A guide to achieving traffic reduction targets in England and Wales

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Executive Summary

1. This Report shows that the UK traffic reduction targets envisaged by the Road Traffic Reduction (UK Targets) Bill are both practical, feasible and beneficial to people, communities, urban and rural areas and to the economy. These targets are a 5% reduction on road traffic by 2005 and a 10% by 2010, based on 1990 levels. The latter target thus envisages a 16.8% reduction based on current (1996) levels.

2. The Report demonstrates that there is a vast choice of measures that could be adopted in order to achieve these targets:

A. in urban areas alone (i.e. where over 80% of the population live) a reduction of one third can be achieved by large scale adoption of measures already tried elsewhere, such as

- land use planning policies (e.g. Almere, Portland, Zurich)
- parking policies (e.g. Bristol MVA study; EC DGVII 1996)
- Bus promotion policies and travel cards (e.g. Freiburg, Paris)
- Cycle facilities (e.g. Delft, Groningen and German cities)
- Traffic management (e.g. Groningen and Gothenburg)

B. as regards road freight there are effective policies that can also achieve significant reductions, such as

- City Logistics policies which can achieve 70% reductions in cities and up to 40% on main corridors
- The use of new technology for dynamic scheduling and vehicle routing, which, according to a study by the RAC can cut lorry journeys by 20%

C. as regards rural areas traffic reduction can be achieved by such policies as

- Provision of rate relief for local shops and post offices under section 49 of the Local Government Finance Act 1988
- Home deliveries
- Shared use of vehicles (e.g. post buses)

D. Fuel price increases. Evidence from OECD in 1995 suggests that a fuel price rise by a factor of 2.5 can produce a traffic reduction of 33%, as a result of this one policy.

3. The report shows, therefore, is that the road traffic reduction targets in the Bill can be achieved

(i) by implementing various tried and tested policies, and

(ii) without any reliance on increased fuel duties

4. Achieving these road traffic reduction targets does not involve authoritarian or anti-car measures: rather the opposite. A great deal of progress has already been made in expanding choices so that alternatives to the car and the lorry are available. More choice means more opportunities for making passenger journeys and shipping goods by modes of transport other than the car and the lorry.

5. Reducing our dependence on motorised transport brings with it a number of well documented benefits not least of which are reductions in congestion and pollution. This report shows that these benefits can be realised without damage to the economy and without damage to the interests of those who live in rural areas.

6. There are, in fact, a number of economic advantages nationally and in cities and improvements to the quality of life in rural areas that flow from improvements to public transport and the planning process associated with a traffic reduction strategy.

Introduction

The purpose of this report is to show that achieving reductions in road traffic in the UK is both practical and feasible. A great deal of progress has already been made in expanding choices so that alternatives to the car and the lorry are available. More choice means more opportunities for making passenger journeys and shipping goods by modes of transport other than the car and the lorry. Reducing our dependence on motorised transport brings with it a number of well documented benefits not least of which are reductions in congestion and pollution. This report shows that these benefits can be realised without damage to the economy and without damage to the interests of those who live in rural areas. There are, in fact, a number of economic advantages nationally and in cities and improvements to the quality of life in rural areas that flow from improvements to public transport and the planning process associated with a traffic reduction strategy. The report moves through some examples of best practice in the UK and in mainland Europe and extrapolates from this to quantify reductions in car and lorry miles that can be achieved in different geographical circumstances. Achieving the targets set out in the Road Traffic Reduction (UK Targets) Bill is made easier because much of the forecast growth has not yet occurred.

The Road Traffic Reduction (UK Targets) Bill proposes that traffic levels in 2010 should be 10% less than those in 1990. Traffic levels are measured by the total of vehicle kilometres travelled by motorised transport in the UK. This total includes lorries as well as cars and covers all motorised transport except buses and vehicles for people with disabilities wherever it occurs; e.g. in rural areas, city centres, suburbs, radial routes and routes around cities. The reduction target is a national one and does not require every individual local authority area to deliver the full reduction. Indeed, it accepts that some areas may need to increase traffic levels. In such cases it only requires that steps are taken to keep the increase to a minimum. It does, however, require that national targets are achieved.

Table 1 shows the total number of vehicle kilometres travelled by motorised transport in 1990, 1996 and the forecast level in 2010. All figures are taken from Transport Statistics Great Britain (1997).

Table 1. Traffic levels in 1990, 1996 and 2010 (billion vehicle kilometres)

	cars and taxis	twmv	light goods	goods
1990	335.9	5.6	29.1	35.7
1996	362.4	4.2	30.7	40.4
2010	453	-	37.76	52.52

Notes: Data is from tables 4.7 and 4.8 of TSGB (1997) page 69. Twmv are two-wheeled motor vehicles (i.e. mopeds, scooters, motorbikes, etc). Goods vehicles are vehicles over 3.5 tonnes gross weight. Light goods vehicles are <3.5 t. The 2010 figure is the low forecast.

The total vehicle kilometres (excluding twmv, buses and coaches, and pedal cycles) for the three years are as follows (all in billion vehicle kilometres):

	Total vehicle km
1990	400.7
1996	433.5
2010	543.28

A target of 10% less than 1990 levels is 360.63. This represents a reduction of 33.6% (or one-third) when compared with the low forecast for 2010. Furthermore, it implies that by 2010 total vehicle kilometres must be 16.8% (or one-sixth) lower than the 1996 total. Much of the predicted growth, however, has yet to materialise and policies are needed in the short term to prevent this growth from happening. These policies will include land use planning to reduce dispersion and traffic generation, as well as policies to ‘strip out’ the current incentives to drive more. These incentives include company car benefits, parking charges that do recover the costs incurred in providing spaces and total motoring costs that are considerably less than the public expenditures devoted to the support of road transport.

1. European Best Practice

There is already a considerable body of experience on achieving significant modal shifts and the associated traffic reduction in European (and UK) cities and regions.

- Lemgo in Germany has increased bus usage from 40,000 to over one million in one year
- Zurich in Switzerland has held levels of car ownership and traffic volumes constant for a decade whilst public transit use has soared
- Houten in the Netherlands has developed a comprehensive bicycle-pedestrian network and cut car trips per household by 25%

  Source: Hammond, B. (1994) 'Buses, bicycles and small town revivals' in US-European Perspectives on the Climate Change Debate, Center for Clean Air Policy, Washington DC, pp 33-41.
- The town of Hasselt in Belgium cancelled construction of a new road and has used the money to fund a completely new, free bus service.

  Source: Helmut Holzapfel, (personal correspondence, 7th December 1997)
- Swiss and German research on car-sharing shows that people who have joined a car sharing scheme and who have previously owned a car have reduced their car mileage by 50%. These car-sharing schemes are community based, usually on a ratio of one car to ten households, and usually supported by the city or regional government. They provide a community-based, community run fleet of cars for those occasions where a car is needed. These schemes are unrelated to car-sharing schemes which have been introduced in many parts of the world as part of a green commuter strategy work place transport strategy. The Federal Ministry of Transport in Germany estimates that car sharing will reduce annual vehicle kilometres by 7000 million in total. In Europe as a whole the figure is put at 30,000 million vehicle kilometres reduction.

  Source: European Commission (1997) DGXVII (Energy), improving energy efficiency and reducing gas emissions in urban transport. Report of a series of car free cities seminars
- In Aachen (Germany) car traffic into the city centre has been reduced by 85% over the last ten years, the car's share of transport has gone down from 44% to 36% and NOx pollution has gone down by 50%.

  Source: Car Free City Conference, Amsterdam, 1994, Regina Poth, page 45
- In Bologna a deliberate policy of traffic restraint involving the closing of streets and the introduction of park and ride produced a 48% drop in motorised traffic entering the historic core and a 64% drop in car numbers (1982-1989).
- In Groningen (Netherlands) in 1990 48% of all trips within the city were by bicycle, 17% on foot, 5% by public transport and 30% by car.

  Source: Pharoah, T. and Apel, D. (1995) Transport Concepts in European Cities, Avebury
- In Manchester the Metrolink tram has taken up to 50% of car journeys off roads in the area it serves. It has replaced over one million car journeys into the city centre each year.
- 5% of car users switched to a new 'City Express' bus service in Belfast in the first 6 months of operation
- Edinburgh has set itself a traffic reduction target of 30%
- In Leicester 10% more 7-9 year-olds were allowed to walk independently to school after the introduction of traffic calming and the development of a Safe Routes to School project which was designed by the children themselves.

  Source: Roads 21: a roads policy for the next century, Transport 2000 (1997)
- Levels of cycling in one of the Safe Routes to Schools pilot projects in Camden have more than doubled even without the necessary infrastructure works being carried out.
- More than 120 pupils at Horndean Community School in Hampshire are regularly cycling to school compared with about 50 last autumn and just 36 when the project began at the end of 1995.

  Source: Network News, the Quarterly Magazine of the National Cycle Network, Issue No 6, 4th Quarter 1997
- The 'Carte Orange' in Paris covering all modes and introduced in 1975 led to a 36% increase in bus patronage. The London travel card led to a 16% increase in public transport use at a time of decline elsewhere.
- The integration of land use planning and transport planning in Portland, Oregon has led to 30,000 more jobs and 40% of commuters using public transport.

  Source: European Commission (1996) The Citizen's Network. Fulfilling the potential of public passenger transport in Europe
- In Zurich substantial investment in public transport coupled with parking and access policies have led to the stabilisation (but not reduction) of traffic levels and to an increase of 30% in the use of public transport (1985-

1990). The level of use of public transport is now 470 trips per inhabitant per year, about twice the level of comparable European cities.

Source: European Conference of Ministers of Transport (1995) Urban Travel and Sustainable Development, OECD, Paris

These examples illustrate very clearly one important fact which will run throughout this report. Achieving significant modal shifts, shifting people out of cars, creating more liveable cities, towns and rural areas, and meeting traffic reduction targets is responsive to policy.

We can achieve traffic reductions.

The relative lack of progress in the UK in recent years is not indicative of a fundamental psychological problem or even a carefully balanced choice to go for cars and freedom. It is the result of policy that has led in that direction and the time has now come to change that policy so that it moves in another direction.

This stance also implies a corollary. Moving away from car dependence and shifting to lower levels of car use with higher levels of use of the alternatives brings with it multiple benefits:

- it brings economic gains to city centre retailing
- it brings national economic benefits
- it re-invigorates neighbourhoods and communities
- it improves health
- it reduces the total amount of public expenditure devoted to new infrastructure and reduces the costs of dealing with the health effects of transport
- it helps us to achieve reductions in greenhouse gases
- it is inclusive: it helps the young, the disabled and the elderly and it helps the poor.

This report shows how it is possible to achieve targets in traffic reduction. Achieving these targets will not be a matter of a one-off technical design operation. Traffic reduction will involve new ways of designing and implementing policy as well as new policy objectives. These new ways of working will require:

- clear action by national government to put the right conditions in place to ensure that national policies take effect and to allow local authorities to do their work effectively
- highly co-ordinated and integrated strategies at the level of local authorities to bring together the traditional transport, highway and planning functions with the agents of land use change and traffic generation. A collaborative model of working will have to be formulated and implemented.

2. Policies currently available to Local Authorities

Local authorities already have a number of powers that are well suited to deliver traffic reduction. Very often they do not have the resources to make best use of these powers and they will be faced with decisions from other organisations (e.g. schools and NHS Trusts) that will add significantly to traffic levels. In some cases local authorities will themselves add to traffic levels in their own area through road building, support of inappropriately located traffic generators, e.g. business parks and out-of-town shopping centres and supporting increases in city centre car parking spaces. They may also be faced with decisions from central government that in the context of traffic reduction are perverse: e.g. road construction, location of new hospitals, granting of planning appeals to applicants. Local authorities will also be concerned about traffic reduction measures that may reduce their competitiveness as retail centres or as desirable locations for inward investment. These concerns are specifically addressed in Part 8 of this guide. The policy areas most likely to reduce traffic levels are listed below. For the purposes of this discussion no attempt is made to distinguish between the powers and duties of highway authorities, shire counties, district councils, city councils or unitary authorities.

Traffic Reduction Policy Areas

1. **The planning process** and the influence that can be brought to bear on applicants and developers to locate their developments on sites that maximise walking, cycling and public transport use, increase the density of provision, minimise distances to interrelated activities and deter car dependency. Policies that resist the conversion of agricultural (irrespective of grade) or green-belt land to housing, industry, business park and retail / leisure centre will contribute to a short and longer-term reduction in traffic. Policies that encourage intensive use of 'brown land', converting older industrial and public buildings to residential uses and policies that encourage the use of all available space above shops and offices in traditional town centres will have the effect of reducing traffic levels. This is equivalent to a very pro-active and energetic application of Planning Policy Guidance Note 13 (PPG13), the Government's formal advice to local authorities on transport policy, which all authorities are duty bound to follow.

2. **Reallocating space** away from private motorised transport and towards the alternatives. Giving priority to buses, bicycles and pedestrians. Bus lanes, cycle paths and pedestrian facilities all have the potential to make these alternatives quicker, safer and more pleasant. They are also more efficient on cost and space-use criteria. There is considerable potential for increasing the area devoted to these uses and taking the space from roads. There is also scope for designating lorry priority lanes.

3. **Traffic management.** There is considerable potential for improving conditions for pedestrians, cyclists and public transport users by ensuring that these groups receive the highest level of priority at junctions, cross-roads and crossing facilities. A traffic system in which buses and pedestrians never have to wait when encountering motorised transport sends clear signals about priorities and adds significantly to the total quality for those alternatives. Local authorities could also consider redesigning the circulation pattern of urban centres. These patterns often bear the mark of the 1960s and 1970s in terms of one way gyratory systems, one way streets, etc., and were implemented to increase capacity. The same principles can be harnessed to reduce traffic by removing one-ways systems, closing streets to traffic, restoring high streets to people-friendly uses and preventing traffic using any road as a through road in sensitive areas (retail centres, high streets, surroundings of schools, hospitals, colleges and residential areas).

4. **Parking policies** to establish a market for mobility choices where the balance of advantage to the consumer lies in alternatives to the car. Local authorities have considerable experience of pricing, development and allocation policies and this can be harnessed to good effect in designing the appropriate package of measures to achieve traffic reduction in a specific geographical area. As a general principle reducing car parking provision and increasing the price are more likely to achieve reduction targets than the opposite.

5. **Marketing.** Local authorities have already shown the way towards increased use of public transport through TravelWise initiatives. More generally there is considerable scope for local authorities as initiators to design and market high quality information systems, attractive travel card and commuter card schemes. Levels of awareness of public transport availability are low in a post deregulation world and expectations of failure are high. This can be countered by serious, high quality publicity and marketing.

6. **Green Commuter Strategies** (Transport Demand Management or TDM). Local authorities can take the initiative here and can work in partnership with others to advance the idea of such approaches. Individual companies and sites have significant potential to reduce car commuting and car-based work journeys if the most appropriate package of incentives and disincentives is put together to bring about a given level of change. Local authorities should always take the lead by setting the highest possible standard. In many towns and cities local authorities will be among the top 5 traffic generators themselves. Setting internal targets to reduce car commuting and car-based travel in the course of work can provide leadership and guidance to others.

7. **Travel to Schools.** Local authorities have considerable influence over the provision of statutory school age education. There is potential for influencing the mode of transport chosen by parents (for their children) and by staff. This is the objective of the national 'Safe Routes to School' programme. Schools can account for up to 20% of the traffic in the morning peak in term-time.

8. **Transport Audits.** The total number of vehicles and the uses to which those vehicles are put is very large indeed in local authorities. Vehicles are operated by social service departments, police, ambulance, fire, engineers, street cleansing, parks and cemeteries, education departments and much more. Individual staff in local authorities are also encouraged to use their personal vehicles in the course of their work through a system of allowances and mileage payments. There is considerable scope for traffic reduction (and getting better value for money) from a complete overhaul of the totality of vehicle ownership, operation, use and financial support. As long as target service levels are achieved and specialist uses protected (e.g. fire appliances) there is no reason whatsoever why the total vehicle collection cannot be audited to establish the potential for shared use, pooled vehicles, cycles instead of cars and the substitution of teleconferencing for physical travel where the purpose of travel is for meetings.

9. **Policy audits.** Any policy of any local authority in any area could possibly have an effect on traffic levels (either an increase or a decrease). All policy issues should be subjected to an audit process that identifies the magnitude and direction of this change. Where policies are likely to increase traffic levels they should be compared with alternatives so that an informed choice can be made.

10. **Co-ordination.** Traffic reduction is impossible without the co-ordinating and strategic role of local authorities in their geographical area. Traffic reduction responsibilities require a significant leap forward in the reality of co-ordination at local authority level. No single measure will produce the desired quantitative effect. No one package of measures will achieve targets in every area. The challenge for local authorities is to design and implement as many different measures as possible in a highly co-ordinated fashion in their area and ensure that they are appropriate to the specific conditions of that area.

3. Selected Case Study Material

Planning process

John Roberts' (TEST) comparison of Almere (The Netherlands) and Milton Keynes demonstrated the extent to which land use and transport planning can influence the demand for motorised transport: 'the most obvious finding and an important one, was the much higher percentage of trips made by car and the much lower level of bicycle use in Milton Keynes when compared to Almere (65.7% of trips by car compared to 43.1%, 5.8% of trips by bicycle compared to 27.5% respectively)'. The influence of compact cities on reducing motorised trips is reviewed in Smith, Whitelegg and Williams (1997). Physical land use planning is a tried and tested method of reducing the length of trips, increasing the use of non-motorised modes and reducing the demand for expensive road infrastructure.

Parking

Restrictions in mainland European cities such as Zurich and decisions, as in Amsterdam, to reduce car park numbers (Lemmers, 1996) provide best practice examples. Good practice parking policies exist in Sheffield, Winchester, Leeds, Southampton, Cambridge and Edinburgh. An MVA consultancy study of Bristol for the DETR shows that car trips into central Bristol can be cut by 41% by a 75% reduction in on-street parking, higher charges and enforcement of planning permission for PNR parking. (Transport 2000, 1997, Just the ticket, traffic reduction through parking restraint).

Reallocating space and modal preferences

There are many isolated examples of successful policies in this area: the Manchester Metrolink, bus lanes in several British cities, Zurich's prioritisation of public transport, Maidstone Integrated Sustainable Transport (MIST) project, car-free residential and city centre areas (Lubeck, Amsterdam, Berlin, Edinburgh), building homes on car parks, bicycle priority schemes and planning in York and Cambridge, Delft and Groningen (the Netherlands), Detmold and Rosenheim (Germany); Copenhagen's cycling strategy, Darmstadt's (Germany) encouragement of cyclists and pedestrians to share the same large car-free space in the city centre; SMART buses in Liverpool, new tram systems in Strasbourg; innovative car-sharing initiatives (StattAuto) in Berlin, Bremen and Edinburgh e.g. 3000 participants in the Berlin car sharing scheme have removed 2000 cars from the roads of Berlin. Vienna has adopted a policy of constructing several hundred extended pavements at crossings and tram stops to improve safety for pedestrians.

Traffic management

Groningen (Netherlands) has developed a sector access model; Bochum (Germany), has prioritised its trams in preference to cars, Gothenburg (Sweden), has divided the central business district into 5 cells which has had the effect of reducing car mobility by 50%; Houten (Netherlands) (population 30,000) has given preference to bicycles, restricted access by sectors and introduced traffic restraint. Oxford (through parking controls and Park and Ride) over the last 20 years has produced one of the lowest rates of traffic growth in the city centre of any UK city.

Marketing.

Large scale marketing exercises have increased bus patronage in Lemgo (Germany). Similar but less ambitious schemes can be found in the UK, e.g. SMART buses (Liverpool) and TravelWise schemes. System-wide, discounted tickets have helped increase public transport patronage in Germany, e.g. the 'Umweltkarte' or 'environment tickets'. In Freiburg, the Umweltkarte is attributed with a reduction of 4000 cars per day on the roads to the city centre. The German national rail system has increased its patronage through the introduction of the 'Bahnkarte' system which provides 50% discounts on all rail ticket purchases after the acquisition of an annual card costing DM 250.

Green Commuter strategies.

These are increasingly common in the UK, e.g. Nottingham (City Council, County Council, Queens Medical Centre, Universities and Boots), Derriford Hospital in Plymouth, Oxford University (planning agreement). The Rijnstate Hospital in the Netherlands has restricted its car parking provision to 400 spaces for 2050 staff PLUS visitors. Furthermore, this hospital developed a commuter strategy so that 9 out of 10 staff do not need to use cars to commute to work. Transport Demand Management policies have increased the use of public transport from 8% to 40% of all journeys. Restricting car parking availability was the key to this success.

Road Closure and Parish Council support of public transport.

Road closure and parish council support of public transport have introduced new elements into the rural transport discussion. The closure of the Under Loughrigg road near Ambleside in the Lake District has improved the conditions for walkers, cyclists and tourists and signalled a lowering of priority for motorised transport whilst rural parish councils have begun to exercise powers to provide financial support for public transport.

Travel to Schools.

Sustrans, the national cycle path charity, are co-ordinating a safe routes to school programme. Initial results in York, Leicester, Colchester and Hampshire are very encouraging.

Transport Audit.

The Riverside NHS Community Trust based in Parsons Green, London is conducting a thorough audit of all the trips made by staff in the course of work. The objective is to reduce the number of car trips whilst maintaining productivity and enhancing staff safety.

4. Identification of policies with traffic reduction potential that depend on central government action

Local authorities will need the active co-operation of central government to deliver road traffic reduction targets. Central government is the provider of the majority of funds for local transport projects and this is likely to continue. Using that funding power to bring about traffic reduction is critical to the success of policy in this area. Local authorities need a strong 'steer' from central government particularly where there are regional issues as in the case of car parking provision norms and also in the case of new revenue raising powers. Accordingly, central government action is needed in a number of priority areas:

- Urban road pricing (including congestion pricing)
- Fuel taxation
- Taxation on parking spaces at the workplace
- Taxation of parking spaces at car intensive developments e.g. out-of-town and edge of town retailing complexes, airports, leisure centres, sports facilities
- Regional norms on car parking provision to deter a competitive bidding-up process
- Financial support for quality public transport, co-ordination, integration, dense pedestrian and cycle networks and innovative programmes of accessibility enhancement for rural areas
- Substantial policy integration at the national level so that transport and land use planning policies support health policies, climate change policies and vice versa
- Modification of the 'predict and provide' approach which still determines policies towards airport capacity and housing. In the case of airports, this implies a range of policies to discourage the use of aircraft for short hops. For housing it requires policies to encourage more building in existing towns and cities and less on greenfield sites where public transport is poor.
- Legislation that will provide for the establishment of regional transport authorities following the German models. These authorities will be charged with the responsibilities of bringing public and private finance to bear on the supply of public transport, high quality integration and co-ordination, 'environment ticketing' schemes and high quality information
- Providing new methods of funding public transport; e.g. fuel taxation
- Providing new methods of funding public transport; e.g. fuel taxation as in Germany and employer contribution as in Paris
- Eliminating subsidies to private motorised transport through the company car, business mileage, and corporation tax regimes

Not all these policy areas will be discussed here. It is to be expected that the 1998 White Paper on integrated transport policy will emphasise some or all of these areas.

Road pricing and fuel taxation

These are attractive policy options, particularly if the revenues could be recycled into the local economy to support all the alternatives to car use. According to the OECD (1995) survey of transport policy options road pricing is being considered in some shape or form in most OECD countries. Plans are well advanced in Cambridge and Edinburgh (UK), toll systems exist in Norway, Stockholm is planning to introduce such a system and road pricing has been considered on several occasions for London going back to the early 1960s. Road pricing is generally suggested for those locations where the growth rate in traffic is already the lowest across a number of geographical situations. The growth of traffic into and out of central London has been far lower than the growth in outer London or the growth on the M25 corridor. Road pricing is best seen as a strongly supportive measure alongside a battery of other measures including strong land use controls and modal preference.

The view of the OECD is that 'The key to the sustainable development strand is a substantial and steadily-increasing fuel tax coupled with (other) measures'. The UK already has a policy commitment to increase fuel tax by 6% above the rate of inflation at each annual budget. The OECD suggests that the impact of a 7% pa rise in fuel costs in real terms would be to quadruple fuel prices in 20 years ..(leading).. to lower car ownership levels compared with what they would otherwise be, fewer car trips and shorter trip lengths'. An overall reduction in car trip making of about 15%, a reduction in trip length of about 25% and an overall reduction of vehicle kilometres of one third is predicted if fuel prices rise by a factor of 2.5 (OECD, 1995, pp. 154-6). This reduction is for cars only but as we show elsewhere in this report even greater reductions are possible for lorries.

The OECD view provides powerful evidence in support of the feasibility of significant road traffic reduction targets. A one third reduction in traffic levels from this one measure alone is more than sufficient to deliver the targets of the Road Traffic Reduction (UK Targets) Bill given the adoption of measures that will slow down and eliminate growth and given the existence of a considerable number of non-pricing measures suggested in this report.

The Stockholm proposals provide a model for UK local authorities.

Stockholm will be divided into 10 zones covering the whole of the built up area, served by 90 fee stations. Light vehicles (e.g. cars) would pay 0.45 or 0.55 ECU per transit on weekdays between 0600 and 1900. The lower charge is for automatic debiting and the higher for manual systems. HGVs would pay 1.10 ECU per transit if fitted with noise reduction technology and 1.40 ECU if not. Once again higher charges would apply to manual systems. The differential charge for noise indicates a real environmental benefit from road pricing. Vehicles can be charged on a number of different noise and pollution criteria to help achieve air and noise quality objectives as well as congestion targets.

- The Stockholm scheme is estimated to bring in about 140 million ECU a year.
- 13% is allocated to administrative costs, **79% is refunded to residents** and the rest set aside for noise reduction and public transport expenditures.

  Source: European Federation for Transport and the Environment, Briefing paper on Road pricing, Brussels, 1996

Parking taxes

A well developed system of public and private car parking charges already exists in the UK. Depending on the location more than half of the available car parking in a town or city can fall outside of these systems.

Private non-residential car parking (PNR) at workplaces, hospitals, universities and airports provide a powerful incentive for the use of car based transport for commuting and other purposes and for the use of cars in the course of work. If local authorities are going to be successful in achieving traffic reduction targets then there will need to be strong disincentives to discourage any increase to the supply of PNR spaces and strong incentives for employers and site managers to develop mobility options that give far more choice to personnel other than the car. Boots in Nottingham are currently showing the way forward in this move away from the car. This will in its turn have an impact on the initial concept and location choice to the benefit of public transport, walking and cycling options. A specific car space tax is suggested as a clear fiscal measure to achieve these objectives.

Level playing fields

Local authorities have many responsibilities in addition to transport, the environment and sustainability. Indeed many would put job creation, economic development and inward investment at the top of any list of priorities. Given the well documented and close association between strong environmental policies and local, secure job creation, then this is not in itself an area for policy conflict. Conflicts do arise, however, in the wider context of regional development and competition for inward investment, growth and retail viability. This is a wider issue than traffic reduction but it would not be reasonable for Liverpool (for example) to adopt a strong traffic reduction policy involving cuts in parking provision, increased car parking charges, road pricing and traffic management to restrict car access if Manchester (for example) was to do the opposite.

It is in the joint interests of both Manchester and Liverpool for the Secretary of State to establish (for example in Regional Planning Guidance) a common set of norms in terms of parking provision, parking charges and (possibly) road pricing. The retailing centres can then compete on quantity and quality of retailing provision, environmental quality, architectural and cultural diversity and much more.

Traffic reduction strategies are likely to falter in the absence of an ‘arms limitation agreement’. Central government can assist by taking the initiative to devise and implement regional norms.

5. Traffic reduction for heavy goods vehicles

HGVs are a long standing problem in towns and cities, on trunk roads through villages and in or near national parks. In general their impact is much greater than their numbers would suggest. Their impact on noise, road damage, pedestrian and cyclist fears and air quality is large and there is a strong case for reduction **in ways that can protect the economy of towns and cities and the consumer who has come to depend on goods and services supplied by HGVs.** Considerable progress has been made in this area in mainland Europe, particularly Germany, whilst hardly any progress at all has been made in the UK. Recent research in the UK (RAC, 1997) has, however, identified the potential for a 20% reduction in the number of lorries on the roads. In Germany HGV reduction strategies which **pay attention to the commercial interests of the companies involved** are generally referred to as 'City-Logistik' strategies.

City Logistics involves setting up new partnerships and styles of co-operation between all those involved in the logistics chain and in delivering / receiving goods in city centres. These partnerships offer significant reductions in vehicle kilometres and truck numbers and are currently in existence in Germany and Switzerland. City Logistics are a very clear illustration of the importance of developing high quality organisational arrangements and inter-company co-operation agreements in addition to whatever new technology might be appropriate. City logistics have taken transport operations into an area of development that builds links and emphasises co-operation across all players and interest groups.

In Germany partnerships between logistics contractors are reducing lorry numbers and improving the urban environment. These City-Logistik partnerships are in operation in Berlin, Bremen, Ulm, Kassel and Freiburg.

The Freiburg example has several pointers to the future shape of freight transport in urban areas. There are currently 12 partners in the scheme.

Three of the partners leave city centre deliveries at the premises of a fourth. The latter then delivers all the goods involved in the city centre area. A second group of 5 partners delivers all its goods to one depot located near the city centre. An independent contractor delivers them to city centre customers. A third group this time with only two service providers specialises in refrigerated fresh products. These partners form an unbroken relay chain, one partner collecting the goods from the other for delivery to the city centre.

The Freiburg scheme has reduced total journey times from 566 hours to 168 hours (per month), the monthly number of truck operations from 440 to 295 (a 33% reduction) and the time spent by lorries in the city from 612 hours to 317 hours (per month). The number of customers supplied or shipments made has remained the same. The Kassel scheme showed a 70% reduction in vehicle kilometres travelled and an 11% reduction in the number of delivery trucks. **This has reduced the costs of all the companies involved and increased the amount of work that can be done by each vehicle/driver combination.**

These reductions in vehicle numbers and in traffic levels have benefited the companies through higher levels of utilisation of the vehicle stock. It is not in the interests of logistic companies to have expensive vehicles clogged up in city centres, one way systems and on circuitous ring roads. There are clear economic benefits arising from lorry traffic reductions.

6. Rural Areas

Rural areas have higher levels of dependency on cars than urban areas and have experienced a steady decline in recent years in the range and quantity of facilities that represent the normal everyday destinations for our trips. The decline in rural shops, post offices, schools and health care facilities has been documented in most of the UK's rural areas. For these reasons special care is needed with traffic reduction policies in rural areas.

Rural areas are not universally perceived as particularly difficult in terms of public transport provision and facility development. Rural transport and high density of local services in Switzerland and Norway are well developed and sit amongst a number of other measures designed to support the residents of rural areas. In the UK this support network is lacking and it would be unreasonable to expect transport policies to make up for the huge deficits in other policies. The existence of a 'rural transport problem' is largely dependent on the extent to which organisational and fiscal changes over the last 30 years have left rural areas unsupported. When this support is restored e.g. through financial incentives that will support small schools, post offices, shops and rural enterprise as well as affordable housing then the 'rural transport problem' is rendered less intractable.

Central government can support rural areas through a policy of providing resources for small facilities in a dispersed pattern in a rural area particularly in education and health care. Local authorities can support rural areas through the provision of 100% rate relief for shops and post offices (section 49 of 1988 the Local Government Finance Act). This already happens in East and West Sussex where all but one of the districts offers rate relief to village shops.

Rural inhabitants will still need to travel and unless transport initiatives are vigorously pursued this is likely to be by car. There are potentially a number of alternatives to the car in rural areas:

- much improved bus services on main routes into larger settlements
- improvements to rural rail services where these exist
- community / voluntary car schemes
- community bus / dial-a-ride schemes
- improvements to pedestrian and cycling facilities
- shared use of vehicles e.g. post buses
- home deliveries

The exact mix of transport opportunities will vary from area to area and from the deep rural situation to circumstances where a large market town is accessible within half an hour by bus. UK experience with rural bus services and community bus services up to 1985 was successful in many places but was dealt a severe blow by bus deregulation in the 1985 Transport Act. This Act is in urgent need of reform to encourage innovative, community-organised and operated bus services in rural areas.

In spite of this unhelpful public transport regime there are still very good examples of quality bus services in rural areas. The bus services in Cerrig-y-Druidion in North Wales provide such a link (to Ruthin and Denbigh) and are well used.

Rural railways also continue to provide quality public transport in those areas that are served by this mode. Recent research by TR&IN (1997) in Huddersfield has shown how rural lines currently serve their populations (Exeter to Barnstaple, Derby to Matlock, Ipswich to Suffolk and Huddersfield to Sheffield) and how they could do much more to offer a quality, affordable alternative to the car. Similarly, the Heart of Wales line is used for shopping and commuting journeys.

In rural Oxfordshire a study (Environment Change Unit, Oxford University, 1996) of Cholsey and Chalgrove showed that residents of the village with the poor levels of public transport (Chalgrove) travelled 30% further by car than Cholsey residents. Cholsey has a bus or a train at least every hour. The survey also showed that the average distance for car journeys within both villages was one mile or less, indicating a significant potential for transfer to non-car modes. It would be mistaken to assume that rural transport demand is dominated by large numbers of long journeys in situations where there is no public transport. The reality is far more varied and has considerable potential for intervention to bring about a shift away from the car.

In Germany the ‘Buergerbus’ initiative has set a high standard for affordable, frequent, community-managed rural bus services. These buses have been funded by the state government of North Rhine Westphalia and are operated by locally managed companies. They cover a network of market towns and sparsely populated areas on a variety of frequencies and carry between 2000 and 18,000 passengers per annum.

There is considerable potential for significant change in the diversity and quantity of rural public transport services in the UK if changes are made to the 1985 Transport Act and financial support from central government is provided to local communities. The Road Traffic Reduction (UK Targets) Bill envisages this in Clause 2 which requires the Secretary of State to have special regard to the transport needs of rural areas and communities.

If the Secretary of State takes the advice of the Rural Development Commission, the Government agency responsible for promoting the economic and social wellbeing of rural England, he will see that they have recommended a three-way approach - of reducing the need to travel through planning and local jobs; of improving rural transport; and of targeted measures to restrain car use - rather than relying on blanket increases in motoring costs. (RDC Response to A Developing an Integrated Transport Policy@).

7. An estimate of the percentage reductions that can be expected from different policies

In this section estimates will be made of the potential for traffic reduction from different policy areas. These estimates are derived from case study information in a number of countries and identify the range within which the reductions are likely to lie. A threefold categorisation is applied to these estimates:

(i) traffic reduction estimates by the main journey purposes

(ii) traffic reduction estimates by policy area

(iii) traffic reduction estimates by geographical variation

Purpose

The latest National Travel Survey (1993/95) details the number of miles travelled for different journey purposes. Different measures to reduce traffic will have different impacts by journey purpose. Table 2 shows the estimated traffic reductions by main journey purpose.

Table 2. Traffic reduction for cars by journey purpose

Purpose	distance 1	%1	distance 2	%2	Key Policy Area
Commuting	825.7	25.35	577.99	30	C*** D*
Business	529.2	16.25	423.36	20	D** B* E*
Education	23.6	0.72	16.52	30	C** B* D*
Escort education	51.8	1.59	0	100	F** G**
Shopping	355.8	10.92	249.06	30	B** D**
Other personal	455.7	13.98	318.99	30	B** F* E*
Friends 1	506.2	15.54	404.96	20	B* F* G* D*
Friends 2	72.3	2.22	57.84	20	B* F* G* D*
Sport/entertainment	173.5	5.33	104.1	40	A** B* D*
Holidays/day trips	254.1	7.8	177.87	30	B****
Other	9.4	0.29	6.58	30	
TOTALS	3257.4	100	2337.27	28.25	

Notes: all data are taken from table 2B, p. 16 of the National Travel Survey (1993/5), HMSO (1996).

distance 1 = the annual distance in miles travelled per capita by a car driver in one year.
% 1 = the percentage of the total distance travelled (3257.4) accounted for by a specific journey purpose.
distance 2 = the 'new' annual per capita distance travelled in miles after the application of a traffic reduction factor.
% 2 = the estimated traffic reduction factor for that specific journey purpose.
Friends 1 = visiting friends at home.
Friends 2 = visiting friends elsewhere.
Key Policy Areas refer to the traffic reduction strategies in Table 3.
A, B, C, etc., refer to which policies will bring about the traffic reduction and stars indicate by how much.
**** = All of the reduction required
*** = Up to three-quarters of the total reduction required
** = Up to half of the total reduction required
* = Up to one-quarter of the total reduction required

The average per capita mileage reduction after the application of all the specific reduction factors is 28.25%. The reduction factors are based on specific policies relevant to each of the journey purposes and on what has been achieved already in various countries and contexts. This reduction applies to car mileage only. Car mileage accounts for 82% of total vehicle miles travelled. The reduction potential for lorries of all sizes is even greater than the car potential giving confidence in an overall figure of at least 28.25%.

Policy

The review of European best practice earlier in this report and the more detailed data in the sources quoted indicate the likely percentage traffic reduction that can be achieved by individual policy measures. Great care is required in interpreting these reduction estimates. They are estimates based on practice in a number of locations and circumstances will vary enormously depending on geography (see below) such that some measures will achieve more and some less. In addition there is a danger of double counting. All the measures cannot be introduced into any one area and even if this were possible there would be diminishing returns from successive layers of policy. The issue of policy design and strategy is returned to in the conclusion.

Table 3 lists the main policy measures suggested in this report and an estimate of the potential traffic reduction associated with that policy.

Table 3. Policy specific traffic reduction estimates

		% Reductions
A	Land use planning, e.g. Almere/Milton Keynes, Portland, Zurich	20-40
B	Fuel cost increases (OECD, 1995)	33
C	Traffic Demand Management	30-50
D	Parking charges and eliminating spaces, e.g. Bristol MVA study, EC DGVII, 1996	10-40
E	Bus use, travel cards, e.g. Freiburg, London, Paris	16-40
F	Cycle facilities, e.g. Delft, Groningen and German cities	10-30
G	Traffic management, e.g. Groningen and Gothenburg	up to 50%
H	Lorries, e.g. City Logistics in Germany and WWF (1995)	70% in cities, up to 40% on main corridors such as trans-Pennine

These percentage reductions are from geographically specific sets of circumstances ranging from fuel cost increases which operate at the national level to parking, travel cards, cycling and traffic management which operate at the urban level. Land use planning, logistics and TDM operate at both urban and rural levels.

A number of important policy areas have not been incorporated into Table 3.

These areas have not been incorporated because they depend on central government action in some way or they are lacking in empirical / case study evidence. They are nevertheless very real policy options which offer further flexibility and guarantees that effective measures can be put in place. They include:

- taxes on parking spaces
- complete abolition of any company car / parking space / fuel subsidy
- parking subsidy equivalent payments to those that commute or travel in the course of work by bus / bike / foot or train
- insurance payments on cars to be converted into a mileage based system
- reform of the 1985 Transport Act to make sure that rural areas can take full advantage of community bus opportunities
- clear funding priorities and resources from central government to enable local authorities to deliver traffic reduction measures
- creation of regional transport authorities to deliver high quality, fully integrated (all modes) public transport
- traffic generation audits on all development / planning proposals with a presumption against those proposals that create car-based and lorry-based traffic

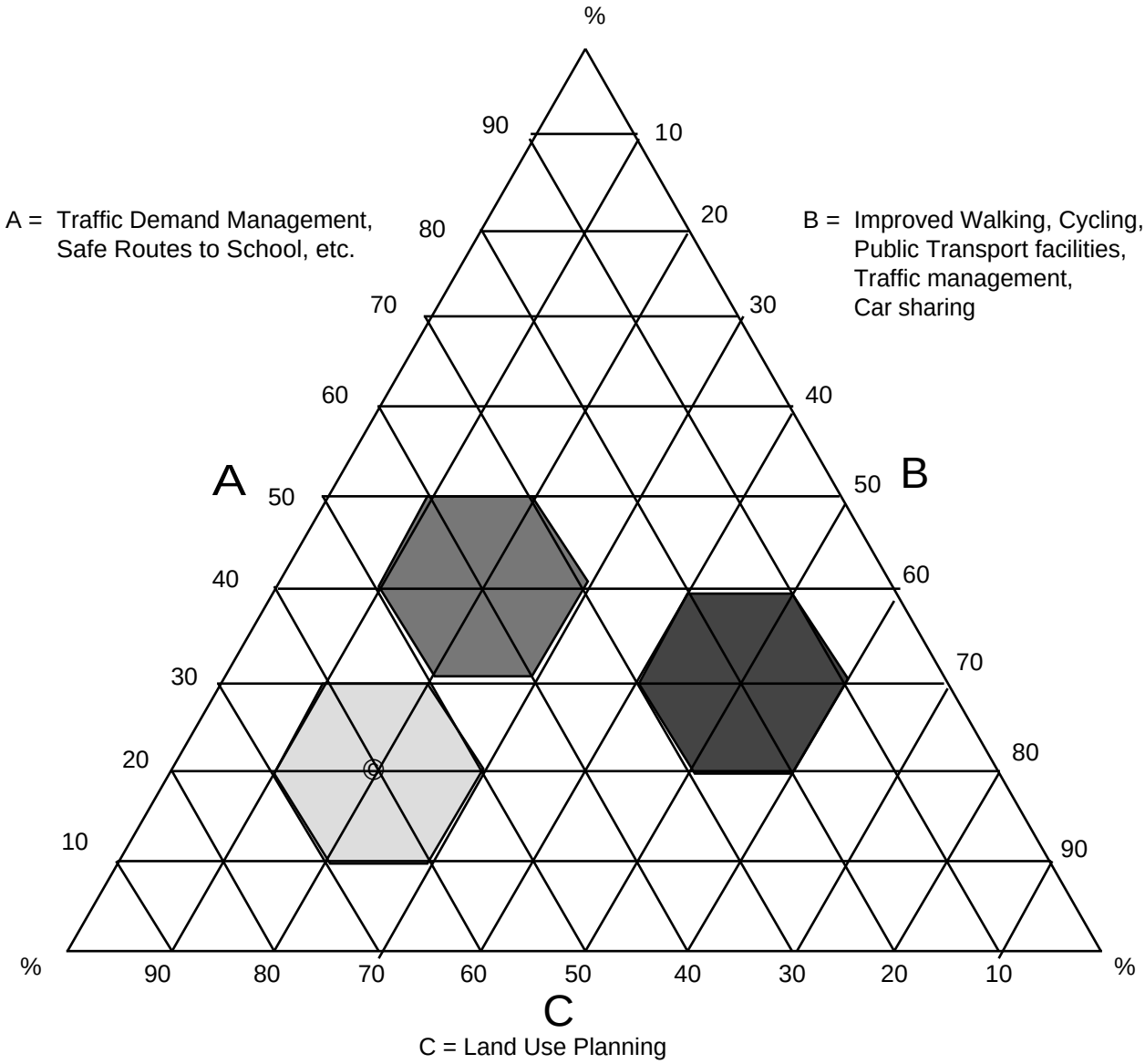
Geography

Introducing traffic reduction measures will have to be very sensitive to local variations in geography, particularly the size and spacing of settlements, density of housing, accessibility of regularly used facilities (health care, education, shops), and the geometry of the road and rail network and its potential for 'capturing' potential users with re-configured high quality public transport, walk and cycle offerings.

Figure 1 indicates a method of 'positioning' the strategy that a local authority might adopt when considering these geographical variations. The figure is intended as a starting point for the determination of strategy.

It reduces geographical variability to three types (metropolitan, free standing town / city and rural) and it reduces policy options to three bundles.

Figure 1 The Traffic Reduction Triangle:
percentage contribution to traffic reduction targets



Many of the policy measures advocated in this report have an immediate application on relatively short time scales in urban areas. They relate to proven methods of reducing vehicle miles travelled by cars and by lorries.

Many, but not all, of the measures selected relate to urban areas. Urban areas have a denser network of the more common destinations for everyday travel, a denser network of public transport and distances to be covered are shorter. Walking and cycling have more potential in urban than rural areas and the opportunities for travel reduction strategies are greater in locations where there are large clusters of origins, destinations, or both.

For these reasons it is helpful to carry out a check on the potential for reaching national traffic reduction targets from urban areas alone. If this is possible it would increase the degree of confidence in the feasibility of a national target and allow rural areas a little more time to introduce the land use planning and facility planning measures that will make a larger contribution to reduction in those areas than in urban areas.

Clark (1996) has calculated that 91% of the UK population lives in urban areas. The policy-specific traffic reduction estimates listed in Table 3 make it clear that a reduction of one third in vehicle miles travelled is feasible. This is the OECD (1995) estimate of reduction that can be expected from fuel costs increases and applies to urban as well as rural areas. Traffic management schemes have produced higher reduction results (up to 50%) and land use planning in combination with parking charges and quality public transport can produce reductions in the range of 20 to 40%.

We can be confident of achieving a 33% traffic reduction in urban areas.

In fact this is a rather conservative assumption and the final traffic reduction figure from all the measures proposed will be much larger than this. This leaves a considerable safety margin that can more than cope with any slippage in time scales or local difficulties in adopting traffic reduction measures. The targets in the Road Traffic Reduction (UK Targets) Bill can be achieved.

If we apply the one-third reduction potential only to the urban population of the UK (91% of the total) this results in a revised potential of 30% reduction in overall traffic. (i.e. 33% of 91% equals 30% of the total).

Even if we ignore rural areas in our traffic reduction policies (and in practice this will not happen) we can still be confident of achieving a 30% reduction in traffic levels.

This 30% reduction does not include the reductions in vehicle miles that can be expected from lorries as a result of the application of ‘city logistic’ policies. It does not include the 20% cut in lorry journeys that can be achieved by 2007 (RAC, 1997) as a result of new technology in retailing, in-cab communications, dynamic scheduling and computerised vehicle routing and scheduling.

All definitions of what is urban and what is not urban are dependent on assumptions that are open to challenge. The reduction potential that has been estimated in this report is not dependent on an artificially high level of urbanisation. Even if we take a figure of 80% of the UK population living in urban areas our overall traffic reduction estimates falls to 26.4% (i.e. 33% of 80% equals 26.4% of the total) which is still more than adequate to achieve the overall traffic reduction targets by 2010. This reduced percentage estimate applies to all traffic (cars and lorries).

The urban-rural dimension of traffic reductions has a further layer of complexity. Traffic can be divided into five categories:

1 Intra-urban where both the origin and the destination are within the same urban area
2 Intra-rural where the origin and the destination are both within the same rural area
3 Inter-urban where the origin and the destination are in different urban areas
4 Inter-rural where the origin and the destination are in different rural areas
5 Urban-rural or rural-urban

It has not been possible in this report (because of data deficiencies) to estimate traffic reduction potential for each of these categories. It is clear however that the potential for inter-urban and intra-urban is very high and the potential for inter-rural quite low. The potential for intra-rural is variable depending on the distances involved and the potential for rural-urban and its converse quite high depending on the proportion of those journeys that are for work and school purposes. Each of these categories is responsive to specific sets of measures.

- Inter-urban trips are susceptible to modal shift from road to rail.
- Urban-rural and rural-urban trips can be successfully accommodated by improving the quality of bus services and, in those areas still served by rail, by improvements to rail services.

The existence of these different categories of traffic gives policy an additional layer of opportunity. We have shown how national targets can be achieved by policy area, geographical area and journey purpose. We have shown that there is a considerable safety margin built into the process of achieving targets and we have shown that in spite of some simplifying assumptions our policy suggestions are feasible and practical.

8. A review of the economic consequences of traffic reduction

This subject has been researched in several different countries in recent years. Most of the work is German in origin where resources have been devoted to empirical research on the relationship between traffic restraint (e.g. reducing the number of car parking places in cities) and retail viability. This research carried out by the German Institute for Urban Research in the late 1980s and early 1990s is very clear:

> 'A study in Germany suggests that retail trade in central city districts increases with policies that encourage environmentally friendly transport modes. Of the 38 cities studied, 14 had above average retail growth. Of these 14, 10 had below average provision of infrastructure for the car'
>
> *European Commission (1996) European Sustainable Cities. Report, Expert Group on the Urban Environment, p. 176*

This is not really surprising. Research on the costs of congestion and the scale of the defensive expenditures that have to be deployed to cope with air pollution, noise pollution, road traffic accidents and congestion lends support to the conclusion that traffic growth is costly. Remedial measures including traffic calming, pedestrianisation, and provision of bus lanes are in their turn expensive (though not as much as new roads) and do not eliminate the health damage caused by traffic (treatment of bronchial complaints, serious injuries from road traffic accidents, etc.) (Maddison et al., 1996).

Authoritative European surveys of the external costs of transport agree that the total external costs of transport in 17 European countries amounts to 270 billion ECU per year, an average of 4.6% of GDP (IWW, Karlsruhe).

The road total is 50 times higher than the rail total and for all practical purposes walking and cycling can be regarded as having zero external costs.

The full implementation of already accepted EU policy in the area of internalising the external cost of transport would significantly reduce the number of vehicle kilometres of car and lorry travel, while at the same time expanding the use of other modes. Internalising external costs is likely to increase the cost of private motorised transport at the same time as reducing the cost of public transport.

In a seminal study of Japan's urban transport system and economic performance, Hook (1994) associates Japan's reliance on non-motorised transport and rail transit with its economic success:

> 'High urban density and a transportation system heavily reliant on non-motorized transportation and its linkages with rail-based mass transit have been critical to Japan's economic success. By minimising aggregate transportation costs, Japan has been able to minimise its production costs, making its goods more competitive in international markets. Further, by discouraging the consumption of private automobiles and encouraging savings, a larger pool of potential investment capital was created, also critical to rapid economic growth. ... the automobile, far from being a symbol of economic prowess, is more a symbol of economic assets being wasted on consumption instead of on job-creating and productivity-increasing investment. Meanwhile, the bicycle and other non-motorized vehicles, far from being a symbol of economic backwardness, are more a symbol of a society able to meet its passenger transportation needs in the most cost-effective and least environmentally damaging way, allowing scarce economic resources to be invested elsewhere.'

There are considerable benefits to be had from public transport investments. Steer, Davies and Gleave (1997) in their report for Transport 2000 show that the total non-user benefit from investing in the Midland Metro Line 1 amounts to 112.85 million at 1989 prices. Evidence from Portland, Oregon (USA) shows a major wave of economic revitalisation from the new transit system and its associated land use planning (Centre for Clean Air Policy, Washington DC, 1997). Portland's economic decline in the 1960s and 1970s was reversed by new, high density housing in the down-town area, conversion of streets to pedestrian-friendly configurations, replacing a riverside motorway with an esplanade, stringent parking restrictions, free public transport in the central area using a new light rail system and the scrapping of road schemes. The result has been a revitalised city centre with 30,000 more jobs and 40% of commuters using public transport.

Detailed empirical research in Germany shows that there is no relationship between the amount of car

parking provision in the main city centres and the amount of retail spending in those areas (Baier and Schaefer, 1997).

Freiburg with very low numbers of car parking spaces per inhabitant has a higher level of retail spending than Wetzlar with four times the number of spaces per inhabitant as Freiburg. In the case of public transport there is a very strong relationship. The higher the number of public transport arrivals in cities the greater their level of retail activity. On the basis of this evidence it is possible to conclude that traffic reduction in British cities will not damage the economic fortunes of retail centres.

The reality is traffic reduction will improve prospects for business, create jobs, encourage economic growth, and lead to greater all round prosperity.

The literature and experience from all advanced industrial countries that have invested in alternatives to the car and in forms of mobility other than the car is that there are measurable economic benefits and gains from doing so. Traffic reduction is not about stopping people travelling.

Transferring trips to modes of transport other than the car, or planning for land use arrangements and accessibility patterns that stimulate innovations in supply (e.g. home deliveries) are more likely to create jobs than to destroy jobs. Indeed, sustainable transport policies with traffic reduction at their heart are examples of strategies that have the potential to create real, long lasting, local jobs that can sustain local communities at a time when globalisation tendencies are making jobs far more mobile than at any other time in the past 50 years

9. Conclusion: achieving the targets

The evidence of international best practice indicates that the targets in the Road Traffic Reduction (UK Targets) Bill are feasible We can be confident about achieving this target in the UK for a number of reasons:

(i) current variations in modal split in UK cities indicate considerable scope for improvement in non-car modes overall;

(ii) existing best practice in Britain (e.g. Manchester Metrolink, Liverpool SMART buses, cycling in York) indicate that achievements in traffic reduction are not confined to mainland Europe, even though mainland Europe continues to be a stimulus for greater effort in this direction;

(iii) restrictions on car parking and on road space do reduce the physical quantity of traffic (this is why London's traffic growth has been considerably less than some other cities and why outer London's traffic growth has been greater than central London); and

(iv) a combination of strong central government fiscal intervention (e.g. OECD estimates of traffic reduction based on fuel price increases) together with local initiatives is an effective policy cocktail.

Government and local authority intervention in the UK will have to be carefully designed and managed to produce a strategy that is appropriate to the particular geographical circumstances. This problem is addressed in Figure 1. The range of policies that are available now is more than enough to deliver the reduction target. Should there be difficulties there are more policies that can be brought on stream in the future. The combination of several layers of policy to reduce vehicle miles, more policies in reserve and opportunities to slow down and stop the growth so that it does not happen gives confidence that we can achieve the targets.

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