

Smarter Choices – Changing the Way We Travel

Final report of the research project:
'The influence of soft factor interventions on travel demand'

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Accompanying report

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Summary

In recent years, there has been growing interest in a range of initiatives which are now widely described as 'soft' transport policy measures. These seek to give better information and opportunities, aimed at helping people to choose to reduce their car use while enhancing the attractiveness of alternatives. They are fairly new as part of mainstream transport policy, mostly relatively uncontroversial, and often popular. They include:

- Workplace and school travel plans;
- Personalised travel planning, travel awareness campaigns, and public transport information and marketing;
- Car clubs and car sharing schemes;
- Teleworking, teleconferencing and home shopping.

This report draws on earlier studies of the impact of soft measures, new evidence from the UK and abroad, case study interviews relating to 24 specific initiatives, and the experience of commercial, public and voluntary stakeholders involved in organising such schemes. Each of the soft factors is analysed separately, followed by an assessment of their combined potential impact.

The assessment focuses on two different policy scenarios for the next ten years. The '**high intensity**' scenario identifies the potential provided by a significant expansion of activity to a much more widespread implementation of present good practice, albeit to a realistic level which still recognises the constraints of money and other resources, and variation in the suitability and effectiveness of soft factors according to local circumstances. The '**low intensity**' scenario is broadly defined as a projection of the present (2003-4) levels of local and national activity on soft measures.

The main features of the high intensity scenario would be

- A reduction in peak period urban traffic of about 21% (off-peak 13%);
- A reduction of peak period non-urban traffic of about 14% (off-peak 7%);
- A nationwide reduction in all traffic of about 11%.

These projected changes in traffic levels are quite large (though consistent with other evidence on behavioural change at the individual level), and would produce substantial reductions in congestion. However, this would tend to attract more car use, by other people, which could offset the impact of those who reduce their car use unless there are measures in place to prevent this. Therefore, those experienced in the implementation of soft factors locally usually emphasise that success depends on some or all of such supportive policies as re-allocation of road capacity and other measures to improve public

transport service levels, parking control, traffic calming, pedestrianisation, cycle networks, congestion charging or other traffic restraint, other use of transport prices and fares, speed regulation, or stronger legal enforcement levels. The report also records a number of suggestions about local and national policy measures that could facilitate the expansion of soft measures.

The effects of the low intensity scenario, in which soft factors are not given increased policy priority compared with present practice, are estimated to be considerably less than those of the high intensity scenario, including a reduction in peak period urban traffic of about 5%, and a nationwide reduction in all traffic of 2%-3%. These smaller figures also assume that sufficient other supporting policies are used to prevent induced traffic from eroding the effects, notably at peak periods and in congested conditions. Without these supportive measures, the effects could be lower, temporary, and perhaps invisible.

Previous advice given by the Department for Transport in relation to multi-modal studies was that soft factors might achieve a nationwide traffic reduction of about 5%. The policy assumptions underpinning this advice were similar to those used in our low intensity scenario: our estimate is slightly less, but the difference is probably within the range of error of such projections.

The public expenditure cost of achieving reduced car use by soft measures, on average, is estimated at about 1.5 pence per car kilometre, i.e. £15 for removing each 1000 vehicle kilometres of traffic. Current official practice calculates the benefit of reduced traffic congestion, on average, to be about 15p per car kilometre removed, and more than three times this level in congested urban conditions. Thus every £1 spent on well-designed soft measures could bring about £10 of benefit in reduced congestion alone, more in the most congested conditions, and with further potential gains from environmental improvements and other effects, provided that the tendency of induced traffic to erode such benefits is controlled. There are also opportunities for private business expenditure on some soft measures, which can result in offsetting cost savings.

Much of the experience of implementing soft factors is recent, and the evidence is of variable quality. Therefore, there are inevitably uncertainties in the results. With this caveat, the main conclusion is that, provided they are implemented within a supportive policy context, soft measures can be sufficiently effective in facilitating choices to reduce car use, and offer sufficiently good value for money, that they merit serious consideration for an expanded role in local and national transport strategy.

1. Introduction

1.1 Background to discussion of 'soft factors'

In recent years there has been growing interest in a range of transport policy initiatives which are aimed at producing more reliable information, better informed traveller attitudes, and more benign or efficient ways of travelling. In transport policy discussions, these are now widely described as 'soft' factor interventions.

A clear or consistent definition has not yet been developed to identify what constitutes a 'soft' measure. The word 'soft' is sometimes used to distinguish these initiatives from 'hard' measures such as physical improvements to transport infrastructure or operations, traffic engineering, control of road space and changes in price, although some soft factors do include elements of this nature. (For example, workplace travel plans often including parking management). 'Soft' also refers to the nature of the traveller response, with initiatives often addressing psychological motivations for travel choice as well as economic ones. There is an emphasis on management and marketing activities rather than operations and investment. And there is also often the observation that these measures are largely or entirely omitted from established modelling and appraisal techniques, which deal with measures that are assumed to be more reliably understood. However, not all soft measures show all of these attributes, and various earlier studies have defined and dealt with different combinations of soft measures.

Out of many potential lists, definitions and groupings of soft measures, the measures included in this study were defined in the original project brief, as follows:

- workplace travel plans;
- school travel plans;
- personalised travel planning;
- public transport information and marketing;
- travel awareness campaigns;
- car clubs;
- car sharing schemes;
- teleworking;
- teleconferencing, and
- home shopping.

This is the list which we use as the basis of this report. We do not assume that it is a final and complete listing of all such factors, which no doubt will evolve as further understanding and practice develops.

Such policies, separately or together, have been undertaken for a wide range of different objectives including reducing congestion; increasing revenue for transport companies; improving health by encouraging physical activity; improving social inclusion; reducing environmental damage and saving commercial costs for employers. The most common specific feature linking these different policies has been that they have the potential to impact on levels of car use.

Although some of these activities have a very long history, mainstream analyses of specific initiatives, and their implications for policy, mainly date from the late 1990s. The current study collates and builds on this evidence, reviews current practice and experience at the local level in the UK and from some other countries, and comes to a broad view about the prospects for these policy instruments in the UK. Although there is much accumulating evidence, it is still early days for soft factors, and the picture is changing rapidly as information and understanding grows, and agencies develop better skills in implementing them. Consequently, all the conclusions in this report are subject to change as experience deepens.

1.2 Aims and objectives

The Department for Transport and its predecessors have commissioned a number of reviews of evidence in this field, reviewed in Chapter 2, of which the most recent had been a study by Halcrow (2001, 2002). This was used to inform Departmental advice to the Multi-Modal Studies teams, who were guided towards a conclusion that the total potential effect of soft factor interventions could be, on average, a traffic reduction of around 5%. This figure was widely discussed, with a number of criticisms that it under-estimated the potential effect in the light of accumulating new evidence. Therefore the Department decided to take understanding of soft measures further by a new review of all available evidence as published in the UK and overseas literature, together with a series of case studies involving visits and interviews with local authority and other staff actively involved in developing current work. A brief was put out to tender in Spring 2003, and the present team of six individual specialists, co-ordinated by the ESRC Transport Studies Unit at University College London and the independent consultancy Transport for Quality of Life, were selected to carry out the study.

The project brief established that the main objective was to collate and collect evidence from a diverse set of sources, including new case studies, about the effects and effectiveness of these measures at present, and their potential in the future. The study was intended to help to inform decisions on the importance that should be attached to such interventions, future levels of resourcing, and the development of the National Transport Model. Four main dimensions of evidence were defined:

- What interventions are being used, and where?
- What have they achieved in terms of modal shift for different types of journey?
- What other effects have followed?
- What is their cost effectiveness?

In addition, the project aimed to refine understanding of the effectiveness of these measures in different types of areas and for different trip types (purpose, length etc), where such information could be obtained.

It was recognised that this was just about the earliest stage when such an approach could be expected to be feasible. Local authorities were three years into the implementation of their first Local Transport Plans, though some authorities have been actively encouraging travel plan development for schools and workplaces for longer. The appointment of local authority school and workplace travel plan co-

ordinators through the Government's bursary scheme began in 2001. Through their Annual Progress Reports, local authorities identified that there would be over 2000 employer travel plans and over 3000 school travel plans in place or planned by the end of 2003.

But there were, and are, still real-world limits on the amount of existing experience of different soft factor interventions (and in particular, on introducing combinations of such factors in a concerted fashion), which limit the scope of the study's conclusions and recommendations.

1.3 Methodology

There were two main activities undertaken in the study, a literature review and a series of local case studies, with a considerable effort devoted to seek to integrate and compare the results of these two strands of work.

The **literature review** took the broadest view possible about sources of information, with particular attention, where feasible, to results of actual practical experience on the ground, including evidence on the importance of surrounding conditions, complementary policies, conditions affecting success and failure, the separate impacts of individual initiatives, and the combined effects of packages of measures. We paid attention to seven important 'overview' studies which themselves had sought to come to a view about the overall impact of soft measures. We also went back to their original source material, and new published evidence, which dealt with specific individual soft factor measures. The overview studies are compared in Chapter 2, and the information about individual soft factors are summarised in separate chapters on each measure.

The **case studies** aimed, as far as possible, to add detailed information, not yet widely available, about:

- what soft factor interventions are being used in different types of area;
- the size of the intervention (how many people have been affected);
- effects of the initiative on car use;
- likely changes in impact over time;
- what other effects have been achieved, such as improved accessibility;
- what resources have been needed to achieve these effects;
- any synergy between the intervention and other soft or hard measures;
- data on trends in car traffic levels available from other sources;
- the likely costs, and impacts, of scaling up interventions over the long term.

An initial list of potential case study interview locations for each soft factor was drawn up based on the project team's knowledge, strengthened by consultation with experts and the Department for Transport. This produced a long-list of about 60 potential case studies. Telephone conversations, web searches and analyses of local authority progress reports were then used to obtain further information about each suggested location and organisation.

Following this trawl, and discussion with the steering group, the 24 case study interview locations were finalised as shown in the following table.

Table 1.1: Case studies examined in the project

Case study area / organisation	Soft factor									
	Workplace travel plans	School travel plans	Personalised travel planning	Public transport information & marketing	Travel awareness	Car-sharing	Car clubs	Telework	Teleconferencing	Home shopping
Bristol	X		X				X			
Birmingham	X									
Cambridgeshire	X									
Nottingham	X		X	X						(X) ¹
Buckinghamshire	X	X				X				
Merseyside	X	X								
Gloucester			X							
Brighton				X						
S Yorkshire PTE				X						
York	X	X			X					
Milton Keynes						X				
Edinburgh							X			
British Telecom								X	X	

In making these choices, key priorities identified with the steering group were that the selection should aim for a balance between metropolitan, urban and shire areas; that more than one measure should be investigated in at least some of the case study areas to seek insight into synergy between measures; and that the selection should include some examples of local authorities which have been less successful in a particular field. (This was taken to mean that they had tried to implement a particular measure but not made great progress, rather than that they had not shown any interest in the measure at all).

A further constraint was that the authority should have carried out formal monitoring and/or have other relevant data available. It should be noted many local authorities lack adequate data about the effects of initiatives that they are undertaking. This is partly because the cost of thorough monitoring is often large compared with the cost of the initiative itself, meaning that there is understandably less enthusiasm for undertaking such monitoring in local authorities, than is considered desirable by research institutes. In addition, some soft factors are at a very early stage of development in the UK and have only been trialled by a few local authorities in total.

¹ This material was available from a TransportEnergy Best Practice case study: we did not undertake our own additional interviews.

Having chosen the case studies, a discussion guide was developed for each soft factor, and interviews took place between July and September 2003. Initial interviews were usually with 1-3 people (including both local authority, and initiative-related staff, from the local public transport or car club operator, or PTE, or associated consultancy etc.). Follow-up work usually involved contact with further staff from relevant organisations, and a number of rounds of consultation and redrafting with all those involved – up to a further 30 email and telephone contacts per soft factor interview.

A separate volume (Anable et al, 2004) contains the full case study interview reports. In the present volume, the case study material is organised on a thematic basis, related to each of the soft measures, and integrated with the relevant specific literature from other areas, in the UK and internationally, which is mostly also of a case-study character.

1.4 General approach and caveats

Following this introduction, Chapter 2 summarises the previous UK 'overview' studies on this topic. Chapters 3-12 take each of the soft measures in turn, reporting (as far as possible in a standard format) the results of both the available literature and our own case studies. Chapter 13 looks at the combined potential impact of the different soft measures in the future, and their associated costs. Finally, Chapter 14 provides an overview of the main conclusions from the study, including the main policy implications that emerge.

At this stage we highlight some differences in the form of analysis in the different chapters, and the caveats which should be applied to them.

As far as possible, the main body of evidence in Chapters 2-12 relates to published information and case study evidence, where we have sought to summarise the data as accurately as possible – including the judgements and analyses made by the authors of the source documents, and by those involved in local initiatives, but with the minimum reliance on our own judgement. These chapters have been checked with the many case study interviewees and other experts who have contributed to the study, to ensure their robustness, and their helpful comments are gratefully acknowledged. Each chapter includes a list of those who have helped throughout the study, though with no implication that they have a responsibility for the analysis and conclusions that the chapter contains.

We then add our own judgements and analyses, identified separately from the source information, at two points.

In each chapter, we make calculations about the impact of the appropriate soft measure on car use, and the costs of achieving that, in order to calculate a figure for the cost per vehicle kilometre reduced. This is based on the case study experiences and also on the wider literature, with our own judgements on how to reconcile or synthesise this evidence. To the extent that the rather different nature of each of the soft measures allows, we have adopted a common approach in all the chapters, usually including treatment of build-up and decay rates of spending and effects over time, and inclusion of discount rates for annualisation of capital costs in line with Treasury guidance on public sector investment appraisal. Additional external benefits

(such as time savings, accident reductions, health and environmental impacts, social inclusion gains etc.) have been briefly noted where evidence exists, but not monetised nor included in a social cost-benefit appraisal. In some cases, we have drawn on the National Travel Survey to provide a basis for current travel habits. We have aimed to draw on the 1999/2001 results for consistency, although it has occasionally been necessary to use results from 1998/2000, or 2002.

These calculations come together in chapter 13, where we give our own judgement of the future potential of soft measures to affect traffic levels. Two different scenarios are defined. The first scenario, which we call 'low intensity', is a projection of the present rate of expenditure and level of commitment, taking account of the important initiatives which already exist, and will no doubt continue, by the most committed local authorities, and of commercial initiatives being undertaken by companies. The second, which we call 'high intensity', is based on an expansion of activity, commitment and resources to a substantially higher level, which would still be consistent with practical and realistic experience, and feasible levels of expenditure, given the known constraints of staffing and funding generally.

As discussed in each of the chapters as relevant, and in considerably more detail in chapter 14, there are a number of important caveats and methodological difficulties which all studies in this area have needed to consider. In summary, these are as follows:

- Travellers may adjust their behaviour in many different ways apart from the switch in mode of transport which is often the main focus of policy attention. Some of these responses change the average distance of journeys, and in this case, it is not correct to calculate directly from mode switch to traffic impact.
- Travellers do not adjust their behaviour instantaneously. Therefore any before-and-after results, and model forecasts, need to assess as to whether the estimated effect has fully settled down, or is still in an uncompleted process of change.
- Much attention has been given to the logical likelihood, and strong judgements of those with local experience, of 'synergy' or interactions in effect among the various soft factors, and between soft and hard factors.
- Interpretations of empirical results need to make allowance for the extent and type of change that would have happened anyway, even without the intervention.
- Many studies have only measured some dimensions of behaviour (for example, changes in trips, but not mileage).
- Not all studies have used control groups or locations as part of the process of estimating impacts, and even where this has been done, it has often been difficult to ensure that the control groups are completely valid.

Wherever possible, we have sought additional evidence to enable us to take these issues into account. But where evidence has been lacking, it is still necessary to consider these issues, since to ignore them would almost certainly introduce bias into the calculations, one way or the other.

When in doubt, our general stance has been to err on the side of caution – i.e. to assume that effects on behaviour are at the lower end of a potential range, as opposed to the higher end. The cumulative effect of this approach has meant that we are fairly confident that we have not overestimated the potential impact of soft measures. This applies to both the low and high intensity scenarios. As a result, the estimated effects

of the high intensity scenario have already been discounted to allow a degree of caution: the two scenarios should not be interpreted as a low and high bound of possible effect, the truth being somewhere in the middle. Rather they are both cautious estimates of the effect of two different policy choices.

A final caveat that we should make, of a quite different kind, relates to treatment of the surrounding policy context in which an expansion of soft policies might take place. A critical issue is whether the effect of even the most successful soft measures might be offset by induced traffic. In order not to confuse the analysis, we have adopted the assumption that *sufficient* supportive measures will be put in place not to obscure the impacts of soft factors, either by eroding or enhancing them.

This is a convenient neutral assumption for the analysis, and we have not attempted to define exactly what package of supportive measures would be capable of producing such a result in practice: its purpose is only to allow the potential impact of soft measures to be defined in themselves. However, to avoid misunderstanding, we note that this is not an implied policy recommendation. In practice one would, of course, expect a different condition to be applied, since the scale of the supportive measures sensibly chosen would not be that which just maintains the impact of the soft measures and no more, but would be at a level which takes into account the costs and benefits of those measures themselves.

Thus we make, at this point, an initial statement of our approach, which will be discussed in detail recurrently during the report.

In accordance with the spirit of our brief, we have sought to use the results from the literature and the case studies to identify the maximum reasonable potential scope for soft factor interventions, given a serious commitment of intent and a coherent general policy approach, but within the bounds of political feasibility, sensible amounts of resources, and a cautious interpretation of the evidence. Thus the potential we have identified does presuppose that this whole approach is treated as a serious and important arm of transport policy, both at the local level, where many of the soft policies are implemented, and also at national level, in setting a strategic context, giving clear signals, and addressing practical constraints. However, it is not intended to be outside the range of what willing and committed local and national agencies could realistically achieve, in the world as it really exists.

We emphasise that our conclusions are therefore about a *potential*, not a forecast. Whether this potential is considered desirable or not depends on policy judgements. If it is considered desirable, whether it is realised or not depends on the degree of commitment and consistent application of soft factor interventions which is secured in practice. These are issues of political will rather than research or modelling.