The great British Transport Debate what would high speed rail achieve?

Stephen Glaister
Director RAC Foundation

University of Pennsylvania 10st February 2010

The geography matters!

England is a small, dense country

Distances are short

Land values are high

The Eddington Transport Study

The case for action: Sir Rod Eddington's advice to Government

December 2006

£13.50

Eddington

England is already well-connected

London-Birmingham by rail = 1 hour 20 mins

London Manchester by rail = 2 hours 10 mins

Evidence

that transport investment stimulates economic regeneration is poor

that lack of capacity constrains economic growth and productivity is good

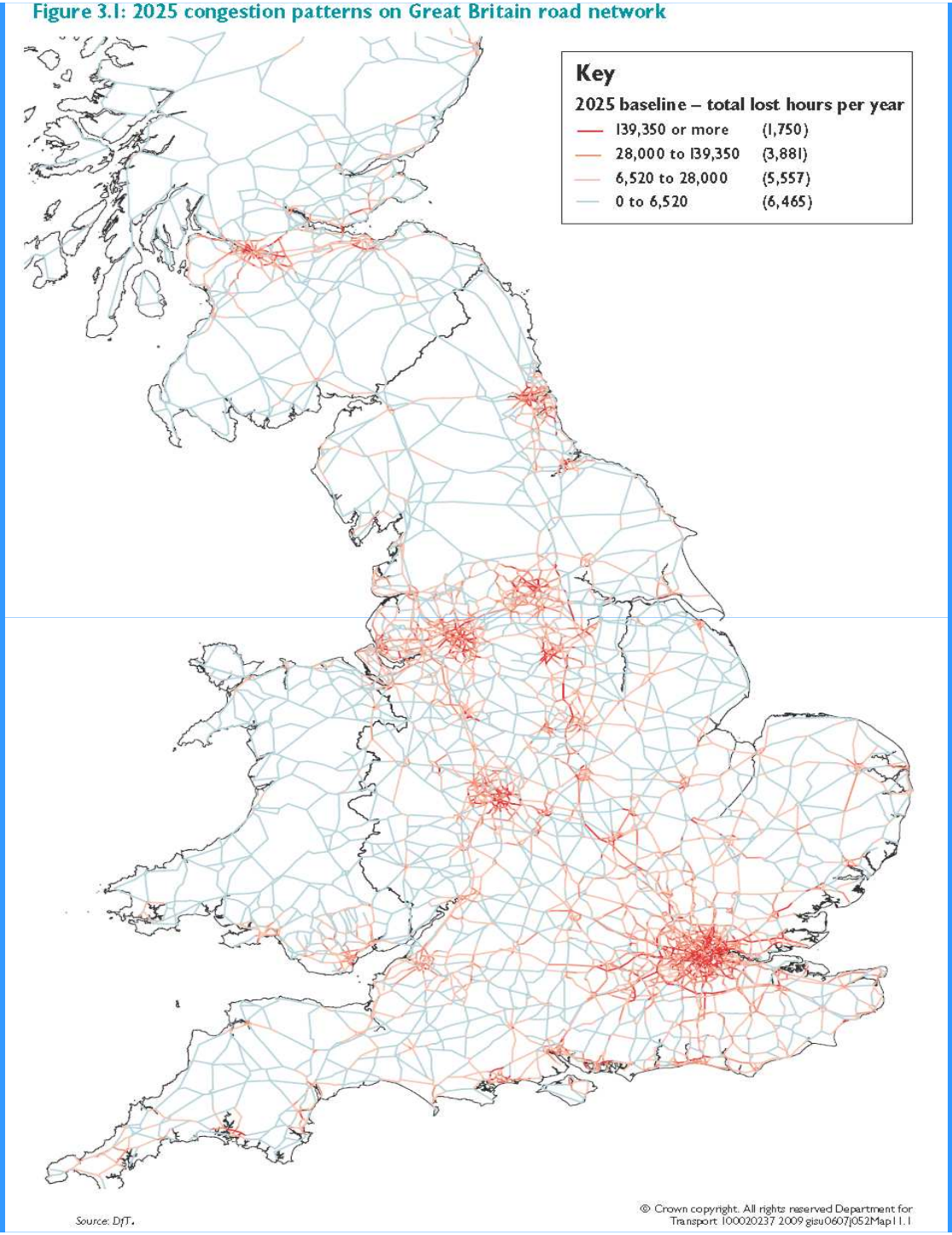
The major problem in England is

Lack of capacity

- Roads
- Railways
- Major airports
- Sea ports

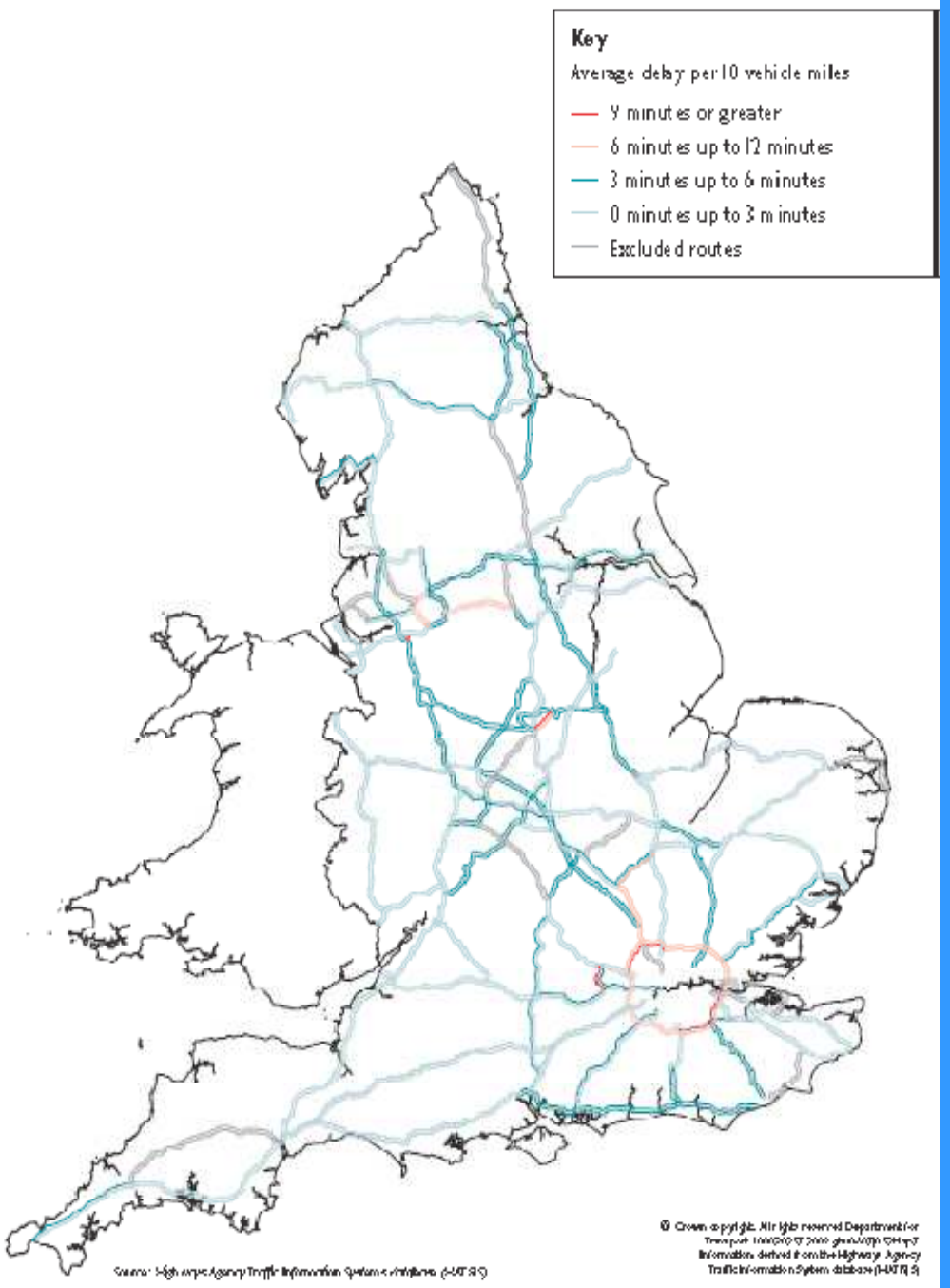
London is the focus of the strategic road network and the most congested area

Source: Eddington Review



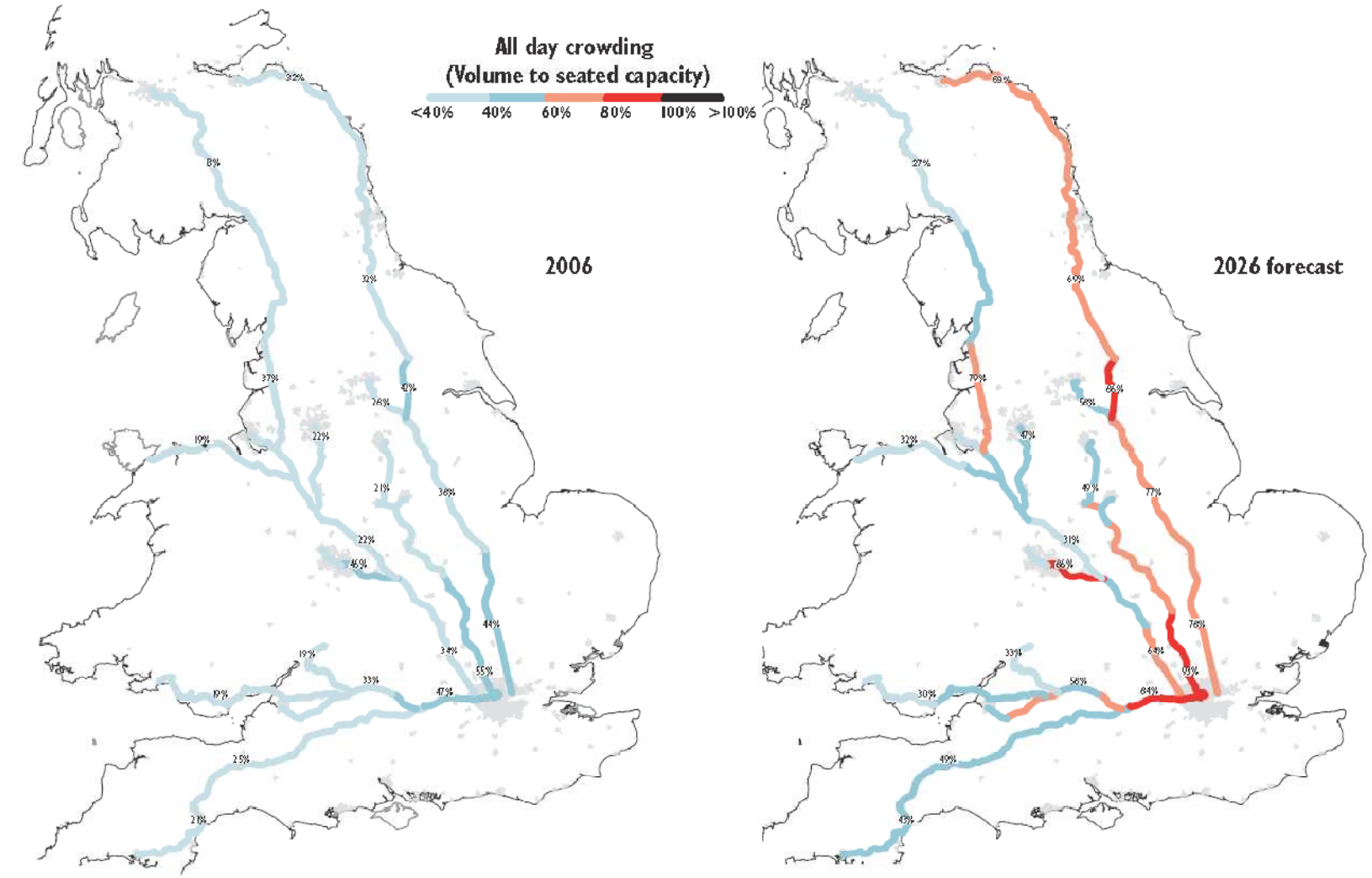
Source: Eddington Review

Figure 2.10: Average delay on the Strategic Road Network, worst 10 per cent of journeys



Most rail travel is centred on London

Figure 3.9: Crowding levels on inter-urban rail services



Source: Atkins report for DfT, Inter-urban rail forecasts, 2006

Source: Eddington Review

Some principles

Rail and road face the SAME problems

They should be treated

together

consistently and even-handedly

It is not “public transport versus roads”!

You’ve got to do the sums!

The problems are:

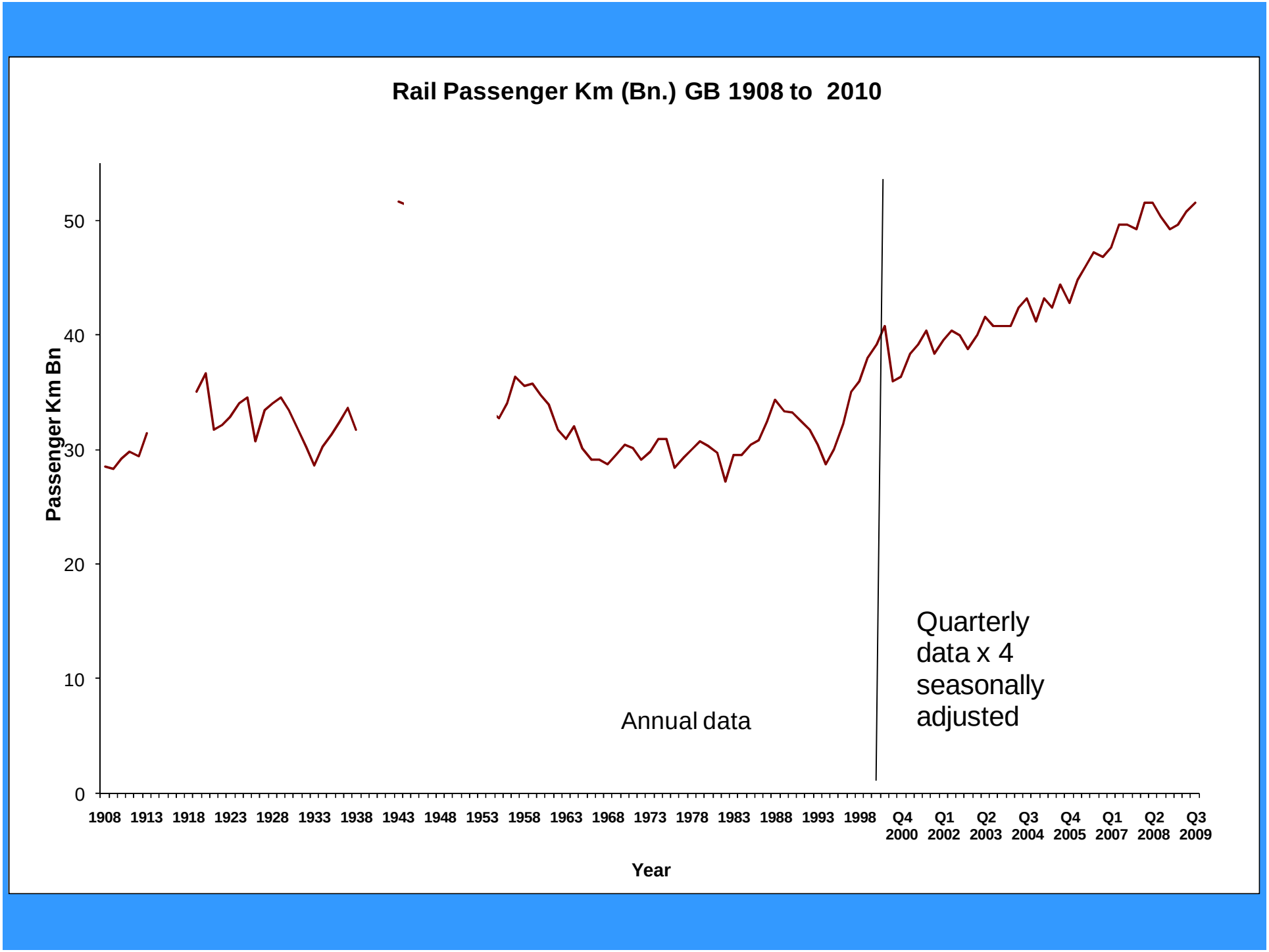
Capacity and crowding

- economic recovery
- population growth
  - UK pop 61.4m rise to 71.6m by 2033

Carbon

Safety

Public expenditure


Rail Passenger Km (Bn.) GB 1908 to 2010
Passenger Km Bn
0
10
20
30
40
50
1908
1913
1918
1923
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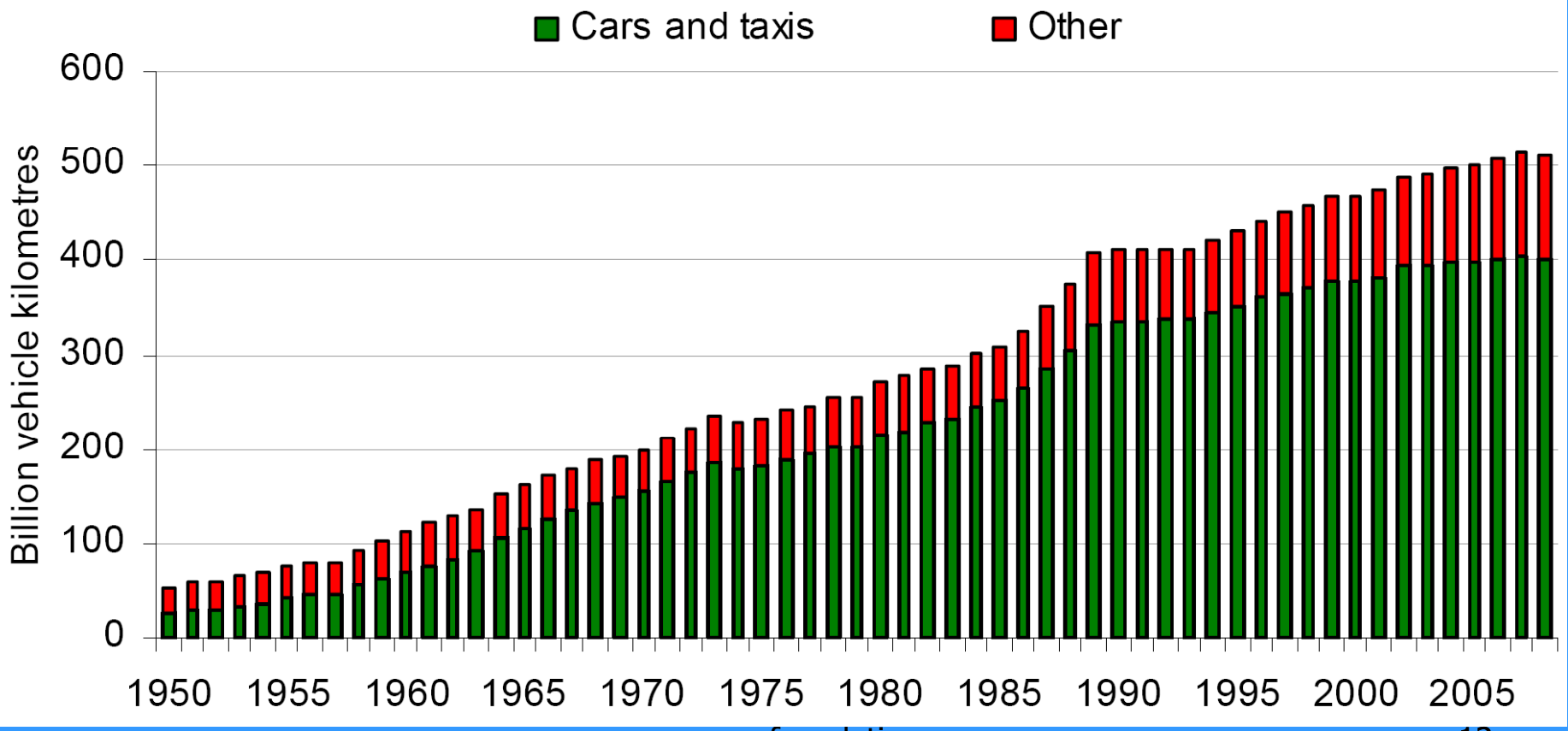
1933
1938
1943
1948
1953
1958
1963
1968
1973
1978
1983
1988
1993
1998
Q4 2000
Q1 2002
Q2 2003
Q3 2004
Q4 2005
Q1 2007
Q2 2008
Q3 2009
Year
Annual data
Quarterly data x 4 seasonally adjusted

Past road traffic growth

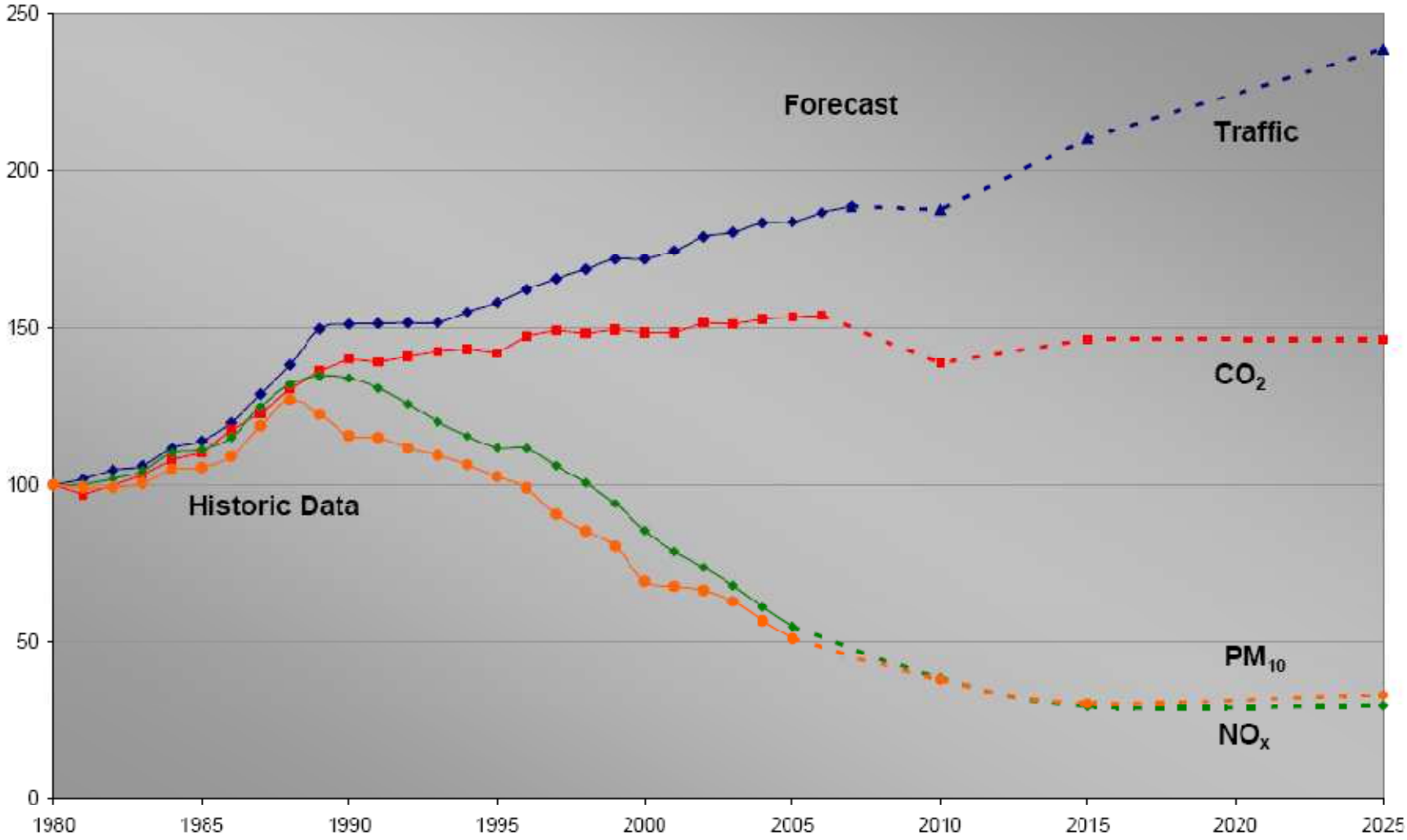
(source: Road Statistics 2008, DfT)

2.1 - All motor vehicle traffic, Great Britain: 1950 to 2008



National Traffic Forecast (DfT, 2008)

Figure 1: Road Traffic and Road Transport Emissions, Past and Forecast



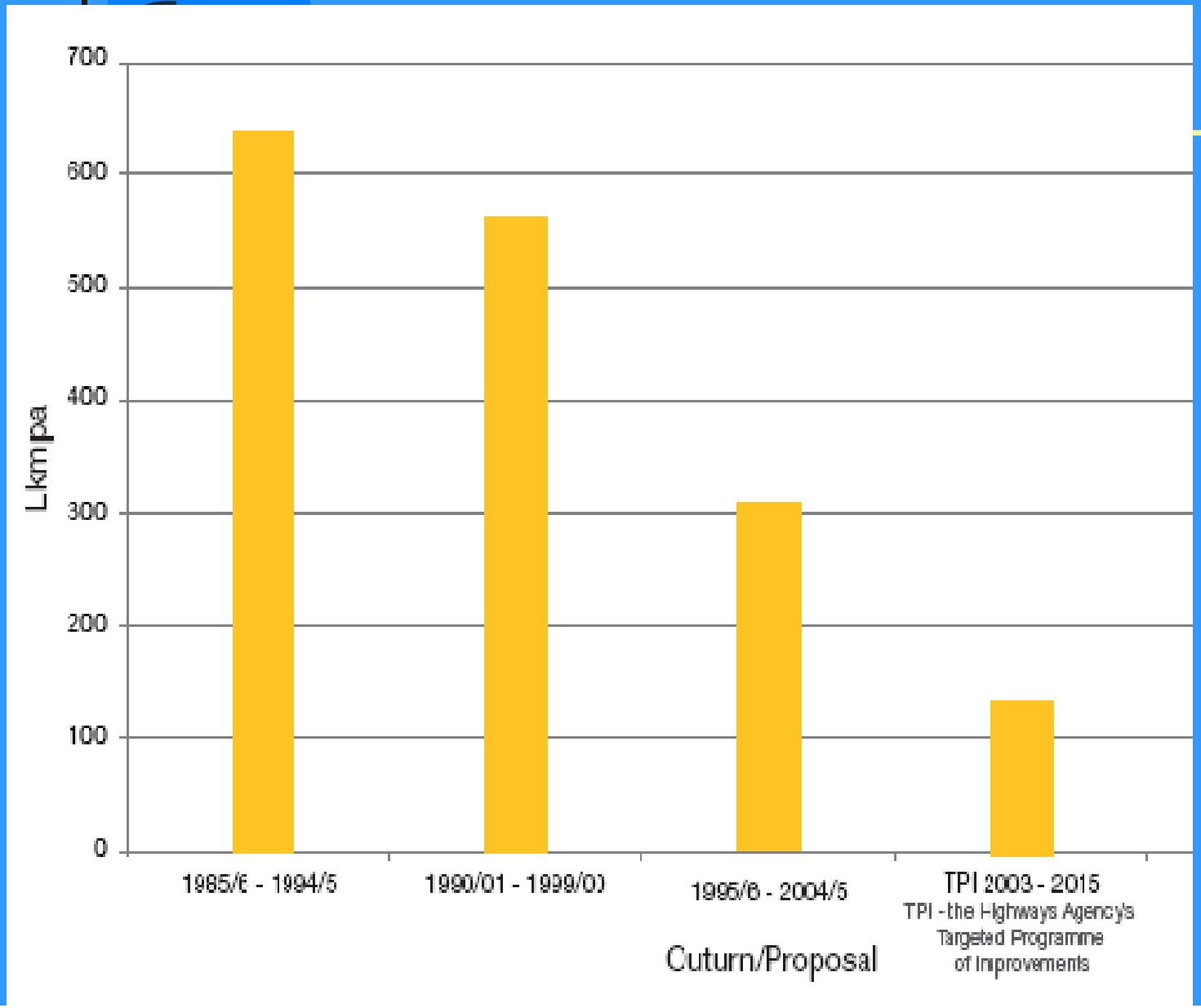
Source: Historic traffic data from DfT (2007); Historic emissions data from DECC (2007); forecasts from the NTM

All parties are claiming the economy will recover

Implies return to growing demand for road and rail

We are already short of capacity on both!

Why congestion has got worse in the past



Public transport cannot help much

Public transport improvements may be good policy

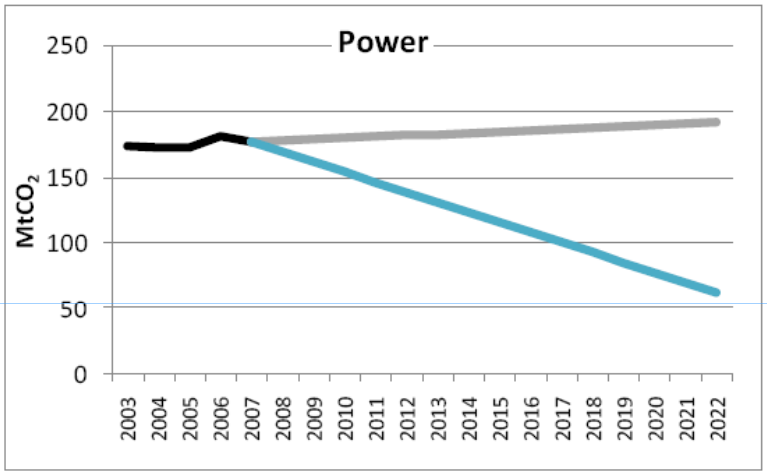
BUT

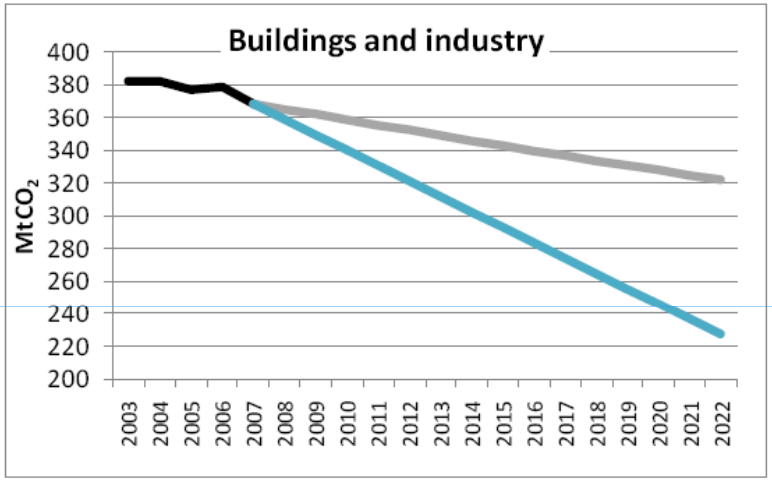
They cannot make much impact on road congestion
or carbon emissions at a cost that is feasible

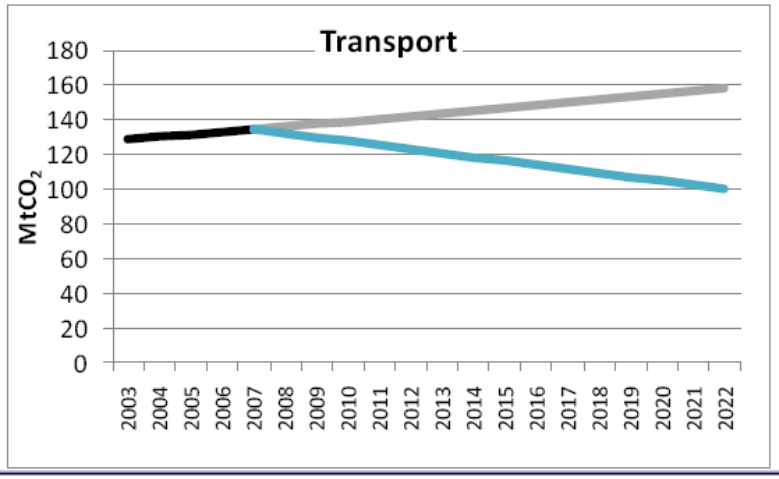
Rail and local bus each have 6% of passenger market

Committee on Climate Change, First Report, 12 October 2009

ii) Required progress in major sectors







Historic
Extrapolation
Required path

2009 Budget Report

RAC Foundation

Table C2: Summary of public sector finances

	Per cent of GDP						
	Outturn	Estimate	Projections				
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Fiscal consolidation							
Surplus on current budget	-0.4	-3.6	-9.3	-9.4	-7.2	-5.6	-4.3
Cyclically-adjusted surplus on current budget	-0.7	-3.1	-6.7	-6.4	-4.9	-3.9	-3.2
Consolidation in the cyclically-adjusted surplus on current budget [1]	-	-	-	0.3	1.6	1.0	0.7
Economic impact							
Net investment	2.1	2.6	3.1	2.5	1.9	1.6	1.3
Public sector net borrowing (FSNB)	2.4	6.3	12.4	11.9	9.1	7.2	5.5
Cyclically-adjusted PSNB	2.7	5.7	9.8	8.9	6.8	5.5	4.5
Sustainability							
Public sector net debt [2,3]	36.5	43.0	55.4	65.0	70.9	74.5	76.2
Core debt [2,3]	36.6	42.5	52.4	59.2	63.2	65.7	66.9
Net worth [4]	28.9	25.5	21.1	10.5	4.0	-0.3	-2.9
Primary balance	-0.9	-4.6	-10.8	-9.3	-6.1	-4.1	-2.5
Financing							
Central government net cash requirement	2.3	11.3	15.6	12.3	9.6	7.3	6.0
Public sector net cash requirement [3]	1.5	4.2	13.3	12.3	9.7	7.5	6.0

After General Election

Government expenditure cuts

Transport NOT “protected”

The objectives:

to improve quality of life

to meet needs for mobility

whilst recognising carbon, congestion, pollution, noise, severance etc. equity

Not “to get people out of their cars” or

“to promote rail use”

Shortage of public funds

How to spend reducing public funds most effectively?

The economics and politics of rail pricing mean that rail schemes will usually increase public funding

But we can improve roads and reduce public funding?

Investment good value for money?

Sector	Number of projects	Average Benefit: cost
Highways Agency	93	4.7
Local Road	48	4.2
Local Public Transport	25	1.7
Rail	11	2.8
Light Rail	5	2.1
Walking and Cycling	2	13.6
Total	184	

Source: Eddington (Dodgson, RAC Foundation, 2009)

Funding vs social benefit

There is a fundamental difference between:

"this will generate benefits greater than the costs"

"this will not increase the demands on the taxpayer"

E. g. "… study after study shows that over time high speed rail will pay for itself" (Mrs Villiers, 12 January)

For Rail there is a coherent strategy

High Level Output Specification (HLOS)
Statement of Funds Available (SoFA)

Network Rail to promote railways

Independent Regulator to adjudicate that it all adds up

High Speed Rail proposals should fit within this framework

HS2

There is NO FORMAL commitment to build a HSR

"HS2 Ltd was created in January 2009 to look at the feasibility of, and business case for, a new high speed rail line between London and the West Midlands….

The next step is for Government to consider and respond to our report by the end of March 2010. It is expected that our report will be published as part of this response."

Should it serve Heathrow?

Options for continuing north?

http://www.hs2.org.uk/

The realities of process

We await a White Paper (official Gvt. Policy)

There will be a General Election soon

May be a change of government

Much power resides with the Treasury!

There will be bitter opposition once a route is published

Construction would not start until 2017 for 2025 opening

January 2010

Tory policies on rail

(Less than 10% of passenger and freight market: heavily loss-making.)

Reduce fares

Reduce crowding

} implies more capacity?

Increase competitive pressure on Network Rail
Reduce competitive pressure on train operators

Invest heavily in High Speed Rail network

Teresa Villiers, 12 January

January 2010

Tory policies on road

(More than 90% of passenger and freight market: Profit-making)

Road congestion and unreliability a recognised as a problem…

Improve road works, traffic lights
More localised decision-making
Lorry road user-charging (No general road user-charging)
Make Highways Agency more efficient

New road projects only “where … consistent with a responsible approach to the public finances”.

Teresa Villiers, 22 January.

The HS2 Report is not yet published.

When it is, READ IT CAREFULLY!!

Meanwhile, we can discuss previous studies

Royal Automobile Club Foundation for Motoring

The Case for High Speed Rail: A review of recent evidence

Prepared by:

Professor John Preston
October 2009

Report number 09/128

RAC Foundation

References

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ampos, J. and Gagnepain, P. (2009) Measuring the Intermodal Effects of High eed Rail. In de Rus (Ed) op cit. Chapter 4, pages 71 -88.

ita Symonds (2007) The Potential for High Speed Rail in the UK and an ssment of its Environmental Benefits. Report to the Sustainable Development nission.

lft (2003) To shift or not to shift, that's the question. The environmental ance of the principal modes of freight and passenger transport in the king context. Delft.

M.V and Horvath, A.P. (2009) Environmental assessment of passenger ion should include infrastructure and supply chains. Environmental etters, 4, 1-8.

éral des Ponts et Chaussées (2006) Les Bilans LOTI des LGV Nord erconnexion Ile de France. Annex 1. See: www.rff.fr

, Inglada, V. and Rey, B. (2007) Effects of network economies in high- Spanish case. Annals of Regional Science 41:911-925

hompson, L., (2009) Energy Consumption and CO2 impacts of High C analysis for Greengauge 21. April.

There is a big literature!

Atkins (2003, 2008)

Booz Allen Hamilton for DfT 2007

Capita Symonds for Sustainable Development Commission (2007)

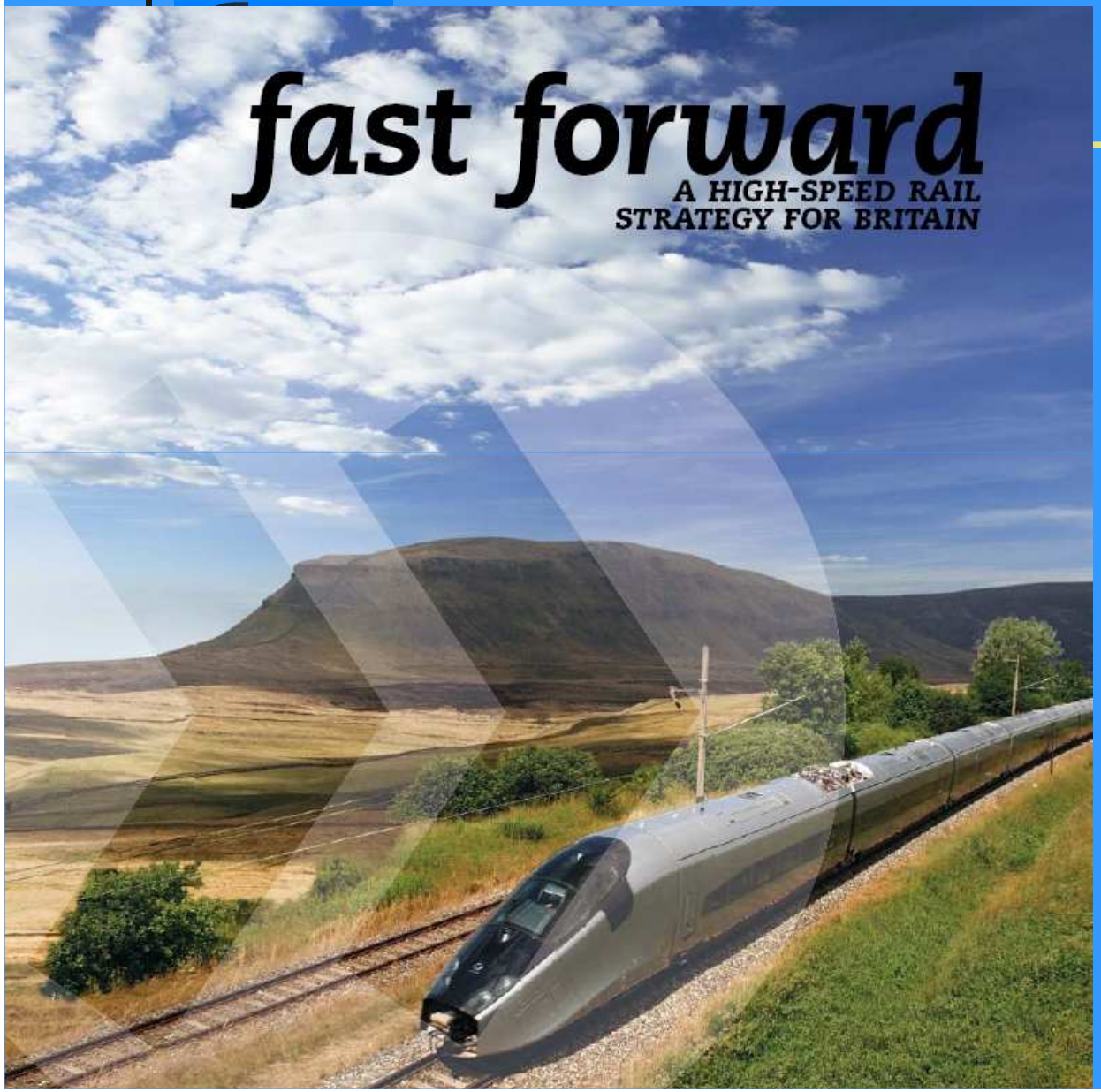
De Rus (several) on Spain

Eddington (2006)

Greengauge21 (2009)

Network Rail (2009)

What would High Speed Rail achieve?



Greengauge21,
September 2009

Greengauge21, September 2009

"This report shows how, when operational, a national High Speed Rail network would reduce carbon emissions by one million tonnes a year.

It is the green option for our national transport system.

It will … support an evolution from the previous age of motorway building.


The HSR network
EDINBURGH
GLASGOW
HS-NE
HS-NW
NEWCASTLE
TEES VALLEY
LEEDS
LIVERPOOL
HS-TP
SHEFFIELD
MANCHESTER
NOTTINGHAM
HS-NE
New high-speed railways operating at speeds of up to 320km/h
BIRMINGHAM
HS-NW
CAMBRIDGE
STANSTED AIRPORT
Sections of route comprising upgraded/new lines operating at speeds of 200km/h+
LONDON
CARDIFF
HS-WW
BRISTOL
HEATHROW AIRPORT
HS-CT

Appraisal results: full HSR network

	£ million Present values, 2002 prices
Revenues	
HSR revenue	£50,860
Change in classic revenue	-£28,327
Net rail revenue	**£22,533**
Benefits: users	
Journey time	£68,380
Accident savings	£160
Crowding	£9,942
Total user benefits	**£78,482**
Benefits: non-users	
Highway decongestion	£1,733
Reduction in greenhouse gases	£1,757
Capacity released on classic rail	£6,914
Total non-user benefits	**£10,404**
Wider economic benefits	**£13,968**
Total benefits (excl. WEBs	**£111,420**
Costs	
Capital: infrastructure / rolling stock	£31,701
HSR maintenance / operations	£27,480
Classic rail operating costs	-£11,098
Total costs	**£48,083**
Economic indicators (excl.WEBs)	
Net Present Value (NPV)	£63,337
Benefit : Cost Ratio	3.48 : 1

Benefits:costs = 3.48:1

The cost to the taxpayer is £26.5 billion

(£400 per head of population)

The cost to the taxpayer is £26.5 billion

That is £400 per head of population!

£bn	Total	2011 –2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026 –2053
Government payments in respect of HSR	**9.1**	(0.5)	(1.4)	(1.4)	(1.4)	(1.7)	(1.7)	(1.3)	0.4	0.4	0.1	0.2	17.2
Net impact on classic network	**(35.6)**	–	–	–	–	–	–	–	(0.3)	(0.4)	(0.5)	(0.6)	(33.7)
Total project costs to Government	**(26.5)**	**(0.5)**	**(1.4)**	**(1.4)**	**(1.4)**	**(1.7)**	**(1.7)**	**(1.3)**	**(0.1)**	–	**(0.4)**	**(0.4)**	**(16.5)**

Notes: Figures for years 2011 to 2015 and 2026 to 2053 show the total costs incurred over those years. The funding structure assumes a Design Build Finance Transfer contractual arrangement for the scheme (described later in this chapter). Payments and costs are in 2008 values.

It would not open until 2022

HSRs overseas are not all successful

The reliability of high-speed rail

On the AVE high-speed line from Madrid to Seville, passengers are guaranteed arrival within five minutes of the advertised time, and are offered a full refund if the train is delayed further. So far, only 0.16% of trains have been delayed beyond five minutes. When Eurostar services switched from using the existing Southern Region rail network to using the new high-speed link to reach the Channel Tunnel, punctuality improved from 79% of services on time to 92%.

10 *The AVE on the Jalon Viaduct between Madrid and Barcelona, Spain* *Photo: Spanish Rail*

AVE Madrid-Seville

Revenues less than operating costs

Benefits only 18% of costs

Are the growth forecasts plausible?

Currently, all rail trips in the country of over 80 km

2.1 trips per head per year at an average length of 117 km per trip.

15 billion passenger km per annum.

These are moving all over the country,

Greengague21: on their new high speed railway by 2055

178 million trips per annum average length of 300 km

53 billion passenger km per annum

HSR proposals are “predict and provide”

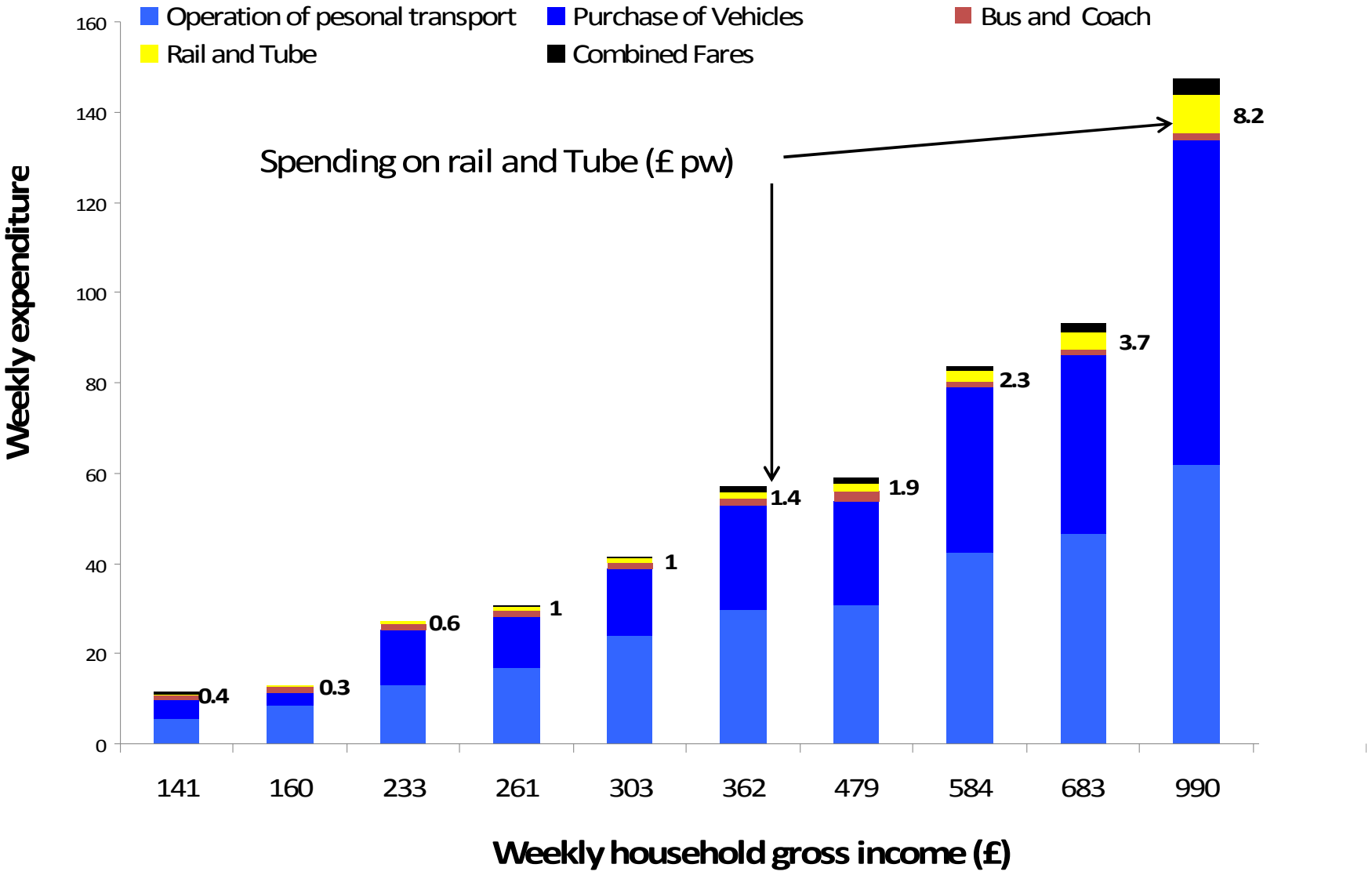
There is nothing wrong with this! …

… providing it is good value for money
and can be funded

There are many road schemes showing good value for money: so do those too!

Railways are mainly used by the rich

Family Spending (2006) £ per week



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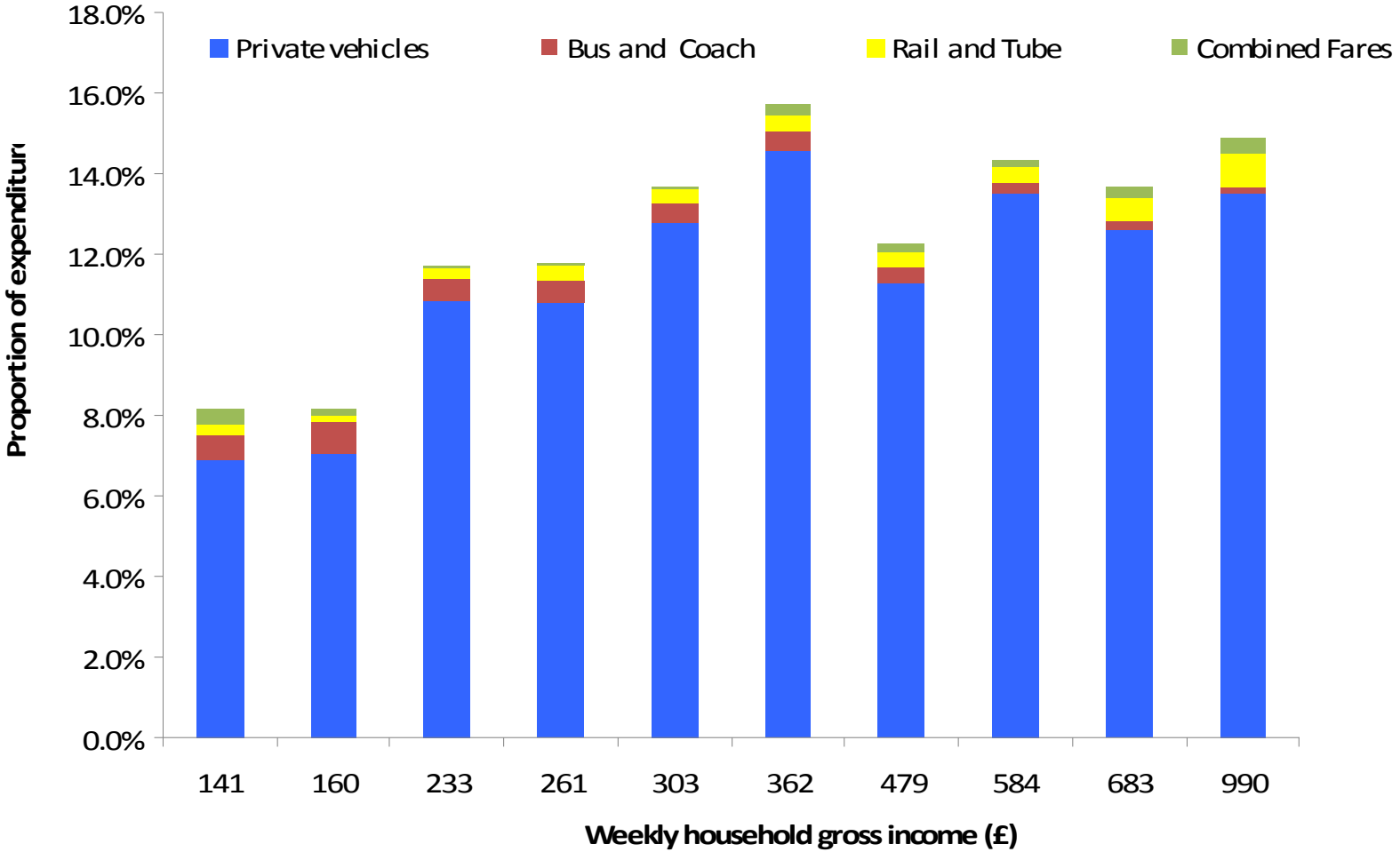

Issues

Carbon from construction?

Where does electrical power come from

AT THE MARGIN

Risk on achieving forecast load factors

Planning powers

Distribution of passengers esp. in London

Regional development: agglomeration

What problems is HSR a solution to?

Reducing carbon emissions?

Capacity shortages on classic rail?

Faster journeys to Midlands and Scotland?

Regional economic development?

Helping the poor – “social inclusion”?

The car is used by rich and poor

The Car in British Society, RAC F (2009)

Figure 3.8: Car availability by income group, 1989-2006