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Review of possible future transport policy and structural changes

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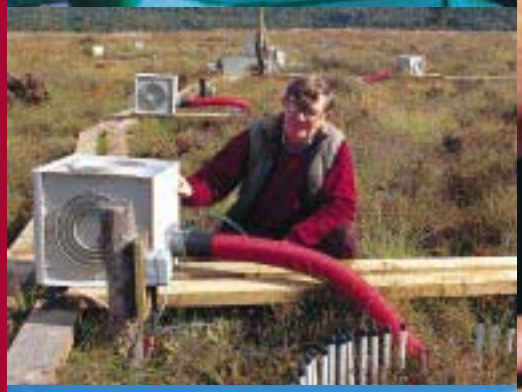

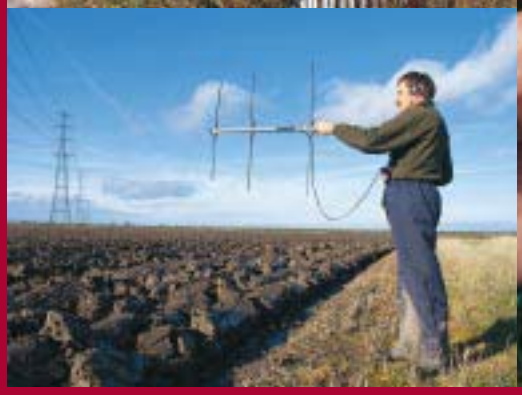

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English Nature Research Reports

Number 473

Review of possible future transport policy and structural changes

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Executive summary

In order to inform English Nature's national policy work on the inland transport sector, there is a need to consider future developments in the sector and their potential implications for biodiversity and geology. Primarily focusing on a 10 year horizon coinciding with the time-scale for the 10 Year Plan (DETR, 2000) ie 2000 to 2010, this report considers the likely foreseeable significant policy and structural changes in relation to transport.

The report first examines scenarios for the future of transport at a broad scale, based on work by the Transport Visions Network, DTi Foresight and the OECD. Sixteen key policy issues are then considered in detail in individual briefing sheets covering the following areas:

a. structural changes (eg the split of DETR into DTLR and DEFRA);
b. UK legislative and policy changes (eg speeding-up delivery of major infrastructure projects; monitoring the 10 Year Plan);
c. European legislative and policy changes (eg EC Transport White Paper; Strategic Environmental Assessment Directive);
d. technological changes (eg vehicle fleets and infrastructure);
e. changes in appraisal practice (eg greater integration in appraisal);
f. the use of economic instruments.

The main opportunities and implications for English Nature of the possible future policy and structural changes include:

a. monitoring and input into evolving transport planning policies, procedures and guidance, in particular the DTLR's review of the 10 Year Plan, improvements to GOMMMS and the regional airport studies;
b. ensuring that the English Nature both have the staff resources and level of training in order to cost-effectively respond to the new agenda;
c. ensuring that biodiversity and geology data sets are relevant to the needs of SEA and adequately incorporated into assessment practice;
d. liaise with DTLR to ensure that the Railtrack commitments to SSSI are appropriately carried forward into the new institutional arrangements for the rail industry;
e. encourage DTLR/DEFRA to develop and maintain liaison/working mechanisms for the transport/environment agenda;
f. improve co-ordination with other statutory bodies to minimise the resource commitment to individual initiatives;
g. ensure that English Nature's input to planning reform takes account of English Nature's requirements in the inland transport sector;
h. gain and share understanding of likely impacts of planning reforms and EC Directives (eg on SEA) on the UK inland transport sector;
i. maintain awareness of developments in transport related areas to inform policy advocacy work (eg social aspects, wider appraisal methodologies, technological changes and waste management).
j. consider updating briefing sheets at regular intervals to incorporate emerging policy and structural issues.

Contents

1. Introduction

In order to inform English Nature's national policy work on inland transport, there is a need to consider future developments in the sector and their potential implications for biodiversity and geology. Primarily focusing on a 10-year horizon coinciding with the time-scale for the 10 Year Plan (DETR, 2000) ie 2000 to 2010, this report considers the likely foreseeable significant policy and structural changes in relation to transport.

The paper has been compiled following a review of published information sources identified by the TRL project team. Chapter 2 considers the future of transport at a broad scale, drawing upon scenario development work and similar exercises for the transport sector undertaken by various organisations both in the UK and elsewhere.

Chapter 3 then examines sixteen key policy issues for the period 2001-2010 relating to:

a. Structural changes (eg the split of DETR into DTLR and DEFRA);
b. UK legislative and policy changes (eg speeding up delivery of major infrastructure projects; monitoring the 10 Year Plan);
c. European legislative and policy changes (eg EC Transport White Paper; Strategic Environmental Assessment Directive);
d. Technological changes (eg vehicle fleets and infrastructure);
e. Changes in appraisal practice (eg greater integration in appraisal);
f. The use of economic instruments.

A briefing note has been produced for each issue covering the following points:

a. A summary of the issue;
b. Identification of the key implications for English Nature;
c. Identification of the possible opportunities to input (where known);
d. A list of key links including reference documents and internet pages.

Finally, Chapter 4 offers some concluding thoughts regarding the implications for English Nature.

2. Broad scale review of transport futures

Prior to the detailed analysis of policy presented in Chapter 3, this chapter provides context by considering the current position and longer-term future scenarios for transport policy.

The Transport Visions Network (a membership organisation co-ordinated by the Transport Research Group at the University of Southampton) is exploring the future of transport in the 21st Century and has recently published "*Transportation Requirements*" (Lyons *et al*, 2001). This report provides a view of the guiding principles or "requirements" for the design of transport systems. In addition, the report identifies where current Government policy sits in relation to each of the principles (see Table 2.1). This shows that some Government policy

(eg as presented in the 10 Year Plan, DETR, 2000) is closely allied to the direction, if not the scale of change, identified in the report as transportation requirements.

Table 2.1: Transportation requirements for the future and consistency with current Government policy objectives (Lyons et al, 2001, pp79-85)

Requirements	Consistency with current Government policy objectives
1. There should be an equitable distribution of access to a range of key real and virtual destinations that support people's quality of life.	😐
2. The absolute level of resource use for transport activities should be controlled and the resource efficiency mobility should be maximised.	😐
3. Users should pay the full internal and external costs of transport and these should be made transparent. Where appropriate, transport uses or users providing external benefits should be subsidised	😐
4. In the provision and operation of transport systems the adverse effects on the environment should be minimised according to agreed principles and targets	😐
5. There should be discrimination and prioritisation between different types of trips and activities	😐
6. Transport should not exacerbate the adverse effects of lifestyle on health and safety and should aim to reduce these effects wherever possible	😐
7. Electronic and other non mobile means of communication should be considered as transport options and treated accordingly in policy and practice	☹
8. Land Use efficiency should be maximised and the net land take by the transport system minimised	😐
9. The reliability of the transport system should be regarded as a fundamental system management goal	😐
10. Transport should not exacerbate problems of social participation and should aim to reduce these problems wherever possible	☺
11. Stakeholders should play an integral role in the entire life cycle of problem identification, solution formulation, implementation and evaluation.	😐
12. Transport uses should be enabled and encouraged to make fully informed choice	😐

Key to Table 2.1:

☺ Highly compatible with Government policy emphasis

😐 Some commonality with Government policy emphasis

☹ Distinctly different to Government policy emphasis

Some requirements however are not considered by the Transport Visions Network to be addressed to any real extent by current Government policy ie 3 – *internalising the external costs of transport*; and 7 - *treatment of electronic networks as transport options*. The Transport Visions Network therefore suggests that the Government should consider these areas when examining potential future policy changes. Whilst this does not provide a definitive picture of the future of transport policy in the UK nor a time-scale for any change, it does offer some ideas on possible directions that may be pursued.

A broad appreciation of potential transport futures in the UK can be gained through reference to the *Foresight Futures* developed for the DTi by researchers at the Science and Technology Policy Research Unit of the University of Sussex (SPRU, 2001). Some background information regarding the development and use of scenarios is provided in Table 2.2.

Table 2.2: Overview of the scenarios approach (SPRU, 2001)

Scenarios are not intended to predict the future. Rather they are tools for thinking about the future based on four assumptions:

- the future is unlike the past, and is shaped by human choice and action;
- the future cannot be foreseen, but exploring the future can inform present decisions;
- there are many possible future; scenarios map a "possibility space";
- scenario development involves rational analysis and subjective judgement.

Scenario storylines are built from a simple and coherent set of assumptions about the main drivers of change in the future. While they focus on broad socio-economic trends at the UK national level, the scenario framework can be used to produce more tailored assessments of specific sectors and areas of policy.

The scenarios have been framed in the context of two underlying drivers of change:

- social values (on a spectrum from individual to community values);
- governance system (on a spectrum from interdependence to autonomy).

The SPRU report sets out four futures scenarios to describe the UK during the period 2010-2030. The starting point for these scenarios therefore coincides with the end of the period being considered in detail as part of this review. They are therefore offered here as a tool to begin to consider longer-term changes in society and how transport fits in. The four scenarios are:

a. World Markets;
b. Global responsibility;
c. National Enterprise;
d. Local Stewardship.

For each of the four scenarios, discussions of economic and sectoral trends are provided for several sectors including transport. The different "transport futures" are described in Table 2.3.

The four scenarios have also been used in work by a task force supporting the Foresight Built Environment and Transport Panel the results of which are presented in "*Actions for Sustainable Transport – Optimisation Across Modes"* (DTi, 1999). This report discusses the implications of the four scenarios against a set of key factors that determine transport supply and demand for each transport mode. The report also offers recommendations on:

a. transport policy objectives and priorities;
b. implications for the development of transport options;
c. market opportunities for the UK and potential barriers to exploitation;
d. identification of R & D requirements.

Table 2.3: Transport Futures Associated with the Four Scenarios (SPRU, 2001)

World Markets High mobility and housing development create a need for new investments in transport. New roads are built and the railway system is radically modernised to meet the increased demand for goods and passenger transport. Road traffic on motorways is efficiently managed using transport telematics, but congestion is widespread on smaller roads. Greater use will also be made of domestic air traffic and inter-city rail, whose economics will be driven by the needs of business passengers.
National Enterprise There is a continuing reliance on private transport with little additional provision for public transport, but moderate GDP growth limits the spread of car ownership. Due to a lack of investment, many roads operate at full capacity and congestion increases. With a relatively slow increase in international trade, air traffic grows no more quickly than other transport modes.
Global Responsibility The modernisation and restructuring of freight and passenger transport is started, with the longer-term aim of building an eco-efficient, integrated system. Although technology (hybrid cars, low emission engines) reduces the negative impacts of traffic, a tension between the transport demands of a mobile society and environmental concerns persists. New infrastructures are developed, but with a high priority given to minimising environmental impacts. Cost of private car transport rises substantially while public transport is heavily subsidised.
Local Stewardship The transportation sector is affected by a major slowdown in the growth of trade and the demand for mobility. Environmental taxes and high energy prices increase the cost of transportation, especially air traffic. Passenger transport is still dominated by private cars but public road and rail transport structures are extended. Alternatives such as car sharing, cycling and walking increases.

At an international scale, the OECD's Environmentally Sustainable Transport (EST) initiative (OECD, 2000) presents the policy changes required to move from a future based on "business as usual" to one characterised by "environmentally sustainable transport". The year 2030 is chosen (as a compromise between avoidance of too many adverse effects and allowing time for action).

The EST initiative uses a backcasting approach to work back from the targets to determine what and when a range of policy and behavioural changes need to occur. There is no specific target set for biodiversity. This target is, however related to the targets for air pollution (eg in terms of acidification and eutrophication) as well as the target for land-take which states that transport land use "*should be developed in such a way that local and regional ecosystem protection objectives should be met*… and that ….*compared to 1990 levels, transport activity will likely entail a smaller proportion of land devoted to transport infrastructure*" (OECD, 2000, p.37).

3. Identification of specific future issues 2001-2010

Sixteen specific future issues relating to the inland transport sector are examined in this chapter. Table 3.1 provides a list of these issues that are then documented in individual briefing sheets.

Table 3.1: Key future issues 2001-2010

Type	Issue
A. Structural	A1. DEFRA/DTLR Split A2. Emergence of Regional Institutions A3. Re-structuring the Rail Industry
B. UK Legislation and Policy	B1. 10 Year Plan Monitoring and Review B2. Aviation Review and White Paper B3. The Delivery of Major Infrastructure Projects and Changes to the Planning System
C. European Legislation and Policy	C1. European Common Transport Policy White Paper C2. Strategic Environmental Assessment Directive C3. Proposed amendments to the EIA Directive in line with the Arhus Convention
D. Technological	D1. Vehicle fleet: Reduction of vehicle emissions D2. Vehicle fleet: Vehicle Technology, Materials and Waste D3. Infrastructure: Materials and Waste
E. Appraisal	E1. Increasing Integration of Appraisal E2. Emergence of Health Impact Assessment and Social Impact Assessment E3. Modernisation of DMRB Volume 11
F. Economic Instruments	F1. Economic Instruments for Managing Road Use

3.1 DTLR/DEFRA split

A1

Summary:

Following the General Election in July 2001, the Prime Minister announced a number of changes to his Cabinet and to departmental responsibilities including forming the Department for Transport, Local Government and Regions (DTLR) and the Department for Environment, Food and Rural Affairs (DEFRA). Changes to former DETR responsibilities include:

- The Environment Protection Group and Wildlife and Countryside Directorate transferred to the new Department for the Environment, Food and Rural Affairs (DEFRA), together with sponsorship responsibilities. As well as former DETR functions, DEFRA included all former MAFF functions and animal welfare and hunting, transferred from the Home Office. English Nature and The Countryside Agency now report via DEFRA.
- Local Government Electoral law and local byelaws transferred to DTLR from the Home Office and brings with it sponsorship of the Electoral Commission hence responsibility for elections and for local government policy within DTLR and complements modernising local government structures.
- The Regional Co-ordination Unit and Government Offices for the Regions, which have cross-departmental responsibilities, are now part of the Cabinet Office. DTI will sponsor the Regional Development Agencies. Individual departments retain responsibility for their programmes, for instance work on the single regeneration budget (SRB).
- Sponsorship of the construction industry moves to DTI with most of Construction Directorate.

The key elements and wider implications of the changes include:

- Following a short period of integration over the life-span of the DETR, responsibilities for transport and environment are now once again split between separate government departments.
- In addition, for the first time since 1970, planning has been separated from the environment in terms of departmental responsibilities. DEFRA's draft objectives published in August 2001 do not make reference to the role of the town and country planning system.
- The previous balancing tension between a development ethos (including promoting transport development) and environmental protection which existed in the DTLR is no longer present in the new DTLR. Furthermore, the staffing within the DTLR gives little prominence to environmental aspects to ensure that decisions are properly informed by environmental considerations. The loss of that internal role is important as informal inter-departmental liaison (eg DTLR – DEFRA) may always be constrained by the potential threat of judicial review that it opens up (Gummer, 2001).

Key Issues for English Nature:

- Consultations on transport policies, plans, programmes and projects – when major concerns arise they may become more adversarial (cf. Intra-departmental solutions within DETR). This could be resource intensive.

Opportunities to Input:

- Assist in the promotion of inter-departmental working on English Nature and transport issues.
- The use of relationship management plans and possible accords or memoranda of understanding.

Links:

Gummer, J., 2001: A Time Bomb Set to Detonate by Lack of Expertise, Planning 5 October 2001.

DEFRA, 2001: A New Department – A New Agenda. Can be accessed via: www.defra.gov.uk/corporate/consult/defra-aim/aimobjectives.htm

3.2 Emergence of regional institutions

A2

Summary:

The regional tier is becoming an increasingly important policy focus and decision making tier in inland transport planning. Regional Transport Strategies (part of Regional Planning Guidance) are the responsibility of Regional Planning Bodies, which are at present usually regional fora of Local Authorities, but increasingly may be Regional Chambers (known in some regions as Assemblies) including representatives of other interests. Multi-Modal Studies are also instigated at a regional level and are led either by the Government Offices in the regions or the Regional Planning Bodies.

The future is likely to bring further focus on activities on the regional scale as the DTLR take forward the Government's proposals on directly elected regional government in England. The Deputy Prime Minister has lead responsibility for the preparation of a White Paper on Regional Governance, in close liaison with the Secretary of State for Transport, Local Government and the Regions - who will be responsible for future legislation and implementation - and in co-operation with other Cabinet colleagues.

Key Issues for English Nature:

- Developing effective internal management and communication structures to effectively engage in proactive policy advocacy and reactive case-work at the regional scale.

Opportunities to Input:

- Consider issues relating to the inland transport sector in future consultations on the development of regional government.

Links:

The DTLR's information on the Regions can be accessed via: http://www.regions.dtlr.gov.uk/index.htm

3.3 Re-structuring the rail industry

A3

Summary:

Further re-structuring of the industry is now in prospect to improve the performance of the rail industry and make progress towards the Government's targets set out within the 10 Year Plan (DETR, 2000) (ie an increase in rail passenger kilometres by 50% and rail freight by 80%). £60bn investment was originally earmarked for this purpose but a large portion of this has already been used by the West Coast Mainline over-run and the safety commitments (LTT, 2001).

Railtrack was placed in administration on 7 October 2001. The Government is taking steps to transfer Railtrack's responsibilities to a new company, limited by guarantee (rather than shareholders). The new body is likely to take a more limited role with respect to major new projects, concentrating instead on managing the network.

The Government is also planning to change the present regulatory structure for the railways, rationalising the roles of the Rail Regulator and the Strategic Rail Authority (SRA) (formed earlier in 2001). The SRA is also being urged by the Commission for Integrated Transport not to concentrate solely on the 10 Year Plan targets, but to develop a strategic and long-term vision for the railway industry.

Possible outcomes of the industry re-structuring include:

- vertical integration of the industry (ie between network operation and maintenance and train service operation);
- German style regional transit authorities overseeing local rail services;
- other partnership arrangements (eg Transport for London's proposal to work with the SRA to manage the South East rail network).

Key Issues for English Nature:

- Railtrack was the country's largest corporate landowner of SSSIs with an interest in approximately 150 sites. Railtrack's replacement organisation and associated re-structuring of the industry may give rise to different responsibilities and increased pressure to cut costs which affect the quality of SSSI management.
- There is likely to be some delay in taking forward new rail proposals. During this period there may be some shift away from the selection of rail-based solutions, for example within Multi-Modal Studies and Regional Transport Strategies (eg the NW Assembly is reported to be reviewing its priorities in light of the troubles in the rail industry – see LTT, 2001). This may in the short to medium term produce more pressure to select other options, which may be more damaging in biodiversity terms (eg new road infrastructure).
- Promote increased liaison and co-operation with the bodies forming the re-structured rail industry, particularly with respect to strategic programmes (and associated appraisals) as well as policy matters.

Opportunities to Input:

- Influencing Government during its current consideration of the structure of the new regulatory framework and the replacement company for Railtrack (eg presenting a case for strengthening the statutory environmental responsibilities of the organisations involved).
- There may be an opportunity to comment on the SRA's long awaited Strategic Plan that was due for publication in autumn 2001.

Links:

The Commission for Integrated Transport's comments on the SRA can be accessed via:
www.cfit.gov.uk/reports/sradraft/index.htm

Local Transport Today, 2001: Issue 326 – 18 October 2001 (rail industry articles on pages 1, 5, 6, 9)

3.4 *10 Year Plan for Transport* – monitoring and review

B1

Summary:

In 2000 the Government published its *10 Year Plan for Transport* which sets out the investment priorities for the transport sector up to 2010. The first review of the Plan is due to commence in Autumn 2001, with the results due for publication in July 2002. The review is being led by the DTLR with input from the Commission for Integrated Transport.

The review will be undertaken within the wider context of the Treasury's scrutiny of spending in light of the rail-safety related spending following the Hatfield crash and the DETR's >10% underspend of its transport allocation in 2000/1 (LTT, 2001).

Whilst it is unlikely to result in a fundamental change in policy so soon in the life of the Plan, the review is likely to consider issues such as:

- **Improvements to the national transport model used** to develop the Plan to improve its performance and sensitivity. These include development of a rail component; enhancements to the freight model; and the addition of an accident component. Longer-term changes to the model include: updating the base year using 2001 census data; developing a spatially detailed network model; providing better interface with regional and local models; and developing a land-use planning interaction.
- **Criticisms of the focus of the existing targets** in particular, the measure of 'congestion' is criticised; there are problems with the forecasting process affecting impacts of price and capacity changes (Goodwin, 2001a). There is also criticism over the narrow pursuit of the 50% growth in passenger kilometres for rail (see Begg, 2001).
- **The delay in uptake of road pricing and workplace charging** (which was a central assumption underpinning the achievement of congestion reduction) (see Begg, 2001).

Key Issues for English Nature:

- The review of the 10 Year Plan will be a partial one – the aim being to refine and "tweak" rather than overhaul the policy and investment priorities set out in the Plan. The extent to which the review covers environmental issues is as yet unknown.

Opportunities to Input:

- Discussions with the DTLR could be initiated immediately in order to request that the review takes stock of progress in relation to the environmental, and in particular biodiversity targets/objectives set out in the plan.

Links:

Begg, D., 2001: Begg seeks more commitment from politicians and operators to delivering improved public transport. *Transit*, no 165, 31 August 2001, pp10-11.

Goodwin P, B., 2001a: Some problems in the implementation of A 'New Deal for Transport', UTSG, Oxford, January

DETR, 2000: Transport 2010 – the 10 Year Plan. DETR, London. Available via: http://www.dtlr.gov.uk/trans2010/index.htm

Local Transport Today, 2001: Government Probes Ten-Year Transport Plan Spending and Delivery Mechanisms. Local Transport Today, Issue 321 pp 1.

3.5 Aviation Review and White Paper

B2

Summary:

The DETR published *The Future of Aviation – the Government's Consultation on Air Transport Policy* in December 2000.

This initial consultation document is due to be followed by a series of six regional consultation documents in January 2002. These will cover the North of England, South West England, the Midlands, Wales, Scotland and Northern Ireland. The South East and East of England Regional Air Service (SERAS) will also be reviewing options and is also due to publish a consultation document.

The regional consultations will ultimately feed into a White Paper to be published later on in 2002. The priorities in the White Paper and perhaps the timetable outlined above may also be affected by response to the events of 11 September 2001 in America.

Key Issues for English Nature:

- Key strategic issues are outlined in English Nature's detailed response to the consultation document on air transport policy (NPT/03/02/182 in April 2001).
- Regional consultation documents may give rise to many detailed local and regional issues for English Nature (eg specific airport expansion proposals) and will need proactive co-ordination between English Nature offices and regions in formulating a response.

Opportunities to Input:

- Regional consultation documents in early 2002.

Links:

http://www.aviation.dtlr.gov.uk/consult/future/index.htm

3.6 The delivery of major infrastructure projects and changes to the planning system

B3

Summary:

Following criticisms over a number of years regarding the speed of delivery of new infrastructure, the Government is considering measures to accelerate the planning process for new infrastructure. Three important changes to the planning process for major projects of national significance are identified:

- preparation of statements to set the national policy framework for projects before they are considered in the planning system and to reduce unnecessary debate at a subsequent public inquiry;
- giving Parliament the powers to approve projects in principle before consideration of detailed issues is made at public inquiry;
- improved public inquiry procedures including agreeing the terms of reference for the inquiry and a timetable.

A Green Paper for the Planning system is expected to be released shortly, after the announcement of Heathrow T5 inquiry.

In parallel, the Highways Agency is aiming to speed up the delivery of road schemes, shortening by between 3 to 5 years the time for uncontroversial proposals. Whilst the details of the changes to achieve this are still under consideration they are likely to include:

- earlier public consultation to incorporate views before ideas become fixed;
- working on surveys, design and environmental assessment activities in parallel;
- improved procurement practices;
- early contractor involvement and increased use of design and build contracts.

Key Issues for English Nature:

- ensuring that Parliament is properly informed of biodiversity commitments and implications arising from major projects;
- seeking advanced warning for English Nature consultations from the Highways Agency on policy, plan and scheme levels as part of English Nature's contribution to speeding-up delivery.

Opportunities to Input:

- commenting upon the proposed Parliamentary procedures for major projects when outlined in the Green Paper;
- commenting upon the Highways Agency strategy for speeding up delivery when issued.

Links:

Details of the Highways Agency's plans to speed up delivery of highway projects can be accessed via www.highways.gov.uk/info/10_yearpl/sudelivery/index.htm

3.7 European Common Transport Policy White Paper *European Transport Policy for 2010: Time to Decide*.

C1

Summary:

The White Paper was published on 12 September 2001 and supplants the 1992 White Paper. It recognises two major transport related problems that need to be addressed across Europe: congestion and the harmful effects of transport on the environment and health.

The White Paper contains no legislative proposals at this stage but proposes an integrated approach comprising 60+ measures, indicating where the Commission intends to initiate action as well as highlighting what it believes national and local governments should be doing.

The White Paper is structured in four parts:

- shifting the balance between modes of transport;
- eliminating bottlenecks;
- putting users at the heart of transport policy;
- managing the globalisation of transport.

Political measures and instruments will be needed to further progress the measures proposed and realise the ambition set out in the paper, of a sustainable transport system in the next 30 years.

Key Issues for English Nature:

- As a European White Paper, it provides a forward look on a number of measures in the transport sector that may either be implemented via EU-wide legislation, or to be promoted by the Commission for the UK government to implement. Many of the measures are not "new" as such, but are significant for the recognition that they have been given at this international scale.

- It is difficult to identify direct repercussions for English Nature. However, the following are notable at this stage:
  - striking a balance between air transport growth and the environment (Part 1);
  - linking up sea, inland waterways and rail (Part 2);
  - towards multi-modal corridors giving priority to rail freight (Part 2);
  - a high-speed passenger rail network (Part 2).

Opportunities to Input:

- The DTLR is to consult widely with key stakeholders on the contents of the White Paper over the forthcoming months. An email address is provided to make initial comments or to request to be included in the forthcoming consultation (ctp.consultation@dtlr.gov.uk)

Links:

Commission for the European Communities, 2001: European Transport Policy for 2010: Time to Decide. COM (2001) 370. EC, Brussels. Available via: www.europa.eu.int/comm/energy_transport/en/lb_en.htm

DTLR consultation web pages: www.dtlr.gov.uk/europe/consult/eurocommon/index.htm

3.8 Strategic Environmental Assessment Directive

C2

Summary:

Directive 2001/42/EC of the European Parliament and Council on the assessment of Certain Plans and Programmes on the Environment was published in the Official Journal L197 of 21 July 2001, page 30). The Directive introduces a legal basis for undertaking Strategic Environmental Assessment (SEA) of certain plans and programmes in Member States by 2004.

The SEA Directive applies to programmes and plans (not policies) which create a framework for future projects requiring EIA and other forms of assessment under the Habitats Directive within certain sectors (agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, or land use planning).

It requires that in the preparation of such plans and programmes:

- a study is made of the probable significant environmental effects of implementing the plan or programme or alternative proposals;
- an environmental report and non-technical summary are prepared and made available;
- consultation with relevant bodies and the public is carried out; and
- the results of the study and consultation are taken into account prior to the adoption of such plans or programmes.

These requirements apply to plans and programmes prepared or adopted by central or local government. Modifications to existing plans and programmes also fall under the scope of the Directive if they are likely to have significant environmental effects. Plans affecting small areas at a local level are excluded unless a Member State determines that they are likely to have significant effects.

Article 7 dealing with transboundary issues could be raised in relation to migratory protected species.

In the transport sector, TRL has been undertaking work for the Highways Agency and the DTLR to develop draft Guidance on Strategic Environmental Assessment for Multi-Modal Studies.

Key Issues for English Nature:

- The SEA Directive will provide an important strategic lever to ensure that future land use and sector-specific plans and programmes undergo a robust and comprehensive form of environmental assessment, including attention to biodiversity and geology.
- English Nature will need to consider how to handle the additional consultations and data demands the Directive will stimulate.
- English Nature will need to consider whether the SEA Directive will apply to any of its plans and programmes or whether voluntary application of SEA may be beneficial.
- In order to input effectively to future SEAs across all sectors, English Nature should begin to consider how to build awareness and technical capacity amongst local, regional and national staff.
- New data sets and assessment methodologies will be required to ensure biodiversity interests are taken into account in SEAs.

Opportunities to Input:

- The DTLR is leading consideration of options for how the SEA Directive should be implemented in the UK. English Nature will be able to input to the formal consultation process on the future regulations but may also wish to take an early and proactive stance to influence SEA implementation at the current early stage of consideration.
- One option is for English Nature to sponsor with others the development of SEA topic-based guidance biodiversity and geology that could be used alongside sector-specific “process” guidance.

Links:

The SEA Directive is published in the Official Journal L197 of 21 July 2001, page 30 and is available via www.europa.eu.int/comm/environment/eia/full-legal-text/0142_en.pdf

TRL produces a SEA and Transport Planning Newsletter available via the environment projects page on www.trl.co.uk

3.9 Proposed amendments to the EIA Directive in line with the Arhus Convention

C3

Summary:

The United Nations Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation and Access to Justice in Environmental Matters (the Arhus Convention) is proposed by the European Commission to be incorporated into the EIA Directive (85/337/EEC). The proposal aims to concentrate on the essential aspects of the Convention and so to extend or secure rights of public participation in certain cases of environmental decision-making. The new Article 6(3) of the Directive essentially requires that the public should be informed of the following matters (all of which are drawn from Article 6(2) of the Aarhus Convention):

- the request for development consent;
- the fact that the project is subject to an environmental impact assessment and, where relevant, the fact that there is a transboundary environmental impact assessment;
- details of the competent authorities responsible for taking the decision or from which relevant information can be obtained or to which comments (or questions) can be submitted);
- the nature of possible decisions and, where there is one, the draft decision;
- any information gathered pursuant to Article 5 of the EIA Directive;
- the main reports and advice issued to the competent authority or authorities during the development consent procedure, including any opinions on the request expressed by any public authorities or bodies consulted under Article 6(1) of the Directive;
- an indication of the times and places where and means by which the relevant information will be made available;
- details of the arrangements for public participation and consultation made in the national legislation.

Key Issues for English Nature:

- The proposed Directive will provide an opportunity to strengthen stakeholder involvement throughout the EIA process.

Opportunities to Input:

Links:

Proposal for a Directive of the European Parliament and of the Council providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending Council Directives 85/337/EEC and 96/61/EC. Official Journal of the European Communities, [2001/C 154 E/12]

3.10 Vehicle fleet: reduction in vehicle emissions

D1

Summary:

The UK market for alternative fuel vehicles is recently showing strong signs of 'taking off' with the number of vehicles likely to be sold in the next two years projected to be close to 100,000 compared with a few hundred in 1997, and just over 20,000 in the year 2000. The major part of this growth is in vehicles fuelled by LPG (TransportAction, 2001). 'Clean urban transport', a research activity promoting and supporting the marketing of low polluting or non-polluting vehicles is also discussed in Annex IV of the European White Paper (see also C1). Developing vehicle technology includes:

- **Liquefied Petroleum Gas (LPG):** LPG refuelling points are being introduced with approximately 679 in the UK at the end of the year 2000 - and the number is expected to double within two or three years (Powershift). Some UK manufacturers are now offering bi-fuel vehicles as standard products. In the UK there are currently around 50,000 vehicles running on LPG but with suitable fiscal incentives from the Government it is forecast that this number will increase to around 250,000 by the end of 2004 (LPG Association, 2001)
- **Electric vehicles producing zero emissions at point of use**: Electric vehicles are also being introduced in the UK but not on the scale of use in other European countries.
- **Compressed Natural Gas (CNG):** CNG is mainly used as a fuel for trucks, buses and larger vehicles. Currently there few public refuelling points for compressed natural gas. Implications may be new compressor stations and land take
- **Hybrid electric vehicles and fuel cell vehicle technologies**: Fuel cell vehicles are not yet commercially available (Powershift, 2001). The New Electric Car (Necar) range of vehicles has been developed by DaimlerChrysler, Ford and Ballard. This partnership aims to make fuel cell cars commercially available by 2004. In the UK, Ballard and Partners has announced bus and car engine launches for 2002 and 2004 and ZeTek (formerly Zevco) have developed an alkaline fuel cell taxi and park utility vehicle which operates in Westminster. Research currently being developed by Cambridge University is examining a system of photovoltaic cells that convert sunlight into electricity, the electricity is subsequently used to split water into hydrogen and oxygen. The source of energy is entirely carbon free right through production and distribution.

Key Issues for English Nature:

- The introduction of new vehicle technology to reduce vehicle emissions is aimed to help the UK achieve improvements in local and national air quality. This will have some benefit for biodiversity although the extent of this effect is unknown.
- There may however be impacts on biodiversity associated with any new infrastructure required to support the new technology. However, this may be a minor issue with much of the new infrastructure focused in urban areas.

Opportunities to Input:

- An opportunity for English Nature to demonstrate good practice to others through changing to alternative fuels when renewing the organisation's vehicle fleet.
- Develop an understanding of the issue for inclusion in any broad-scale policy advocacy work.

Links:

New Civil Engineer Plus, 'Water bus boost for Cambridge', Published 09 October 2001
www.nceplus.co.uk

Powershift, 2001: www.est-powershift.org.uk

TransportAction, 2001: www.transportaction.org.uk

Powers, 2000: www.gwassoc.dircon.co.uk

LPG Association, 2001: www.lpga.co.uk

3.11 Vehicle Fleet: Vehicle Technology, Materials and Waste | D2

Summary:

The key projects, initiatives and legislation on vehicle materials and vehicle wastes which are likely to develop within the next 10 years are as follows:

- **The Foresight Vehicle Project**
  In 1997, the Foresight Vehicle Project was launched as the UK's national vehicle research and development programme. The project brings together industry, academia and research in order to fulfil a number of specific targets, in particular, the project aims to have all mass market vehicles:
  - environmentally friendly;
  - efficient;
  - lightweight;
  - able to communicate with other vehicles and the transport infrastructure, by 2020.

  Currently the programme is involved in a project that aims to reduce the amount of component waste during manufacture.

- **End of Life Vehicle (ELV) Directive**
  The ELV Directive came into force in October 2000. All Member States are due to transpose the Directive into national legislation by 21 April 2002. The Directive aims to reduce the amount of waste from end of life vehicles, in particular:
  - ELV's can only be handled by authorised dismantlers and shredders that must meet tightened environmental treatment standards.
  - operators must establish adequate systems for collections.
  - last owners must be able to return their vehicles into these systems free of charge by Jan 2007.
  - producers must pay all or significant part of costs of 'take back' by Jan 2007.
  - rising re-use, recycling and recovery targets must be set and must be met by economic operators by Jan 2006 and 2015.
  - restricts the use of heavy metals in new vehicles from July 2003.

Key Issues for English Nature:

- The ELV Directive will have a positive effect on the land needed for waste disposal but its impact on reducing landfilling is as yet unknown.

Opportunities to Input:

- DTi's consultation on implementing the ELV Directive closed in November 2001. A response is due over the coming months.

Links:

Foresight Vehicle Group, *Driving Forward*, Department of Trade and Industry
www.foresightvehicle.org.uk

Directive 2000/53/EC on End of Life Vehicles, UK Government Consultation Paper, August 2001, Department of Trade and Industry
www.cabinet-office.gov.uk/servicefirst/index/consultation.htm

3.12 Infrastructure: Materials and Waste

D3

Summary:

As well as the direct impacts of the construction of transport infrastructure (eg land-take) decisions regarding the construction and maintenance (eg the choice of material and construction methods) may give rise to indirect environmental effects due to material consumption and wastes. Key developments for transport infrastructure include:

- **Recycling and the use of secondary materials**: The use of recycling techniques (eg in-situ recycling of highway pavements) and secondary materials (eg industrial by-products such as mining waste and products such as "glasphalt") is increasing in the construction and maintenance of transport infrastructure. Further opportunities are likely to develop in the future but will be dependent on the use of performance specifications to allow innovation and flexibility and the dissemination of information across the construction sector (eg regarding locally available products). TRL have recently produced a guidance document to assist in increasing the amount of recycling and use of alternative materials in transport infrastructure renewal works.
- **Whole Life Costing (WLC)**: Models already exist but are not widely available and lack integration between components, eg pavements, structures and earthworks. Wider application of WLC is likely, particularly in light of the Government Construction Clients' Panel target for 100% of Government departments to use WLC (GCCP, 2000).
- **Life Cycle Assessment (LCA):** LCA processes to examine the flow of materials and energy through a process have been defined within an international standard (ISO 14040) but to date have not been widely applied. This is partly due to the intensity of data collection and problems in defining "system boundaries" required to generate robust conclusions. LCA does however have a potentially valuable role to play in the transport sector alongside and supporting other appraisal tools such as SEA, EIA and whole life costing.

Key Issues for English Nature:

- Consideration of the scale of secondary impacts of materials and waste issues associated with transport infrastructure on biodiversity and geology (eg effects associated with the extraction of primary aggregates and production of waste) should inform the efforts put towards promoting alternative approaches.
- Review of circumstances where material properties may cause leachate or other risks to wildlife.

Opportunities to Input:

- Promotion of appropriate appraisal tools (WLC and LCA) as well as recycling and the use of secondary materials may be assisted through English Nature's consultation role on individual transport proposals (including utilising local knowledge regarding the availability of local materials).

Links:

GCCP, 2000: Achieving Sustainability in Construction Procurement. GCCP, London. Available via: http://www.property.gov.uk/services/construction/gccp/gccppub.html

TRL, 2001: Recycling in Transport Infrastructure. A summary is available via a publications search on www.trl.co.uk

3.13 Increased Integration of Appraisal

E1

Summary:

Reflecting the multi-dimensional nature of sustainable development, there is growing consensus to effectively integrate environmental, economic and appraisal techniques into decision-making processes. Of particular note are the following initiatives:

- The DTi Foresight Environmental Appraisal Task Force's recommendation that "the environment, social and economic strands of appraisal must be brought together to inform decisions. These may need to be assessed separately, but must be reported together for the decision process" (2001).
- Forthcoming Treasury guidance on Integrated Appraisal.
- The development of Quality of Life Capital methodologies.
- The Royal Institute of Chartered Surveyors "Comprehensive Project Appraisal – Towards Sustainability" (launched in June 2001).
- Ongoing Research and Development by the Environment Agency on Strategic Integrated Appraisal Methods.

In the transport sector there is an issue regarding the degree to which Government's five criteria for transport (Environment, Economy, Accessibility, Integration and Safety - as reflected in GOMMMS) link to the four pillars of sustainable development, and particularly how well they cover the social dimension.

One particular issue is the degree to which increased integration in appraisal will lead to a desire for trade-off methods to be developed and used. An alternative approach is to integrate the appraisal outcomes but leave trade-offs to be made in a political context by the decision makers (as is the case with NATA/GOMMMS).

Key Issues for English Nature:

Integration of appraisal methods offers potential for "mainstreaming" environmental effects alongside economic parameters which have conventionally tended to dominate decision making across many sectors.
Integrated appraisal techniques may have merit for application within English Nature in relation to policy and strategy formulation as well as plan/programme development.

Opportunities to Input:

- Commenting on draft methodologies and emerging Treasury guidance.
- Promoting improvements in GOMMMS (feeding into the DTLR's planned review of the guidance) and the Commons Select Committee on Transport.

Links:

DTi Foresight, 2001: *Towards More Sustainable Decisions, A report of the Environmental Appraisal Task Force*. DTi, London. Available via www.foresight.gov.uk

3.14 Increased Application of Health Impact Assessment and Social Impact Assessment

E2

Summary:

Following more extensive application across Europe, the Department of Health is promoting the use of health impact assessment at the strategic and project levels across all sectors (see Department of Health, 1999). Techniques for health impact assessment are now developing and are drawing upon environmental assessment.

In the transport sector environmental assessment topics such as air quality, noise disturbance, safety and community severance are most relevant to the health topic.

A related issue is a recognised need to enhance the appraisal and reporting of social impacts and the distributive effects amongst different social groups (see for example DETR, 2000, DTi Foresight 2001 and forthcoming Treasury guidance on Integrated Appraisal which is likely to include an expanded array of social categories). In contrast to health impact assessment, social impact assessment techniques will need considerable further development and are unlikely to emerge as an additional process in the immediate future.

Links between environmental, health and social impact assessment are being considered in the context of the development of SEA guidance (see C2) and the modernisation of Volume 11 of the DMRB (see E3).

Key Issues for English Nature:

- Consideration of the links between direct and indirect impacts on biodiversity and geology and potential social and health effects.

Opportunities to Input:

- Consider how to align social objectives with English Nature's environmental objectives for transport.

Links:

Department of the Environment, Transport and the Regions, 2000: *Social Exclusion and the Provision and Availability of Public Transport.* DETR, London.

Department of Health, 1999: *Health Impact Assessment: Report of a Methodological Seminar*. DoH, London.

DTi Foresight, 2001: *Towards More Sustainable Decisions, A report of the Environmental Appraisal Task Force*. DTi, London. Available via www.foresight.gov.uk

3.15 Modernisation of DMRB Volume 11

E3

Summary:

The Design Manual for Roads and Bridges (DMRB) Volume 11 provides guidance on environmental assessment requirements for highway schemes in the UK. Volume 11's methods are in fact used more widely and are applied to other development types (eg other linear projects and other developments with a transport component) as well as outside the UK.

The Highways Agency has commissioned TRL to assist in modernising Volume 11 to bring it up to date with modern legislation, project appraisal and assessment practice. Such 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).

Key Issues for English Nature:

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

Opportunities to Input:

- English Nature has been consulted during the first phase of the modernisation project (via a questionnaire to local and national staff as well as invitation to a workshop at the Highways Agency).
- The second phase of the project will commence in December 2001 and will involve setting up a Highways Agency-led Technical Project Board process for the general guidance. Individual commissions to update guidance for each topic are likely to commence work early in 2002.

Links:

Department of the Environment, Transport and the Regions, 1998: *A New Deal for Trunk Roads in England.* DETR, London. Available via: www.dtlr.gov.uk/itwp/trunkroads/index.htm

3.16 Economic instruments for managing road use

F1

Summary:

As in other sectors, there is great interest in the potential for increased use of economic instruments in managing the inland transport sector. A key challenge identified in the Government's 10 Year Plan for Transport is "how to influence demand for road space in a way that is efficient and fair. One method is to influence the price that people pay to use roads. This can be done by changing the level of fuel duty, though that affects people using uncongested roads in the countryside as much as those driving in cities. A more direct method is to charge for the use of roads when they are most congested." (DETR, 2000, paragraph 9.8).

The current situation on these economic instruments, as outlined in the Plan, is as follows:

- **Fuel Duties**: determined on a Budget by Budget basis taking account of the Government's economic, social and environmental objectives. Any real increases in fuel duty will be hypothecated and targeted to improve transport.
- **Congestion charging and workplace parking schemes**: local authorities will develop policy on the role of congestion charging or workplace parking schemes in the context of their local transport plans and regional transport strategies.

The Greater London Authority has made most progress in examining congestion charging at a local level and is proposing a scheme for central London. The proposed scheme has been out for public consultation (to 28 September 2001). The Mayor will come to a final decision by the end of 2001 on whether to go ahead with the proposed congestion charging scheme, modify or reject it. If the scheme is confirmed, the earliest it could start would be January 2003.

Government does not intend to take a decision on the role of charging in reducing congestion on the inter-urban road network until a number of conditions have been met including:

- taking account of the conclusions of the multi-modal studies (Tranche 3 not complete until 2003-4);
- to be satisfied that charging would not create problems of excessive diversion onto unsuitable roads;
- ensure that appropriate standards can be achieved for electronic systems.

Key Issues for English Nature:

- Developing and maintaining an understanding of the potential consequences of congestion charging for biodiversity and geological interests (which may be highly localised).

Opportunities to Input:

- Future DTLR consultations and local authority consultations on the introduction of congestion charging.

Links:

Details on the proposed congestion charging for central London can be accessed via:
http://www.london.gov.uk/mayor/congest/index.htm

4. Summary of key issues for English Nature

Table 4.1 brings together the key issues for English Nature identified in each of the briefing sheets.

Table 4.1: Summary of key issues for English Nature

Topic	Key issues for English Nature
A1. DEFRA/DTLR Split	• Consultations on transport policies, plans, programmes and projects – when major concerns arise they may become more adversarial (cf. Intra-departmental solutions within DETR). This could be resource intensive.
A2. Emergence of Regional Institutions	• Developing effective internal management and communication structures to effectively engage in proactive policy advocacy and minimise reactive project case-work by timely and effective input at the regional scale.
A3. Re-structuring the Rail Industry	• Railtrack's replacement organisation and associated re-structuring of the industry may give rise to different responsibilities and increased pressure to cut costs which affect the quality of SSSI management. • There is likely to be some delay in taking forward new rail proposals. This may in the short to medium term produce more pressure to select other options, which may be more damaging in biodiversity terms (eg new road infrastructure). • Promoting increased liaison and co-operation with the bodies forming the re-structured rail industry, particularly with respect to strategic programmes (and associated appraisals) as well as policy matters.
B1. 10 Year Plan Monitoring and Review	• The DTLR's review of the 10 Year Plan will be a partial one – the aim being to refine and "tweak" rather than overhaul the policy and investment priorities set out in the Plan. The extent to which the review covers environmental issues is as yet unknown.
B2. Aviation Review and White Paper	• Key strategic issues are outlined in English Nature's detailed response to the consultation document on air transport policy (NPT/03/02/182 in April 2001). • Regional consultation documents may give rise to many detailed local and regional issues for English Nature (eg specific airport expansion proposals) and will need proactive co-ordination between English Nature offices and regions in formulating a response.
B3. The Delivery of Major Infrastructure Projects and Changes to the Planning System	• Ensuring that Parliament is properly informed of biodiversity commitments and implications arising from major projects; • Seeking advanced warning for English Nature consultations from the Highways Agency on policy, plan and scheme levels as part of English Nature's contribution to speeding-up delivery.
C1. European Common Transport Policy White Paper	• The European White Paper provides a view on transport measures that may either be implemented via EU-wide legislation, or promoted by the Commission. Many of the measures are not "new", but are significant for the recognition that they have been given. • It is difficult to identify direct repercussions for English Nature. However, the following are notable at this stage: • Striking a balance between air transport growth and the environment (Part 1); • Linking up sea, inland waterways and rail (Part 2); • Towards multi-modal corridors giving priority to rail freight (Part 2); • A high-speed passenger rail network (Part 2).

Topic	Key issues for English Nature
C2. Strategic Environmental Assessment Directive	• The SEA Directive will provide an important mechanism to ensure that future land use and sector-specific plans and programmes undergo a robust and comprehensive form of environmental assessment, including attention to biodiversity and geology. • English Nature will need to consider how to handle the additional consultations and data demands the Directive will stimulate • English Nature will need to consider whether the SEA Directive will apply to any of its plans and programmes or whether voluntary application of SEA may be beneficial. • In order to input effectively to future SEAs across all sectors, English Nature should begin to consider how to build awareness and technical capacity amongst local, regional and national staff. • New data sets and assessment methodologies will be required to ensure biodiversity interests are taken into account in SEAs.
C3. Proposed amendments to the EIA Directive in line with the Arhus Convention	• The proposed Directive will provide an opportunity to strengthen stakeholder involvement throughout the EIA process.
D1. Vehicle fleet: Reduction of vehicle emissions	• New vehicle technology to reduce vehicle emissions should help achieve improvements in local and national air quality. This could have some benefit for biodiversity although the extent of this effect is unknown. • There may however be impacts on biodiversity associated with any new infrastructure required to support the new technology. However, this may be a minor issue with much of the new infrastructure focused in urban areas.
D2. Vehicle fleet: Vehicle Technology, Materials and Waste	• The ELV Directive will have a positive effect on the land needed for waste disposal but its impact on reducing landfill is as yet unknown.
D3. Infrastructure: Materials and Waste	• The scale of secondary impacts of materials and waste issues associated with transport infrastructure on biodiversity and geology (eg effects associated with the extraction of primary aggregates and production of waste). • Reviewing circumstances where transport infrastructure material properties may cause leachate or other risks to wildlife.
E1. Increasing Integration of Appraisal	• Integration of appraisal methods offers potential for "mainstreaming" environmental effects alongside economic parameters which have conventionally tended to dominate decision making across many sectors. • Integrated appraisal techniques may have merit for application within English Nature in relation to policy and strategy formulation as well as plan/programme development.
E2. Emergence of Health Impact Assessment and Social Impact Assessment	• The links between direct and indirect impacts on biodiversity and geology and potential social and health effects.
E3. Modernisation of DMRB Volume 11	• Ensuring the satisfactory coverage of biodiversity and geology matters in the overall environmental assessment method and, in particular, the Section 3 topic guidance. • Ensuring that officers are able to engage in the assessment processes.
F1. Economic Instruments for Managing Road Use	• Developing and maintaining an understanding of the consequences of congestion charging for biodiversity and geological interests.

5. Concluding comments

There are many opportunities and implications for English Nature in terms of the emerging trends for transport, mainly revolving around the following themes:

a. Monitoring and input into evolving transport planning policies, procedures and guidance, in particular the DTLR's review of the 10 Year Plan, improvements to GOMMMS and the regional airport studies;

b. Ensuring that the English Nature both have the staff resources and level of training in order to cost-effectively respond to the new agenda;

c. Ensuring that biodiversity and geology data sets are relevant to the needs of SEA and adequately incorporated into assessment practice;

d. Liaise with DTLR to ensure that the Railtrack commitments to SSSI are appropriately carried forward into the new institutional arrangements for the rail industry;

e. Encourage DTLR/DEFRA to develop and maintain liaison/working mechanisms for the transport/environment agenda;

f. Improve co-ordination with other statutory bodies to minimise the exposure to individual initiatives;

g. Ensure that English Nature's input to planning reform takes account of English Nature's requirements in the inland transport sector;

h. Gain and share understanding of likely impacts of planning reforms and EC Directives (eg on SEA) on the UK inland transport sector;

i. Maintain awareness of developments in transport related areas to inform policy advocacy work (eg social aspects, wider appraisal methodologies, technological changes and waste management). Consider updating briefing sheets at regular intervals to incorporate emerging policy and structural issues.

6. References

The following references relate to Chapters 1 and 2. Further references in relation to Chapter 3 are contained in the "Key Links" sections of each briefing note.

DETR, 2000. *Transport 2010: The ten year plan*. London: DETR.

DTI FORESIGHT, 1999. *Actions for suatainable transport – optimisation across modes*. London: DTi. Available via: www.foresight.gov.uk

LYONS, G., MARSDEN, G. BEECROFT, M. & CHATTERJEE, K., 2001. *Transportation Requirements*. London: Landor Publishing.

SPRU, 2001. *Foresight Futures 2001, revised scenarios and user g*uidance – Final Report.

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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.
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