Friends of the Earth

Friends of the Earth exists to campaign actively, effectively and imaginatively to protect and improve the conditions for life on earth, now and for the future.

Friends of the Earth Trust undertakes charitable status research, education and public information work programmes on environmental and related economic and social issues.

FOE believes that society must be transformed in order to prevent environmental degradation and alleviate related social misery and economic waste. We must shift the dominant paradigm of excessive consumption and ever more economic growth, which causes this degradation, misery and waste, so that the needs of people and ecological systems are met simultaneously, and not traded off against each other.

Friends of the Earth has campaigned on transport issues for almost twenty five years. Our principal concern has been the growth in road traffic. Road traffic is a major cause of air quality problems in the UK at a local and regional level. Road traffic contributes significantly to emissions of carbon dioxide, the principle cause of global warming. Traffic threatens wildlife directly through roadkill, through the transport of oil and through habitat destruction from road-building and road-based development. The manufacture of road vehicles consumes vast amounts of natural resources. Their use kills thousands of people annually and pollutes river systems. Their disposal causes further pollution - from tyre dumps to landfill.

Although measures can be taken to minimise many of these effects, it is impossible to eliminate them. Most impacts of traffic however can be reduced through reductions in the level of road traffic. Friends of the Earth is therefore campaigning for a 10% reduction in overall road traffic levels in the UK by 2010, as compared to 1990 levels. Friends of the Earth is also campaigning for the wider use of technology to reduce the impacts of traffic, particularly through changes to vehicle design.

Friends of the Earth therefore welcomed the Labour Party’s manifesto pledge to introduce an integrated transport policy and welcomes the Government’s invitation to contribute to its development.
Introduction

This submission is considerably longer than the consultation document to which it responds. We apologise for that. Despite its length, we have not been able to consider all of the issues which we would have liked in the depth we would have liked. We have concentrated on demonstrating two points.

Firstly, we believe that restraint of road traffic growth is a necessity - for the environment, for society and for the economy. In fact, for environmental and social reasons, we believe an absolute reduction in traffic levels is required.

Secondly, we believe that a reduction in road traffic levels is achievable. Although we cannot present the Government with a master plan that shows exactly how a reduction can be achieved, we can show that the Government at national and local level has a broad range of measures at its disposal that it can use to reduce traffic levels. We therefore fully support Cynog Dafis MP’s Road Traffic Reduction (UK Targets) Bill.

We have structured our response to reflect these two points. Firstly, we consider the framework that should underpin an integrated transport policy. Then we consider why a reduction in road traffic levels is required, looking in turn at the effects of traffic growth on the economy, on society and on the environment. Thirdly we make the case for an overall target for the reduction of road traffic and fourthly consider solutions.

Fourthly, we provide summary answers to each of the questions asked in the consultation document.

We then take a diversion. Air transport is an increasing source of concern to environmental groups. We briefly consider what needs to be done to lay the foundations of a sustainable air transport policy.

But first, the framework for an integrated transport policy.
Framework for an integrated transport policy

Friends of the Earth takes as its starting point for this response the paper “Defining a sustainable transport sector” published last year by the UK Roundtable on Sustainable Development. This paper defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. From this basic definition it derives six broad policy goals, as follows.

1. Sustainable development should satisfy economic, environmental and social needs in the present and future, and efficiently maintain the economic and environmental means to do so.

2. Sustainable development should provide the opportunity for all people to satisfy their needs equitably, both within and between nations as well as within and between generations.

3. Sustainable development should minimise activities that cause serious environmental damage, ensure that renewable resources are managed and used in ways which do not diminish the capacity of ecological systems to continue providing those resources, and ensure that non-renewables are managed and used in ways which account for future needs and the availability of alternative resources.

4. Sustainable development should operate within critical ecological limits.

5. Sustainable development should ensure that unique environmental resources, goods and services and irreplaceable cultural or historic figures - i.e. critical natural and physical capital - are passed on to future generations intact.

6. Sustainable development should maintain high environmental quality standards throughout urban and rural areas.

“Defining a sustainable transport sector” also outlines five principles that underpin a sustainable transport policy:

The Precautionary Principle recognises that where there are threats of serious or irreversible damage to the environment, the lack of full scientific certainty should not be used as a reason to delay taking cost-effective action to prevent or minimise such damage.

The Integration Principle recognises that environmental requirements must be integrated into the definition and implementation of all areas of policy-making.

The Polluter Pays Principle recognises that the costs of preventing or cleaning up pollution and waste should be borne by those responsible for causing the pollution and waste, and not by society at large.

The Preventative Principle recognises that it is better for society to avoid incurring the
costs that result from development activities which seriously damage natural or physical capital.

**The Participation Principle** recognises that an essential prerequisite for achieving sustainable development is to encourage broad and effective public participation in decision-making.

Using these principles and the broad goals outlined above, “Defining a sustainable transport sector” puts forward eleven policy objectives for a sustainable transport sector:

1. To provide access to goods, resources and services, while reducing the need to travel, so that economic, environmental and social needs can be met efficiently and in an integrated manner.

2. To ensure that transport infrastructure and travel use does not exceed the capacity of the environment to withstand their impact.

3. To ensure that users pay the full social and environmental costs of their transport decisions, without making industry uncompetitive or preventing those on low incomes from meeting their transport needs.

4. To reduce the growth in car and lorry traffic to sustainable levels.

5. To ensure that transport infrastructure investments are based on the Best Practical Environmental and Social Option.

6. To increase the choice, and encourage the use, of economically, environmentally and socially efficient transport modes for car users and freight operators.

7. To protect critical natural and physical capital.

8. To establish environmental quality standards based on critical ecological limits and precautionary public health requirements.

9. To ensure that renewable natural resources are managed and used in ways which do not diminish the capacity of ecological systems to continue providing those resources over time.

10. To ensure that non-renewable natural resources are managed and used in ways which account for future needs and the availability of alternative resources.

11. To enhance public health and safety and reduce accidents.

Friends of the Earth is impressed with the extent to which these policy goals have been reflected
in the aims set out in paragraph 10 of *Developing an integrated transport policy*. We are particularly pleased to see the reduction of social exclusion included within them. However, we feel there are two extremely important omissions from the objectives.

Firstly, there is no mention of public health. As we shall see below, our transport system has an enormous potential to affect the health of the nation - both adversely such as through air pollution and positively through the promotion of cycling and walking. We do not feel the promotion of health has been given sufficient priority in transport policy in the past, and would welcome its inclusion as a specific objective in the future.

Secondly, no mention is made of the need to integrate transport policy decisions with those in other areas of Government. Many public bodies (such as the National Health Service, Education Authorities and the Royal Mail) are major traffic generators in their own right. It is important that the thinking behind the Government’s transport policy is incorporated into the decision-making of these bodies. Furthermore, many other Government policies affect the level of traffic on our roads. Obvious examples include land-use policies such as the location of new housing. Less obvious examples include the promotion of parental choice in education. It is important that transport objectives are considered when these policies are being formulated.

Finally, unsurprisingly, Friends of the Earth believes all of the objectives outlined in paragraph 10 need to be far more tightly worded. They should be reformulated into specific targets with measurable outcomes such that the success of Government policy can be gauged.
Impacts of current transport trends

Friends of the Earth believes the fundamental challenge facing the Government, in developing an integrated transport policy, is the forecast growth in road traffic. We therefore welcome the Government’s acceptance that the forecast growth is “clearly unacceptable, because of its economic and environmental effects”². Before considering the issue of how much additional traffic growth is acceptable, or even if a reduction is necessary, we outline, for the sake of emphasis, what we feel the effects of further growth as forecast will be - to the economy, human health, to society and the natural environment.

Economic impact of forecast traffic growth

Forecasts for road traffic have recently been revised. However, the best estimates still suggest that road traffic is predicted to increase by 38% from 1996 to 2016, and by 60% by 2031. These are "most likely" forecasts, with a range of 24% to 51% to 2016 and 36% to 84% by 2031. The annual growth of 1.6 % per annum to 2016 compares with 3.1% experienced over the last 20 years³.

In theory, the new forecasts have been designed to take account of the capacity of the road network to accommodate the forecast growth. For the first time, different forecasts have been prepared for urban and rural areas, for different sizes of town, for different times of the day and for different classes of road⁴.

Friends of the Earth remains to be convinced that the traffic on different roads at different times in different places will grow in the way the new forecasts suggest. We find it hard to believe, for example, that morning peak flows in urban areas can increase by 50% by 2031 or that total flows on motorways can more than double, as suggested. However, regardless of whether the growth can be accommodated or not, it would lead to a substantial increase in congestion.

No work has yet been done to determine whether it would be practically possible to build roads to provide for the new forecasts. However it is worth noting that the new forecasts are only slightly lower than previous forecasts issued in 1989.

A number of studies have been published into how these older forecasts could be accommodated. Firstly, McLaren and Higman (1993) showed that traffic growth as forecast was likely to lead to additional congestion on the motorway network despite Government plans for motorway widening⁵. A report for the British Road Federation has argued that even a 50% increase in the scale of road-building above that being undertaken in 1994 would be insufficient to prevent congestion on trunk roads from increasing⁶.

Moreover, the Countryside Commission has pointed out that a substantial proportion of the households that currently do not own cars and who would be expected to acquire cars in the next thirty years live in already congested urban areas⁷. If the acquisition and use of cars by these people is not to lead to massive congestion in towns and cities, an unprecedented migration would have to take place from urban to suburban and from suburban to rural areas.
In 1994, the Royal Commission on Environmental Pollution, after reviewing this evidence, concluded that: “the inability of any foreseeable trunk road programme to cope with the forecast growth in traffic destroys the rationale of the ‘predict and provide’ perspective”.

More recently, the National Economic Research Association has shown that the bulk of congestion takes place on local roads in built-up areas. Even a massively expanded programme of improvements to trunk and local roads is unlikely to prevent this congestion from increasing as traffic levels rise.

Professor Phil Goodwin has argued that the “consequence is a matter of arithmetic, not politics. On that trend, the ratio of vehicles per mile of road can only increase, and therefore logically congestion is likely to get worse, not better (either in intensity, or in duration, or in geographical spread, or some combination of these). Supply of road space will not - because it cannot - be increased to match demand, therefore demand will have to be reduced to match supply. In practice, ‘predict-and-provide’ actually meant, inevitably, ‘predict-and-under provide’, and a strategy with road building at its heart would not deliver improvements in travel conditions”.

The forecast growth in traffic is therefore likely to lead to a massive increase in congestion. The Government itself recognises that average journey times are expected to increase. In the worst case, they are expected to double on urban motorways in peak periods by 2031.

The cost of congestion to the economy today has been estimated variously as somewhere between £7-19 billion annually. It is likely that these costs will rise dramatically over the next thirty years and one recent estimate has suggested they could double. It has been argued that these estimates have little meaning, and to a certain extent this is true. On the one hand, any attempt to build roads to relieve congestion is doomed to failure and further runs the risk of causing more congestion by generating more traffic. On the other hand, attempts to restrict traffic growth may impose costs on users (in money or time) equal to or greater than the costs of congestion itself. Some of the cost of congestion will therefore be unrecoverable regardless of what we do.

However, if it proves possible to provide alternatives to the car, that are quicker than the car at present, then it should be possible to recover a proportion of the cost of congestion. In that a proportion of congestion costs relate to journeys between towns, where public transport can compete in terms of time and money with the car, the scope could be significant. In that the bulk of congestion occurs in built-up areas where the possibilities for providing alternatives are greatest, the scope for recouping these costs could be substantial.

Friends of the Earth therefore believes that a strategy to prevent forecast traffic growth is the only practicable way in which a major increase in the level of congestion on the road network can be averted. The strategy should also focus however on the provision of alternatives such that the disbenefits of restraining traffic can be minimised.

It has been argued that traffic growth is inevitable and that any attempt to prevent it would have serious consequences for the UK’s international competitiveness. Furthermore it has been argued that restrictions on the use of cars would have crippling economic effects on the British motor industry and therefore on jobs.

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Friends of the Earth would dispute both such propositions. On the issue of the inevitability of traffic growth and its importance for competitiveness, we would note that although the growth in car use is a response to rising incomes, most of this response is private car use. This private car use is a result of consumer choice which is in turn influenced by the options offered to consumers. If equally or more attractive options were offered to consumers, many would choose differently. It therefore cannot be considered inevitable. The business use of roads is also a direct result of increased economic activity. However, again, businesses operate within the options open to them. If other options were provided, for example improved railfreight facilities, many businesses would take them.

It has been argued that road-building enables the restructuring of the UK economy and a resulting saving in costs (through increased specialisation and economies of scale). This would lead one to suspect that further traffic growth might also facilitate further restructuring but that this could be prevented should traffic growth be restrained. We note that Parkinson thought the benefits of such restructuring above that valued in existing cost-benefit analyses were not likely to be significant. Parkinson also concluded that roads do not generate significant amounts of traffic, a conclusion since discredited\(^\text{17}\); and that such generation need not imply new development, a conclusion that has stood the test of time. However, we accept that there may be a case for allowing some growth in business traffic or for making alternative provision for business users.

The Standing Advisory Committee on Trunk Road Assessment is currently considering the relationship between road-building and the economy. Its conclusions will, to a certain extent, inform our conclusions as to whether further growth in business traffic will have significant benefits and whether the restraint of growth in business travel would have serious adverse effects on UK competitiveness.

However, given that we have demonstrated that an increase in traffic will lead to an increase in congestion, we strongly believe that industry has little to gain from further traffic growth. In the absence of a conclusion from SACTRA to suggest otherwise, we would accept that there is a case in certain circumstances for making special provision for business users, especially where there is no feasible alternative for them but to use the road.

We do not accept that measures to restrain the growth in road traffic will have crippling effects on the British motor industry or on jobs. An analysis carried out for us, earlier this year, by ECOTEC Research and Consulting showed that a reduction in road traffic by 10% over 1990 levels by 2010, would only reduce UK employment in the motor industry by about 5%: 43,000 from a workforce of slightly more than one million. Strategies to promote greener cars and a higher use of car leasing rather than car ownership would be likely to reduce this job loss substantially, to only 8,000. These job losses are more than made up by increased employment in the rail, bus and bicycle industries, which we estimate would grow by 130,000\(^\text{18}\).

This analysis is, in our view, the most sophisticated carried out to date. We therefore conclude that, in the absence of a conclusion from SACTRA about the effects of road building and traffic growth on the wider economy, the prevention of traffic growth would be likely to create jobs.
Impacts of forecast traffic growth on human health

The impact of road transport on human health is receiving increasing attention. In addition to a long-recognised concern over the deaths and injuries resulting from collisions of motor vehicles with stationary objects, people using other modes and each other, there has been a growing interest in the effect of vehicle emissions and noise on health and, more recently, on the effects of sedentary lifestyles.

Road accidents continue to kill over 3,500 people annually in Great Britain. Almost 50,000 are seriously injured and over 300,000 slightly injured in collisions every year\(^7\). The number of people killed or seriously injured in road collisions has fallen remarkably in recent years. However, although there is no historical correlation between increasing traffic levels and increasing casualties (if anything, the relationship is inverse), there is reason to believe that increasing traffic levels are leading to an increase in the danger facing pedestrians, cyclists and other vulnerable road users. The reduction in casualties in these groups has been credited more to their withdrawal from the road network than to improvements in their safety\(^9\). For example, Hillman et al found that in 1971, 72% of seven year olds in three London schools travelled to school unaccompanied. By 1990, only 7% did so\(^10\). Furthermore it is well-known that the level of both walking and cycling is declining\(^11\).

This issue is important but not because it would suggest that the work of the Government in promoting road safety has been irrelevant or in vain. On the contrary, many Government road safety campaigns, such as on drink-driving, have been remarkably successful. It is important because it might have had unforeseen consequences: a reduction in the independent mobility of children and in the physical activity of adults. These have their own effects on human health, as we shall see below. If further traffic growth takes place, there may well be further road safety gains through the withdrawal of vulnerable road users from the network (185 children and 1,006 adults were killed as pedestrians or cyclists in 1996). However there will be a wider health and social price for the prevention of these deaths.

Furthermore, it should be remembered that almost 2000 vehicle occupants died in road accidents in 1996. Vehicle occupants are forming an increasing proportion of road accident fatalities, despite improvements in vehicle and road design (though the total number of occupant fatalities has fallen)\(^12\). This suggests that, as full motorisation is achieved, we could be left with a rump of fatalities that are extremely difficult to prevent (although the reductions in speed resulting from increased congestion will help to minimise the number). By contrast, the promotion of public transport as an alternative to the car is likely to lead to a reduction in road casualties, as travel by public transport is far safer than travel by car. And any increase in casualties arising from the promotion of cycling and walking can be minimised through the provision of proper facilities for these users.

All in all, Friends of the Earth concludes it is impossible to say whether provision for forecast traffic growth will lead to a reduction of road accident casualties as compared to the prevention of such growth. However it is clear that part of the reduction in casualties that has been achieved has probably been achieved through the withdrawal of vulnerable users from the road network. This, as we shall see, has lead to impacts on health in other ways.
Road transport is also an important source of toxic air pollutants. It is currently responsible for 76% of UK emissions of carbon monoxide, 49% of nitrogen oxides, 38% of hydrocarbons and 50% of emissions of black smoke (including 26% of emissions of PM$_{10}$). The hydrocarbons emitted by road traffic include a range of carcinogens including benzene, 1,3-butadiene and various poly-aromatic hydrocarbons. Moreover, road traffic is the major source of pollution in the places where people live and work, and at the times when pollution levels exceed air quality standards. Ozone smogs regularly form over large areas of Britain during the summer months, as a result of the interaction of nitrogen oxides and hydrocarbons much of which are produced by road traffic. Health standards for air pollution are currently exceeded as frequently as one day in five in some parts of the UK.

The health costs of this air pollution have been calculated by a number of authors. They are substantial. The costs of urban air pollution on the 12.2 million people who live in cities selected by the Department of the Environment for priority monitoring of air pollution have been calculated at £3.9 billion per year, of which £2.3 billion is accounted for by road transport. The recent research by Maddison et al estimates the total external cost imposed on the UK economy of air pollution from the road transport sector during 1993 and concludes that “total external costs are approximately £19.7 billion per year. When low and high damage scenarios are used, the estimates vary from approximately £10.6 bn to £32 bn respectively.”

The introduction of catalytic convertors on all new cars from 1993 and the passage of tougher emissions standards for heavy duty diesel vehicles are expected to lead to substantial reductions in toxic emissions from the road transport sector over the next ten years.

The consultation draft of the UK National Air Quality Strategy describes modelling exercises that have been carried out for the major pollutants arising from road traffic. Taking into account the forecast growth in traffic to 2005, as well as existing European legislation on emissions standards and fuels, emissions of carbon monoxide are expected to fall by 36% by 2000 and 56% by 2010, compared to current levels. This is expected to mean that by 2000 the Government’s proposed standard for carbon monoxide (10 parts per million as a running 8-hour mean) will be met throughout the UK except, in some years, in the near vicinity of heavily trafficked roads.

Furthermore, “total benzene emissions are expected to decline by about 50% by the year 2000 and by about 60% by 2010, on a 1990 base.” As a result, the Strategy claims, it is likely that by the year 2005 there will be no more exceedances of the Government’s proposed standard for benzene (5 parts per billion as a running annual mean).

Similarly, emissions of 1,3-butadiene are expected to fall by 55% between 1992 and 2000 and by 73% by 2010. The Strategy claims this means that the Government’s proposed standard for 1,3-butadiene (1 part per billion as a running annual mean) will be achieved at “virtually all locations” by 2005.

However, there are a number of reasons for believing that traffic-related air pollution will continue to be a threat to human health even after 2005.
Firstly, the achievement of the targets proposed in the Strategy for nitrogen oxides* (99.9% of hourly concentrations below 104.6 parts per billion and an annual average below 20.9 parts per billion) can only be achieved through further measures32. Similar considerations apply to the Government’s target for PM$_{10}$ - small particles - (50 µg/m$^3$ as a 24 hour running mean), particularly at kerbside locations 33. It is unclear at present whether stricter maintenance regimes, tougher fuel standards and tighter emissions standards for new vehicles will be capable of ensuring the targets are met. As a result the Government has said the targets are only indicative.

Secondly, there is considerable evidence that even the toughest technical measures envisaged will not be sufficient to ensure air quality standards for ozone (50 parts per billion as an 8-hour running mean) are met34. As a result, the Government’s target allows exceedance of the air quality standard on 10 days per site per year.

Thirdly, no standards have been proposed nor modelling carried out in the strategy in respect of poly-aromatic hydrocarbons, many of which are extremely carcinogenic35.

Fourthly, health effects have been observed for many pollutants at levels below those used by the Government as health-standards. Benzene, 1,3-butadiene and many poly-aromatic hydrocarbons are genotoxic carcinogens for which no safe level of exposure can be identified. The Government has said of benzene that “it is prudent to continue to reduce ambient levels as much as possible”36. Indeed the Expert Panel on Air Quality Standards recommended that the Government set an additional long-term target, in respect of benzene, to reduce annual average ambient concentrations to below 1 part per billion, along with a target date by which this standard would be achieved37. The Government has not done so and the draft Air Quality Strategy makes it clear that this target will not be achieved, even by 201038. Furthermore, a recent survey has concluded that, in respect of ozone, “daily variations in air pollution within the range currently occurring in London may have an adverse effect on mortality”39. These effects can be seen at levels well below the Government’s proposed standard. Finally, the Government itself has said that “recent studies in the USA and parts of Europe have demonstrated associations of airborne particulate levels with mortality and morbidity at levels below the US National Ambient Air Quality Standard and similar to levels in some UK cities” 40. These health effects have been found at concentrations below the Government’s health standard.

Furthermore, there are also reasons for believing the Government’s modelling to have been optimistic. Firstly, the forecasts of traffic growth used were mid-way between the low and the high 1989 National Road Traffic Forecasts. In that the new high range National Road Traffic Forecast exceeds the 1989 mid-range forecast, there is a potential that traffic growth may exceed the forecasts used in the Government’s modelling. Secondly, it assumed that driving conditions will remain constant, despite evidence that they are likely to get worse.

* Since the consultation draft of the Strategy was published, EPAQS has proposed a new short-term standard for nitrogen dioxide - 150 parts per billion as an hourly mean. However, the Government has set a tougher target for compliance for this target than for the previous one. As a result, broadly speaking, the combined target and standard is as stringent as it previously was.
Thirdly, and most significantly, of course, the modelling only looked at the achievement of targets up to 2010. Yet traffic growth is forecast to continue at least until 2031. Although standards for carbon monoxide and 1,3-butadiene are expected to be met easily, those for nitrogen oxides, particulates and ozone (and the longer-term standard for benzene) are expected to be difficult to achieve, if they are achieved at all. They are, for the same reason, more likely to be breached should traffic levels rise further after 2010.

Tighter standards for new vehicles, tougher fuel standards and better procedures for inspection and maintenance of vehicles, currently being agreed in Brussels, will help. However, the modelling through which these have been designed only considers how air quality standards can be achieved by 2010, and doesn’t even ensure that the ozone standard is met. As the draft United Kingdom Air Quality Strategy itself put it: “Policies for progressively abating such emissions .... must embrace both measures to reduce emissions from individual vehicles and to reduce the quantity or growth in road transport in particularly sensitive areas.” In the case of ozone, ‘particularly sensitive areas’ could include virtually the whole of southern Britain.

Friends of the Earth believes that traffic growth, as forecast, will make it extremely difficult for the Government to ensure health-based air quality standards are met in all places at all times. In particular urban areas, there is a case for substantial traffic reduction to ensure that levels of benzene, particulates and nitrogen oxides are lowered. Throughout much of southern Britain, there is a case for preventing forecast traffic growth in order to minimise the incidence of ozone smogs.

The need to reduce the impact of road accidents and air pollution on health are well established influences on transport policy. The issue of physical activity, or the lack of it, is a more recent concern. However, there are grounds for considering it is of greater significance than either of these two more established impacts.

The National Travel Survey has demonstrated a clear reduction in walking and cycling over the last twenty years. Since the 1975/6 survey, the number of miles walked by the average Briton has fallen by almost 20%, the number of miles cycled by 27%. As traffic levels rise, it is likely that this decline will continue, firstly because more people will acquire cars and because people with cars tend to use them for journeys which people without cars tend to walk or cycle and secondly because increased traffic levels tend to discourage cycling and walking.

Although walking and cycling are only two ways in which people can undertake physical activity, they are important because they can be incorporated easily into everyday lifestyles. There is no need to go to the gym or sports field. A number of public health reports have drawn attention to the value of walking and cycling as a form of exercise that can improve long-term health. The benefits of increased physical activity include lower levels of mortality, lower levels of coronary heart disease (including lower mortality after a heart attack), lower blood pressure amongst those with mild hypertension, lower risk of cancer of the colon, a reduced risk of osteoporosis and the preservation of faculties such as balance, coordination, mobility, strength and endurance in later life. Furthermore, increased physical activity is associated with raised self-esteem in children and adults and lower levels of mild and moderate depression.
At present, the physical activity undertaken by seven in ten men and eight in ten women is believed to be below the level thought necessary to achieve a health benefit. In such circumstances, there is a clear case for encouraging more walking and cycling. By implication, as this problem exists now and as current levels of traffic deter people from walking or cycling, there are clearly health benefits to be gained from reducing the level of traffic on the roads.

In addition to these extremely important impacts of increased traffic on health, there are a number of other lesser factors that should be borne in mind. Firstly, surveys suggest that road traffic is a source of noise outside 90% of dwellings and a major source outside 60%. Furthermore 47% of respondents to the National Noise Attitude Survey in 1991 admitted hearing traffic noise in the home. Most of these said they objected to or were bothered by this noise. Another survey suggests that 11% of the UK population is estimated to be bothered by road traffic noise.

Long-term exposure to noise is more than just an irritation. At night it can prevent people sleeping properly and thereby lead to long-term, albeit minor, effects on heart rate. During the day, it can impede concentration, aggravate stress and increase blood pressure. Studies into the long-term effect on heart disease have found positive correlations with exposure to noise, but these have yet to be proven to be significant.

Secondly, as long ago as 1973, a study was carried out showing that the severance caused by heavily trafficked roads leads to a decline in social contact between people living alongside. Recently, Davis has reviewed the evidence on the severance effect of heavy traffic and demonstrated that not only does it lead to reduced contact between people in a given community but also that this reduced contact leads to increased health problems for vulnerable groups, especially the elderly.

Against these overwhelmingly negative impacts of traffic growth on human health must be set the improved mobility that access to a motor car offers. This, of course, enables people to carry out a far greater number of tasks in a shorter period of time. For the individuals concerned this may enable them to get access to medical facilities more quickly and more conveniently than otherwise and to a wider range of services than otherwise, making it easier, for example, for them to enjoy a healthy diet.

However Friends of the Earth believes that increasingly the benefits of the motor car, in terms of the access it provides, are being eroded by increasing congestion on the road network. Meanwhile most of the health problems associated with traffic growth are getting worse; air quality being the obvious exception. And even in respect of air quality, the forecast growth in road traffic makes it unlikely that the Government’s targets will be achieved in full.

Friends of the Earth therefore believes that, in the interest of protecting and promoting public health, there is a clear case for preventing the forecast growth in road traffic, and indeed for reducing levels of road traffic nationally.
Impacts of Forecast Traffic Growth on Society

Beyond the impact of road traffic growth on the economy and on the health of the nation, there is evidence that traffic growth will have negative impacts on British society.

A whole range of negative effects has been postulated, ranging from a breakdown in community relations due to a reduction in neighbourly contact through to a sense of alienation arising from the placelessness of modern car-based architecture. We do not intend to look in detail at these effects here, largely because the effects are difficult to quantify and, in cases, subjective.

Rather, we would like to focus on two almost unrelated aspects for which we think the evidence is particularly strong.

Firstly, there is no doubt that the growth in road traffic threatens the historical infrastructure which is so important to so many people in the UK. From the ancient field system, obliterated by a road scheme, to Trafalgar Square, suffocating in a sea of traffic, thousands of minor and major cultural and historical monuments and buildings are suffering from the effects of traffic growth. Areas of Outstanding Natural Beauty are eaten away by road-building and National Parks flooded with car-based tourists.

The direct effect of this assault, in terms of monuments lost, is fairly easily measured. However, the indirect effect on the character of towns and countryside is more difficult to measure, though the Council for the Protection of Rural England and the Countryside Commission have made an excellent attempt with their maps of “tranquil areas”\(^\text{54}\). However, Friends of the Earth believes this indirect effect has an extremely important effect on people’s perception of traffic growth, and the threat that many feel from it. The presence in best-seller lists of books like Bill Bryson’s “Notes from a Small Island” is testimony to the interest many people have in historic landscapes, whether urban or rural. This interest is also of economic significance, given that our heritage is an important part of the attractiveness of the UK for both native and foreign tourists.

There is little doubt that the forecast growth in road traffic will, if it comes to pass, lead to the severe damage to Britain’s built and natural heritage. Although much can be done to reduce the intrusiveness of cars and lorries, Friends of the Earth believes that only a reduction in road traffic levels overall is going to protect the historic character of our urban and rural areas.

Secondly, there is little doubt that traffic growth will contribute to a divisive society. A new class of disadvantaged are in the process of being formed - the “carless”.

There is a lot of evidence to suggest that even now access to cars, is very unevenly distributed within society. For example, 58% of the poorest fifth of households have no access to a car, whereas only 4% of the richest fifth of households are in this position\(^\text{55}\). Furthermore, 65% of women do not have first access to a car (whereas 64% of men do)\(^\text{56}\). Only 28% of pensioners have first access to a car (as opposed to 59% of those aged 30-59)\(^\text{52}\). Obviously no children aged 16 and under have first access to a car. People who do not have access to a car tend to travel less\(^\text{57}\) but use the bus more\(^\text{58}\).
Furthermore, data from the 1989/91 survey shows that 19% of households in rural areas had no car, while 44% had only one car. These households are unlikely to have access to frequent bus services either. The mobility of many people in rural areas is severely constrained either because they have no car or because another member of the household is using it.

As car acquisition grows, the proportion of people who are dependent on the public transport network will fall. However, if traffic growth continues as forecast, the ability of public transport operators to provide an acceptable alternative is likely to be severely challenged for two reasons.

Firstly, car owners tend to use public transport far less than non-car owners. As the number of people who use public transport falls so does the revenue received by public transport operators, although this may be compensated for, to a certain extent, by an increase in patronage by non-car owners if their incomes rise. As revenues fall, the viability of commercial public transport services falls, making it increasingly difficult for the operators to run frequent services to a wide variety of destinations. This directly threatens the mobility of the car-less.

Secondly, as more and more people use cars, more and more facilities are provided in places that are only easily accessible by car. This happens firstly because it can happen - a business can sustain itself in a location that cannot be reached without a car, and secondly because congestion makes remoter, less congested places more attractive to developers - changing the economic geography of the country. As a result, the "carless" find their access to services increasingly constrained.

Furthermore, both of these trends have similar effects in terms of walking and cycling. As traffic levels increase, the mobility of pedestrians and cyclists is increasingly constrained by the heavy traffic itself. Meanwhile the number of facilities provided shrinks to take advantage of economies of scale only available if a substantial proportion of a facility’s patrons have access to a car. Fewer facilities means the average distance between them increases, making it more difficult for people to reach them on foot or by bike.

This decline in the "accessing power" of public transport, cycling and walking is of no concern to the car owner, but has a direct effect on the living standard of the "car-less". It serves to exclude them from the standard of living enjoyed by the car owning majority.

It could be argued that this "car-lessness" is a temporary phenomenon: that eventually all adults will own a car and use it for all the journeys they make. As the Department of Transport put it, in 1989: "the saturation rate of ownership is likely to be around the rate at which every able bodied person of driving age has a car". The Department clearly assumed that saturation would take place:

"The rate at which saturation is reached, and the manner in which it is approached, are the subjects of the car ownership forecasts presented here. It could be that the ownership rate will continue to grow rapidly up to saturation, and then cease, as happened with some durable; or the growth in ownership may decline gradually up to saturation."

However: "It is unlikely that 100% of [the 16-74 age group] will own cars, since some will be prevented by disabilities. The forecasts assume that saturation occurs when 90% of the
Friends of the Earth concludes from the above, that even if saturation car ownership is reached, 10% of the adult population would not own cars and would have their mobility and access to services severely constrained. It is worth noting at this point, that the most recent forecasts suggest that saturation car ownership will not be reached by 2031, when as many as 21% of households will still not have access to a car. A comparison of this forecast with the figures quoted above would suggest that half of these households (10% of the total) will not have a car because they are too poor.

Furthermore, of course, the mobility of anyone under 17 would be severely constrained also.

Tragically, the people who would be constrained would be those already disadvantaged by other disabilities whether it be age, blindness, lack of income, susceptibility to epilepsy or merely the inexperience of youth. To that would be added anyone handicapped by being too stupid to want to own one.

Ironically, many of these people, the elderly, the young, the sick are in the very groups who suffer most from the effects of road traffic in terms of accidents and pollution.

Friends of the Earth believes this to be a profoundly inequitable outcome, intolerable to anyone who believes in a fair and inclusive society. Friends of the Earth believes it provides yet another reason why traffic growth should be prevented.

Environmental Impacts of Forecast Traffic Growth

Even if it were possible the physically accommodate forecast traffic growth through a massive programme of road-building and the wholesale relocation of millions of people from existing towns and cities to new, low-density suburban and peri-urban settlements, there are a host of environmental reasons for not doing so.

Firstly there are the direct impacts on land of new infrastructure. The Countryside Commission has demonstrated that there is insufficient road capacity within existing built-up areas to accommodate the forecast traffic growth and that the only way such high forecasts can be accommodated would be if growth rates in rural areas are substantially higher. Car ownership and use is currently higher in rural areas than in towns and cities, and far nearer eventual saturation. The Commission has therefore argued that the only way in which the forecast increase in road traffic can take place would be if a substantial proportion of the low car-owning, low car-using population in existing centres moves into what are currently rural areas.

This migration would imply the construction of millions of new homes and thousands of miles of new road on land that is currently used for agriculture. It would also inevitably damage sites of value for nature conservation. The aggregate extraction required to build the new roads and

** Incidentally, an excellent summary of the current effect of transport policy on poorer people is “Poor Show” which has been published recently by Alarm UK and the GASP (Greenwich Action to Stop Pollution)
buildings would further scar areas like the Mendips and the Thames Valley.

Secondly, there are the environmental impacts of the additional traffic.

The most serious of these is, of course, the impact on carbon dioxide emissions. The Intergovernmental Panel on Climate Change (IPCC) has said that even if global emissions of carbon dioxide are stabilised at present rates, atmospheric concentrations of CO₂ would rise to twice the pre-industrial concentration, precipitating the onset of dangerous climate change. IPCC has advised that global emissions need to be reduced by 60% by 2050 to prevent climate change

Yet official forecasts suggest that CO₂ emissions from transport (on the basis of the old traffic forecasts) will grow from more than 139 million tonnes of carbon dioxide annually (26% of the UK total) now to from 176-194 million tonnes by 2020 (28-34% of the UK total). An increase of this scale would seriously jeopardise the chances of the UK achieving the significant reductions in CO₂ emissions to which the new Government is committed. The prospect is made all the more alarming by indications that negotiations on a European-wide voluntary agreement to improve the average fuel efficiency of new cars are themselves gridlocked.

The UK Government has promised to reduce UK carbon dioxide emissions by 20% from 1990 levels by 2010. If this is to be achieved by the transport sector (and there is little reason why transport should be exempted from the target), its CO₂ emissions would have to be reduced to 103 million tonnes. This is a reduction of 36 million tonnes (26%) from existing levels and 48-59 million tonnes (32-36%) from the levels forecast in 2010.

If the motor industry does agree to the targets contained in the European Commission’s proposed voluntary agreement to improve the average fuel efficiency of new cars, the fuel efficiency of new cars in Europe would improve by about a third. However, due to the slow turnover of the car fleet (average vehicle lifetime is about 12 years), the fuel efficiency of the car fleet will improve far more slowly, perhaps half as fast. This would suggest that the fuel efficiency of the car fleet will improve by at most by about a sixth and that a small reduction in car traffic, of about 4% from 1990 levels will be sufficient to ensure that CO₂ emissions from the car fleet are 20% lower in 2010 than they were in 1990.

However, an overall target for CO₂ reductions from road transport must also take account of the potential for fuel efficiency improvements from lorries. This potential is severely limited because the weight of freight vehicles is largely determined by the weight of the load they have to carry, and cannot therefore be reduced. Furthermore, a reduction in car and lorry use is likely to be accompanied by increase in the use of buses and trains which will to some extent erode the reduction in CO₂ emissions achieved.

Friends of the Earth therefore believes that a reduction in road traffic of about 10% is required if the transport sector is to play its part in meeting the Government’s target of a 20% reduction in CO₂ emissions from 1990 levels by 2010. Of course, as the achievement of a European-wide fuel efficiency agreement is by no means certain and as emissions from the air transport sector look likely to rise during the period, a 10% reduction in road traffic levels should be seen as the minimum that should be achieved.
In addition to the threat to the global environment from carbon dioxide emissions, many of the toxic emissions that threaten human health also damage the natural environment, often at concentrations well below those set to protect public health.

For example, nitrogen oxides from road vehicles are a significant cause of acid rain and eutrophication. English Nature estimated in 1994 that about 600 Sites of Special Scientific Interest in the England alone will still be threatened by acid rain even after existing Government commitments to reduce acidifying emissions have been fully implemented. Critical loads for 250 of these will still be exceeded even if further major reductions in emissions are agreed. Modelling work by the Institute of Terrestrial Ecology suggests that critical loads of nitrogen deposition necessary to cause eutrophication were exceeded “over most of the calcareous grassland and upland landscapes” in England “and part of the lowland heath landscape” in 1989-91.

The European Commission has proposed tough controls of emissions of nitrogen oxides (as well as sulphur dioxide and ammonia) in order halve the area of the EU affected by acidification by 2010. This compares the effect of existing measures (such as the Auto-Oil Programme) and sets targets for further reductions. Currently, the UK is forecast to emit 1,244 thousand tonnes of nitrogen oxides in 2010. Under the Commission’s proposal, this would have to be reduced to 753 thousand tonnes.

Road transport is also a significant source of water pollution. A variety of metals including lead, zinc, copper, chromium, cadmium, nickel and iron have been found in run-off from roads as well as organic compounds including poly-aromatic hydrocarbons. These are derived from tyre and brake dust, de-icing compounds and oil. It has been argued that roads with traffic volumes exceeding 25,000 vehicles per day lead to sufficient accumulations of lead, cadmium and nickel to affect the health of higher animals living alongside roads. Contamination can occur for up to 50 metres away from the road.

The Environment Agency’s National Centre for Risk Analysis and Options Appraisal has called this run-off “a significant risk to the environment”. It has also reported a growth in the incidence of water pollution deriving from accidental spillages from roads. These increased by 28% between 1993 and 1996. The Centre estimated the annual cost of traffic-related water pollution in the UK at £1.2 billion.

The road transport sector consumes 44% of the petroleum used in the UK and, as a result, is a major contributor to the pollution of the sea by oil. Much of this oil comes from the North Sea and much is transported around our coasts in tankers that periodically run aground causing oil spills with severe consequences for internationally important marine ecosystems. The Braer and the Sea Empress are two recent examples. When the latter ran aground off St Ann’s Head in South West Wales in 1996, it spilled 73,450 tonnes of oil into the sea. Within weeks this affected 175 miles of coast and 34 conservation areas. Around 16,000-20,000 birds were killed. There will be long-term environmental effects, both due to pollution and to the damage already caused to wildlife populations. There are also immediate and long-term economic and social impacts. The area affected was previously a productive commercial fishery generating catches worth over £3 million a year and employing more than 1,000 people. An official Closure Order now prohibits both commercial and sport fishing. The impact on fisheries is likely to last around 5-
10 years\textsuperscript{76}.

Moreover, thousands of tonnes of oil are spilled every year from off-shore installations or through the cleaning of tankers\textsuperscript{77} and an estimated 20,000 tonnes of engine oil are disposed of improperly every year in Britain - much of it straight into sewers and watercourses\textsuperscript{78}.

Finally, the use of cars is a direct threat to wild animals themselves. As more of more people drive cars and lorries for longer and longer distances, more and more animals are killed in collisions.

One million animals are believed to die on Britain’s A-roads each year\textsuperscript{79}. These are mainly rabbits and foxes, but also include 100,000 hedgehogs\textsuperscript{80} and 47,000 badgers\textsuperscript{81}. The deaths of badgers are particularly significant, as the figures imply the death, on average, of one badger annually for every family of badgers in the country.

Millions of birds and 20-40\% of the breeding populations of UK amphibians are also believed to die annually in road collisions. A particular concern are deaths of Barn Owls (of which 5,000 were estimated to die annually in the late 1980s) as this species is seriously declining due to habitat destruction and disturbance.

Furthermore, many bird species are dissuaded from nesting near busy roads. A recent survey showed that 26 out of 43 species recorded showed a reduction in density within 500 metres of roads carrying 30,000 vehicles per day on more. Reductions in density within 250 metres of such roads ranged from 20-98\%\textsuperscript{82}.

\textbf{Friends of the Earth} notes that the impact of road traffic in most of these areas is directly proportional to the amount of traffic on the roads. The prevention of traffic growth, and even a reduction in traffic levels, would have a substantial beneficial effect on the natural environment in Britain, and on Britain’s environmental footprint in other parts of the world.

\textbf{Environmental impacts of forecast car ownership}

In addition to the impacts arising from the increased use of vehicles, and the land-use changes that will result from it, there are also environmental impacts arising from the associated rise in vehicle ownership.

The new National Road Traffic Forecasts do not directly present forecasts for the growth in the number of vehicles on our roads. However it is possible to make these calculations, in respect of cars, using the data presented. Our interpretation suggests that the car fleet is forecast to rise from 22.8 million cars in 1996 to 33.6 million cars in 2031\textsuperscript{83}. This is an increase of 41\%. It would not be unreasonable to assume a similar or even larger increase would take place in the size of the goods vehicle fleet.
This increase in the number of vehicles owned will have environmental effects that go beyond their use - as a result of their manufacture and disposal. The manufacture of vehicles consumes a significant proportion of the metals consumed in developed countries. Calculations by Friends of the Earth suggest that as much as 11% of all ferrous metals consumed in the UK is used in motor manufacture. A similar proportion of the aluminium, about 4% of the zinc, 10% of the copper and 27% of the lead consumed in the UK are also used to make vehicles. The extraction of these metals causes all sorts of environmental problems in communities as far afield as Canada and New Guinea. Their processing releases toxic chemicals into the atmosphere and poisons river systems on which thousands of people depend.

For example, the production of aluminium is extremely energy intensive. As a result, aluminium smelting is frequently associated with huge hydro-electric developments, such as the Tucurui Dam in Brazil and at St James Bay in Canada. These hydro-electric facilities often flood large areas of land displacing local people and destroying local habitat for wildlife. The processes used to smelt aluminium give off fluoro-carbons which are powerful greenhouse gases.

The mining and smelting of copper and zinc are, if anything, even more damaging. The extraction of the ore gives rise to acid mine drainage both during and after the mining. Processing of sulphide ores to produce the metal uses cyanide compounds, gives off mercury and sulphur dioxide and generates large volumes of slag.

The manufacture of vehicles also leads to significant emissions of carbon dioxide, though estimates vary as to how significant they are. For example, Moriguchi and Kondo estimate that 13% of the CO₂ emissions of a car share that has travelled 100,000 km are in due to its manufacture. Krummenacher, on the other hand estimated that the emissions due to manufacture were about 7.5% of the emissions due to the operation and servicing of the average car (44 gigajoules as compared to 540).

Eventually, all these extra cars and lorries will also need to scrapped. Although most of their metal content will be recovered, much of the plastic, rubber and glass will probably either be land filled or incinerated. Britain currently disposes of 25-30 million tyres per year. Of these, almost half are currently either land filled, dumped or stockpiled. The European Commission reports that some 25% of a vehicle’s weight (the shredding residue) is hazardous waste. It says that hazardous waste from vehicles represents about 10% of the total hazardous waste generated in the European Union.

The Commission, as a result, has put forward proposals to increase the proportion of this waste that is recovered and/or recycled. It sets targets so that by 2005, approximately 40% of this shredder waste will be recovered of which half would be recycled. By 2015, 80% would have to be recovered of which, again, half would be recycled. The European motor industry is resiting these proposals.
The UK motor industry has signed a voluntary agreement to encourage the recovery of vehicles, but not the recycling or re-use of vehicle parts. It proposes that by 2002, only 15% of a vehicle’s initial waste would go to landfill and that this would reduce to only 5% by 2015. In terms of “shredder residues”, this would suggest that the UK manufacturers believe that the Commission’s recovery targets could be achieved, but that they do not wish to commit themselves to re-use and recycling. Instead they prefer incineration, despite strong evidence that this is a more environmentally-damaging form of disposal, even than landfill.

The major environmental effect of increased vehicle ownership is to increase the demand for primary metals for motor manufacture and to erode the benefits that increased re-use and recycling rates would bring. More metal would be extracted and more plastics manufactured. The reduction in shredder waste land filled would be lower than expected.

To compound this direct environmental effect, there is clear evidence that people who own cars tend to travel further than people who do not and are more likely to use their car, even for journeys where other people would walk.

For these reasons, Friends of the Earth believes the forecast increase in car ownership, and in the number of vehicles operated by industry is undesirable. While it is true that a reduction in the use of vehicles need not necessarily imply a reduction in the vehicle fleet, Friends of the Earth believes that in practice it probably will. To the extent that this reduction comes about voluntarily because of a reduction in car dependence, Friends of the Earth would welcome it.

Conclusion

Friends of the Earth believes that for all the reasons outlined above the Government is right to consider the forecast growth in road traffic to be unacceptable for both economic and environmental reasons.

Clearly, however, in some cases the impacts outlined above would only be completely eliminated by a 100% reduction in the level of traffic. Examples include the water pollution caused by road run-off systems, the slaughter of wildlife in collisions, the disadvantage suffered by the car-less and the death and injury caused by road accidents. In these cases a balance will have to be struck between the prevention of the impact and the costs to society of the abolition of motorised road transport.

In other cases, however, reductions in forecast growth or absolute reductions in the level of traffic may be sufficient to eliminate the impact completely - either throughout the UK or in certain places that are significant. Examples include the threat to human health of some (but not all) of the toxic pollutants.

In yet other cases, a reduction in forecast growth or an absolute reduction in the level of traffic may be sufficient to meet Britain’s international obligations or the Government’s own targets, even if further reductions would be desirable. The most obvious example here would be the reduction of carbon dioxide emissions.

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The level of reduction required or desirable will be different in each particular case.

We are therefore concerned that the Government has said little about what level of road traffic it feels is acceptable. Friends of the Earth believes that the success of the Government’s integrated transport policy rests in part of the resolution of this question.

From a careful analysis of the severity of the different impacts and the nature of the reductions required, Friends of the Earth has concluded that the limiting factor on traffic growth should be its emissions of carbon dioxide. With that in mind, we therefore believe that a 10% reduction in overall traffic levels is required, as compared to 1990 levels by 2010.

In the next section, we explain why we believe it is important that the Government adopts such a reduction as a national target.
The importance of a traffic reduction target

“Developing an integrated transport policy” asks explicitly whether transport policy would be enhanced by adopting a range of transport targets against which to assess progress. However, Labour has already said it will set “national transport goals - such as a change in car use” and that the national “government will also establish national transport targets, consistent with its strategic aims” which will “form the framework for the definition, by local government of more specific targets for their strategies”.

Friends of the Earth fully supports the inclusion of targets within the integrated transport policy and welcomes the Government’s explicit consultation on them.

The Royal Commission on Environmental Pollution, however, has argued that: “in seeking to reconcile people’s desires to make journeys and the need to protect the environment, we believe it is right to concentrate on reducing the harmful effects of the transport system ... rather than seeking to impose an arbitrary limit on a national total which conceals the complex reality”.

Friends of the Earth accepts that a range of targets are required to ensure the achievement of different aspects of the Government’s transport and environmental policies. We support the inclusion in the Commission’s eighteenth report of targets for the reduction of specific impacts from transport including the improvement of air quality and the safety of vulnerable road users, the reduction of carbon dioxide emissions and noise, the protection of areas of conservation, cultural, scenic or amenity value and the increase in the recycling of vehicles and the use of recycled materials in road construction. We also support the inclusion of targets for the increase in modal share of public transport and cycling for passenger travel and rail and water for freight.

The Commission claims that: “some of the targets proposed in the Eighteenth report, particularly for the increased use of other modes, imply a significant reduction in the forecast growth in road traffic”. If the Commission believes that, we welcome it.

However, we disagree with the Commission over the issue of a national target for the overall level of traffic. As we have outlined above, we not only believe traffic reduction is desirable to minimise a range of environmental, social and economic impacts of road traffic, we believe it is essential for the achievement of the Government’s carbon dioxide target.

It is not sufficient therefore for the Government to merely promote a greater modal share by public transport and cycling or rail and water-borne freight. It is also vital that the Government facilitates a reduction of overall traffic levels. A national target for this traffic reduction is necessary for three reasons.

Firstly, it is required to act as a long-term yardstick of the effect of Government policies. It will guide the formulation of Government policies toward the location of new development (including housing), the overall balance of investment between road and rail and whether fiscal measures are necessary to reduce company motoring or the provision of parking.
There is a natural tendency for policy makers, at any level, to “pass the buck” by stressing the role of other agencies in solving a common problem. This tends, for example, to encourage transport planners to set low targets in their own field in the belief that vehicle designers and fuel technologists can solve air quality problems for them. By contrast, vehicle designers and fuel technologists often stress the role of what they call “non-technical measures”!

The Government has an important role to play in building a common position on what can be achieved by different actors. The establishment of a national traffic reduction target, based on an accurate assessment of what can be achieved at European and national level to encourage greater fuel efficiency, is important in ensuring that national and local transport policy makers both in the Department and outside it do not “pass the buck” over climate change.

Secondly, a national traffic reduction target will guide local authorities in the formulation of their traffic reduction targets and transport strategies. It will help Government regional offices in the assessment of local authority plans and programmes. There are strong competitive pressures on local authorities that encourage them to approve development in inappropriate places (out of a fear that it may go somewhere else). These pressures also encourage authorities to increase the provision of parking in shopping centres (out of a fear that car-borne shoppers might go elsewhere). A national traffic reduction target will help guide regional offices in their supervision of local policies and practice in these areas.

Thirdly, an overall traffic reduction target is needed to aid the assessment of transport infrastructure projects - particularly roads and railways. We have outlined the changes we believe are necessary to road assessment procedures in our response to the roads review. Current assessment procedures assume that traffic growth in line with the forecasts is inevitable. Traffic generated by a road project is considered a benefit, unless it increases the amount of congestion on the network. Essentially, we propose changing this approach to one that involves assessment according to the achievement of objectives. One such objective would be the prevention of traffic growth. The measurement of whether a project meets the objective would require that a target be set.

It is worth noting at this point that the establishment of a national target for traffic reduction need not imply that the target be met equally everywhere. It would not therefore, as the Royal Commission claims: “impose an arbitrary limit on a national total which conceals the complex reality”. Rather it would act as a touchstone which would guide every actor in their decision-making.

Furthermore, the Government will sub-consciously set a traffic reduction target through its actions in other areas. It has already agreed within the Council of Ministers a target for improving the average fuel efficiency of the car fleet. Similar European agreements are likely to be set on CO2 emissions from lorries and vans. If it merely agrees to implement the Royal Commission’s recommendation that overall emissions of CO2 from surface transport in 2020 will be 20% lower than 1990 levels, it will have, in effect, reached a conclusion on the overall level of traffic reduction that is needed.
Friends of the Earth therefore believes that it makes sense for the Government to set an overall traffic reduction target, and calls on it to do so. As the need to reduce carbon dioxide emissions necessitates approximately a 10% reduction in traffic levels by 2010 (as compared with 1990 levels), we urge the Government to adopt this target explicitly.

This could be done simply by supporting Cynog Dafis MP’s Road Traffic Reduction (UK Targets) Bill which seeks to establish such a target.
Policies to reduce road traffic

General Remarks

Before outlining, in detail, how we believe the Government could implement policies and programmes to reduce road traffic by 10% by 2010 (over 1990 levels), we would like to make some general remarks to inform the Government about how our thinking is developing.

Firstly, we are often challenged as to whether we believe a 10% reduction in road traffic is achievable. For example, Peter Headicar has argued recently that “there is no realistic prospect of actually reducing traffic levels generally within urban areas. The most that can be hoped for is a slowing down in the rate at which conditions get worse”. This was interpreted at the time as an attack on the Road Traffic Reduction (UK Targets) Bill.

In principle, however, any amount of traffic reduction is achievable. For example, the Government could in the next Parliamentary session pass legislation to ban private motoring. It could, by order, institute a radical programme of road closures and stop up parts of the motorway network. The Chancellor could, at the next Budget, quadruple the level of fuel duty.

We are not suggesting the Government actually does all or any of these measures. We use them as example, though, to demonstrate that there are many actions that can be taken that could reduce traffic levels. The issue of achievability, therefore, is better seen as one of acceptability. Rather than asking whether a given level of reduction is achievable, it is better to ask whether the measures required to achieve a given level of reduction are acceptable or whether the measures that are acceptable will achieve a given level of reduction. Headicar himself qualified his comments by saying there was no “realistic prospect” of traffic reduction. We disagree and would stress that this reflects his interpretation of what is realistic.

Secondly, however, we would admit that there is no blueprint that can be implemented that will guarantee a 10% reduction in road traffic over 1990 levels is achieved by 2010. No Government has ever achieved such a reduction, and no practice exists to say what exactly is needed to achieve it. However, there are plenty of policy options open to the Government that, we believe, if implemented to their full extent could achieve far more than a 10% reduction. The extent to which they will need to be implemented remains to be seen. In that sense, although we are charting unknown territory, we are not without navigational aids. It will be up to the Government to monitor progress toward the achievement of the 10% reduction and adjust the measures being used accordingly.
Thirdly, we fully accept the Government’s concern that the development of policy starts with “the situation” it “has inherited, not just in terms of travel trends and patterns but in terms of institutional arrangements.” In our view, this has to encompass far more than the rudimentary understanding of travel trends that is derived from reading publications like the British Road Federation’s annual “Road Fact” leaflets, or from a cursory look at the five charts in “Developing an integrated transport policy”.

In this respect, we believe the National Travel Survey is an under-used resource. We have been extremely impressed by an analysis carried out using data from the German National Travel Survey. This looked at the use of cars within fourteen towns and concluded that if a quarter of the car trips that could easily be done by bicycle were done by bicycle and a half of the car trips that could easily be done on foot were done on foot, the number of trips undertaken in the towns by car would fall by a sixth. Of course, such a conclusion does not imply a similar reduction in vehicle miles travelled, but it is possible using the National Travel Survey to make conclusions that do. Friends of the Earth will shortly publish a similar analysis using data from the British National Travel Survey. This has convinced us that the role of railway investment in reducing urban congestion outside London has been grossly exaggerated and the role of bus and particularly the bicycle underestimated.

Analyses of this kind, that look in detail at what proportion of total traffic is made up of people doing which different sorts of journeys will be essential in the development of packages of measures to encourage people and freight operators to use road vehicles less.

Fourthly, we should remember that the greater part of our task, in achieving a 10% reduction in traffic on 1990 levels by 2010, is the prevention of forecast traffic growth. Since 1990, road traffic in Great Britain has grown by almost 8%. Between now and 2011, the new forecasts suggest it will grow by a further 28% (or more properly within a range between 17% and 39%). Achieving a 10% reduction in road traffic by 2010 is therefore a question of firstly preventing an increase of about 28% and then achieving a reduction of about 17% from existing levels.

This is important for two reasons. Firstly, it shows that the greater part of the task ahead consists not of persuading people to stop doing things they already do, but to keep them from doing things they don’t yet do. This is important psychologically and politically because, we believe, it is much easier to stop people doing something they don’t yet do than to stop them doing something they do already. It is worth adding, in this respect, that a 10% reduction in road traffic from 1990 levels would only reduce traffic to the level found in 1987. Even the actual level of reduction implied in the target is relatively small.

*** It is worth noting that apart from the five charts, “Developing an integrated transport policy” is mercifully free of the standard and, in our view, unhelpful statistics such as “94% of passenger kilometres are travelled by road” that are a feature of the “Road Fact” series.

**** Note, the 8% growth from 1990 to now becomes a 7% reduction on existing levels because of the slightly higher starting total that the reduction is a percentage of.
Furthermore, by focusing attention on the prevention of traffic growth, it focuses attention on a key part of the task ahead, that is removing the stimuli to traffic growth in the past. Traffic growth in the past has been stimulated by a number of policies including the building of new roads, a planning regime that encouraged out of town development, the deregulation of bus services and tax breaks for company motoring. The removal of these stimuli will in itself dampen down the growth in traffic and is as important as the imposition of restraints and the provision of alternatives.

Fifthly, the Government must remember that travel decisions are influenced by both time and money (not to mention comfort, conviviality and a range of other factors). Economists, in our experience, tend to emphasise money costs and ignore time. This is unfortunate because for many people the time taken by a journey is as significant a cost as the money spent. This can be best explained through an example.

Imagine a driver makes a seventy mile journey on his own along a motorway. Assuming s/he doesn’t break the speed limit, this would take about an hour. During the journey, the car would consume about two gallons of petrol at a cost of about £5:00. Insurance, depreciation and other costs would be ignored by the driver since they are “sunk” costs. The value of the time taken for the journey would depend on the individual concerned, but is not difficult to imagine it being more than £2:50 an hour. If the value of time is calculated using data from the Highways Agency’s 1996 manual on the economic assessment manual of road schemes, the average cost of the journey to the driver would be £12.89 if the journey was made in work time and £3:15 if it was made in non-work time\textsuperscript{104}. Even if non-fuel operating costs were added in, according to standard Highways Agency formulae, they would only total about £2.40.

As can be seen, for the average person driving in work time, the value of time is a greater component of the cost of the journey than all the vehicle operating costs combined. Even if the driver isn’t working, the value of time is about 60\% of the cost of the fuel. If more than one person travels in the car or if the car is travelling on slower roads, the value of time becomes even more significant.

Friends of the Earth believes this is significant because it suggests that measures to reduce the attractiveness of car travel by reducing journey speeds can in certain cases reduce the level of traffic more effectively than measures to increase the cost of motoring. Examples worth considering include reductions in the national speed limit and the closing of some roads in urban areas.

Sixthly, Friends of the Earth believes it is important that whatever policy measures adopted are integrated and consistent. By this, we mean, that they work together and are not at odds. This implies far more than, for example, that bus services are timed to coordinate with train services, although that is important. Transport policy should also aim to create the right market pressures. Measures such as road pricing which achieve one goal (reducing traffic levels in towns) but create market pressures that might undermine another (constraining pressures for Greenfield development) should be avoided, unless they can be combined with compensating measures (such as public transport investment to attract development back into town). Wherever possible, transport policy should aim to create virtuous circles.
Finally, Friends of the Earth would stress the importance of political acceptability. This implies two things to us. Firstly, the Department should look closely at what can be achieved in incremental steps. We have been impressed by the way the last two Governments have been able to increase fuel duties year on year. We have been particularly impressed by the way the Government has managed to slowly increase the rate of the fuel duty inflator and believe further increases would be politically feasible. Secondly, to overcome accusations of complacency, we believe it is important that the Government takes advantage of what can be done quickly at little cost. Cycle routes and bus priority measures are extremely good value for money and should have first call on available funds.

We now outline in detail the policies and measures we believe should be implemented to achieve a 10% reduction in road traffic (over 1990 levels) by 2010. These are considered under five broad headings: fiscal measures, changes to infrastructure, changes to operating regimes, use of the land-use planning system and voluntary measures.

**Fiscal measures**

Numerous studies have shown that the price of using roads does not reflect the full costs of that use to society or the environment. Firstly, at a very general level, the amount of tax received from road users is less than the total cost to society and the environment of their travel. Secondly, once a car is acquired much of the cost of motoring is “sunk”. The car owner has already paid for the vehicle, its insurance and the right to use the roads (through vehicle excise duty). As a result, the additional cost of using the car is very low. By contrast, the whole cost of public transport for most users is borne journey by journey as the system is used. Only season ticket holders “sink” the cost of public transport up front.

It has also been argued that many of the costs motoring imposes on society vary considerably from journey to journey depending on for example, whether a road is congested or not.

The result of these anomalies is that road users use the roads more often and for longer journeys than they otherwise would and that they use different routes at different times than they otherwise would. Numerous proposals have been put forward to rectify the situation. The Chancellor has also made it clear that he wishes to see tax send clear signals about what economic activities should be encouraged and discouraged.105

Friends of the Earth does not believe that it will ever be possible to charge road users the full social and environmental price of their road use each time they use the roads at the point they decide to do so. It is very difficult, for example, to predict at the point of use what effect the decision to travel by road will have on air quality, because pollution levels vary substantially as a result of the weather. However, following the “polluter pays principle”, Friends of the Earth believes that the Government should, so far as it is possible, ensure that road users pay roughly the full social and environmental cost of their road use and that, in so far as it is possible, these costs should be paid or be foreseeable at the time they decide to travel by road.
Friends of the Earth, therefore, has long believed that the cost of motoring at the point of use should be increased. The simplest way of doing this is to increase the duty on motor fuels. Friends of the Earth therefore welcomed the Conservative Government’s decision in 1993 to increase the real level of duty by 3% per year for 10 years, and then to increase this fuel duty inflator to 5%. We also welcomed the Chancellor’s decision at the last Budget to increase the fuel duty inflator to 6%.

However, as the Royal Commission on Environmental Pollution has pointed out, real fuel prices have not risen to the same extent as real fuel duty. As a result, the price signal to motorists has not been sufficiently severe. Friends of the Earth therefore believes that the fuel duty inflator be raised should be raised to 8-9% per annum. Friends of the Earth also believes that, in order to ensure that the Government’s target for CO₂ emissions is achieved, the annual increase in fuel duty should be maintained after 2002. We are shortly to publish research showing the effect this might have on fuel efficiency and car use.

As we have recognised above, many of the costs of motoring vary from place to place depending on the level of congestion. This, as far back as the 1960s, has led to discussion of systems of road pricing, congestion or motorway charging in order to ensure that road users are charged different amounts for using certain roads in peak periods than they would be at other times. Friends of the Earth believes there may be a role for such systems. However, as we pointed out in 1994, the introduction of road pricing would be controversial and expensive to implement. Furthermore, a system of motorway charging would encourage many freight vehicles to use other, less suitable roads. We believe that road pricing should be seen as a solution to urban congestion problems and compared to other measures such as reductions in road capacity in towns and cities for cars (through the reallocation of road space to trams, buses, bicycles and pedestrians). It is not an alternative to a general increase in the price motoring which can only be achieved through an increase in fuel duty.

It has been argued that a general increase in fuel duties would cause undue suffering to households on low incomes. Friends of the Earth does not accept this. As we have demonstrated above, most households on low incomes do not have access to a car anyway. However, in order to minimise the effect on those that do and in order to provide as great an incentive as possible for everyone to use alternatives to the car, Friends of the Earth believes that a proportion of the increased duty should be used to provide better public transport and facilities for cyclists and pedestrians than would otherwise be possible.

Friends of the Earth does not believe that all of the revenue raised through fuel duties should be used in this way. Many of the costs of travel are borne by sections of society such as the elderly, the disabled and the very young who do not travel much. The hypothecation of the whole revenue from fuel duty toward alternatives to the car would not compensate these groups for the costs they incur. There is therefore a case, which Friends of the Earth would support, for using a proportion of the revenue from fuel duties to support hospitals, education, social services and other services on which these sedentary groups depend.
Any increase in fuel duty is likely to hit rural car users worse than urban car users both because country dwellers make longer journeys than townsfolk and because the scope for providing alternatives is lower. To a certain extent, though, this may be alleviated through the purchase of more fuel efficient cars. One response to increased fuel prices is likely to be the introduction of more fuel efficient models by manufacturers. Richer car owners will be able to take purchase these new models, but poorer car owners who are dependent on the second hand car market won’t. Some of these will be able to adjust their costs by purchasing smaller second-hand cars. Others, however, may not have this option (especially those with large families) and may suffer as a result. **Friends of the Earth believes there is therefore a case for recycling some of the revenue raised through higher fuel duties to relieve poverty in rural areas.** In this way, the harmful impact of the higher duties can be minimised.

An increase in fuel duty, however, is not the only way in which the balance of costs between motoring and its alternatives can be amended. Another would be to encourage lower car ownership and greater use of car leasing or rental, perhaps through local car sharing schemes. This would have the added advantage of reducing the size of the UK car fleet and thereby the transport sector’s consumption of metals. Experience from car sharing schemes abroad suggests that each shared car can replace five privately-owned cars. In addition, research for Friends of the Earth by ECOTEC suggests that encouraging car leasing would increase employment in the transport sector and increase the standard of maintenance of the car fleet. **Friends of the Earth therefore believes the Government should consider what it could do to encourage greater use of rented, leased or shared cars.**

One particular set of road users who do not pay the full cost of their road use are the users company cars. This group is known to drive more, to drive larger cars and to be involved in more accidents than other road users. The current system of mileage bands to calculate company car allowances provides an incentive to drive further.

Labour recognized this in its pre-Election transport policy statement when it promised to review “the structure of company car taxation” to “encourage more energy-efficient and environmentally sustainable car use”.

**Friends of the Earth believes that the Government should aim to eliminate tax breaks for company motoring.** A first step would be to end the system of mileage banding and to review the taxation of "free fuel". It has been estimated that these reforms would raise an estimated £480 million in the first year.

Finally, a further way of redressing the imbalance of cost at the point of use between motoring and its alternatives is to encourage greater use of travel cards, season tickets and other forms of pre-payment by public transport users. This should apply equally to bus use as to rail.

At present, the scope for this is limited by the fragmented and excessively competitive way in which public transport is provided in the UK. However, as part of its reviews of the regulation of buses and the franchising of railway operation, **Friends of the Earth believes the Government should draw up measures to ensure that all public transport operators in a given area take part in travel card schemes and that these travel cards available for a variety of time-periods from one day up to one year.**

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The increasing use of electronic equipment to record fares paid and the types of ticket used on given journeys should make it easier to allocate revenue from such schemes fairly.

In the long run, it may even make sense for the Government itself to introduce a national system of pre-paid public transport tickets, such as the “strippenkaart” system that is valid on all buses and trams in the Netherlands.

Friends of the Earth believes a comprehensive set of policies to increase the cost of motoring, in combination with measures to reduce the relative cost of public transport, is an essential feature of any integrated transport policy that aims to reduce and then reverse traffic growth.

Using the land-use planning system

Government policy recognises that the location of new development can greatly influence the way in which different travel modes are used. Since 1994, planning guidance on transport has aimed to “reduce growth in the length and number of motorised journeys; encourage alternative means of travel which have less environmental impact; and hence reduce reliance on the private car”[113].

Friends of the Earth fully supports the use of the land-use planning system to influence the location of new development such that people have less need to use their cars and find it easier to use alternatives.

However, Friends of the Earth is concerned that this policy is being pursued with insufficient rigour. Firstly, a number of developments have been approved in the last year which would seem, to us, to be contrary to Government guidance. Examples include the designation of the Peddimore site in the West Midlands as a suitable location for a new electronics factory[114] and the approval of an edge of town supermarket near Richmond[115] and a new training ground for Manchester United. Friends of the Earth believes that if Planning Policy Guidance Note 13 is to have teeth, the Government should be far more active in preventing development in greenfield sites.

Secondly, many authorities continue to approve development with a car higher level of car parking than is desirable. Some even require higher levels of parking than is desirable. Friends of the Earth believes the Government should encourage authorities to review their parking policies and be more active, when plans are being formulated, in preventing the agreement of policies which encourage or require excessive provision of parking.

A major obstacle to the pursuit of these planning policies is the backlog of existing consents that have yet to be developed. Estimates suggest that, in respect of both retail and business uses, this is substantial. Friends of the Earth accepts that it may be difficult for the Government to revoke these consents. We therefore support, in principle, the idea of taxing parking as a way of discouraging developers from taking up these planning permissions and as a way of limiting provision of parking in those that are taken up.
Furthermore, in one area - housing - the Government is actively imposing unsustainable forms of development on local authorities. The location of the housing built to accommodate the 4.4 million new households that the Government forecasts will form by 2016 will have a critical effect on the success of policies to restrain traffic growth. Friends of the Earth is therefore concerned that Ministers seem intent on allowing half of the houses needed for these households to be built on greenfield sites and that they are imposing targets to that effect on County Councils. The UK Roundtable on Sustainable Development has argued that it would be possible and desirable if 75% of the new households will be housed in existing urban areas. **Friends of the Earth agrees and calls on the Government to readjust housing allocations such that this target is met.**

An associated problem is that the policy of many urban authorities limits the density to which housing in towns and cities can be built. Furthermore, many authorities impose unnecessary and expensive conditions on the level of parking space provided with housing in urban areas. **Friends of the Earth believes the Government should review the policies of local authorities in respect of housing density and parking to see whether policies could be relaxed to allow denser development with less parking.** We do not believe that this would lead to “town cramming” as it is possible to build very attractive desirable residences at higher densities than many authorities allow.

To conclude, Friends of the Earth believes that enormous scope exists to influence the way people travel through the planning system. Current Government policy does not pursue this scope sufficiently vigorously and in some cases actually encourages unsustainable development.

**Improving our Infrastructure**

The infrastructure provided for different forms of travel has a big influence on the time taken by different modes. It therefore has a big influence on the choices made by individuals and companies - in terms of destinations, routes and modes.

Friends of the Earth has long argued, therefore, that changes in the provision of infrastructure have a key role to play in reducing the use of cars and lorries and in promoting alternatives. We therefore welcomed both the cuts in road-building made by the previous administration and the current Government’s review of the trunk roads network. We welcomed the introduction of the package approach to local capital spending as we believed it would encourage local authorities to think about the use of their infrastructure in a more integrated way.

**We still believe that further cuts in trunk road construction and the transfer of a significant proportion of the money currently allocated to trunk road construction are necessary.** These will directly prevent traffic-generating roads from being built and also enable funds to be reallocated to other forms of investment. Our response to the consultation “What role for trunk roads in England?” explains our thinking on why this is beneficial and how proposals for trunk road investment should be considered in the future.
However, many local authorities still have substantial plans for road construction, despite recent cuts in Government funding for local road-building. We are worried that these plans will distract authorities from the pressing task of developing integrated plans to reduce traffic levels. **Friends of the Earth therefore recommends that the Government gives a clear signal to local authorities about the likely level of road-building, and advises them to scrap plans for schemes that cannot be funded in the near future.**

Cuts in road-building are only one, albeit an important, change in infrastructure investment that is needed. We also need to invest more in alternatives to the car and lorry.

This investment should take two forms. Firstly, there is an urgent need to give greater priority to pedestrians, cyclists and buses in urban areas, and to coaches and lorries on some inter-urban routes. Secondly, there is a need to upgrade many parts of the rail network and to construct new urban rail systems to provide a high quality alternative respectively for inter-urban journeys and longer journeys in major conurbations.

As investment in measures to promote walking, cycling and bus-use are more cost-effective and quicker to implement than investment in heavy rail systems, these should be given the immediate priority. These modes, particularly in urban areas, also provide the greatest scope for the transfer of the large number of shorter journeys that are currently made by car.117

Much has been written in the past about how walking, cycling, bus and train use can be encouraged and we do not intend to thoroughly review the topic here. However there are a number of points we would make that are relevant to the current consultation.

Firstly, little use is currently made of measures to prioritise one road user over another. Frequently priority is determined by the threat of force as cyclists and the pedestrians give way to the larger, more aggressive motorist. The reduction of traffic levels in towns will require a much more systematic approach to the prioritisation of different users. **The Department should encourage local authorities to develop explicit hierarchies of road user in towns and cities, as has been done successfully in York.**

Secondly, alternatives to the car should not only be considered as individual forms of transport in their own right, but also as modes that can be used in combination. This means, obviously, that bus services need to be integrated with train services. It also means that both bus and train should be integrated with cycling and walking. Here, Government has a major role as a promoter of good practice.

Thirdly, the provision of safe, convenient networks for pedestrians and cyclists depends as much on the improvement of existing roads as it does on the provision of dedicated infrastructure. Traffic calming on back streets and through routes is necessary if walking and cycling is to be encouraged.

Fourthly, the promotion of buses depends on far more than bus priority measures, although this is important. It should consider also the frequency of service offered, the interchange between buses and between buses and other forms of transport and critically, the penetration of bus networks (so the walk to the bus stop can be reduced).
Friends of the Earth would draw a key conclusion from these observations. In our view traffic planners need to be far more flexible and imaginative than at present in the design of infrastructure for pedestrians, cyclists and bus users. Too often, in our view, the creativity of local traffic planners is shackled by a lack of knowledge about what has been done elsewhere and by restrictive out-dated regulations and guidance notes.

Friends of the Earth therefore recommends the Department undertakes a thorough review of all regulations pertaining to traffic management to root out restrictions that limit the flexibility of planners to provide for the bus, bike and pedestrian.

The Department should also consider sponsoring an annual awards competition for the most innovative traffic management schemes adopted by local authorities.

Finally, much of what we have said about infrastructure relates only to urban areas. Can walking and cycling be encouraged in the countryside? We believe they can, but only if the threat of speeding traffic is minimised. We accept that traditional traffic calming techniques are not appropriate or economic for quiet country roads (although they can be modified to bring environmental improvements to villages and hamlets). However, we believe there is another solution that merits careful consideration.

Country lanes are expensive to maintain. Yet local authorities seem expected to maintain them to a standard that allows the occasional motorist to pass along them at a speed sufficient to intimidate non-motorised users. Would it be possible to design a new classification of rural road which was not maintained to such a high degree? By doing so, we believe it would be possible to create a network of quiet country lanes that would be eminently suitable for walking, cycling and horse riding. If these lanes were linked with footpaths and bridle ways, and facilities provided where they cross major roads, it might be possible to give country dwellers the freedom to roam which they enjoyed before the car became popular. Clearly roads classified in this way would have to be signed accordingly.

Friends of the Earth therefore believes the Government should consider how a new class of country lane could be developed such that country dwellers would be able to walk and cycle in safety.

The measures outlined above, if pursued vigorously could lead to a revolution in the way traffic is planned in the UK. However, this revolution will be still born if it is not supported by funding, primarily at local level. At the moment, funds for the promotion of buses, cycling and walking are severely limited, both because so much is spent on road-building, but also because the lion’s share of what is left is devoted to the railways. Friends of the Earth therefore believes that the Government should commit itself, as part of its integrated transport policy, to substantially increasing the levels of funds provided to local authorities for local traffic reduction packages.
Changes to Operating Regimes

In addition to fiscal measures, the use of the planning system and changes to infrastructure, a number of changes in the way transport systems are operated could also help the implementation of an integrated transport policy.

The overwhelming priority in this respect is a new regime for the regulation of bus services and new objectives for the franchising of railways. Friends of the Earth welcomes the Government’s commitment to taking action in these areas.

However other measures are also required. Firstly, there is a need for more flexibility in the provision of public transport services. The old distinction between the bus and the train is being challenged by the Manchester Metrolink, Sheffield Supertram and Leeds guided busway. This is good, as is the use of quality bus partnerships, in places like Birmingham. Further innovation in the provision of enhanced bus services (such as London Transport’s express services) and rapid transit should be encouraged.

Secondly, greater resources need to be allocated to subsidise buses in the evenings, at weekends and generally in rural areas. The mobility of millions of people because they don’t have a car or because someone else in the household is using it. Furthermore, leisure travel (whether to see friends, to shop or for other purposes) is a very important and rapidly growing cause of journeys by car. Friends of the Earth believes that car use can be reduced and social inclusion promoted by an increase in the funds available for socially necessary bus services. This would go some way to ameliorating concern in rural areas about the effect of fuel duty increases.

Thirdly, further progress could also be made in blurring the distinction between the car and the bus. We have discussed above, the possible role that car leasing or sharing might be play in an integrated transport policy, but we also believe there is a role for shared taxis. In many parts of the world minibuses and shared taxis provide fast, efficient and very flexible public transport services. However, despite changes to the law in 1985, shared taxi services are virtually unknown in the UK. This is unfortunate.

Friends of the Earth believes the Government should look again at legislation on buses and taxis to see whether a role could be developed for the shared minibus or taxi in Britain.

Finally, we must remember that not only can the attractiveness of alternatives be improved by the improvements in their speed, but so can the attractiveness of the car be reduced by a reduction in its speed. We have said above, that the promotion of walking and cycling depends on part on the calming of residential and through routes in urban areas. We also believe there is a case for a wider reduction in speed limits, with the maximum speed limit being reduced to 55 mph. This would not only promote safety but also limit the range of the car and lorry and thereby promote alternatives to it.
Voluntary measures

Experience from the continent and from the USA suggests that some reductions in car use can be achieved simply and quickly without the provision of any new infrastructure, without any changes to the tax regime or any new operational arrangements, but merely by putting people making similar journeys in touch with each other and harnessing their self-interest.

Green commuter plans and hospital travel plans have a major role to play both in the short-term as a “quick fix” to traffic congestion at particular sites and also as a component of an integrated transport policy.

Although experience with such schemes is new in Britain, the experience there is suggests that the opportunities around major traffic generators are worth the effort involved in setting up schemes. Much of this effort can only be undertaken at local level. But central Government should encourage it through guidance, by disseminating good practice and possibly by kick-starting schemes with grants.

The priority here should be green commuter plans, both because commuting is responsible for a large amount of traffic (about a fifth of all car miles), but also because commuting journeys are regular. A little effort in putting two people in touch can bring big dividends as many ride sharers continue to ride share for well over a year after being put in touch with each other.

Furthermore, safe routes to schools projects are also useful both in reducing journeys by car at the times when roads are busiest and in inculcating good habits into the young that may pay dividends many years later.

Conclusion

Friends of the Earth believes a wide variety of measures are available for the Government to take to reduce and then reverse traffic growth. In practice a combination of measures will be required, some at national level and others at local level. Friends of the Earth believes the Government must take overall responsibility for setting the national policy framework, for establishing the fiscal and regulatory regime in which local authorities work and for ensuring authorities have the resources to implement packages of measures locally. Through a package of measures, traffic reduction can be achieved.
Policies to improve the vehicle stock

Although, the need to reduce and then reverse traffic growth has rightly taken pride of place in our submission, Friends of the Earth recognises that much can be done to reduce the environmental impact of road transport by improving the environmental performance of individual vehicles.

This is a major topic to which we cannot do justice in this submission. We have reported previously on what can be done to reduce toxic emissions by using alternative fuels. We are shortly to publish new research on how the fuel efficiency of cars can be improved. Here we confine our comments to some broad recommendations.

It should be noted, at the outset, that many of the actions required have to be carried out at a European level. The scope for action is therefore enhanced or confined by the positions of other Member States of the European Union. However much can and should also be done to complement European directives at national level. Increasingly directives are being developed with this in mind.

There are three broad areas of concern relating to the environmental effect of vehicles - emissions, fuel efficiency and recycling. We haven’t commented explicitly on safety, although it has informed our thinking.

Cleaner vehicles and fuels

Firstly, much has been done and more can be done to reduce the emissions of pollutants from cars and lorries, through emissions standards for new vehicles, changes in the composition of fuels and through improved procedures for inspection and maintenance. Under the first Auto-Oil Programme, the European Commission has developed proposals in all of these areas to come into effect by 2000. A second Auto-Oil Programme is underway to consider further improvements to come into effect by 2005. This will also consider fiscal and non-technical measures that can be taken to reduce vehicle pollution.

Friends of the Earth welcomed the European Commission’s proposals for emission standards for new cars. However, we felt they did not go far enough. We are therefore particularly concerned that the indicative emissions standards included in the current proposal for 2005 are kept in, so that the motor industry can see clearly what is likely to be required of it at a later date. We believe the Government should aim to maintain their inclusion.

Friends of the Earth had more serious concerns about the European Commission’s proposed fuel quality directive. In particular we believe that the maximum permissible levels of sulphur and benzene in petrol and sulphur in diesel should be reduced. We therefore welcomed the European Parliament’s amendment to the directive that tightens the proposed fuel quality standards in these areas. We also welcomed the Government’s support for an amendment tightening the proposed standards in the Council of Ministers. We are now satisfied that sufficient progress has been made in respect of benzene, but believe further action should be taken to reduce the level of sulphur in both petrol and diesel.
We urge the Government to stand firm in the Council and support those countries that are pressing for lower sulphur levels in motor fuels.

We have yet to take formal positions in respect of the Commission directives on emissions from vans and heavy duty diesel engines and on inspection and maintenance.

At national level, both of these directives include clauses allowing member states to introduce fiscal measures to encourage faster uptake of cleaner vehicles and greater use of cleaner fuels. Friends of the Earth believes the Government should take advantage of these provisions to ensure the maximum reduction in toxic emissions is achieved as rapidly as possible. Ideally this should be part of a wider review of the taxation of vehicles and fuels that also takes account of emissions of carbon dioxide.

Fiscal measures can also be used to promote alternative fuels to petrol and diesel. The previous Government used this approach to promote compressed natural gas (CNG) and liquid petroleum gas (LPG), which are particularly suitable alternatives to diesel for fleet car use. Friends of the Earth supported this move. However, there may be a case for going further. The Governor of New York has recently provided grants to enable the conversion of diesel buses to CNG and LPG. The UK Government should consider doing the same.

Finally, the Government can help reduce emissions from road vehicles by running enforcement campaigns against gross polluters and by promoting research by the motor industry. We applaud the Government for its existing enforcement campaigns and encourage it to continue these.

More efficient vehicles

Secondly, the European Commission has been negotiating for over a year with the European motor manufacturers a voluntary agreement to improve the fuel efficiency of new cars. It is also considering how common taxation arrangements can be improved in order to promote fuel efficiency.

Friends of the Earth is extremely disappointed with the progress made to date in improving fuel efficiency at European level. We do not believe that the Commission will be able to reach an agreement with European manufacturers that meets the Council’s targets for fuel efficiency. We urge the Government to make the agreement of regulatory measures a priority for its Presidency of the Council of Ministers.

The increases in fuel taxes that we have proposed earlier will in themselves help to improve fuel efficiency. However, Friends of the Earth believes an immediate step that would help would be to change the way vehicle excise duty is charged.

The United Kingdom is the only country in Europe to charge a flat rate of vehicle excise duty for all cars. Almost all other European countries charge different rates according to the weight of the vehicle or the size of the engine.
There has long been discussion of the potential of varying VED to encourage the purchase of cleaner or more efficient cars. In his 1995 Budget speech, the previous Chancellor said that he intended to “look into ways of using vehicle excise duty to encourage low emission vehicles”\textsuperscript{123}. Labour, in its pre-Election transport policy paper, “Consensus for Change” said it would “introduce a graded system, designed to ensure that more efficient, less polluting cars will pay less and less efficient ones will pay more”\textsuperscript{124}. Its manifesto committed Labour to continue the Conservatives’ review of vehicle excise duty to promote low-emission vehicles\textsuperscript{125}.

There is evidence to suggest that, partly as a result of the UK’s flat rate of VED, the average fuel efficiency of a new car sold in Britain is lower than it is in some other European countries\textsuperscript{126}. Furthermore the average fuel efficiency of new cars sold in the UK has scarcely risen in the last ten years\textsuperscript{127}. And as the Royal Commission on Environmental Pollution has noted “the proportion of cars sold in the UK with engines under 1400 cc has fallen from 46% in 1994 to 40% in 1996”\textsuperscript{128}. The Royal Commission concluded, and we agree, that one tool that could usefully be employed to encourage the purchase of more fuel efficient cars would be a variable rate of vehicle excise duty\textsuperscript{129}. Such a system has recently been introduced in Denmark\textsuperscript{130}.

However, Friends of the Earth believes it would be a wasted opportunity if a major change in the way VED is charged was used to promote fuel efficiency alone. A new system should also take account of the need to encourage the purchase of cleaner cars, as was recommended by the Royal Commission’s 18th report\textsuperscript{131}. Such a system was used in Sweden in the early part of the 1990s. A precedent for the introduction of a British system exists in the Chancellor’s decision this summer to reduce VED for lorries and buses that meet low emission standards by a maximum of £500. Furthermore special provisions to enable countries to introduce variable taxes of this sort have been incorporated into the proposed European Directive on emissions standards for new cars\textsuperscript{132}.

The Germans have demonstrated that it is possible to design a system of duties to reflect both the emissions and the efficiency of a new car\textsuperscript{133}. A fiscally-neutral system applicable to the UK has been proposed by the Institute for European Environmental Policy\textsuperscript{134}. This would have the added advantage of varying tax rates to reflect CO\textsubscript{2} emissions directly rather than indirectly through fuel efficiency.

**Friends of the Earth would therefore urge you to consider reforms to the way vehicle excise duty is paid, so as to reflect both toxic emissions and emissions of CO\textsubscript{2}.** If, for administrative reasons, it is impossible to introduce such a system straightaway, the Chancellor should commit the Government to its introduction as soon as possible.

**Recycling**

The European Commission has recently published a directive that sets firm targets for the proportion of shredder-residue from cars that is recycled. **Friends of the Earth welcomes this directive and urges the Government to support it in full.** The incineration of shredder-residue as proposed by the Society of Motor Manufacturers and Traders would be a more harmful disposal route even than landfill.
Conclusion

Friends of the Earth believes that much can be done to encourage the purchase of cleaner, more efficient vehicles and fuels and to increase the recycling of scrapped ones. However, experience tells us that little is to be gained through voluntary measures. Only tough regulation backed up by strong fiscal signals has been sufficient to improve the environmental performance of vehicles on the roads.

Friends of the Earth welcomes the creation of the new Cleaner Vehicles Task Force. However, we watch its progress with concern. It should not be seen as an alternative to regulation and fiscal incentives.
Issues to consider

In this section, we provide short answers to the questions raised by the consultation document and refer to specific passages in the text that are of relevance.

Are the aims we have set ourselves in paragraph 10 the right ones? Do they miss anything important?

We welcome the Government’s commitment to social inclusion as an aim of transport policy and broadly support the inclusions of the other aims. However, we believe further aims should be added in respect of the promotion of public health and the integration of other policy areas (eg: education, housing) with transport. We have expanded on these points in our section “Framework for an integrated transport policy” (p. 7-9).

What balance should there be between “sticks” and “carrots” to achieve our aims? Can we conclude that neither works without the other?

Friends of the Earth would agree that both sticks and carrots are needed for a sustainable transport policy. Without the sticks, there is little chance that traffic growth will be reduced, let alone reversed, and that environmental targets will then be reached. Without carrots, the integrated transport policy will unfairly penalise disadvantaged groups and possibly prove politically unacceptable.

Recognising that funding available from the public purse is strictly limited, how best do you think our transport system could be improved?

Friends of the Earth notes that the fiscal aspects of an integrated transport policy are likely to raise substantial sums of money for the Treasury and, depending on how charges are made, local authorities. We have argued above under “Fiscal measures” (p. 30-33) that a proportion of this money should be spent on providing alternatives to the car and lorry.

However, we accept that regardless of the sums available there will always be some limit on the public purse. We therefore believe it extremely important that the Government spends its money wisely. We believe this implies giving greater priority to cheaper, more effective measures like bus and cycle priority and measures to promote walking.

To what extent should we be looking at the potential for restraining use of the car, van or lorry? How would any such restraints operate, and what would the effect be on personal mobility or national and regional competitiveness?

As we have said above in our section “Environmental Impacts of Forecast Traffic Growth” (p. 17-20), Friends of the Earth believes the Government should set a target to reduce road traffic levels by 10% from those found in 1990 by 2010. We believe this is necessary if road transport is to play its part in meeting the Government’s target of a 20% reduction in CO₂ emissions by 2010.
As we have said above, we believe this will create jobs and may benefit the economy. There is little doubt that allowing traffic to rise as forecast will harm the economy as no realistic amount of road-building will prevent a massive increase in congestion from occurring. The effect on personal mobility will depend on the alternatives that the Government makes available, however a 10% reduction in total traffic levels (below those of 1990) will only return traffic levels to those found in 1987.

What roles should be played by pricing, fiscal policies and regulation to achieve our aims?

We have outlined our views on this under “Fiscal Measures” (p. 30-33). Friends of the Earth believes both an appropriate fiscal regime and a proper regulatory framework are essential components of a sustainable transport policy.

What can we do to reduce peoples’ need to travel?

As we have said in our section “Using the land-use planning system” (p. 33-34), Friends of the Earth believes the planning system has a very important part to play in reducing peoples’ need to travel. This lists the ways in which we believe the Government’s policies in this area should be improved.

Would transport policy be enhanced by adopting a range of transport “targets”, against which to assess progress? If so, what form should they take? Should they be national, regional or local?

Friends of the Earth strongly believes that the use of targets can aid decision-making and help make sure environmental objectives are achieved. This is true for national, regional and local government. Moreover, we believe that the targets set at different levels of government should complement each other such that, in so far as it is possible, all tiers of government work together.

In our section “The importance of a traffic reduction target” (pages 24-26), we have explained why we feel it is essential that the Government adopts a national target to reduce traffic levels.

Should Government develop new funding mechanisms or income streams for transport? If so, what form should they take?

Friends of the Earth sees no theoretical reason why the Government should wish to develop new funding mechanisms or income streams for transport, although we recognise that it may be politically more acceptable for the Government to introduce new fiscal mechanisms like road pricing and a parking tax if the revenue is earmarked for particular local purposes.

For reasons outlined above under “Fiscal measures” (p. 30-33), Friends of the Earth believes that a proportion of the revenue raised from transport should be used to fund hospitals, schools and other services that are of benefit to those groups that travel least but suffer most as a result of current transport patterns. We do not therefore believe that all the money raised from the transport sector should be spent on transport.
However, this belief would not preclude the earmarking of part or all of the revenue for particular charges to alternatives to the car and lorry.

**Against the background set out in paragraphs 15-24 above, which aspects of public transport do you think it is most important to improve in order to persuade more people to leave their cars at home and use public transport instead?**

Research commissioned for Friends of the Earth suggests that, in respect of short journeys, time is the most important factor in influencing people’s travel choices (after availability of a car). We suspect this will prove true for longer journeys as well. We therefore believe it is extremely important that the Government does something to redress the time imbalance between travel by car and travel by public transport, especially in urban areas. In doing so, planners must have regard to the entire public transport journey including the walk from the origin to the bus stop or rail station, the wait for the public transport service to arrive, any interchange between services on-route and the walk from the final public transport stop to the destination.

In our section on “**Improving our Infrastructure**” (p. 34-36), we have explained our thoughts on this in detail.

**What practical measures would bring about more use of less environmentally damaging forms of freight transport such as railways, inland waterways and coastal shipping? Could the Government’s freight grants scheme be improved further, and if so how?**

We have not had time, in this submission, to go into this issue in detail. However, we would stress the importance of fast, reliable interchange facilities between rail, waterway, port and road.

**How can the contribution of ports and airports to regional and national competitiveness be enhanced without detriment to environmental objectives?**

In the absence of any conclusions from SACTRA on the importance of ports or airports to regional and national competitiveness, this question is difficult to answer. However, clearly the maximum use should be made of existing railfreight facilities to British ports. There may also be a case for giving priority to lorries on existing roads to ports.

Friends of the Earth believes (see our section “**Air Transport**” on pages 50-54 below) that trends in the air transport sector are fundamentally at odds with the objective of sustainability. However, in the medium term, some increase in air travel appears inevitable. Friends of the Earth therefore believes that every effort should be made to ensure that as many air travellers as possible reach airports by public transport. This may necessitate the construction of new rail infrastructure to airports. Where this is necessary, this should be done at the expense of the airport operator as a condition of any airport expansion.

**How can we actively encourage more environmentally-friendly vehicles and fuels, the development of less environmentally damaging technologies and innovations which reduce the need to travel?**
The principal mechanism through which the Government can encourage cleaner, more efficient vehicles are European standards for new vehicles and fuels. However these can be supplemented by fiscal, regulatory and voluntary measures at national level. Under “Policies to improve the vehicle stock” (p. 39-42), we have discussed the current state of European legislation in this area and the potential it offers for further national initiatives.

The RAC has recently demonstrated that there is substantial potential to reduce travel through the promotion of electronic communication such as teleconferencing, computer shopping and so on. Friends of the Earth accepts this potential but would stress that such technologies should be seen as “carrots” which will only reduce traffic levels if accompanied by restraint measures such as higher taxation and reductions in infrastructure.

**How can we integrate land use planning and transport more effectively, with a more strategic approach so as to cut unnecessary journeys?**

We have explained above how we believe the Government should tighten up its land-use policies in order to improve the effectiveness of Planning Policy Guidance Note 13. (see “Using the land-use planning system” p. 33-34).

In our response to the consultation “What role for trunk roads in England?”, we have put forward proposals for how trunk road development can be integrated with regional and local transport and land-use strategies.

**How can we ensure, for example through the taxation system, that the prices faced by transport users more accurately reflect the wider environmental and social costs?**

Our section on “Fiscal measures” (see pages 30-33) explains this in detail.

**What is the appropriate role at national, regional and local levels for the provision and regulation of transport? What role should be played by passenger transport authorities or executives, or by voluntary coordinating bodies such as planning conferences?**

Friends of the Earth has not been able, in the time at our disposal, to consider these issues to the extent to which we would have liked. However, in principle, we are of the view that decision-making in transport should be devolved to the lowest possible level and that all public bodies should be transparent and publicly accountable.

For example, we have therefore argued that regional development agencies should not be given powers over, for example, roads, but that directly elected regional authorities could be.

At whatever level a decision is taken, it is important that mechanisms exist to ensure the decisions made by different agencies are integrated. Friends of the Earth believes that the creation of passenger transport authorities and regional conferences can be useful in this respect.
What changes might be needed to the ways local authorities received capital funding for transport, to encourage the development of integrated transport policies at the local level?

Again, we haven’t had time to go into this issue in detail. Friends of the Earth believes the biggest impediment to the development of integrated transport policies at local level is the perception that transport supplementary grant is a grant and that credit approvals are money borrowed by the local authority. In reality, we understand that all costs associated with paying off approved credit to local authorities is reimbursed by central Government through adjustments in an authority’s grant-related assessment. Friends of the Earth would favour the unification of transport supplementary grant, credit approvals and section 56 grants into one integrated public spending system.

A further impediment to the development of integrated local transport policies, particularly in rural areas, is the shortage of grant for subsidised bus services. As we have explained above under “Changes to Operating Regimes” (p. 37), we believe an increase in the provision of local buses is an essential compensatory measure to soften the burden of increased fuel duties on poorer rural households and to ensure that those rural households without cars are fully included in British society.

Is there, as suggested in the previous Government’s paper “Transport: the way forward”, a role for making greater use of economic instruments to influence how people choose to travel, such as increasing the price of public parking, possibly taxing companies’ car parking provision and charging for the use of roads? How should the receipts from such sources be used?

As we have stated under “Fiscal measures” above (p. 30-33), Friends of the Earth believes there is a role for making greater use of economic instruments including a tax on parking and possibly including road pricing. However none of these measures is a substitute for a general increase in fuel duties.

We believe that some of the money raised from road users should be spent on alternatives to the car and lorry, but that a proportion shouldn’t.

What should be the role of urban traffic management measures?

Urban traffic management measures have a vital role to play in discriminating between different types of road user. See “Improving our Infrastructure” (p. 34-36) for more details.

How can we achieve economic growth which is less road traffic intensive, while still taking account for the role of national, regional and local transport policies in promoting national and regional competitiveness?

Friends of the Earth believes that measures to combat congestion by reducing the need to travel and the use of roads, and promoting alternatives, will in themselves enable economic growth to take place. The existence of alternatives, and restraints on car use, will in itself encourage people not to buy or use cars.
In circumstances where demand exceeds road capacity at certain times, what priority might be given to scarce road space and how might that be delivered? It has sometimes been suggested that priority should be given to emergency vehicles; buses, coaches and taxis; goods vehicles; and disabled motorists - are these the right priorities?

Regulation through traffic management and differential charging are the two main ways of discriminating between road users. We have outlined in our sections “Improving our Infrastructure” (pages 34-36) and “Fiscal Measures” (pages 30-33) how we feel these two approaches could be used to change travel patterns in urban areas and on inter-urban routes.

Friends of the Earth would not support the priority as outlined in the question. Firstly, pedestrians and cyclists need to be given higher priority even than buses. Secondly, taxis should not be given priority above goods vehicles and disabled motorists.

**How best can we take account of the differing accessibility needs of urban and rural communities?**

Friends of the Earth does not believe that there is something fundamentally different about urban and rural areas as to necessitate a completely different approach to meeting their needs. It is more that there is a continuum from central areas through inner cities, suburbs and free-standing towns, and commuter settlements to remoter and remoter rural areas. Over this continuum it becomes progressively more difficult to provide public transport facilities, while distances to services increase making it more difficult for needs to be met on foot or by bicycle.

Friends of the Earth believes that many of the problems created by traffic growth and measures needed to combat it are similar in urban and rural areas. The differences are in the detail of the approach that should be taken.

Friends of the Earth also recognises that scope for reducing traffic levels may be greater in urban areas than in the countryside. That is why we supported the Road Traffic Reduction Act which allows local authorities to set different targets in different areas.

**How can we increase the awareness of transport users about the consequences of their choices?**

Unfortunately, we do not have the time to answer this question in detail. However, the Government should remember that price and priority are two very powerful communicators.

**How can we best ensure a high standard of safety across all modes?**

In the time available, we haven’t been able to go into safety to the extent to which we would have liked. However, it is worth noting that the reductions in traffic speeds which we envisage would have positive effects on safety.
How can we ensure that policies designed to establish environmentally sustainable transport systems are compatible with the Government’s aims for social inclusion?

As we have pointed out in our section “Impacts of forecast traffic growth on society” (p. 15-17), many people are currently excluded from society because of the lack of access to a car. This will not change. By promoting alternatives to the car, we can give these people far greater opportunities to participate in society than would be possible by existing policies.

**How can we best promote the transport needs of disabled people?**

The Government should be aware that a substantial proportion of disabled people currently do not have access to a car. Many, including the blind, never will do. Many disabled people therefore depend on public transport and walking. Friends of the Earth therefore believes that, in so far as is practicable, public transport should be accessible to all.

**How can we best take account of the transport and accessibility needs of all sectors of society including the young and the elderly?**

As we have pointed out in our section “Impacts of traffic growth on society” (p. 15-17), the young and the elderly are two groups that travel little, do not generally have access to cars but are adversely affected by the impacts of current transport policies. Friends of the Earth believes that the policies we have outlined above (in our section “Policies to reduce road traffic” on pages 27-38) will directly benefit the young and the elderly.

**What should the role of transport be in delivering the national air quality strategy, reductions in acidifying pollutants and our climate change commitments?**

As we have outlined in our section “Environmental impacts of forecast traffic growth” (p. 17-20), the integrated transport policy has a key part to play in ensuring the targets in the national air quality strategy, for the reduction of acidifying pollutants and for meeting our climate change commitments are achieved.

The different targets require different levels of technical improvement and different levels of restraint of traffic growth. The toughest targets to meet, in our view, are the reductions in nitrogen oxides necessary to protect sensitive ecosystems from acidification and in carbon dioxide necessary to protect the world’s climate from global warming. The latter, in our view, requires a reduction in overall traffic levels of at least 10% over those of 1990 by 2010.
Air Transport

Air Traffic Trends and Forecasts

Air travel is increasingly popular. The number of aircraft taking off from British airports increased by 50% between 1984 and 1994\textsuperscript{137}. During the same period, the number of people who flew from British airports increased by 84%\textsuperscript{138} and the cargo handled by British airports increased by 90%\textsuperscript{139}. Unsurprisingly, some British airports are amongst the busiest in the world\textsuperscript{140}.

Globally, total scheduled air traffic (in terms of miles flown) between ICAO countries (excl. former USSR) increased by 59% between 1983 and 1993\textsuperscript{141}. Total passenger kilometres flown (scheduled and non-scheduled) increased by 83% in the same period\textsuperscript{142} and total freight tonne-kilometres flown by scheduled services more than doubled\textsuperscript{143}.

These high growth rates are expected to continue in the future. The Department of Transport expects the number of passengers passing through UK airports to increase by 73-163% between 1992 and 2010, with the proportion using regional airports increasing\textsuperscript{144}. Meanwhile IATA expects the number of passengers using UK airports to more than treble by 2025\textsuperscript{145}. At the international level, British Airways told the Royal Commission on Environmental Pollution that it expected passenger travel worldwide to grow at 5-6% a year between 1994 and 2010, which means it would more than double. RCEP considered this reflected a general view in the airline industry\textsuperscript{146}.

Environmental effects of air travel

Air travel, like other forms of powered movement has a diverse range of environmental effects.

Aeroplane use consumes scarce fossil fuels and leads to emissions of carbon dioxide, water vapour, nitrogen oxides, carbon monoxide and hydrocarbons. At present relatively little is known of the effects of these emissions (compared to emissions from other sources) because of the diverse nature of journeys undertaken by aircraft, ignorance of the effect of different flying patterns on different emissions, and uncertainty about the effects of emissions at high altitudes\textsuperscript{147}.

However broadly speaking, emissions of carbon dioxide and water vapour contribute to the destabilisation of the world’s climate through interference with the greenhouse effect. Emissions of nitrogen oxides in the upper atmosphere are believed to reduce stratospheric ozone concentrations and thereby increase irradiation by ultra-violet light at ground level. Emissions of nitrogen oxides and hydrocarbons at lower levels contribute to regional smog problems by reacting to form low level ozone on calm summer days\textsuperscript{148}.

Globally, aircraft are estimated to contribute about 3% of carbon dioxide from human sources and 2-3% of human emissions of nitrogen oxides\textsuperscript{149}.  

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The use of aircraft necessitates the construction of airports (and their surrounding infrastructure) which themselves have a range of local environmental effects. The paved area of a large airport such as Heathrow is the equivalent of 200 miles of three-lane motorway. It is inevitable that the construction of such a large facility has enormous potential, if wrongly sited, to damage valuable wildlife habitats.

Regardless of the site, such a large facility could have potentially enormous impacts on local water quality through the accidental spillage of oil and the routine use of de-icing chemicals, unless measures are taken to clean run-off before it enters local river systems. And, of course, noise from aircraft is a major environmental nuisance, especially where flight paths pass over densely populated areas.

**The foundation of a sustainable policy toward air transport**

A number of policy measures are available to reduce the environmental impact of air travel.

Airport development can be controlled through the planning system. Run-off from airports can be controlled through water quality legislation, while any emissions to air from the airport itself could be controlled through local authority air quality management or integrated pollution control. Emissions and noise from the aircraft themselves can be governed by product regulations, and specific limits put on airports to restrict noise and the number of flights. The use of aircraft can be influenced by fiscal policy. Duties can be levied on fuel, on flights and on tickets depending on the purpose required.

The development of a detailed policy toward air travel and its environmental impact requires consideration of the use of all of these measures. However, in order to guide this considerations, it is useful to set it within a framework of principles and objectives. Such a framework has been developed for transport policy as a whole by the UK Roundtable on Sustainable Development. Many of its components are relevant to a policy toward air transport. These objectives form the basis of Friends of the Earth policy on air travel and underpin the specific recommendations below.

Given the enormous potential for environmental damage from airport development and aircraft emissions, the current trend of rapidly increasing use of aircraft for the movement of passengers and freight is a serious cause for concern. Although the overall impact of air travel is small compared to the other impacts of some other forms of transport, its impact per vehicle kilometre, passenger kilometre or tonne of freight lifted is high.

Friends of the Earth would not want to see an end to flying. However Friends of the Earth believes there is an urgent need for policies to reduce its environmental impact. These include:

- fiscal changes to ensure air travellers (and freight hauliers) pay the full environmental and social costs of their decision to fly.
- regulatory measures (possibly supported by fiscal incentives) to encourage the development of cleaner, quieter aircraft.
- a more strategic approach to the consideration of plans for new and expanded airports, including a greater public debate on the different options.

- the stricter application of regulations governing the use of airports

- further research into areas where the environmental impact of air travel is uncertain.

These are considered in more detail below. At the present time, Friends of the Earth does not recommend a cap be put on air traffic growth as an explicit policy objective, in the way it has for road traffic. This is because the impacts of air travel are currently much lower in total than the impacts of road traffic. However, should research into the stratospheric emissions of air travel reveal serious damage to the ozone layer or should the implementation of the policies considered below fail to stem the increasing damage caused by increasing air travel, Friends of the Earth will reconsider its position.

**Air travellers (and freight hauliers) must pay the full environmental and social costs of their decision to fly.**

*Defining a Sustainable Transport Sector* recommends that users should pay the full social and environmental costs of their transport decisions; without making industry uncompetitive or preventing those on low incomes from meeting their transport needs.

There is plenty of evidence to show that, at present, air travellers and air freight hauliers do not pay the full social and environmental costs of their decisions. One reason for this is that air travel is relatively undertaxed compared to other forms of transport, a fact recognised by the previous Chancellor in last Budget speech.

Friends of the Earth therefore welcomed the doubling of air passenger duty from 1 November 1997. However, Friends of the Earth believes this does not go far enough. At present, due to international agreement, airlines are exempted from paying duty on the fuel they use. As a result, their fuel costs are much lower than those of railways or road users. Friends of the Earth believes that there is substantial case for ending this exemption.

We welcome the Government’s acceptance of this argument and its commitment to press the ICAO over the matter. However, we believe that prior to agreement being reached with ICAO, the various countries of the European Union should agree a mechanism whereby fuel used in flights within the European Union can be taxed. **At the outset, FOE recommends airline fuel be taxed at the minimum EU rate for diesel (currently 0.245 ECU/litre) plus VAT.**

Furthermore air travellers presently enjoy a substantial hidden subsidy that is not enjoyed by users of, for example, the EuroStar. That is, they can buy goods duty-free. **To end this discrepancy, there is a clear case for charging duty on the sale of all goods bought by passengers on flights within the EU.**
Finally, we believe the Government should consider imposing a tax payable on each flight from a UK airport, as this would provide a direct incentive to airlines to increase the occupancy rates of their aircraft (and to introduce larger aeroplanes).

The need for cleaner, quieter, more efficient aircraft

New technology can play a major role in reducing the environmental impacts of transport. Air travel is no exception, although the relatively long life of commercial aircraft limits the pace of technological change.

What evidence is available suggests that reductions of 30-40% in emissions of nitrogen oxides could be made through incremental improvements to engine design\textsuperscript{155}. A similar degree of improvement to fuel efficiency could be made through a combination of minor changes to the aircraft design (such as wingtip extensions)\textsuperscript{156}.

However substantial further reductions in emissions is probably going to depend on the introduction of radically new technologies (such as composite materials) or the use of propellered aircraft (with a lower performance and increased noise).

So, although there is a case for the ICAO to periodically tighten its noise and emission limits to ensure that new technology is implemented as swiftly as possible, it is very unlikely that cleaner, quieter, more efficient aircraft will compensate for the increased demand for air travel.

Furthermore, the introduction of a new generation of supersonic aircraft would undermine progress toward the improved environmental performance of the aircraft fleet. There is an urgent need for the environmental implications of a new supersonic fleet to be assessed.

Friends of the Earth therefore believes the Government should press the ICAO to periodically tighten its noise and emission limits for new aircraft. It should urgently commission research into the environmental effects of new supersonic aircraft.

Criteria for airport expansion

The UK Roundtable on Sustainable Development recommended that provision of transport infrastructure does not exceed the capacity of the environment to withstand its impact and that transport infrastructure investments be based on the Best Practical Environmental and Social Option. Yet at present, the UK Government considers applications for the expansion of airports or the construction of new ones on a first come, first served basis with no clear airports policy.

Substantial evidence exists to show that airport development is driven not only by increasing demand, but also by competition for perceived economic benefits. Competition, such as between Liverpool and Manchester, has led to proposals being put forward while existing facilities are under-used\textsuperscript{157}. Evidence exists to show that this competition also works at an international level and that if current plans are implemented, north western Europe may suffer from substantial over-capacity.
Friends of the Earth is concerned that, if the environmental effects of airport developments are to be minimised, the expansion of UK airport capacity must considered in a strategic fashion. **Friends of the Earth agrees with the House of Commons Select Committee for Transport** that the Government should publish a new airports white paper to clarify existing policy and thereby guide consideration of what airport development should take place where.

Further factors to be considered in decisions on the development of airports include:

- the absolute need to protect areas designated for their biological significance including Special Protection Areas under the EU Wild Birds Directive, Special Areas of Conservation under the Habitats Directive and Sites of Special Scientific Interest.
- the need to minimise the generation of airport-related traffic and promote the use of surface access by rail, bus, bike or foot.
- the need for statutory planning agreements rather than voluntary commitments to minimise local environmental impact (e.g. on surface access, control of run-off, noise, emissions etc)

Finally, should new evidence into the effect of aircraft emissions on stratospheric ozone or climate change indicate that further steps are required to prevent the forecast growth in air travel, the Government should consider using limits on airport capacity as a tool to control air traffic growth.

**Need for further research**

Many sources agree that the effects of aircraft emissions at high altitudes are relatively little known but could be substantial. A new generation of supersonic aircraft is under development by companies in Europe and in the USA. Within 20-25 years, a fleet of 300-1200 could be in operation. This fleet would fly well within the stratosphere.

**There is therefore an urgent need for further research into the effects of emissions in the stratosphere and into the effects of a new generation of supersonic aircraft in particular. Any licence to fly new supersonic aircraft to or from the United Kingdom should be resisted until it has been demonstrated that no substantial threat to the global atmosphere exists.**
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<td>Size of car fleet (millions)</td>
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139. Department of Transport 1995 “Transport Statistics Great Britain (1995)” Table 7.1(c) - Total Cargo handled (all operators) was 814 thousand tonnes in 1984 and 1,548 thousand tonnes in 1994
140. Department of Transport 1995 “Transport Statistics Great Britain (1995)” Table 7.4 - Heathrow was the fourth busiest airport in the world in terms of terminal passengers in 1993, while Gatwick was eighteenth.
142. Department of Transport 1995 “Transport Statistics Great Britain (1995)” Table 8.10 - Total passenger kilometres flown between and within ICAO states (scheduled and non-scheduled) were 1054.2 billion in 1983 and 1925.7 billion in 1993.

143. Department of Transport 1995 “Transport Statistics Great Britain (1995)” Table 8.10 - Total freight tonne kilometres flown between and within ICAO states increased from 32.3 billion in 1983 to 66.2 billion in 1993 - an increase of 105%.


145. SRI International (no date) European Congestion - the way out. Summary of report for IATA entitled A European planning strategy for air traffic to the year 2010. Quoted in Royal Commission on Environmental Pollution (1994) op cit [5.8].

146. Royal Commission on Environmental Pollution (1994) op cit. [5.8]

147. Royal Commission on Environmental Pollution (1994) op cit [5.17-28]

148. Ibid.

149. Ibid. [5.20-21]

150. B.A.A. plc Heathrow Environmental Performance Report October 1993-March 1994 p.18


152. See, for example, Quinet E (1994) The Social Costs of Transport: Evaluation and Links with Internalisation Policies Table 2.13 in European Conference of Ministers of Transport (1994) Internalising the social costs of transport OECD or Commission of the European Communities (1996) Towards fair and efficient pricing in Transport: policy options for internalising the external costs of transport in the European Union Table 6.1


156. Archer L (1993) Aircraft emissions and the environment: COx, SOx, HOx and NOx Oxford Institute for Energy Studies Table 13


158. House of Commons Select Committee for Transport (1996) UK Airport Capacity HMSO para 37

159. Stratospheric Ozone Review Group Stratospheric Ozone 1996 Department of the Environment p. 41

160. Archer L (1993) Aircraft emissions and the environment: COx, SOx, HOx and NOx Oxford Institute for Energy Studies p. 15