casualty are supposed to reflect the way humans react when faced with risk these numbers suggest that, rather than slowing traffic down, the policy should be to speed it up.
12. At any rate, in view of the above the combined delay cost to the economy of the policies that have been in place these last 15 years is likely to be in excess of £25 billion per year.

### Economic cost of the speed cameras

13. The ever popular speed cameras are credited with saving lives<sup>1</sup>. However, we find that instead of the long established downward trend of 7.1% per year accelerating under the impact of the cameras, in 1995, it flattened off to 2.5% as illustrated in fig 3. That happened despite the speed cameras being supported by tens if not hundreds of thousands of speed humps and the endless traffic management schemes that impose such cost upon the nation.
14. Had the previous trend continued there would have been 10,000 fewer deaths than actually occurred. Indeed, compared with the pre-1995 trend, there were 370 extra deaths for every doubling of fines. The correlation, see fig 4, is remarkable. Of course there is no obvious causal link but, had the matter been the reverse of the facts, doubtless the cameras would have been given the credit.. Consequently perhaps they should take the blame.



The June 2007 value for a fatality is £1.64 million. If that is increased by 10%, to allow for lesser casualties, the 10,000 extra deaths imply a casualty costs, laid at the door of present policies, of £18 billion for the period. Additionally, in excess of 13 million motorists were fined, most of whom were driving as well as could reasonably be expected. If those fines averaged £70 the amount taken was nearly £1 billion.

### **Evaluation**

16. Here are the some of the questionable assumptions and weaknesses within the economic analysis and business cases made for large scale projects, referenced particularly to the HS2:
  - a) The passenger forecasts, upon which the economic analysis depends, are often improbably high. For HS2 four and a half times as many passengers are forecast as would currently transfer from the existing line if it were now built. That implies a train carrying 500 passengers every 5 minutes in each direction all day throughout the year.
  - b) The analyses assume that passengers' time is entirely wasted when it is not. If that reality were recognised a large proportion of the supposed savings associated with shorter journey times would vanish.
  - c) The value of time is inflated at circa 1.8% per year for ever and ever. The effect of this largely hidden assumption is to double the supposed benefits compared with those that would arise with no such inflation.
  - d) For most projects, circa 40% of the calculated benefits come from the last 30 years of a 60 year evaluation period. In the case of HS2 that ends in 2086, so generating uncertainty. After all, most of us will be dead before the 30 years has started.
17. There are two other important issues. **One is that 98% of the UK population will use HS2 less than once a year<sup>2</sup>. The other is a fatal flaw in the economic analyses. Here is the detail:**
18. When evaluating public transport proposals the New Approach to Transport Appraisal (The NATA) requires 'Incremental Fares' to be subtracted from costs, thereby providing the net cost to the Government. In the case of HS2 the Incremental Fares are the full fares minus the revenue lost by the existing railway. It is that net cost that is compared with the supposed time and other savings attributed to the scheme. However, that leads to an absurdity, namely that the economic performance of the proposal can be changed by arbitrarily altering its economic boundary.
19. For example, if the boundary were widened to embrace the losses to the airlines and the filling stations due to the transfer of passengers to HS2 then the incremental fares would be correspondingly reduced.

20. More generally, it is not the cost to the Government that is of interest. Instead it is the cost to the nation as a whole. **For that reason the economic boundary should be widened to embrace the economy as a whole. Incremental fares then fall to zero, and the economic case for schemes such as HS2 and Crossrail collapse.**
21. In response to that argument Department for Transport wrote: ‘Your letter of 08 June suggested that rail services were in principle no different from any other goods and services. If this were the case, we would leave the provision of such services and the networks on which they operated entirely to the private sector’
22. We comment, by claiming rail is a special case, when it is not, and by ignoring the point being made, the DfT has effectively thrown in the sponge on this issue. The implication is that Incremental Fares should indeed be struck out, in which case projects such as Crossrail and HS2 do indeed fail the cost benefit test by wide margins.
23. Against that background it is clear that evaluations for such projects are wildly optimistic. To avoid that:
- a) Passenger forecasts should be reduced by the application of “optimism bias factors” in the same way that costs are presently increased.
  - b) The value of time should recognize that time spent on a train is not entirely lost.
  - c) The notion that the value of time should be inflated exponentially for ever should be reconsidered.
  - d) The evaluation period should be shortened to at most 30 years.
  - e) Incremental fares should be struck out.

Additionally, if, as with HS2, the proportion of the population that will benefit is both small and from the better off then the rationale for taxpayer’s support, amounting to tens of billions of pounds, will be weaker than if the proportion were large and evenly spread.

### **Presentation**

24. Cost and benefits are presented in terms of “present values”. Those values create the impression that costs are less than will actually arise. In the case of HS2 the present value of the capital cost is £17.8 billion at the 2009 price and discount base. That is the sum which, if invested at the Treasury Discount Rate of 3.5%, would yield the cash required for construction. The mid-construction year is 2022. £17.8 billion invested at 3.5% for the 13 years 2009 to 2022 provides £27.8 billion. That is to say, the money that will actually be needed is not the £17.8 billion but circa £27.8 billion (at 2009 prices).
25. Further, supposing we can believe the passenger forecasts, the net loss to the Government by 2085 would be 11.9 billion **at the 2009 price and discount base**. That corresponds to £21 bn in the opening year 2026 and to £145 bn in the year 2086<sup>3</sup>, at 2009 prices, illustrating that the values perceived depend critically on the discount base selected.

## **Cancellation**

26. It has been said that the HS2 project “cannot be cancelled” because that would waste the £9 million spent on studies. However, the £9 million is less than one two-thousandths of the capital required. It is as though someone believes that, because they had spent one pound researching a £2,000 holiday they should pay for it regardless of its horrors. In the case of HS2 the horror is that the loss will be in the tens of billions of pounds.

## **Eddington**

27. The HS2 reports refer to Eddington as though his report provides support for high speed rail when it does not. Instead it says “The principal task of the UK transport system is not, in comparison to the needs of France or Spain, to put in place very high speed networks to bring distant cities and regions closer together..... Instead, because the UK’s economic activity is in fact densely located in and around urban areas, ... the greater task is to deal with the resulting density of transport demand”.
28. Instead of single, extraordinarily expensive, projects such as HS2, the Government should, if it has any spare cash, undo the damage of the traffic management schemes of these last 15 years. That may generate circa £25 billion per year in time savings, thereby benefiting the nation as a whole rather than offering very expensive subsidised transport to those few among the better off who need to travel long distances at high speed.

## **France and the railways**

29. The UK envies France its high speed rail and the supposed efficiency of the SNCF. However, the aptly named Professor Prud’homme, of Paris 12, pointed out in a paper dated 17.11.2000, entitled Tales from the SNCF, that at a time when the SNCF claimed it was running into profit it was actually being subsidised to the tune of nearly 1% of GDP (later reduced to 0.6%). Furthermore, he concluded that the French motorways or national routes are between two and six times as productive, in terms of capital and labour employed, as is the SNCF.<sup>4</sup>
30. That accords with our analyses which show that, contrary to the railway myth, given rail’s rights of way, express coaches and lorries would discharge the national rail function at a fraction the cost of the train<sup>5</sup> whilst reducing the casualty rate<sup>6</sup>, and using less fuel<sup>7</sup>. Indeed even in central London and in the peak hour the surface rail network is, in highway terms, used to only between one seventh and one fifth of its capacity if paved. This remarkable fact is easy to prove: some 250,000 crushed surface rail passengers enter central London in the peak hour<sup>8</sup>. There are 25 pairs of tracks. Hence we have 10,000 passengers per inbound track. The 10,000 could all find seats in 150 75-seat coaches or in 200 50-seat vehicles. That compares with the capacity of one lane of a motor road, the

same width as required by a train, of 1,000 coaches per hour, five to 7 times the 200 or 150 coaches required.

31. If paved, this great network would not only provide previous surface rail commuters with seats at one quarter the cost of the crushed conditions that they now endure, but countless lorries and other vehicles would divert from the unsuitable city streets that they now clog.

32. Those who disbelieve should contemplate the strategic road network paved with railway lines. The place would be at a near standstill, as is the railway in highway terms. Figure 5 illustrates - a nearly empty swamp of rails within a stone's throw of Westminster where the roads are clogged with traffic.

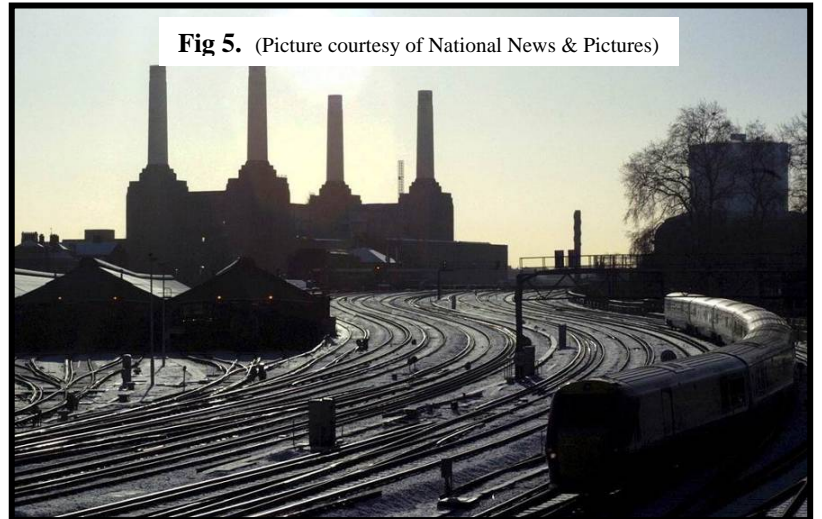
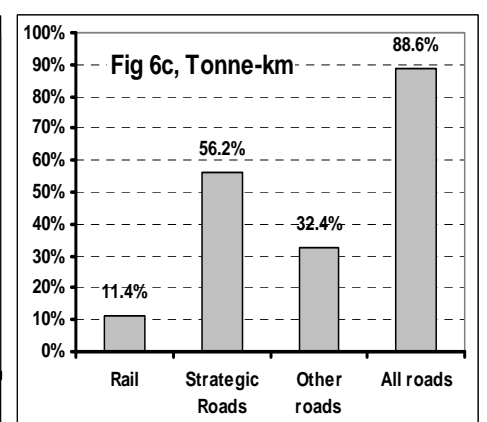
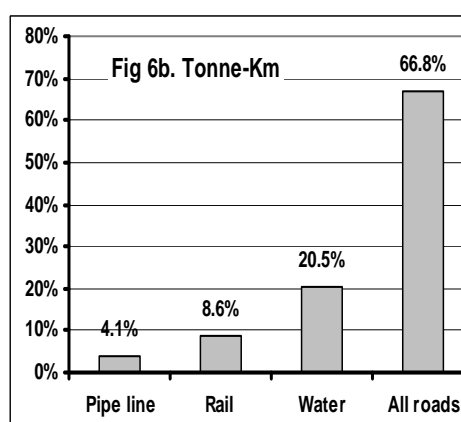
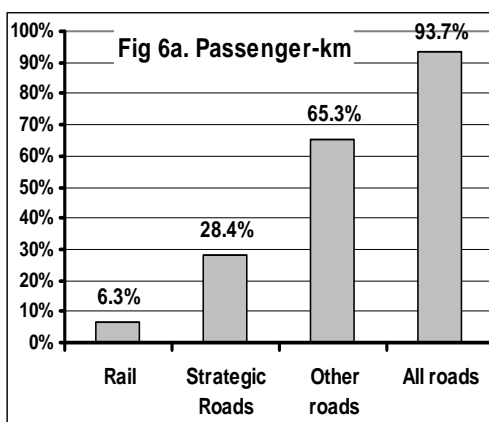


Fig 5. (Picture courtesy of National News & Pictures)

33. Safety is the vector where the gap between the myth and reality is at its largest. The railway lobby likes to say that more people die on the roads than passengers in a year on the railways. That ignores (a) usage, and there are 17 times as many passenger-miles by road as there are by rail and (b) staff, and trespassers. When the latter are added then, excluding suicides the deaths **per passenger-mile** by rail is higher than that on the motorway and trunk road system<sup>9</sup>.

34. The following compare the performance of the strategic road network with national rail's. We encourage Committee members to study those illustrations since they tell a devastating story that should not be ignored.

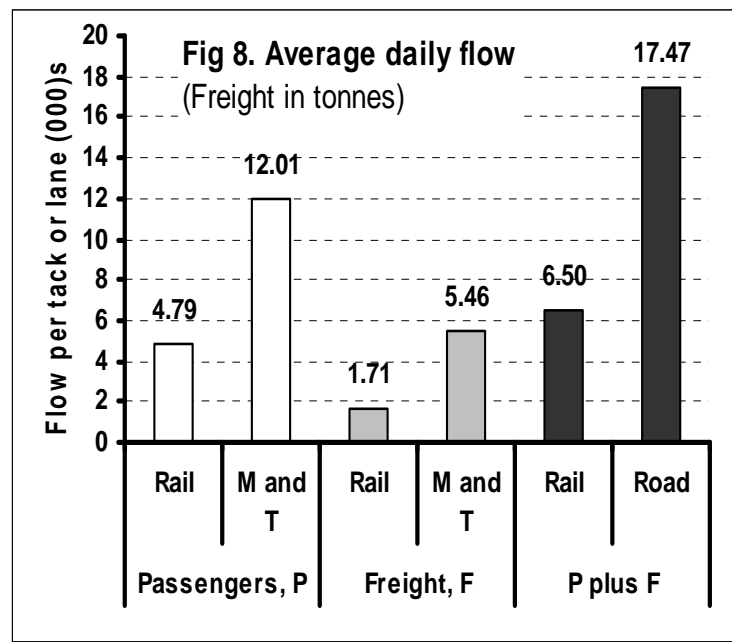
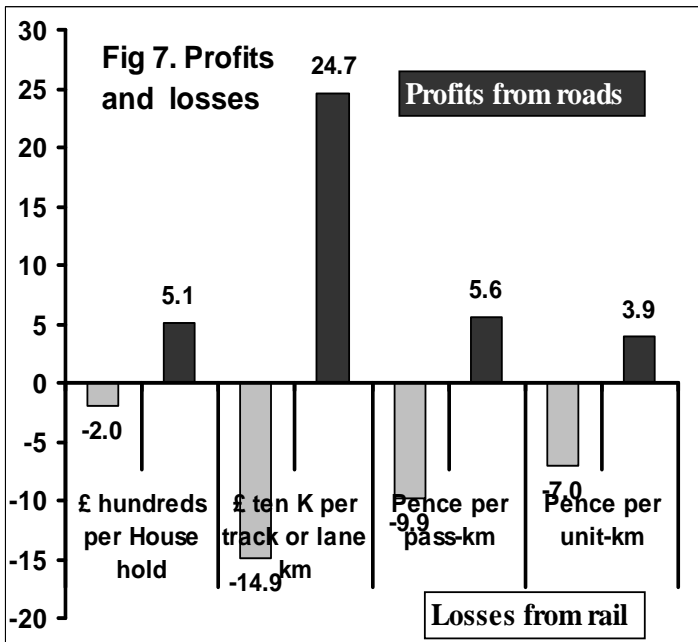


35. The data used to produce the three diagrams relates to 2008. They illustrate the trivial contribution rail makes to the nation (6.3% of passenger-miles, 8.6% of freight if water and pipe are included or 11.4% if road and rail only).<sup>10</sup> Despite that rail enjoys subsidy

and capital grants running at £5 billion annually, equivalent to £200 per year in taxes for every household in the land, or to £250,000 per mile of track, or to 16 pence per passenger mile or, if passengers and tonnes are added, to 11 pence per mile travelled.

36. In contrast the strategic road network makes a profit for the exchequer of £13 billion per year, equivalent to £400,000 per lane-mile or to 6 pence per passenger mile or to tax of £520 from every household in the land. Worse still the density of use by rail is about one third that achieved by the strategic road network.

37. The following two diagrams (where distances are in km, not miles) illustrate the point.<sup>11</sup> These underplay the poor financial performance of rail compared with road in that rail track is probably 6 to 7 times as expensive to build<sup>12</sup>. Consequently, in terms of capital employed, the productivity of the strategic road network may outperform rail by a factor, not of three, but of 20 (and that is before taking account of the relatively low value of rail freight, for the most part bulk minerals etc). [In Fig 8 “M and T” denotes motorway and trunk roads]



### Conclusion

38. Most of the junction improvements and traffic management measures of these last 15 years should be replaced by ones designed to reduce congestion and air pollution.

Similarly speed limits should often be raised rather than lowered. The consequential time saving may benefit the nation to the tune of £25 billion per year and would be enjoyed by all strata of society.

39. The punitive approach to the motorist, particularly via speed cameras and speed humps, should be abandoned in favour of sensible policing, education and persuasion. That may re-establish the downward trend in road deaths that existed prior to present policies.

40. There are fatal flaws in the assumptions to do with the value of time and in the fundamental theory that underlie the economic analyses used to support transport proposals. For example, the Department of Transport has been unable to answer our argument that incremental fares should be struck out. Without those fares proposals such as Crossrail and HS2 fail the cost benefit test by wide margins. Similarly, if the values of time reflected the ability to work effectively while travelling, or to otherwise usefully employ the time spent, then the economic cases would collapse.
41. Further, the belief that rail is efficient and safe compared with road transport is contrary to the facts. Hence, before committing more resources to the railways, the Government should find if any of the assertions in this note, and the associated references, can be overturned. If none can be (and, at the Public Inquiry into the West Coast Main Line Modernisation Programme, Railtrack's immensely expensive inquiry team found none)<sup>13</sup> then policy should be aligned to accord with those assertions. Lightly used railways may then be converted to motor roads managed to avoid congestion. These would employ capital up to 20 times as productively as does rail and would be used by all strata of society to a greater extent than are trains, which are used mainly by the better off.
42. **At its most general, Government should base its policy on evidence with the intention of making the best use of land already committed to transport in the interest of the community as a whole.**
43. In any event it is a fraud upon the future generations of taxpayers to fund projects, which are known to make losses in the tens of billions of pounds, by loans guaranteed by the Government. That is particularly so when the presentations (a) do not stand scrutiny (b) following (a), cannot attract finance from the commercial sector and (c) ignore far more effective options.

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1 The national safety camera programme Four-year evaluation report December 2005, PA Consulting group

2 **National travel survey data shows that 55% of us use a train more than once a year and that 5% of rail journeys are more than 100 miles long. Hence, if half of the latter would transfer to HS2, a very generous assumption, the proportion of the population that is likely to use it at least once a year is (56% x 5% x 50%) = 1.4%, or one in 70. Conversely 98.4% of us may use HS2 less than once a year here rounded to 98% to allow for increase usage**

3 The discount rate is 3.5% for the period ending 30 years after opening, i.e. ending in 2056, and 3% for the remainder. Hence the loss at the 2086 base is the 2009 value multiplied by (a) 1.035 raised to the power 47 and (b) by 1.03 raised to the power 30, providing a multiplier of 12.22.

4 French and English versions of the papers are available at <http://www.transport-watch.co.uk/french-railways.htm>

5 <http://www.transport-watch.co.uk/road-rail-comparisons.htm>

6 Transport Watch analysis of death rates by road and rail, source data from national statistics <http://www.transport-watch.co.uk/transport-fact-sheet-2.htm>

7 Transport Watch analysis of fuel economy and emissions based on RSSB and other national data see <http://www.transport-watch.co.uk/transport-fact-sheet-5.htm>

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8 Transport Statistics Great Britain provides some 500,000 surface rail commuters entering the capital in the three hours 7 am to 10 am. Hence the number in the peak hour is not likely to exceed 250,000.

9 Transport Watch facts sheet 2 available here <http://www.transport-watch.co.uk/transport-fact-sheet-2.htm>

10 Source data for these is Transport Statistics Great Britain

11 See transport-watch analysis at <http://www.transport-watch.co.uk/transport-fact-sheet-1.htm>

12 See Transport-watch analysis at <http://www.transport-watch.co.uk/transport-fact-sheet-7.htm>

13 See the closing statements here <http://www.transport-watch.co.uk/transport-pdfs/west-coast-main-line.pdf> and here <http://www.transport-watch.co.uk/transport-pdfs/railtrack-closing-statement.pdf>