CONTENTS

SUMMARY 7

Navigating this report 8

PART ONE: INTRODUCTION 9

Does the evidence exist? 10

PART TWO: TRANSPORT – THE SITUATION TODAY 11

2.a. Distance travelled 11
2.b. Car ownership and use 11
2.c. Rail 11
2.d. Buses 12
2.e. Cycling 12
2.f. Walking 12
2.g. Journey purpose 13

PART THREE: THE HEALTH IMPACTS OF TRANSPORT 13

3.a. Traffic Injuries and deaths 14
3.b. Air Pollution 14
3.c. Physical activity 15
3.d. Climate change 16
3.e. Noise 17
3.f. Community severance/loss of community 18
3.g. Autonomy, independence and children’s development 19
3.h. Health inequalities 19
3.i. Other health impacts 20

PART FOUR: THE IMPACT OF TRANSPORT POLICIES ON HEALTH 20

4.A. TRANSPORT POLICY - AN OVERVIEW 21
4.a.i. The Transport White Paper 21
4.a.ii. The Ten Year Plan 22
4.K. POWERS FOR LOCAL ACTION: LOCAL TRANSPORT PLANS
4.k.i. Analysis of overall plans
4.k.ii. Safe routes to school
4.k.iii. Green commuting and travel plans
4.k.iv. Home Zones

PART FIVE: WIDER SOCIO-ECONOMIC POLICIES AND TRAFFIC GROWTH

5.A. TRANSPORT AND THE ECONOMY
5.B. CAR PRICES AND THE CAR INDUSTRY
5.C. DEMOGRAPHIC CHANGES
5.D. CAR ADVERTISING

PART SIX: CONCLUSIONS
91
SUMMARY

This study seeks to map the links between government policies, traffic and health. In other
words, our task is to assess the effect of these policies upon traffic, and the effect of that traffic
upon health. While in no way an extensive literature review this study will, we hope, lay the
groundwork for such a task should the opportunity become available.

The range of Government policies which impact upon transport and traffic levels is vast and we
cannot hope to have covered them all. The areas we have identified as being of especial
significance are as follows:

- The overall strategic direction for transport
- Public transport
- Walking and cycling policies
- Policies affecting road capacity and road space allocation
- Land use planning
- Transport taxation
- Freight
- Vehicle emission standards and regulation
- Speed reduction and road safety
- Education and promotion
- Local authority policies

We also discuss, albeit briefly, the impact of wider social and economic policies on traffic flows.
For each of these areas we have sought to ask, “How do government policies affect people’s
health?”

Transport is the subject of an enormous amount of research and this study barely scratches the
surface of what is available. Nevertheless, and despite these limitations, we feel that we have
been able to form some conclusions, and make some recommendations, during the course of
the study. These are:

- Transport policies can and do have a significant impact on people’s health. While some
  of these policies are likely to be of some benefit to people’s health, a great many
  (perhaps the majority, if broader policies are included) do not.

- The links between health and transport are acknowledged both in government transport
  (DETR) and health (Department of Health) policies. However, no explicit link is made
  between the achievement of transport objectives and the health promotion targets which
  the Department of Health has specified. We believe that the development of more
  clearly health-related transport targets would be very helpful.

- Individual policies and schemes cannot really be evaluated in isolation – it is the
  combination of policies that is important (usually a mixture of “carrots” and “sticks”).
  This we believe to be an extremely important point.

- The relationship between different transport modes is complex. Just because one
  (positive) mode of transport has increased does not mean that this has led to a reduction
  in a negative mode. For example, improved bus services can lead to modal shift from
  rail, or to regular bus users using the service more. More people walking (for leisure,
  say) can also mean more people driving to locations from which to start their walks.
• Although a number of government policies have, or are expected to have, a positive impact on cycling, walking and public transport use at the local level, the government’s own predictions do not forecast an overall decrease in car use. Furthermore the thrust of government policy is very much on increased mobility of all kinds – car, rail, bus, walking and cycling – rather than on traffic reduction per se. As such the overall impact on health – from accidents to community severance – is unclear.

• Government has invested heavily in large-scale infrastructure projects (including heavy spending on rail). While this is extremely important we believe that policy makers need to focus more attention and spending on the development of smaller scale schemes to promote cycling and walking, as well as schemes such as home zones.

• There is insufficient national policy-level recognition of the vital contribution that walking and cycling can make to a sustainable transport system and also to our health, as well as insufficient research into the best ways of promoting these modes. There is also a need for policy makers to develop clear and specific targets for promoting cycling and walking.

• Transport policies, while obviously extremely important, are only one (albeit strong) influence on traffic. Broader national (and international) policies do, it appears, act in direct contradiction to strategies to reduce car based traffic. Liberal economic, mobility-dependent policies, together with support for the car manufacturing industry, may therefore actually be undoing much of the effort that local authorities and others are making to manage car use. There is a need for more research to understand the macro-economic and wider cultural factors that influence traffic and therefore affect our health.

• As an obvious final point, external factors over which governments can have but a limited influence, such as the price of oil and broader cultural attitudes (which are only partly influenced by policy), also exert a very strong influence on the volume, speed and flow of transport through the UK.

**Navigating this report**

Part one, the introduction, begins with a brief overview of the approach we take and of the aim of the report. We emphasise that the purpose of this study is to map out the links between policies and health outcomes rather than to conduct a full health impact assessment of those policies.

In part two we look briefly at the transport situation in the UK. We summarise the trends in different modes of transport, in the sort of journeys that people make and in the distances travelled.

Part three examines the impact of transport on health. It explores the effects of our car-based transport system on outcomes including road injuries and deaths, air pollution, physical activity, climate change, noise, community severance and so forth.

Part four, the main body of the report, looks at the relationship between government transport policies, traffic growth and hence people’s health. Within each sub section we provide a brief overview of the key issues followed by a question, or series of questions, which articulate the policy connection we are seeking to investigate. From here, we move on to look briefly at the
evidence base to support this link between policy and health outcome and point, where
necessary, to areas where further research may be needed.

Part five looks at broader social and economic policies which, while not specifically transport
focused, nevertheless have an impact on traffic levels and should therefore be included in our
analysis.

In part six we offer our findings and conclusions.

PART ONE: INTRODUCTION
The aim of this scoping study is to map out the links between those government policies that
have a bearing on transport, and people’s health.

Key to the study is the question: what are the policies that determine the transport context in
which we live and work, what effect do those policies have upon the volume, flow, speed and
mode of traffic and hence what impact do those policies have upon our health?

The diagram below illustrates the connections we are seeking to establish between policies,
traffic impacts and health outcomes.

![Diagram showing connections between policies, traffic impacts and health outcomes]

This paper focuses most intensively on specifically transport related policies, in other words
those that are the responsibility of the Department of the Environment, Transport and the
Regions (DETR). We look also at broader socio-economic policies which, while they may be
less obviously connected with transport, nevertheless have an impact on traffic and on travel
patterns, and therefore on our health.

It should be stressed that this study is only a mapping exercise, not a full literature review. Its
function is to identify areas that merit further examination and summarise whether research-
based evidence exists. We do not attempt any detailed analysis of this research nor, to any
great degree, do we seek to assess the merits of the arguments. Neither, owing to time
constraints, is our review by any means comprehensive.

What is more, the study will not go into much detail as far as the epidemiology of transport
impacts is concerned, as this area has been relatively well studied. Rather than examine the
particulars of health outcomes, our focus is the series of chains between the top end of the
Given the lack of time available for the study, we have focused on land-based transport modes and do not therefore include water or air travel. The latter in particular is a major omission since aviation is growing faster than any other mode and its impacts – in terms of \( \text{CO}_2 \) and other pollutants per capita – are also the highest of all forms of transport. An analysis of the impacts of aviation on the environment has recently been published\(^1\) from which it is possible to extrapolate some health impacts. We believe that should a longer study be commissioned, aviation should certainly be part of the research remit.

**Does the evidence exist?**

The task of this paper is examine whether evidence exists to show that policy \( x \) leads to travel change \( y \) and hence to health impact \( z \). Of course things are never that simple, since a mixture of policies is usually involved, leading to a combination of traffic effects and hence to a more complex impact on people’s health.

This said, transport has been – and is still - the subject of a great deal of research and as a result there is a vast body of evidence and analysis available, together with well kept statistical records spanning decades. As such, the research process has, if anything, suffered from a surfeit of information which we have not been able to do full justice to within the limited time-frame.

The evidence we examine in this paper is of three types. The first looks at the effect of a policy (or combination of policies) on traffic volumes, flows, modes, speeds and so forth. There is a great deal of this sort of evidence in a great many fields, although research into travel attitudes, awareness and the effectiveness of policies to encourage walking and cycling are less available, partly perhaps because these are harder to measure.

The second type of evidence concerns the impact of traffic on various aspects of people’s health including accidents, mental health, physical activity, respiratory health and so forth. Again there is a great deal of literature in this area, particularly on accidents and pollution but less so for “softer” health issues such as mental health, community links and so forth.

A third kind of evidence is somewhat thinner on the ground. This is the kind which specifically examines the health impacts of a particular policy or combination of policies. In other words, there are few health impact assessments of transport policies and strategies. We have documented some of those which exist although it should be noted that most of those are based on a “scenario building” or forecasting approach rather than on an examination of past polices. In this sense they are useful and important policy tools but not so effective as far as uncovering evidence is concerned.

This report focuses on the first kind of evidence – the impact of policy upon traffic. From this the health gains or damage can be broadly inferred, although we have not attempted to do so in quantitative terms.

---

PART TWO: TRANSPORT – THE SITUATION TODAY

On the whole we are travelling further by car, and walking and cycling less. The following paragraphs summarise the changes in our travel patterns over the last few decades.

2.a. Distance travelled
Between 1985/6 and 1997/9, the distance we covered as a nation increased by 28%.\(^2\) This is not so much because we are making more journeys (this grew by only 2%) but because the journeys we make are getting longer. In the mid 1980s, the average journey was 5.2 miles long, compared with 6.5 miles by 1997/9.

Although there has been a steady increase in the distance travelled, the average time spent travelling is almost unchanged since 1972/3, with some small fluctuations during the intervening periods. Increases in car ownership have meant that people can now travel faster door to door, covering a greater distance in about the same time.

2.b. Car ownership and use
Car travel now accounts for four fifths of the total distance we move. Overall the distance travelled by car increased by 41% between the mid 1980s and 1997/9.

29% of households did not have access to a car in 1997/9 compared to 38% in 1985/6. The figure varies from 16% in rural areas to 39% in metropolitan built up areas. In the south east (excluding Greater London) only one household in five did not have a car, and over a third had two or more cars. Nationwide, one in four households now has access to two or more cars, up from one in six a decade earlier.

The increase in car ownership has also meant that average car occupancy has declined from 1.63 in 1985/6 to 1.57% in 1997/9. 64% of car trips were single driver only and a further 26% occupied by a driver and single passenger.

Despite the large increase in car’s share of total kilometres travelled over the last decade, there are now signs that the growth in car travel is slowing.\(^3\)

2.c. Rail
Passenger travel has increased by 17% in the last three years and is now at a level last seen 50 years ago. Patronage increased by 6% in 1999/00 alone\(^4\) although the recent Hatfield disaster has led to a decline, hopefully short term, in passenger numbers.\(^5\) Nevertheless, despite the growth in passenger travel over the last few years, rail’s modal share has not actually increased in 15 years, remaining at around 5%, compared with 15% during its heyday in the 1950s.

London Underground also carried more passengers, at 927 million annual passenger journeys in 1999/2000. Most other rail based systems, including the modern supertrams in Manchester and Sheffield also show increased patronage.\(^6\)

---

\(^3\) Traffic levels unchanged between 1999-2000, News Release, DETR, 8 February 2001
\(^5\) National Rail Trends 2000-2001 Quarter Three, Strategic Rail Authority, March 2001
2.d. Buses
The distance travelled by buses outside London has declined by nearly a quarter since the mid-1980s, in contrast to an increase of over a fifth in the use of London buses. Since the mid-1990s however, the bus patronage trend in Great Britain has changed from a steady decline to being broadly flat, at 4.3 billion passenger journeys a year. In the year 1999/00 there was even a one percent increase in bus journeys.

Buses and coaches account for 6% of all passenger kilometres travelled, as compared with 86% for cars and vans.

2.e. Cycling
Bicycle use has fallen steadily since the mid 1970s, from an average of 30 journeys per person per year in 1975/6 to 17 in 1997/9. About 2% of journeys are by bicycle, compared with 27% in the Netherlands, 18% in Denmark, 15% in Switzerland and 11% in Germany.

The total distance cycled (including cycling stages made as part of a journey with another main mode) fell by less, reflecting an increase in distance travelled per journey, from 44 miles per person per year in 1985/86 to 40 miles in 1997/99. However, cycling accounts for just 0.6% of the total distance travelled.

2.f. Walking
Walking is also in decline. 45% of journeys are under two miles – an easily walkable distance – yet 35% of those journeys are now made by car, compared with 26% 15 years ago.

The average number of journeys walked per person per year fell by 12% between the mid 1980s and mid 1990s. Since the mid 1980s the proportion of journeys made on foot has fallen from 34% in 1985/86 to 27% in 1997/99.

The total distance walked (including walks made as part of a journey with another main mode) fell by a fifth from 244 miles per person per year in 1985/86 to 191 miles in 1997/99, only 3% of the total distance travelled (compared with 5%).

The average distance walked also fell by 18%; this is more than the fall in number of journeys and reflects the fact that it is the longer walk journeys that have declined most steeply in recent years. This said, the share of very local journeys (up to a mile) made on foot has not declined much – from 83% to 80% between the mid 1980s and mid 1990s. What has declined is local journeys’ “market share” of total trips. In other words, many journeys which were once short enough to walk are now too long; a situation which is caused by, and contributes to, the continued growth in car use.

The proportion of secondary school children walking to school has declined from 52% in 1985/6 to 42% in 1997/9. There has also been a doubling in the number of secondary school children travelling by car, to 21% in 1997/9.

---

10 Mathew D and Graham C, More Bikes – Policy into Best Practice, Cyclists Touring Club, 1995
11 Transport 2010: The Ten Year Plan, DETR, 2000
12 Developing a Strategy for Walking, DETR, 1997
13 Personal Travel Factsheet 4: Walking, DETR, January 2001
2.g. Journey purpose
Leisure accounts for a third of all journeys. One in five trips are to and from the shops and one in six to and from work. Leisure accounts for 40% of mileage, commuting for 20%, shopping for 13% and business travel 10%.14

Between 1986/6 and 1997/9, education and escort education journey lengths (taking children to and from extra classes and so forth) increased by 40%.

PART THREE: HEALTH IMPACTS OF TRANSPORT

There is a large body of research which examines the effects of (mainly road-based) transport on health.

Some of the key documents include the British Medical Association’s *Road Transport and Health*,15 and the recent *Informing Health Impact Assessment in London*16 published by the NHS Executive. To this should be added a report by the (then) Health Education Authority which examines the health impacts of road transport.17 There are also, of course, a number of important studies which look at specific aspects of health where transport is judged to play an important role. Obvious examples here are the COMEAP (Committee on the Medical Effects of Air Pollution) reports on air pollution, including one that attempted to quantify the total disease burden.18

These documents look at how transport in its widest sense (from walking and cycling to lorry, car and bus traffic) – affects people’s health. While these documents acknowledge that our car-based culture has brought many benefits in terms of mobility and freedom, their focus is mainly on the negative and very serious impacts of car based travel, including accidents, pollution, noise, community severance and a decline in physical activity.

The following paragraphs briefly summarise the main areas where transport can impact upon health, drawing heavily but not exclusively upon the reports mentioned.

3.a. Traffic Injuries and deaths
In 1998, 3,421 people were killed on Britain’s roads and 238,923 were injured, of which 40,834 were serious injuries.19 Of these deaths, 206 were children aged fifteen and under, and of the serious injuries, 5,873 were children. Child pedestrian deaths account for half of all child casualties, making this the most serious child safety issue.20

Although child fatalities and serious injuries have fallen by 70% and 46% respectively from the 1981-85 baseline average, our record for child pedestrian safety is still one of the worst in

14 *National Travel Survey 1997/99 Update*, DETR, 2000
17 *Environment and Health: Road Transport*, Health Update, Health Education Authority, 2000
18 *Quantification of the Effects of Air Pollution on Health in the UK*, Committee on the Medical Effects of Air Pollutants, Department of Health, London 1998
19 *Personal Injury Road Accidents: Great Britain 1998*, DETR, February 1999
20 *Child Casualties in Road Accidents: Great Britain 1998*, DETR, June 2000
Western Europe.\textsuperscript{21} In addition, it is arguable that the decline in child casualties does not so much reflect a situation of greater safety on our roads, but rather a decline in the number of children who are allowed to play in the streets and to walk to school on their own.\textsuperscript{22}

London’s health report\textsuperscript{23} estimates that the combined health impacts from accidents and transport-related air pollution are estimated to be responsible for at least 1% of annual deaths in London.

It is worth mentioning that the impacts of traffic collisions not only harm people’s bodies but can also cause psychological damage. Children in particular are affected, appearing to suffer more post-traumatic stress than adults - girls slightly more so than boys. Over a third of children involved in such crashes suffer post-traumatic stress, as opposed to one fifth of adults.\textsuperscript{24}

3.b. Air Pollution
The effects of air pollution include cardiovascular and respiratory diseases including asthma, loss of lung function and some cancers.\textsuperscript{25, 26}

COMEAP has estimated\textsuperscript{27} that around 24,000 deaths of vulnerable people each year may be brought forward as a result of periods of high air pollution. A further 24,000 hospital admissions are also triggered. These estimates do not include chronic effects, which are currently the subject of a review.\textsuperscript{28}

A substantial proportion of air pollution results from transport. The BMA report estimates that transport accounts for around 53% of nitrogen oxides (NO\textsubscript{x}), 90% of carbon monoxide, 40% of volatile organic compounds, 58% of black smoke and 25% of particulates. In London, the figures are even higher – transport accounts for up to 90% of carbon monoxide, benzene and 1,3-butadiene, and about 75% of PM\textsubscript{10} and NO\textsubscript{x} emissions.

3.c. Physical activity
Physical activity plays a vital role in reducing the risk of a number of illnesses and disorders, including obesity, loss of physical strength and mobility (particularly important for older people), diabetes, osteoporosis, coronary heart disease (CHD), strokes and hypertension, and depression. The Government recommends that we should be moderately active for 30 minutes a day.\textsuperscript{29} However, we are as a whole an increasingly sedentary nation and many of us take very

\textsuperscript{21} The Slower Speeds Initiative, Policy Briefing 1, Slower Speeds Initiative, March 1998
\textsuperscript{22} Hillman M, Adams J, Whitelegg J, One False Move... a study of children’s independent mobility, Policy Studies Institute, London, 1990
\textsuperscript{26} Road Transport and Health, British Medical Association, London, 1997
\textsuperscript{27} Quantification of the Effects of Air Pollution on Health in the UK, Committee on the Medical Effects of Air Pollutants, Department of Health, London 1998
\textsuperscript{28} Environment and Health: Road Transport, Health Update, Health Education Authority, 2000
\textsuperscript{29} Strategy Statement on Physical Activity, Department of Health, 1996
little exercise indeed. A number of factors are involved, with dominance of car-based transport playing a major part here.

Obesity is a growing problem and is often linked with the development of CHD and the other diseases listed above. In 1980, 8% of women and 6% of men in the UK were classed as obese. By 1998 the prevalence of obesity had nearly trebled to 21% of women and 17% of men, and there is no sign that the upward trend is moderating. Currently over half of women and two thirds of men are either overweight or obese. The figures for children are equally alarming. Studies suggest that one in ten six year olds is now obese, and that this represents a doubling in the last 10 years.

With four fifths of the distance we travel accounted for by the car we might conclude that the impact of transport as it stands on our physical fitness is almost entirely negative. Walking and cycling on the other hand, are often recommended as excellent forms of physical activity. The London health impact assessment argues that the potential benefits of physical activity from cycling or walking to work in London could be of a similar order to the dis-benefits from accidents or air pollution (see 3.b above). Cycling can be a useful preventive measure for CHD and other illnesses that are related to lack of fitness. It should also be noted that health gains from cycling far outweigh the risk of accidents.

Research carried out by Allot & Lomax and the Policy Studies Institute studied changes in fitness and attitudes of people of working age who had begun to cycle regularly but who had previously taken little exercise. The findings show that even a small amount of cycling can lead to significant fitness gains.

The importance of regular physical activity for children is especially important. Crucially, weight bearing forms of physical activity such as walking or cycling can play a part in building up bone density. This is especially important just before and during puberty - the benefit is doubled if activity is started before or at rather than after puberty. It is therefore ironic and unfortunate that girls tend to lose interest in sports just at the time when physical activity is so very important and where great potential exists for building up bone density. Osteoporosis particularly affects women and blame for the current “epidemic” of fractures in later life has been attributed to inactive lifestyles. Walking and cycling, which are not stereotypically “sporty” activities can make an important contribution here.

30 Tackling Obesity in England, National Audit Office, February 2001
31 Tackling Obesity in England, National Audit Office, February 2001
32 Joint Health Surveys Unit on behalf of the Department of Health 1999 and Health Survey for England: Cardiovascular Disease ‘98, The Stationery Office
38 Kannus P, Preventing osteoporosis, falls and fractures among elderly people, BMJ 318, 205-206, 1999
Physical activity also has a part to play in promoting and maintaining mental health. Regular activity can enhance psychological well-being, can act as a buffer to stress,\textsuperscript{40} and reduce symptoms of depression and anxiety. People who are physically inactive are twice as likely to have symptoms of depression. Physically inactive children are also likely to suffer from lower self esteem and confidence in their ability to perform tasks requiring physical activity.\textsuperscript{41}

Some have argued that being physically active can help children to develop a strong sense of identity, make creative use of their minds and develop the capacity to take responsibility for themselves.\textsuperscript{42}

3.d. Climate change
Transport accounts for over a quarter of all human-generated UK carbon dioxide emissions.\textsuperscript{43} Assuming past trends continue, CO\textsubscript{2} emissions from personal transport in the UK will increase by 70\% by 2020. Technological improvements and greater fuel efficiency will be counteracted by people buying bigger and less fuel efficient cars, while the number of car journeys will increase by 50\% and average journey length by 20\%. Worldwide, CO\textsubscript{2} emissions from personal transport will double by 2020.\textsuperscript{44}

The impact of climate change and its potential effects on global habitats, ecosystems and land forms is now widely accepted by policy makers to be a major cause for concern.

Until recently, the potential direct impacts on human health have been less often articulated than the indirect impacts resulting from changes in agriculture and so forth. A recent report by the Department of Health\textsuperscript{45} has examined these impacts and concluded that climate change is likely to have a significant effect on health. On one hand there is likely to be a decline in deaths from cold weather. On the other, we are likely to experience an increase in heat related deaths and hospital admissions. Cases of food poisoning may also rise. Indigenous malaria is also likely to become established although this is not likely to present a major problem. More severe strains of malaria are likely to affect travellers returning from abroad. Water borne diseases may present a problem but this is likely to be manageable.

However, the likely increase in severe gales will be the cause of very serious concern. Deaths during severe gales are commonplace as are severe injuries. The likely loss of electrical power supplies during major storms adds significantly to the problems and the report makes recommendations for improved inspection of buildings, particularly hospitals, and a re-examination of building standards. To these should be added the effects of flooding which may be catastrophic, and there is currently a lack of preparedness in dealing with such situations. This lack, the report recommends, should be addressed urgently.

\textsuperscript{45} \textit{The Health Effects of Climate Change}, Department of Health, 2001.
The report also points to likely, albeit small, increases in levels of tropospheric ozone and warns that associated deaths and periods of illness will increase.

At the same time as the UK climate is changing, emissions of chemicals are reducing the level of ozone in the atmosphere, and the penetration of UV radiation from the sun to the earth’s surface is increasing. Warmer summers may well lead to increased outdoor activity and hence to an increased risk of exposure from UV radiation. An increase in health problems such as skin cancers will follow unless steps are taken to limit exposure.

In summary the report concludes that:

- Cold-related winter deaths are likely to decline by perhaps 20,000 deaths a year
- Heat-related deaths are likely to increase, to around 2800 cases (from 800)
- Cases of food poisoning are likely to increase by perhaps 10,000 cases a year
- Vector-borne diseases may present local problems
- Water-borne diseases may increase slightly
- The risk of major disaster caused by severe winter gales and coastal flooding is likely to increase substantially
- In general, the effects of air pollution on health are likely to decline but the effects of ozone during the summer are likely to increase: several thousand extra deaths and a similar number of hospital admissions may occur each year
- Cases of skin cancer are likely to increase by perhaps 5000 cases a year, and cataracts by 2000 a year
- Measures to reduce the rate of climate change by reducing greenhouse gas emissions could produce secondary benefits on health.

The report’s authors conclude that NHS should be able to cope with the impact of climate change. An exception to this, they note, is following the occurrence of major coastal flooding. Should such an event occur, and climate change may well increase the risk of it so doing, local NHS resources are likely to be overwhelmed.

3.e. Noise
Transport (including road and air based traffic) is a major source of ambient noise. Surveys show that 23% of the population are bothered by traffic noise. While not usually a source of severe noise and hence unlikely to lead to hearing loss or tinnitus, research suggests that noise can have a part to play in a range of disorders including stress, sleep disturbance, depression, loss of concentration in children and ischaemic heart disease.

3.f. Community severance/loss of community
Community severance arises when roads bearing high levels of traffic cut through housing areas. The physical presence of the traffic, particularly heavy goods vehicles, as well as the risk of accidents, presents a barrier to the community, limiting or disrupting interpersonal

47 Transport Noise, NSCA, November 2000
networks and reducing social contact. There is evidence, albeit indirect, pointing to the likely health effects of traffic on community networks and social contact.

For example, a now classic study in San Francisco\textsuperscript{51} found that residents in streets with light traffic (2000 vehicles a day) had three times as many friends in the same street, and twice as many acquaintances as residents in streets with heavy traffic (16000 vehicles a day). People used the streets with heavy traffic only as a “corridor between the sanctuary of individual homes and the outside world.” Some did not even feel that their homes were sanctuaries, describing them as “impersonal and public” or being invaded by noise from the street. On the other hand, those living in streets with less traffic felt very much at home, not only in their individual apartments but in the street in general. Young families had moved away from streets with high traffic levels and those remaining felt very little sense of community.

Research suggests that social contact has a part to play in reducing all-cause mortality.\textsuperscript{52} Conversely, lack of social contact can cause stress which increases susceptibility to disease. Moreover, the absence of social support can make a stressful situation worse.\textsuperscript{53,54}

The London health report notes\textsuperscript{55} that attempting to quantify the community severance impacts of transport on health is extremely difficult. Some qualitative estimates are possible based on traffic volume, though the authors stress that there is a high degree of site specificity with effects.\textsuperscript{56}

3.g. Autonomy, independence and children's development
The growth in and fear of traffic has undoubtedly made parents less willing to allow their children out on the streets unaccompanied.\textsuperscript{57} By contrast others point out that walking and cycling on the other hand can help children acquire and develop road sense, assess risk, and rely more upon themselves.\textsuperscript{58}

Hillman \textit{et al.}\textsuperscript{59} argue that although child fatalities have declined, this has been at the expense of children's freedom and independence. The authors argue that the solution to the danger on our roads is not to further limit children's independence, but to remove the threat. They believe that measuring the safety of our roads in terms of accident and death rates is misleading and they suggest new measures of both safety and freedom as an accompaniment to the traditional road accident figures. These are as follows:

\textsuperscript{51} Appleyard D and Lintell M, \textit{The environmental quality of city streets: the residents’ viewpoint}, American Institute of Planners Journal, 38, 84-101, 1972
\textsuperscript{54} Berkman L and Syme L, \textit{Social networks, host resistance and mortality: a nine year follow-up study of Alameda County residents}, \textit{American Journal of Epidemiology} 109, 186-204, 1979
\textsuperscript{58} Moore, R \textit{Children's Domain: Play and place in child development}, Croom Helm, London, 1986
1. The proportion of children of selected ages who are allowed to:
   - Cross roads on their own
   - Come home from school on their own
   - Use buses on their own
   - Cycle on main roads

2. The average time that a random sample of pedestrians takes to cross roads of various classes in peak and off-peak hours

3. The annual number of hours spent escorting the average child.

3.h. Health inequalities
The Acheson report published in 1998\(^{60}\) highlighted the inequalities in health that mirror the gradient of social inequalities across the whole socio-economic scale between rich and poor. Those who are lower down the socio-economic scale are more likely to die young than those higher up. They are more likely to be overweight and physically inactive.\(^{61}\)

Our transport system is symptomatic of these socio-economic inequalities - 60% of the poorest 20% of households have no car.\(^{62}\) It also contributes to those inequalities because while the poor cannot afford to enjoy the benefits of a mobile lifestyle, they are nevertheless more likely to suffer the negative consequences of this increased mobility. Those living in deprived neighbourhoods are more likely to be exposed to the negative impacts of traffic. Children in the lowest socio-economic groups are five times more likely to be killed by traffic than those in the highest groups.\(^{63}\) Furthermore, Asian children are involved in twice as many pedestrian accidents as the UK average.\(^{64}\)

In addition, the London Health Impact Assessment report notes that for factors such as accidents, air pollution and noise, “disproportional effects have been identified for vulnerable groups. Of these the relationship between income/poverty and air pollution, and the fear/risk of vulnerable groups (cyclists, children) in terms of traffic accidents are highlighted as most important.”

There are other ways too in which being socially excluded in terms of transport can have negative consequences for health. A report by the Social Exclusion Unit\(^{65}\) highlighted the problems that poor communities have in accessing healthy food, partly as a result of their lack of mobility. This in turn has implications for dietary health.

The DETR’s report *Social Exclusion and Public Transport*\(^{66}\) examines the provision and availability of public transport in deprived areas and the needs of those communities, and makes recommendations for extending and improving transport access.

---

63 *Tomorrow’s Roads: Safer for Everyone*, DETR 2000
64 *Asian kids at risk on the roads*, News Release 196, DETR, 30 March 2001
65 *Improving Shopping Access for People Living in Deprived Neighbourhoods: a paper for discussion*, Policy Action Team 13, Department of Health, 1999
66 *Social Exclusion and the Provision and Availability of Public Transport*, DETR, July 2000
3.i. Other health impacts
It is also important to point out the obvious - that our transport system has wide and varied negative impacts upon our environment. The damage caused includes loss of biodiversity, landscape change, and changes in the land’s capacity to absorb water. All these environmental impacts will inevitably have an effect upon our health if they alter our ability to produce and access food, water and potentially life saving drugs (through the erosion of genetic material).

These broader effects have not been quantified in the reports mentioned above, which is not to say that they do not exist. This may well be an area which merits further research and it might also be suggested that the objectives of environmental and health impact assessments would benefit from being more closely aligned.

PART FOUR: THE IMPACT OF TRANSPORT POLICIES ON HEALTH
This section examines those government policies that are specifically and explicitly related to transport. Part Five (below) examines the wider socio-economic policies that influence the transport situation in the UK, and which therefore have an effect on people’s health.

Government transport policies span a vast range of areas and the impacts of many of these policies have been closely studied. A strong body of evidence therefore exists, some of it research-based, analysing their impacts.

An attempt has been made in the following section to structure the information in such a way as to maximise clarity. The reader will find, however, that there is inevitably some repetition. This is intrinsic to the nature of the subject: transport modes, policies and outcomes are highly interconnected so that measures to promote walking, say, will have both a local and a land use planning dimension.

This section begins with a brief summary of government’s key transport aims and strategies, before examining the more specific implementation of those policies.

4.A. TRANSPORT POLICY - AN OVERVIEW

Key Question: To what extent does Government’s overall transport strategy promote non-car based transport alternatives and what awareness does this strategy evince of the links between transport and health?

Issues: The links between transport and health are explicitly recognised in a number of key policy documents. These include the Transport White Paper,\(^{67}\) the White Paper on public health,\(^{68}\) Our Healthier Nation White Paper,\(^{69}\) the UK’s strategy for sustainable development,\(^{70}\) the National Air Quality Strategy\(^{71}\) and the DETR’s Guidance on Full Local Transport Plans.\(^{72}\) In addition, the National Audit Office has recently published a report on obesity\(^{73}\) which clearly

---

\(^{67}\) A New Deal for Transport: Better for Everyone, DETR, July 1998
\(^{68}\) Saving Lives: Our Healthier Nation, Department of Health 1999
\(^{69}\) Saving Lives: Our Healthier Nation, Department of Health, 1999
\(^{70}\) A better Quality of Life: a strategy for sustainable development in the UK, DETR, May 1999
\(^{71}\) National Air Quality Strategy, DETR, 1999
\(^{72}\) Guidance on Full Local Transport Plans, DETR, March 2000
\(^{73}\) Tackling Obesity in England, National Audit Office, February 2001
emphasises that responsibility for tackling the issue lies with all government departments, and that the DETR can contribute by promoting walking and cycling. The Health Development Agency also specifically highlights the negative health impacts of a car-dependent culture and promotes the benefits of walking and cycling. Its guidance on tackling coronary heart disease recommends ways in which physical activity can be increased, including through measures to promote walking and cycling. Another key document, Making the Links, produced in the HDA’s former manifestation as the Health Education Agency, outlines ways in which local and health authorities can work together to promote sustainable, health-enhancing transport policies.

4.a. i. The Transport White Paper

Question: what impact has the publication of the Transport White Paper had on traffic in the UK?

The Transport White Paper, published in July 1998, sets out Government thinking on transport needs for the UK. At its core lies the concept of a “safe, clean, efficient and fair” transport system and key to the delivery of that vision is the idea of integration:

- Within and between different modes of transport
- With the environment
- With land use planning
- With policies for education, health and wealth creation.

The White Paper is clear about the need for:
- A better deal for cycling and walking
- Better buses
- Better trains
- The sustainable movement of goods
- A “fair deal for the motorist”

Among other things, the White Paper led to the establishment of the Commission for Integrated Transport, a body set up “to provide independent advice to Government on the implementation of integrated transport policy, to monitor developments across transport, environment, health and other sectors and to review progress towards meeting our objectives”.

In addition, the White Paper announced the setting up of the Strategic Rail Authority whose key role is to promote and develop the rail network and encourage integration (see, 4.b.iii. below).

---

74 Coronary Heart Disease: Guidance for implementing the preventive aspects of the National Service Framework, Health Development Agency, 2000
75 Making the Links: Integrating sustainable transport, health and environmental policies: a guide for local authorities and health authorities, Health Education Authority, 1999
76 A New Deal for Transport: Better for Everyone, DETR, July 1998
The White Paper sets out the basic framework for government policies on a very broad range of transport issues from buses and trains, cycling and walking, to freight, the role of the local authorities and land use planning. The specifics of these policies are more fully articulated in a series of daughter documents which were subsequently produced and which are outlined in the relevant sections below.

EVALUATION: The White Paper was in many ways a turning point for transport policy as it very clearly acknowledged the problems of car dependency and placed an emphasis on the importance of non-car based alternatives.

The impact of the White Paper on traffic levels and on health will depend very much on how the strategies it sets out are implemented. These strategies, as already noted, cover a very wide range of areas and, instead of attempting an evaluation of the White Paper in its totality (which would be too general an exercise to have much meaning), we examine the impacts of those detailed strategies in the relevant sections below.

Despite reference to the links between transport and health, the White Paper does not explicitly set transport policy objectives against national health targets. In other words, there is no attempt to quantify the extent to which transport policies can, say, increase levels of physical activity.

4.a.ii The Ten Year Plan

What impact is the Ten Year Plan likely to have upon traffic and its impacts in the UK?

In July 2000, Government published its Ten Year Plan which sets out the plan for investment and improvement in our transport system over the next ten years. The Ten Year Plan can be seen as the mechanism through which the strategies set out in the White Paper are to be implemented.

The Plan promises a large public-private transport £180 billion investment package, of which £119 billion is for rail and local transport (including buses, cycling and walking). There is also substantial spending available for road schemes.

The key targets to be achieved by 2010 are as follows:

- 50% increase in rail use
- 80% increase in rail freight
- 10% increase in bus passenger journeys
- A one third increase (from 36 to 48%) in the proportion of households in rural areas within ten minutes walk of an hourly or better bus service
- Widening of 360 miles of strategic road network
- Cycle use to triple
- Light rail use to double
- 80 major trunk road schemes
- 100 new bypasses
- 130 local road improvement schemes
- Completion of 40 road schemes on the Highways Agency Targeted Programme of Improvements list
- A 40% reduction in number of people killed or seriously injured in road accidents

---

77 **Transport 2010: The Ten Year Plan**, DETR, 2000
• Road congestion to fall by 6% on 2000 levels
• A halt in the deterioration in conditions on local roads by 2004, with an elimination of the backlog by 2010

There are no targets for reducing traffic per se. Indeed, if the vision of the Plan is fulfilled, we will see an absolute growth in traffic volumes, made up of greater movement by virtually all means of transport – car, rail, bus, walking, cycling, road freight and rail freight.\

Moreover, motoring costs will also fall by 20% because of more fuel efficient vehicles.

However, the Plan expects congestion to reduce – we will see a 6% reduction in delays despite a 17% growth in traffic, partly as a result of plans to build more roads. A combination of modal shift and technological improvements is expected to play a major part in delivering a projected 3% cut in transport-generated CO₂ emissions (compared with a forecast growth of 2% without the Plan).

Underpinning the Ten Year Plan is a set of modelling assumptions. These illustrate a range of possible alternative scenarios showing what could happen to congestion and pollution levels both with and without the implementation of the Plan. There are also scenarios showing what might happen if the Plan were implemented with various add-on extras such as extra fuel costs to keep motoring costs constant (instead of letting them fall) and various road pricing schemes (under the Plan as it stands, only local charging is envisaged). Some of the more radical scenarios present higher levels of reduction in congestion and pollution.

The background analysis report on the modelling assumptions warns that:

“it is important to recognise the limitations of strategic modelling and analysis. A significant range of uncertainty attaches to all model forecasts. More confidence can be placed in the relative forecasts for different scenarios than in their absolute levels. The forecasts derive from a wide variety of inputs which cannot, in many cases, be predicted with any great accuracy. We have, for example, had to make assumptions about how the funds being made available in the Plan will be spent, when in practice detailed decisions will be made by a large number of different organisations, such as local authorities, public transport operators and the Highways Agency. And our modelling will not have taken into account every possible influence on future travel demand. Nor are we able to model all the outcomes that are of interest. We have used sensitivity tests to examine how some of these uncertainties affect the outcomes we are able to model.”

EVALUATION: We are barely into the first year of the Plan so an evaluation of its impacts is not possible. Nevertheless, a number of organisations have analysed the likely or possible impacts of the Plan and these are summarised below.

Transport 2000 feel that while the Plan is highly positive in its support for rail, the proposed spending on roads is extremely worrying and marks a major departure in Government thinking away from the traffic reduction principles of the Transport White Paper. The possibility of a major new road building bonanza and the likely impacts thereof are discussed in 4.d.i. below. While £60 billion is available through the Ten Year Plan for local transport, £30 billion of this is

---

78 Running to stand still? An analysis of the Ten Year Plan for Transport, CPRE, February 2001
79 Transport 2010: The background analysis, DETR, July 2000
80 Transport 2010: The background analysis, DETR, July 2000
81 Ten Year Transport Plan: Motorway Plans will not work, Press Release Transport 2000, 20 July 2000
for road maintenance. Nevertheless, on a more positive note, there is still £25.8bn available for spending on non-road specific transport. In theory this means funding is available for measures to improve cycling and walking and bus priority, etc. However, the implementation of such strategies is at the discretion of local authorities. There are no targets for increasing walking in the Plan.

The Council For the Protection of Rural England (CPRE) recently published an analysis of the Ten Year Plan. It examines in considerable detail the modelling assumptions underlying the Plan and concludes that these assumptions are not always accurate. In particular:

- The sensitivity of traffic to changes in travel cost is probably underestimated, and this gets more serious over time so that the 2010 forecasts may be significantly affected.
- The same may be true (although this is not yet certain) for the sensitivity of traffic to changes in journey times, especially in the most congested conditions which are averaged out of the figures above.
- There is an overoptimistic estimate of the effect of transfer away from the car as a result of public transport improvements (unless accompanied by stricter traffic reduction measures). However, the consequent effects on public transport by contrast is underestimated.
- Not enough allowance is made for the localised effects of increased traffic resulting from improved infrastructure.
- Conversely, not enough allowance is given to the potential for reduced traffic due to demand management measures.

As far as the achievability of the targets is concerned, the report concludes that:

- The targets for rail passenger and freight growth are achievable in terms of market potential, although recent rail disruption may have longer lasting effects than hoped, and the feasibility of swift major improvements is still undemonstrated.
- The targets for bus use are not yet internally consistent, and significantly underestimate the potential for growing use in towns and countryside.
- Walking and cycling are not yet accorded the same importance in forecasts, analysis and investment detail that they have won in policy intent.
- Reductions of pollution and CO\textsubscript{2} emissions are heavily dependent on the success of voluntary agreements with motor manufacturers on fuel efficiency – they will be partially offset by increases in traffic (encouraged by the reduction in cost brought about by the fuel efficiency improvements) and potentially by consumer trends to buy larger vehicles.
- The headline forecast of the plan – to reduce congestion at the same time as increasing traffic – depends heavily on assumptions as to how congestion is being measured, the effect of extra road capacity and the effect of changes in costs and speeds of travel.

Indeed as regards the last point, Professor Goodwin, the author appears particularly unimpressed by the estimated time savings once the congestion forecasts are translated into real journey times. According to the Plan overall road travel times are set to reduce by less than a quarter of a second per mile each year – over ten years this adds up to about 2 seconds a mile. Put another way, if the Plan targets were to be fully achieved, a motorist who travelled the same 10,000 miles a year in 2000 and 2010 would save just under a minute a day, though in practice much of this saving would actually be spent on slightly longer average journey distances.

In the report’s Foreword, Lilli Matson, of the CPRE provides the overall verdict:

---

82 Running to stand still? An analysis of the Ten Year Plan for Transport, CPRE, February 2001
“While there is much to welcome in the Ten Year Transport Plan, it is also clear that it represents a major shift in the policy focus. The emphasis now is on reducing the congestion on our roads, rather than the more general intrusion of traffic in town and country. The solutions favoured tend towards big expensive schemes such as new roads, trams, and rail improvements, over smaller scale local solutions. And while there is no doubt that some will benefit from these improvements, there are others who will not share in the gains, who will regret the resulting environmental damage and who will question the end result which is to encourage a nation to travel ever greater distances.”

Instead the report recommends that policy makers should give more emphasis to demand management, intervention in traffic volumes to prevent the erosion of both road and public transport benefits due to induced traffic, greater attention to the interaction with walking, rapid and urgent consideration to the actual scheduling of rail improvements, a re-examination of both the induced and suppressed traffic effects of changes in road capacity and a renewed caution about unintended effects which come between intention and outcome.

Given this verdict, the likely health benefits to arise from the Ten Year Plan are, at best, somewhat uncertain. There is scarce mention of health and it would appear that the Plan will do little to decrease car dependency and thus increase walking and cycling. While there may be improvements in air quality, other impacts, including community severance, noise and the loss of children’s autonomy, are unlikely to be reduced. Although Government has set itself a target of reducing road accidents against a context of further traffic growth, it is unclear how this is to be achieved.

4.B. PUBLIC TRANSPORT

**Key Question: Are Government policies to promote modal shift effective and what impact do they have on overall traffic levels?**

**Issues:** The Ten Year Plan committed £180 billion of investment in public transport. Aside from the large infrastructure rail projects which are of national strategic importance, how that money will actually be spent will depend on local authorities, passenger transport authorities and other local and regional decision making bodies.

4.b.i. Public transport versus the car

*Can investment in and provision of better public transport get people out of their cars and improve health?*

A report published by Transport 2000 sets out what, in its view, are the key elements of a successful public transport system. These include:

- Improving the public transport network
- Providing better information
- Speeding up journey times
- Improving accessibility for all groups
- Integrating public transport with other modes including walking, cycling, cars and taxis
- Promoting rail freight

---

These arguments are supported by case studies of successful schemes both in the UK and overseas.

EVALUATION: Evidence from the UK and overseas suggests that investment in public transport can promote modal shift. One particularly thorough study of 270 schemes in Norway\textsuperscript{85} looked at the promotion of public transport through a variety of measures including: fare experiments (such as reducing fares), better coordination of transport facilities and more frequent services. The results showed that investment and promotion in public transport was effective not only in attracting more people onto public services but in ensuring that some of the increased uptake led to corresponding decreases in car use.

Other surveys of people using public transport after it has been improved usually find that between 10% and 30% of the new passengers have been attracted out of their cars, with 25% being a good result.\textsuperscript{86}

However some of the remaining journeys are created journeys – those that would not otherwise have been made. This can lead to a situation where we simply have more transport in general.

Numerous studies\textsuperscript{87} \textsuperscript{88} \textsuperscript{89} suggest that if modal shift is to be achieved, a combination of “carrots” and “sticks” is needed – carrots to get people out of their cars, and sticks to ensure that the newly freed up road spaced is not filled up by extra cars. Sticks might include a reduction in road capacity, parking restrictions, road charging, fiscal measures and so forth, all of which are discussed in the relevant sections below.

One European study looks at car versus public transport use in six European urban areas – Besançon, Grenoble and Toulouse in France and Berne, Geneva and Lausanne in Switzerland. It contrasts the high levels of public transport and low levels of car use in Berne with the situation in the other cities and concludes that the success achieved in Berne results from this combination of measures both to invest in and improve public transport and to restrain car use, together with appropriate land use planning (see 4.E):

“Promoting the use of public transport by improving it, whilst simultaneously constructing new car parks for commuters in the city centre, is mutually incompatible. Similarly, improving public transport with a view to increasing usage whilst not encouraging the simultaneous integration of new places of employment within the public transport network will cancel each other out. The three crucial factors contributing to the success of public transport policies in Berne have been: spatial planning, parking policy and a good public transport system.”

4.b.ii. Buses

Question: Do policies to increase bus use have an impact on traffic levels and what, if any, are the gains to public health?

\textsuperscript{85} Norwegian Trial Scheme for Public Transport, Institute of Transport Economics, Norway, 1993
\textsuperscript{86} Professor Phil Goodwin, University College London, personal communication, May 2001
\textsuperscript{87} Kaufman V, Modal practices: from the rationales behind car and public transport use to coherent transport policies. Case studies in France and Switzerland, in World Transport Policy and Practice, Volume 6, number 4, 2000
\textsuperscript{88} The Economic and Modal-Split Impacts of short-range park and ride schemes: evidence from nine UK cities, ESRC TSU Publication 1996/29, March 1996
\textsuperscript{89} Mathers, S, Reducing travel in the City of Bristol: promoting bus use through complementary measures, Built Environment vol 25, no 2, undated
Local buses are still the dominant form of public transport, carrying more than twice as many passengers as all types of rail in Great Britain. Although the last few decades have seen a steady decline in bus patronage, since the mid-1990s the trend has remained broadly flat, at 4.3 billion passenger journeys a year. In the year 2000/01 there was even a slight (1%) increase. 90

The Government target is to increase bus use by 10% by 2010 (excluding London, where the growth target is 50%) 91

Government’s policies on buses are most fully articulated in its national bus strategy published in 1999, with additional schemes, policies and targets announced in the Rural White Paper92, the Urban White Paper and the Ten Year Plan.93 The Government’s main policy ingredients are as follows: 94

- **Bus strategies** as part of statutory five year local transport plans - which local authorities will be required to develop
- **Quality partnerships**, in which local authorities can require higher service standards in return for providing better infrastructure such as bus lanes
- **Integration**, including better passenger information, more multi-modal ticketing, timetable co-ordination and physical links between bus services and other modes
- **Accessibility**, with a requirement that all new buses be accessible to wheelchair users from 2001 and end dates by which all buses in service must be accessible
- **Minimum half-fare discounts** for pensioners and disabled people on buses within their local authority area, with discretion for local authorities to be more generous
- **Extra funding** to improve bus services in rural areas and deprived urban estates.

In addition there are powers for local authorities to implement “quality contracts” through which local authorities plan the network of services, timetables and fares while bus operators compete for the contracts to run them, along the lines of the existing set-up in London. Quality contracts will only be permitted if and when quality partnerships have failed to deliver sufficient improvements and will require Secretary of State permission.

Government has also committed a wide range of funding and subsidy packages, including the Rural Bus Subsidy Grant, the Fuel Duty Rebate, concessionary fares payments, local authority subsidy, the Rural Bus Challenge Fund, the Rural Transport Partnership Scheme and the Rural Transport Development Fund.

The environmental credentials for buses are good, producing nearly half the emissions per capita of cars. Furthermore there is much scope for greening the bus vehicle fleet so that it meets the more exacting Euro standards.95 The following paragraphs examine how effective Government policies have been in increasing bus patronage and ensuring better services for rural and urban areas. We also look at the impact of Bus Quality Partnerships in increasing bus use.

---

91 Transport 2010: The Ten Year Plan, DETR, 2000
92 Our countryside: the future, A fair deal for rural England, DETR, MAFF, November 2000
93 From Workhorse to Thoroughbred: a better role for bus travel, DETR, March 1999
94 Grayling T (ed) Any more fares? Delivering better bus services, Institute for Public Policy Research, 2001
95 Grayling T (ed) Any more fares? Delivering better bus services, Institute for Public Policy Research, 2001
**a. Bus Quality Partnerships**

Bus Quality Partnerships (BQPs) are a key element of the Government bus strategy. These partnerships bring local authorities, bus operators and occasionally other bodies such as the police together to develop ways of improving bus services and related facilities. Where BQPs have been implemented, substantial improvements have arisen, resulting in fleets of new buses, improved services and passenger growth.

EVALUATION: A submission by the Confederation of Passenger Transport\(^\text{96}\) to Government in advance of the Ten Year Plan claims that as a result of packages introduced through Quality Partnerships (bus lanes, other bus priority measures, improved services etc), bus patronage has increased between 5 and 20%. Even higher increases (as much as 60%) have been experienced on routes with guided bus ways. On average, however, the increase has been around 10% - partly from modal shift and partly from increased bus use by existing customers.\(^\text{97}\)

Despite the successes of BQPs, a report by the Institute for Public Policy Research\(^\text{98}\) maintains that quality contracts (the system in London) rather than partnerships would be a better way forward as they give local authorities stronger powers to ensure that operators achieve the required service standards.

As an additional measure, it might be helpful for contracts to include targets for encouraging modal shift, rather than simply for increasing bus patronage.

**b. Urban areas**

The Ten Year Plan announced funding through the Urban Bus Challenge Fund for improved bus links in deprived areas. Buses are heavily used by those on low income and the elderly – in other words, those least likely to be able to afford a car or to go by rail. Hence the Urban Bus Challenge could play a valuable part in tackling the social exclusion which is exacerbated by poor transport links (see 3.h below).

EVALUATION: As yet the impact of these subsidies remain to be seen.

**c. Rural areas**

While 66% of households in Great Britain as a whole are within 6 minutes of a bus (with a service frequency of 6 minutes or less) this is the case for only 15% of rural households.\(^\text{99}\) A survey by the Rural Development Commission found that 74% of rural parishes under 10,000 had no daily bus service.\(^\text{100}\) Urban and rural dwellers make roughly the same number of trips a week but those in rural areas travel further – an average of 175 miles instead of 125 miles a week. This means that rural dwellers contribute disproportionately to overall mileage in the UK, rendering it all the more important that alternatives to the car be found. Better bus services can provide part, but not all of the solution. Even more important is to reduce the need to travel by improving and reinstating local shops and services and promoting local job opportunities.

\(^{96}\) 10 Year Transport Plan: a contribution from CPT, Executive Summary, Confederation of Passenger Transport, May 2000

\(^{97}\) 10 Year Transport Plan: a contribution from CPT, Executive Summary, Confederation of Passenger Transport, May 2000

\(^{98}\) Grayling T (ed) Any more fares? Delivering better bus services, Institute for Public Policy Research, 2001


\(^{100}\) State of the Countryside Report 2000, Countryside Agency, April 2000
The 1998 budget announced the creation of the Rural Bus Subsidy Grant (RBSG) a package of over £40 million over three years to support new or enhanced rural services. This nearly doubled the amount some councils could spend on supporting bus services.

EVALUATION: Transport 2000 and the Council for the Protection of Rural England jointly commissioned research to evaluate the effects of the subsidy. Nearly 1,000 tenders awarded for extra rural services were examined for their effectiveness in promoting transport integration, extending employment and cultural opportunities and providing for disabled access. The research also addressed concerns over the value for money of the RBSG by examining the effect the number of bidders has on the contract price and the type of contract that was being favoured by local authorities.

The report’s main conclusion was that overall, the RBSG has provided real and important benefits. In its first year the RBSG paid for 1,845 new or improved services and led a 10 million increase in passenger journeys. Over half of these new services run regularly at least five days a week and 13% have included Sunday services. A quarter of the contracts have increased opportunities for accessing jobs.

Some local authorities have seen particularly notable passenger increases. For instance when Lincolnshire County Council brought in its “rural metro” system, bus frequency was doubled on a core route while additional Rural Bus Challenge Funding was also used to improve infrastructure and timetable information. Complementary feeder services with through ticketing offered timed connections to villages. These measures have led to a 60% increase in passenger journeys in the scheme’s first year. Consultants MVA found that 17% of these trips would otherwise have been made by car or taxi.

However the report also highlights a number of problems concerning variations in levels of service and an insufficient lack of attention to the needs of the disabled and those without a car. Moreover the narrow focus of the grant means that sometimes a bus service is put in place when a different mode would do better. For example, the research found examples where using the RBSG might have involved running a bus service in competition with an already fragile rail service, or providing a long diversionary trip around an estuary where the obvious answer would have been additional ferries. The compartmentalising of funding sources can therefore hinder strategic planning and the development of a multi-modal approach. The Government also needs to be more pro-active in ensuring that local authorities are using the money effectively. The report argues that updating the RBSG Guidance and introducing a stronger mechanism by which resources are allocated according to quality criteria will enable the Government to use RBSG as a catalyst for lifting the quality of existing services.

The report also points out that buses are not necessarily the only or the best solution to transport problems in rural areas. “New buses are often a poor compensation for the loss of banks, post offices, village schools and shops, which mean that rural people have to travel further to meet the same essential needs as urban dwellers. Retaining a living countryside with the emphasis on access and reducing the need to travel, rather than simply increasing mobility, should be the primary focus of transport policy.” This point clearly emphasises the need for integration between transport and land use planning objectives as discussed in 4.E below.

102 Local Transport Today, 11 May, 2000
The report’s main conclusion is that Government should double the amount of support for rural transport (the White Paper has increased but certainly not doubled funding and has also put in place various restrictions) and allow local authorities more flexibility in spending the money on a properly integrated public transport system. The report welcomed the establishment of the Rural Transport Fund in the 2000 Spending Review, which should promote a more integrated approach to rural transport.

The more recently published Rural White Paper\textsuperscript{103} signals additional support for rural areas. It includes a commitment to provide extra money for rural bus services, as well as a package of measures (such as minibus services, car clubs, dial-a-ride and so forth) to promote more sustainable forms of transport in rural areas. The White Paper also announces funding for 500 community transport schemes such as minibus services and the new parish transport fund to support small local initiatives.

\textit{d. Bus priority and other measures}

Local authorities have the power to introduce a wide range of bus promoting measures. The impact of some of these measures is examined below.

EVALUATION: London bus travel accounts for around a third of England's local bus journeys. In the capital, passenger journeys have grown by 6 per cent over the last decade except for a one percent fall in the financial year 1998/99. This growth has been attributed to increased economic activity and a simpler bus fare zone structure, real bus fare increases of one per cent in London in 1998/99, and the diverse patterns of employment, together with a huge number of visitors.\textsuperscript{104}

The Confederation of Passenger Transport (CPT) has estimated that extra bus lanes could lead to a 4% extra increase in bus use by improving average bus speeds by 5%.\textsuperscript{105} The Red Routes initiative in London, which includes bus priority measures, has already led to a 6% improvement in bus speeds and a 12% increase in journey time reliability.\textsuperscript{106} Despite the promise of these projections it should be noted that the CPT's projections are based on passengers shifting not from cars to buses but from rail to buses - which may not have much effect either way either on road traffic or on people’s health.

The effect of improving bus provision on modal shift in Bristol has been examined in one recent study.\textsuperscript{107} Between 1979 and 1995, traffic flows into the Bristol area rose by 69% and traffic into the city centre rose by 7%, with travel being predominantly car based.

As a result, Bristol City Council developed a range of complementary measures to promote bus use. These included:

- Two park and ride sites to the east and south-west of the city
- Bus priority measures and traffic management schemes including bus lanes and signal priorities

\textsuperscript{103} \textit{Our countryside: the future, A fair deal for rural England}, DETR, MAFF, November 2000
\textsuperscript{104} \textit{Bus and Coach Statistics Great Britain 1998/99}, DETR, 2000
\textsuperscript{107} \textit{Mathers, S, Reducing travel in the City of Bristol: promoting bus use through complementary measures}, Built Environment vol 25, no 2, undated
The Commuted Payments policy, whereby developers of new Bristol city centre offices were required to make contributions towards additional park and ride provision in lieu of on site parking spaces.

Quality Bus Partnerships.

These measures worked in combination with policies to discourage car use including parking restrictions (additional to the Commuted Payments policy) and traffic management. The study assessed these measures in terms of their success in achieving travel reduction, ease of implementation and the potential for transferability. Three bus-based measures in particular were examined, including the Brislington park and ride service, bus priority lanes and the Commuted Payments policy.

The research conclusions are as follows:

**Park and ride:** in 1996 around 1000 car trips to and from the centre were saved each week day and over 920 each Saturday. The percentage modal share of car journeys to and from the centre fell. However, although overall public transport patronage on the corridor rose, there is evidence that the park and ride may have attracted passengers from other public transport services such as bus and rail, and may have generated a certain amount of additional travel.

**Bus priority lanes:** New bus lanes reduced bus journey times by up to two thirds and decreased their variability by as much as 89%. This had a positive impact on modal switching, particularly during the morning peak, and the data indicate that bus patronage on corridors where bus lanes have been introduced increased faster than traffic growth. On one radial route, car modal share during the morning peak fell from 88% to 72% while bus patronage increased by 9%. However, mode switching during the afternoon peak has proved harder to achieve.

**The Commuted Payments policy:** this policy required developers of new Bristol city centre offices to make contributions towards additional park and ride provision in lieu of on-site parking spaces. At the time of the research, 22 city centre office developments had agreed to the scheme. Based on the monetary value of these agreements it was estimated that some 780 parking spaces would be provided by park and ride rather than in the city centre. However, it is less easy to quantify how many car journeys would have been saved by the scheme.

The authors conclude that “When implementing measures restricting car use, it is essential that complementary policies are in place to ensure adequate alternative transport provision. In Bristol, a successful park and ride site was already in operation when the Commuted Payments scheme was implemented. This provided an immediate alternative to car-based commuting and reassured developers of local authority commitment to park and ride provision.” They also emphasise that measures tend to be most effective in combination, and this also serves to send out strong signals regarding policy objectives.

**4.b.iii. Trains**

*Question: Are government rail policies effective in increasing rail passenger growth and reducing car use?*

The Strategic Rail Authority (SRA) is the main body responsible for the railways. It formally came into being on 1 February 2001 following the passage of the Transport Act 2000. Its responsibilities cover the three sectors of passenger, freight and infrastructure, with the aim throughout being the creation of a “bigger, better, safer” railway.
The SRA’s key role is to promote and develop the rail network and encourage integration. As well as providing overall strategic direction for Britain’s railways, the SRA has responsibility for consumer protection, administering freight grants and steering forward investment projects aimed at opening up bottlenecks and expanding network capacity. It is also responsible for letting and managing passenger rail franchises. Other key players are the Rail Regulator, Railtrack, and the passenger and freight operators. Local rail (and other public transport) services are managed by the Passenger Transport Authorities, there being one in each of the English Regions.

Last year’s Ten Year Plan committed a total package of £60 billion for rail, to be split between the public purse and private investment. This package is aimed at achieving a 50% increase in passenger kilometres and an 80% increase in rail freight. Much of this funding will be spent on public subsidies for the passenger and freight operating companies, on the new Channel Tunnel Rail Link and on the West Coast Main Line, but it also includes a £7 billion Rail Modernisation Fund to be spent on improving quality, train safety and capacity on the railway, together with better integration with other services.

EVALUATION: The rail industry is highly complex and fragmented. A full evaluation of the impact of past and present government policies would need to examine the thorny and complex issue of rail privatisation – an area which is certainly beyond the scope of this document. However, a collection of essays recently published by Transport 2000 may throw light on these issues, as it examines the possible directions the railway of the future could take.

The response to the Ten Year Plan investment was warmly welcomed by Transport 2000, among other organisations. However it remains to be seen whether private sector funding, which is crucial to the whole enterprise, will actually be forthcoming. Furthermore some observers are also beginning to question whether, in the light of the overspend on the West Coast Main Line, the funding allocated will in fact be adequate, particularly if the private sector does not contribute as much as envisaged.

What is more, how the money will actually be spent is as yet unclear and it appears that privately some local authority leaders are concerned that the focus will be on glamorous megaschemes while the vital local rail networks will not get the on-going financial support that they need.

The new franchising agreements have to prove themselves in terms of profitability and service standards. However, there is no obligation to demonstrate that they are successful in wooing people from their cars – in other words there are no targets relating to modal shift. The discussion above (see 4.b.i) has already highlighted the fact that a growth in rail passenger numbers does not necessarily lead to a reduction in car journeys but simply to overall journey creation. Hence the absence of such targets in the new franchise agreements represents a missed opportunity.

---

109 Ten year transport plan: motorway plans will not work, Transport 2000, 20 July 2000
110 Tim James, Research Fellow, The Advanced Railway Research Centre, Sheffield, personal communication, May 2001
111 Tim James, Research Fellow, The Advanced Railway Research Centre, Sheffield, personal communication, May 2001
In addition to the major rail services, the importance – and potential popularity - of local rail services must not be understated. The reopening of the Robin Hood Line in Nottingham has been particularly effective both in attracting passengers and in encouraging modal shift. Passenger services along the 32 mile route between Nottingham Midland Station and Worksop were withdrawn during the Beeching Era in 1964. This left a densely populated corridor in the heart of Nottinghamshire without direct access to the rail network. In the late 1980s a consortium of eight local authorities, led by Nottinghamshire County Council undertook a feasibility study into the possible restoration of the line and of passenger services. From 1991 work began on the reinstatement of the line; the process took 7 years, during which time eleven new stations have been built.\footnote{Robin Hood Line Fact Sheet, Nottinghamshire County Council, undated}

Now over 2000 passengers use the line daily,\footnote{Robin Hood Line Fact Sheet, Nottinghamshire County Council, undated} of whom 77\% could have made the journey by car (1998 data)\footnote{Robin Hood Line Passenger Surveys, Nottinghamshire County Council, undated} and 47\% of whom previously did make the journey by car.\footnote{Robin Hood Line Passenger Surveys, Nottinghamshire County Council, undated}

Light rail can also play a very important part in a sustainable urban transport system. Since it opened, the number of passenger journeys on the Manchester Metrolink has grown from 7.64 million journeys in its first year of operation in 1993 to 13.82 in 1998.\footnote{Greater Manchester Passenger Transport Executive: trends and statistics, www.gmpte.gov.uk/travelin/trendsst/trends06.htm}

Passenger Transport Authorities have a key role to play here, and on the whole it seems that their influence has been positive. Both South and West Yorkshire PTAs nearly doubled the use of their local rail networks in the late 1980s by opening up new routes and stations, increasing frequencies, introducing cheap fare offers and through better marketing.\footnote{Modern Railways, London, November 1991}

It is important that “soft” improvements are not neglected. The report \textit{Destination Passenger}\footnote{Destination Passenger: towards a door-to-door railway, Platform, Transport 2000, April 2001} by Platform, a partnership of rail user groups, charities and local authorities, highlights the importance of issues such as safety at stations, access for those with disabilities, integration with other modes (particularly cycling and walking), better and more convenient ticketing, and proper information. It cites DETR research which suggests that public transport patronage could grow by 10\%, mainly at off-peak times, if people, particularly women, felt safer when travelling.

\textit{Destination Passenger} also promotes the idea of the “door to door” journey through schemes such as train-taxis where, for a small supplement to their ticket, rail passengers are given a taxi ride to or from the station. This scheme has proved very popular in the Netherlands, where it is called “treintaxi”.

Indeed the Dutch have placed strong emphasis on the importance of soft improvements through the “Destination Customer” strategy. The aim here is to increase rail usage by 50\% in 10 years by reducing door-to-door journey times, improving the quality of the whole journey and tackling the uncertainty involved in modal transfer. In doing so the scheme builds on the success of the “treintaxi” scheme mentioned above and on the high proportion of journeys that already start by bicycle, as well as good interchange between bus and rail. The Dutch have concluded that concentrating on these measures will increase ridership faster, and more cost-effectively, than
the traditional focus on rail infrastructure. The cost will also soon pay for itself through the increase in passengers.

4.C. WALKING AND CYCLING

**Key Question: Have policies to promote walking and cycling been effective?**

**Issues:** The Ten Year Plan provides funding for measures such as safer cycling and walking routes, more 20 mph areas and Home Zones, through an increase in the funding allocated for the delivery of local authorities’ local transport plans. The Plan sets a target of tripling cycling from 1996 levels by 2010 but it does not set a target for increasing walking. Nor is it very clear or specific in how an increase in walking and cycling will come about, leaving this to the discretion of local authorities in the implementation of their local transport plans.
4.c.i. Walking

Question: What policies to promote walking work?

Walking has declined significantly in recent years (see 2.f). Reasons for the decline in walking may include increasing levels of car ownership, increases in traffic volume and speeds which increases actual and perceived pedestrian risk, a decline in local facilities, and changes to the land use planning system which mean that people are forced to travel further (i.e. non-walkable distances) to access the goods and services they need.\(^\text{120}\)

In 1996 Government produced a paper on walking\(^\text{121}\) that outlined and recommended a variety of measures to promote walking. Since then, Government has produced more formal Advice to local authorities on walking – a strategy in effect, if not by name.\(^\text{122}\) The Advice makes a number of recommendations including the need to:

- Integrate walking into land use planning and development
- Create high quality pedestrian networks
- Provide information
- Provide “people friendly facilities” (including lowering the speed limit, developing home zones, tackling crime and so forth).

It also provides a checklist of more specific actions for increasing walking.

Nevertheless the document still fails to set national targets on increasing walking, as had been recommended by the steering group set up to advise the Government on the strategy’s development.\(^\text{123}\) Furthermore, although the Advice states that it would like to see local authorities draw up local targets, these need not be based on increases in numbers walking or evidence of modal shift. They could relate to easier goals such as improving the maintenance of pavements.

Some commentators have pointed out that the importance of walking is all too often neglected\(^\text{124}\) and that there an over-emphasis on public transport investment as an alternative to car use, without regard for the value of walking. Hillman argues that a major transfer from urban journeys by car is far more likely to be achieved by constructing relatively cheap networks for walking (and cycling) followed by improvements to bus services. On a door-to-door comparison, the National Travel Survey shows that pedestrians take less time than bus passengers on journeys up to about one and a half miles. The cost of one kilometre of a light rail system is the same as that of roughly 50 Safe Routes to School projects or 20 mph zones. And the cost of one kilometre of London’s Jubilee Line Extension is the same as 2,000 of these.\(^\text{125}\)

Hillman argues that we need to improve the pedestrian environment by re-allocating road space. This means local authorities will need to invest far more in pro-pedestrian projects such as traffic calming, 20 mph zones, Safe Routes to School Initiatives, the creation of safe routes for children to reach leisure facilities and Home Zones (see 4I and 4K below).

\(^\text{120}\) Developing a Strategy for Walking, DETR, 1996
\(^\text{121}\) Developing a Strategy for Walking, DETR, 1996
\(^\text{122}\) Encouraging walking: advice to local authorities, DETR, March 2000
\(^\text{123}\) Encouraging walking: advice to local authorities, (Appendix C) DETR, March 2000
\(^\text{125}\) Memorandum by Mayer Hillman (WTC 23) Walking in Towns and Cities: Memoranda submitted to the Committee, Environment, Transport and Regional Affairs, Session 2000-1, January 2001
He also argues for the development of a “pedestrian network.” Such a network would consist of uninterrupted pedestrian routes around schools, park entrances, smaller shopping areas, local bus stops and road intersections in residential areas.

T2000 broadly agrees with this view, arguing that we need to civilise streets, and place walking at the top of the transport hierarchy as the City of York has done.¹²⁶ A policy leaflet by Transport 2000 and other national transport organisations, Walking Forward, sets out their recommendations for ways to encourage walking.¹²⁷

EVALUATION: There is little evidence to show what is effective in getting more people to walk,¹²⁸ partly because base line data are highly inadequate - most local authorities simply have no idea how much and why people walk.¹²⁹ There is moreover, a dearth of research showing what works in getting people to walk.

However, work carried out in the 1960s in Sweden suggested that preparedness to walk was strongly influenced by the perceived interest of the surroundings and that mixed developments scored highest here.¹³⁰ Another study notes that the development of pedestrianised areas in conjunction with investment in light rail systems can be highly effective.¹³¹

Speed reduction also plays an essential role. However, while fast moving traffic creates an intimidating environment it does not therefore follow that speed restrictions will automatically get more people walking. One five year study in Northern England that examined the effect on urban street activity of introducing 20 mph zones revealed that while yielding a range of other benefits (reduced traffic accidents and noise and better air quality), the zoning appears to have had little effect in encouraging cycling or walking.¹³² The researchers conclude that to significantly change the function of a street, more stringent measures are needed, such as a road closure or changing the nature of the road to reduce speeds to 10 mph or less. Home zones may be more appropriate here (see 4.k.iv).

It is also worth noting that measures that successfully get people to walk more do not necessarily lead to modal shift. Although walking as a whole has declined, walking for pleasure has increased by 6%.¹³³ All too often the weekend walk can mean driving the car to a scenic location and starting the walk from there, so adding to, rather than reducing car mileage.

4.c.ii. Cycling
How effective have government policies to promote cycling been and what lessons can be learnt from successful policies both here and abroad?

¹²⁷ Walking Forward: what government and local councils need to do to get people walking, Pedestrians Policy Group, The Pedestrians Association, RoadPeace, Sustrans, Transport 2000
¹²⁸ Ben Plowden, Director, Pedestrian’s Association, personal communication, April 2001
¹²⁹ Ben Plowden, Director, Pedestrian’s Association, personal communication, April 2001
¹³⁰ Developing a Strategy for Walking, DETR, 1996
¹³¹ Hall P and Hass-Klau C, Can rail save the city? The impacts of rapid rail transit and pedestrianisation on British and German cities, Gower, Hants, 1985
¹³³ Developing a Strategy for Walking, DETR, 1996
The Ten Year Plan target for cycling is to treble the number of cycling trips from their 2000 level by 2010.\textsuperscript{134}

Safety and security are key factors preventing a wider take up of cycling.\textsuperscript{135} \textsuperscript{136} Cyclists in the UK have a casualty rate over ten times that of Denmark, where there has been a strong emphasis on slowing traffic.\textsuperscript{137}

EVALUATION: One EU study looks at 26 European towns and cities, summarises the modal split and highlights what the range of actions the relevant authorities have taken to promote walking and cycling.\textsuperscript{138}

A report by the Cycle Touring Club\textsuperscript{139} summarises and contrasts examples of best practice in promoting cycling, both in the UK and overseas. Some of the conclusions the report draws include:

- Successful cycle planning requires a cross-agency approach, bringing together those working in transport, environment, health, leisure, land use planning, education and law enforcement.
- Some of the most effective ways of increasing cycle use involve “non-cycle” measures such as reducing the availability of car parking and traffic demand management.
- The most successful cycle policies, both in the UK and overseas, are those that are part of broader sustainable transport policies.
- Councils in mainland Europe have much higher spending plans for cycling than in Britain (the situation may have changed now, since the report was written in 1995, but this will vary from local authority to local authority).

Although the cycling trend is one of decline, this does not mean that the situation cannot be reversed, as the Dutch experience shows. Although cycling went into decline from the mid sixties onwards in the Netherlands, reaching a low in the 1970s, concerted policies to increase levels through the “Dutch Masterplan” successfully raised the levels again to among the highest in Europe.\textsuperscript{140} If it can be done in the Netherlands it can also, arguably, be done in the UK.

In the UK too, some local authorities have achieved considerable success in increasing cycling rates. In York for instance, around 20\% of all trips are now made by bicycle, a growth that has come about at the same time as cycling casualties have declined – by 30\% in ten years, thanks to measures to calm and restrain traffic.\textsuperscript{141} Levels of cycling are continuing to increase, with an increase in peak hour cycling of 10\% over the last two years. In addition, cycling to school in York is over four times higher than the national average (9\% versus 2\%). York’s strategy for increasing cycling goes hand in hand with the aim of reducing the number of journeys made by

\begin{thebibliography}{99}
\item 134 Transport 2010: The Ten Year Plan, DETR, 2000
\item 135 Mathew D, More Bikes – Policy into Best Practice, Cyclists’ Touring Club, Godalming, 1995
\item 136 A randomised controlled trial of a cognitive behavioural intervention aimed at increasing active commuting in a workplace setting, Health Education Board for Scotland, 2001
\item 137 The Slower Speeds Initiative, Policy Briefing 1, Slower Speeds Initiative, March 1998
\item 139 Mathew D, More Bikes – Policy into Best Practice, Cyclists’ Touring Club, Godalming, 1995
\item 140 Mathew D, More Bikes – Policy into Best Practice, Cyclists’ Touring Club, Godalming, 1995
\item 141 Safety Framework for Cycling, National Cycling Forum, April 1999
\end{thebibliography}
car from 26% to 19% by 2006,\textsuperscript{142} an example of integrated transport thinking, which the CTC report above emphasises.

Sometimes, however, success in promoting cycling can be at the expense of walking. In Graz, Austria, where the City has been extremely successful in increasing cycling’s share of journeys from 7% in 1979 to 14% in 1991, the increase has been partly accounted for by a slight decline in car use. However the biggest modal shift has been from walking to cycling.\textsuperscript{143}

Sustrans is currently working with the University of Bristol (Department of Epidemiology) on a study which looks at ways of evaluating the health benefits of the national cycle network.

### 4.D. ROAD SPACE

**Key Question: To what extent do government policies on roads and road capacity help reduce traffic? What evidence is there to show that measures to reduce traffic are successful?**

**Issues:** The 1998 Road Traffic Reduction Act stated:

> "It shall be the duty of the Secretary of State, subject to subsection (2) and with the aim of reducing the adverse environmental, social and economic impacts of road traffic, to set and publish in a report targets for road traffic reduction in England, Wales and Scotland."

However according to Subsection (2) the Secretary of State “is not obliged to comply with the requirements of subsection (1) if he considers that other targets, or other measures, are more appropriate for the purpose of reducing the adverse impacts of road traffic…”

Since the publication of the Transport White Paper in 1998 and the passing of the Act, there has been a shift in Government thinking on traffic reduction. The emphasis has moved away from the goal of reducing traffic per se to that of reducing the ill effects of traffic – namely congestion and pollution. This change in approach is articulated in the DETR report \textit{Tackling Congestion and Pollution}.\textsuperscript{144} The report abandons the idea of setting national traffic reduction targets although it states it would like to “explore” the idea of area-based benchmarks for local areas.

A number of NGOs, including Transport 2000, feel that \textit{Tackling Congestion and Pollution} was a step backwards.\textsuperscript{145} They argue that pollution and congestion are not the only negative consequences of traffic. Road injuries and deaths are also major concerns about which the report had nothing to say - measures to tackle congestion and pollution do not necessarily address these health impacts. Neither does the report say anything about car dependency and as such it has nothing to contribute to attempts to promote physical activity through non-car modes such as cycling and walking.

#### 4.d.i. Road building and road capacity

**Question: What is the relationship between road building, road capacity and traffic levels and how do Government policies affect this relationship?**

\textsuperscript{142} York School Travel Survey Report, City of York Council, 2000
\textsuperscript{143} Mathew D, \textit{More Bikes – Policy into Best Practice}, Cyclists’ Touring Club, Godalming, 1995
\textsuperscript{144} \textit{Tackling Congestion and Pollution: The Government’s first report under the Road Traffic Reduction (National Targets) Act 1998}, DETR, January 2000
\textsuperscript{145} Stephen Joseph, Transport 2000, personal communication, May 2001
From the mid 1990s it was accepted by the then Conservative government that the old “predict and provide” approach to road traffic was no longer tenable and that it was not possible to build one’s way out of traffic congestion. The number of road building schemes in The Targeted Programme were reduced by stages from 150 to around 40 first by the Conservatives and then by the incoming Labour Government.

In A New Deal for Trunk Roads in Great Britain Labour promised that:
- There would be no presumption in favour of new road building as an answer
- There would be a strong presumption against new or expanded transport infrastructure that would adversely affect environmentally sensitive sites
- Alternatives will be thoroughly investigated first.

The Ten Year Plan, however, and recent events since its publication, clearly indicate that there has been a shift in Government thinking. For a start the Plan makes provision for a 17% growth in traffic. Moreover, it earmarks £29 billion for:
- 360 miles of motorway trunk road widening and junction improvements
- 30 trunk road bypasses and 80 major junction improvements
- 200 major local road improvements
- all schemes in the current national trunk road programme (41 at the current time).

Furthermore, on 28th March 2001 the Government announced that eight new schemes would be added to the Targeted Programme.

EVALUATION: The conclusion of a major study by the Standing Advisory Committee on Trunk Road Assessment (SACTRA) in 1994 was that an increase in road capacity was likely to increase or “create” additional traffic. From this it would follow that road building can damage people’s health by leading to an increase in the consequences of more traffic – pollution, road injuries and deaths and so forth.

More recently a report published by the Roads to Ruin Alliance analyses the likely impact of the Government’s new road building programme and warns that the environmental consequences are likely to be grave. The report looks at a number of the most controversial schemes on the Targeted List of improvements, and highlights alternative, more sustainable measures that could help ease traffic problems in those areas. While the report does not look specifically at the potential health impacts of road building, these are very likely to occur as a result of the expected increase in pollution and accidents.

There has in fact been one study which more specifically examined the likely health impacts of a proposed road building scheme. The East End Quality of Life Initiative, funded by the Sheffield Health Action Zone, carried out a participatory HIA of the Rotherham Sheffield Motorway Corridor Planning Study, which had been commissioned by the Rotherham and Sheffield

---

146 A New Deal for Trunk Roads in Great Britain, DETR, 1998
147 Trunk Roads and the Generation of Traffic, SACTRA, 1994
149 Health Impact Assessment of the Rotherham Sheffield Motorway Corridor Planning Study, East End Quality of Life Initiative, Sheffield, January 2001
planning authorities in 1999. The Planning study made recommendations for a range of transport and economic regeneration strategies, including highway improvements.

With air pollution in the Tinsley area consistently exceeding national standards, it was clear that improving the transport environment was a key priority. The HIA concluded that the “public transport proposals will undoubtedly bring health benefits, in terms of reduction in air and noise pollution and enhanced opportunities for cycling and walking, and improved access to services, jobs and training, especially for the most disadvantaged groups. Green transport plans will also bring health benefits.”

However, the study warns that “evidence suggests that the proposed highway improvements, whilst they may relieve congestion in the short term, will undermine the other transport proposals, generating more traffic and congestion, and exacerbating existing health and environmental problems. Detailed assessments, not provided by the current planning study, are needed to evaluate the impact of the transport proposals upon air quality, and therefore upon health. Further examination of the assumptions made with respect to the modal shift which could be achieved … are also needed before health impacts of the transport proposals can be fully assessed. The transport strategy proposed predicts a 140% increase in traffic flow at motorway junction 34s at Tinsley. It is hard to see, fuel and engine technology notwithstanding, how this can be reconciled with statutory requirements to improve air quality.”

Another study\(^{150}\) stood the SACTRA conclusions on its head, as it were (the idea that more roads means more traffic), and examined what would happen if road capacity was reduced. In other words, if more roads lead to more traffic, does taking road space away make the traffic disappear?

The study sought to assess the validity of the argument that traffic displaced from one street will simply divert to another and cause even greater levels of congestion. The researchers looked at over 60 case studies from cities in Europe and further afield where:

- Road capacity allocation changed as a result of direct policies like bus lanes or pedestrianisation
- Situations where capacity was reduced as a side-effect of maintenance or structural repairs
- Situations where capacity was reduced as a result of natural disasters such as earthquakes.

The evidence they uncovered suggests that such measures and/or occurrences lead to an unweighted reduction in traffic on untreated roads or areas of 41%. Less than half of this reappears as increased traffic on alternative roads at the same or different times of day. Thus the overall average reduction was 25%. These averages are influenced by a few extreme results; nevertheless, if the nine exceptional case studies are excluded, 50% of the remaining allocations show overall reductions of more than 16% of the original traffic on the affected roads.

The report authors warn that many caveats apply and that it would be wrong to presume that 16% or 25% of traffic will conveniently disappear as a matter of course wherever road capacity is reallocated. But it would also be wrong to assume that no traffic will disappear. The effects of particular schemes will be reinforced or undermined by network conditions, and by the sticks

---

and carrots of other policies, in a time scale which is continually determined by wider choices about home, work and social activities.\textsuperscript{151}

Other policies might include the provision of bus priority lanes, street-running rail systems, cycle lanes, wider footpaths and pedestrian areas. Such measures simultaneously take space away from cars and give it to non motorised modes, while bringing about environmental improvements, enhancing street attractiveness and improving safety.

The balance of evidence, the report concludes,\textsuperscript{152} is that motorists respond in many other ways, over and above a simple change of route, when road capacity is reduced including the use of an alternative mode, making a shorter journey, or simply not making the journey at all. Thus, the negative effects of reducing capacity exist but are, on balance, less significant than has sometimes been feared.

From this analysis it would appear that Government’s present emphasis on road building or “throwing more concrete at the problem” as Transport 2000 puts it\textsuperscript{153} is unlikely to have a beneficial effect on health nor, as it happens, on our traffic problems.

4.d.ii. Multi-Modal and Roads-Based Studies

Question: What impact are the Multi Modal and Roads-Based Studies likely to have on traffic levels in the affected areas and what are the implications for health?

In A New Deal for Trunk Roads in England,\textsuperscript{154} the DETR proposed a series of studies to address those problems on the strategic trunk road network that were not addressed in the Targeted Programme of Improvements being taken forward over the next seven years. Following consultation with Regional Planning Bodies, in March 1999 the DETR announced the final programme of 27 studies and the timetable for taking these forward. The two kinds of study announced were:

- **Road-Based Studies (RBS)** in which the focus would be on further consideration of solutions to particular problems on the road system; and
- **Multi-Modal Studies (MMS)** in which consideration would be given to problems and solutions affecting all modes of travel.


\textsuperscript{153} Ten Year Transport Plan: Motorway Plans will not work, Press Release Transport 2000, 20 July 2000

\textsuperscript{154} A New Deal for Trunk Roads in Great Britain, DETR, 1998
The Guidance on methodology for the studies specifies very clearly that commissioned research should examine the potential contribution of all modes, including walking and cycling. Both the MMS and RBS will be subject to the New Approach to Appraisal (NATA), which replaces the old Cost-Benefit Analysis (CBA) approach to considering the validity of schemes. NATA differs from the old CBA because it takes into account environmental and non-monetary considerations as well as economic ones. Some health impacts, including local air quality, noise and physical activity, are also taken into account. It does not, however, require an examination of the likely health impacts of a scheme against national health targets.

EVALUATION: NATA represents a step forward in the appraisal process because it includes broader considerations. Nevertheless, there are some concerns over the monitoring of the appraisal process, since there is no overall body which assesses the validity of the appraisal process used in each particular instance. This means that the appraisal and its conclusions can be skewed according to the bias and intentions of those conducting the appraisal. The availability and quality of the data will also affect the quality of the outcome.

There are also concerns by environmental organisations over the likely conclusions and recommendations to emerge from the MMS. The process so far suggests that despite the emphasis in the guidance on an examination of all modes, the bulk of the consultants have taken a very roads-oriented approach. The Hastings Study conclusions have recently been published and this offers two “solutions”, one of which is heavily road based. The Secretary of State has delayed the review process, and a decision about this scheme is still being awaited.

Depending on the outcomes of the Multi-Modal Studies and the Roads-Based Studies, there are likely to be significant implications for health – either for the good, if more sustainable modal alternatives are approved, or for the bad, if the reverse is true.

4.d.iii. Pedestrianisation

Question: can pedestrianisation reduce overall traffic levels?

A few local authorities in the UK, as well as those elsewhere, have closed parts of the town or city to vehicles, so creating a pedestrian environment. Notable examples include York and Oxford. Nottingham is considering pedestrianisation, and there are also currently plans to pedestrianise Trafalgar Square in London.

EVALUATION: Evidence from York City Council suggests that partially pedestrianising and excluding traffic from certain roads at certain hours has increased footfall in the City Centre and been good for business. Pedestrian flows doubled, shop rents grew faster in pedestrianised streets than in those not pedestrianised and retail turnover increased faster than that in six comparable British cities. Whether pedestrianisation has led to an overall decline in car use is however uncertain; this study has been unable to uncover research on this issue, which is not to say that it does not exist.

The impact of the pedestrianisation in Oxford is currently the subject of a multi-agency research project with a specific focus on health. The EMITS study seeks to test the hypothesis that

155 Guidance on the methodology for multi modal studies, DETR, May 2000
156 Stephen Joseph, Transport 2000, personal communication, April 2001
158 Living Streets, Transport 2000, 1999
changes in traffic levels can reduce air pollution and lead to better health without damaging the local economy. The re-alignment of roads in central Oxford to enable pedestrianisation of one of the principal shopping streets, Cornmarket, was completed in June 1999. Before that, Cornmarket had been mainly restricted to shared use by pedestrians and buses. To achieve full pedestrianisation, it was regarded as essential to create a bus priority route around the pedestrian zone, which means that general traffic on these roads had to be redirected onto roads passing around the edge of the central area.

By Autumn 2000, EMITS had made some broad initial findings of the impact of these measures. These were that:

- the use of city centre car parks (which dropped around the time of inauguration) is now similar to before implementation - hence reducing concerns that people had been deterred not only from making through trips but also from making trips to the city centre;
- increases in bus travel have been sustained, although problems with recruiting drivers are affecting services;
- valuable reductions in carbon monoxide air pollution, which mainly comes from petrol engines, have been identified, although the results are hitherto less clear in the case of particulates - diesel engines are responsible for a minority share in urban areas;
- one index of trade levels shows a reduction of around 10% on business in previous years, although there are a number of contributory factors explaining the results, not all connected with the OTS, and some of which are temporary;
- some business people remain unhappy about the overall level of business activity in the city centre and ease of making deliveries, but other people are urging for the pedestrian area to be extended;
- traffic within the inner cordon (more or less the historic core bounded by the Thames and Cherwell) is definitely reduced, by around 20%;
- the assumption is that most trips that are not made to the central area were actually through trips (previously up to 25% of traffic depending on street examined);
- through traffic trips have redistributed to inter-suburban routes and the ring-road;
- redistributed trips may be longer in some cases, but there are no indications that extra car-km have led to significant increases in congestion, because the trips are spread over a number of longer alternative routes around the periphery.

The study is still ongoing and is likely to be completed in the summer of 2002.

4.E. LAND USE PLANNING

**Key Question:** What relationship does land use planning have in influencing traffic levels and how do government planning policies affect this relationship?

**Issues:** Government policy is clearly in favour of high density, mixed use development. Maximising use of existing brownfield sites and increasing density in urban areas will, it is argued, reduce the need for car-based travel by improving local access to employment opportunities, goods and services.

---

159 EMITS: monitoring the Oxford Transport Strategy, initial findings
160 EMITS: monitoring the Oxford Transport Strategy, initial findings
161 Graham Parkhurst, EMITS research team, University College London, personal communication, April 2001
4.e.i. Mixed use development: the Urban and Rural White Papers

*Question: What are the impacts of current land use planning policies on transport and traffic levels, as set out in the urban and rural White Papers?*

The Urban White Paper\(^{162}\) placed great emphasis on the importance of mixed use urban development for environmental, social and economic development. It signalled Government’s intention to introduce a range of tax relief and other fiscal measures in order to encourage high density, mixed use urban regeneration and development.

The 2001 Budget backed up these intentions with a £1 billion package of tax relief, to be spent over five years. The package includes:

- Stamp duty relief for disadvantaged areas
- Tax relief for creating flats over shops
- Tax relief measures to bring vacant homes back into use

Funding for urban regeneration also comes through the Single Regeneration Budget, New Deal for Communities and other specific measures to promote economic development, education and training and other forms of urban regeneration.

The Rural White Paper also seeks to promote a reduction in the need to travel through support for local shops and services and for economic and employment opportunities in rural areas\(^ {163}\) including:

- 50% mandatory tax relief for village shops, pubs and garages which offer a community benefit
- Commitments to retain and renew the rural Post Office network making banking, internet, pensions, benefits, prescriptions, health and other services available from this network
- The creation of a new Community Service Fund to support local enterprise and enable key services to be re-established (£15 million)
- A continued presumption against the closure of rural schools, investment to improve facilities, and an Internet connection for all rural schools by 2002
- Measures to rejuvenate market towns

**EVALUATION:** Both Transport 2000 and the CPRE feel there is much that is positive in both the White Papers.

Evidence from a report published in 1993,\(^ {164}\) suggests that Government’s emphasis on maximising use of urban areas and encouraging dense, mixed use developments is, on the whole, a sustainable one and could yield health benefits.

The report examines the extent to which land use planning can reduce travel demand and hence CO\(_2\) emissions. The study looks specifically at the impact of housing density, settlement size and regional, urban and neighbourhood structures on transport emissions. The study also considers the impact of new transport infrastructure on development pressures.

\(^{162}\) *Our towns and cities: the future – delivering an urban renaissance*, DETR, November 2000  
\(^{163}\) *Our countryside: the future, A fair deal for rural England*, DETR, MAFF, November 2000  
\(^{164}\) *Reducing transport emissions through planning*, ECOTEC Research and Consulting Ltd in association with Transportation Planning Associates, Department of the Environment, Department of Transport, HMSO, London 1993
The research process is based on literature reviews, case studies and planning models, and the report’s main findings are as follows:

**Density**: higher residential densities within settlements are likely to be associated with reductions in travel demand and the encouragement of shifts towards emissions-efficient modes. Travel demand rises quickly as density falls below 15 people per hectare and falls sharply as density increases above 50 people per hectare. There are complicating factors such as the interrelationship between income and density and possible adaptive responses by home buyers. Simple comparisons between the transport energy efficiency of settlements with different densities provide only a limited guide to the actual level of transport emission reductions that would result from general increases in the density of residential developments.

**Settlement size**: smaller settlements are characteristically less emissions-efficient than larger settlements. But there are complicating factors, notably differences in levels of car ownership.

**Regional structure**: the extent of urbanisation within regions is an important determinant of travel demand. Transport emissions are likely to be lower where there is a balance of population, employment and other activities within individual urban areas and a reasonable level of geographic separation between centres.

**Urban structure and centralisation**: centralisation of employment and other high travel-generating activities (leisure, retail etc.) significantly increase the use of public transport compared to less centralised urban structures. However, high levels of centralisation and concentration of land uses are also associated with longer-distance trips (and hence higher overall levels of travel). The evidence on the effects on travel behaviour of polynuclear urban structures and the general intermixing of land uses is less clear. Both potentially offer a more transport emissions-efficient urban structure. However, this potential may not be realised in practice.

**Neighbourhood structure**: a high proportion of all travel is local and a very high proportion of all trips are relatively short. This indicates the considerable potential for a shift to more emissions-efficient modes, particularly walking. The review of evidence suggests that proximity to local centres, the choice of available facilities and design characteristics are important factors in encouraging their use.

Overall, the research authors conclude that planning measures over time make a significant impact on transport emissions. One of the simulations undertaken in the study indicated that planning policies in combination with transport measures could reduce projected transport emissions by 16% over a 20 year period. These findings are similar to those of other studies which indicate that 10-15% savings in fuel usage, and hence emissions, from passenger transport might be achieved through land-use changes at the city region scale over a 25 year period. The report therefore recommends a strong emphasis on planning policies that minimise the need for people to travel for work, leisure, education and shopping, in combination with complementary transport measures. The latter include parking controls, park and ride schemes, pedestrian priority measures and traffic calming, cycleway provision and public transport priority measures.

---

165 *Reducing transport emissions through planning*, ECOTEC Research and Consulting Ltd in association with Transportation Planning Associates, Department of the Environment, Department of Transport, HMSO, London 1993
This said, they warn that the rate of change of land use is relatively slow; overall, the built fabric is renewed at only about 1-2% per annum, although some high travel generating land uses are renewed more quickly. Moreover, the UK is comparatively densely populated, with a stable urban structure and travel demand on a par with the European average. Both these two factors limit the extent to which urban planning in the UK can impact upon transport emissions. Certainly the potential to reduce transport emissions will also vary between areas and local circumstances.

One much smaller study gives some local flavour to the general findings of this report. An examination of the closure of three banks in Liss, Hampshire, found that as a result a million extra miles of travel were generated each year, 70% by car, as residents were forced to make a 10 mile round trip every time they wished to visit the bank.166

It should also be noted that measures to promote local shops and services and to create local job opportunities can particularly help those in deprived neighbourhoods who do not have access to a car. This is likely to yield subsequent health benefits.

4.e.ii. Planning Policy Guidance

Question: Does Planning Policy Guidance tend to encourage or restrain traffic growth?

The key government planning policy documents that concern transport are Planning Policy Guidance notes 3 and 13 (Housing and Transport respectively). These are summarised briefly below, and their likely impacts are then evaluated. Other planning policy guidance notes - for instance PPG6 on Town Centres and Retail Developments - will also have a bearing on transport, although we do not have the time for a discussion here. It should simply be noted that PPG6 creates a strong presumption against further major out-of-town developments and requires a sequential test to be applied to new applications, giving preference to sites within or on the edge of existing centres.

EVALUATION: PPG3 (Housing)167 notes that new housing development in England is currently built at an average of 25 dwellings per hectare, but more than half of all new housing is built at less than 20 dwellings per hectare. That represents a very high level of land take which can no longer be sustained. Such development is also less likely to sustain local services or public transport, ultimately adding to social exclusion. PPG3 therefore states that local authorities should:

• give priority to using brownfield sites
• create more sustainable patterns of development by building in ways that exploit and deliver accessibility by public transport to jobs, education and health facilities, shopping, leisure and local services
• place the needs of people before ease of traffic movement in designing the layout of residential developments
• seek to reduce car dependence by facilitating more walking and cycling, by improving public transport linkages between housing, jobs, local services and local amenity, and by planning for mixed use.

Local plans should also introduce greater flexibility in the application of parking standards, which the Government expects to be significantly lower than at present. In particular, they should

167 Planning Policy Guidance Note 3: Housing, DETR, March 2000
revise their parking standards to allow for significantly lower levels of off-street parking provision, particularly for developments:

- in locations, such as town centres, where services are readily accessible by walking, cycling or public transport
- that provide housing for elderly people, students and single people where the demand for car parking is likely to be less than for family housing
- involving the conversion of housing or non-residential buildings where off-street parking is less likely to be successfully designed into the scheme.

The Guidance notes that car parking standards that result, on average, in development with more than 1.5 off-street parking spaces per dwelling are unlikely to reflect the Government’s emphasis on securing sustainable residential environments. Policies that would result in higher levels of off-street parking, especially in urban areas, should not be adopted.

PPG13 (Transport)\textsuperscript{168} argues that “By shaping the pattern of development and influencing the location, scale, density, design and mix of land uses, planning can help to reduce the need to travel, reduce the length of journeys and make it safer and easier for people to access jobs, shopping, leisure facilities and services by public transport, walking and cycling. Consistent application of these planning policies will help to reduce some of the need for car journeys … and enable people to make sustainable transport choices.”

The Guidance emphasises its intention to:

- promote sustainable transport choices both for people and for moving freight
- promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling
- reduce the need to travel, especially by car.

All new developments will have to undergo Transport Appraisals. These replace Traffic Impact Assessments and differ from the latter in that the appraisal has to assess the impact of the development on all vehicle flows including cars, HGVs, vans, buses and taxis. The emphasis is also less on “predict and provide” and more on traffic restraint.

EVALUATION: The new PPGs are in keeping with the recommendations outlined in the land use planning study summarised above. The PPGs have only recently been published but the response by NGOs has been broadly supportive, with some qualifications.

As far as PPG13 the CPRE makes the following criticisms:

- Park and Ride schemes are now considered “permissible” in the Green Belt – this can lead to the suburbanisation of our greenbelt\textsuperscript{169} (see 4.e.iv for a discussion of park and ride).
- Guidance states that the aim of rural diversification projects is to reduce the need for long-distance out-commuting to urban areas. However, it offers no criteria by which local authorities can judge what the real impacts of traffic movements will be. Past experiences show that they can often encourage new commuting patterns, with people travelling from urban areas to rural for work.
- In addition, the guidance gives strong advice “not to reject proposals” for new rural developments with relatively low traffic impacts. This ignores the need to consider many other aspect of the development on, say, the landscape.

\textsuperscript{168} Planning Policy Guidance Note 13: Transport, DETR, March 2001

\textsuperscript{169} Park and ride bonanza could backfire as green belt put at risk, press release, CPRE, 25 April 2001
• Parking standards: the parking standards for food retail and B1 business use classes have both been weakened in the final guidance, which undermines the effectiveness of parking guidance.

Transport 2000 also notes and criticises the fact that parking standards have been weakened between the publication of the draft PPG13\textsuperscript{170} and the final published version. The final version sets out more liberal maximum parking allocations. Parking is discussed more fully in the following section.

4.e.iii. Parking provision

Question: What impact do parking restrictions have on traffic?

DETR Guidance\textsuperscript{171} to local authorities states: “Parking is likely to be a key element in managing car use. We will expect all LTPs to set out how parking policies are to be used to encourage motorists to use alternative means of travel ….This will be essential where authorities are looking to us for support for significant investment in public transport. Parking strategies will need to consider the appropriate number of total spaces … the balance between short and long-stay spaces and the level of charges.”

EVALUATION: A report by Transport 2000 highlights the considerable powers local authorities have at their disposal to reduce traffic through the imposition of parking restrictions and provides guidance for so doing.\textsuperscript{172}

It also cites one modelling exercise of parking restraint measures in Bristol by consultants MVA. This found that traffic levels in Bristol could be reduced by over 40% as a result of a combination of measures including:

• a 75% reduction in on-street parking provision
• conversion of remaining on-street parking to short-stay
• raising on-street charges
• higher off-street parking charges
• enforcement of planning provision for private non-residential parking.\textsuperscript{173}

The health impacts here (as with other measures to reduce traffic) are likely to be positive - that less traffic means less pollution and noise, less risk of road accidents and a more congenial street environment which encourages people to walk and cycle more.

4.e.iv. Park and ride schemes.

Question: Are park and ride schemes effective in reducing traffic?

DETR Guidance\textsuperscript{174} to local authorities states “Park and ride in appropriate circumstances can help promote sustainable travel patterns and improve the accessibility and attractiveness of town centres. Schemes need to be developed as an integral part of the transport strategy for an area and subject to robust assessment.”

\textsuperscript{170} Revision of Planning Policy Guidance Note (PPG13), Public Consultation Draft, DETR, October 1999
\textsuperscript{171} Guidance on Full Local Transport Plans, DETR, March 2000
\textsuperscript{172} Just the Ticket, Transport 2000, 1998
\textsuperscript{173} Just the Ticket, Transport 2000, 1998
\textsuperscript{174} Guidance on Full Local Transport Plans, DETR, March 2000
Currently there are 78 full- or part-time park and ride sites operating in Great Britain. The number in England is set to increase by 150% over the next few years, with over 120 new schemes in the pipeline.\textsuperscript{175} As mentioned above, the revised PPG13 allows park and ride sites as "permissible developments in the Green Belt". Previously such developments had not been allowed.

EVALUATION: Research by Graham Parkhurst\textsuperscript{176} of University College London concludes that implementation to date of park and ride scheme has primarily been a result of economic rather than environmental policies.

As far as the environmental impacts are concerned, the research finds that:

- Although a majority of users of bus-based P&R schemes tend to be motorists who would otherwise have driven to the city centre, a large minority were in some way making a new trip.
- A significant minority of users switch not from car but from existing public transport services because the park and ride service is offered more cheaply and/or is of higher quality. As the P&R is usually further from the user’s home than the public transport service this means than they drive further than they otherwise would.
- Some users suggested that they had made extra trips because a cheap P&R opportunity had been offered.
- There was some evidence that P&R would be a powerful enough influence to encourage some people to live in more car-dependent, rural locations than they otherwise would. Hence P&R can encourage the process of suburbanisation.
- The parking provided in P&R sites could often be identified as additional to that provided in the city centre, rather than replacing it.
- The overall increase in parking availability, together with the attractiveness of city centre streets for through traffic, meant that P&R had not demonstrably affected traffic congestion.

In other words, “No long term reductions in traffic levels have been attributed to the P&R schemes considered in this review … P&R actually increases the share of road space available for that portion of traffic that does not intend to park centrally, or has access to private spaces. Furthermore, the evidence considered strongly suggests that an “energy audit” of P&R schemes implemented so far would show net environmental costs due to the lack of a “decongestion dividend” inside the city, coupled with an increase in vehicle-kilometres travelled outside as a result of increased trip making and transfer from public transport services.”

Parkhurst concedes that there may be circumstances where park and ride schemes may be necessary for a variety of reasons, but warns that “Applying P&R in the absence of a package of serious restraint measures could have more severe financial and environmental implications … including the possibility of encouraging greater car dependency.”

As already mentioned in section 3.e.ii above, the Council for the Protection of Rural England is alarmed by the loosening of planning restrictions on P&R sites in the Green Belt, fearing that their development can create urban sprawl in the countryside and damage the Green Belt.\textsuperscript{177}

\textsuperscript{175} Park and ride bonanza could backfire as green belt put at risk, press release, CPRE, 25 April 2001
\textsuperscript{176} The Economic and Modal-Split Impacts of short-range park and ride schemes: evidence from nine UK cities, ESRC TSU Publication 1996/29, March 1996
\textsuperscript{177} Park and ride bonanza could backfire as green belt put at risk, press release, CPRE, 25 April 2001
The health gains of park and ride schemes are thus likely to be questionable. In so far as it signals a local authority’s intention to tackle the problems of car use, park and ride can have a positive effect in raising awareness of the need for and availability of non-car modes. This in turn can boost public awareness and generate greater support for other traffic restraint measures which will themselves generate health gains. In themselves though, park and schemes are unlikely to reduce traffic or the negative consequences of that traffic for health.

4.F. TRANSPORT TAXATION

**Key Question:** Do government transport taxation policies help create or reduce traffic and what are the consequences for people’s health?

**Issues:** Between 1974 and 1999 the cost of motoring has not risen in real terms. In contrast, the cost of travelling by rail has grown by over fifty percent and local bus fares by nearly 80%.

The recent fuel protests notwithstanding, research by the Scotland Office shows that compared with other European countries UK overall motoring costs are about average.

The recent Budget announced a series of transport taxation measures. This section examines their impact on car use and hence on our health.

4.f.i Fuel duty

**Question:** What impact do fuel prices have upon car mileage and what are the health impacts that arise?

In last year’s Budget the fuel price escalator (the raising of the cost of fuel over and above the rate of inflation) was abandoned, partly as a result of high oil prices and largely as a result of the now notorious fuel crisis, in which the country was brought to a standstill for several days by a group of protesters barricading the oil refineries, who objected to what they saw to be the excessively high cost of fuel.

The recent Budget has introduced a 2 pence per litre differential between the cost of Ultra Low Sulphur Petrol and ordinary petrol. It also cuts duty on Ultra Low Sulphur Diesel by 3 pence per litre and temporarily cuts the cost of ordinary unleaded petrol until the complete transition to unleaded petrol in all garages has been made. According to the calculations presented in the Budget, Ultra Low Sulphur Petrol can deliver small NO\(_x\) savings of up to 6%, carbon monoxide savings of up to 11% and hydrocarbon savings of up to 14%. It also enables the use of fuel efficient technologies such as Gasoline Direct Injection which can deliver substantial CO\(_2\) savings. ULSD is also justified on environmental terms. In addition, the Budget launches the Green Fuel Challenge which gives tax incentives for industry to come up with practical proposals for the development of cleaner fuels (see 4.h.ii below).

**EVALUATION:** The price cut on Ultra Low Sulphur Petrol is supported by environmental groups because there are environmental advantages to be had, however small. However, the cut on

---


179 Office of National Statistics, 1974-1999


181 *Budget Response from NSCA*, Press Release, National Society for Clean Air, 7 March 2001
ULSD has been criticised\(^{182}\) because the environmental advantages are minimal. Since ULSD has a virtually 100% market share in the UK anyway, there are no environmental benefits to be achieved here – it does not help shift people’s behaviour. Instead the cut in cost will almost inevitably encourage some increase in diesel consumption and hence in \(\text{CO}_2\) and other emissions.\(^{183}\) The National Society for Clean Air also deplores the unnecessary price cut in unleaded petrol.

The cost of fuel can have a very significant impact on fuel consumption and hence on emissions. A report prepared for the AA\(^{184}\) looks at the effect on motorists of changes in the price of fuel. It examines the elasticity of fuel consumption relative to price changes and finds that while in the short term a 10% increase in the price of fuel only leads to a 3% decrease in fuel consumption, in the longer term, the decrease averages between 6% and 8%. This has significant implications for health – raising the price of fuel can lower emissions so leading to an improvement in air quality and a reduction in carbon dioxide.

The other potential health gains are less but still significant. Raising fuel prices makes some, albeit small, contribution both in the short and the long term, to reducing the overall volume of traffic. This in turn can help reduce traffic volume-related health impacts such as accidents, noise, community severance and so forth.

A report by Transport 2000 and the World Wide Fund for Nature\(^{185}\) also concludes that fuel taxes have a key part to play in a sustainable transport system. The authors note that traffic growth has slowed to almost zero in recent years and that fuel tax increases are likely to have helped in these trends. In 1998, traffic growth in vehicle miles was around 1% and non-motorway traffic was nil. In the same year, passenger transport rose by 8% and cycle use by 5%.\(^{186}\)

The recent fuel crisis gave us a glimpse of what life could be like, health-wise, were fuel to be made prohibitively expensive to the point of being unavailable. The North West Public Health Observatory attempted an evaluation of the health and environmental impact of the fuel crisis in Merseyside.\(^{187}\)

Public transport use increased across all modes. Both Greater Manchester Passenger Transport Authority (GMPTA) and the Arriva bus company reported a significant rise in bus patronage during the week of the fuel crisis. There was also an increase in rail use with staff noting that more passengers were travelling with bicycles. Mersey Ferries reported an overall increase in use of 28% during the morning peak commuter period.

Lancashire County Council reported that overall traffic levels were reduced by 15% in town centres and up to 23% in rural areas. Greater Manchester Passenger Transport Authority

---


\(^{187}\) North West Health, North West Public Health Observatory, Vol 1, Issue 5, 20 October 2000
observed a reduced flow of traffic within the Greater Manchester area, with levels reaching their lowest on the Wednesday and Thursday of the crisis week. Daily traffic flow was reduced by between 20 to 37% on “A” roads and up to 39% on the M60 between junctions 13 and 14. Another monitoring point in the Region reported an increase of 86% in bicycle traffic and a reduction of 11% in motor vehicle flow. According to Lancashire County Council, the number of fatal and serious road accidents was reduced by 58% during the week of the fuel crisis. Police forces throughout the Region all reported a reduction in serious and fatal accidents during this week.

The automatic network monitoring points at Manchester Piccadilly and Bury roadside (Junction 17 of M62) showed that levels of carbon monoxide, particulates (PM$_{10}$) and nitrogen dioxide were considerably lower during the fuel crisis week than the corresponding week in 1999. Many factors such as weather can affect air pollution results, so definitive conclusions should not be drawn from these data, but they do add another piece to the emerging picture.

4.f.ii Vehicle Excise Duty

*Question: Are the recent changes to vehicle excise duty likely to have a beneficial or negative impact on air quality?*

The Budget cuts Vehicle Excise Duty (VED) by £55 for cars with an engine size between 1,200cc and 1549cc, backdated to 1 November 2000. This in effect provides tax relief for 5 million car owners. Together with measures announced in Budget 1999 and Budget 2000, this will mean that around a third of existing cars will qualify for this lower rate of VED. The Government has also frozen all car VED rates until Budget 2002, which is equivalent to a cut in real terms of up to £5 (per car). In addition, VED on motorbikes will also be frozen in cash terms.

In addition, the 2001 Budget introduces a four band graduated VED system for new cars linked to CO$_2$ emissions. This means that the VED new cars now pay is linked to carbon emission levels and the type of fuel used. The least polluting vehicles will pay up to £70 a year less under this system. This, the Budget report argues, will encourage the purchase of cars with better fuel efficiency and lower carbon emissions.

EVALUATION: The National Society of Clean Air pointed out that the raising of the “small car” threshold reduces the incentive for people to buy smaller, more fuel-efficient vehicles and is likely to increase CO$_2$ emissions.\(^{188}\)

While the proposal to link the VED of new cars to carbon emissions is welcomed by many as a step in the right direction, the authors of the Transport 2000/WWF report mentioned above\(^{189}\) feel that the duty differentials proposed so far are unlikely to be sufficient to influence the buying behaviour of most motorists. They argue instead that a differentiated sales tax, as in many other countries, would be better than VED in promoting the purchase of less polluting cars and would be revenue neutral.

4.f.iii. Road user/congestion charging and Workplace Parking Levies

\(^{188}\) *Budget Response from NSCA, Press Release, National Society for Clean Air, 7 March 2001*

\(^{189}\) *Potter S, Enoch M and Fergusson M, Fuel taxes and beyond: UK transport and climate change, Transport 2000 and WWF, January 2001*
**Question:** What effect are road user and workplace parking charges likely to have on people’s driving behaviour?

The Transport Act of 2000 gave local authorities powers to tackle congestion by introducing road user charges and/or a levy on workplace parking. Authorities who introduce charging schemes within ten years will retain 100% of the net revenues for at least ten years from the implementation of the scheme. This money must be ploughed back into transport improvements.\(^{190}\)

Congestion charging will probably be introduced in London in early 2003. The charging boundary lies within the Inner ring road, both north and south of the Thames. Vehicles entering the charging area from 7am – 7pm on weekdays will be charged £5. Monitoring will be by a system of fixed and mobile cameras as well as by foot patrols.

The Greater London Authority estimates\(^{191}\) that total traffic within the charging area will be cut by 10 to 15%. Delays will reduce by 20 to 30%, so increasing average traffic speeds by 10 to 15%. Charging could also lead to a saving of up to 3% in London’s CO\(_2\) emissions, and a reduction in fuel consumption of 2% across London. In addition, congestion charging is expected to generate net revenues of about £188m a year, to be spent on transport improvements.

Around 30 other authorities including Nottingham, Edinburgh and Cambridge City Councils are also interested in road user charging or workplace parking. Two small scale road charging schemes are to start in 2002, one in Derbyshire (a tolled road to a national park) and one in Durham (charged access to the Durham peninsula). Nottingham City Council is likely to introduce congestion charging in 2003, and in 2004 a large scale scheme will be implemented in Bristol.

**EVALUATION:** The Greater London Authority estimates are based on modelling work carried out by a group of independent consultants.\(^{192}\)

As far as practical UK based evidence is concerned, there has been a small scale trial of road tolling in Leicester.\(^{193}\) The scheme was conceived in 1995 as an innovative demonstration of road tolling in an urban area. It aimed to examine the impact on driver behaviour of introducing charges for journeys made by car into Leicester when given the opportunity to transfer to a high quality public transport service, with an emphasis on reducing car use during peak periods.

A trial site was carried out on the A47 road into the City from the West, with simulated tolling linked to a new park and ride site and bus priority measures. A set of volunteer drivers who drove regularly into the City Centre were recruited to participate in the scheme, incurring “charges” as they drove past the toll stations. The volunteers were also asked to record their responses to the charges including the use of park and ride service and changes in travel patterns by car.

---

\(^{190}\) Guidance on Full Local Transport Plans, DETR, March 2000

\(^{191}\) Mayor’s Draft Transport Strategy: Assembly and Functional Bodies Consultation Draft, Greater London Authority, October 2000


\(^{193}\) Leicester Environmental Road Tolling Scheme: Final Report, The LERTS Consortium (DETR, Government Office for the East Midlands, Leicester City Council, Leicestershire County Council, Howard Humphreys Transport Planning, Transport Research Laboratory), June 1999
A significant amount of transport infrastructure was introduced into the demonstration corridor before the trial started. This comprised a 300-space park and ride site close to the City boundary, and bus lanes and junction improvements along the complete corridor to assist the shuttle buses operating between the park-and-ride site and the City Centre, as well as other scheduled services. A road tolling system was installed at the demonstration site, with smartcard facilities and electronic variable message signs. Each driver participating in the scheme was supplied with an on-board unit and smart card and given an account on which toll charges and park and ride service fare costs were recorded for each charging period. They were told that a payment would be made at the end of the demonstration related to the savings they accrued from changing their travel behaviour. In return, participants agreed to provide weekly records of the journeys undertaken so that responses to the tolls could be monitored.

Various scenarios were tested ranging from tolling only during the weekday morning peak period to charging introduced during peak and off-peak periods. The impact of introducing a larger price differential between toll charges and the cost of the park and ride was also explored. The toll charges varied from £1.50 to £10 and the cost of a return journey on the park and ride service using the LERTS smartcard was set at £1.30 except in one of the environmental scenarios when travel was free. A total of twelve scenarios were examined over a period of nine months.

Overall during the demonstration, 79% of journeys were made by car and 19% by park and ride. The remaining 5% of journeys were made on other modes such as bus services and bicycles. This compares with the situation before the demonstration when almost all participants made their journeys by car. There was however little evidence of re-timing of journeys by car drivers in order to minimise the toll charges.

Use of the park and ride was more prevalent in peak tolling periods than in off peak periods, reaching 39% of total journeys during one of the environmental strategies when the toll charge was £10. The facility was also more likely to be used by participants with either an origin or destination of a journey close to the service.

In scenarios with higher toll charges, a substantial number of drivers chose to avoid the toll stations by transferring to an alternative route. This was consistent with the results of tests carried out using the local transportation model to formulate the tolling scenarios, indicating that a shift to public transport could occur at toll levels of between £1 and £2 but that route transfer would also take place. Although the re-routeing effect is particularly associated with a corridor toll application, this suggests that many drivers are likely to seek other routes in an urban toll scheme.

The LERTS project conclusions are that a carrot and stick approach that combines charges with the provision of alternatives can be effective. This, they conclude, would appear to offer a realistic basis for the introduction of road user charging in urban areas.

Road user charging has also been implemented overseas, including in Norway and Singapore. An evaluation from Singapore a year after the scheme was introduced in 1998 suggests that the scheme has reduced daily traffic volumes by 15%.

---

In addition, a study examining the possible impact of the introduction of congestion charging has also recently been carried out for Tel Aviv. The study examines two possible approaches to the introduction of congestion charging - one which is mobility-centred and one which is access-centred. The mobility-centred approach, which treats congestion charging simply as a measure for relieving congestion for car drivers could, the authors argue, further car dependency, lead to urban sprawl and worsen social equity. On the other hand, an access-centred approach which incorporated congestion charging into a package of measures to increase access throughout the metropolitan area could reduce car dependency and improve social equity. The report therefore argues that it is important to be clear that the funds resulting from the introduction of the charge are used to improve access rather than simply to build new roads. Land use policies to discourage urban sprawl are also vital, or else businesses will be encouraged to locate outside the metropolitan area so as to avoid incurring the charge. The authors propose the development of a HOT toll (High Occupancy Toll), under which a single lane of highway would be used by high occupancy vehicles, especially public transport, and by drivers willing to pay the toll. The remaining lanes would be used by general traffic.

As regards workplace parking, the UK is a pioneer in this respect and so there is little evidence to go on as to its likely effects. Workplace parking is marginally more popular at present with local authorities than road user charging.

4.f.iv. Company car taxation

Question: Will the introduction of a new form of company car taxation have an effect on business car use?

Business cars make up around half of all new car sales, and over time, a significant proportion of the second hand car market. Business cars and vans do around 21,500 miles a year compared with around 8,000 miles for private vehicles. It is estimated that cars and vans used for business purposes produce around 17 million tonnes of CO\textsubscript{2} a year (approximately 15% of all road traffic CO\textsubscript{2} emissions).

Company cars account for 16% of all mileage. From April 2002, income tax charges on company cars will be based on the percentage of the car's list price graduated according to the level of CO\textsubscript{2} emissions. The charge will build up from 15% of the car's price to a maximum of 35% in 1% steps for every 5g/km of CO\textsubscript{2} above a specified level. Diesel cars will pay a supplement of 3% on the car's price compared with petrol cars (up to a maximum of 35%) to take account of higher emissions of particulates and pollutants. This will be waived for diesel cars meeting Euro IV standards. There will also be discounts for electric and gas powered vehicles. These comprehensive changes are expected to save between 0.5 and 1 Million Tonnes of Carbon (MTC) a year by 2011/12.

The Budget also reformed authorised mileage rates, changing the tax free mileage allowances for business use of private cars to a flat rate of 40p for up to 10,000 miles.

EVALUATION: The UK has set a precedent by introducing such changes to the company car taxation system, and as such there is no evidence from elsewhere on which to base an

---

196 Get 'Motorvated,' Macdonald tells British business, news release 399, DETR, 6 June 2000
197 Budget 2001: Investing for the Long Term: Building prosperity and economic opportunity for all, Her Majesty's Treasury, March 2001
evaluation of these changes. The environmental movement is highly supportive of the tax cuts, believing that they will lead to a reduction in overall mileage. Transport 2000 qualifies its support with a criticism of the 40p authorised mileage rate. It argues that the allowance should be lowered to 37p and only apply to the first 4,000 miles, after which a lower 25p rate should apply.

Although there may not be evidence, as yet, to show whether recent policy changes will have a positive effect on reducing car mileage, evidence does exist to show that past policies actively encouraged extra company car mileage. Research indicates that past tax discounts to company car drivers meant that on average company cars did around 35% more commuting miles than private cars owned by people of similar socio-economic group who commute by car. This differential doubles to 70% when comparing low business mileage drivers with and without company cars, and is higher among drivers receiving a free-fuel benefit. Company cars receiving free fuel (half of all the company car fleet) do on average 20% more commuting miles than company cars who do not. Company cars with a low annual business mileage (which are mainly “perk” cars) do 15% to 20% more domestic mileage than equivalent private cars and about 30% more than low business mileage drivers.

Companies providing cars for their employees are beginning to gear themselves up for the green tax regime. A survey published in December 2000 found that just 12% of firms with company vehicles have started to source cars with lower CO₂ emissions. However, a more recent report published in March 2001 found that a third of company directors said their businesses were changing their company car policies as a result of the reforms.

4.f.v. Non car-based commuting

Question: To what extent do government policies provide financial incentives for employees to commute and travel for business by more sustainable modes?

The Budget also offers some tax and financial incentives for employers to promote and offer greener modes of travel including cycling, car sharing and company buses. In the past, employees who enjoyed subsidised public transport and other “green travel” perks given by employers were subject to a personal tax as these were considered to be a “benefit in kind.” This contrasts with the fact that workplace parking spaces, when given for free by employers to employees were tax exempt. Now, however, the situation has changed as far as public transport (e.g. works buses) are concerned, and minibuses down to nine seats are now tax exempt. The tax free mileage rate for cycling for business trips has also been raised to 20p per mile from April 2002.

EVALUATION: These moves are generally welcomed by the environmental NGOs. The WWF/Transport 2000 report mentioned above also argues for the introduction of tax free travel vouchers. A hypothecated green transport fund, drawn from revenues from motoring

---

198 Stephen Joseph, Transport 2000, and Malcolm Fergusson, Institute for European Environmental Policy, personal communication, April 2001
200 Company Car Taxation: a contribution to the debate, The Ashden Trust, London First, University of Westminster, June 1997
201 The GEE Guide to Company Cars 2000/1, GEE Publishing Ltd, December 2000
202 http://www.accountancyage.com/Business/1119209
203 Stephen Joseph, Director, Transport 2000, personal communication, April 2001
taxes, could also be established to make clearer links between those taxes and environmental objectives.

4.G. FREIGHT

**Key Question: To what extent do government policies promote transport intensive freight movements?**

**Issues:** Heavy goods vehicles account for a fifth of transport-related carbon dioxide emissions,\(^{205}\) 32% of NOx emissions and 42% of particulate emissions.\(^{206}\) In addition, they contribute disproportionately to traffic accidents - although accounting for only 6% of vehicle kilometres travelled, lorries are responsible for around 18% of road deaths.\(^{207}\)

The freight industry has grown rapidly over the last twenty years. Between 1980 and 1999, road freight traffic (measured in terms of tonne-kilometres moved) grew by 66% (by 23% since 1992). Much of this results from an increase in the distance that the goods travel, rather than in the actual tonnage loaded.\(^{208}\)

In its policy document *Sustainable Distribution*,\(^{209}\) Government sets its strategies for promoting a more sustainable distribution system. These are discussed and evaluated as follows.

**4.g.i. Improving efficiency**

**Question: Do government policies to promote efficiency within the road haulage industry help to increase or reduce freight mileage?**

Government’s policy emphasis is very much on working with industry to improve efficiency and better enforcement of standards. Key to this is the promotion of “Freight Quality Partnerships” – area based partnerships between local authorities, the freight industry, business and (occasionally) environmental organisations which work together to tackle specific freight-related problems in the area. In 2000 Government also gave its assent to an increase in the maximum weight of HGV vehicles (from January 2001), from 41 to 44 tonnes, on the grounds that such an increase would promote efficiency and lead to fewer, better loaded lorries on our roads.

**EVALUATION:** FQPs are still in the process of developing, and so their impacts cannot yet be fully evaluated. At present, anecdotal evidence would suggest that they tend to be coordinated and led by the trade body, the Freight Transport Association, and that the emphasis is very clearly on working with business and meeting it on its own terms, with somewhat slight representation by environmental organisations.

Opinion on the 44 tonnes issue is mixed. A report published by the Commission for Integrated Transport who was asked by Government to advise on the matter, concluded that raising of the weight limit could cut 100 million vehicle-kilometres a year. The argument was that more goods

\(^{205}\) National Atmospheric Emissions Inventory, National Environmental Technology Centre, 1998

\(^{206}\) Particles – PM10 factsheet, National Society for Clean Air, website 2000

\(^{207}\) Road Accidents Great Britain 1999, DETR 2000

\(^{208}\) Transport of Goods by Road in Great Britain, 1999, DETR, May 2000

\(^{209}\) Sustainable Distribution: a strategy, DETR, March 1999
could fit into fewer lorries so reducing the number of vehicles on our roads.210 On the other hand, research by consultants OXERA211 for the rail freight operator English Welsh and Scottish Railway suggested that, on the contrary, heavier lorries would not lead to fewer lorries but to more and heavier lorries travelling further. As with anything else, they argued, if the cost of something goes down, people use more of it.

Moreover, although 44 tonne lorries are not allowed to be longer they can be higher, potentially making them even more intimidating to pedestrians and other road users. The impact of the introduction of 44 tonne lorries will become clearer over the next few years.

It should also be noted that there is no mention whatsoever in government policy documents on the importance of reducing the need for goods to travel per se, through more local sourcing and distribution, for instance. It appears that traffic transport reduction is simply not on the agenda as far as the freight industry is concerned.

4.g.ii. Rail freight

*Question: What impact do government policies to promote rail freight have on road mileage?*

The promotion of rail freight is central to Government thinking. The last few years have seen a significant growth in rail’s share of the freight market – it has grown by 22% in the last three years.212 The Ten Year Plan commits £4billion of investment to achieve an 80% increase in rail freight. The Strategic Rail Authority has responsibility for freight as well as for passengers on the network.

**EVALUATION:** Generally Government support for rail freight has been welcomed by the environmental movement, but it remains to be seen how the requirements to juggle use of the railway network for passengers, freight and maintenance will work out. It is also uncertain whether this support will be sufficient for the rail industry to compete against the very significant perks that government has recently given to the road haulage sector (see 4.g.i and 4.g.iii).

4.g.iii. Taxation

*What signals do government fiscal policies send to the freight industry?*

In the Pre-Budget Report in autumn 2000, Government announced that hauliers would receive a rebate of up to 50% of their VED (Vehicle Excise Duty) payments from 1 December 2000. Budget 2001 then introduced a new system of lorry VED that will come into effect from 1 December 2001. These rates will reduce the total burden that lorry VED imposes on the haulage industry, with lower rates for cleaner lorries. The Budget report claims that “as a result, UK lorry VED rates will be amongst the lowest in Europe for the cleanest and least-damaging lorries.”213 Reduced rates will also be offered for lorries meeting the new Euro IV standard from around 2004.

**EVALUATION:** Research by consultants OXERA in 1999 indicates that heavy goods vehicles only pay for around 59% to 69% of the full (including the social and environmental) burden they

---

211 *The Costs and Rail Freight Impacts of 44-Tonne HGVs*, OXERA (Oxford Economic Research Associates) for EWS, November 1999
212 *Transport 2010: The Ten Year Plan*, DETR, 2000
impose upon society.\footnote{Environmental and Social Costs of Heavy Goods Vehicles and Options for Reforming the Fiscal System, Oxford Economic Research Associates, report prepared for English Welsh and Scottish Railway, January 1999} These costs include greenhouse gas emissions, air pollution, noise, congestion, accidents and deaths. Government’s own research a year later revealed that the heaviest lorries impose around £30,000 of costs a year each in social and environmental damage.\footnote{NERA, Lorry Track and Environmental Costs, DETR, August 2000}

As a result, the recent tax concessions to the haulage industry come as something of a disappointment to the environmental movement. Transport 2000 calls the measures a “tax give-away that will increase pollution, damage health, create accidents and pollution and reduce incentives to send goods by rail.”\footnote{Budget lets off lorries, Transport 2000, 7 March 2001}

Transport 2000 recommends a further examination of the concept of weight-distance taxation, a pay-as-you-go system by which the heaviest vehicles travelling the furthest pay the most. Such a system actively discourages unnecessary freight mileage. This came into being in Switzerland at the beginning of this year and it will be interesting to see what impact the system has upon overall tonne-kilometres.

**4.H. VEHICLE EMISSIONS: STANDARDS, REGULATIONS, TECHNOLOGY**

**Key Question:** To what extent can policies and regulations to reduce vehicle emissions make a significant difference to reducing the ill effects of traffic and to what extent have government policies achieved this?

**Issues:** according to Government modelling, the trend of declining emissions (not including CO\(_2\)) is expected to slow down considerably from around 2010, stop around 2020 and then slightly reverse as engine and fuel improvements are offset by continuing traffic growth.\footnote{National Air Quality Strategy, DETR, 2000}

Government’s policies on air quality are most comprehensively set down in its National Air Quality Strategy (NAQS), published in 2000.\footnote{National Air Quality Strategy, DETR, 2000} This builds on the strategy of the last administration, which was published in 1997. The NAQS sets health-based air quality objectives for a range of pollutants.

The Transport White Papers and the Ten Year Plan also contain commitments to tackling pollution and carbon emissions. Following the publication of the former, Government set up the Cleaner Vehicles Task Force whose remit was to look at the issue of vehicle emissions. This is discussed in more detail in section 4.h.ii below.

Government has adopted a number of approaches to tackling polluting emissions. These are discussed and assessed below.

**4.h.i Traffic emission management**

**Question:** Do area based approaches to tackling pollution work and what are the implications for health?

Regulations made under the Environment Act 1995 require local authorities to review and assess air quality in their area. If any standards are being exceeded or are unlikely to be met by 2005, that area should be designated an air quality management area and the local authority must draw up and implement an Air Quality Management Area (AQMA), an action plan aimed at reducing excessive pollution levels. Those local authorities who do not have to establish AQMAs are nevertheless encouraged by DETR to draw up Local Air Quality Strategies for the authority as a whole.

One way forward for local authorities is to designate the problem area as a “low emission zone.” In its final report, the Cleaner Vehicles Task Force recommended the trialling of such zones and the concept is currently undergoing pilot testing in authorities across the UK. A low emission zone is an area which places restrictions on the type of vehicle permitted to enter on the basis of the emissions they produce. Local authorities have the power to introduce such restrictions through traffic regulation orders (TROs) under the Road Traffic Regulation Act 1984.

The pilot authorities are Nottingham, Westminster, Bath, York, Camden and Croydon. EURO emission standards are used as the basis for the LEZ banding structure, but the standards being adopted (and the vehicles targeted) vary from authority to authority. The National Society for Clean Air points out that while the ultimate aim might be a Zero Emission Zone the local authority can begin with the less stringent standards and progressively raise the standard so as to permit only those vehicles meeting the highest environmental criteria.

With regard to London, the experiences to date of Westminster and Camden are that the low emission zone concept cannot really be introduced effectively at the individual borough level – a more integrated approach is needed. The Greater London Authority is therefore considering various options for introducing the zone more generally across large parts or all of London, and has commissioned a feasibility study to assess the potential. Phase 1 of the study will be published within the next couple of months and phase 2 will report in the summer of next year.

The National Society for Clean Air is playing a central role in taking the low emission zones concept forward and has developed a toolkit for local authorities, together with guidance, information about the legal framework and so forth.

EVALUATION: The effectiveness of low emission zones to date cannot yet be established, as the concept (and the technology required for their introduction) is still being developed. Nevertheless the City of Westminster did commission some modelling work to explore the potential consequences of extending the LEZ concept beyond Westminster and Camden alone to all or parts of London. The study looked at various options based on EURO 2, 3 and other standards, and on the exclusion of all or only some vehicles not meeting these standards. The authors concluded that the most feasible option would be the establishment of a LEZ covering all of Greater London based around the following elements:

- Restrict access only to those medium and heavy goods vehicles, buses and taxis that comply with Euro 3 specification, or to Euro 2 and retrofitted with approved particulate traps.
- Pursue strategies to achieve a London-wide traffic reduction target of 10%.

219 Low Emission Zone Fact Sheet no. 1, National Society for Clean Air, 2000
220 Lucy Sadler, Transport for London, personal communication, April 2001

60
• Identify specific areas for additional LEZ controls or more general traffic restrictions.

The study recommends excluding cars from the restrictions on the grounds that such a move would be economically and socially unacceptable (although of course the environmental gains would be greater). The benefits are likely to be felt more in central London, followed by inner and then outer London, corresponding with the severity of the air pollution problem.

The introduction of the LEZ would reduce background concentrations of NO\textsubscript{2}, but would have less impact on PM\textsubscript{10} as road traffic contributes only around a third of concentrations in London. The study also noted that the effect of the LEZ would be similar to that of reducing traffic in central London by 40%, in inner London by 30% and in outer London by 10%, as proposed by the old London Planning Advisory Committee (now incorporated into the Greater London Authority). The report concludes that the introduction of a LEZ is preferable to the traffic reduction targets because “it would have more success in delivering the predicted air quality benefits.”

The report does not analyse the possible health impacts of the LEZ but it does note that “if health impacts could be quantified with any reliability these may also give large benefits.” The report does not go into any further detail but it can be inferred that a reduction in NO\textsubscript{2} (and to a lesser extent in PM\textsubscript{10}) will yield some health gains. As the LEZ is not likely to lead to significant traffic reduction, the impacts on noise, road injuries and community severance are also likely to be slight. Furthermore, there is unlikely to be much by way of a reduction in CO\textsubscript{2} emissions – “cleaner” vehicles do not necessarily produce less carbon dioxide, a point which the research report fails to mention when favouring the LEZ over LPAC’s road traffic reduction option.

A similar concept to the LEZ, the ClearZone has been in place for some time now in other European countries. The experiences of Gothenburg and Malmo in Sweden suggest that the imposition of traffic restrictions can be highly effective.\textsuperscript{222}

4.h.ii. Cleaner technologies

Question: What contribution do policies that encourage cleaner technologies make to air quality?

Following the publication of the Transport White Paper the Government set up the Cleaner Vehicles Task Force which was asked to look at ways to encourage the production and use of quieter, cleaner and more fuel- and resource-efficient vehicles. The Task Force submitted its final report in June 2000.\textsuperscript{223} It made five key recommendations, most of which were heavily slanted in favour of the “techno-fix” approach to solving the problem of emissions. The report gives no clear indication as to how the effectiveness of what it recommends, if implemented, will be monitored.

Government has already initiated a number of schemes to encourage a shift towards the purchase of cleaner vehicles. These include, most recently, the launch of the Green Fuel Challenge in the 2001 Budget. This introduced duty reductions or exemptions for pilot projects trialling alternative fuels as well as a series of cuts for cleaner fuels including bio-diesel and road fuel gas.\textsuperscript{224}

\textsuperscript{222} Tim Brown, National Society for Clean Air, personal communication, April 2001
\textsuperscript{223} The Way Forward: the final report of the Cleaner Vehicles Task Force, DETR, June 2000
\textsuperscript{224} Budget 2001: Investing for the Long Term: Building prosperity and economic opportunity for all, Her Majesty's Treasury, March 2001
More established initiatives include the Powershift programme, which is managed by the Energy Savings Trust, and Motorvate. Powershift was set up in 1996. Its aim is to support the establishment of a sustainable market in cleaner fuel vehicles in the UK by raising awareness, providing information, setting standards and providing grants to purchasers of the cleaner vehicles. Powershift focuses its attention on (but is not limited to) natural gas, electric and liquid petroleum gas (LPG) vehicles.

Motorvate is aimed at company fleets. The scheme invites companies to set a target to reduce their fleets’ CO₂ emissions by 12% over three years through a range of measures, including the introduction of greener technology. A compulsory 3% business mileage reduction also forms part of the target. Companies who join the scheme receive advice on buying greener vehicles, achieving better environmental performance and on saving fuel. There is a strong emphasis on the cost savings to be gained through improving fuel efficiency.\(^{225}\)

EVALUATION: As regards Motorvate, the scheme is still in its first year and baseline data are still being collected. An evaluation of the scheme and the performance of the participants is not likely to be forthcoming until June 2002.\(^{225}\) At present, around 17 companies have joined the scheme, possessing between them nearly 10,000 vehicles.

The Powershift programme has been running for longer with, it appears, some success. A market survey report\(^{227}\) examining the cleaner fuels market finds that in 2000, actual sales and conversions of Cleaner Fuel Vehicles (CFVs) exceeded market predictions for the year by 43%. Over 21,000 vehicles were sold or converted and it is forecast that the market will continue to grow by about 43,000 in 2001. The fastest growth is in LPGs.

However, the NSCA sounds a warning note,\(^{228}\) pointing out that despite success in reducing some air pollutants there have been no reductions in CO₂ from road transport and that “it is clear that our enthusiasm for burning fossil fuels in internal combustion engines remains undiminished.” The introduction of cleaner vehicles must, it argues, go hand in hand with measures to manage demand for road transport.

The WWF/Transport 2000 report discussed above\(^{229}\) comes to a similar conclusion, adopting a somewhat sceptical view of technology’s planet-saving potential. The authors estimate that if the UK continues its current trends in car ownership and travel, car fuel efficiency would have to increase by 400% to an average of 113 miles per gallon by 2020 to achieve the 40% drop in emissions needed to mitigate the short term effects of climate change. In reality, much of the car fleet would have to achieve 130-150 mpg to allow for a proportion of poorer fuel economy vehicles.

Simply to stop CO₂ emissions from personal transport in the UK from increasing would require a doubling in average car fuel economy from 31mpg to 60mpg. At a global level, to hold CO₂ emissions from transport constant would require the world’s car fleet to average 150mpg by 2020. This, they believe, does not appear to be feasible within the required timetable especially since (as far as the UK is concerned) the UK has shown the poorest rate of improvement of CO₂ emission.

\(^{225}\) Get ‘Motorvated,’ Macdonald tells British business, news release 399, DETR, 6 June 2000
\(^{226}\) Bethan Grant, DETR, personal communication, April 2001
\(^{227}\) Clean Fuel Vehicles Market Report, Powershift, 2001
\(^{228}\) Clean Fuel Vehicles Market Report, Powershift, 2001

62
emissions from new vehicles of all European car makers in the last five years, with the possible exception of Finland.

This said, the authors do acknowledge that cleaner technologies can and must play a part in solving our emissions problems because modal shift on its own will not be enough either. The authors calculate that even with a large scale shift to bus and train, reducing car’s share of journeys from 88% to 65% and increasing bus’s share from 10% to 25% and rail’s from 2% to 10%, net CO$_2$ emissions will rise by 50%.

They conclude, therefore, that the necessary 40% CO$_2$ cut on 1990 levels by 2020 will need to be achieved by a combination of greener technology and a shift in travel patterns (both modal shift and a reduction in travel per se). One possibly feasible combination might involve a 30% rather than a 50% increase in all motorised journeys; halving the increase in journey lengths (except for rail); a 2.75 fold improvement in average car fuel economy; and the above level of modal shift to bus and rail.

It should also be noted that from a health point of view, even the 100% introduction of zero emission vehicles will not solve the problems of road injuries, congestion and community severance. Thus it is vital to embed policies to improve technological performance within a more holistic view of transport. This is what the White Paper did, but more recent policy pronouncements, especially the Ten Year Plan, indicate a shift towards a more techno-oriented approach.

4.h.iii. Better Enforcement and standards

Question: To what extent do government policies help ensure that standards for optimising vehicle performance are met?

In a random survey of light goods vehicles and cars, it was found that 4.3% of cars and 2.9% of LGVs were producing illegal levels of emissions.$^{230}$ Even cars with good theoretical emissions levels can perform badly if they are poorly maintained, thus increasing pollution and reducing fuel efficiency. Some sectors of the vehicle fleet tend to be less well maintained than others (generally private cars and taxis). Research shows that a small percentage of vehicles are responsible for a very large percentage of total emissions. In one survey carried out by the RAC,$^{231}$ the worst 1% of vehicles contribute the same amount of carbon monoxide as the best 40% of vehicles; over half the total level of carbon monoxide comes from less than 17% of vehicles. While there is some correspondence between increased emissions and the age of a vehicle, a significant number of newer vehicles are far dirtier than their older counterparts – vehicle maintenance and tuning plays a key part here.

Seven pilot local authorities are currently carrying out roadside emission tests whereby passing vehicles are “spot checked.” They also have powers to fine the offending motorists up to £60. In time the scheme will be rolled out to all local authorities in the UK who have designated Air Quality Management Areas, with concessions given to offending motorists who subsequently have the emissions defects corrected.$^{232}$ The penalty fees will pay for the enforcement work.

---

$^{230}$ Disappointing maintenance standards for cars and light goods vehicles revealed, News release 672, DETR, 27 October 2000

$^{231}$ RAC Vehicle Emissions Monitoring Project: A Report, RAC, November 1990

$^{232}$ Enforcement of vehicle emissions standards by local authorities to help improve local air quality, consultation paper, DETR, June 2000
It should also be noted that the way people drive can make a significant difference to the amount of fuel a vehicle produces. In one innovative driver training programme introduced by the Dutch government and tested first on driving instructors, the participating instructors found to their surprise that they saved on average 13% of fuel consumption on a 40km test drive with no changes at all in driving time. Other studies show that people who drive in a safer and more fuel-efficient way can cut fuel use by up to between 10% and 30%, depending on the driver and the type of trip.

EVALUATION: Westminster City Council, one of the authorities which has been carrying out roadside testing, has found that since the tests were introduced the number of vehicles not complying with standards has declined. The main offenders have been taxis.

To our knowledge there are no government initiatives to promote driver training, although the DETR’s *Are you doing your bit?* campaign (see 4.J below) does promote simple measures such as keeping car tyres properly inflated, driving “smoothly” and not keeping the engine running when stationary.

Schemes to promote better driving in partnership with the Driving Standards Agency and other relevant bodies could play a useful part in reducing emissions, which in turn will help reduce CO₂ and other emissions.

4.h.iv. Noise

*Question: What measures has Government taken to tackle the problem of noise and how effective have they been?*

Surveys show that 23% of the population is bothered by noise from road traffic.

The European Commission published its proposed Environmental Noise Directive at the end of July 2000. The proposal is for a “framework” Directive which sets the common ground across Europe for assessing and taking action on environmental noise. Member states are expected to set their own limits. Noise mapping will have to be carried out for urban agglomerations of 250,000 people and major roads, railways and airports in the first phase, and agglomerations of 100,000 people and more minor roads in the second phase. Noise maps are to be reviewed every five years. Once mapping has been carried out, member states must prepare action plans to reduce noise. The Directive is to come into force in 2002.

Government does not as yet have a noise strategy although organisations such as the National Society for Clean Air are urging the DETR to develop one. The NSCA recommends the development of a strategy whose working objective is

“To minimise environmental noise, where it is cost effective and practicable to do so, within an economically, socially and environmentally sustainable transportation, commercial and industrial infrastructure”

---

235 Tim Brown, National Society for Clean Air, personal communication, April 1998
236 *Transport Noise*, NSCA, November 2000
237 Policy Briefing: Proposed EU Environmental Noise
238 *Towards a noise strategy for the UK*, NSCA National Noise Committee, NSCA, undated
Notwithstanding the absence of a national strategy, DETR has issued some form of guidance to local authorities in its LTP (Local Transport Plan) Guidance239 which states, “Authorities need to take the effect of traffic management measures on noise into account … An assessment of the impact on ambient noise should be given due weight in considering alternative measures … Ideally, in producing their LTPs authorities should include information on proposed action to reduce exposure levels.”

Birmingham City Council has carried out a noise mapping exercise (this of course includes all sources of noise, not just those which are transport related). It points out that as far as action is concerned, some measures, such as reducing road width, reducing speed limits and implementing lorry bans, can reduce noise levels in the targeted areas but may increase noise in other areas. In some circumstances therefore, it may be appropriate to take a more holistic approach and evaluate the effects of transport plans across an entire city or agglomeration. Birmingham has modelled two noise reduction scenarios: the first assumes that the speed limit on motorways is reduced to 50 mph and bus-only lanes are installed on all dual carriage-ways in the City along with a 30 mph speed limit. In the second scenario, the effects of introducing workplace parking charges is evaluated. The results of both these exercises are currently being evaluated.240

EVALUATION: The concept of noise as an environmental pollutant is still new, and as such there has been little evaluation of the effects of transport policies on noise levels. As yet there does not appear to be a concerted national noise strategy, other than the advice given to local authorities in the preparation of their LTPs, and hence nothing to evaluate. However, this is an area which is likely to grow in importance over the next few years.

4.I. SPEED REDUCTION AND ROAD SAFETY

**Key Question:** To what extent do speed and road safety policies promote people’s health? What policies would be more effective at reducing accidents and improving quality of life?

**Issues:** Speed is a major contributory factor in road injuries and deaths. Each year excessive and inappropriate speed helps to kill approximately 1,200 people (around a third of the total numbers) and injure over 100,000 more.241 The latest government census shows that 7 in 10 cars still exceed the 30 mph limit on urban roads242

Government policy on speed is set out in two key documents, *Tomorrow’s Roads – Safer for Everyone*243 and *New Directions in Speed Management*.244

---

239 Guidance on Full Local Transport Plans, DETR, March 2000
240 How to map noise? John Hinton, Birmingham City Council and Chair of EC working group 4 – noise mapping, undated.
244 New Directions in Speed Management – a Review of Policy, DETR, March 2000
Government targets\textsuperscript{245} are:

- to reduce by 50% the number of children killed or seriously injured in road accidents by 2010 compared with the average for 1994-8
- a 40% reduction in the number of people killed or seriously injured in road accidents
- a 10% reduction in the slight casualty rate.

The management of speed is therefore key to achieving these targets. Government-commissioned research shows that every 1 mph reduction in average speed brings a 5% reduction in the number of crashes, and hence in the number of people killed or injured on the roads.\textsuperscript{246} This means that even marginal reductions in speed can result in major road safety gains.

4.i.i. National speed policy

Question: What are the impacts of national government policies on speed and how likely is government to achieve its targets?

Transport 2000\textsuperscript{247} and many other environmental organisations were extremely disappointed by the Government’s speed review,\textsuperscript{248} which decided to maintain rather than lower the national 30 mph speed limit on urban roads. They saw this as a missed opportunity to lower speed limits in built up areas to 20 mph and save lives in the process. They argue that by not doing so, and by ignoring research findings it has itself commissioned,\textsuperscript{249} Government has little chance of achieving its target of halving child road-crash casualties.

EVALUATION: The UK Government’s approach is in marked contrast to that of Sweden, whose Vision Zero adopted in 1997 sets an ultimate target of reducing fatal or serious injuries to zero. The key tool for attaining this objective is traffic speed reduction. Therefore, on streets where pedestrians and cyclists cannot be effectively separated from cars, the car speed must be below 30 kph (approximately 20 mph).

Vision Zero’s interim targets are that there are to be no more than 400 fatalities in 2000 and no more than 250 by 2007. Vision Zero specifies that every fatality – and later on, every serious injury – will be investigated to see what could have been done to avoid it.\textsuperscript{250} It appears that the Swedes have not reached the year 2000 target but as a result the government has formulated an eleven-point programme to speed up the process already set in train.\textsuperscript{251}

The Netherlands has also adopted far reaching speed and safety policies. The Dutch Sustainable Safety Programme launched in 1997 establishes:

- A road hierarchy programme for the entire Network placing pedestrians above all other road users

\textsuperscript{245} Transport 2010: The Ten Year Plan, DETR, 2000
\textsuperscript{246} Taylor M, Lynam D and Baruya A, The effects of drivers’ speed on the frequency of road accidents, Transport Research Laboratory TRL Report 421, Crowthorne, 2000
\textsuperscript{247} White Lilies Mark Government’s Failure to Cut Speed Limits, Press Release, Transport 2000, 1 March 2000
\textsuperscript{248} New Directions in Speed Management – a Review of Policy, DETR, March 2000
\textsuperscript{249} Taylor M, Lynam D and Baruya A, The effects of drivers’ speed on the frequency of road accidents, Transport Research Laboratory TRL Report 421, Crowthorne, 2000
\textsuperscript{250} Killing Speed: a good practice guide to speed management, Slower Speeds Initiative, 2001
\textsuperscript{251} Adrian Davis, author of Killing Speed, (2001), personal communication, May 2001
• 30 kph zones in built up areas with 50% of the possible zones to be implemented by 2000 (excluding certain roads such as those key to long distance traffic)
• 60 kph zones for minor rural roads with 3,000km to be achieved by 2000
• a public information campaign to support the introduction of the campaign, better police enforcement and education programmes.

The Dutch project has not yet been evaluated but there is evidence from elsewhere which shows that concerted government action to reduce maximum speed limits can have a very beneficial effect. For example during the oil crisis of 1974, the USA reduced speed limits on interstate highways from 65 mph to 55 mph. Subsequently, fatalities fell by 32%. When 40 states later raised their limits to 65 mph the incidence of fatalities on these roads rose between 20 and 25%.

4.i.ii. Measures to reduce speed

Question: What measures to reduce speed have proved effective?

The Slower Speeds Initiative, a consortium of organisations concerned about the effects of speed, argue that there are six key elements to successfully cutting speeds:

• good quality traffic calming
• a much wider use of speed cameras
• restoring law enforcement as a police “core function”
• changing the law
• changing vehicle design
• raising public awareness

We explore the effectiveness of some of these elements in the following paragraphs.

EVALUATION: There is abundant evidence to show that traffic calming and other speed management measures help reduce traffic injuries and deaths. A recent good practice guide to speed management, produced by the Slower Speeds Initiative, outlines a number of cases where such measures have been successfully introduced.

Creating 20 mph zones can be very effective in reducing speeds. The first three 20 mph zones in the UK were implemented in January 1991. Five years later the Transport Research Laboratory reviewed the results from 250 zones in England, Wales and Scotland. They found that average speeds had fallen by 9 mph and total crashes were down by 60%. Crashes involving children had fallen further still, by 67%. There are now around 500 such zones across the UK and, since 1999, local authorities no longer need consent from the Secretary of State before implementing them.

---

252 Killing Speed: a good practice guide to speed management, Slower Speeds Initiative, 2001
254 The Slower Speeds Initiative, Policy Briefing 1, Slower Speeds Initiative, March 1998
255 The Slower Speeds Initiative, Policy Briefing 1, Slower Speeds Initiative, March 1998
256 Taylor M, Lynam D and Baruya A, The effects of drivers’ speed on the frequency of road accidents, TRL Report 421, Transport Research Laboratory, Crowthorne, 2000
257 Webster D and Mackie A, A review of traffic calming schemes in 20mph zones, Report 215, Transport Research Laboratory, Crowthorne, 1996
Another Transport Research Laboratory report\textsuperscript{258} examined changes in accident frequency following the introduction of traffic calming in 56 villages. The study found that the incidence of all accidents fell by 25\%, and fatal and serious injuries were cut by 50\%.

In 13 of the 20 areas where Kingston Upon Hull has introduced 20 mph zones, the total number of crashes has fallen by 56\%, and the number of people killed and seriously injured has fallen by 90\%.\textsuperscript{259}

Even introducing advisory lower speed limits (without road engineering work) can make a difference. In 1997, the Society of Chief Officers of Transportation in Scotland (SCOTS) invited Scottish local authorities to participate in a national trial programme of advisory 20 mph speed limits in residential areas. 75 sites in total were studied and the effects of the advisory limits evaluated.\textsuperscript{260} The research assessed the impacts nine months and 18-24 months after the initial installation, considering speed data from all 75 trial sites and social survey data from 8 sample sites.

The study found, amongst other things, a modest reduction in average speed at 60\% of the sites following implementation of the 20 mph speed reduction initiative. There was also a considerable drop in the number of recorded accidents as well as a significant reduction in severity, with serious or fatal accidents reduced from 20\% to 14\% of the total. Additionally, a cost benefit analysis setting the costs of the scheme against the savings in accident reduction showed a strong positive rate of return.

Speed cameras can also play a highly effective part in reducing speed. A speed camera demonstration project in the early 1990s resulted in a 70\% decrease in fatal crashes.\textsuperscript{261} Early results of the national speed camera funding trials initiated in April 2000 have underlined the importance of enforcement as the rise in the number of speeding fines has been accompanied by a significant reduction in crashes involving death or serious injury. Early (unpublished) results suggest a reduction in casualties of up to 70-80\% at some sites.\textsuperscript{262} There has also been improved compliance on roads which do not have cameras.\textsuperscript{263}

However, while speed cameras can be effective, one DETR research report notes\textsuperscript{264} “although we conclude that the proliferation of speed cameras is an important means by which to raise drivers’ awareness of the dangers of speed and of inadvertent speeding, ultimately more than this and other forms of speed limit enforcement will be required in order to modify drivers’ views on speed. Attention will need to be given to factors associated with overconfidence in being in control and with the broader social climate in which our car culture is embedded.”

Police engagement is another crucial element. Thames Valley Police runs a road safety awareness exhibition for drivers caught speeding. Sussex Police has developed a programme

\textsuperscript{258} Changes in accident frequency following the introduction of traffic calming in villages, TRL 452, Transport Research Laboratory, May 2000
\textsuperscript{259} Killing Speed: a good practice guide to speed management, Slower Speeds Initiative, 2001
\textsuperscript{260} Burns A, Johnstone N and Macdonald N, 20mph Speed Reduction Initiative, Development Department Research Programme Research Findings 104, Scottish Executive
\textsuperscript{261} Killing Speed: a good practice guide to speed management, Slower Speeds Initiative, 2001
\textsuperscript{262} Lynn Sloman, Transport 2000, personal communication, May 2001
\textsuperscript{263} Killing Speed: a good practice guide to speed management, Slower Speeds Initiative, 2001
\textsuperscript{264} The effects of speed cameras: how drivers respond, Road Safety Research Report No.11, DETR, August 1999
to address speeding by commercial drivers, contacting fleet operators whenever one of their vehicles is stopped for speeding or other offences.\textsuperscript{265}

Looking ahead, in-vehicle speed limiters could offer significant potential for enforcing compliance with speed limits. Field trails conducted by the European MASTER Project indicate the effectiveness of these and recommends their introduction across Europe.\textsuperscript{266}

As the paragraphs above show, there is a range of measures that can be used to reduce speeds. A truly integrated speed management strategy is one that goes beyond simply introducing 20 mph zones, say, and which adopts a multi-faceted approach.

4.i.iii. Local authority action

Question: What is the role of local authorities in tackling the problem of speeding and what evidence is there of successful speed reduction programmes?

Despite the weakness of UK Government national policy there are, nevertheless, many opportunities within the policy framework for local authorities (who are responsible for speed management on the ground) to develop appropriate strategies to reduce traffic speed. The policy mechanisms include the following:

- The Local Government and Rating Act 1997 enables parish and town councils to contribute to the funding of traffic calming measures.
- The Crime and Disorder Act 1998 provides a mechanism through which road safety concerns can be prioritised as areas for police and local authority activity.
- The Best Value consultations introduced by the Local Government Act 1999 also require local authorities to address issues of concern identified by their local communities (this could include speed).
- More recently, the Local Government Act 2000 requires local authorities to draw up local strategies to promote the social, economic and environmental well-being of the areas they serve.
- The Transport Act 2000 gives local authorities the power to designate any road a Quiet Lane (see paragraph below) or home zone (see 4.k.iv), with speed limits as low as 10 mph. The Act also requires the Secretary of State to examine the institution of formal rural road hierarchies, in addition to the explicit advice on road safety given to local authorities in the Government’s \textit{Guidance on Full Local Transport Plans}.

Local authorities now have powers to designate Quiet Lanes.\textsuperscript{267} These are rural roads which are managed to encourage walkers, cyclists and horse riders and should give them priority over the car. Motor traffic can use these roads but should respect the greater priority which is to be attached to these other groups. This move should be widely welcomed by the general public - a survey carried out by the Council for the Protection of Rural England found that 65% of people questioned (the vast majority of whom were motorists) felt threatened either all or some of the time by traffic on country lanes.\textsuperscript{268}

\textsuperscript{265} \texttt{Killing Speed: a good practice guide to speed management}, Slower Speeds Initiative, 2001
\textsuperscript{266} \texttt{Managing speeds of traffic on European roads}, Transport Research, Fourth Framework Programme \textit{Road Transport}, MASTER Project, Office for Official Publications of the European Communities, Luxembourg, 1999
\textsuperscript{267} \texttt{Quiet Lanes - coming soon to an area near you!} Press Release, Council for the Protection of Rural England, 9\textsuperscript{th} November 2000
\textsuperscript{268} \texttt{Quiet Lanes - coming soon to an area near you!} Press Release, Council for the Protection of Rural England, 9\textsuperscript{th} November 2000
Gloucester’s City Wide Safer City Demonstration programme, which began in 1996, is an example of a thorough and integrated approach to cutting speed and reducing the impacts thereof. The programme consists of over £5m of road safety improvements, with measures including

- area wide traffic calming measures
- high profile speed enforcement on main roads
- mobile detection used by police enforcement officers
- speed cameras
- education and partnership.

The results of the programme to date include:

- a 47% reduction in road casualties
- 5 mph reduction in speeds on treated main roads and 10 mph reduction on mixed use and residential roads
- 1.2 mph reduction on speeds in 49 roads in the city
- 15% reduction in motor traffic on mixed use and residential roads
- evidence of traffic evaporation and modal shift for journeys to work through increased cycling and use of public transport
- 60% of people surveyed feel safer than they did 5 year ago.

The Slower Speeds Initiative report, *Killing Speed*, gives numerous other examples where local authority action to reduce speed has proved effective.

Finally it is worth noting that this evaluation has focused on the relationship between speed and traffic accidents, this being the most obvious of links. However, speed reduction can also yield other benefits, including a reduction in noise and the fostering of a street environment that encourages more social interaction. The San Francisco study mentioned in 3.f. above shows that the less traffic there is on a street, the greater the social interaction. By way of modification, the Allot and Lomax study summarised in 3.c. above does however conclude that speed is not the only factor in creating a more open and vibrant street community.

### 4.J. EDUCATION AND PROMOTION

**Key Question:** Do strategies and campaigns to promote awareness of the impacts of driving and of more sustainable transport alternatives lead to changes in people’s travel behaviour? If so, when and why?

**Issues:** People are extremely reluctant to get out of their cars. According to the 2001 RAC/LEX Report on Motoring, 86% of motorists – the highest ever proportion – say they would find it very difficult to adjust to living without a car, although the timing of the research during last autumn’s fuel protest may have had an impact on the results.

---

The Transport White Paper very clearly pointed out that our excessive dependence on the car is unsustainable and that everyone needs to “do their bit” to reduce car journeys. Other than the policies it sets out to address travel behaviour directly (such as public transport improvements and so forth), it also highlights and emphasises the need for initiatives to encourage people to make more sustainable transport choices. These include both general “travel awareness” campaigns and specific schemes such as greener commuting, and non-car based journeys to school. The latter are discussed in sections 4.k.ii and 4.k.iii below.

In this section, we discuss the effectiveness of broader promotional and awareness raising campaigns in changing people’s travel behaviour, such as the DETR’s Are you doing your bit? and the local authority campaign TravelWise. We also look at evidence from overseas.

EVALUATION: A report published by the Institute for European Environmental Policy (IEEP) seeks to identify lessons that the transport sector could learn from the experiences of health promoters in furthering behaviour change. The authors conclude that interventions need to be (a) better targeted towards the right people (in other words a more individualised approach is needed) and (b) there needs to be less negative emphasis on the problems caused by people’s behaviour and more on the positive and sustainable options available to them. The report also emphasises that policies aimed at changing behaviour need to seek to change fundamental attitudes towards the use of the car and other modes.

The report suggests some possible approaches to addressing transport behaviour change in a more proactive and targeted way. This could include:

- targeting motorists convicted of motoring offences
- providing better information to people who plan to move house
- enhancing the role of the Driver and Vehicle Licensing Agency in providing advice on car ownership and use patterns
- helping individuals respond to traumatic events that occur while travelling
- educating groups who already (sometimes incidentally) provide advice to motorists.

The report does not cite evidence but provides a useful overall exploration of the issue.

Another study produced by the RAC Foundation argues that car dependence does not exist in its own right but rather arises from a range of socio-economic, cultural and land use factors. The challenge for policy, therefore, is to stop and then reverse this trend. The study analyses the types of journeys people make and concludes that while for some 10-30% of trips a car is absolutely necessary (because there is no public transport or because a very heavy load is being carried), and others are already made by non-car modes, there are between 5 and 30% of trips which are marginal. These journeys may either not need to be made at all, or else could be made by some other mode. The report argues that campaigns should be targeted at these alternative journeys. If, however, the nature of these journeys prove to be very heterogeneous, they may be difficult to target with direct policy interventions. Also, undue attention to trips may overlook important aspects of individual and household behaviours.

---

274 A New Deal for Transport: Better for Everyone, DETR, July 1998
276 Car Dependence, RAC Foundation for Motoring and the Environment, London 1995
Moving on from theory to practical evaluation, there has been an informal appraisal of the effectiveness of the DETR's *Are You Doing Your Bit?* campaign.

*Are You Doing Your Bit?* This combined a poster campaign with television commercials featuring the comedian Mark Lamarr. The campaign was targeted at people in socio-economic classes C2, D and E aged between 18 and 50. Results to date have shown high awareness of campaign amongst the target group. 90% recognise the adverts (when prompted) and 80% recognise the logo (when prompted) – the proportion is less when unprompted. Around half like the commercials; a third claim to feel motivated by them and approximately 60% say they make them feel that “doing your bit” will make a difference. However, it seems that in practical terms people have not changed their behaviour as a result of the campaign, with the possible exception of the easier actions such as turning off lights.²⁷⁷

An overall evaluation of TravelWise is not available mainly because the implementation of the campaign is left up to the individual local authorities.

York City Council has however attempted some form of evaluation, and the evidence suggests that in this case TravelWise may offer some potential for changing people’s behaviour. The campaign was launched in March 1999 with the aim of persuading York residents to walk, cycle and take the bus, and a strong emphasis was placed on the environmental and health benefits of so doing.

A second stage of the campaign concentrated on the health benefits of cycling and was run in partnership with York Primary Care Group. An evaluation was carried out of this second stage, conducted to coincide with a second burst of publicity in the autumn of 2000.²⁷⁸

This found that awareness of TravelWise has doubled since 1999 – around a fifth of those surveyed were aware of the campaign and had seen the logo. There was almost unanimous sympathy with the aims of the campaign. The number of respondents claiming to walk had increased significantly since the year before and the number claiming to go by car (as driver or passenger) to have fallen. Respondents also claimed to have increased their use of the bus. However these are self-reported “statistics” so their accuracy is hard to gauge.

Further afield, a European study presents a somewhat gloomy opinion of travel awareness campaigns.²⁷⁹

In a field experiment, respondents in three groups were approached personally several times over an eight week period and given different kinds of information relating to car travel. The first group were briefed on the environmental consequences of using the car, the second group on the financial costs to themselves and the third group on both these subjects. There was also a fourth control group who received no information. The participants recorded all trips made during the eight weeks that the experiment lasted.

This relatively intensive and personalised procedure turned out to have virtually no effect on travel behaviour. Information directed at those receiving environmental feedback increased their

²⁷⁷ Nick Cavill, DETR, email, April 2001
²⁷⁸ TravelWise Publicity Campaign Report, Marketing and Communications Group, York City Council, October 2000
general environmental awareness but not their awareness of their own part in pollution. The subjects did not make this link even though this was specifically pointed out to them in a person-to-person talk. Indeed, people who were relatively environmentally aware before the experiment treatment showed a reduction in their environmental awareness. It appears that when the discrepancy between attitude (environmental awareness) and behaviour (car use) is pointed out, then apparently people are more likely to alter their attitude than their behaviour, and they tend to excuse themselves for that behaviour.

Telling people about the costs they incurred in driving a car also proved to be ineffective. Moreover, amongst this group, it appears that environmental policies are seen to be partly responsible for the high expenses and therefore resented. The study concludes that given the failure of such a personalised approach, even less effect may be expected from the more superficial, generalised mass-media attempts to promote a behavioural shift.

In contrast, Australian evidence suggests that some initiatives can be extremely effective in getting people out of their cars. Strikingly these initiatives promote the benefits of changing behaviour rather than dwelling on the negatives of not doing so, as the European researchers recommended. The advice offered is also highly individualised, as the IIEP report noted above suggests.

One Australian initiative uses the concept of “travel blending.” Travel blending focuses on minimising people’s use of the car by encouraging people to think about activities and travel in advance (in what order can I do things, where should they be done, who should do them?) and then acting on this by, for instance:

- blending modes (using the car, walking, public transport, cycling as appropriate)
- blending activities (doing as many things as possible in the same place or on the same journey or getting someone else to do things of another journey)
- making small sustainable changes over time – as little as once a week or once a fortnight.

People and households who take part in travel blending choose to change their behaviour by:

- observing their own and their household members’ travel patterns over a week
- receiving detailed suggestions customised to those travel patterns and giving them personal benefits
- setting their own targets
- spending some weeks trying to reduce the impact of the car
- observing the changes they have achieved
- being given a simple, ongoing system of monitoring and motivation.

The project was fairly staff-intensive, coordinated and run by a project manager and director as well as three or four other members. Nevertheless this financial investment paid off, because car-kilometres amongst participants was reduced by 11-22% with only very minor infrastructure changes and no “sticks” or penalties.

---

Another initiative – similar in many ways – has been led by the Western Australia Department of Transport in Perth, and is called TravelSmart. Car use in Perth is high by world standards – 63% of trips are made by car as the driver (as opposed to the passenger – so all car-based journeys are likely to be higher). TravelSmart research shows that for 40% of journeys in Perth the car is the only real option, while for 15% a car is not available. This leaves 45% of trips where there are travel choices. Around 10% are already made by environmentally friendly modes which leaves 35% where change is possible and desirable.

Central to the TravelSmart approach is the concept of Individualised marketing, an idea developed in Germany. Individualised marketing is about working with people on an individualised basis to inform them of their travel choices and motivate them to consider walking, cycling or using public transport as an alternative to the car. The idea is that small changes can make a big difference.

The process is as follows: almost everyone in the chosen area is telephoned to identify those interested. Respondents are then asked what information they would like about walking, cycling and public transport and supplied with personalised packages specific to their situation. They may even be visited in their home and are sometimes given discount vouchers from local bicycle shops or public transport tickets. Throughout, the health gains to individuals of choosing more sustainable transport modes are emphasised.

This individual approach identifies those people who are open to changing and seeks to alter their travel behaviour, without attempting to convert those who will not be converted.

A pilot project in the City of South Perth in 1997 achieved the following results (the results include those households that chose not to participate):

<table>
<thead>
<tr>
<th>Trips by</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car as driver</td>
<td>down 10%</td>
</tr>
<tr>
<td>Public transport</td>
<td>up 21%</td>
</tr>
<tr>
<td>Cycling</td>
<td>up 91%</td>
</tr>
<tr>
<td>Walking</td>
<td>up 16%</td>
</tr>
<tr>
<td>Car kilometres travelled</td>
<td>down 14%</td>
</tr>
</tbody>
</table>

These changes were sustained when they were measured again one and two years after the project. The 14% reduction in vehicle kilometres was achieved by people changing to an alternative for just two trips each week. Overall people did not reduce the amount they travelled.

The effects on physical activity were also monitored. On average, the shift to walking and cycling increased physical exercise per person by four minutes per day and a further one minute for walking twelve months later.

From February to June 2000, the Western Australia Department of Transport ran another, this time large scale, individualised marketing programme in South Perth. Out of 17,500 households,

---

281 TravelSmart Individualised Marketing Program for Perth, Western Australia Department of Transport, September 2000 www.travelsmart.transport.wa.gov.au
282 Brög W and Shläder M, More passengers, higher profits for public transport – (im)possible expectation!? Presentation by SocialData for 53rd UITP Congress, Toronto, Canada, May 1999
around 8,000 households agreed to take part in the programme. A full evaluation will be available shortly, but early results show an increase in bus boardings of 25%.

The TravelSmart programme is expensive but is considered by the government to be a worthwhile investment, not a cost, paying for itself through better use of existing assets (e.g. bus services and cycleways) and possibly deferral of the demand for new assets, such as roads.

Put another way, the proposed expansion of the Perth project to reach 50% of the Perth population is equivalent to the construction cost of 7km of a four lane dual carriageway with a shoulder. Extrapolation of the pilot results to half the Perth population could deliver a reduction in vehicle kilometres travelled on the road network of 7 to 8%.

It might also be possible to evaluate the savings arising from better health, as a result of greater physical activity and less air pollution. Including these could improve the “value for money” of such an approach further still.

4.K. POWERS FOR LOCAL ACTION: LOCAL TRANSPORT PLANS

Key Question: To what extent do national policies help local authorities promote healthier transport strategies? What effect do those local strategies themselves have upon traffic volumes and hence people’s health?

Issues: The Transport White Paper announced that “local transport plans will be at the centrepiece of our proposals.” All local authorities (except London boroughs) are required to produce Local Transport Plans (LTPs) setting out their proposals for delivering integrated transport over a five year period. LTPs replace the old Transport Policies and Programme, which had to be produced by local authorities on a yearly basis. The advantage of LTPs over the old TPPs is that, among other things, they enable authorities to adopt a more strategic, integrated approach to transport provision, and to bid for both capital and revenue funding. LTPs are also expected to place greater emphasis on targets, performance indicators and monitoring and to look at all types of transport, offering multi-modal solutions. Local Transport Plans must also be compatible with the broader strategic objectives of the regional transport strategies, which set out the “big picture” needs and land use policies for the region.

The elements that Government expects to see in the LTPs is set out in its Guidance which was published in March 2000 (provisional guidance had been issued earlier). All local authorities have now submitted their LTPs and funding for their implementation has been allocated. The Government’s Ten Year Plan substantially increased the amount of funding available. This includes more funding for roads but also more cycling, walking and so forth.

Many of the issues that fall within the responsibility of LTPs, such as land use planning, parking, walking, cycling and bus services, have already been discussed above. This section looks specifically at particular initiatives which local authorities are encouraged to implement through their LTPs, including home zones, green commuter schemes and school travel plans.

284 A New Deal for Transport: Better for Everyone, DETR, July 1998
285 Guidance on Full Local Transport Plans, DETR, March 2000
286 Guidance on Full Local Transport Plans, DETR, March 2000
4.k.i. Analysis of overall plans

*Question: What effect are Local Transport Plans likely to have upon overall traffic levels and hence on people’s health?*

Local authorities submitted their plans less than a year ago (at the time of writing) and therefore there is no evidence available as yet as to their effectiveness. There has, however, been some DETR-commissioned analysis of the likely impacts of the provisional local transport plans that were submitted in 1999. The analysis does not include any discussion of health impacts. However, one or two local authorities have themselves taken the initiative in exploring the potential impacts of their LTPs on health. These, together with the DETR research, are examined in the following paragraphs.

**EVALUATION:** The DETR research\(^\text{287}\) is highly technical and is based around the development of a range of modelling scenarios, which differ according to the varied road traffic reduction measurements, targets and policies inputted into the models. As such it is not easy to draw simple conclusions from the findings. This said, the study notes that the road reduction targets set by local authorities vary greatly, both in how ambitious they are and in the sorts of targets they adopt. It therefore follows that the outcomes of those policies will also vary widely from local authority to local authority and between rural and urban areas. In the latter, there is far more emphasis on active traffic restraint.

Frequently, the researchers note, “The basis for arriving at the adopted targets is often unclear or related to a largely aspirational approach rather than grounded in a focused technical methodology.”\(^\text{288}\) The study recommends that “DETR ensure that sufficient empirical evidence on traffic change is obtained for a range of typical local transport plan areas over the next few years.”\(^\text{289}\) At this stage, then, an evaluation of the probable effects of LTPs in aggregate on traffic and hence on people’s health is not possible.

We may be able, however, to judge what types of LTPs are likely to have a positive effect by looking at the experiences of European cities and observing which ingredients were crucial to their success in restraining traffic. A study by the University of Westminster\(^\text{290}\) found that the implementation of traffic policies by local urban authorities were most effective where:

- There is co-ordinated control of the services provided by all transport modes and of local land use policies, especially if this can be achieved at the regional level (hence for the UK the importance of the Regional Transport Strategies).
- Policy implementation appeared to be much more effectively achieved where policy is specified in terms of targets, rather than just general goals.
- Policies can be much better implemented where there is a stable funding and political environment, since many transport/land use plans take twenty to thirty years to complete.


With regard to the links between transport and health, last year the City of Edinburgh Council produced a Health Impact Assessment of its urban transport strategy. The document is, as it stresses, a “rapid screening” HIA based on existing knowledge and data sources rather than on any new data. Furthermore, it does not seek to quantify the health outcomes but rather to point to populations likely to be affected and to the possible effects that might result. The HIA does not so much assess the impact of existing policies on people’s health but rather examines the possible effects of three transport scenarios based on low, medium (current level) and higher spending investment on public transport and non-car alternatives. The HIA concludes, perhaps unsurprisingly, that the higher spending scenario will yield the greatest health benefits for the people of Edinburgh.

Merseyside was the first local authority in the UK to carry out a HIA of its transport policies. This was carried out concurrently with, and was seen as integral to, the development of the Local Transport Plan, and its recommendations were incorporated into the final LTP submitted to the DETR in July 2000. Its aim was to examine what the local transport plan could reasonably influence in terms of people’s health, and a strong emphasis was placed on the need to tackle social exclusion. These transport-related influences include:

- air quality
- access to goods and services
- accidents and safety (includes risk of crime)
- activity (physical exercise)
- assurance (reliability and journey planning)
- attitudes (to public transport, health and transport and car usage).

The focus was much more on the major policy themes than on specific capital projects. The HIA was financed by the four Merseyside Health Authorities and the process guided by a steering group comprising a partnership of agencies ranging from the PTE to the police to the health authority. The Health Impact Assessment itself has not yet been published as a separate document.

This HIA builds on the Merseyside’s successful experience of conducting an HIA of the MERITS Scheme 1998 which was incorporated into the MERITS (Merseyside Integrated Transport System) Package bid to the DETR. It also builds on the Health Impact Assessment of the Manchester Airport Second Runway, which was the first HIA to be undertaken in the UK.

The Manchester airport study is an example where prospective HIAs can yield tangible benefits. The HIA resulted in a number of changes in the planning proposals and subsequent development of the second runway. These include:

- a commitment to increasing the number of airport users and staff who travel to and from the airport by public transport.

---

292 Health Impact Assessment of the Merseyside Local Transport Plan – work in progress, Kate Arden, Liverpool Health Authority
Fleeman N. Health Impact Assessment of the MERITS Scheme Liverpool. Observatory Series Report January 1999
• changes to employment practices - equal opportunities policies were adopted and local jobs for local people.
• the provision of a crèche facility
• the provision of a greater number of noise insulation grants especially to schools.
• piloting of distant check-in facilities as an incentive for public transport use.
• funding of local research such as the Healthy Air 2000 conference
• the establishment of a health authority/environmental health/senior airport management forum. The forum meets quarterly to assist in the ongoing monitoring of the implementation of the recommendations made in the HIA report and accepted, in full, by the airport management.\footnote{Arden K, \textit{Health Impact Assessment: the way forward. Experiences from Manchester and Merseyside}, Liverpool Health Authority, January 2000}

A number of other health impact assessments are also being carried out in Merseyside. As these are prospective rather than retrospective HIAs it is not really possible to evaluate the actual traffic and health outcomes. These are likely to be more evident over time. Nottingham too is in the early stages of planning a health impact assessment of its local transport plan, in partnership with the health authority. The emphasis is very much on transport and inequalities.\footnote{Jim Bamford, Nottingham City Council, personal communication, April 2001.}

4.k.ii. Safe routes to school

\textit{Question: What impact does the mode of travel to school have upon children’s physical, social and intellectual well-being?}

Between 1985/6 and 1997/9 the average length of education trips increased by 42%. Over the same period the numbers of children walking to school declined from 67% to 53% while those using a car increased from 22% to 38%. Four times as many children are driven to and from school in Britain as in Germany.\footnote{The School Journey and Health, presentation by Peter Caunter, Pedestrians Association, given at Health and Sustainable Transport – Making the Links, Transport and Health Study Group / Landor Conferences, King’s Fund Conference Centre, 13\textsuperscript{th} November 2000} During the morning peak period, 18% of road traffic is generated by the school run – an increase from 14% in 1989/91.

Government recognises the scale of the problem. The concept of “Safe Routes to Schools” was highlighted and promoted in the Transport White Paper. Government also set up a national School Travel Advisory Group which had its first meeting in 1998. Guidance on Local Transport Plans\footnote{Guidance on Full Local Transport Plans, DETR, March 2000} asks local authorities to set out an integrated transport strategy for reducing car use and improving children’s safety on the journey to school, and to explain how they will work with individual schools to help them develop school travel plans. Other government departments taking an interest in school travel include the Department of Health and the Department for Education and Employment through their Healthy Schools Programme.

Government has also funded the provision of site specific advice for schools to develop school travel plans, and the details and impacts of this scheme are evaluated below. More recently, Government has announced increased support for school travel plans by providing bursaries for 111 posts across the country to enable 84 local authorities to employ travel plan co-ordinators at a cost of up to £30,000 a year per post. Funding will be spread over three years.
EVALUATION: The journey to school has been the subject of much interest by policy makers and researchers alike. As a result, there is a great deal of research in this area a selection of which we summarise below. The evaluation is divided into three parts – (a) an evaluation of the effectiveness of government policies to promote school travel initiatives, (b) an evaluation of the effectiveness of initiatives to promote modal shift and (c) the direct effect of those initiatives themselves more directly on people’s health.

As regards the first – the effect of government policies – it seems the Government’s drive to promote the concept of school travel plans and safer journeys to school is having some effect. 90% of local authorities’ LTPs include school travel strategies, more than half of them with targets for reducing car based travel. For example York City Council plans that every one of its 72 schools will be surrounded by a 20mph zone within six years.299 Of those with targets, over 75% had proposals for monitoring those targets.300

In 1999 the University of Westminster carried out research into levels of activity relating to school travel initiatives301 and found, encouragingly, that a greater number of schools were now taking action on the issue compared with a similar survey conducted in 1998. This is largely the result of local authority activity. In 1998, 22% of authorities had not even considered Safe Routes to Schools-type projects and only 10% had implemented schemes on a permanent basis. By 1999, however, almost a quarter of authorities had implemented or started a school travel plan at one or more schools in their area and 44% had implemented or started some form of school travel initiative in one or more schools. Around two fifths of the authorities with school travel plans said they were monitoring their impacts, and most of the remaining ones said that they intended to introduce a monitoring programme in the future.

Most of those who had already begun monitoring said that it was too soon to tell whether the plans had actually had an effect on the numbers of children travelling to school by car. For the 10 (out of 42) authorities who thought they had an effect, the estimated percentage reduction in car use ranged from 5% to 50%. In 1998 though, only five authorities felt that their programmes had had an effect, so it does appear that authorities are becoming more confident that school travel initiatives can be worthwhile. It should also be noted that successful plans take time – the three most successful school travel plans included in the study had been going for at least three years.302 The researchers also found that while there was great enthusiasm for school travel initiatives among local authorities many of them were limited by a lack of funding. This may well change given the greater funding allocation for such schemes through LTPs.

School travel plans were in place in about 2% of schools in England and Wales, most of them primary schools. The most common measure adopted was engineering followed by walking and then educational/awareness raising initiatives. Although cycling was less common it featured in around three-fifths of school travel plans – public transport initiatives were included in only around a quarter. The DETR has commissioned an update of this survey which is likely to be published in draft form in May 2001.

300 Safe Routes to Schools Newsletter, Sustrans, no.14, Winter 2001
301 Research into Levels of Activity Relating to School Travel Initiatives, Transport Studies Group, University of Westminster, London 1999
302 Research into Levels of Activity Relating to School Travel Initiatives, Transport Studies Group, University of Westminster, London 1999
In addition, a study has been carried out to evaluate the effectiveness of DETR funding to provide site-specific advice to schools on the development of their travel plans. The pilot scheme involved 38 schools, two of which dropped out. Each school was given up to five days advice on developing school travel plans. An additional 18 other schools received a lesser degree of advice (18 to 40 hours each); these were also included in the evaluation.

The researchers found that two thirds of respondents receiving the intensive site specific advice found that the advice offered met or exceeded their expectations. The other third, however, felt that it had fallen short. As regards the impact of this advice, most of the pilot schools said that to a greater or lesser extent they had accepted the advice offered but some noted that to accept advice is one thing and to act upon it quite another. Three quarters said they had been encouraged to take more action than would otherwise have been the case. The control schools also appear to have been active but in a less specific way. It appears that the pilot schools plan to take more action relating to their travel plan than the control schools, suggesting that participation has helped them plan ahead and develop longer term strategies as a result.

The overall conclusions are cautious – in certain but not all circumstances, the study feels, the provision of advice has proved helpful. The researchers recommend that an improved version of the scheme be developed and rolled out more widely but that improvements are put in place to ensure that it delivers better value for money.

Despite the positive impacts of government school travel policies, broader educational policies would appear to counter the good work that is being done in travel reduction. Changes to the education system mean that parents are now able to choose the school their children attend. This in turn has an important influence on the mode used for the school journey. In a national attitude survey, about 30% of parents reported that their child was not attending the nearest school. Overall, 55% of children not attending their nearest school travel there by car, compared to 23% of other pupils.

The average journey length of the school trip for children aged 5-10 has grown 18% between 1985/6 and 1995/7. The distance has increased even more – by 35% - for 11-16 year olds. Research commissioned by the DETR and conducted by Steer Davies Gleave concluded that there were a number of factors leading to these increases. Government has a strongly influential role in many of these factors. They include:

- Increases in car ownership: the rising proportion of households with access to a car, but particularly the faster rising proportion of households with access to two or more cars appears to have fuelled the use of cars for taking children to school. Although a shift of mode for the same journey will not increase the distance travelled, once the decision has been made to take children to school by car the opportunity arises for schools to be chosen which are further away.
- Patterns of women’s working and childcare arrangements: over the last ten years the proportion of women in employment, with the introduction of more flexible childcare arrangements to accommodate this trend, has influenced the choices that parents will make about where children go to school.

---

303 Bradshaw R and Cleary J, Evaluation of pilot programmes of site specific advice on school travel plans, Transport Studies Group, University of Westminster, September 2000
305 Factors leading to increased school journey length: Executive Summary, DETR, September 2000
306 Factors leading to increased school journey length: Executive Summary, DETR, September 2000
• Schools admission policies: of the schools where an increase was noted, nearly all were oversubscribed, and were thus using their admissions policies to select students. Oversubscribed schools are likely to be those located in an area where there is a shortage of schools or else be popular, in which case places will be sought by parents from a wide area. The schools with the longest distances travelled were all selective schools.

It is also worth comparing the UK situation with overseas examples. Denmark, for instance, has pursued a vigorous safe routes to school programme for about 15 years. As a result children enjoy a high level of freedom to walk and travel both to school and for other activities. In a typical Danish town only 4% of nine year olds and 1% of 15 year olds travel to school by car.307

Part two of this evaluation assesses the effectiveness of initiatives to promote modal shift. A Safer Journey to School308 by Transport 2000 sets out best practice in this respect and highlights a number of initiatives that have had positive effects on promoting modal shift. For instance, at Kesgrave High School in Suffolk, a network of traffic-free cycle routes has been developed linking nearby housing estates and enabling pupils to cycle from up to five miles away without going on a main road. Around 60% of pupils now come in by bicycle, and traffic at the school gate is kept to a minimum. The school actively encourages cycling and provides secure cycle storage and facilities.309

At Lingfield Primary School in Surrey, around 50 children who used to travel by car now take the bus to school, the result being a dramatic reduction in congestion at the school gate. Two new bus services were introduced in response to parents’ criticisms of the old services. Children gather at agreed local pick-up points and a parent “guide” is employed to ride on the bus each day. Car sharing schemes can also be effective. Car journeys to one school in Hampstead, London, have been cut by 24% thanks to car sharing, parent-run minibuses and greater use of public transport.

All forms of modal shift can yield health gains. The impacts are most directly in the case of cycling and walking because these increase physical activity, but bus use and car sharing can also play a part by reducing the number of journeys on the roads and hence cutting air pollution, noise and the risk of road injuries.

The third part of this evaluation looks at cases where there is a deliberate attempt to assess the effect of non-car school travel on health.

One example is the walking bus scheme set up with the support of Staffordshire County Council at Pirehill First School in November 1999. A housing estate 2km from the school, where 50 school pupils live, was identified as the starting point. It began operating two days a week with 12 children registered. By January 2000 it was operating five days a week with 24 children.310 An evaluation of the scheme, carried out by Staffordshire University311 found that the views and

307 Living Streets, Transport 2000, 1999
308 A Safer Journey to School: a guide to school travel plans for parents, teachers and governors, Transport 2000, 1999
310 Safe Routes to Schools Newsletter, Sustrans, no.14, Winter 2001
experiences of parents, children and teachers all point to a positive connection between the walking bus and health. A survey also suggests that pupils who walk or cycle to school arrive far more alert than those who come by car.

Some researchers are beginning to look at the effects of different types of school journey on children's mental health and cognitive and social development (CMHCSD). The subject is still new to research and thus the evidence is as yet slim. Therefore initial findings from the EPPI Centre are inconclusive, pointing mainly to the need for further research. This said, the Schools Health Education Unit (formerly part of the University of Exeter) is currently undertaking research into the effects of physical activity upon Year Six pupil's academic performance. Preliminary research findings do suggest a positive link between academic performance and physical activity in general, although the study is still in its early stages. Although the study does not specifically look at transport, an examination of mode and distance of journey to school has been part of the research process and could provide a useful information basis for exploring the links further.

4.k.iii. Green commuting and travel plans

Question: How do government transport policies affect the way people travel to work and what are the impacts on health? What examples are there of effective green commuting schemes?

In its Guidance to local authorities, Government requires LTPs to “set out how the authority will encourage widespread adoption of travel plans by major employers through partnership with business and the wider community … Authorities should collect baseline data on current levels of activity and put in place arrangements to monitor take-up of travel plans in their area. They should also consider setting targets for the take up of travel plans and for modal shift.”

In addition, as part of the National Service Framework for Coronary Heart Disease, NHS and local authority employers are required to develop Green Transport Plans by April 2002.

The DETR has produced a number of guides on green commuting, including The benefits of green transport plans and Developing an effective travel plan. In addition it has funded a series of seminars across the country aimed at promoting take-up of green travel plans.

EVALUATION: A study commissioned by the DETR and carried out by Steer Davies Gleave in July 2000 examined the take up and effectiveness of travel plans and travel awareness campaigns in order to assess:

- current levels of take up of travel plans by employers
- reasons for take-up/non take-up of plans

---

313 Fit to succeed, Schools Health Education Unit, Exeter, 2001
314 Angela Balding, survey manager, Schools Health Education Unit, personal communication, April 2001.
315 Guidance on Full Local Transport Plans, DETR, March 2000
316 National Service Framework for Coronary Heart Disease: Modern Standards and Service Models, Department of Health, 2000
317 Preparing your organisation for transport in the future: the benefits of green travel plans: the guide, DETR, June 1999
318 Developing an effective travel plan: advice for Government departments, DETR, January 2000
319 Take-up and Effectiveness of Travel Plans and Travel Awareness Campaigns, Executive Summary, DETR, February 2001
• role of the local authority development control process in promoting travel plans
• effectiveness of plans in reducing the impact of road traffic
• current levels of local activity in travel awareness campaigns
• the effectiveness of travel awareness campaigns.

The survey looked at businesses, local authorities, hospitals and higher education establishments. The researchers concluded that:
• The take up of travel plans has increased significantly since 1998. 24% of local authorities have a travel plan in place and 45% are developing one. This contrasts with the situation in 1998 where only 3% of authorities had a plan.
• Only 7% of businesses have a travel plan or are in the process of developing one and only 4% are thinking of so doing.
• 61% of hospitals had a travel plan or are developing one.
• Half of the higher education establishments had a travel plan.

26 (out of 69 with plans) had evidence of the effectiveness of their plan (reduced car parking, reduced car commuting, increased public transport) while 15 had some evidence of the effectiveness.320

The Transport 2000 report Changing Journeys to Work321 gives advice, together with practical instances of good practice in encouraging alternatives to the typical single occupancy car journey. Ideas include promoting cycling, works buses, car sharing schemes and working from home, and examples of successful plans span a spectrum of employers including local authorities, health authorities and private sector organisations.

Quantitative evidence of the success of such plans is not always available. However, ongoing informal data collection by Transport 2000 does suggest that green commuting plans can be effective. For instance when Hewlett Packard built new and attractive cycle storage facilities at a new building on their Bristol site together with showers and changing rooms, they found that cycling rates to the new building grew, to about 17% and more during the summer months.322

Boots too have succeeded in reducing car use on their Beeston site by 11.6% between 1996-99. This is an especially significant achievement considering that during the period (1996 to 1999) the company saw a 25% increase in staff at this site. In addition, Orange have seen a drop in car driving from 93% to 82% (a reduction of 11.8%) between July 1997 and April 2000 at their headquarters in Bristol.

Nottingham City Hospital has also achieved some very impressive results.323 Their travel survey shows that from 1997 to 2000, the number of staff driving alone dropped from 72% to 55%. The numbers participating in car sharing schemes increased from 2% to 11% while bus use grew from 11% to 19%. Walking grew by a smaller percentage, from 8% to 9% but as the changes they have made to promote walking (£13,000 worth of footpaths on the site) are relatively recent, a greater increase may be seen in the future. The number of people cycling did not grow but the

320 Nicholson A, Take up and effectiveness of travel plans and travel awareness campaigns, summary of key points, Final Seminar 2 March 2001, DETR
322 Carey Newson, Transport 2000, personal communication, April 2001
323 Carey Newson, Transport 2000, personal communication, April 2001
survey was carried out in November which may partly explain this. An updated survey is forthcoming.\textsuperscript{324}

One analysis by the Health Education Board for Scotland found that merely providing information about alternatives to car based travel can be effective. In a randomised controlled trial, employees from three Glasgow workplaces, who were thinking about or doing some irregular walking or cycling to work, were randomly assigned to an intervention or control group. The intervention received an information pack entitled \textit{Walk in to work out}, which provided advice and ideas on walking and cycling to work. The control group did not receive the pack until six months later. Both groups monitored their activities through questionnaires. Results indicate that the pack recipients were almost twice as likely to walk to work as the control group at the end of the six month period. A quarter of those who received the pack were still walking to work a year later. The pack was not, however, successful at getting people to cycle due to factors such as pollution, safety concerns and lack of facilities.\textsuperscript{325}

Commuter plans that combine a mixture of “carrots” and “sticks” appear to be particularly effective. The Rijnstate Hospital in the Netherlands developed a commuter package where employees received individual advice on travel alternatives. Just over one in ten staff were advised to leave their cars at home or car share, while the rest were given journey alternatives. While the advice was not compulsory, those advised to leave their cars at home faced a double parking charge. Their travel to work allowances were replaced with public transport season tickets at 45\% of the usual price. At the same time, staff were guaranteed transport home out of hours. Numbers using bus and rail rose dramatically from 8\% to 40\%.\textsuperscript{326}

4.k.iv. Home Zones

\textit{Question: What impact do Home Zones have upon the health and well-being of those who live there? What is Government doing to promote Home Zones?}

A Home Zone is a street or group of streets designed primarily to meet the interests of pedestrians and cyclists rather than motorists, opening up the street for social use. Nine home zones are currently being officially piloted in England and Wales, and several more in Scotland and Northern Ireland. In addition, at least forty local authorities are independently developing their own home zones.\textsuperscript{327} The Prime Minister has recently announced £30 million in funding over the next three years for the expansion and development of home zones.

EVALUATION: Research for the Children’s Play Council, Joseph Rowntree Foundation and Transport 2000 has looked at the experiences of home zones overseas,\textsuperscript{328} and found that they can achieve a range of social, psychological and physical health gains (among other things) including:

- Wider ranging activity and children’s play. The document refers to research which finds that “the pattern of activities in a woonerf [Dutch Home Zone] type neighbourhood was more varied than in traditional neighbourhoods.” Research has also observed that children use the environments more frequently and for longer periods of time; they play

\begin{itemize}
  \item
\end{itemize}

\textsuperscript{324} Carey Newson, Transport 2000, personal communication, April 2001
\textsuperscript{325} A randomised controlled trial of a cognitive behavioural intervention aimed at increasing active commuting in a workplace setting, Health Education Board for Scotland, 2001 \url{www.hebs.com/topics/}
\textsuperscript{326} Changing Journeys to Work: An employers guide to green commuter plans, Transport 2000, 1997
\textsuperscript{327} Lynn Sloman, Transport 2000, personal communication, May 2001
\textsuperscript{328} Biddulph M J, Creating successful home zones in the UK: a research report, Cardiff: City and Regional Planning, Cardiff University, 2001
across the whole width of a treated area, there is more verbal communication between
them and play becomes more complex and diverse.

- There is increasing levels of contact between drivers and pedestrians, meaning that both
groups adjust their behaviour (important for safety) in the presence of the other.
- Reduced driving speeds
- A safer environment
- Some more socialisation

However, Home Zones should not be viewed as a panacea. They have not in themselves
achieved:

- Solutions to traffic problems – home zones must be viewed as only one element of a
broader traffic strategy. It has also been argued that within a sea of normal driver
behaviour home zones might lead to traffic displacement so that treated streets should
not be viewed in isolation.
- Total perceptions of safety of shared surfaces – in other words people still do not feel
totally confident where there is no pavement.
- Total acceptance that children should be able to play in the streets
- Reductions in noise levels from vehicles
- Reductions in air pollution.

Evidence from the UK is still not available, but it will be interesting to observe what emerges
from the Home Zone pilot process.
PART FIVE: WIDER SOCIO-ECONOMIC POLICIES AND TRAFFIC GROWTH

In addition to the specific transport policies discussed above, there are also many Government policies which, while they do not have a specific transport focus, are nevertheless likely to exert an extremely significant influence on the transport choices we make and hence impact on our health. However, it is not easy to quantify these impacts and there is a dearth of research in this area. It should be stressed that the lack of evidence does not in itself mean that there are no impacts – simply that the issues have not been studied to the degree that they may deserve.

The following paragraphs do little more than flag up the issues; there has not been time to explore them in more depth. However we feel that any future research resulting from this study should certainly include a full examination of these issues in its remit.

5.A. TRANSPORT AND THE ECONOMY

Key Question: Does the thrust of government economic thinking help or hinder traffic reduction?

The broad thrust of government economic thinking is liberal, favouring inward investment and competition both within the UK and from overseas. The Department of Trade and Industry’s website states “The UK Government is committed to creating open, transparent and effective markets. A key part of this is improving our competitiveness in international markets. The UK has one of the world’s most open economies and we rely on our ability to trade with the outside world for our economic health and stability. Overseas trade is a key contributor to economic prosperity, non-inflationary growth, the creation of new jobs and technical advancement.”

The Regional Development Agencies, established in 1999 in eight of the nine English regions (the ninth being London which was established as part of the GLA), have the following remit for their regions:
- to further economic development and regeneration
- to promote business efficiency, investment and competitiveness
- to promote employment
- to enhance development and application of skill relevant to employment
- to contribute to sustainable development.

It is difficult to see how the principles of liberal economic development can be pursued within an active policy framework of traffic restraint (and it is notable that the recent Ten Year Plan appears to have more or less abandoned the idea of traffic reduction). Both passenger and freight mileage have increased immensely over the last twenty years as the economy has grown.\textsuperscript{329}

The AA report\textsuperscript{330} discussed in 4.f.i above also notes that the demand for fuel and for car traffic is heavily dependent on income. For every 10% increase in real incomes, fuel consumption and traffic increase by 11% to 13% in the long run with short run effects between a third and half that size in magnitude. It would seem then, that if we want economic growth, then we also have to

\textsuperscript{329} Transport Statistics Great Britain 2000 edition, DETR 2000
\textsuperscript{330} Glaister S and Graham D, The effect of fuel prices on motorists, AA Motoring Policy Unit and United Kingdom Petroleum Industry Association, September 2000
accept more traffic. This at least appears to be the thinking behind current (and past) macro-economic policies, despite the impact of these policies on traffic growth.

On the other hand, Friends of the Earth have argued that policies to promote public transport, cycling and walking could lead to the creation of 130,000 new jobs by 2010 (9,000 related to cycle use, 31,000 for bus use and 90,000 for rail use). This would more than offset the loss of approximately 43,000 motor industry jobs (mostly in vehicle maintenance and repair) due to decreasing car use. A high lease scenario reduces the latter by 28,000 and a high technology scenario by 23,000; both together could reduce motor industry job losses to 8,000.331

EVALUATION: It is arguable that the significant investment of the Ten Year Plan in non-car based transport modes, as well as the strategies set out in the Transport White Paper, run directly counter to the aims of the DTI and to Government’s economic objectives. However, the tussle between the two competing approaches (traffic restraint on the one hand and economic liberalisation on the other) is unlikely to be even, given the far greater resources at the disposal of the DTI and other trade-related government agencies.

It may therefore be accurate to conclude that the broad thrust of government thinking actively and inevitably leads to an overall growth in traffic. This argument has not been explored in great detail here, but is one that merits further research, particularly as a growth in mobility and in car dependence has serious implications for health.

Although this section suggests that current government economic policies further transport growth, this is not to say that there is a necessary correlation between economic development (in its broadest sense) and traffic generation. Indeed a report published in 1999 by the Standing Advisory Committee on Trunk Road Assessment (SACTRA)332 suggested that the correlation was far from clear. The SACTRA report sought answers to four main questions.

Question one asked “do transport improvements lead to increased transport activity?” The Committee concluded that while transport could undoubtedly improve economic performance by stimulating inward investment, unlocking inaccessible sites for development and so forth, there was also a counter to this positive association, which they called the “two-way road argument.” In other words, “improved accessibility between two countries (and similarly between cities, areas or regions) may sometimes benefit one of them to the disbenefit of the other.” Furthermore, there is a lack of empirical evidence regarding the relationship and “generalisations about the effects of transport on the economy are subject to strong dependence on specific local circumstances and conditions.”

The second question asked “Is it possible to ‘decouple’ growth in traffic levels from growth in the economy?” The Committee observed that traffic has in fact been growing faster than the economy as a whole and as a result the “transport intensity” of the economy has been increasing. They concluded that income growth does have a strong effect on traffic growth but that the amount of traffic is also influenced by the price, speed and quality of transport. “An extensive literature of empirical studies suggests that this sensitivity is sufficient to result in a significant degree of variation in how much traffic will arise from any given level of national

---


332 Transport and the Economy, Standing Advisory Committee on Trunk Road Assessment, DETR 1999
income. This leads us to conclude that policies intended to change the volume of traffic that will arise from any particular level of economic activity are, in principle, feasible."

The third question SACTRA asked was whether economic impacts are fully captured in the procedures for estimating benefits and costs currently used by the DETR. In response, the Committee pointed out that environmental impacts are not usually assigned a monetary value, even though the committee stresses "that environmental costs represent real economic resources even when their money values are not calculated: from this point of view, the description of physical impacts in a conventional environmental appraisal carries the implication of economic impacts. Therefore the conventionally calculated transport net present value alone, because it does not include environmental costs, can only provide an unbiased measure of the value of the final economic impact in the case where there are no environmental impacts, either positive or negative."

The SACTRA report also observed that "there is no guarantee that transport improvements will benefit the local or regional economy at only one end of the route – roads operate in two directions and in some circumstances the benefits will accrue to other, competing, regions. Thus … some benefits, such as increased employment, may accrue to the distant competitors rather than the local producers. Assessment of whether economic impacts will actually benefit the intended target will need to consider impacts outside the immediate neighbourhood."

The final question asked what recommendations followed for the Department’s procedures and practice for transport appraisal? By way of an answer the report stated: "We conclude that there is scope for carefully judged policies which help to decouple the rate of traffic growth from the rate of economic growth, thereby reducing the environmental and congestion costs of traffic and also – to some extent – assisting in delivering the benefits of economic growth. Such policies include pricing, management and investment initiatives, in a balance which will vary according to the specific circumstances of each intervention. Appraising each case requires improved assessment of the conventional transport and environmental impacts, together with a more systematic consideration of the impacts on the wider economy."

A range of non governmental organisations would endorse the view that traditional economic thinking does not take into account wider social environmental and health impacts.

5.B. CAR PRICES AND THE CAR INDUSTRY

Key Question: How do government policies as regards the car industry affect traffic growth?

The recent focus on fuel duty during last year’s fuel crisis, neglected the fact that increases in the cost of fuel have been largely offset by rapid falls in the costs of purchasing cars – a trend that has been actively encouraged by Government.

The composite index of the costs of motoring has remained almost constant since 1964. Taxes on car purchase and on insurance are taxes on ownership (as distinct from use) that deserve consideration as part of any review of motoring taxation. The annual licence disc is another element

333 including Friends of the Earth, Sustain, Transport 2000 and many others
334 Glaister S, *Transport Policy, Control and Value for Money*, Imperial College, paper presented at Scott Policy Seminar, Belfast, 29 March 2001
of the cost of vehicle ownership. This was reduced for smaller vehicles in the November 2000 statement.\footnote{Glaister S, \textit{Transport Policy, Control and Value for Money}, Imperial College, paper presented at Scott Policy Seminar, Belfast, 29 March 2001}

EVALUATION: There has been little opportunity during this scoping study to explore the relationship between policies towards the car industry and traffic growth. It is, however, an area that we recommend should be looked at in more detail.

\section*{5.C. DEMOGRAPHIC CHANGES}

\begin{tabular}{|p{1\textwidth}|}
\hline
\textbf{Key Question How will changes in the demographic make-up of our population affect traffic growth?} \\
\hline
\end{tabular}

Over the next twenty years we are likely to see a major increase in house building as more and more people choose or are forced to live alone. By 2021 we are likely to see a growth in new households of around 4 million, 70\% of which will be single occupancy.\footnote{Projections of households in England 2021, DETR, October 1999} This could well lead to an increase in car ownership – with the “family car” being replaced by the single person car.

We are also likely to see an increase in the number of active, wealthier older people, particularly women. At the moment only 7\% of women living on their own and over the age of 75 have a driving license. But 70\% of today’s women aged between 40 and 49 hold a driving licence and just as many young women are learning to drive as men. As the decades pass the older generations will wish to own and use cars in much higher numbers than their predecessors.\footnote{Glaister S, \textit{Predict but don’t provide?} Imperial College, London, undated}

EVALUATION: The implications of both for traffic growth could be profound.\footnote{Glaister S, \textit{Predict but don’t provide?} Imperial College, London, undated}

It is beyond the scope of this study to examine the role of government policy in influencing these factors but we have flagged the issue up here because we believe it is important, and would merit further research.

\section*{5.D. CAR ADVERTISING}

\begin{tabular}{|p{1\textwidth}|}
\hline
\textbf{Key Question: What role does government policy play in influencing the nature of car advertising?} \\
\hline
\end{tabular}

The DETR’s road safety strategy\footnote{Tomorrow’s Roads: Safer for Everyone, DETR 2000} highlights the effectiveness of government drink-drive campaigns in reducing the incidence of drink-related casualties and states that Government will develop effective advertising and publicity campaigns to support the road safety strategy.

The strategy also notes “\textit{There has hitherto been too much speed-dominated car advertising. While effective regulation helps to deter irresponsible advertising, we would like to see a lower level of infringement of the codes in the area of road safety. Recent decisions of the regulators have indicated that they will clamp down on irresponsible advertising. We believe too that many advertisers can do more to encourage responsible, safe and considerate behaviour among road users.”}
Government is it seems considering its role in advertising in some way:

“We wish to encourage the advertising and motor industries to promote the portrayal of more responsible driving behaviour in advertising. Because of the broader availability of television advertising from sources outside the UK, the European Commission is considering a Europe-wide code of practice for car advertising and we are co-operating in that.”

EVALUATION: The role that government does and might better play in managing the influence of car advertising in the UK is worth further examination. Such an examination should look at the issue of fast cars and speeding and at Government’s role in regulating the kinds of advertisements that appear on our screens and billboards.

However, the research should also look more broadly at the nation’s love affair with the car. It should look at Government’s role in nurturing this infatuation while also exploring the strategies that policy makers can adopt to shift public attitudes, through their regulation of advertising.

PART SIX: CONCLUSIONS

Our study has, we hope, drawn attention to the breadth of policies that influence traffic levels and which therefore have a bearing upon our health. As we have emphasised on more than one occasion, this has been a mapping exercise, not an in-depth analysis or assessment of the impact of government policies on traffic flows and hence upon people’s health.

Here we re-iterate the questions with which this study has concerned itself. We indicate briefly the extent to which during the course of this study we have uncovered evidence that addresses these questions, and then summarise what we think the conclusions to be.

4.A. TRANSPORT POLICY - AN OVERVIEW

To what extent does Government’s overall transport strategy promote non-car based transport alternatives and what awareness does this strategy evince of the links between transport and health?

EVIDENCE BASE: various analyses available based on modelling, literature reviews etc.

CONCLUSION: the Transport White Paper placed great emphasis on alternatives to car use and traffic reduction, but there appears to have been a subsequent shift in Government thinking away from traffic reduction. Transport strategy shows awareness of transport’s health impacts but no explicit attempt is made to link transport objectives with the achievement of health targets.

---

340 The Government’s Response to the Environment, Transport and Regional Affairs Committee’s Report, Young and Newly Qualified Drivers: Standards and Training, DETR, March 2000
4.B. PUBLIC TRANSPORT
Are Government policies to promote modal shift effective and what impact do they have on overall traffic levels?
EVIDENCE BASE: various empirical studies and modelling exercises both in the UK and overseas.
CONCLUSION: some policies to promote modal shift can be effective, but on their own they do not always lead to overall traffic reduction.

4.C. WALKING AND CYCLING
Have policies to promote walking and cycling been effective?
EVIDENCE BASE: more evidence overseas than in the UK. Slim body of evidence on walking. More research needed.
CONCLUSION: the research base suggests that it is possible to increase cycling. In the UK, while there are localised pockets of success, overall efforts to promote walking and cycling have not been very successful.

4.D. ROAD SPACE
To what extent do government policies on roads and road capacity help reduce traffic? What evidence is there to show that measures to reduce traffic are successful?
EVIDENCE BASE: empirical studies and modelling exercises.
CONCLUSION: policies to restrain reduction by altering road capacity can be effective. In the UK, there is scope for more attention to be paid to this approach.

4.E. LAND USE PLANNING
What relationship does land use planning have in influencing traffic levels and how do government planning policies affect this relationship?
EVIDENCE BASE: empirical studies and modelling exercises.
CONCLUSION: on the whole, present land use policies are likely to have a traffic reducing effect, with some qualifications.

4.F. TRANSPORT TAXATION
Do government transport taxation policies help create or reduce traffic and what are the consequences for people’s health?
EVIDENCE BASE: empirical studies and modelling exercises.
CONCLUSION: mixed; some measures will help restrain growth, while others are likely to exacerbate it by offering important benefits to car users.

4.G. FREIGHT
To what extent do government policies promote transport intensive freight movements?
EVIDENCE BASE: some but slight.
CONCLUSION: policies send mixed messages; there are measures to promote the rail freight industry but also significant concessions to the road haulage sector. Measures that reduce the need for goods to travel should be examined further.

4.H. VEHICLE EMISSIONS: STANDARDS, REGULATIONS, TECHNOLOGY
To what extent can policies and regulations to reduce vehicle emissions make a significant difference to reducing the ill effects of traffic and to what extent have government policies achieved this?
EVIDENCE BASE: slight; evidence will be more apparent over the next few years.
CONCLUSION: action to tackle emissions can be useful, but more can be achieved if this is part of an integrated approach to traffic management. The “techno-fix” approach on its own cannot deal with the other damaging consequences of traffic.

4.I. SPEED REDUCTION AND ROAD SAFETY
To what extent do speed and road safety policies promote people’s health? What policies would be more effective at reducing accidents and improving quality of life? Evidence base: considerable evidence, much of it based on empirical studies. Conclusion: Government policy is tending in the right direction but a great deal of further potential exists. Local authorities also have a vital role to play.

4.J. EDUCATION AND PROMOTION
Do strategies and campaigns to promote awareness of the impacts of driving and of more sustainable transport alternatives lead to changes in people’s travel behaviour? If so, when and why? Evidence base: slight, often subjective and difficult to measure; some evidence from overseas. Conclusion: Travel awareness policies are necessary but not sufficient; a mixture of carrots and sticks is also needed to reduce car usage.

4.K. POWERS FOR LOCAL ACTION: LOCAL TRANSPORT PLANS
To what extent do national policies help local authorities promote healthier transport strategies? What effect do those local strategies themselves have upon traffic volumes and hence people’s health? Evidence base: slight as far as the national strategy on LTPs is concerned, but more evidence of the effectiveness of specific local strategies is available. Conclusion: the existence of new powers and funding for local authorities presents a major opportunity for them to implement sustainable transport policies. Some have already taken important steps in this direction.

5.A. TRANSPORT AND THE ECONOMY
Does the thrust of government economic thinking help or hinder traffic reduction? Evidence base: some evidence uncovered; this topic is worthy of further attention. Conclusion: on the whole, government economic thinking would appear to exacerbate traffic growth but more research in this area would be helpful.

5.B. CAR PRICES AND THE CAR INDUSTRY
How do government policies as regards the car industry affect traffic growth? Evidence base: some evidence uncovered; this topic is worthy of further attention. Conclusion: Government support for cheaper cars has helped increase the affordability and probably therefore the use of cars. More research in this field would be useful.

5.C. DEMOGRAPHIC CHANGES
How will changes in the demographic make-up of our population affect traffic growth? Evidence base: a little evidence uncovered; this topic is worthy of further attention. Conclusion: changes in household make up and age structure could increase car ownership and use. More research could be helpful here.

5.D. CAR ADVERTISING
What role does government policy play in influencing the nature of car advertising?
EVIDENCE BASE: uncertain
CONCLUSION: uncertain – more research is needed in this area.

CONCLUDING REMARKS

In this report, each policy area has been considered individually. While we have emphasised the possibility that there could be synergies between different policies, e.g. “carrots” and “sticks”, or educational campaigns and engineering measures such as traffic calming to reduce speed, we have not been able to deal systematically with this issue. Conversely, there could be possible overlaps, meaning that the combination of two policies may have less effect than the sum of each separately.

We have considered evidence concerning which policies may be considered “effective”, in other words, that they make a difference. However this raises another question, which is to ask how much difference they make. In some cases the effect may be quite small compared with the effort expended. If so, this may make it difficult to generalise good practice widely enough.

In some cases a situation may get worse despite the operation of effective government policies because the underlying situation is worsening, e.g. the factors responsible for the increase in motor traffic. So, although our focus here is on government policies at various levels, these operate within a context. One conclusion could be that a similar exercise needs to be applied to the private sector, and to consumption patterns.