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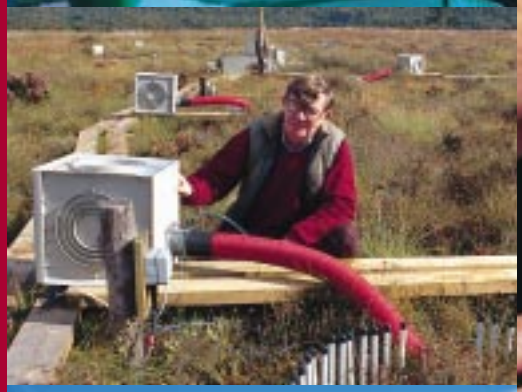
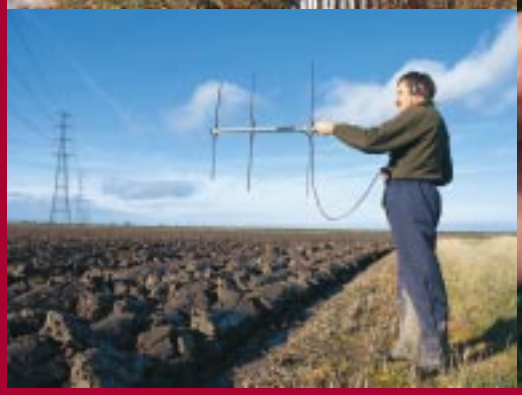
The future of transport 2005-2015

English Nature Research Reports





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English Nature Research Reports

Number 665

The future of transport 2005-2015

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Contents

1 Introduction

This report considers transport in the UK in the period 2005-2015. For this period, the report is designed to address two subjects:

1.1 What are the major developments in transport that will shape the sector and its impacts?

This aspect of the report requires the extrapolation of present trends and the recognition of new trends. For new trends, there are fewer published sources that can be cited as references. Many comments about the newest developments come from very recent research, both by TRL and other bodies.

1.2 What are the likely impacts of transport on the core issues that are of interest to English Nature and in the future, *Natural England*?

We have taken as core issues of relevance to English Nature those issues that are identified in various English Nature policy documents, together with other issues that arise from earlier work by TRL for English Nature.

A new organisation – *Natural England* – to be created in October 2006, is bringing together the current roles of English Nature, the Landscape, Access and Recreation division of the Countryside Agency and the environment activities of the Rural Development Service. It will work for people, places and nature with responsibility for enhancing biodiversity, landscape and wildlife in rural, urban, coastal and marine areas; promoting access, recreation and public wellbeing, and contributing to the way natural resources are managed – so they can be enjoyed now and for future generations.

2 Broad scale review: progress and trends

2.1 Background

TRL undertook a review of the future of transport for English Nature in 2002. This was reported in the Review of possible future inland transport policy and structural changes: report for English Nature (*English Nature Research Reports*, No. 473, 31 July 2002).

This document gives the 2005 view on transport policy development and outcomes, thereby providing an update to that original work in 2002.

2.2 European scale

The European Environment Agency's Transport and Environment Reporting Mechanism (TERM) continues to provide an authoritative overview. In its 2004 TERM report *Ten key transport and environment issues for policy makers* the European Environment Agency identifies unfavourable trends in many established indicators of the environmental impact of transport (See Table 2.1). The TERM report focuses on progress towards the policy direction set out in the *European Common Transport Policy* (EC, 2001).

Table 2.1: Ten key transport and environment issues for policy makers (European Environment Agency 2004)

Issue		Current trend
1.	Growing transport volumes are challenging decoupling policy	☹
2.	Emissions of air pollutants from road transport are falling, despite a growth in traffic	☺
3.	Greenhouse gas emissions from road and air transport are increasing	☹
4.	Alternative fuels policy is starting to take effect with biofuels	☺
5.	Market shares of road and air travel are continuing to grow	☹
6.	Access to many basic services is dependent on car use	☹
7.	Present price structures are favouring individual transport	☹
8.	Signs of promising developments for transport pricing	☺
9.	Infrastructure investment needs to balance economic and environmental needs	?
10.	Transport infrastructure is fragmenting natural habitats	☹

Key to Table 2.1

☺ Positive trend, moving towards policy objective or target

☹ Unfavourable trend, moving away from policy objective or target

? Impossible to evaluate the trend because of data gaps or lack of policy objective or target

All ten issues listed are relevant to English Nature, with 2,3,4,6,9,10 being of most importance. Issue nine identifies that transport investment decisions may not be based on a balanced view of the environmental and economic factors. As a result, decisions are still

skewed in favour of expansion of road transport infrastructure over other solutions to transport problems. The TERM report recognises the improvements in Environmental Impact Assessment, Strategic Environmental Assessment, socio-economic cost benefit analysis as well as the emergence of integrated appraisal practices. However, the lack of a uniform and accepted methodology for valuing many of the environmental impacts of transport is cited as a problem (see sheet E3 of this report).

Issue ten in the TERM report concerns the fragmentation of natural habitats by transport infrastructure. The interrelated problems of traffic growth, infrastructure expansion and urban sprawl are identified as a significant threat to habitats and biodiversity. Whilst often relatively insignificant at a local/project or sub-regional level, habitat fragmentation is an ongoing cumulative problem. For example, between 1990 and 1998 approximately 30,000ha of land were taken for motorway construction alone in the EU's 15 Member States. The evaluation of land fragmentation and its effects on biodiversity also requires further research and development.

The European Co-operation in the field of Scientific and Technical Research (COST) 341 report on Habitat Fragmentation was published during 2004. The report contains advice on methodologies and indicators to define and quantify habitat fragmentation. It also offers advice on methodological aspects of monetary evaluation. See the reference and link at the end of this chapter.

Looking ahead to the future, the Federation of European Highway Research Laboratories (FEHRL) has developed *Vision: Roads in Europe 2025* (FEHRL, 2005). The vision is based on five scenarios:

- do nothing;
- Government-led;
- market-led;
- sustainable-society;
- ideal world.

The FEHRL vision acknowledges the importance of road user and stakeholder requirements in driving forward the scenarios. Specifically it identifies that users and stakeholders are likely to require travel to be smart, clean, safe, reliable, comfortable and accessible.

2.3 National scale

2.3.1 National travel trends

The National Travel Survey for the period 1993-2004 (see Table 2.2) shows a growth in all transport modes (except cycling) with particular growth in light van transport, rail and goods vehicles. The car travel figures appear to have begun to level since 1998 (see sheet C1 for an analysis of this).

Table 2.2 Changes in travel and transport distances 1993-2004

* Measured as passenger miles, over the 10 years to 2003/4
Sources: Table 1 of *Traffic in Great Britain: Q4 2004*; and Table 2, Annex A of *A Bulletin of Public Transport Statistics Great Britain: 2004 edition*

Road transport mode	Percentage change in distance travelled by mode, 1993-2004
Pedal cycles	-3.6%
Cars	+17.6%
Light vans	+45.8%
Goods vehicles	+20.7%
Buses	+7% (*)
Rail	+35% (*)

Over the last 10 years, traffic on motorways has seen higher growth than any other road class. It is estimated to have grown by 5% between the fourth quarter of 2003 and the final quarter of 2004. Traffic on rural A roads grew by 2% in 2003-2004 (see Figure 2.1).

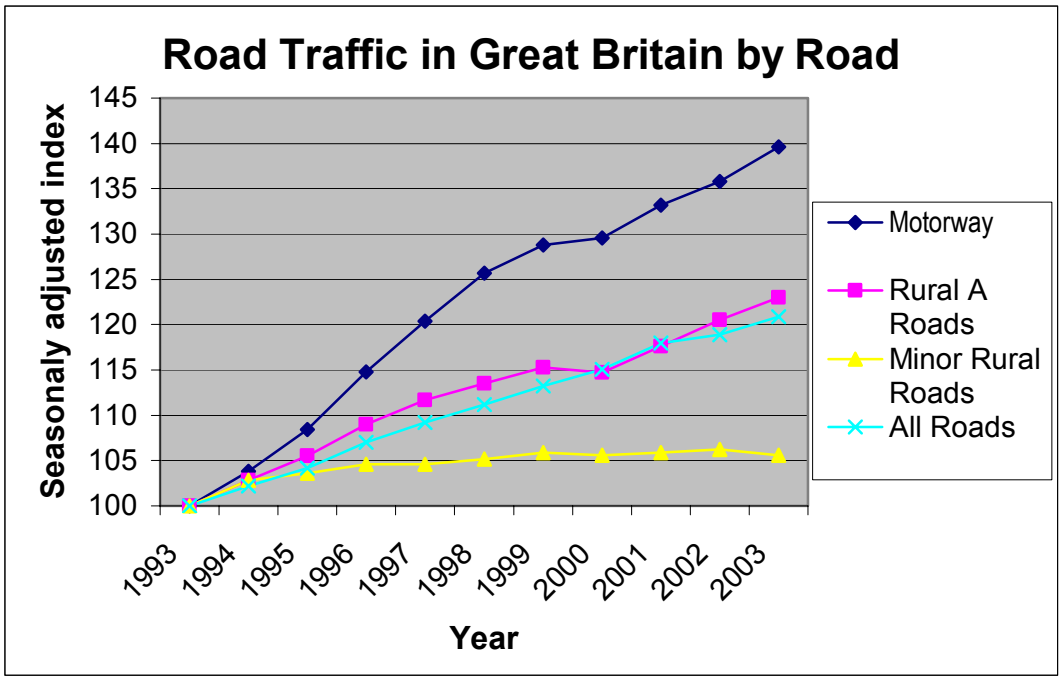

Figure 2.1 Increase in Road Traffic in Great Britain by Type of Road

In terms of freight, the average length of haul over which goods are carried by road has increased from 67 km in 1980 to 92 km in 2003 (DfT 2004). This growth has been assigned to changes in distribution patterns and in the type of goods lifted. This growth accords with basic economic principles: If all other factors remain unchanged, the amount of goods transported should rise as living standards rise, because consumer spending rises.

2.3.2 Transport and economics

There is evidence of progress, in that there has been some de-coupling of growth in the economy from growth of goods vehicle traffic. Since about 1990, freight moved and goods

vehicle traffic have risen more slowly than Gross Domestic Product. This can be seen as moving towards sustainable development.

In the 2005 Budget it was announced that the Secretary of State for Transport and the Chancellor have asked Rod Eddington to work with the Department for Transport and HM Treasury to advise on the long-term impact of transport decisions on the UK's productivity, stability and growth. The foundation of the study will be a comprehensive analysis of the academic and empirical evidence about how the transport system interfaces with economic growth and productivity.

2.3.3 Roads

The number of proposed road schemes, road widening and dualling, which are emerging through the Highways Agency's Targeted Programme of Improvements, Local Transport Plans and the additional bids to the Community Infrastructure Fund, continues to grow. There is therefore concern that the combined effects of all these road schemes will result in a range of cumulative impacts on the natural environment, which have yet to be quantified. However, it is recognised that environmental and to a larger extent budgetary factors are likely to constrain the number of schemes that are successfully completed.

2.3.4 Aviation

The greatest uncertainty over transport in the UK lies in the aviation sector. At present, air transport is growing rapidly. This includes both passenger transport and freight. However, this growth is causing great concern for levels of greenhouse gas emissions. Low ticket prices are driving the demand for air travel, because at present duty is not levied on aviation fuel. Many commentators see the need for aviation to pay more for environmental damage. The key damage consists of greenhouse gas emissions, noise, particulates and NOx emissions and land take for infrastructure.

The UK government and the Commission both wish to include CO_2 emissions from aircraft in the European 'ETS' trading system for emissions. British Airways has expressed support for this course of action, in preference to taxation of aviation fuel. Aviation's emissions are most likely to be included in the ETS sometime in the period 2008-2012. This will affect the cost of air travel, and hence demand.

2.3.5 Fuels

Another overriding issue of prominence in the future is that of oil supplies and alternative fuels. Oil continues to dominate as a source of energy for transport, however, there has been increasing interest in alternatives driven by the following disadvantages:

i) The very volatile oil price. High demand for oil in China and the US has driven production levels close to the current maximum capacity, rendering the market susceptible to small shocks in producing countries.
ii) Historically, combustion of oil based fuels in transport vehicles has lead to air quality problems at the point of use of the vehicle.

During 2005-2015, major changes will involve increases in the efficiency with which all types of vehicle use fuels derived from oil. However, a rising percentage of fuel will come from alternative sources. Key ones are:

i) Compressed Natural Gas (CNG) - CNG is gaining popularity over Liquefied Petroleum Gas (LPG), which is currently a more established transport fuel in the UK.

ii) Biofuels - DEFRA is providing strong support for biofuels. There are however concerns that domestic production of crops for biofuels (in the short term, mainly wheat, oilseed rape and sugar beet) will require a large amount of agricultural land and pressure for high yields could result in adverse impacts on biodiversity, landscape and soil and water quality. In addition, biofuels produced using existing technologies also require significant energy for harvesting, fertilizers, processing and transport. Production of biofuels in small quantities therefore only produces a small net reduction in greenhouse gas emissions. There may be more environmental benefits to be accrued from the production of biofuels from waste materials that do not require the large amounts of land and fertilizer for harvesting. However there are currently significant cultural and regulatory barriers to the widespread use of waste materials for this purpose.

iii) Hydrogen - Towards 2015 and beyond, hydrogen fuel cells may take over from conventional power sources for transport. The advantages lie in air quality improvements, because the cells emit only water vapour and CO_2. A key issue here is that hydrogen only acts as an energy carrier. Energy is used to manufacture hydrogen, for example by electrolysis of water. Hydrogen can be produced far from the point where a vehicle is to be used, reducing air quality problems.

2.4 Regional and local scale

The Spending Review 04 brought about the need for the Highways Agency to review the proposals for investment in the trunk roads network. Schemes that did not form part of the core trunk road – principally the motorway network - were to be promoted using funds assigned to regional transport. Regional Transport Boards will re-prioritise such projects against other regionally funded transport projects. The result is that such schemes are no longer candidates for early delivery and it is likely that some will never appear in their current form.

Experience from the previous LTP1 and LTP2 processes has suggested that there might be some fundamental changes to the Local Transport Plan process over the next two cycles (10 years). Some possible directions are detailed in sheet C4. LTP2 has highlighted the importance that Department for Transport has attached to accessibility planning in the LTP process and which is likely to become the backbone of the process in the future.

2.5 Reference and link

LUELL, B. and others. 2003. *Wildlife and Traffic: A European Handbook for Identifying Conflicts and Designing Solutions*. Utrecht, Netherlands: KNNV Publishers.

A fifteen page review of the *Wildlife and Traffic* publication is available at pages 1-14 of: http://www.icoet.net/downloads/03International&FedActivities.pdf

3 Identification of specific future issues 2005-2015

Emerging transport issues are presented as individual briefing sheets in chapters 4-9. Table 3.1 provides a list of the briefing sheets under each chapter heading.

Table 3.1: Key future issues 2005-2015

Chapter	Issue
4. EU Legislation and Policy	A1. European Transport Policy
5. UK Legislation and Policy	B1. UK Government policy on transport B2. Aviation White Paper B3. Walking and Cycling
6. Structural Issues	C1. Demographics, Health, Sustainable Communities Plan C2. Rail and buses C3. Freight, ports and shipping C4. The future of Regional Institutions
7. Technological issues	D1. Infrastructure: Implications for Climate Change D2. Vehicle Fleet: Environmental Impacts of Vehicles in use D3. Vehicle Fleet: The informed traveller and vehicle D4. Vehicle Fleet: Traffic speeds D5. Vehicle Fleet: Materials and Waste D6. Infrastructure: Materials and Waste
8. Appraisal	E1. Modernisation of Design Manual for Roads & Bridges (DMRB) Volume 11 E2. Highways Agency and Department for Transport Appraisal and Assessment E3. Valuing environmental externalities of transport
9. Economics and Fiscal Instruments	F1. Economic Instruments for Climate Change and Transport F2. Lorry and car road user charging

4 European transport policy

A1 European transport policy

A key document underlying EU transport policy is the white paper *European Transport Policy for 2010: Time to Decide*, see links at the end of this table, dating from September 2001.

This document calls for new objectives in European transport, including re-balancing of transport modes and measures against congestion. These issues are, if anything, more relevant in 2005. The 60 action points Annex I of this document remain a list of the most relevant changes that lie ahead for the EU. The White Paper acknowledges that many remain within the remit of national Governments, and will continue to do so.

The European Environment Agency has gathered data that shows CO_2 emissions from transport continuing to increase beyond current levels. The prediction is that this will continue to occur at an increasing rate until at least 2020. Road transport is the main cause of the increase, in particular the continuing growth of passenger cars throughout Europe, and more specifically in the new Member States of central and eastern Europe. The current projections do not meet the targets of the Kyoto protocol, and further measures are required to reduce road transport.

In 2002, the European Conference of Ministers of Transport agreed a package of measures to achieve inter modality. This focussed particularly on a sustainable balance between substitutable modes of transport for both passenger and freight. These included a significant reform of railways, higher quality road transport, correct pricing and internationalisation, incentives and subsidies. The challenges to achieve these objectives have been identified as:

- Loading units
- Commitment to railways
- Terminals
- Organisation
- Public Policy

Key issues for English Nature:

- The issues listed in the 2001 EU White Paper provide a benchmark against which policy proposals originating in England can be measured.
- The action points cited in the *European Transport Policy for* 2010 white paper could be cited in English Nature submissions.

Links:

EU COMMISSION. 2001. *European Transport Policy for 2010: Time to Decide*. Available from: http://europa.eu.int/comm/energy_transport/library/lb_texte_complet_en.pdf

Challenges for Transport Policy in Europe: Supporting Inter-modality. Speech Jack Short – Secretary General ECMT. December 2002. Available from: http://www1.oecd.org/cem/online/speeches/JSahoy02.pdf

COUNCIL OF THE EUROPEAN UNION. 2004. *Sustainable Road Transport – Technical Background.* Available from: http://register.consilium.eu.int/pdf/en/04/st13/st13160.en04.pdf

5 UK legislation and policy

B1 UK transport policy

The section below deals with inland transport policy except for aviation and ports, which are covered in separate sheets.

During the period 2001-2005, English policy as set by the Department of Transport has moved from most of the fixed numerical targets that were set in 1998-2000. Specifically, the emphasis now is on indicating desired directions of change, and on encouragement to stakeholders. Some key policy documents are discussed in points 1-4.

The Commission for Integrated Transport and the House of Commons' Transport Select Committee and Environmental Audit Committee have published reports critical of Government policies (see sheet B2).

The most innovative changes to transport policy have materialised in London. The Congestion Charge has been introduced, and will be extended westwards in 2006. At the same time, the fee will be raised (see sheet F1). The Mayor of London has committed to set up a Low Emission Zone that will cover Greater London from 2007 (see sheet D2).

Meanwhile, the Highways Agency (HA) issued its new corporate policy commitment to putting customers first establishing a network of 'Customer Beacons' to report share feedback. As a customer of the Agency, English Nature could engage with the following corporate objectives set out in the Customer First document:

- minimizing the impact of our activities on the environment and those living close to our roads;
- forming closer partnerships with our suppliers so they mirror our approach to customer service;
- finding new ways to improve our efficiency to make the most of limited resources and get the best value from public money;
- sharpen and improve the way we manage and measure our performance to make sure that we are delivering the things that really matter to customers. ensure all our people, not just those providing front line services, are aware of the impact their work has on customers;
- develop clearer links between individual performance and delivery of our objectives and targets;
- develop better ways of identifying and managing risks.

The HA will also be forging new and stronger relationships with regional planning bodies in response to changes to the planning system. This will be especially important after 2007-08 when some major road schemes will be subject to advice from regional stakeholders.

Under the Customer First banner, the HA has also been working with the statutory environmental bodies to investigate means of improving the efficiency and effectiveness of consultation procedures.

1 DETR. 2000. *Transport 2010: The Ten Year Plan*

The *Ten Year Plan* set out ambitious targets for road and rail travel. A budget of £180bn was specified, to modernise and integrate transport. Subsequent annual reports by the Commission for Integrated Transport and latterly by a private consultancy show that almost all targets have been missed.

2. DfT White Paper. July 2003. *Managing our roads*.

This report identifies vehicle technologies such as autonomous cruise control, intelligent speed adaptation (ISA) and real time navigation. An approach using ISA and lane following has '*significant potential for increasing effective capacity of our road network*, see paragraphs 65-73. However the document doesn't mention specific policies for their introduction, nor targets or timetables. This White Paper comments on possible technological developments, without assuming the role either of facilitator or regulator. See also point 4 below.

3. DfT White Paper. July 2004. *The Future of Transport*.

This White Paper effectively replaced many numerical targets that had previously been set for transport. The Government stated that it saw itself as encouraging change. Mechanisms that were identified generally tended to be those outside the Government's control.

4. National Audit Office. November 2004. *Tackling Congestion by Making Better Use of England's Motorways and Trunk Roads*:

The National Audit Office (NAO) found that the Highways Agency (HA) was too ready to build new road capacity. The NAO is encouraging the HA to tackle congestion through measures that include:

a) Using approaches that have been tried overseas. Two key approaches that are now being considered are:

'Hard shoulder running', which involves using the hard shoulders of motorways at times of peak traffic demand.
'Dynamic lanes' on motorways are flexible lane lay outs, that can vary as traffic flows change.

b) Spreading technology throughout the UK road network once it has been tried successfully. An example is the variable speed limit signage, which has been used on the south western section of the M25 for 11 years and was recently introduced to parts of the M42.

c) Carrying out more, better and more radical trials of technology.

Key issues for English Nature:

- English Nature can cite these reports in submissions to Government and the Highways Agency.
- Assist the Highways Agency with surplus land disposals where they could serve biodiversity action plan objectives.
- Highways Agency placing more scheme details on the web, providing English Nature with more rapid means of keeping up to date on their progress.

Opportunities to input:

- English Nature will need to work together with the Highways Agency, in order to influence outcomes for a major part of the transport network.
- English Nature is a statutory consultee on many plans. This provides the opportunity to make comments on the plan itself and the Strategic Environmental Assessment of the plan.

Links:

TRANSPORT 2000's commentary on the *Future of Transport* White Paper. Available from: http://www.transport2000.org.uk/news/maintainNewsArticles.asp?NewsArticleID=185

DfT White Paper. July 2003. *Managing our roads.* Available from: http://www.dft.gov.uk/stellent/groups/dft_transstrat/documents/downloadable/dft_transstrat_022779.pdf

DfT White Paper. July 2004. *The Future of Transport*. Available from: http://www.dft.gov.uk/stellent/groups/dft_about/documents/divisionhomepage/031259.hcsp

NATIONAL AUDIT OFFICE. November 2004. *Tackling Congestion by Making Better Use of England's Motorways and Trunk Roads.* Available from: http://www.nao.org.uk/publications/nao_reports/04-05/040515.pdf

HIGHWAYS AGENCY. http://www.highways.gov.uk/aboutus/corpdocs/corp_plan/pdfs/customers_first.pdf

B2 Aviation White Paper

In December 2000, the DETR published *The Future of Aviation – the Government's Consultation on Air Transport Policy*. This was followed in December 2003 by the DfT White Paper entitled *The Future of Air Transport*.

Key points from the aviation White Paper were:

1. '*The further development of Heathrow is supported, including a further new runway and additional terminal capacity to be delivered as soon as possible (within the 2015-2020 period) after the new runway at Stansted, but only if stringent environmental limits can be met.*'

2. '*Provision should be made for two new runways in the South East by 2030.' 'The first new runway should be at Stansted, to be delivered as soon as possible (around 2011 or 2012).*'

The Government had received around 500,000 responses to the consultations that preceded the White Paper. However, few commentators approved of the final document. The main objections were that:

1. The White Paper represents a 'predict and provide' approach to airport capacity. This approach has been discredited with roads, and commentators widely condemned its continued use with air transport. The House of Commons' Environmental Audit Committee commented that: '*A policy which estimates future demand and then seeks to satisfy almost all of it is self-evidently based on a 'predict and provide' approach*.' They also expressed '*astonishment at the lack of essential research to underpin the incorporation of aviation in the EU Emissions Trading System*', see page 3 of the committee's comments.

2. If the policies in the White Paper were implemented, then the UK would exceed its greenhouse gas emission targets under the present Kyoto agreement. Because of noise, CO_2 and NOx emissions, and land take, aviation is now attracting widespread protest actions, eg HACAN's 'clear skies campaign':

The aviation White Paper was challenged by Judicial Review in 2004. The judgement, on 18 February 2005, declared that aspects of the plan were not legal. As a result of this judgement, some major provisions of the White Paper cannot now progress. The future development of aviation is subject to greater uncertainty than other transport modes, and this situation looks set to continue.

3. Airport master plans

On 12 July 2005, the DfT published guidance for Airports on how to prepare their master plans. Each major airport should have such a plan. The DfT considers that:

'each airport's master plan should address impacts of a proposed development on people and the environment, proposals to minimise and mitigate impacts, traffic forecasts, surface access initiatives and any proposed land and property take.'

The master plan for each airport should be updated regularly, and thereby acts as an ideal pointer to the likely development of the airport.

Key issues for English Nature:

- Airport expansion may require new land take, potentially affecting English Nature interests.
- The emissions from aircraft contribute to global warming. Due to the height at which emissions occur, their radiative forcing effect of these emissions may amount to three times that of ground level emissions.

Opportunities to input:

- Government policy currently favours incorporation of aircraft emissions into the EU-wide 'ETS' emissions trading system. English Nature can express support for this, eg in comments submitted to Parliamentary Committees.
- English Nature can encourage airports to include in their master plans all the environmental impacts that are of interest to English Nature. This ensures that the airports will assess these impacts, at the stage of compiling the plan.
- English Nature/CA/RDS (*Natural England*) can contribute ideas and views to the review of the Aviation White Paper in 2006.

Links:

The Future of Air Transport White Paper. Available from http://www.dft.gov.uk/stellent/groups/dft_aviation/documents/divisionhomepage/029650.hcsp

Environmental Audit Committee's report on the White Paper. Available from: http://www.publications.parliament.uk/pa/cm200304/cmselect/cmenvaud/623/623.pdf

The HACAN clear skies campaign. Available from: http://www.hacan.org.uk/

B3 Walking and cycling

Walking and cycling trips have declined in the last decade. However, as part of its sustainable transport policy, the Government does wish to support walking and cycling. The Government's approach involves encouragement, rather than regulation, with an emphasis on 'soft measures'. The DfT's 2004 action plan for walking and cycling sees Government's role as 'training, education, marketing and promotion'. Travel plans for schools and businesses and the installation of Home Zones are encouraged. Most stakeholders have expressed disappointment that the approach does not extend to firm targets or regulation.

In practice, much support for walking and cycling will come from infrastructure measures that are within the remit of local authorities. Pedestrianisation of urban centres, the provision of pavements and the maintenance of footpath signage are key areas that facilitate walking at the local scale. The statutory right of access legislation, introduced during 2004, has had two significant effects. It has increased the availability of land for leisure walks, and has reduced the fear of some walkers that they might inadvertently trespass on private land. In addition Green Infrastructure (GI) is increasingly being seen as an important element in providing a high quality of life in both rural and urban communities. Consisting of networks of protected sites and green corridors, GI is of importance to fauna and flora and the public alike. It should provide an integrated infrastructure for multi functional uses (eg wildlife, leisure, heritage, flood protection, and local climate amelioration).

Local Transport Today has reported that the DfT has been unable to find a planned £76m for walking and cycling measures in financial year 2005/6.

The House of Commons' Health Committee advises that:

'*what is needed is a wholesale cultural change to a country where people are more active. Town planning needs to prioritise pedestrians and cyclists rather than road vehicles; a strip of white line at the side of a busy trunk road does not constitute a safe cycle route.*' See paragraph 317 of the link at the end of this table.

Key issues for English Nature:

- Walking and cycling have far lower environmental impacts than other transport modes and there is the opportunity for interpretation of say geology and sponsorship of bio/geodiversity action plans.
- Walking and cycling reconnect people with the outdoor world. They bring people into contact with wildlife, geology and landforms, from which other transport vehicles separate them.
- Need to recognise that new cycle routes can impact adversely on nature conservation interests.

Opportunities to input:

- It is unlikely that central Government funding for walking and cycling could fall much further than its present position. There is great potential to influence central Government opinions, and obviously a great potential upside to spending levels.
- Engagement with Sustrans over the future development of the National Cycle Network, and potentially with Cycling England over future cycling strategies and proposals.

Links:

Walking. Available from:
http://www.newlifeformainroads.org.uk/

House of Commons' Select Committee on Health, 3rd Report. Available from:
http://www.publications.parliament.uk/pa/cm200304/cmselect/cmhealth/23/2306.htm#a23

6 Structural issues

C1 Demographics, Health, and the Sustainable Communities Plan

Demographics

The mean age of the population in the UK is rising. This has a number of significant implications for transport:

1. Older travellers have different requirements from transport, and interact with transport information providers in different ways.

For example, access to travel information from websites, teletext and text messages may be more difficult for older travellers. Older travellers may require better signage and lighting than younger travellers, either at transport interchanges or on roads.

2. Older travellers may be more reliant on public transport, because they are less likely to hold driving licences than middle-aged travellers, and are more likely to lose them on medical grounds at the age of 70. They also tend to travel fewer miles on the motorway network.

Department for Transport statistics show a strong trend towards fewer younger drivers holding driving licences than before. In 2003, only 28% of those aged between 17-20 held a full licence, compared to 48% in 1993. This change has several consequences:

Younger people who do not have a driving licence become used to travelling via a variety of modes, including buses, trains, cycling, walking, and by co-operation with others who have a licence. They are likely to continue to consider these other modes even after they have gained a licence.

The lower number of younger licence holders may simply indicate that people are passing their test later in life, because of the cost of taking a test. However, it may indicate that a larger proportion of the population than in previous generations will never pass the more stringent test in force since 1994. If so, there would eventually be significantly fewer drivers with licences, and the historic pattern of rising demand for road space due to rising economic prosperity will no longer continue.

Unpublished research by TRL has added national population census data to the DfT statistics on the proportion of drivers with a full licence in each age group. This shows that the number of people under 30 with a full licence fell by 1.1 million in the period 1993-2003, despite a slight increase in the number of UK residents in that age category. This was a fall of 16% of the total number of 17-30 year olds holding a full licence.

The peak driving years for most drivers lie in the age range 30-60, so the true effect of fewer younger drivers will only manifest itself incrementally in the period 2003-2033. Projections for future demand for road space would need to be re-evaluated, including new road schemes that are based on projections of traffic growth in this period.

Local Transport Today (26 May 2005) reported that the DfT is now commissioning research to improve its prediction tool, the 'national transport model'. The model predicts a rise in traffic in London of between 18 and 26% from 2000-2010. In practice, there has been zero growth.

Health

The Department of Health links rising levels of obesity with increased levels of motorised transport and decreased levels of physical activity. This has recently resulted in government initiatives to encourage walking and cycling, and to reduce the 'school run' by car. However, central government funding for walking and cycling is still a very small fraction of spending on roads and rail. It is unlikely that walking and cycling rates will rise in the period 2005-2015 unless this situation is partially reversed.

Particulate matter (PM) is strongly associated with serious health effects and appears not to have an identifiable threshold. There is a growing consensus for an approach that seeks to reduce average exposure, rather than focusing scarce resources on the relatively small hotspot 'Air Quality Management Areas' ('AQMAs').

This suggests that ambient air quality targets for PM need to be based on reducing local emissions. The latest advice from the World Health Organisation suggests that exposure to $PM_{2.5}$ is reducing average life expectancy across North Western Europe by between 9 and 15 months (Rea 2004). Hence air quality is at the same level as road accidents as one of the major killers in society, behind only smoking and dietary factors.

The Sustainable Communities Plan

The Sustainable Communities Plan was launched in early 2004. The plan foresees housing development in the South East being concentrated at four locations. These are at Milton Keynes, Ashford, 'Thames Gateway' and London-Stansted-Cambridge-Peterborough. The total expenditure of £22 billion will include £5 billion for affordable housing, and around £1 billion for key workers. The limiting factor on this investment will be transport. Looking at the London-Stansted-Cambridge-Peterborough development, it is clear that the M11 will be pushed beyond capacity by the size of development proposed. The Thames Gateway currently has a very low level of transport provision. The success of the sustainable communities plan is likely to hinge on the extent to which detailed design can reduce the need for travel, and the success or otherwise of the plan's proponents at public inquiries into expansions of the transport network.

The Community Infrastructure Fund (CIF), announced in July 2004 as part of the Comprehensive Spending Review, is designed to support the transport costs required to enable faster housing development in the four growth areas as announced in the Sustainable Communities Plan. It will complement, not replace mainstream transport spending in the four growth areas.

Key issues for English Nature:

- As a statutory consultee on new transport schemes, English Nature could check and challenge traffic forecasts. New road schemes are based on traffic projections 15 years after scheme opening, ie typically 20 years in the future. A very strong challenge could be made if the number of active drivers in the 30-60 age range will actually be lower, 20 years in the future, than the number today. However, if justified, such a challenge would be relevant to all future road schemes.
- A key issue to monitor is the ODPM sustainable communities' strategy and consideration of sustainable transport within the growth areas.

Opportunities to input:

- Contributions to the sustainable communities – growth area initiatives.
- Provision of comments on the Community Infrastructure Fund projects.

Links:

DfT. October 2004: *National Travel Survey 2003: Final results*. Available from: http://www.dft.gov.uk/stellent/groups/dft_transstats/documents/page/dft_transstats_031840.pdf

DfT. November 2003. *Older drivers, illness and medication*. Available from: http://www.dft.gov.uk/stellent/groups/dft_rdsafety/documents/page/dft_rdsafety_028047.pdf

C2 Rail and buses

Rail

The *Future of Rail* White Paper in July 2004 has resulted in the Railways Bill 2004, which is currently before Parliament. It is not certain that this Bill will be enacted this session. The Bill promotes the fourth new structure for the rail industry since 1994, and returns responsibility for rail strategy to the Department of Transport. The main changes are:

- 'Network Rail' will operate the industry as a public private partnership, and replace the Strategic Rail Authority.
- 'Office of Rail Regulation' to cover safety, performance and cost.
- Local Passenger Transport Authorities and Transport for London (TfL) will be able to commission rail services.

Importantly, there is likely to be a continued reduction in the number of operating companies that hold franchises to operate rail services. The surviving operators will continue to introduce new rolling stock, which in some areas is leading to a reduction in mean fleet ages by 30 years, over a period of perhaps 2-3 years. This increases patronage, and decreases environmental impacts.

Enthusiastic, focussed support by local groups may be a key factor in maintaining rail links. In the case of the Wensleydale scheme, determined lobbying may encourage the re-opening of disused lines. The Wensleydale scheme involves a local group operating the Trans-Pennine rail link between the Settle-Carlisle and East Coast Main Lines. A 40 mile route is available, running through the Yorkshire Dales National Park. This is improving sustainable access to this recreation area. The possibility of re-opening routes highlights the importance of protecting the routes of former rail links from development, in order to keep open the option of re-commissioning the route in future.

Buses

Bus passenger miles are increasing in the UK, particularly in London. Most bus services are either scheduled by private companies, or by local authorities under quality bus partnerships or as subsided services placed on the bus franchises.

Government stated in the 2004 *Future of Transport* White Paper that it seeks more 'demand responsive' bus services. These schemes do however require more active participation by users, and require the provision of information to users.

In 2005, TfL completed a successful trial of buses powered by hydrogen fuel cells that emit only water vapour at the point of use. Greenhouse gas emissions are displaced to the point where hydrogen is manufactured. At £1million+ per bus, progress will not be rapid.

Policies adopted to address Air Quality Management Areas are encouraging renewal of bus fleets. As an example, in January 2005 Winchester acquired ten new LPG buses, and re-engined several of the oldest buses in its fleet. These vehicles are used as 'park-and ride' buses for six days per week. They then run on longer inter-town routes one day per week, in order to keep the engines in optimal condition. These measures are part of a package

designed to respond to the newly declared Winchester AQMA.

The second round of LTPs presents an opportunity for local authorities to set upper limits for the maximum and mean ages for buses that are used. The Police Reform Act 2002 allows Chief Constables to accredit Vehicle Operator Services (VOSA) staff with the power to stop goods and passenger vehicles. 29 police authorities had done this by February 2005, adding significantly to the number of staff involved in the surveillance of both commercial vehicle and bus standards. Roadside checks help to eliminate illegal vehicles, and the congestion caused by the disproportionate number of accidents and breakdowns in which they are involved. LTPs can specify that these checks take place.

Key issues for English Nature and opportunities to input:

- Network Rail has control over Sites of Special Scientific Interest (SSSIs) on its estate and is making a contribution to the PSA target for these sites.
- Support for rail, tram and guided bus projects where these do not threaten statutory conservation sites.
- As a statutory consultee on LTPs, English Nature can make recommendations on the minimum environmental standards and ages of bus services. But probably wouldn't contribute views on this without further guidance/information being available.

Links:

The Railways White Paper *The Future of Rail*, January 2004: Available from: http://www.dft.gov.uk/stellent/groups/dft_railways/documents/page/dft_railways_031107.hcsp

C3 Freight, ports and shipping

Freight

Most freight in the UK continues to be transported by road. No foreseeable policy developments are likely to challenge this in the period 2005-2015.

The Government continues to encourage and monitor 'Freight Quality Partnerships', which include local Government and industry representatives. These partnerships decide issues such as routing in sensitive areas, load sharing and town centre access. There is little environmental input to these bodies.

During 2005-7, the Government plans to rationalise its main mechanism for subsidising the switch between freight modes. From April 2005, a 'Sustainable Distribution Fund' will disperse money for water freight and road haulage. From 2007, the fund will also disperse money for rail freight.

There will be further growth in air freight, with some regional airports planning for an increase of well over 100% in the weight of air freight over the next 10 years. This will have negative effects for CO_2 emissions, noise, particulates and oxides of nitrogen. Some airports may need to devote more land to freight handling facilities, and to surface transport.

Ports and shipping

Existing Government policy remains the White Paper *British Shipping: Charting a New Course*. This dates from December 1998, with an update in November 2003. Current policy seeks to increase skills, encourage employment, and increase the UK's attractiveness to shipping enterprises and to gain safety and environmental benefits. The Government intends to produce a new ports strategy to replace *'Modern Ports'* published in 2000 once decisions for Bathside Bay and London Gateway have been published. This will hopefully set a clear framework for priority port development.

During 2005-2015, there will be pressure to expand port infrastructure. This arises due to capacity constraints on existing ports, and the rapid expansion of global trade. Expansion will potentially affect coastal habitats. This expansion will stimulate additional freight traffic on roads leading from the ports, and is likely to require more capacity on railways and roads leading to the ports.

The government responded in January 2004 to the Select Committee's report on ports, see the links below. Paragraph 22 of this response mentions briefly the government's view of the extent to which the Habitats Directive affects port developments and dredging.

Current EU policy is concentrating on shipping's activities in coastal waters. The European Parliament has decided to make deliberate or grossly negligent pollution of EU waters a criminal offence, and is currently finalising tighter regulation of the sector with the EU's Commission.

Key issues for English Nature:

- Increased demand for additional road capacity from ports to point of delivery.
- Potential for land-take for freight handling facilities at airports and sea ports.
- Contribution to global warming through significantly more air freight
- Contribution to global warming through more surface transport to and from airports and ports.
- Importance of under-utilised port land in long term. Once lost it will be an expensive and hard modal node to replace.

Opportunities to input:

- English Nature can submit comments on development plans that include the expansion of air freight, or at the Environmental Impact Assessment stage. The comments can focus on the amount by which greenhouse gas emissions will increase with each planned expansion.
- Planning Inquiries.
- Consultation phase of the forthcoming ports White Paper, ie the Green Paper.

Links:

DfT Freight statistics. Available from:
http://www.dft.gov.uk/stellent/groups/dft_transstats/documents/downloadable/dft_transstats_035148.pdf

DfT Freight policy. Available from:
http://www.dft.gov.uk/stellent/groups/dft_freight/documents/page/dft_freight_026025.hcsp

Section 22 of the Government's response to the Transport Select Committee report on ports, January 2004. Available from:
http://www.dft.gov.uk/stellent/groups/dft_shipping/documents/page/dft_shipping_027008.pdf

Modern Ports: A UK Policy. Nov 2000, modified June 2003. Available from:
http://www.dft.gov.uk/stellent/groups/dft_shipping/documents/pdf/dft_shipping_pdf_505279.pdf

A project Appraisal Framework for Ports, modified Oct 2004. Available from:
http://www.dft.gov.uk/stellent/groups/dft_shipping/documents/page/dft_shipping_508251.hcsp

'PORTSWATCH' CAMPAIGN GROUP. Available from:
http://www.foe.co.uk/campaigns/transport/portswatch/

C4 The future of regional institutions

Regional Development Agencies (RDAs) were established in 1999 to promote economic development and regeneration. They are non-departmental public bodies with statutory purposes that also include: business efficiency, investment and competitiveness; promotion of employment; to enhance the development of relevant skills for employment; and to contribute to sustainable development.

RDA funding comes from various central government departments, and has been increasing year on year:

2002/03 £1.6bn;
2003/04 £1.7bn; and
2004/05 £1.8bn.

Each RDA takes responsibility for specific initiatives, which are of relevance to a particular Government department. The lead for rural and environmental issues is taken by East of England Development Agency (EEDA). Transport is led by Advantage West Midlands, with recent work being produced on the economic evaluation of transport projects.

Overarching objectives and priorities for sustainable development in each region are set out in Regional Sustainable Development Frameworks (RSDFs) or Integrated Regional Strategies. These are developed and kept under review by key partners, including Regional Assemblies, Government Offices, RDAs, business, local authorities, charities and voluntary groups. They are endorsed by the Regional Assembly and inform other regional strategies, including both Regional Spatial Strategy (RSS) and Regional Economic Strategies.

Each Region has in place regional policy documents that include Regional Planning Guidance, which incorporate the Regional Transport Strategies (RTS). RPGs are being replaced by Regional Spatial Strategies (RSS), which will continue to set out the region's RTS.

Transports status at a regional level, and decisions on the funding of transport projects and initiatives looks to be aided in the future by Regional Transport Boards (RTB). Two such groups have recently been piloted (one in the South East), with positive effects. Their stated objectives include the alignment of different regional strategies with transport plans in order to provide a sound basis for the development of advice in relation to potential transport budget allocations. In doing this they should raise the profile of transport so that decisions on transport are bought into line with, and made at the same time as decisions relating to other key areas (eg housing). The Boards will increase the level of transparency in this decision making by meeting in public. They will be made up of representatives from the relevant Regional Assembly, alongside representatives from business, environmental and voluntary sectors. A number of other members will be drawn from the regional Government office (eg Government Office for the South East), Highways Agency, Strategic Rail Authority, and the bus industry (South East England Regional Assembly 2004).

However, the Government Office for the South East has warned that RTBs are likely to have little influence on spending decisions until the end of the decade as schemes that are already listed in a funded programme will not be subject to prioritisation by RTBs (Local Transport Today, 26 May 2005). Therefore, schemes that will be exempt from prioritisation include

non-core Highways Agency network that already have start dates, plus the A3 Hindhead improvement (which currently has no start date). The South Hampshire Rapid Transit scheme is also exempt.

The future of Local Transport Plan (LTP) development

Experience from the previous LTP1 and LTP2 processes has suggested that there might be some fundamental changes to the process over the next two cycles (10 years). Some possible directions are listed below:

- One certain change is that funding for LTPs will be decided at a regional level in the future. This has caused concern amongst rural interest groups that those authorities with large growing urban populations will be given the largest share of money (as regional authorities try to promote development in these urban areas). Rural authorities may lose out in the future and rural transport provision may suffer.
- The *Full Guidance on Local Transport Plans* (2004) has seen a demotion of environmental priorities (apart from Air Quality). Although unlikely to ever be completely disregarded, environmental concerns may well fall further down the list of LTP priorities, and statutory environmental bodies should work to reverse this trend.
- The introduction of Performance Indicators has been seen by many as restricting the levels of innovation with LTPs. The increasing importance of these indicators may see further restrictions on innovative thinking, much of which may have centred around ideas promoting sustainable transport.
- The level of funding being received to implement LTPs by authorities, rarely covers the needs of the whole plan. In some cases the funding may cover as little as a third of the schemes suggested within a plan. The level of funding for future LTPs needs to be reviewed, and it is possible that future LTPs may be more limited in their scope.
- Strategic Environmental Assessment was required as part of LTP2. The monitoring part of this process should help LTP3 to be better informed, particularly for environmental aspects. However, this will depend on how comprehensively this monitoring is undertaken, and how much is taken into account.

LTP2 has highlighted the importance that the DfT has attached to accessibility planning in the LTP process. The timetable for the LTP2 has been substantially amended in order to allow accessibility planning software (Accession) to be issued and used in the LTP2. It is likely that 'accessibility' will become the backbone of the process in the future.

Key issues for English Nature:

- Strategic partnership with RDAs is advisable; this may become more important with the transfer of some Countryside Agency responsibilities to RDAs.
- The roles and responsibilities of RDAs, RAs and GOs are under review. There is a possibility that RDAs will have greater statutory responsibilities. If this is the case, it is very relevant to English Nature that RDAs' raison d'ĕtre is regional economic development. All RDAs include sustainable development in their key objectives. However, RDA 'ownership' of the sustainable development remit has, in the past, appeared to be much less robust than ownership of economic growth and employment.
- English Nature and the future *Natural England* must ensure through consultation, that regional funding for LTPs is not biased towards urban areas, and also that

environmental issues move further up the priorities list in future LTP guidance.

Monitoring commitments made within the Strategic Environmental Assessments must be fulfilled so as that the results can inform future LTPs. Statutory Environmental Bodies should encourage/aid authorities in the monitoring of indicators which are relevant to each body (eg verge maintenance, habitat creation).

Opportunities to input:

- Consultation within the Regional Spatial Strategy (including the Regional Transport Strategy), many first round consultations completed.
- Increased opportunities for English Nature to support the new functions being assigned to the regional development agencies and assemblies.
- Look to participate on, or otherwise influence, Regional Transport Boards, and seek to ensure that prioritisation of schemes takes into account biodiversity and geological issues.

Links:

The policy statement on the procedures, content and how RSSs are affected by the Act and associated regulations. Available from:
http://www.odpm.gov.uk/stellent/groups/odpm_planning/documents/page/odpm_plan_030921.pdf

7 Technological issues

D1 Infrastructure: implications of climate change
Rising sea levels and wetter winters (along with more severe storm events) will lead to increases in flash flooding and drain inundation. This will not only impact upon transport infrastructure, but also increase the impact of transport infrastructure on flood flows. For example, places in close proximity to large impermeable areas such as roads, car parks, and tarmac areas associated with airports, will become more susceptible to flooding. In response to this, both emergency and long term drainage systems surrounding transport infrastructure will have to be expanded to cope with increased flows and regularly maintained. Although there is likely to be less weathering from snow and ice, transport infrastructure will still suffer increased degradation from high winds, driving rain and salt water (on the coast), as extreme storm events become more frequent. Higher summer temperatures will also affect concrete and asphalt, the latter causing rutting in roads, and rail buckling. These factors will have an effect on design and maintenance regimes (DfT 2004). A combination of wetter winters, driers summers (with increased soil dryness) and more heavy rain events will lead to increased incidence of landslips and subsidence/heave (with associated increases in accidents and delays). Change in travel patterns and modal shift as a result of climate change are complex. Warmer temperatures (and drier summers) might lead to an increase in cycling/walking, whilst conversely, travellers may revert to car travel to avoid heat induced disruption and lack of air conditioning on public transport (DfT 2004). The south of the UK is likely to develop a more Mediterranean style climate. One consequence of this may be to attract visitors and hence increased air and land travel in the summer months. This will not only elevate emissions from aviation and land transport, but will also put rising pressure on the transport, housing and water resources within the south. Conversely, drier, hotter summers within the UK could lead to a decrease in air travel from the UK to warmer climates during the summer months (so cutting down on emissions from aviation). An increase in heavy rainfall events, high winds, summer heat, winter glare, and road rutting will all create more dangerous driving conditions. This will not only lead to a corresponding rise in accident rates and associated congestion, but also the risk of pollution events from accidents involving vehicles carrying toxic materials. Inland waterways within the UK will receive less water, and some canals may be vulnerable to drying up, whilst rising sea levels will mean that the biodiversity rich intertidal zones in ports will suffer ‘intertidal squeeze’ (ports may need to provide substitute habitat elsewhere). The UK Climate Impacts Programme (UKCIP) had developed guidance on how to take climate change assumptions into account when making decisions. This should include taking ‘no regrets’ action (building on predictions for the next 30yrs), streamlining contingency planning, regular auditing of infrastructure, and taking climate change into account when carrying out routine renewal (DfT 2004).

Implications of conservation work on transport infrastructure

It may be the case that conservation work and transport infrastructure integrity increasingly come into conflict. A good example is that of re-wetting bogs and the effect on the rail network. Lowland saturated bogs are important habitats for flora and fauna, in addition to being an important carbon sink. In order to fulfil these functions it must remain saturated, however, many such areas have become dry and shrunken.

Railways often cross or skirt around the edges of peat bog areas that have been or will need in the future to be re-wetted. This rewetting may cause instability for railway infrastructure (or roads if nearby). Temperature increase and soil dryness make it even more imperative to maintain the re-wetting programme. The conflict between the importance of maintaining saturated peat bogs, and maintaining transport infrastructure will have to be broached by the relevant transport and environmental bodies in the near future.

As the climate changes it is possible that some previous biodiversity and landscape designations may cease to exist whilst others will need to be designated. This may mean that proposed transport schemes will face new environmental restrictions, whilst additional mitigation may be needed for transport infrastructure already in place. The importance of compensation habitats will also grow and might be seen as an opportunity for conserving habitats under threat due to the new climate.

Key issues for English Nature:

- It is possible that roadside infrastructure will have to be larger and more robust – with deeper foundations (possibly impacting upon the environment), and that maintenance projects will increase in frequency (also with knock on cumulative effects for the environment).
- The Highways Agency currently maintains a soft estate roughly the size of the Isle of Wight. Maintenance of this soft estate and in particular roadside verges will have to adapt, as road and rail-side plant communities are likely to change in composition and growth rates.
- Increased pollution incidents from foul sewers siphoning back as culverts fail and blocked/inundated drainage systems. This would accompany a possible rise in pollution events resulting from accidents caused by bad weather conditions.

Opportunities to input:

- The need for larger and more efficient drainage systems may provide an opportunity for enhancing the conservation value of transport infrastructure, but may also involve increased land take in areas of high biodiversity value.
- If following UKCIP guidance, each of the key transport bodies should follow the Associated British Ports lead in developing climate change templates which help in the self-assessment of how/where particular parts of the transport infrastructure are at risk. English Nature should contribute to the compilation of these templates so as ensure that biodiversity is taken into account. For example, changing maintenance techniques to suit changing plant/animal communities in soft estate, or, identifying the need for replacement habitats when changing conditions force conflict between infrastructure and biodiversity (eg intertidal squeeze).

Links:

English Nature response to Review of UK Climate Change Programme.

Modelling Natural Resources Responses to Climate Change (MONARCH), Environmental Change Institute, University of Oxford. Available from: http://www.eci.ox.ac.uk/biodiversity/monarch.html

The Changing Climate: Impact on the Department for Transport. Available from: http://www.dft.gov.uk/stellent/groups/dft_science/documents/page/dft_science_027568.hcsp

TRL Ltd. 2001. *Climate Change and the Highways* Agency.

English Nature. 2005. Railways and raised bogs. Briefing for meeting with Network Rail 20 April 2005,

D2 Vehicle fleet: environmental impacts of vehicles in use

DEFRA study

In March 2005, DEFRA published research on policy options that address emissions and air quality problems. See the links section below. The study used a multi-criteria analysis to recommend policy options for the period 2005-2050. The policy options receiving the highest recommendations were:

- 2005-2010: 'Scrappage scheme' for passenger cars that pre-date the introduction of Euro II exhaust emissions standards. A similar policy has been recommended by the Commission for Integrated Transport.
- 2011-2025: Increased uptake of battery powered vehicles; new diesels formulations; further integrated land use and transport planning.

Scrappage schemes have been used in Italy, France and Spain. Their main attraction is that they address accidents, CO_2 emissions, noise and congestion, besides air quality problems. These schemes also highlight the fact that new vehicles have emissions of particulates and NOx that are orders of magnitude lower than those of older vehicles that are still in use.

Cars of the Future **Transport Committee report**

The House of Commons' Transport Committee's report on *Cars of the Future* provides a thorough overview of progress in the UK on improved vehicle technology. However, the most relevant comment is in paragraph 29: '*The Government has set a range of commendable targets to reduce greenhouse gas emissions from surface transport. However, it has failed to match its commitments with tough policies to achieve these goals'.* The report encourages the government to legislate for lower emissions. We now know that the EU Commission is considering legislation to do exactly this, although the government has not proposed legislation either in the election manifesto or the Queen's Speech in May 2005.

Alternative fuels

The UK market for alternative fuel vehicles has not grown as significantly as previously expected in the period 2000-2005 due to:

1. Reductions in financial support by Government for conversion of vehicles to LPG and CNG.

2. Reductions in the fuel duty advantages enjoyed by alternative fuels, partly due to the abandoning of the 'fuel duty escalator' for annual rises in petrol and diesel prices.

3. Reduced emissions from petrol and diesel engines, particularly when used in 'hybrid' power systems with electrical storage.

Engine standards

By January 2006, all new passenger cars must meet the 'Euro IV' exhaust emissions standards. Commercial vehicles need to meet the new Euro IV standard from October 2006.

'Euro V' standards will come into force in 2010. These:

1. Will virtually eliminate emissions of carbon monoxide and unburnt hydrocarbons from new vehicles, and further reduce emissions of NOx and the larger 'PM_{10}' particulates that are currently regulated.

2. Do not reduce CO_2 emissions or regulate directly the emissions of smaller '$PM_{2.5}$' and '$PM_{submicron}$' particulates.

From 2007, Greater London will be included in a 'Low Emission Zone'. Initially, older commercial vehicles will be forbidden from entering the zone. This zone will reduce the market value of the oldest vehicles, leading to their elimination from the vehicle fleet and subsequent reductions in emissions.

CO_2 emissions

The CO_2 emissions per kilometre from new cars sold in the UK have fallen in each successive year since 1997. The rate of fall is however much lower than that specified in a voluntary agreement between the EU commission and the car industries. The European Parliament has now called on the commission to present a proposal for legislation to limit CO_2 emissions from new cars, which is expected during 2005.

Noise

Road traffic noise depends on tyre design, vehicle speed, traffic levels and road surface type. The *Environmental Noise Directive*, 2002/49/EC, is now in force. It requires the compilation and publication of noise maps, for conurbations and for roads with higher traffic levels. Article 8 requires that the UK develop a strategy to reduce road transport noise by 2008.

Key issues for English Nature:

- Lower vehicle speeds, improved air quality and lower noise could have indirect benefits for biodiversity.
- Position on biofuels. Biofuels can reduce transport's contribution to global warming. However, a high level of domestic production could further intensify rural land management and slow progress towards farmland biodiversity targets.

Opportunities to input:

- An opportunity for English Nature to demonstrate good practice to others through changing to alternative fuels and ensuring the latest engine emissions standards when renewing the organisation's vehicle fleet.
- English Nature might carry out further research into the effects of the various sizes of particulates on sensitive habitats, plant and animal species, both in air suspension and when dissolved in water.
- Promote the development of standards for biofuel production that maximise their greenhouse gas savings and prevent adverse impacts on biodiversity.

Link

DEFRA. 2005. *Technical and non-technical Options to Reduce Emissions of Air Pollutants from Road Transport.* Available from:
http://www.airquality.co.uk/archive/reports/cat09/0504061608_ED48300_04-04-05.pdf

An EU technical paper on sustainable road transport lays out key issues. Available from:
http://register.consilium.eu.int/pdf/en/04/st13/st13160.en04.pdf

Transport Committee's report on *Cars of the Future*. Available from:
http://www.publications.parliament.uk/pa/cm200304/cmselect/cmtran/319/31902.htm

D3 Vehicle fleet: the informed traveller and vehicle

The informed traveller

During 2005-2015, it will become the norm for travellers:

1. To be in possession of 'real-time' travel information whilst en route to a destination. This information will include up-to-date information on congestion on road networks, and delays/cancellations to trains and other scheduled transport systems.

2. To plan their journeys in the light of forecasts of likely delays and journey times at their intended time of travel.

The consequence should be a reduction in the rate of growth of congestion. For example, a driver on the motorway network will know the location and duration of delays elsewhere on the motorway network. The driver may either divert on to an alternative route, or choose to abort the journey. However, as journey times become more predictable, travellers may plan their journeys for times either side of the existing peak travel periods.

Several systems already offer users these possibilities, and the key change in 2005-2015 will be the very widespread adoption of these systems. As 3G mobile communications devices become the norm, users will be able to view congestion maps and updated travel timetables on mobile devices, in addition to just receiving text message updates.

Examples of the latest systems are provided in the 'Links' section below.

The vehicle

During 2008-2010, the European Union's 'Galileo' satellite-based positioning system will become available, with the first satellite launch being in June 2006. The system:

1. Will offer cheap and accurate in-vehicle devices for navigation and road user charging.

2. Might offer a reduction in the time period between landing slots at airports. If aircraft land for example every 90 seconds, instead of every two minutes, then a given runway will be able to handle many more aircraft per day. This will lower the demand for new runways. It will however raise capacity ceilings on airports that are currently full. This development may combine together with a move towards larger aircraft, such as the Airbus A380. These changes might both increase the proportion of land used at airports for terminals, aircraft hard-standing, freight storage and surface access, relative to the proportion used for runways.

Key issues for English Nature:

- The capacity of transport networks is affected by the transition to the 'informed traveller'.

Opportunities to input

- English Nature's comments as a statutory consultee could cover the question of whether or not the most technologically efficient transport means are being used for any specific task.

Links

The Highways Agency's Traffic Information website: http://www.highways.gov.uk/trafficinfo/. This website offers both real-time information on traffic conditions, and a 'traffic forecaster facility'. The forecaster allows travellers to see what the likely level of congestion will be at a time and date that they specify in the future.

The Government's 'Transport direct' website: http://www.transportdirect.info/TransportDirect/en/ which includes a link to the live feed of train departure boards from stations at: http://www.nationalrail.co.uk/ldb/livedepartures.asp

D4 Vehicle Fleet: traffic speeds

Vehicle speeds influence a large number of different transport variables. Their key effects include determining the emissions of greenhouse gasses for a given journey, effects on congestion levels and hence on the demand for new road building. Some research is also now taking place into the effects on biodiversity, through deaths of mammals and amphibians due to moving traffic.

1. Prior to 1990, faster road and rail links enabled travellers to travel further in a given period of time. This was one factor that increased typical annual distances travelled, even though the mean amount of time spent travelling has been approximately constant for many years. Transport links are now not becoming faster, and in some cases are slowing. This may limit or even reverse the rate of increase of distance travelled per person per year. If distances travelled do not rise, there is less need for new transport links, and the resulting land take and habitat fragmentation. The period 2005-2015 should reveal the effects of these trends.

2. Road vehicles tend to have their lowest fuel usage in a broad range of speeds at around 35-50 mph. As speeds rise above this, the environmental impacts through noise, CO_2 emissions, oxides of nitrogen and accidents also rise. The monitoring and policing of illegal speeds on the road network is becoming more sophisticated and is gaining increasing funding, which is acting to reduce some of these impacts.

3. By the end of 2007, new commercial vehicles with weights from 3.5-7.5 tonnes will all have to be fitted with speed limiters. Such limiters have been fitted to heavier commercial vehicles since 1994. Vehicles of 3.5t and above have much higher annual mileages than private cars, so the resulting improvement in their environmental impacts is disproportionate to their number. The speed limiters will be set to 90km/h (56 mph) and these vehicles will tend to slow other traffic. The EU Commission has concluded that vehicles with limiters emit lower levels of CO_2. They also have fewer accidents, so they reduce the congestion caused by accidents.

4. The EU Commission and other agencies are pressing for speed limiters to be fitted to private cars. EU DG-TREN is supporting this work through the 'SpeedAlert' programme. Limiters are already available as options on Citroen and Mercedes models. The Commission would like to see the fitting of 'Intelligent Speed Adaptation' (ISA) equipment, which sets the maximum speed of a vehicle equal to the prevailing limit at the vehicle's current location. Research by the Institute of Transport Studies unit of Leeds University forecasts large accident savings from such equipment. The Leeds study assumed that vehicle design would not change if ISA equipment were fitted, but consumers are likely to have less reason to buy high powered vehicles once ISA equipment is fitted.

5. Research in Germany in 2004 has quantified the number of human deaths and the value of damage to vehicles caused by impacts with deer on roads. Some similar estimates are available for the UK's roads. The chances of an impact between any animal and a vehicle rise disproportionately with speed. This is because the reaction times of both drivers and animals are constant, although the time available to react falls with vehicle speed, and braking distances increase. Research by Bristol University on mammal collisions may yield more estimates for wildlife kills.

Key issues for English Nature:

- There are no reliable figures for biodiversity loss through transport, particularly road kill of birds, mammals and amphibians. These figures would be a valuable guide to a significant impact of transport. They may be useful for English Nature's submissions on transport schemes. Once researched, these figures could be monitored regularly to detect trends.
- Although the mechanisms are complex, traffic speeds do influence the level of demand for transport infrastructure, and hence the case for construction of new transport links.

Opportunities for input:

- Input by English Nature will depend on research being carried out into the actual death rates for wildlife through transport, ie moving road, rail and airborne vehicles. However, quantifying this would enable English Nature to point out where resources should be expended in protecting wildlife, in addition to traditional habitat preservation measures. There is a high risk, at the moment, that some transport schemes may lead to little or no loss of habitat, but significant loss of wildlife through operation of the scheme when completed.

Links:

Report from the Commission to the European Parliament and the Council: On the implementation of Council Directive 92/6/EEC of 10 February 1992 on the *Installation and Use of Speed Limitation Devices For Certain Categories of Motor Vehicles in the Community* (2001). Available from: http://130.104.105.148/Bede/EBED452001/com2001_0318en01_1.pdf

CARSTEN, O. & TATE, F. 2000. *External Vehicle Speed Control*. Available from: http://www.its.leeds.ac.uk/projects/evsc/del17.pdf

EU-TREn supported working group. Available from: http://www.speedalert.org/

Sweden's experience with ISA technology. Available from: http://www.isa.vv.se/novo/filelib/pdf/allmisabroschyreng.pdf

D5 Vehicle fleet: materials and waste

Light-weight materials in vehicles

Manufacturers are slowly increasing the proportion of materials in vehicles that are either of lightweight or low density. These materials include aluminium, plastics and ceramics. These materials are already used for body panels, and aluminium for engines. Engine components and fuel tanks are slowly being designed to incorporate plastics. In response, steel manufacturers have produced vehicle body shells with around 25% less steel than previous designs, lowering the materials usage in all vehicles. A further reduction of 25% is expected from manganese steels that will become available in car bodies from 2007. There should be consequential reductions in the emission of greenhouse gasses in the use phase of vehicles.

End of Life Vehicle (ELV) Directive

The ELV Directive regulates the disposal of road vehicles in the UK. From 2007, manufacturers will be responsible for disposal of all vehicles of their own marque, of any age. Manufacturers are currently arranging 'authorised treatment facilities'. The Directive sets targets for re-use, recycling and recovery from each vehicle by 2006 and 2015. There should be a reduction in demand for landfill space. It is unclear whether the ELV Directive will result in significantly fewer abandoned vehicles.

The Foresight Vehicle Project

The Foresight Vehicle Project has now been transferred to the Society of Motor Manufacturers and Traders. Eight years after its inception, the project remains only at the design stage. Small-scale trials of technology will take place shortly.

Key issues for English Nature:

The ELV Directive will have a positive effect on the land needed for waste disposal and storage.

Links:

WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT. July 2004. *Mobility 2030: Meeting the Challenges to Sustainability*. Available from: http://www.wbcsd.org/web/publications/mobility/exec-summary.pdf

SMMT. 2004. *Foresight Vehicle Technology Road Map*, *Version 2.0: Technology and Research Directions for Future Vehicles*. Available from: http://www.foresightvehicle.org.uk/info_/FV/TRMV2.pdf

End of Life Vehicles Regulations, SI 2635 of 2003. Available from: http://www.legislation.hmso.gov.uk/si/si2003/20032635.htm
http://www.dti.gov.uk/sustainability/ELVPR_Regs_ResponsetoConDoc.pdf

D6 Infrastructure: materials and waste

New transport links usually require additional land. Existing highways can often be widened or improved without additional land take. However, the materials used to construct the links have other impacts, which may occur far from the construction site. The transport of materials to and from the site has further impacts. Key ongoing changes include:

The aggregates levy, recycling and the use of 'secondary' construction materials:

The aggregates levy came into force in 2002. It is charged on primary aggregates, at a rate of £1.60 per tonne. The main aim of the levy was to promote the use of recycled and secondary aggregates. Recycled aggregates typically come from construction and demolition waste. Secondary aggregates are by-products of other industrial activity, such as pulverised fuel ash from power stations. The aggregates levy appears to be continuing the historic increase in the proportion of secondary and recycled aggregates, relative to primary aggregates.

The overall effects of the levy are however not yet clear. Later in 2005 the results of a triennial survey of aggregates supply will become available. One industry trade group, the 'Quarry Products Association', has complained to the Treasury that large stockpiles of very low quality materials are building up at quarry sites, since it is un-economic to sell them. The other main trade group, the 'British Aggregates Association', is pursuing a court action against the Government over the levy.

Around 10% of the money raised through the aggregates levy has been set aside for use in the 'Aggregates Levy Sustainability Fund'. This fund will now be available until 2007. It funds research that improves the environmental impacts of quarrying and aggregates transport.

In-situ recycling:

Technological progress has recently allowed more examples of full in-situ recycling of materials used in a road surface. The existing surface is removed, processed to form part of the new surface, and then re-laid. This avoids removal of materials from the site, so reduces both transport effects and the consumption of primary materials.

A July 2004 publication from the 'Waste and Resources Action Program' provides an introduction to in-situ recycling, see the links section below.

Whole Life Costing (WLC) and Life Cycle Assessment (LCA):

These techniques have not been adopted widely in the UK, however, TRL will shortly complete a whole life costing study of pavements on behalf of the DfT. Both WLC and LCA are likely to continue to suffer from a low level of understanding, problems with gathering comprehensive data and problems in defining the limits within which effects are to be considered.

Key issues for English Nature:

- Materials and waste issues associated with transport infrastructure continue to impact on biodiversity and geology, particularly through primary aggregates and production of waste. Materials used in construction may cause leachate or other risks to habitats and wildlife.
- Decisions will be taken in 2005-7 on the source of aggregates for the major house-building programmes in the south east of England. The Government and regional authorities are considering using 'marine aggregates', dredged from the English Channel, in place of land-won aggregates. These decisions will have a major influence on the amount of quarrying in the South East in the next ten years, and on the state of the marine environment in the Channel.

Opportunities to input:

- English Nature can promote the wider use of appraisal tools, recycling and the use of secondary materials in responses to consultations.
- English Nature may be able to fund its research by applying to the Aggregates Levy Sustainability Fund, or may influence the research done by continuing to be represented on one or more of the groups that decides where this research money will be spent.

Links:

DEFRA's guide to the Aggregates Levy Sustainability Fund. Available from: http://www.odpm.gov.uk/stellent/groups/odpm_planning/documents/page/odpm_plan_609170.hcsp

Waste and Resources Action Program, particularly pages 26-27. Available from: http://www.wrap.org.uk/docs/Highways%20page-per-view.pdf

A case study explaining one example of *in-situ* recycling in practice is shown at: http://www.aggregain.org.uk/aggregate_files/86-ChurchRoad.pdf

8 Assessment & appraisal

E1 Modernisation of the *Design Manual for Roads & Bridges* (DMRB) Volume 11

The *Design Manual for Roads and Bridges* (DMRB) Volume 11 provides guidance on environmental assessment requirements for highway schemes in the UK. Volume 11 is used more widely in other linear projects and other developments with a transport component.

The Highways Agency is modernising Volume 11 to bring it up to date with modern legislation, project appraisal and Environmental Impact Assessment (EIA) practice. The overarching environmental assessment guidance is being orientated away from the current prescriptive approach. Instead, it will focus upon an appropriate level of assessment aided by a more robust approach to scoping. Sections 1 and 2 have been updated. The individual topic guidance in section 3 is now being updated and revised to accord with the new approach.

This modernisation partly fulfils the Government commitment set out in the New Deal for Trunk Roads in England. This commitment was that: "*The sections of the Design Manual for Roads and Bridges dealing with environmental assessment and good design practice will be reviewed in consultation with the statutory advisory bodies and other interested parties to ensure that it remains up to date*" (DETR 1998, p.28).

As part of the modernisation of Volume 11, it is hoped that a more efficient and effective approach to consultations with greater reliance upon targeted standing advice may be used. The Highways Agency is working with English Nature and the other statutory environmental bodies on this task.

Key issues for English Nature:

- To ensure the satisfactory coverage of biodiversity and geology matters in Section 3 topic guidance.
- To ensure that officers are able to engage effectively in the environmental assessment processes.

Opportunities to input:

- English Nature was consulted during the first phase of the modernisation, via a questionnaire to local and national staff as well as invitation to a workshop at the Highways Agency.
- Possible consultation and advisory roles for the Section 3 biodiversity topic guidance.

Links:

DEPARTMENT OF THE ENVIRONMENT, TRANSPORT AND THE REGIONS. 1998: *A New Deal for Trunk Roads in England.* DETR, London. Available from: www.dtlr.gov.uk/itwp/trunkroads/index.htm

The Design Manual for Roads and Bridges. Available from: www.official-documents.co.uk/document/deps/ha/dmrb/index.htm

E2 Highways Agency & Department for Transport (DfT) appraisal and assessment processes

The New Approach to Appraisal for transport (NATA) was established in 1998. NATA introduced a more comprehensive appraisal process to support investment decisions, reflecting environmental, accessibility, integration and safety criteria alongside economic factors.

However, practical challenges remain, for example in ensuring a suitable and consistent approach when applying appraisal to soft measures/demand management and at the policy level.

Key areas of change and further development in transport appraisal and assessment practices in the short to medium term include:

- The interface between appraisal processes, more in-depth technical assessments (such as Environmental Impact Assessment) and the project design process.
- Achieving high standards supported by institutional capacity in appraisal amongst public authorities and consultants/contractors.
- Monetisation of environmental effects, which is likely to proceed more rapidly for quantified effects such as greenhouse gas emissions, noise and local air quality.
- Improving understanding and reporting of the "value of time" and improving consistency in appraisal data across different modes.
- The need to introduce new appraisal topics to address emerging policy issues such as the increasing importance of sustainability/intergenerational equity, social/community effects, natural resources and health.
- The relative importance of NATA alongside other approaches such as the assessment against shared priorities in Local Transport Planning and methods for sustainability appraisal of Regional Transport Strategies within Regional Spatial Strategies. In the meantime Commission for Integrated Transport (CfIT) recommend that NATA is applied to other sectors such as housing and regeneration (CfIT, 2004).

Considerable confusion exists between assessment and appraisal. The former is required by regulations, the topics addressed are defined by what is deemed to be significant and the techniques used must be appropriate. Appraisal is a requirement of policy – and more of a tool to aid investment decisions - and addresses a limited number of topics in a fixed manner with a standard set of techniques, to provide consistency across the projects for decision makers.

Key issues for English Nature:

- Maintaining, amongst local and regional staff, an appropriate level of understanding of the potentially complex transport appraisal methods operated by the DfT, Highways Agency and local authorities.
- The monetisation of biodiversity and geological effects may present challenges to English Nature. Conversely, if methodologies are introduced for some or most other environmental topics, biodiversity interests may be marginalised by decision makers.

Opportunities to input:

- Promoting improvements in NATA and its linkages with Environment Impact Assessment and Strategic Environmental Assessment; full and proper use of these tools and quality assurance by DfT/Highways Agency is important.
- Involvement with research projects on appraisal and monetisation led by the DfT and the Highways Agency.

Links:

The Transport Analysis Guidance website. Available from: www.webtag.org.uk

CfIT, 2004: *A Review of Transport Appraisal*. Available from: www.cfit.gov.uk/reports/rta/index.htm

E3 Valuing the environmental externalities of transport

Significant progress has been made in valuation techniques during the last ten years. These approaches are likely to influence government policy in the period 2005-2015.

Valuation approaches are particularly useful for evaluation of 'externalities'. Externalities are the effects of an action that are not fully priced into the decision by the parties involved to pursue the action. In particular, DfT assessment of major transport schemes may be refined to include monetary evaluations of more of the effects of each scheme than at present. There remain many important questions before valuation techniques can be fully relied upon, including questions about how to handle inter-generational and equity issues.

A further influence in the development of valuation in decisions is the use by government of Regulatory Impact Assessment (RIA). The government is publishing an RIA for most new national and European regulation. Each RIA requires a statement of the costs and benefits of the legislative proposals. A recent RIA on small non-road engines has been cited by the government to practitioners, and states values for the various gaseous emissions that will be saved by the introduction of the new legislation.

Key developments in valuation that will influence the period 2005-2015:

1. EU 'extern E' projects. These projects looked at the costs of various environmental externalities of energy supply and transport. The EU Transport White Paper quoted monetary evaluations for the major effects of 100km of driving by a heavy goods vehicle on a motorway with little traffic. These were:

Climate change 0.2-1.54 Euros
Air pollution 2.3-15 Euros
Noise 0.7-4 Euros
Infrastructure 2.1-3.3 Euros
Congestion 2.7-9.3 Euros

Even with these ranges of uncertainty, such valuations allow an assessment of proposals and the relative performance of different transport proposals.

2. The DfT's Birmingham noise study in 2004 sought to value the costs of noise from aircraft, rail and road traffic in the Birmingham area. The study's results were inconclusive on aircraft noise, but delivered valuations for the other two sources.

3. *Highways Economics Note* No. 1 for accidents. This document evaluates the cost to the UK of accidents, in terms of the public's 'Willingness to Pay' for avoidance.

Key issues for English Nature:

- Economic valuation techniques may help to remove uncertainty in the relative value of environmental goods. There may be mixed benefits for English Nature, and further work should be undertaken. These techniques are likely to be incorporated in to road user charging and scheme economics. Subjective and local knowledge will remain important in decisions.

Opportunities to input:

- Government work, such as NATA appraisal of transport schemes, is likely to continue to include monetary valuations of environmental effects. Where English Nature is a consultee on these schemes, English Nature can act to ensure that only robust valuation approaches have been used, and that these have been applied correctly.
- The DfT is carrying out research to develop other methods for valuing transport externalities. The Birmingham work should lead to financial values for noise being included in scheme appraisal during 2005. English Nature could help direct any research that seeks to value eg habitat, protected species, greenhouse gas emissions or other issues.

Links

DfT's Birmingham study valuing noise. Available from:
http://www.dft.gov.uk/stellent/groups/dft_econappr/documents/divisionhomepage/032865.hcsp

Highways Economics Note No. 1. Available from:
http://www.dft.gov.uk/stellent/groups/dft_rdsafety/documents/pdf/dft_rdsafety_pdf_507642.pdf

9 Economics and fiscal instruments

F1 Economic instruments for climate change and transport

In 2005, the EU introduced a trading scheme for allowances to emit CO_2, the emissions trading system or 'ETS'. This scheme covers emissions from fixed sources of CO_2, such as power stations and major industrial plants, which account for 46% of UK industrial emissions of CO_2. The second phase of the scheme starts in 2008. That phase is likely to include other sectors of the economy. British Airways has expressed a view that aircraft emissions should be included in the ETS, rather than subject to fuel duty. The EU Commission wishes to extend the ETS to cover road transport, but no date has been set for this.

Current taxation of road transport in the UK involves:

Fuel duties:

Public protests in 2000 led to a reversal of planned fuel duty rises. Since then, fuel duty has not risen in real terms. This situation is likely to continue. Different rates of fuel duty have been applied to different fuels, to provide incentives for more environmentally friendly fuels.

Currently bio-diesel enjoys a 20p/litre reduction in duty, and this is likely to continue. Widespread production of bio-diesel in the UK is supported by DEFRA, but this would entail significant changes in farming methods. There would be implications for farmland habitats and the variety of plants grown.

The rate of duty for LPG has been held sufficiently low since 1997 that LPG pumps have been introduced across the UK. However, in 2004 the Treasury concluded that the environmental benefits of LPG vehicles over and above the latest petrol vehicles did not warrant a large differential, so duty on LPG will be raised incrementally in future budgets. In Autumn 2004, the Treasury deferred a planned duty reduction for 'sulphur free' petrol and diesel. These fuels have less than 10ppm sulphur, and reduce sulphur dioxide and particulates emissions. These maximum limits on sulphur will become mandatory throughout the EU in 2009.

Company car taxation

Company cars are now taxed according to their new price and their emissions of CO_2 per kilometre, measured in a standard test. This scheme has eliminated an incentive whereby company car drivers paid less tax if they drove further, which was inherent in the taxation system used prior to 2002. CO_2 based taxation has led to a rise in the proportion of diesel vehicles registered in the UK, to above 30%. Diesel vehicles have lower CO_2 emissions, but higher emissions of particulates and NOx than petrol vehicles of equivalent performance.

Vehicle Excise Duty

Vehicle Excise Duty for cars registered since 2001 falls on a graduated scale, between £55 and £165/annum, based on the vehicle's CO_2 emissions per kilometer. Older cars pay a flat rate. Research by DEFRA has suggested that a differential of £600 between the lowest and highest rates would have an appreciable influence on consumers' choices of vehicles. The

Treasury has ruled out significant changes to the rates prior to 2007.

Congestion charging

The Greater London Assembly introduced a congestion charge in central London in February 2003. The charge is £5 for cars, and is levied for almost all vehicles that move within a cordon around central London during the hours 0700-1830. The area covered by the congestion charge is likely to be extended to the west during 2006. The rate will rise to £8/vehicle. Benefits of the congestion charge include lower traffic levels, fewer accidents and better air quality.

In February 2005, residents of Edinburgh voted against a congestion charge. As a result of that vote, several cities have already abandoned plans for congestion charging. Only Bristol currently is proceeding with such plans.

Key issues for English Nature:

- Government is using taxes and fees to influence behaviour in the transport sector, rather than traditional regulation.

Opportunities to input:

- English Nature may be more successful in responding to Government consultations, by proposing innovative fee schemes rather than new regulation.

Links:

HM TREASURY. Nov 2002. *Tax and the Environment: Using Economic Instruments*. Available from:
http://www.hm-treasury.gov.uk/media/D54/07/adtaxenviron02-332kb.pdf

T&E EUROPEAN FEDERATION FOR TRANSPORT AND THE ENVIRONMENT 2005. *Reducing CO_2 Emissions from New Cars: A progress report on the car industry's voluntary agreement and an assessment of the need for policy instruments.* Available from:
http://www.t-e.nu/docs/Publications/2005pubs/05-1_te_CO2_cars.pdf

Taxation of Passenger Cars in the European Union- options for action at national and Community levels. (2002). Available from:
http://europa.eu.int/eur-lex/en/com/cnc/2002/com2002_0431en01.pdf

EU ENVIRONMENT AGENCY. *Transport Price Signals*. Available from:
http://reports.eea.eu.int/technical_report_2004_3/en/Technical_report_3-2004_web.pdf

F2 Lorry and car road user charging

The Smeed Report of 1967 proposed that vehicles pay for their use of roads. From 2007, it was originally proposed that lorries in the UK would be the first vehicles charged per mile driven on the roads. However, it was announced in July 2005 that these plans will now be taken forward as part of wider plans for national road pricing.

The Department for Transport (DfT) considers that the technology for a national scheme of distance based 'road user charging' for cars, vans, lorries and coaches will not be available for a decade, ie until 2015. The Department cites the difficulties of expanding a scheme used for around 600,000 lorries up to a pool of around 27 million cars. In July 2005 the Government announced the Transport Innovation Fund (TIF), which comes on stream from 2008-09, and will support local transport packages combining demand management and public transport improvements. On 28 November 2005 DfT announced the seven local authorities that have been successful in securing TIF pump priming funding. All the successful bids include some work on assessing road pricing options.

Entirely independent of Government action, insurance companies are already installing telemetry systems in private passenger cars. This began in 2002 in Ireland and in 2004 in the UK. These systems are used to monitor vehicle movements, and in some schemes are paid for by drivers themselves. Insurance charges are based on actual vehicle use. Contractual conditions can also be monitored, such as limits on night-time driving by inexperienced and high risk drivers. The equipment monitors the time of vehicle use, location and distance driven, which are exactly the parameters needed for road user charging. The widespread use of this equipment will eliminate the argument that in-vehicle technology is not available for road user charging of cars. This equipment will be widespread by 2008.

The enforcement system for the London congestion charge is currently under review, with a decision imminent on the enforcement technology that will be used from 2007. Trials have indicated that a system of electronic tags displayed in car windows, similar to that used in Singapore, is most likely to be selected. If this technology is selected for deployment in 2007, it would then be available for use in other road user charging applications throughout the UK.

Key issues for English Nature:

- Fuel duty currently provides a major incentive for the purchase of vehicles with low CO_2 emissions, which helps to limit greenhouse gas emissions. Road user charging needs to be designed in such a way that this incentive is not eroded to a significant extent.

Opportunities to input:

- The on-going debate on road user charging. English Nature will need to ensure that the environmental implications are considered as part of this.

Links:

DfT. July 2004. *Road Pricing Feasibility Study*. Available from: http://www.dft.gov.uk/stellent/groups/dft_roads/documents/divisionhomepage/029798.hcsp

BYRNE, BRIAN. 2003. AXA extends Traksure premium reduction scheme. *Irish car com news*, 10 June 2003. Available from: http://irishcar.com/axa100603.htm

THOMPSON, J.M. 1998. Reflections on the economics of traffic congestion. *Journal of Transport Economics and Policy,* 32, 93-109.

10 Summary of key issues for English Nature

Table 10.1 highlights some key issues for English Nature identified in one or more of the briefing sheets.

Table 10.1: Summary of Key Issues for English Nature

Key issues for English Nature	Drivers: Political; Economic; Social; Technological; Environmental; Legal
Protected sites (i) Network Rail has control over SSSIs, including geological SSSIs, on its estate. (ii) Highways Agency road schemes potentially affect Ramsar sites, SSSIs, SACs. (iii) Expanded runways, and airport or port ground facilities, may affect designated sites.	**Drivers:** Economic, legal English Nature can influence outcomes as a statutory consultee. This extends to ensuring that only necessary schemes are built, and how that construction happens.
Contribution to global warming through transport's emissions This includes all modes of motorised travel, but particularly growth in air travel and commercial vehicles of all sizes on roads. The government is using taxes and charges to tackle greenhouse gas emissions from transport, besides traditional regulation.	**Drivers:** Economic, social English Nature can influence the further adoption of taxes and charges that maximise environmental improvements, whilst minimising economic impacts.
Walking and cycling Walking and cycling have far lower environmental impacts than other transport modes, and reconnect people with wildlife, geology and landforms. They are politically uncontroversial, and have support from other groups, eg health professionals.	**Drivers:** Social, environmental English Nature's own policies on site access encourage walking and cycling. English Nature can cooperate with other organisations on this.
Appraisal and traffic forecasting Appraisal techniques such as NATA are of high standard, offering great potential if used correctly. Economic valuation has the potential to offer better decisions about resource allocation. Prediction of future demand for transport is complex, and must be done correctly in order to justify new transport links. Simple extrapolations of past trends must be avoided if unwarranted, eg due to changes in vehicle fleets or human demographics.	**Drivers:** Environmental, Legal, Technological English Nature can ensure that appraisal is used in the most appropriate way on all proposed schemes. English Nature can help to signal trends in transport to government, through consultation submissions. By recognising 'disruptive' changes early, outmoded assumptions about transport growth can be abandoned promptly.
Technology Technology in vehicles, the 'informed traveller' and a possible London to Glasgow high speed rail link can increase the capacity of existing transport links. The rate of introduction of technologies, such as those in the 2003 white paper 'Managing our Roads', will influence how much new construction is needed in 2005-2015 and beyond.	**Drivers:** Technology English Nature can remind policy makers that technology offers the potential to increase the capacity of many transport links, thereby obviating the need for land take for new or expanded links.
Missing research Figures for losses of birds, mammals and amphibians through transport vehicles, particularly through 'road kill', are hard to find. Some info available eg on badgers.	**Drivers:** Environmental, Legal If English Nature has this information or can carry out the research, it will help policy makers understand the impacts on natural populations.

11 The Sustainable Development Duty

The Natural Environment and Rural Communities Bill was re-introduced into Parliament with the Queen's Speech in May 2005.

Under the Bill, English Nature will be combined with parts of the Countryside Agency and most of the Rural Development Service. The new organisation will be called *Natural England*, and will formally come into existence in October 2006. The Bill is expected to introduce an explicit focus on sustainable development. See table 11.1. The comments in Table 11.1 are based on the text of the corresponding draft Bill from the previous session of Parliament, in February 2005.

The focus on sustainable development brings *Natural England* into line with DEFRA's objective of delivering sustainable development.

Table 11.1: Summary of *Natural England's* Sustainable Development Duty

Reference	Provision
Draft Bill, subsection 2 (1)	**The Agency's general purpose is to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development.**
Draft Bill – Explanatory Notes, paragraph 33	Subsection (1) sets out that *Natural England's* general purpose is to ensure that the natural environment is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development. The terms "natural environment" and "benefit" are broad and encompassing: (i) The natural environment is found in towns as well as the countryside, and includes rivers, lakes and the sea, as well as the flora and fauna that depend on it. (ii) Benefits include environmental, social and economic benefits for present and future generations. Subsection (1) sets *Natural England's* activities within a sustainable development context. This means that *Natural England* should seek solutions which, while achieving environmental benefits, also: (i) Provide long-term economic and social benefits; and (ii) Avoid unnecessary economic and social impacts.
Draft Bill, subsection 2 (2)	***Natural England's* general purpose includes…** **(e) contributing in other ways to social and economic well-being, through management of the natural environment.**
Draft Bill – Policy Statement, paragraph 6	The provisions in the Bill are interconnected: economic prosperity has an essential role in achieving both social and environmental benefits. Spending money on careful and proactive management and enhancement of the environment can make a huge contribution to long-term social and economic well-being.

The sustainable development duty will have implications for Natural England in the way that it carries out its functions, including those currently undertaken by English Nature. The full implications of this change will emerge in due course.

At this stage it is possible to identify some potential implications for *Natural England's* transport policy work relating to biodiversity and geology. These include:

- Linked to the recognition of future generations within the Bill, taking the opportunity to get more involved in championing consideration of the long term effects of transport policy decisions. An example of this relates to the debate regarding the New Approach to Appraisal's economic discounting approach, which values short term costs and benefits more highly than long term effects (CfIT, 2004);
- An opportunity to respond to transport policy developments, based on a broader agenda relating to the social and economic dimensions of the protection and enhancement of the natural environment. An example might be the issue of accessibility for tourism and the natural environment. This relates to achieving socio-economic development and increased environmental awareness by attracting visitors, who then give rise to pressures including traffic generation;
- A responsibility to avoid unnecessary economic and social impacts, when responding to transport policy developments. Implicit in this responsibility is the need to understand and consider the likely economic and social impacts, before responding.

Whilst an explicit sustainable development duty is new to the work of English Nature, experiences from other UK Government institutions with a similar remit may be helpful. These are:

- the Environment Agency's sustainable development duty;
- the Scottish Executive's sustainable development responsibilities;
- the Welsh Assembly Government's legal duty to promote sustainable development in exercising its functions;
- the Greater London Authority's statutory task of contributing to the achievement of sustainable development.

12 Major transport projects 2005-2015

The status of most major transport projects in the UK remains uncertain. The key issues are the likely availability of funding, the outcomes of public inquiries and changes in the demand for each mode of transport.

In addition to these issues, projects such as 'Cross Rail' require primary legislation to pass through Parliament. The Queen's Speech in May 2005 contained enabling legislation for Cross Rail, which should be passed by the end of 2006.

Table 12.1 lists major transport projects that are currently being planned in the UK. The availability of funding is the largest uncertainty for the surface transport projects. Public inquiries represent the largest uncertainty for the airport developments.

Table 12.1: Major transport projects planned in the UK

Project	Promoter/ Funding	Timing	Probability
Stansted-Additional runway and development	BAA/Government ~£5.4 billion	Judicial review of the aviation white paper ruled that: (i) The governments support for a second runway at Stansted Airport was fair, as consultation had taken place. (ii) The white paper document should not have specified the location of the proposed runway.	High
Heathrow airport-Additional runway	BAA/Government ~ £6.3 billion	Judicial review ruled that it was lawful for the white paper to consider using both runways concurrently, given that a third runway had been ruled out. Full consultation would however be needed on this. Timing depends on projected pollution levels around Heathrow dropping sufficiently.	Medium
Gatwick Airport-Additional runway	BAA/Government ~ £2.0 billion	The DfT has decided to keep to an agreement where no new Gatwick airport will be built before 2019. However, this is likely to change if the additional runway at Heathrow cannot be built.	Low
Cross rail	DfT/TfL (50:50) ~£10 billion	£154 million in 2001 for feasibility work. Necessary 'Hybrid Bill' introduced to Parliament Feb 2005.	High
High-Speed London-Glasgow Rail Link, with an additional spur towards Manchester.	Mostly private. £5 billion for East Coast Line would be re-invested in new link. Total ~£36 billion	'UK Ultraspeed project' would provide a 500-mile line in stages to link London and Glasgow, via Birmingham, Manchester, Newcastle and Edinburgh. Could be built in ten years.	Medium
M6 Expressway/M6 widening	PFI ~£2 billion	The Highways Agency has been commissioned to undertake further work to consider the feasibility and impact of the proposal. Consultation responses in 2004 to M6 Expressway were overwhelmingly negative.	Medium
Luton runway extension	London Luton Airport Operations/ Government	Judicial review of aviation white paper ruled that: (i) It was acceptable for the Government to support growth of airport up to maximum use of a single full-length runway; (ii) Runway extensions would need further consultation.	Low

Project	Promoter/ Funding	Timing	Probability
Birmingham-Additional runway	Funding bodies uncertain £2.0 –£3.9 billion	Latest forecasts for aircraft movements by 2030 are lower than those predicted by the DfT. A second runway should be postponed until after 2016. Airport's current runway could be extended to allow a greater number of long distance flights.	Low
2012 Olympic games transport infrastructure	Transport for London/ Department for Transport/ London & Continental Railways Ltd/ Olympic Delivery Authority ~ £18.5 billion	As part of an already-committed, long-term spending plan, more than £18.5 billion will be spent on London's transportation system prior to 2012. These include: • extension of the Docklands Light Railway in east London • extension of the East London line. In addition there will be projects outside London, eg Weymouth park-and-ride.	High

ENGLISH NATURE

English Nature is the Government agency that champions the conservation of wildlife and geology throughout England.

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Front cover photographs:
Top left: Using a home-made moth trap.
Peter Wakely/English Nature 17,396
Middle left: Co_2 experiment at Roudsea Wood and Mosses NNR, Lancashire.
Peter Wakely/English Nature 21,792
Bottom left: Radio tracking a hare on Pawlett Hams, Somerset.
Paul Glendell/English Nature 23,020
Main: Identifying moths caught in a moth trap at Ham Wall NNR, Somerset.
Paul Glendell/English Nature 24,888