Transport and Environmental Management Systems
Foreword

This Good Practice Guide on transport and Environmental Management Systems is part of a series of guides prepared under TransportEnergy BestPractice. Particular thanks go to those who contributed to this guide as external verifiers, including:

- **Carey Newson** - Assistant Director (Partnership & Good Practice) Transport 2000;
- **Zelda Bentham** - Environmental Management Consultant at CGNU plc; and
- **Andy Simcock** - Responsible for environmental affairs at Kier Construction Group plc.

Prepared by:

AEA Technology plc, Harwell, Didcot, Oxfordshire OX11 0QJ
and

Enviros Aspinwall, 16 Crucifix Lane, London Bridge, London.
SE1 3JW
1.0 Introduction

This Guide seeks to promote the integration of transport initiatives and environmental management systems (EMS) and to help businesses and other organisations identify and manage the environmental impacts of their transport operations in a way that is consistent with managing the other environmental aspects of their operations.

This Guide is divided into six sections addressing the following issues:

Section 1: Introduction
covers the aims and objectives of this guide, and explores the benefits for organisations of managing transport as part of an EMS.

Section 2: Integration Process
describes the manner in which transport initiatives may be integrated into existing or proposed management systems, and EMSs in particular. This section also addresses the issue of identifying, recording and evaluating environmental impacts and aspects.

Section 3: Managing Transport
provides guidelines for measuring and monitoring transport impacts and setting objectives and targets aimed at addressing these impacts. It also suggests a range of measures that help reduce the environmental impacts, including travel plans, fuel management and fleet management.

Section 4: EMS Checklist
includes a series of checklists designed to assist in the development of an EMS where the impacts of transportation have been considered and are integrated in the system.

Section 5: Transport and the Environment
describes the impacts of transport on the environment and provides useful background information, references and statistics.

Section 6: Where to Find Out More
provides useful references to related documents, contacts and web resources which may be consulted.

1.1 Purpose and Objectives

The Guide is aimed at managers with responsibility for environmental performance within organisations. It sets out practical advice on how to reduce transport-related environmental impacts and to monitor the improvements gained. It is also intended for transport managers, to provide an understanding of how the management of the environmental impacts associated with transport relates to the wider management of environmental and cost performance. Finally, the guide seeks to raise awareness among auditors of environmental management systems to ensure transport is considered adequately.

Many organisations are already working either on EMSs or travel plans. Travel plans are strategies designed to reduce the reliance of staff on using the car for work and lend themselves to forming part of a wider EMS.

The objectives of this Guide are to provide a basis for environment or transport managers and EMS auditors to:

- understand better where transportation related environmental impacts arise in an organisation and what these impacts are;
- evaluate whether an organisation’s transport related environmental impacts are significant within the context of their overall environmental impact;
- understand the process for integrating all alternative transport initiatives into the EMS process;
- identify ways to measure, assess and monitor the environmental impacts of transport;
- be guided towards measures for continuous improvement;
- find further sources of information and assistance.
Many organisations currently do not recognise the environmental consequences of transport associated with their activities. Even in organisations where formal environmental management systems are in place, only 20% with EMAS and 55% of those with ISO 14001 identify transport as a significant environmental aspect or impact.

Transport plays an important role in most business activities. It has long been recognised that economic growth typically increases the amount of travel. However, transport is also recognised as a major source of environmental impacts, which will need to be considered besides other environmental impacts as part of an environmental management system.

### 1.2 Environmental Management Systems

Organisations of all sizes are increasingly focusing on the potential environmental impacts of their activities, products or services, as concern grows for maintaining and improving the quality of the environment and protecting human health. The environmental performance of an organisation is of increasing importance to interested parties, both internally and externally. Meeting these expectations requires organisational commitment to a systematic approach and to continual improvement in environmental performance, which can be achieved through implementation of an environmental management system (EMS).

EMS’s are organisational systems for controlling, managing and improving the environmental impact of operations. There are currently two internationally recognised EMS schemes that can be externally verified. These are the international standard, ISO 14001, and the EU Eco-management and Audit Scheme (EMAS). The ISO standard in particular has made a global impression - to the end of 1999, 14,106 ISO 14001 certificates were held in 84 countries. Furthermore, it is now an accepted core element of systems required by EMAS, which applies to all EU Member States as well as other European Economic Area Member States. In early 2001, 3134 sites were registered for EMAS.

In the UK, both private companies and public sector bodies are adopting these standard approaches to environmental management. Many industry bodies provide support to their members in implementing verified EMS, as do other business support organisations such as the Small Business Service. As part of the “Greening Government” initiative, the use of systems based on ISO 14001 principles is being advocated in Government organisations at all levels, and in related bodies in the public sector, such as hospitals, universities and police forces. More detail on the specific steps involved in implementing an EMS is given in Section 2.

Although implementation of an EMS is not without cost, in the long term it should save an organisation money, improve its environmental performance and reduce its risks of environmental prosecution, thereby giving a competitive advantage. The EMS will also help an organisation to demonstrate environmental responsibility to stakeholders including customers.

### 1.3 The Transport Needs of Organisations

In most organisations, transport impacts will arise due to:

- travel by employees between work and home;
- business travel, such as employees travelling to meetings (including journeys made by air), e.g. a sales team may spend most of its time on the road;
- deliveries made by goods and service vehicles operating as part of the organisation’s activities;
- travel by visitors to and from a particular site, e.g. visitors to a workplace, shoppers to a retail outlet, patients to a hospital and tourists to a leisure attraction;
- deliveries to the site made on behalf of another organisation.

The transportation profile of an organisation varies between business types and, in turn, so do its environmental impacts.

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1 For more information on the European Union’s Eco-Management and Audit Scheme (EMAS) and the International Organisation for Standardisation’s standard on environmental management systems (ISO 14001), see Section 2.
and the measures needed to address these impacts. In order to implement a programme of action appropriate to the nature and scale of activities carried out at any particular site, consideration should be given to where and how much use of transport occurs in an organisation’s activities. The occurrence and scale of transport needs within an individual organisation may be assessed on the following basis:

- **Commuting**: The number of trips made to and from work may initially be estimated on the basis of the number of employees. A travel survey would provide more accurate information about mode share, distances travelled etc.

- **Business travel**: The number of pool cars available within the organisation and the number of cars rented by the organisation may serve as an initial indication of the extent of business travel. A listing of travel expenses (for rail, bus, taxi, aircraft), log book records, fuel consumption data, and mileage records would allow for a more accurate estimate of business travel.

- **Visitor travel**: An estimate of the extent of visitor travel to the organisation may be obtained from a review of visitor books, and may be followed by a more accurate visitor survey on how and how far they travelled.

- **Deliveries**: Delivery records and visitor books would provide an initial indication of the number of deliveries to the organisation, and may be followed by a more detailed survey.

- **Fleet vehicles**: The number of transport operations which form part of the organisation’s business activities may initially be estimated on the basis of the number of fleet vehicles owned or operated by the organisation. Log book records, fuel consumption data and mileage records would allow for a more accurate estimate.

These individual needs can be compared with each other in terms of their scale, and the extent and magnitude of the environmental impacts that may result from them. For example, for organisations where distribution is a key element in production, the impacts associated with fleet vehicles may be more important than those linked to commuting. Similarly, impacts associated with transport needs can be compared with other types of environmental impacts on this basis also. This will be part of the process of identifying and evaluating the environmental aspects of an organisation’s activities, which is described in Section 2.

### 1.4 Benefits of Managing the Environmental Impacts of Transport

The transport needs of an organisation affect the environment in a number of ways. To ensure transport is well integrated it is important to appreciate fully the related impacts. Further information on transport-related impacts can be found in Section 5.

Managing an organisation’s environmental effects associated with the movement of goods and people can have a wide range of positive effects, bringing benefits not only to the organisation implementing the initiatives and its staff, but also to the wider community. These may include:

- **Cost savings through reduced fuel and other transport costs**: Fuel cost is a major element of the total fleet operating costs - typically it will make up 25% of the total running cost of the vehicle. Efficient use of transport will improve business effectiveness and profitability. The TransportEnergy Guide Fuel-efficient fleet management (GPG218) shows how effective fleet management can release typical savings of 10%. Moreover, these benefits are likely to increase given rises in fuel prices in recent years.

  Other cost reductions that may be possible include benefiting from changes to Vehicle Excise Duty and company car taxation that are intended to encourage the use of more efficient vehicles, benefiting from government grants to support alternatively fuelled vehicles, and incurring reduced accident and insurance costs from less driving and driving in safer, better maintained cars.

- **Reduced demand for car parking**: Savings can be made through not having to provide as much car parking, and using the space this frees up more efficiently for the business. It might enable a company
to avoid proposed Government charges for workplace parking spaces or allow the organisations to secure planning permission for expansion or comply with an obligation arising from the original planning permission when a new business was set up. There may also be reduced overspill parking in nearby residential areas, benefiting the local community (see Case Study A) and the impact of traffic on the site, including cutting car park queuing times, will be reduced.

**Reduced business costs associated with congestion:** Cutting congestion and journey times reduce lost work time due to time spent in traffic jams whilst commuting or travelling on business. It also increases the reliability of deliveries from suppliers or to customers. Indirect benefits include resulting improvements in local air quality and reduced stress in the working environment, which can improve the health and energy levels of employees.

**Projecting an improved image:** Showing a commitment to improving the global and local environment, and backing this up with real actions, can help an organisation be seen as a responsible contributor to the community. Relationships with neighbouring communities can be improved by easing traffic pressure, and by potentially improving public transport, walking and cycling networks in the immediate area. See Case Study B.

**Improve relationship with employees:** Travel plans can be used as a recruitment tool as well as helping to retain staff by providing wider travel choices and by offering potential cost savings for staff in terms of their travel arrangements. It also promotes equal opportunities at the workplace by providing travel perks which are available throughout the organisation, rather than incentives for a few, and by supporting those staff without access to a car.

### Case Study A: Promoting Public Transport to Reduce the Need for Car Parking

The University of Southampton has eight remote sites as well as the main campus, and 5,000 halls of residence places. However, no major changes in bus services serving the university locations were made for many years. This meant that more and more students owned cars, and hall car parking was overfull – spilling into the neighbouring streets.

From 2001, the university entered a five year agreement with an infrastructure company, Accord, who provided a fleet of 10 buses, built to university specification; and who employed the drivers at a university owned depot; and to schedules operating 21 hours a day (18 on Sundays). The yearly ticket was provided to all resident students within their rent. For non-residents, staff and general public, annual, termly and 4-week ticket options were available. The university smart proximity ID card was used to access services. Bikes were carried free of charge inside the buses. A massive shift in bus use was achieved with 4,000 passengers carried a day. Students had a positive incentive to do without a car since their local travel needs were supplied day and night.

The university found a solution to the parking problems for staff attending different sites and the overfull car parks spilling on to the local streets. (Source: John Waugh, University of Southampton “Back to the Bus: Uni-Link and a Travel Revolution for Southampton and its University” European Transport Conference, 1999).
Increased productivity: Reducing congestion and travel times and improving local air quality are likely to bring benefits associated with a healthier and less stressed workforce, who may be more motivated with less absenteeism.

**Case Study B: Cost reductions from safe driver training**

United Utilities has implemented a safe driving training programme where the causes and frequency of accidents are analysed and managers are notified about employees who would benefit from the training. In 1998, 185 employees took part. In addition to the health and safety benefits, reducing the number of vehicle accidents means less road congestion, lower exhaust emissions and less use of resources in repair work. (United Utilities Environment Report, 1999.)
2.0 Integration Process

2.1 Transport in the EMS Process

Corporate environmental management is a way of reducing environmental harm and nuisance and also reducing legal liability. A management system for environmental issues addresses all aspects of a company’s environmental performance and integrates with overall management activity. The adoption of environmental management systems (EMSs) is becoming increasingly common and there are a growing number of private and public sector organisations that are seeking certification to EMAS or ISO 14001. The process of EMS implementation represents a major opportunity for organisations to adopt transport initiatives. This section presents the EMS implementation process and highlights where and how to integrate transport initiatives within this framework.

The basis for the implementation and maintenance of an environmental management system is set out in the international standard ISO14001, and involves the stages illustrated in Fig 1 and described below. EMAS goes beyond this by requiring that a public environmental statement be validated by an accredited verification body.

**Step 1: Initial review and management commitment:** The initial review aims to identify some of the environmental issues appropriate to the nature and scale of the activities, products or services of the organisation. This allows for key aspects of company activity that have an impact on the environment to be identified and their significance considered. At this early stage it is essential to get senior management commitment to the project, including identifying a senior management representative. Without this, any initiative will lack the drive needed to see it through.

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**Fig 1  Key Stages in the environmental management process**

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Continual improvement of environmental performance
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Management review

Environmental policy

Planning

Implementation and operation

Checking and corrective action
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Step 2: Establish an environmental policy: This needs to cover all the environmental issues identified in the initial review. Careful consideration should be given to the impacts of all transport associated with the organisation, including commuting, business travel, deliveries, visitor travel and freight. To ensure this, the policy should not be so narrowly defined so as to exclude the examination of these (refer also to Checklist 1 in Section 4).

When drafting your environmental policy, make sure it:

- is specifically designed to reduce the environmental impacts of your organisation’s operation, taking into account, for example, offices or depots that are widely spread, or markets that cover a wide area;
- includes commitments to continual improvement, prevention of pollution and reduction in traffic generation;
- provides a good framework for managing all the adverse environmental impacts your organisation causes, not just those associated with its main process, and not just on its own premises.

Step 3: Planning: The planning stage includes identification of environmental aspects and evaluation of associated environmental impacts (see Checklist 2). It is essential that the approaches used to identify aspects do not dismiss transport-related impacts as outside the scope of the EMS, and that any potentially significant effects arising from these sources are identified at this stage in the process (see Checklist 3). This is discussed in more detail on the following pages.

The establishment of relevant legal and regulatory requirements must include transport-related requirements (see Checklist 4). The development and maintenance of environmental objectives and targets should include transport-related objectives and targets (such as those listed later in this section) where the transport impact is regarded as being significant.

Step 4: Implementation and operation: This includes the establishment of an organised management structure, and documentation of the EMS. If transport-related impacts have been identified as being significant, then a programme to manage these impacts should be established. This may include implementation of:

- a travel plan: a package of measures tailored to the needs of individual sites and aimed at promoting more environmentally friendly travel choices and reducing reliance on the car; and/or
- a fuel or fleet management strategy: a package of measures aimed at minimising fuel consumption and minimising the amount of traffic generated by the specific organisation.

For detailed advice on how to prepare and implement a travel plan for your organisation, consult the TransportEnergy Guide Travel Plan Resources Pack for Employers, which provides a ‘one-stop’ resource for organisations looking to develop their own plan.

It is important that there are procedures and sources of information that relate to transport operations in the company or the supply-chain. Training requirements of an EMS manager should include discussion of transport-related environmental impacts.

Plan your system so that it:

- uses ways of identifying environmental impacts and determining their importance that are clear and, as far as possible, objective;
- takes particular account of using non-renewable resources or producing waste and products that cannot be easily recycled;
- prioritises action in relation to the risks to the organisation associated with particular environmental effects.
Step 5: Checking and corrective action: The systems for monitoring form a key part of this (see also below), together with regular reporting and review of the information gathered. In the case of travel plans, various indicators are used to gauge progress including further travel survey snapshots, tracking take-up of public transport and cycle use, car park occupancy and levels of over-spill parking in surrounding areas. Incident and non-conformity procedures are used in an EMS to deal with situations where monitoring indicates that regulatory or other standards are not being met, or where sufficient progress towards the achievement of targets is not being made.

Step 6: Management review: Periodically, the whole management system needs to be reviewed to assess whether it is effective, or whether it requires adjustment. This will include making sure the objectives of the environmental policy are being met and environmental aspects and their significance are being properly identified. It should also check operational controls put in place are being effective, necessary corrective actions are taking place when required and internal audit procedures are identifying areas of non-conformance with the management system.

The management review provides a good opportunity to make sure that the environmental aspects of your organisation relating to transport are being properly taken into account.

Step 7: Continual improvement: The outcomes of the management review should provide specific actions to improve both the management systems and the environmental performance of the organisation on a continual basis, setting ever more stringent requirements over time and making modifications necessary to ensuring its continuing relevance.

2.2 Integrating EMS and Transport Initiatives

In general terms, management systems will commonly incorporate the two key features, target setting and monitoring & targeting:

**Target setting:** Legislative drivers shape the targets for action in an EMS and to a lesser degree transport initiatives;

**Measuring and monitoring:** Process of identifying areas for improvement. Procedures for checking and corrective action are an integral part of an EMS since this allows progress to be monitored and changes made where necessary in order to facilitate continual improvement. Transport initiatives should also include a similar process in order to ensure the continuing relevance of the initiatives.

The different types of management systems, including environmental, quality assurance and health and safety management systems, operate to a similar structure and have many cross-overs and commonalities (see Fig 2). For example, environmental management procedures to control paint spraying would also have H&S and quality control
implications since uncontrolled release would have an adverse impact not only on the environment but also occupational health and product quality.

Not only do procedures for EMS, H&S and, indeed, QA systems have an impact upon each other, but the structure for development and implementation of these management systems is similar. Thus, approaching transport initiatives via integration into existing or projected management systems will streamline company procedures and initiatives.

Management systems could be more closely linked if there were:

- more inclusive management approaches to EMS;
- closer collaboration between managers with different functions;
- early identification of key areas of overlap;
- better use of stakeholder suggestions in defining means of improvement.

**Fig 2 Management systems compared**

- **Environmental Management** (ISO 14001)
  - Preparatory environment review
  - Environment policy
  - Planning
  - Implementation and operation
  - Checking and corrective action
  - Management review

- **Fuel Management** (see TransportEnergy Guide GPG307)
  - Commitment
  - Data collection and analysis
  - Action plan
  - Communicate
  - Implement
  - Review

- **Travel Plans** (see TransportEnergy Guide GD0041)
  - Commitment
  - Surveys and audits
  - Objectives, targets and indicators
  - Implementation and operation
  - Monitoring
  - Review

- **Health and Safety** (BS8800)
  - Initial safety review
  - OHS policy
  - Planning
  - Implementation and operation
  - Checking and corrective action
  - Management review

Plan → Do → Check → Act
Case Study C: Travel plans within an EMS framework

The new Orange Temple Point office, located in the heart of Bristol, is being used as a blueprint for other Orange offices throughout the UK in terms of its environmental management. Orange is rolling out an integrated EMS, based on ISO14001, which includes the implementation of travel plans at all major offices. Central to the Temple Point travel plan is the concept of car park management: the limited number of parking spaces are allocated using a needs-based permit system. The criteria include accessibility to the site by public transport; child and other care commitments; business travel requirements and disability. A number of alternatives and cash incentive schemes exist for staff choosing not to drive to work and use an on-site car parking space.

Orange’s motivation for the development of its travel plan arises from the need to avoid car park congestion and to reduce the environmental impact of staff commuting. Orange continually monitors staff travel patterns and reports commuter miles in its annual environmental report. In fact, the company’s commuter travel was not considered to be one of its greater environmental impacts. Commuter travel has been addressed in response to need and the public relations benefits, including an improved relationship with staff and other stakeholders such as the local council. (Source: Louise Baker, Environment Consultant, Orange)
2.3 Identifying Environmental Aspects and Impacts

Aspects and Impacts
In the context of environmental management systems it is important to distinguish between environmental aspects and impacts. When looking at how to integrate transport in an EMS one has to understand the exact meaning of these two expressions in the context of transport.

Environmental aspects are the things about your organisation’s activities, products or services that affect the environment. In relation to transport, for example, most energy comes from burning fossil fuels, depleting natural resources and releasing carbon dioxide and air pollutants into the environment. Environmental impacts, on the other hand, are the actual changes to the environment that may happen as a result of a particular aspect of the organisation’s operations. Each aspect of an operation may have more than one impact.

Table 1 gives some further examples that specifically relate to transport to show the difference and to help you identify your own. It is important to remember to include those not covered by legislation, as they may still be significant. Further examples are given in the following paragraphs.

The distinction between aspects and impacts is an important one. Aspects are the ‘cause’ of an environmental impact. Impacts usually cannot be managed or controlled directly, but you can do something about the aspects that generate the impacts. Environmental aspects also include measures you have already taken to prevent or reduce pollution.

Identifying environmental aspects
When identifying your organisation’s environmental aspects, you’ll usually start by making a list of its various departments or functions. It is also important to include upstream and downstream activities where appropriate. The next step is to identify the different tasks or processes that make up these activities, and think about the inputs to and outputs from these. This will include raw materials, emissions to air, water, and land (as waste or through spills). You also need to consider what happens under abnormal situations as well as the potential for accidents.

Table 1 Some examples of environmental aspects and impacts

<table>
<thead>
<tr>
<th>Term</th>
<th>Environmental aspect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental aspect</td>
<td>Use of resources and raw materials</td>
</tr>
<tr>
<td></td>
<td>Waste generation</td>
</tr>
<tr>
<td></td>
<td>Fuel consumption</td>
</tr>
<tr>
<td></td>
<td>Greenhouse gas emissions</td>
</tr>
<tr>
<td></td>
<td>Releases to air</td>
</tr>
<tr>
<td></td>
<td>Releases to water</td>
</tr>
<tr>
<td></td>
<td>Releases to land</td>
</tr>
<tr>
<td></td>
<td>Traffic congestion</td>
</tr>
<tr>
<td></td>
<td>Noise</td>
</tr>
<tr>
<td></td>
<td>Depletion/conservation of a natural resource</td>
</tr>
<tr>
<td></td>
<td>Global warming</td>
</tr>
<tr>
<td></td>
<td>Water pollution</td>
</tr>
<tr>
<td></td>
<td>Air pollution</td>
</tr>
<tr>
<td></td>
<td>Land contamination</td>
</tr>
<tr>
<td></td>
<td>Traffic accidents</td>
</tr>
<tr>
<td></td>
<td>Nuisance</td>
</tr>
</tbody>
</table>

Table 2 Recording impacts associated with environmental aspects

<table>
<thead>
<tr>
<th>Activity</th>
<th>Environmental Aspect</th>
<th>Environmental Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials inward/goods outward</td>
<td>Spillage from bulk delivery</td>
<td>Surface water pollution and land contamination</td>
</tr>
<tr>
<td></td>
<td>Waste generation during clean-up of spillage</td>
<td>Land contamination and underground water pollution through landfill use</td>
</tr>
<tr>
<td></td>
<td>Noise and traffic congestion caused by transport to/from the site</td>
<td>Nuisance from noise and congestion and air pollution</td>
</tr>
<tr>
<td></td>
<td>Fuel consumption</td>
<td>Global warming, air pollution and resource depletion (indirect)</td>
</tr>
<tr>
<td></td>
<td>Generation of waste from vehicle fleet maintenance</td>
<td>Land contamination and underground water pollution through landfill use</td>
</tr>
<tr>
<td>Staff travel</td>
<td>Noise and traffic congestion caused by transport to/from the site</td>
<td>Nuisance from noise and congestion and air pollution</td>
</tr>
<tr>
<td></td>
<td>Fuel consumption</td>
<td>Global warming, air pollution and resource depletion (indirect)</td>
</tr>
<tr>
<td></td>
<td>Generation of waste from vehicle fleet maintenance</td>
<td>Land contamination and underground water pollution through landfill use</td>
</tr>
</tbody>
</table>
From this, you can decide which inputs and outputs may affect the environment and are, therefore, environmental aspects. Having done this, you can then also identify the environmental impacts that might arise from these.

**Identifying the impacts of your aspects**

An aspect can have more than one impact and many aspects have indirect impacts. For example, fuel consumption (an aspect) has three indirect impacts, i.e. climate change due to carbon dioxide emissions, air pollution from other gas emissions, and resource depletion through fossil fuel use. The following table provides some examples of environmental aspects relating to transport and their associated impacts.

<table>
<thead>
<tr>
<th>Table 3 Rating environmental impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aspect</strong></td>
</tr>
<tr>
<td>Business travel</td>
</tr>
<tr>
<td>Stack greenhouse gas emissions</td>
</tr>
<tr>
<td>Water use</td>
</tr>
</tbody>
</table>

The basic requirement of ISO 14001 is that you identify your significant aspects (i.e. those that have a significant impact on the environment) using a formal procedure, although the standard doesn’t specify how to do this. Therefore, how you assess significance should be recorded in a systematic manner for future reference. Accredited certifiers will also want to see these records. The approach adopted to evaluate significance of aspects should be consistent and use criteria that provide a rational basis for the rest of your EMS.

One simple method is to answer yes/no to questions linked to criteria such as legislation, financial and stakeholder interests. However, this approach usually doesn’t provide sufficient detail and rigour for certifiers. If your organisation has (or intends to have) a certified EMS, two more credible approaches are:

- **Numerical rating/weighting:** Scores are awarded to each environmental impact, reflecting the relative importance of major issues, e.g. legislation, environmental damage and stakeholder interests. Significance could also be judged on quantity, e.g. commuting may rate more highly than business travel because it involves every employee and even a small improvement in results could have a greater positive environmental impact. The scores are weighted to reflect the importance of the criterion at a particular site or company. You can then rank your environmental impacts according to their total scores. Impacts can be considered significant if their score is above a predetermined threshold value. An example is illustrated in Table 3.

- **Risk assessment:** Conventional risk assessment methods are used to predict the likelihood and severity of impacts. A rating is assigned to each aspect.
potential impact based on generic factors such as hazardous properties, size, frequency or likelihood of occurrence, presence of sensitive environmental receptors and presence or absence of environmental controls. For each impact, you need to decide its degree of severity (minor, moderate, major) and how likely it is to occur (unlikely, likely, very likely). A simple assessment of the risk is obtained by combining the severity of the consequences with the likelihood of occurrence for each impact.

Either of these approaches may also be used if your organisation does not have (or does not intend to have) a certified EMS.

Companies often find compiling their list of environmental aspects and impacts and assessing significance the most difficult stage of implementing an EMS. If you need further help, the TransportEnergy Hotline offers free and confidential advice on transport. Please call 0845 602 1425. The Envirowise Programme publishes other guides on EMS in specific business sectors. These can be ordered free of charge from the Envirowise Helpline on freephone 0800 585794.

**Recording your decisions**

The reasons for your decisions should be recorded in a systematic manner for future reference (and to show to accredited certifiers if you are being certified). Your system should include a written procedure for evaluating significance. The procedure you use to identify environmental aspects and then assess them for significance must be recorded and be able to provide consistent results for each site. Your collection of lists of environmental aspects and evaluation of significance make up your Aspects Register. This Register should give details of the company’s environmental aspects, together with an analysis of their impacts. It should indicate whether an aspect is considered significant and how your significant environmental aspects are linked to your EMS.

**2.5 Supply Chain Issues - Managing Impacts and Influencing Partners**

ISO 14001 requires organisations to identify environmental aspects that they can control and over which they can be expected to have an influence. This therefore includes aspects that arise in the supply chain. Transport measures adopted by individual organisations can often be extended to reduce the transport-related impacts of their suppliers. This can be of particular relevance for organisations where the transport function is outsourced. The benefits of this are:

- You can work in partnership with your supply chain to achieve better environmental performance, reap the business benefits of this, and share the rewards and successes with your suppliers.

- You can make sure that the environmental effects of your supplier/contractor’s organisation that can be influenced by your actions are taken into account in your management systems, as well as those which result directly from your operations. This will help you to be more confident about achieving continual improvements to your business’ environmental performance overall.

- You can be more confident about protecting your corporate image on environmental issues, and ensuring that these are not undermined by the actions of other organisations with which you have a business relationship.

Help make sure your suppliers support the improvement of your organisation’s environmental performance by:

- providing them with information on environmental issues relating to your organisation’s stance on transport, and how their activities affect these;
making them aware of your organisation's expectations in terms of their impact on the environment;

developing measures to assess and categorise suppliers in terms of their environmental performance;

informing them of their categorisations;

developing purchasing policies designed to identify and select suppliers with good environmental performance, and link these into an overall corporate environmental policy;

setting environmental requirements in contracts; evaluating tenders for environmental performance alongside other purchasing criteria;

monitoring and evaluating contract compliance.
3.0 Managing Transport

3.1 Covering Transport in Your EMS

Transport is an area that is often neglected by managers when considering the environmental effects of their business. To make sure this doesn’t happen in your organisation, the following advice should be considered when identifying the environmental aspects of your business:

- **Don’t just focus on processes, products or services:** Otherwise transport-related aspects can fail to be recognised as significant, particularly where logistics is outsourced.

- **Don’t just rely on standard checklists to identify all your environmental aspects:** These may not always include transport-related issues. Checklists should include all types of transport aspects in order that all the environmental impacts of transport for a company are identified.

- **Be prepared to initiate changes in your organisation’s culture:** This might mean replacing benefits and perks associated with car use with other benefits that are not environmentally damaging. It could include encouraging people to work more regular and predictable hours to make public transport arrangements simpler, or encouraging more flexible working to increase use of working from home or teleconferencing. Senior management might be encouraged to take the lead, e.g. by giving up their own car-related perks and using alternative transport for the journey to work. Travel policies should be made clear at recruitment and staff induction. Alternative travel arrangements should be publicised in promotional material to visitors.

- **Don’t just respond to regulatory pressures:** Legislative requirements (refer to Checklist 4) for environmental performance of transport have been introduced relatively recently, and are not always fully enforced. Therefore, the difference between this and other forms of environmental regulation must be addressed in some other way. There are no legislative requirements for limiting commuter traffic. However, Planning Policy Guidance Note 13 says local authorities should require that travel plans be submitted alongside all planning applications with significant transport implications. A number of local authorities are also considering introducing a workplace parking levy and congestion charges.

- **Don’t avoid the subject:** Many people believe that the company car issue is an area so tied up in emotion and status that it is best left well alone. You should bear in mind that it is the way you approach the issue that will make the difference when persuading and influencing people to change their attitude.

- **Don’t let lack of knowledge cloud your judgement:** There appears to be widespread confusion over the environmental impacts of transport. However, extensive work has been done in understanding these in the context of transport planning. Make yourself aware of the issues at stake. The information in Section 5 and the references given in Section 6 will give you a flying start. There is lots of advice available on how to manage the environmental impacts of transport, such as the Government-backed award scheme ‘Motorvate’, guidance published by TransportEnergy BestPractice and DfT publications.

- **Be creative in setting targets and monitoring performance:** Travel plans and fuel management can bring direct cost savings as well as further environmental benefits. Work with colleagues to develop systems that meet both requirements. Reliable data on the impacts of transport is often lacking, and more pragmatic approaches are likely to be necessary.

- **Don’t rely on standard advice on developing EMS being comprehensive:** Much of the help that is available tends to focus on actions and outcomes, presuming that a problem has already been identified. The Defra and DTI provide extensive advice, and support and there is an enormous amount of literature on specific features of environmental management systems. However, the focus tends to be on processes, meaning that transport-related aspects often fail to be recognised as being significant.
3.2 Measuring and Monitoring Transport Aspects

Regular monitoring should be in place to check that objectives and targets are being met, and that transport-related aspects are being reduced in line with expectations. Ongoing monitoring is a requirement of an EMS compliant with ISO 14001.

In order for improvement targets to be set and then monitored, the baseline situation must be established by measuring the current transport impact of your organisation. For each transport aspect, Table 4 gives examples of how their associated transport impacts can be measured.

An EMS can be most effectively implemented when it is integrated with existing systems and procedures. Transport managers, or other people in your organisation, may well already collect much information that will be of use measuring the baseline and in setting up a monitoring regime for an EMS. Examples of this might include:

- Information available from the fleet manager:
  - **Fleet composition**: Information on the fuel efficiency of cars, vans and other vehicles is available from official government sources, from manufacturers’ own specifications, and from trade and consumer organisations. Your organisation’s existing records on fuel consumption of vehicles in the fleet could also help in this respect.
  - **Fuel use and mileage of the current fleet**: Records of fuel purchased and consumption of individual vehicles should be available.
  - **Type of fuel**: From purchase records, information should be available not only on the amount of fuel used, but the proportions of petrol and diesel, along with any alternative fuels used (e.g. liquefied petroleum gas, compressed or liquid natural gas, electricity, or hybrid vehicles).

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Measurement of associated impacts</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of resources and raw materials</td>
<td>Records should be kept of number of miles travelled by mode of transport, the fuel bill (litres/employee) and fuel consumption (average miles (or km) per litre). Haulage firms in particular could consider calculating the transport efficiency for goods in terms of litres/tonne-km.</td>
<td>Km/employee, Litres/employee, Km/litre, Litre/km</td>
</tr>
<tr>
<td>Waste generation</td>
<td>Records should be kept of the volumes of wastes arising and disposed of.</td>
<td>Volume in litres or tonnes</td>
</tr>
<tr>
<td>Greenhouse gas emissions</td>
<td>The standard approach to measuring CO₂ emissions applies emission factors to vehicle/km travelled by different types of vehicle, or conversion factors for litres of fuel used (see Checklist 5). More comprehensive information is given in Appendix 6 of Environmental Reporting - Guidelines for Reporting on Greenhouse Gas Emissions. The website <a href="http://www.rsk.co.uk/ukefd">www.rsk.co.uk/ukefd</a> also contains a database of emissions conversion factors expected from industrial and transport activities.</td>
<td>Tonnes of carbon In tC or tCO₂</td>
</tr>
<tr>
<td>Releases to air</td>
<td>A key issue here is the distinction between emissions and concentrations of pollutants. The simplest approach would be to relate air pollution issues to emissions, and calculate these on the basis of the total mileage operated by your fleet (as for CO₂ above. Emissions factors shown in Checklist 5).</td>
<td>Gm³ or ppm, Or kg of pollutant</td>
</tr>
<tr>
<td>Releases to water</td>
<td>The management of wastewater systems within your organisation’s premises, and compliance with any discharge consents should be sufficient to cover this aspect. Elsewhere, the rate of pollution is best related to the total mileage travelled, monitoring the overall mileage of your fleet is the best available measure.</td>
<td>Total mileage</td>
</tr>
<tr>
<td>Releases to land</td>
<td>As for releases to water, the rate of pollution is best related to the total mileage travelled, monitoring the overall mileage of your fleet is the best available measure.</td>
<td>Total mileage</td>
</tr>
<tr>
<td>Traffic congestion</td>
<td>The main issue here is how overall reductions in movement might lead to more reliable and consistent travel times for all. Another key measure here is the relative proportions of your workforce that travel to work in their own car, as part of a car pool, and by public transport.</td>
<td>Average journey time, Share of each mode in %</td>
</tr>
<tr>
<td>Noise</td>
<td>Operational noise at particular business premises may be monitored routinely but this is unusual. Any complaints made to your business, or to the local Environmental Health Department about your operations, should be logged, noting what the likely source is and what actions were taken to remedy the problem.</td>
<td>DB(A) (using an index such as L₁₀₀)</td>
</tr>
</tbody>
</table>
- **Waste arisings**: Purchase records of spare parts and other consumables (like lubricants), stock records and existing monitoring of the waste stream may all provide information specifically relating to the transport functions of your organisation.

> **Information available from the organisation’s travel plan co-ordinator:**

- **Results of staff travel survey**: If your organisation has a travel plan the results of a travel survey would provide a good indication of the environmental aspects and impacts of staff travel, focusing on how staff travel to work and trends away from private car use. This would give a good indication of fuel consumption, greenhouse gas and other emissions, traffic congestion, noise and waste generation.

> **Information available from car hire company:**

- **Vehicles hired**: Information on the types of vehicles rented, engine size, type of fuel used, fuel efficiency and emissions.

- **Mileage**: Records of mileage travelled in rented cars should be available, which may be translated into fuel consumption estimates.

- **Information available from your travel agent and/or employee expenses**: Amount of rail and air travel may be inferred from travel agent’s records or the amount claimed on expenses.

Having some way of measuring the impact is important in order to establish the baseline from which improvements can be made. This should be done quantitatively if possible, so that future improvements in performance can be clearly seen. However, if this is not possible, or the cost of quantifying the impact is prohibitively expensive, then a qualitative approach may have to suffice.

### 3.3 Setting Objectives and Targets

#### General Approach

Objectives and targets can be set in all areas where transportation impacts arise, from commuting, to business travel to visitors, deliveries and suppliers. Some of these will be dictated by regulatory requirements (e.g. those given in Checklist 4). Basic compliance may be the first benchmark in assessing overall environmental performance. In general, objectives and targets should be based on the measures used to gauge aspects as shown in Table 4.

Ensure that your targets are owned by stakeholders, are appropriate to different areas of operation and achievable:

> **Draw up objectives and measurable targets for the most significant aspects in consultation with key managers and their people and, where relevant, suppliers and contractors.**

> **Ensure that targets are measured using a consistent methodology throughout, from initial assessment of the impact to the point at which the target is met.**

> **Make things simple - keep the number of targets small, both overall in relation to all the environmental aspects of your organisation, and specifically in relation to transport.**

#### Table 5  Some suggested targets for transport

<table>
<thead>
<tr>
<th>Category</th>
<th>Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business travel</strong></td>
<td>Company vehicle mileage</td>
<td>% decrease in a year (per employee)</td>
</tr>
<tr>
<td></td>
<td>Fuel efficiency of vehicles</td>
<td>% increase in one year</td>
</tr>
<tr>
<td></td>
<td>Company drivers completing training program to raise awareness of fuel efficient driving techniques</td>
<td>Increase proportion of trained drivers to x% in x years</td>
</tr>
<tr>
<td></td>
<td>Number of air miles</td>
<td>% decrease over x years</td>
</tr>
<tr>
<td></td>
<td>% of suppliers based within 5 miles</td>
<td>% increase in a year</td>
</tr>
<tr>
<td><strong>Commuting</strong></td>
<td>Number of cars arriving at the site per 100 employees</td>
<td>% decrease in a year</td>
</tr>
<tr>
<td></td>
<td>Employees use of public transport</td>
<td>% increase in a year (this is linked to the above)</td>
</tr>
<tr>
<td></td>
<td>Employees who walk or cycle to work</td>
<td>% increase in a year</td>
</tr>
<tr>
<td></td>
<td>Employees teleworking/working flexible hours or compressed working week</td>
<td>% increase in employees a year</td>
</tr>
</tbody>
</table>
Check that the objectives and targets selected relate to the most significant environmental impacts.

Relate targets specifically to the aims of your organisation’s environmental policy and refer to other relevant policies, standards and codes of reference.

Set targets in such a way so they provide for continuing improvement in overall environmental performance. In particular, they should be SMART, (i.e. Specific, Measurable, Achievable, Realistic and Time-limited).

Choose practical targets, taking account of economic constraints. You should also be careful to ensure that the targets act as an incentive for action, not as a source of demoralisation to your staff.

Finally, targets for improvement must be related to some kind of baseline. Care must be taken to ensure that targets are independent of changes in staff levels and changes in the level of production.

As a minimum, aspects relating to transport, should include targets to reduce travel (e.g. reduce litres of fuel consumed/km travelled, reduce litres consumed/tonne/km delivered, reduce % of business travel by car etc). Targets should also include reducing the impact of each driven mile, and should involve a combination of ‘carrots’ and ‘sticks’ that function in the long and short term. Examples of the sort of quantitative and qualitative targets that might be used in relation to some of an organisation’s transport needs are given in Table 5.

### 3.4 Managing the Environmental Impacts from Transport

**Overview**

The general principles that should guide the development of actions to reduce the impact of your organisation in terms of transport are as follows:

**Reduce the need for transport in the first place:** The choice of location in which an organisation is based is key to this, since locating within a city centre or close to a public transport hub will reduce the need for car travel by commuters, visitors and business car travel. Better planning and communication technology can also play a part, e.g. use of tele-working and tele-conferencing to reduce commuter journeys and business travel, and rationalisation of postal and courier collections and deliveries by centralising the organisation of these functions within a company. In terms of production, minimising raw material inputs both saves money directly, and cuts down on the need for deliveries. Sourcing raw materials locally can also cut down overall impacts. At the opposite end of the process, minimising waste outputs will reduce the need for disposal.

**Switch from energy intensive, polluting and environmentally damaging modes of transport to less environmentally damaging means of travel:** Encouraging the use of public transport, cycling and walking. This is particularly relevant to commuter and business journeys. The number of single-occupant car journeys to work can be reduced by promoting and supporting walking, cycling, public transport use and car sharing, while restricting or reducing car parking. In terms of haulage, this may involve a switch from road to rail (see Checklist 5). For business journeys rail should be encouraged in preference to air travel wherever possible.

**Make sure your vehicles are efficient and well maintained:** The impact of any journey can be significantly reduced if the vehicle is well maintained and has higher fuel efficiency and lower emissions. Alternative fuels, e.g. liquefied petroleum gas (LPG), compressed natural gas (CNG) or electricity also have the potential to reduce emissions of air pollutants significantly.

**Optimising the transport of goods:** This may involve ensuring that vehicles carry a maximum load when leaving the site, e.g. this can be encouraged by selling whole loads at a discount and also looking at back-loading. Computer programmes can be used to optimise delivery routes or in-cab tracking/communications can be used to enable diversions to optimise collection and delivery rounds.
The following paragraphs set out some examples of initiatives that can be introduced as part of your environmental management system to reduce your organisation’s impact on the environment from the movement of people and goods. Further detail of such initiatives can be found in many of the references listed in Section 6. Of particular relevance are the TransportEnergy Guides: A travel plan resource pack for employers, the Fuel Management Guide (for freight operators) and Greener Fleet Management (for car and van fleet operators).

Journeys to and from Work

Use of public transport for journeys to work. This should be encouraged as an alternative to car travel via the provision of public transport information: many car drivers simply do not know which bus and train services are available. Financial incentives can also be provided since many commuters say that public transport is too expensive. Staff discounts for season ticket loans may be effective. Negotiation with local authorities and local bus companies can secure bus service improvements to a site, e.g. alteration of bus timings, bus stop re-location, re-routing of existing services or provision of new services.

Personalised journey planners. A personalised journey planner may include information on relevant bus and cycle routes, bus stops, public transport timetables or cost calculations for different commuting options based for the individual’s daily journeys.

Walking and cycling. Schemes aimed at promoting walking and cycling can be effective. Such schemes could include provision of changing facilities, showers and convenient, secure and covered cycle parking. Publicising health and cost benefits and the use of financial incentives may also be effective.

Car sharing schemes. People driving alone account for more than 80% of commuter journeys by car (Source: DfT). Car sharing may be an attractive alternative to switching to a different form of transport for some employees.

Alternative work practices. This can include teleworking, where staff work away from an organisation’s workplace, either at home or at a satellite office, which can bring time and cost savings for staff. In addition, flexitime may enable staff to time journeys to and from work to fit around public transport timetables and avoids the need for all staff to travel during peak hours thereby helping to alleviate congestion. However, the effects of introducing flexitime must be carefully monitored because there may be adverse effects through encouraging less predictable working times, which makes it more difficult to schedule buses. A compressed working week is an alternative option. This differs from flexitime in that it allows staff to take a day a week, or once a fortnight off, provided they make up the hours in advance.

Business Travel

Promoting public transport. Many business journeys are amenable to combinations of public transport (including taxi), walking and cycling. Business travel arrangements should be set up so that there is not an automatic weighting in favour of car travel, but rather that there is a presumption in favour of more environmentally friendly modes of transport. This can be achieved by providing flexibility in travel choice and actively encouraging choice of public transport wherever practicable. Arrangements should be in place to make it easy to book public transport tickets. Travel by train makes it possible to work en route and this additional time should be taken into account in assessing the cost of journeys. Companies could also offer business mileage allowances for car sharing passengers, cyclists and walkers.

Company car policies. The provision of a company car, particularly ‘perk’ rather than ‘job need’ company cars may act as a significant barrier to many green transport initiatives since it can provide an incentive to use the car for business and commuting journeys. Equally however, it provides a good opportunity for
the company to influence its transport-related impact on the environment. This could be achieved by developing ‘green’ fleet practices.

The Vehicle Certification Agency guide *New car fuel consumption and emission figures* provides information on the fuel economy and emissions performance of all new cars on the market in the UK. What is clear from the guide is that there are large differences - up to 45% in the fuel economy of different models using the same fuel within the same size range. So choosing the most fuel-efficient vehicles can save your organisation money.

**Fleet vehicle management.** Opportunities for improving the efficiency and cleanliness of vehicle fleet may include purchasing cleaner, more efficient vehicles, implementation of driver training programme to raise awareness of fuel efficient driving techniques, and ensuring fleet vehicles are serviced regularly.

**Use of alternative fuels.** The Government is actively encouraging the use of alternative fuels through the PowerShift and CleanUp programmes which give grants towards the additional cost of buying and converting to clean fuel vehicles e.g. natural gas; liquefied petroleum gas (LPG); battery electric vehicles (BEV); hybrid electric vehicles (HEV); fuel cell electric vehicles (FCV). The programme offers good quality conversions, which are carried out only by approved converters. For further information, contact the TransportEnergy Hotline on 0845 602 1425, or visit the website at www.transportenergy.org.uk.

**Tele-conferencing.** Tele-conferencing facilities provide an alternative to driving to meetings and can be particularly useful in reducing the need to travel by air. In addition to reducing transport pollution, tele-conferencing saves on wasted time and money travelling to and from meetings. Despite this, it should not replace all meetings, but works particularly well with people who have been previously introduced to each other.

**Visitor Travel**

**Promoting public transport routes.** Visitors may be encouraged to use public transport by including public transport routes on maps sent to visitors or publicity about a site. Maps could identify the locations and times of the nearest train/bus/underground stations and indicate approximate fares. Lifts between the site and local stations could be provided.

**Promoting other modes.** Walking and cycling could also be encouraged on publicity material, including showing cycling and walking routes and distances.

**Deliveries to and from the Site**

**Freight:** Use of rail freight helps take heavy lorries off the road. Freight quality partnerships bring together local authorities, local trading organisations, hauliers, train operating companies and conservation groups to agree standards for freight delivery that will minimise noise, disturbance and pollution.

**Rationalisation:** Far fewer delivery trips may need to be made if deliveries are better co-ordinated, e.g. buying or selling in whole loads rather than part loads.

**Contracts:** It might be possible to influence suppliers by including environmental issues in contracts.
Use of local suppliers: This will reduce transport requirements during procurement.

Backloading: Describes the practice whereby return journeys are made with other loads. New information technology is being developed to maximise backloading.

Driver training: Both drivers and vehicles can be monitored to identify differences in fuel economy, tyre wear and maintenance costs. A programme involving identification and training of poorly performing drivers, along with an incentive scheme to ‘reward’ better performers may be effective.

Fuel management and fleet management: Improved fuel efficiency may be achieved through new fleet vehicle purchases, with care being given to the selection of efficient vehicles with improved emissions control.

3.5 Stakeholder Engagement (Workforce, Suppliers, Customers etc.)

Stakeholder engagement is becoming an increasingly important part of the process of developing an environmental management system. Operating on the basis of a consensus of public opinion is becoming an important feature of successful organisations. Stakeholders, including members of the public, can be influential in quite small numbers. This has been termed the ‘License to Operate’ - organisations operating by means of a social contract strongly influenced by public opinion.

Such pressures on businesses have been increased by the London Stock Exchange’s stated expectation that systems of internal control, including those for environmental risk, should have been in place by the end of 2000. Although this date has passed and many companies have still not fulfilled this requirement, the expectation that they should stands. However, the Stock Exchange does not have any means of sanction on companies that do not comply.

Many organisations now set targets for financial, operational and social performance that are declared and publicly reported on. Such organisations have tackled key problems relating to governance, measurement, management systems and reporting, and have harnessed these into tools that drive performance.

In considering the impacts of transport as part of such management systems, the wider views of stakeholders become key, perhaps more important than the direct impacts of production and operation that are the more usual concern of such systems. In identifying stakeholders, and taking account of their views, the net may need to be cast wider than has previously been the case. However, in doing this, it may well be the case that the significance of transport-related impacts becomes easier to identify, and that such issues will be included more regularly among the environmental aspects of organisations implementing an EMS.

3.5 Stakeholder Engagement (Workforce, Suppliers, Customers etc.)

Case Study E: Goods distribution

In the UK, Cadbury Trebor Bassett has a number of controls in place to minimise impacts from the distribution of its products. Drivers are trained in the most efficient ways to operate their vehicles, which are also regularly maintained to keep them running at optimum efficiency. The Company is currently studying the feasibility of ‘multi-modal transportation’ - a distribution system which makes use of the environmental benefits of rail transport for long distance distribution, and the flexibility of road transport for the short journeys to and from the railway depot. The Company is also moving towards ‘shared user distribution’, where, rather than operating lorries solely for its own products, lorries will be shared with other companies. This ensures that the utilisation of lorry journeys is as efficient as possible.

(Cadbury Schweppes plc Health, Safety and Environment Report, Winter 2000/1.)
3.6 Getting the Best Out of the New Systems

The key benefits that an organisation should be looking to achieve in introducing new management systems, and combining these with existing management practices will include:

Combining documentation: Changes to the systems should include bringing together documentation designed for different purposes into a common system, and streamlining these by reducing the number of levels in the hierarchy of documentation. In this way, bureaucracy and paperwork may be reduced, with improved information being available to managers at the same time. This will improve overall efficiency.

Carrying out internal audits and management reviews together: The necessary audits for environmental, quality and health and safety management systems can take place at the same time, and perhaps be done by the same people. This could take the form of a targeted ‘transport’ audit which would look at transport issues in relation to all of the organisation’s management systems. This improves the cost-effectiveness of all your organisation’s management systems. The training needs associated with each of these areas of management can also be considered on a more integrated manner for individual members of staff.

Policies can be combined: By tackling the management issues associated with EMS, quality assurance and health and safety on an integrated and consistent basis, more coherent policies can be adopted that relate directly to the overall aims and objectives of any organisation. This not only means that each area of management concern can be addressed more effectively, but also means that the investment made in ensuring the systems work properly makes a real contribution to improving the performance of the organisation overall.

Case Study F: Stakeholder engagement

BAA Heathrow has developed a number of consultative forums. The principal conduit for consultation is the Heathrow Airport Consultative Committee (HACC), a statutory body which has served for over 50 years. In addition to this are four HACC sub-committees:

• Surface Access Sub-Committee
• Passenger Services Sub-Committee
• General Purposes & Economic Issues Sub-Committee
• Environment & Local Issues Sub-Committee

The environmental impacts of transport fall within the scope of two committees in particular: surface access and environment and local issues. The surface access committee considered target levels for a number of key areas including BAA staff travel, rail, bus and coach travel, cycling and walking.

The main focus of the environment and local issues committee has been issues and proposals surrounding noise reduction and air quality improvements.

(BAA Heathrow Towards Sustainability, 2001/2002.)
4.0 EMS Checklists

4.1 Using the Checklists

The series of checklists in this section are designed to assist in the development of an EMS where the impacts of transportation throughout the production, and associated processes, have been fully considered and integrated within the system.

The checklists supplement the guidance provided in the main text of this guide and aim to assist in setting up and developing an EMS.

4.2 EMS Development

### Checklist 1: Policy and Management Commitment

Managing the impacts that your organisation has on the environment, safety, health and welfare should be given sufficient priority in your organisation’s policies. Commitment should be given to these matters at a senior level. The policy should include commitment to:

- A travel plan, with targets, to encourage the reduction in transport impacts from business and commuting journeys, fleet trips as well as visitor and delivery journeys.
- A business travel policy, with targets, that encourages flexibility in choice of travel and favours the use of more environmentally friendly means of travel where possible.
- A vehicle selection and allocation policy based upon fuel consumption and other environmental considerations.
- A vehicle safety/risk management system.
- An effective monitoring system assessing progress on travel plan targets and indicators.
- An effective management system for reporting fuel and other transport costs including car park provision, maintenance and staffing.
- Specific inclusion of transport-related information, targets and initiatives in any environmental reporting system (e.g. ISO14001).
- Review and revision of the full range of existing company policies and procedures that have a potential impact on staff travel e.g. recruitment policies, induction procedures, parking permit allocation, company cars, business mileage allowances, business travel arrangements etc.
- Routine assessment of transport-related implications of any development, expansion or relocation.
Transport-related impacts can get overlooked in the identification of environmental aspects. This sometimes arises from too great a focus on the nature of the product or service supplied and in seeing transport only as part of upstream or downstream processes. Transport can be viewed as out of the immediate area of control. In some cases this may be a deliberate omission to make certification and compliance of the management system easier. Either way, in order to overcome this, it is necessary to adopt a more inclusive approach to identifying environmental aspects.

The most common approaches to identifying environmental aspects tend to be based on the use of checklists, designed to act as aide-memoirs and help make sure that the process covers all the issues that it needs to. The broad range of environmental aspects of a company are categorised below, including a description of how transport impacts fall into these categories:

- **Use of resources and raw materials:** Includes depletion of resources and energy in the manufacture of vehicles as well as the fuel consumed during operation.
- **Waste generation:** Includes the use of countryside for landfill as a result of all transport wastes arising from the organisation, such as wastes generated during vehicle maintenance.
- **Fuel consumption and greenhouse gas emission:** Include the impact of global warming due to fuel consumption.
- **Releases to air:** Incorporates air pollution caused by vehicle emissions.
- **Releases to water and land:** Includes water pollution from vehicles and also issues associated with waste production including end of life vehicle waste. Also includes accidental release of fuel, oil etc to the environment during operation and fuel refilling.
- **Traffic congestion:** Should include land development requirements such as areas needed for access, circulation, loading and unloading, parking etc.
- **Noise:** Includes nuisances resulting from traffic generation and congestion etc.
Checklist 3: Significance of Aspects

The significance of an organisation’s transport-related aspects is determined by three factors:

- **Its transport requirements**: Organisations often have significant transport requirements, taking into account transport in relation to all of the following:
  - commuting;
  - business travel;
  - fleet operations;
  - visitors;
  - deliveries.

- **The environmental impacts of vehicles**: Environmental impacts relate to the whole life of a vehicle, not only during use.

<table>
<thead>
<tr>
<th>Production</th>
<th>Use</th>
<th>Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Energy depletion</td>
<td>• Air pollution</td>
<td>• Air pollution</td>
</tr>
<tr>
<td>• Materials depletion</td>
<td>• Climate Change</td>
<td>• Water pollution</td>
</tr>
<tr>
<td>• Climate Change</td>
<td>• Nuisance</td>
<td>• Land contamination</td>
</tr>
<tr>
<td>• Nuisance</td>
<td>• Water pollution</td>
<td>• Road accidents</td>
</tr>
<tr>
<td>• Water pollution</td>
<td>• Land contamination</td>
<td>• Resource depletion</td>
</tr>
<tr>
<td>• Land contamination</td>
<td>• Road accidents</td>
<td>• Resource depletion</td>
</tr>
</tbody>
</table>

**Table 6 The whole life environmental impacts of vehicles**

- **The legal and regulatory requirements**: Transport-related environmental impacts are becoming increasingly significant on a local, district, national and global scale resulting in international, European and national initiatives to reduce this trend (see also Checklist 4).
Checklist 4: Relevant Policy and Legislation

Listed below are examples of transport-related policies, regulations and legislation to input into an EMS Register of Legislation and which put travel initiatives into the context of national and international policy.

### Table 7 Examples of transport-related policies, regulations and legislation

<table>
<thead>
<tr>
<th>Policy, regulation, legislation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Vehicles (Construction and Use) Regulations 1986 as amended</td>
<td>These regulations put in place a number of air emissions and noise controls on motor vehicles. Highlighted international concern at levels of pollution arising from transport emissions. Identified need to take positive action to reduce pollution levels. Led to formation of Local Agenda 21.</td>
</tr>
<tr>
<td>Rio Earth Summit (1992)</td>
<td></td>
</tr>
<tr>
<td>Kyoto Climate Change Conference (1997)</td>
<td>Led to imposition of legally binding targets to reduce greenhouse emissions introduced.</td>
</tr>
<tr>
<td>Road Traffic Reduction Act (1997)</td>
<td>Places a statutory requirement on local authorities to monitor traffic levels on local roads and consider setting targets for reducing traffic levels.</td>
</tr>
<tr>
<td>UK National Air Quality Strategy</td>
<td>The strategy aims to bring ambient air pollution levels within 'safe' limits by the year 2005.</td>
</tr>
<tr>
<td>Transport White Paper, 'A New Deal for Transport: Better for Everyone; (1998)</td>
<td>Sets out a package of measures to deliver a transport system that is safe, efficient, clean and fair and which will make it easier for people to make more sustainable travel choices through better public transport and improved facilities for cyclists and pedestrians.</td>
</tr>
<tr>
<td>Breaking the Logjam (Dec 1998)</td>
<td>The UK Government's consultation paper on fighting congestion and pollution through road user and workplace parking charges.</td>
</tr>
<tr>
<td>Transport Act 2000 (July 2000)</td>
<td>The act provides local authorities with powers to introduce road user charging and workplace parking levy schemes where these will help reduce road congestion and pollution.</td>
</tr>
<tr>
<td>Transport 2010 - The 10 Year Plan (July 2000)</td>
<td>A ten-year investment plan to modernise Britain's transport system, delivering the policies set out in the transport white paper.</td>
</tr>
<tr>
<td>Planning Policy Guidance 13:Transport (March 2001)</td>
<td>This aims to ensure co-ordination between land use planning and transport, placing importance on travel plans and specifying circumstances where it would be appropriate for a local authority to require applications to be accompanied by a travel plan.</td>
</tr>
</tbody>
</table>
Checklist 5: Emission Ready-Reckoners

DEFRA’s Environmental Reporting - Guidelines for Company Reporting on Greenhouse Gas Emissions, on which these tables are largely based, provides more detailed factors for different types of vehicle.

(See also www.defra.gov.uk/environment/envrp/gas/index.htm)

Table 8 Average pollution emissions by transport type

<table>
<thead>
<tr>
<th>Vehicle type</th>
<th>CO₂ emissions (g) per passenger/km</th>
<th>NOₓ emissions (g) per passenger/km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car</td>
<td>180</td>
<td>2</td>
</tr>
<tr>
<td>Bus</td>
<td>48</td>
<td>0.8</td>
</tr>
<tr>
<td>Train</td>
<td>79</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Table 9 Standard CO₂ and carbon emissions conversion factors for road traffic

<table>
<thead>
<tr>
<th>Fuel type</th>
<th>Fuel use</th>
<th>Conversion factor (per litre/kg)</th>
<th>= Total CO₂ emissions (kg)</th>
<th>X</th>
<th>12/44000</th>
<th>= Tonnes of carbon equivalent (tC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petrol/diesel combined</td>
<td>(litres)</td>
<td>X 2.5</td>
<td>=</td>
<td>X</td>
<td>12/44000</td>
<td>=</td>
</tr>
<tr>
<td>Petrol</td>
<td>(litres)</td>
<td>X 2.31</td>
<td>=</td>
<td>X</td>
<td>12/44000</td>
<td>=</td>
</tr>
<tr>
<td>Diesel</td>
<td>(litres)</td>
<td>X 2.68</td>
<td>=</td>
<td>X</td>
<td>12/44000</td>
<td>=</td>
</tr>
<tr>
<td>Compressed natural gas</td>
<td>(litres)</td>
<td>X 2.67</td>
<td>=</td>
<td>X</td>
<td>12/44000</td>
<td>=</td>
</tr>
<tr>
<td>Liquid petroleum gas</td>
<td>(kg)</td>
<td>X 1.65</td>
<td>=</td>
<td>X</td>
<td>12/44000</td>
<td>=</td>
</tr>
</tbody>
</table>
5.0 Transport and the Environment

Road traffic continues to increase as the population as a whole becomes more mobile. In particular this has included a switch from public to private modes of transport as more and more people own cars. There are presently almost 30 million vehicles licensed in the UK, including over 23 million cars, of which around 2.4 million are registered to companies (see Fig 3). However, roughly half will have been used as company vehicles at some point in their life. Added to this are the millions of delivery vehicles and lorries that use the road network. HGV traffic on roads in Great Britain increased by 13% during the 1990s (measured in vehicle-kilometres) and there was also a significant shift in fleet composition towards larger, articulated vehicles. Van traffic increased by 23%. Rail freight fell by about 20% between 1982 to 1995, but has since recovered to the levels of the late 1980s.

This growing volume of traffic is causing health and environmental problems, including road deaths and injuries, illness and premature deaths caused by air pollution: it is thought that air pollution leads to up to 24,000 premature deaths a year\(^2\). Added to this are the decline in physical activity caused by car reliant lifestyles, an increase in road congestion, the cost of accidents and communities suffering from heavy traffic and road danger.

The relevance of transport-related environmental issues continues to grow in importance for business, not least because it is clear that current transportation patterns in the UK are unsustainable. The main drivers for action come from a wider perspective than is usual when considering environmental management within an organisation. National and international policy and regulation in relation to transport, planning and the environment is aimed at reversing this trend in the interests of environmental and health benefits. For example, UK National Planning Policy Guidance on Transport (PPG 13)\(^3\) encourages alternative modes of transport which have less impact on the environment and which reduce reliance on private cars. Similarly, national fuel taxes and company car taxes aim to encourage a decrease in journeys.

**Emission of Greenhouse Gases and Other Pollutants**

There is considerable concern about air pollution caused by transport, both on a local and global scale. Climate change is one of the greatest threats and challenges facing the world today. It has been estimated that road transport contributes

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\(^2\) The Quantification of the Effects of Air Pollution on Health in the United Kingdom, The Medical Effects of Air Pollutants, 1997.

24% of the UK’s total carbon dioxide emissions. Railways, civil aircraft, shipping, naval vessels and military aircraft contribute a further 2%. This makes increasing transport demand a major obstacle to meeting Britain’s international commitments to reduce emissions of carbon dioxide.

Air pollution has effects on both people’s health and the wider environment (i.e. vegetation, lakes, wildlife and buildings), and road transport makes a significant contribution to air pollution throughout the country, especially in urban areas. The main pollutants emitted from combustion and fuel handling are carbon monoxide (CO), oxides of nitrogen (NO₂), oxides of sulphur (SO₂), volatile organic compounds (VOCs), particulates (PM10), lead and other fuel additives.

Exhaust emissions are the predominant source of air pollution from road transport, although tyres and brakes also make small contributions. Therefore measures to reduce pollution from road vehicles have been focused on the exhaust emissions of new vehicles. The Road Vehicles (Construction and Use) Regulations 1986 as amended give effect to various EC Directives on emissions, and require vehicle users to keep engines in tune and emission control equipment working efficiently. Before a new vehicle model is introduced to the market it must be tested to ensure it complies with all EC Directives. The pollutants currently covered by these regulations are particulates, carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NOₓ). Emissions from the generation of electricity to power transport systems should also not be forgotten.

**Noise**

Transport noise comes from a number of sources. The engines of vehicles are the main source, but noise also comes from vibrating body panels, crunching gears and squealing brakes. The interaction of tyres and road surface also can cause noise. Generally, the level of noise caused by vehicles increases with the speed they travel. However, although slow-moving traffic may cause less engine noise, the impact may be more bothersome, as the perceived impact of noise always has a subjective element.

**Key Facts: Air pollution**

- Road transport is one of the major sources of air pollution, especially in urban areas.
- It accounts for about two-thirds of all UK emissions of four of the eight pollutants for which objectives have been set in the National Air Quality Strategy. The contribution made by road transport to UK air emissions are:
  - NOₓ = 45%;
  - PM10 = 20%;
  - Benzene = 64%;
  - CO = 69%;
- In 1999 transport emitted approximately 38 million tons of carbon dioxide (expressed as weight of carbon emitted), making it the third largest source of CO₂ in the UK.
- Road transport is one of the fastest growing sources of CO₂ emissions in the UK, so as travel continues to increase the share of total emissions from transport will also grow.

(Transport White Paper A New Deal for Transport, 1998.)

**Key Facts: Noise**

- Surveys show that 23% of people in the UK are bothered by noise from road traffic.
- Persistent noise, particularly at night when sleep may be disturbed, can cause health problems.

(Transport White Paper A New Deal for Transport, 1998.)

In the work environment, engines left running on stationary vehicles can be a source of nuisance, as can the noise from the loading and unloading of materials or goods. Noise from road transport has, to date, been seen as an issue of less concern than climate change or air pollution. But noise is a
A major environmental issue that affects a large proportion of the population both physiologically and psychologically. Although its effects are highly unlikely to be life threatening, noise can have a considerable detrimental effect on people's quality of life and may well lead to sleep disturbance. Aircraft noise is particularly disturbing, although it is limited to those people living close to airports or under flight paths. For these people, however, it can have a major impact, particularly when aircraft noise can be heard 24 hours a day.

Fuel used by Vehicles

The steady increase in fuel use over the past three decades by most forms of transport reflects the increased demand for transport in the UK. The increased use of private motor vehicles resulted in a 56% increase in the consumption of petrol from 1970 to 1997. Increased use of goods vehicles is reflected in the threefold increase in DERV consumption since 1970. All fuel consumption leads to depletion of non-renewable fossil fuel reserves.

Waste from Vehicle Maintenance and its Disposal

Waste from the maintenance of vehicles mainly arises from the replacement of worn parts. This includes the new tyres, brake linings, lubricants, hydraulic fluids and filters. These items may not necessarily form a large part of the waste stream, but much of the wastes arising pose particular problems for disposal, such as tyres and oil.

If the disposal of this material is not done with care, pollution of ground and surface water and land can result. When vehicles reach the end of their life, approximately 75% by weight is recycled or re-used (Automotive Consortium on Recycling and Disposal (ACORD)).

Vehicle parts that can be re-used are removed, hazardous and recyclable fluids (e.g. oil and auto coolants) are drained and removed. The rest of the hulk is flattened and shredded. Of this, ferrous metal is sorted by magnetic separation, non-ferrous metal is sorted mechanically and by hand for use in new products. The remaining waste, which accounts for about 0.3% of total UK waste, consists mainly of plastics, rubber, glass, dirt and textiles and is sent to landfill.

Key Facts: Fuel Consumption

- Transport (road, rail, water, air) used 55 m tonnes of oil equivalent in 2000, 75% of which is used by road transport. This accounts for approximately 1/3 of total energy consumption in the UK (Department of Trade and Industry).

Key Facts: Waste

- Approximately 1,900,000 vehicles weighing 2,007,500 tonnes were scrapped in 1997.
- In 1997, about 38 million tyres, weighing about 400,000 tonnes were scrapped in the UK.

(Both figures taken from Cleaner Vehicles Task Force)

Key Facts: Water Pollution

- Water resources in the UK have been estimated to be polluted by up to 4 million tons p.a. of suspended solids and 300,000 tons of oil from transport sources overall.

(Royal Commission on Environmental Pollution, 1991.)

Releases to Water

Pollution of surface and groundwater resources can occur as a result of the storage of fuel, vehicle refilling and refuelling and during vehicle use. Rain washes a range of pollutants off roads, contaminating water via the drainage system. Build-up of pollutants on roads depends on the type of road, traffic volumes, seasons, and road maintenance activities. They come from fuel combustion, road de-icers, tyre and brake abrasion and losses from lubrication systems. Land alongside roads also becomes polluted.
Cumulative Environmental Effects of Congestion

Congestion is an increasing problem, particularly in urban areas. It not only increases the time it takes for business travel or moving raw materials and goods, but increases the unpredictability of meeting appointments, delivery slots or even just your staff getting to work on time. Congestion not only has an effect in terms of causing delays, but it also compounds and worsens the effect of other environmental impacts. Vehicles in stop and go traffic burn fuel less efficiently and emission rates of pollutants increase. Similarly, noise from revving engines, braking and frequent gear changes has different characteristics and tends to be more intrusive to that from free-flowing traffic.

![Key Facts: Congestion](Image)

The CBI has estimated that congestion costs British business £15 bn a year.

Energy and Materials Use in Vehicle Manufacture

Environmental impacts associated with vehicle production include the use of natural resources such as metals, rubber, oil and water. Ferrous metals are the main constituents of the average car, 98% of which is steel, and in addition aluminium, copper and zinc are used (see also Fig 5).

![Fig 5 Constituent materials of an average car](Image)

Although a very high proportion of the metal in end of life vehicles is recycled, the amount of recycled metal used in new car manufacture is much smaller.

Metal mining and smelting is very damaging to the environment, using large areas of land, producing large quantities of waste and consuming huge amounts of energy. Added to this is the use of energy in the vehicle manufacturing process (and emissions from the associated power generation) and the waste products that result from the manufacturing itself (emissions to air, wastewater and solid waste). Similarly, the transportation of materials to the manufacturing plant and transportation of the finished goods also have an impact. Fig 5 illustrates the average composition of a car weighing 1275 kg.

![Key Facts: Vehicle Manufacture](Image)

- In the UK, 11% of all primary ferrous metal and 11% of primary aluminium consumed goes into car production
- Motor vehicles are made up of about 100 systems and sub-systems and anything between 8000 and 10,000 different components fitted to the body shell.

(Friends of the Earth)
6.0 Where to Find Out More

Contacts and Web Resources

Transport-related

TransportEnergy BestPractice
For further information on any of the issues covered in this Guide or to order further copies of this Guide, please call the TransportEnergy Hotline on 0845 602 1425. The Hotline provides free, confidential advice on transport to organisations in the UK. Certain organisations may also be able to receive a free site visit from a travel plan expert to help develop and implement an effective travel plan.

Copies of TransportEnergy BestPractice publications may also be obtained through the Hotline.

Tel: 0845 602 1425
E-mail: transportenergy@est.co.uk
www.transportenergy.org.uk/bestpractice

Motorvate
A Government-backed award scheme, designed to help companies cut their fleet travel costs and at the same time help the environment.

www.transportenergy.org.uk/bestpractice/fleetmanagement/motorvate.cfm

DfT
Information on travel plans can be found at

www.dft.gov.uk

National TravelWise® Association and UK-EPOMM
This site is a one-stop shop for all your travel awareness needs. With up-to-date news on the latest travel awareness campaigns in the UK and Europe, helpful advice for schools and businesses, free downloadable materials and access to a network of professional organisations working in the field.

Contact: Patrick Allcorn
E-mail: patrick.allcorn@tfe.gov.uk
Tel: 020 7941 4747
www.travelwise.org.uk

Transport 2000
Transport 2000 is an independent organisation concerned with sustainable transport. It seeks answers to transport problems and aims to reduce the environmental and social impact of transport by encouraging less use of cars and more use of public transport, walking and cycling.

Contact: Carey Newson/Camilla Swiderska
E-mail: gfp@transport2000.org.uk
Tel: 020 7613 0743
www.transport2000.org.uk

Association for Commuter Transport (ACT)
The Association for Commuter Transport (ACT) is dedicated to the promotion of sustainable transport, improved air quality and reduced car dependency through the encouragement of commuter travel planning and travel plans.

Tel: 020 7348 1987
E-mail: mail@ACT-UK.com

Foresight Programme
Information on cleaner vehicles and alternative fuels at

www.foresight.gov.uk

Friends of the Earth
Provides fact sheets and data on the impacts of transport

www.foe.org.uk

Vehicle Certification Agency
Offers information on fuel economy and emission figures.

www.vca.org.uk
National Cycling Strategy
The National Cycling Strategy aims to increase the use of bicycles for all types of journey. It has a target to quadruple the number of trips made by bicycle by 2012 on 1996 levels. This web site describes the Strategy and its benefits and provides guidance on how the target can be achieved.

www.nationalcyclingstrategy.org.uk

The Living Streets Initiative
www.livingstreets.org.uk

Lift Sharing & Car Sharing
The lift share site at www.liftshare.com or share a journey site at www.shareajourney.com both offer people the opportunity to share car journeys with other people, either on a regular commuting basis or for single journeys.

www.liftshare.com
www.shareajourney.com

Freight Transport Association
www.fta.co.uk

Road Haulage Association
Provides a backloading service with a comprehensive database of full, part or return loads covering both the UK and Europe.

www.rha.net

Energy Saving Trust’s Powershift and CleanUP programmes
To help establish a sustainable market for alternative, clean fuel vehicles in the UK and to clean up existing urban vehicles by fitting pollution reduction equipment such as catalytic converters and particulate traps.

Tel: 0845 602 1425
www.est-powershift.org.uk

Environmental Management Systems

Envirowise
This is a Government programme offering free, independent advice on practical ways to minimise waste and convert turnover into profit. The programme also provides advice and assistance with setting up your own EMS as an internal management tool.

Tel: 0800 585794
E-mail: helpline@envirowise.gov.uk
www.envirowise.gov.uk

The International Standards Organisation
For information on ISO 14001 EMS standard.

www.iso.ch

The European Community’s Eco-Management and Audit Scheme (EMAS) Helpdesk.

www.europa.eu.int/comm/environment/emas/

Air Quality

UK National Air Quality Information Archive
The source for UK air pollution information and data.

www.airquality.co.uk

National Society for Clean Air
Promote clean air and environmental protection.

www.nsca.org.uk

Department for Environment, Food & Rural Affairs (DEFRA)
Environmental Reporting - Guidelines for company reporting on greenhouse gas emissions.

www.defra.gov.uk/environment/envrp/gas/index.htm
Publications

TransportEnergy BestPractice
- Travel Plan News (A regular newsletter for practitioners working on travel plans)
- A travel plan resources pack for employers (GD 0041)
- Travel Plans: New business opportunities for public transport operators (GIR 73)
- Travel Plans: New business opportunities for service providers to cyclists and walkers (GIR 74)
- Travel Plans: New business opportunities for suppliers of information technology and communication technology (GIR 80)
- Travel Plans: The role of human resources staff and trades union representatives in supporting travel plans (GIR 81)
- Travel Plans: A guide for developers (GIR 84)
- A guide on how to set up and run travel plan networks (GPG 314)
- Fuel management guide (GPG 307)
- A guide to green fleet management (GPG2106)
- The fleet operator’s guide to greener fleet management: An essential guide on how to run your fleet efficiently (TE89)

Department for Transport (DfT)
- The benefits of green transport plans: the guide
- Developing an effective travel plan: advice for government departments
- Planning Policy Guidance Note 13

Envirowise - EMS reference notes and guides
- Environmental Management Systems: How to compile a register of legislation
- Environmental Management Systems: Getting senior management commitment
- Environmental Management Systems: How to write an environmental policy
- Environmental Management Systems: How to assess significance of environmental effects
- Environmental Management Systems in Foundries (GG043)
- Environmental Management Systems in Paper Mills (GG151)

Cleaner Vehicles Task Force
- Environmental Impacts of Road Vehicles in Use: Air quality, climate change and noise pollution
  www.dft.gov.uk

Other useful publications
- Changing Journeys to Work (Transport 2000)
- The Healthy Transport Toolkit (Transport 2000)
- Companies and cars: The way forward (The Ashden Trust)
- Transport Auditing Special Report (Croner: Environmental Policy and Procedures)
TransportEnergy BestPractice programme provides authoritative, independent information and advice to help implement sustainable transport initiatives. This information is disseminated through publications, videos and software, together with seminars, workshops and other events. For further information visit our web site at www.transportenergy.org.uk/bestpractice or contact the Helpline 0845 602 1425.