

## **SOFT FACTORS LIKELY TO AFFECT TRAVEL DEMAND REPORT TO DTLR BY HALCROW GROUP LTD**

### **REVIEW OF REPORT AND IMPLICATIONS FOR MULTI-MODAL STUDIES**

#### **1.0 INTRODUCTION**

The DTLR report "Multi-Modal Studies: Soft Factors Likely To Affect Travel Demand", prepared by the Halcrow Group, seeks to pull together available information on a wide range of influences on travel behaviour which are increasingly referred to as 'soft' elements, as distinct from 'hard' issues.

Although the distinction is not defined, it is generally assumed that the difference is largely between 'hard' measures which can be easily described, mostly specific infrastructure, and 'soft' measures to do with travel behaviour, demand management, and information, which are either imprecisely defined, or indirect in their effect on travel behaviour, or are in some cases general trends affecting behaviour rather than positive measures to influence behaviour. 'Soft' is also the term increasingly used to describe the more sustainable transport modes - walking, cycling, and public transport - and measures to promote their use, which although including infrastructure are often much less capital intensive than major road schemes.

There is a further distinction in the Halcrow report, between 'hard' aspects of transport which are perceived to be amenable to robust modelling, such as the effects of new infrastructure on traffic flow patterns across a network, and 'soft' aspects which are either regarded as intrinsically difficult to model or for which modelling techniques are insufficiently advanced, but whose effects should somehow be incorporated into assessments.

The effort to include soft factors in assessments for MMSs, and indeed other areas of transport planning, is welcome. These factors are at the heart of strategic policy documents to manage demand, such as PPG 13, and it is unsatisfactory to relegate them in importance just because they are more difficult to quantify. The Halcrow report also draws some attention to issues relating to the goal of reducing the need to travel, which has to date been the most neglected part of the central objectives for sustainable transport as set out in PPG 13 and other policy instruments. This said, the Halcrow report falls well short of discussing the likely effects of soft factors adequately, and its conclusions are unreliable in most of the subject areas covered.

SWTAR have commissioned this short report to review the Halcrow report, and to suggest ways in which soft factors might be more effectively incorporated into both the approach and the detailed proposals of MMSs. The report is accordingly in two parts, the first a critique of the Halcrow report, and the second a discussion of the role of soft factors in MMSs which will draw on some of the findings on the Halcrow report.

## 2.0 THE HALCROW REPORT

### 2.1 Report Summary

The Halcrow report does a considerable service by bringing together in one place a great deal of information, reference, and discussion of the issues surrounding soft factors and their effects on travel demand. It treats the subject under six main headings (Summary p95):-

- electronic communications and travel
- Focused initiatives to change travel behaviour
- Public transport improvements
- Land use and travel demand
- Local sourcing
- The impacts of reducing oil supplies and alternative fuels

The tone of the report is openly sceptical that soft factors have significant effects on travel demand, and the conclusions suggest that the effects, particularly on the strategic road network which is of primary interest to MMSs, will be negligible in most subject areas. Soft factors are forecast to have no more than a marginal effect on travel demand, much of the effect will not be on the strategic network, and the overall reduction in vehicle km will not be significant. A frequent line of argument in the report is that with cars and taxis (the latter only about 1% of the total) travelling about 380 billion km per annum on the road network (Halcrow p36 second para), apparently worthwhile travel savings in some parts of some travel sectors do not add up to anything more than a minor reduction in overall traffic volumes.

This scepticism is a central problem of the report. Whilst it is reasonable, in a spirit of 'devil's advocacy', to caution against unwarranted optimism over the performance potential of new (or newly considered) soft approaches to traffic problems, it is not reasonable to conclude that they will perform ineffectually on little more than this basis. Many of the Halcrow report's findings of insignificant effect of soft factors are rooted in two central fallacies:-

- *Evidence* of the potential of soft measures is countered by *surmise* on why the effect might not be as great as the evidence suggests, and by the time the conclusions are reached this surmise has turned into assertion. A good example of this is the section on Internet shopping, in which evidence of potential traffic reduction effects is countered by nothing more than speculation about why there might end up being more journeys rather than less, which reaches a degree of desperation in the contention that "one delivery journey may become two or three journeys if goods are delivered in error, or the purchaser is found to be not at home" (Halcrow p24).

Conversely, where there is opinion that suits the argument that traffic reduction will be negligible, it is presented unquestioningly in support of the case being made. An example is the quotation attributed to the Director of Marketing and Information for Copenhagen Transport (although either the name or job title is understood to be incorrect in the Halcrow report) to the effect that it is difficult and costly to persuade car drivers to transfer to bus use, which is followed by the conclusion that "the many general claims that improved marketing will readily attract people from their cars are not really borne out by the experience of those in field who have struggled with the issue" (Halcrow p50). There is no evidence whether measures work - only

that they are "costly and time consuming", which says nothing about effectiveness or value for money - in either the quotation or the conclusion drawn from it.

This is not good enough. Evidence should be set against evidence, and a forecast made on the basis of the best available evidence, with a confidence range to reflect any uncertainties about the nature and extent of likely effects. A further conclusion may be that more research is needed to provide more evidence.

- It is often stated that the implementation of soft measures, such as travel plans or teleworking, is too recent to be sure of their likely effect and uptake in the longer term, so it is prudent not to rely on them to deliver the degree of benefit of which they may potentially be capable. This understates the level of information that is already available, for example in the effectiveness of travel plans, and downplays the usefulness of longer term experience from elsewhere: but in any case it is not a reason to conclude that effects are likely to be negligible, and again is something that can be handled by setting confidence ranges.

For these reasons alone, the Halcrow report findings should be treated with caution, but there are many further areas of general weakness and contentious detail, to be discussed in the following sections.

## 2.2 Halcrow report review: overall comments

The Halcrow report has a number of general shortcomings, which are summarised below:-

- Policy context

The report is written from a largely policy-free perspective, in which the possible effects of a coherent strategic approach across a broad range of inter-related and mutually supportive policy initiatives, are largely disregarded. The summary refers to the "general economic regulatory and social environment" affecting outcomes (Halcrow p96), but does not mention either the general transport policy climate in which traffic reduction through demand management is a central and over-arching theme, or the specific transport objectives which will affect many outcomes directly. For example, travel plans are built into the strategic approach as a significant strand of demand management, and uptake can be influenced by government policy to encourage implementation. Government offices and health authorities are already mandated to have travel plans; local authorities are expected, rather than asked (Halcrow p33), to produce their own travel plans, and with further commitment the uptake is likely to be 100%; and the new PPG 13 places much greater emphasis on the presentation of travel plans with planning applications and their enforcement through S106 agreements, to encourage uptake. Government can choose and is choosing to affect travel demand management through soft factors, so it is not enough to forecast effects in a policy vacuum. At the very least, forecasts which are policy-free should state this basis explicitly, and be recognised as a worst case scenario which can be enhanced by policies and programmes.

- National trends in transport

The Halcrow report sets its assessment in a context of continuing upward trends in traffic levels, with an underlying implication that soft factors have to be able to reverse the natural trend of traffic growth if they are to have anything more than a marginal effect. There is however some evidence that the detailed picture is more complex. Firstly, traffic growth rates from 1997-2000 were significantly lower than

between 1993-1996, and significantly lower than economic growth, which indicates - possibly for the first time - a decoupling between the two. The most recent figure, for 1999/2000, shows a growth in all motor vehicle traffic of only 0.4%, following growth in the previous two years of 1.5% and 1.7%. (all figures derived from table 4.7 of Transport Statistics Great Britain: 2001 Edition).

Secondly, the most recent "Focus on Personal Travel" report (2001), shows a parallel pattern of recent decline in some of the key data since 1998/99, contrary to the assumption of inexorable rise. For example:-

- total miles travelled peaked at 6,888/ person in 1998, declined to 6,788 in 2000
- total miles by car peaked at 5,653/ person in 1998, declined to 5,536 in 2000 (ie the decline in car miles is more than that for total miles, so other modes have increased to give the net total: both figures from table 1.2)
- the modal share of car peaked at 71% in 1998, and has fallen back to 70% (table 4.8)

The data are too recent, the timescale too short, and the trend shifts too modest, to draw firm conclusions, but they should undoubtedly be included in any discussion about future travel patterns. The fact that several datasets from diffuse sources - traffic data, travel diaries, ONS Labour Survey - point consistently in the same direction, suggests that something different is happening. It would be useful to have a better understanding of what that might be, and of the underlying causes of the apparent change in direction, to gain a stronger foundation for forecasting future trends .

- Timescales

The Halcrow report is at best sporadic in putting a timescale on its forecasts of trends and likely effects of soft factors. In some cases, most notably its discussion of land use planning (Ch 7), it argues that any impact will take a long time to feed through, but since the possible infrastructure investment in MMSs is also long term in its effects this is not a very good reason for discounting land use policy effects. In its discussion of Travel Plan effects, the Halcrow report projects current modal shift achievements as the limit of future performance, but these have largely been achieved in around 3 years and are only the beginning of a rolling programme which is planned to deliver much more.

In the context of MMSs, it may be questioned whether basing long term strategic decisions on long term data projections is the most appropriate approach, especially if as in many of the soft factors the evidence is newly emerging and hedged with uncertainties, and the position is changing rapidly. GOMMMS makes specific reference to the evolving approach of "dynamic modelling" (Vol 1 paras 2.2.33/34), in which "forecasts of land use and travel demand are made at relatively small intervals throughout the planning period" (2.2.34), and it would be helpful to have a discussion of the ramifications in relation to the handling of soft factors.

- Cumulative impact

The nature of soft measures is that any one action is unlikely to bring about paradigm shifts in behaviour on its own, but a concerted range of measures across a broad front will produce a significant cumulative effect. If 40 actions produce an average reduction in traffic of only 0.25% each, this would reduce traffic by 10% overall. The Halcrow report, in its disaggregated approach to individual subject areas, does not focus in on the important synergy between measures. Furthermore, even within its approach the report's treatment of cumulative effect is

flawed. It often concludes - through an already suspect combination of assumed low uptake and speculative reasons to talk down the degree of effect - that the travel demand effect will be negligible and the issue simply falls by the wayside. In fact, if all these 'negligible' effects are added together they amount to far from negligible traffic reduction even on the pessimistic assumptions of the Halcrow report.

- Forecast ranges

The Halcrow report largely reaches its conclusions on the likely effects of soft measures by factoring in every possible negative, thereby arriving at a minimum expectation, which may be termed "robust". It would be preferable to present a forecast range between a minimum expectation and a maximum performance on the basis of current evidence, in each subject area, to arrive at a best central estimate of effects on travel demands, on the reasonable assumption that some areas will perform to or even above expectation and others will not. It would seem perverse to base an entire MMS strategy on a worst-case assumption on the performance of all soft factors, especially if this locks the strategy into major road investment - contrary to the current thrust of transport policy - to redress a demand management deficit that is more imagined than real.

- Freight transport

The absence of a main section on freight logistics is a surprising omission, since it is a well recognised and researched subject area for demand management. The report makes several references to freight transport issues, but never really homes in on the subject. A most interesting reference (Halcrow p27) suggests that "up to a 20% reduction" in empty running has been achieved through computerised logistics, and since empty running accounts for 28% of UK lorry mileage this alone would equate to a 5.6% reduction in total lorry traffic. This finding does not feature in the Halcrow report conclusions.

- Tourist traffic

The Halcrow report is also surprisingly weak on soft factors in relation to tourist traffic, which is a major area of interest and research at the present time (for example, Transport 2000 have issued a good practice guide on "Tourism without Traffic" in September 2001 based on research projects and other information gathering; and the DTLR advisory panel on travel plans is expanding into Visitor Travel Plans, launched at seminars in February 2002). As an example of what can be achieved, Harewood House near Leeds trebled visits by scheduled bus service between 2000-2001, and although the proportion of non-car visits remains low the potential to achieve modal shift has been clearly demonstrated. Car-free tourism has a wider objective to support the tourism economy, since it is increasingly recognised that traffic is detrimental to the quality of tourist experiences in destination areas, so there is a need to manage traffic demand to protect the resource. Since tourist traffic is a major component of traffic on large parts of the strategic road network, these developments are clearly important to the assessment of soft factors influencing travel demand.

- Congestion

Much of the assessment of likely effects by Halcrow is based on the potential reduction in vehicle km on the network, and conclusions of negligible effect are based on a view that reducing car traffic by say 1.5 billion vkm per annum is trivial when set against the total of 380 billion vkm. This argument is used particularly in relation to local journeys, such as journeys to school, where it is argued that even

significant rates of modal shift have little overall effect because the average journey length is short so the total vkm reduction is correspondingly small. This line of argument ignores congestion effects. If large numbers of vehicles are making short journeys to the same place at the same time this often results in serious congestion even if the total vkm remains low: if a multiplicity of short journeys to multiple destinations are being made, there can be congestion across a network, which is likely to include parts of the strategic road network. Reducing congestion by tackling large numbers of short journeys amenable to sustainable modes is a perfectly valid effect of soft measures on travel demand.

- Local travel effects

This follows on from the previous point. The Halcrow report makes the case that the local journeys most amenable to modal shift will be overwhelmingly concentrated on local rather than strategic road networks, so the effect on the main interest of MMSs will be limited. There are several problems with this line of argument. Firstly, it is widely recognised that upwards of 80% of traffic on the most stressed parts of the strategic road network is 'local' (a definition would be useful), and whilst many such trips will be longer than walking or cycling distance a proportion will be amenable to public transport and car share, and there is growing evidence of support particularly in this category of commuter journey for occasional but regular home working (see later). Secondly, the discussion is couched in average journey lengths, but within any given journey type there are some trips well above average length. Thirdly, congestion on local road networks can lead directly to congestion on strategic roads. Fourthly, there are many relationships between local and strategic networks, and actions on one are likely to have effects on the other: for example, removal of local congestion could lead to trip redistribution away from parts of the strategic network, and expansion of capacity on the strategic network could erode the benefits of local congestion relief.

For these reasons it is unwise to divorce local travel effects from strategic network consequences, or vice versa, a point which is made explicitly in the Guidance (GOMMMS Vol 1 para 2.2.42).

- European experience

Only limited use of the generally broader and longer experience of soft factors in countries such as the Netherlands, Denmark, Germany is made in the Halcrow report, and what is used mostly supports the sceptical standpoint of the report. A fuller picture of European experience would almost certainly give a more positive outlook on the potential for soft measures, providing examples of travel plans that have achieved modal shift away from single occupancy vehicle use of over 40% in the Netherlands; similarly high modal shares for cycling; major achievements in freight traffic reduction. Whilst it is recognised that European experience cannot be simply extrapolated to the UK, a great deal can be learned of the difference that objective led strategic transport planning with consistent, coherent, and targeted demand management measures can make.

These effects are not entirely confined to European experience. It is possible to consider the effects of targeted management in different local authorities in Britain. For example, why does York have much higher levels of cycling than other flat, dry, medium sized university towns, and what proportion of the difference can be attributed to a concerted management strategy over more than ten years? Why does Hull have 14% of journeys to work by bicycle, and Liverpool 1%? The effect of policy commitment on levels of achievement should not be underestimated, but is almost entirely absent from the Halcrow report.

- Rationale for conclusions

In section 7 of the Halcrow report it is unclear how the arguments presented lead to the stated conclusions on land use effects. There is a summary statement that "if land use and transport policies are compared, transport policies are far more direct and efficient in achieving sustainable urban transport" (Halcrow p75), leading to a conclusion that "land use policies...on their own, have little effect on travel demand" (p77), so "it would not appear prudent to rely on further possible changes in land use having a significant general affect in travel demand in the context of the Multi-Modal Studies" (p77 bold). However, it is difficult to see how the initial statement summarises the text that precedes it, and the conclusion is several steps on from the summary - the summary asserts only that transport policies are more effective than land use policies, whereas the conclusion is that land use policies are ineffective per se. In any case, no-one is suggesting that land use policies should be used on their own, so neither should they be judged on their own.

## 2.3 Detailed comments

Detailed comments on the Halcrow report are in Appendix 1. Summaries on the forecasts of traffic reduction in each section are presented below.

### ***Tele-working***

Halcrow have forecast a reduction of about 6 bn vkm or 1.6% in total vkm per annum by car, although due to a mathematical error this should be 7.8 bn vkm or 2%. In fact, due to further inconsistencies in the report, teleworking can be predicted to be practised by considerably more car commuters than Halcrow have forecast, and car traffic would be reduced by around 14 bn vkm, or 3.7% of total vkm by cars (see Appendix for calculations). There are no grounds for supposing that this percentage reduction would not be achieved on the strategic road network, and the reduction on the most stressed parts of the strategic network at peak times will be considerably greater, between 10-20%.

This is a minimum forecast, based on 'natural' growth rates without policy incentives to increase levels of home working, with only somewhere between one-third and one-half of the potential population 'captured' by 2015, and with almost certainly conservative estimates of the effect of the change in work practice on the amount of travelling. A forecast range could be established, with a best estimate based on the effects of policy measures which are a key to greater uptake.

### ***Internet shopping***

The hardest evidence presented suggests there is potential for Internet shopping to reduce car based shopping trips by 10% by 2010. Since shopping trips account for around 12% of total vkm by car (Halcrow table 2.6), Internet shopping could bring about a 1.2% reduction in overall vkm by car by 2010, but this is currently regarded as a maximum. More research is needed to evaluate possible counter-effects that may erode this potential.

### ***E-commerce***

The Halcrow report cites the use of electronics in freight logistics to reduce empty running by up to 20%, which alone would remove almost 6% of freight movements mostly from the strategic road network, then conclude (Halcrow p27 bold) that there is no convincing evidence of effects on freight demand separate from other limiting factors to do with public policy restrictions on vehicle sizes and movements. Some

studies from Germany that show that freight logistics approaches have reduced HGV movements in and around urban areas by up to 70%, and by 50% of total truck movements (Freiburg, Kassel: some HGV movements replaced by smaller trucks, but also some eliminated by load amalgamation).

In summary, there are many developments in the field of freight logistics, and a clear impetus for change even amongst freight operators, given the direct economic benefits of minimising unnecessary transport movements and maximising use of modes which can be both more efficient and more sustainable.

### ***Videoconferencing***

The Halcrow report forecasts evidence from NERA that videoconferencing could reduce business travel by between 5 and 20% by 2007, and between 10 and 40% by 2017 (Halcrow p 27), but assumes without justification the lowest figure of 5% as the basis of its forecast. There is a minimum potential for a 10% reduction in business travel by 2015, which would reduce overall traffic levels by around 1%, much of it on the strategic road network. This should however be seen as the bottom end of a range up to 40% and since opportunities to promote change through policy initiatives are great a best estimate of a 20% reduction is justifiable.

### ***Workplace Travel Plans***

There are numerous inaccuracies or questionable assertions, and the section seriously under-represents the potential of travel plans to deliver reductions in travel by car. Much of the discussion perpetuates an out of date premise that there is a "current lack of unequivocal evidence that WTPs actually yield significant results" (Halcrow p36 first para). It would be more accurate to say of the current state of play that evidence still only covers relatively short time periods, and the full potential of travel plans has still to be realised. It is contradictory for the Halcrow report to suggest that UK companies are unlikely to enter into travel plans in future due to this lack of evidence, then state that "this is beginning to change as evidence from monitoring is slowly emerging" (Halcrow p36 first para).

A further problem with the analysis of travel plan effects is the assumption that a shift of around 10% from car use represents their full potential. Most plans have modal shift targets of around 20% in around 5 years, so 10% in three years is a step towards the longer term goal rather than a finite end to the travel plan, and even 20% is not the end of the process.

The overall forecast (Halcrow p36 bold) of an additional 15% of organisations achieving a 10% reduction in commuting and business car travel is unsubstantiated and of no practical use. There is no timescale, no basis for selecting 15% rather than any other percentage, no justification for confining the level of achievement to 10%, and no consideration of ongoing reductions through existing travel plans. The calculation of a resultant reduction of 2 bn vkm is deeply flawed, yet even this is a reduction of 0.6% to be carried to a final balance sheet.

### ***Schools Travel Plans***

The reported levels of reduction in car travel to schools are substantial, in the range 10-30%, and since around 20% of morning peak traffic is on the school run the potential reduction through this measure alone is significant, between 2-6% of all traffic at peak times. The section does not end with a forecast reduction in vkm, but with statements that the effect on vkm on the strategic network will be minimal even at the top end of the range of achievement (30% reduction), because average journey distances are low and mostly take place on local road networks. In fact the average distance reductions quoted (50km/ person pa for education escort, 106km/ person pa



for education) would reduce vkm by over 9 bn km per annum (about 2.5% of total vkm by car). This is not insignificant, and even accepting that much of this reduction would not be on the strategic road network, given the inter-relationship between local and strategic networks discussed earlier and the disproportionate effect on peak hour traffic, the handling of the effects of schools travel plans in the Halcrow report needs to be engaged much more positively with the issues raised.

### **Car clubs**

The overall conclusions on car club effects (Halcrow p44 first para) are unsubstantiated. There is no evidence to suggest that "it is likely that use of club cars would be as an alternative to second car ownership"; no reason why membership might be confined to non-car households; no significance in the preponderance or otherwise of car free housing developments; and no basis for regarding the use of car clubs as limited to "a small concentration of low car users" without even defining the terms.

The report presents evidence to indicate that a saturation level for car club membership could be 8% of the population and average reductions of car use of two thirds have been noted. At this level the report calculates a potential reduction of 2% in total vkm by car, although the maths suggests 5.6%. Whatever the case, there is a need to establish a reasonable minimum expectation, rather than dismiss the effect as negligible and localised. It is accepted that in Britain there is to date very limited experience of car clubs, so it may be necessary to gather more information from elsewhere.

### **Public Transport Marketing and Ticketing**

The logic of the argument that public transport improvements mostly benefit existing users or other non-car modes, and that the shift from car use to public transport will be very weak, is unconvincing. Current transport trends suggest that modal shift from cars to public transport is already happening, without a widespread perception that improvements have been made to public transport. The treatment of individualised marketing in the Halcrow report (p51) is especially weak. Some of the best known initiatives, such as in Perth, Australia, have achieved documented modal shift from car use of 10-15% in a population of 35,000 people, across the full range of journey purposes, in the hostile circumstances of sprawling urban areas designed around and exhibiting very high car ownership (1,000 cars per 1,000 population), at a calculated benefit: cost ratio of 30:1. It is disingenuous to describe this as "effective but not inexpensive" (Halcrow p51 final para). Results of early projects in Britain (Frome, Gloucester), and of personal marketing within travel plans, are beginning to appear and show similar patterns of achievement.

The forecast of the effects of marketing initiatives (Halcrow p54) is odd, since it expresses the possible impact of all forms of marketing in terms of the loss of bus traffic in deregulated areas compared with regulated London! This is at most only marginally related to one aspect of marketing for one form of public transport, and in any case is not even a forecast, merely a statement of what would happen under a given assumption. There are other possible avenues of approach to a reasoned forecast, and given the evidence on individual marketing alone, the suggested figure of 1.5 bn vkm reduction (0.4% of total vkm by car) by 2015 does not appear reasonable, since it represents less than 3% (0.4/15) of the potential achievement of only one aspect of marketing.

### **Interchange**

This section of the Halcrow report considers improvements to interchange including improved connection times, but does not home in on the *presence or absence* of usable connecting services, which is perhaps the most important aspect of interchange in increasing public transport use. Absence can mean 'actual' physical lack of connection, but also 'effective' lack where services do not connect at a single point or where the connection time is so great as to be an absolute deterrent for anyone with access to a car. The potential for reducing travel demand by car by providing more interchange opportunities - both 'actual' and 'effective' - is likely to be much more significant by *enabling* public transport use as opposed to simply improving it. The effect is not only in switching complete car journeys to public transport, but also in enabling existing public transport users to avoid car use at the beginning or end of public transport journeys.

The conclusion of very low levels of car travel reduction through measures to improve interchange is inadequate, because of the omission of this most important component, and because of the reduction of other components to measurable but in turn questionable indices. The worked example of 0.05% reduction in total vkm by car is not accepted, and in any case applies only to modal shift to buses. The effects of rail interchange are said to be included within existing MMS modelling, though only "eliminating" interchange is mentioned, but there is no discussion of the resulting potential for reductions in travel demand by car.

### **Information**

The discussion on the effects of public transport information on modal shift from car use is very limited, since the analysis is largely confined to the incremental effects of new information technology. There is much more than this to the presentation of information to the public, at a very basic level of ease of access to and clarity of information, especially for that sector of the public unfamiliar with using public transport. Basic public transport information and customer service facilities in Britain are still relatively poor, acting as a deterrent even for seasoned public transport users, and there is much to be got right before even considering the effects of new technology.

The conclusion that information improvements should not be credited with "any significant abstraction of car traffic" with certain exceptions (Halcrow p59 bold) is not acceptable. This section of the Halcrow report gives an estimated effect of improvements to information systems of 0.1% traffic reduction, which is not accepted but should still be reflected in the conclusion and taken forward to a cumulative total effect of soft factors. The 'exceptions' - "on busy road corridors and as part of a more comprehensive transport management scheme" - , imply a greater effect on congested corridors which should be given due weight, and are surely the essence of how 'soft' measures work, as targeted inputs to an overall strategy.

### **Bus Quality partnerships**

The Halcrow report presents evidence from DTLR that extensive bus lane systems could reduce car travel by up to 6% (Halcrow p60), but dismisses this without real cause as likely only to be achieved in conditions of severe congestion. Instead, the report uses an unsubstantiated 10% estimate of former car users transferring to bus in the figures presented, even though elsewhere it implies and uses 20-25%. The forecast should at least present a range, between say 10-20%, which results in a reduction in vkm by car of 0.4-0.8%, to be taken forward to a cumulative total.

The overall conclusions on transfer of car journeys to public transport (Halcrow p61-62) are flawed. The assumptions on which estimates are based, such as the proportion of car users in growth in public transport usage, are questionable. The predicted effects under each area of discussion are played down, and there is little attempt to put them together into an overall effect. Although the section is about public transport, there is very little discussion of rail or other forms of public transport, which are generally regarded as more attractive to car users contemplating modal switch.

### ***Walking and Cycling***

The Halcrow report produces a reasonable summary of issues surrounding promotion of walking and cycling, but its conclusions again talk down the effects of measures to promote modal shift from cars to walking and cycling, and emphasise a minimal likely effect on the strategic road network, because of the short distances and local journey purpose of most such trips.

Car journeys of less than 3km, within walking distance for many people, account for 3% of all car vkm, and 24% of all car trips; car journeys of less than 8km, within cycling distance for many people, account for 15% of all vkm, and 57% of all car trips (DETR Focus on Personal Travel 2001). The forecasts quoted in the Halcrow report (p67), reducing car vkm by 0.5% through walking initiatives and 0.4% through cycling initiatives, are therefore relatively modest, requiring a shift of about one in six car trips within walking distance and only about one in thirty car trips within cycling distance. It is not clear that "it would need strong government policies to deliver these reductions" (Halcrow p67); the DTLR "Attitudes to Local Transport Issues" report in December 2001 found (Chart 12) that 38% of people were making fewer short journeys by car than 6 months previously, mainly for health reasons. In any case there is no reason not to have strong government policies to promote walking and cycling.

Strong policies in York have produced modal share of cycling for journeys to work around 6 percentage points higher than its nearest rivals, and about 18 percentage points higher than the norm for cycling to work. This is at least three times, and up to nine times, the level needed to achieve the above forecast of 0.4% reduction in vkm by car. In other words, the effect of strong cycling policies is highly significant, and they have the potential to deliver between 1.2 and 3.5% reduction in total vkm by car (detail of calculations in Appendix)

The claim that promoting walking and cycling is "most likely to attract commuters away from buses rather than out of their cars" (Halcrow p69) is unfounded. There are around 13 times more journeys under 3km in length by car than by bus, and around 7 times more in the 3-8km journey length (DETR Focus on Personal Travel 2001). This highlights the danger of basing conclusions on average trip lengths, as happens in several places in the Halcrow report.

### ***Land Use effects***

Many of the comments in this section of the Halcrow report are generalised, unsupported by evidence, and of limited value. Even accepting the difficulty of summarising such a broad subject in a few pages, there is much to criticise, as detailed in the Appendix. Section 7 of the report dismisses the ability of coherent land use strategies to change travel behaviour to any extent, concluding that "the ability of the planning system to influence changes to reduce travel demand is limited" (Halcrow p76 final para), which is a vote of no confidence in the planning system, a counsel of despair, deeply unhelpful, and not borne out by evidence. The report concludes that land use policies "**on their own**, have little effect on travel demand" (Halcrow p77 second line, bold text in original), but the evidence presented does not really support

this conclusion, and in any case the distinction is spurious since land use policies are not being promoted on their own but in concert with transport and other policy areas.

The report discusses (section 7.5) sensitivity testing carried out for the 1998 Transport White Paper, which concluded that "by 2010 reductions in traffic of up to 2% might be achievable by changing land use patterns, and more was possible over a longer period" (Halcrow p76 second para), with a maximum of 4% in some locations. This appears to be a central forecast from a reliable source, but is not carried through to Halcrow's conclusions, which instead assert (Halcrow p77 bold para) that further land use changes should not be relied on to deliver reduction in travel demand, thereby contradicting the White Paper without giving any justification for doing so.

### **Local Sourcing**

This section of the Halcrow report is speculative, largely a series of statements of why local sourcing might increase levels of road transport which could just as easily be written to express the opposite. The conclusions to this section are again generalised and unsupported. Local sourcing is said to be most unlikely to have any noticeable effect on travel demand, because trends in trade militate against it; for many products there is very little choice to switch to closer alternatives; there is no evidence that it is happening to any extent; and there appear to be no policy initiatives to promote such changes "in prospect" (Halcrow p81 second para). It is difficult to understand where these assertions are coming from, given that local sourcing is happening; marketing phrases such as "cutting out the middle-man", "saving transport costs", and "local quality assurance" are commonplace; and there is considerable policy interest in it for reasons from wealth retention by agricultural producers, supporting local economic revival, animal welfare, and countryside conservation, as well as the potential to contribute to traffic reduction.

There is not enough evidence of current effects to hand, on which to base an alternative forecast, but a more useful approach would have been to explore the potential for traffic reduction through local sourcing, to point to the need for research where necessary, and to offer suggestions for effective policies to manage travel demand through local sourcing.

### **Oil Supplies and Fuel Technologies**

This section of the Halcrow report appears to argue that oil supplies will not dry up over the next few decades to the extent that fuel prices or availability will affect the demand for travel, and that CO2 emissions reductions can be achieved by technological improvements without the need for traffic reduction policies. It also appears to argue that new technologies are on hand to improve technological performance still further should it be needed or become competitive in its own right, so the likelihood of significant reduction in travel demand for any reasons relating to fuel or emissions is small.

This is an area of intense debate at the present time, and the above conclusions appear somewhat complacent. The argument that oil reserves are more or less keeping pace with consumption (Halcrow section 9.1) is highly questionable, since there is a cogent case that variations in forecast oil reserves will have little effect on the date at which oil effectively runs out (see Appendix for details). In any case, it is of far less consequence in table 9.1 that "proven reserves" are growing, than that the rate of increase in consumption doubled in 1990-2000 compared with 1980-1990, whilst the rate of increase of proven reserves fell more than seventeen fold in the same period. It remains to be seen when depletion of oil supplies begins to bite. Whether technological substitution will enable the current uses for oil, including transport, to be

met by other fuels at comparable availability and price levels also remains to be seen, but it seems imprudent to base future transport policy on the assumption that it will.

The argument that a reduction of CO<sub>2</sub> emissions is possible with traffic growth of one-third and 20% reduction in fuel consumption rates (Halcrow 9.3 p84) is difficult to follow, and does not appear to accord with government policy. This seeks positive action to stem CO<sub>2</sub> emissions in all areas of activity, and transport is recognised as the fastest growing source. Traffic reduction policies and initiatives are central to the government's committed reduction targets, and if it does not occur, and thereby deliver climate change objectives, government policy will have failed. In these circumstances, it seems perverse to base MMS projections on an assumption that there will be minimal traffic reduction effects on the margins of overall traffic volumes.

## 2.4 Traffic Reduction Forecasts

As outlined in section 2.2, the interactive and cumulative nature of soft factors in reducing travel demand is not adequately represented in the Halcrow report, and some issues have been undervalued either by disregarding evidence presented in the report or in other ways as discussed in this report. The following table summarises the effect that incorporating these elements has on the overall assessment of reductions in travel demand by car.

### FORECAST MINIMUM PERCENTAGE REDUCTIONS IN VKM BY CAR BY 2015

SUBJECT AREA	HALCROW FORECAST EFFECT	WITH HALCROW FORECAST CORRECTED	INCLUDING EFFECTS REPORTED BUT NOT USED	REVISED FORECAST
Teleworking	1.6	2.0	2.0	3.7
Internet Shopping	0	0.0	1.2	1.2
Videoconferencing	0.7	1.2	1.2	1.2
Workplace Travel Plans	0.6	0.6	0.6	2.4
Schools Travel Plans	0	0.0	1.3	1.3
Car clubs	0	0.0	1.0	1.0
Marketing/ ticketing	0.4	0.4	0.4	2.0
Interchange	0.1	0.1	0.0	0.4
Information	0	0.0	0.1	0.2
Bus quality partnerships	0.4	0.4	0.4	0.8
Walking	0.5	0.5	0.5	1.0
Cycling	0.4	0.4	0.4	1.2
Land use effects	0	0.0	2.0	2.0
Min. reduction in vkm by car:	4.7%	5.6%	11.1%	18.4%

#### Notes:

All figures are percentages, against 1999 total of 380 bn vkm.

Second column includes only mathematical corrections to Halcrow forecasts

Subject areas exclude freight issues, since all other figures are for vkm by car

Subject areas exclude local sourcing and fuel supply issues, for which no reasoned basis for forecasting has been identified, though effects will occur.

Figures are explained in report text, except for the following figures in the 'Revised Forecast' column:-

- Workplace travel plans: 20% reductions at 30% of workplaces
- Schools travel plans: half the Halcrow predicted effect with 30% reduction in car use, which was maximum effect observed to date ie takes 15% as a minimum effect
- Car clubs: half the Halcrow reported maximum effect with 8% uptake of car club membership ie takes 4% as a minimum effect
- Marketing: individualised marketing effect alone, 10% reduction in car use, 15% uptake
- Interchange: Halcrow forecast doubled to include rail, doubled again to allow for new interchange provision
- Information: Halcrow forecast doubled to include effects not considered
- Walking: one-third of car trips below 3km transferred to other modes
- Cycling: one-tenth of car trips 3-8km transferred to other modes

This table shows that even Halcrow's minimalist approach adds up to an almost 6% reduction, or 21 bn vkm; including forecasts which have been acknowledged by Halcrow but not represented by them, the reduction exceeds 11%, or 42 bn vkm; and using a reasoned evidence base in some subject areas not adequately assessed in the Halcrow report, the minimum forecast reduction increases to 18% or 68 bn vkm.

There is a caution in the Halcrow report about double counting. For example, some increase in cycling and walking may be the product of workplace or schools travel plans, but the effect cannot be included in more than one category. This is accepted. However, there are opposite effects to be considered, in that the synergies between different soft factors can have effects which are greater than the sum of the parts; and there is a whole issue of changing cultural habits over time through the changes in travel behaviour arising out of soft factors - in principle, once something like homeworking, videoconferencing, or cycling to work becomes more commonplace, the perception of it being unusual diminishes and uptake accelerates, so basing future trends on present patterns is likely to be conservative.

There can be little doubt that a minimum forecast reduction in vkm by car of at least 15% by 2015 represents a conservative and thereby robust estimate of the effect of soft factors over the coming years. This should be no more than the bottom end of a forecast range, with a central estimate and a maximum potential figure. Some of the reasons for raising the forecasts have been discussed in this report, for example the likely greater effect of electronic business communication, the reported maximum potential of car clubs, the maximum levels of modal shift already recorded in schools travel plans, and the view that even the revised forecasts for workplace travel plans and individualised marketing are based on still relatively low levels of uptake which can be influenced by policy measures.

## 2.5 Conclusions on the Halcrow Report

There are two possible interpretations of the Halcrow report's conclusions:-

### **1. They are about right**

If this is the case, and Halcrow have correctly assessed the likely effect of soft factors on travel demand, this is a major cause for concern in government. In effect, by Halcrow's logic the demand management policies of the past ten years, while well-intentioned, have been ineffectual and there is little prospect of their performance improving over the next 10-15 years. Since the underlying objectives of sustainable development, combating climate change, improving quality of life, reducing fossil fuel

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consumption, improving the nation's health, reducing the economic and environmental impacts of congestion, promoting social inclusion, will not go away, the imperative to do something to control traffic growth remains.

Massive infrastructure provision for road transport is nowadays seen to have had the opposite effect from the goals of these overarching objectives, and is unlikely to be funded, so is not a real option. So, if current 'soft' policies are not working, there is a real need to develop stronger policies, which will have to *impose* changes in travel behaviour since persuasion or natural processes are not delivering. These could include congestion charging, workplace parking charging, retail parking charging at out of town sites, fuel or other taxation regulation to achieve significant increases in motoring costs, and possibly fuel quotas or even more draconian restrictions on the use of cars. Most of these measures are unpalatable to government, but would be necessary if government objectives and commitments are to be achieved.

## **2. They are broadly wrong**

This report concludes that the Halcrow report is far too pessimistic about the potential effects of soft factors in reducing road transport. It consistently talks down evidence of real and observable effects, and fails to make a cumulative assessment of effects which even under its own downbeat appraisal are still delivering measurable traffic reductions. The table in section 2.4 above illustrates how, without resorting to extreme optimism and still only using soft factors for which a reasoned forecast base can readily be identified, a more realistic figure would give a minimum forecast effect of traffic reduction of at least 15% and arguably approaching 20%. This would be the bottom end of a forecast range. More work would be needed to derive robust central and upper range estimates, but it is important that this be done to give a more accurate picture of the real potential of soft factors in reducing travel demand.

Whilst there is scope for discussion whether overall national figures would be achieved specifically on the strategic road network of primary interest to MMSs, there are arguments both ways and no conclusive case for scaling down the forecasts. There is also an imperative to look more closely at effects on the most congested parts of the network at the most congested times, where soft measures have been shown to perform well above overall national average.

It is a source of considerable concern that if Halcrow's unjustifiably low estimates of the effects of soft factors become the basis for their treatment in MMSs, they could become self-fulfilling prophecies if they result in - or are in tandem with - inadequate resourcing. It will be unsurprising if soft measures deliver low levels of traffic reduction if they are given such low levels of funding. This appears to be contrary to much of the underlying thrust of the guidance and intended practice of MMSs, as will be discussed in the next section.

## 3.0 USE OF SOFT FACTORS IN MULTI MODAL STUDIES

### 3.1 Guidance for Multi Modal Studies

A first step in any discussion on how to use soft factors in MMSs is to revisit the guidance on the process, contained in the GoMMMS (Guidance on the Methodology for Multi-Modal Studies) reports in two volumes. The following basic elements of GoMMMS are particularly relevant to the use of soft factors.

- It is an objective-led process. Strategies and plans are drawn up in terms of what is wanted to be achieved in relation to the wider objectives of managing transport provision, and assessment involves identifying the level of intervention needed to deliver those objectives. Setting objectives is driven by desired outcomes, and whilst they should relate to what is deemed achievable they should not be defined in these terms. A central problem with the Halcrow approach is that it defines a minimum expectation of what can be achieved by soft factors which then determines the appropriate solutions to identified problems. It could instead identify what is needed beyond the minimum expectation in order to deliver more on the overarching objectives: a series of "minimum +" options will thereby be identified to take forward to the assessment stage.
- The "given" overarching objectives in GoMMMS are the five headline objectives of the 1998 Transport White Paper - accessibility, economy, environment, safety, integration - and all specific objectives at whatever level (national, regional, local) must 'nest' within these objectives. Read in conjunction with all major government policy documents of the past five years, there is a clear emphasis on reducing travel by road, as a key component in delivering the wider objectives. GoMMMS has several indirect references to the centrality of traffic reduction in strategies for MMSs. In particular, "Although the genesis of the initial programme of studies lies with problems on the trunk road network, the focus of the Studies will not primarily be on ways of providing additional capacity" (Vol 1, para 1.1.7), and "The environmental protection objective involves reducing the direct and indirect impacts of transport facilities and their use on the environment" (Vol 1 para 3.3.4): see also section 4.4. To approach MMSs with the basic premise that reductions in travel by road will be marginal and insignificant is unhelpful and arguably does not comply with GoMMMS advice that the MMS process should "avoid leading to a particular outcome by virtue of the method or process adopted" (Vol 1 para 2.1.3).
- GoMMMS places heavy emphasis on baseline data collection (Vol 1 para 2.2.15), commenting that "The surveys necessary to collect this information often consume a substantial portion of resources allocated to the study". It is vital to the success of demand management approaches to have good information on origins and destinations, journey purposes, current modal split, and ideally some information on attitudes to travel choice, in order to be able to develop concerted and targeted measures to achieve maximum effect. It would appear that this has not been given the priority it needs in some MMSs, which puts soft factors at a built in disadvantage when it comes to devising options and assessing solutions.
- At the heart of the GoMMMS process is the identification and assessment of options as part of the appraisal process. The approach in MMSs "embraces fully the principles of the New Approach to Appraisal" (Vol 1 para 6.2.5). The NATA guidance states three criteria for option identification (para 3.9):-
  - the search should not be constrained in any way - all feasible options should be considered;



- options should be realistic, achievable and capable of being delivered within an appropriate timescale;
- options should deliver improvement against those objectives identified in the statement of problem while avoiding worsening against other objectives.

The NATA guidance further emphasises that "It is important to ensure that a very wide view is taken about what may contribute to a solution to a problem. As well as considering the potential for other mechanised modes to solve the problem (or to contribute to a solution), it is important to recognise that non-motorised modes (principally walking and cycling) may play a part. In addition, the scope for planning or land use measures to contribute should not be overlooked. However, it is important to recognise that the scope to achieve change in these areas is often limited, especially in the short to medium term. Thus, it is particularly important to test possible land use or planning options for realism, achievability and deliverability." (para 3.10).

This guidance, demonstrating the need for the widest possible definition of options and a full consideration of the potential for soft factors, is a key to understanding the ways in which soft factors can be incorporated into the framework of MMSs, discussed further below.

### **3.2 The use of soft factors in Multi-Modal Studies**

The NATA guidance offers two possibilities for incorporating the effects of soft factors in reducing travel demand into MMSs:-

- as a series of widely drawn options at different levels of intervention, in which the defining characteristic is the intensity of demand management measures - in effect low, central, and high targets of achievement according to the level of activity and resources allocated to soft measures. These options would be assessed to demonstrate what they deliver, and what other measures might be needed in tandem to deliver the optimum performance against defined objectives.
- as sensitivity tests on all options, which would be assessed against low/ central/ high performance of soft factors with or without specific soft measures, to show how effective each option is under the different scenarios.

In practice, most MMSs should include a range of options which incorporate demand management measures within multifaceted plans to a greater or lesser extent, so contain elements of both identification and testing. In this way a spectrum of possible solutions will be established, which will inform implementation strategies on the extent to which for example:-

- soft factors alone can deliver objectives given adequate resources
- infrastructure provision is needed in given situations, according to varying levels of achievement by soft factors
- increased inputs of soft measures could assist in the resolution of conflicts between objectives in any given option

A further important part of any approach involving soft factors is to relate the efficacy of demand management measures to varying conditions on different sections of the network. It has been recognised that soft measures are likely to be disproportionately effective on sections of the network with high proportions of local traffic and with high levels of congestion especially at peak hours. These sections are likely to benefit from a targeted set of measures acting at a higher level than the assessed overall effect of soft factors, and should be recognised accordingly.

### 3.3 Implementation

There are three important aspects of implementation with particular implications for soft measures in MMSs:-

- Levels of funding

The above analysis emphasises - in a way which the Halcrow report does not - the dynamic elements of soft factors. If more is done to promote reductions in car use, and more resources allocated to this task, then more will be achieved. Whilst MMSs do not ultimately control the implementation stages, they clearly influence them by the funding proposals accompanying recommended packages of measures. It is understood that in the 'MidMan' MMS the budget for demand management measures is around £4m out of a total budget of £1.7 billion, or around 0.2%, which as noted previously is likely to result in a self-fulfilling prophecy of low achievement. The problem also applies during the study phase, since as discussed a good level of baseline information is critical to demand management, and if the information is not there it becomes all the more difficult to forecast effects or even compile targeted programmes of measures. The SWARMMS study is known to have had very little data on origins/ destinations, and little or nothing on proportions of local traffic on different sections of the network, but a view has emerged that most traffic on strategic routes is long distance so local transport measures are primarily of benefit in improving accessibility to the strategic network, but will have little effect on modal shift on the network itself. This is not only a suspect conclusion in the absence of adequate data, but also a missed opportunity to widen the options net because of inadequate resourcing of surveys in the first place to assess the merits of demand management options.

- Funding routes

There is a particular difficulty in assuring delivery of funding for soft measures, since by definition the areas of activity are diffuse and there are logistical issues to be tackled if a MMS recommends funding of say £100 million but this needs to be channelled along 17 different routes over 15 years. This is part of a more general difficulty, that whilst infrastructure investment on the national strategic transport network can be relatively easily managed through national bodies, other funding will primarily be through local authorities, possibly as part of LTP funding. In the latter case, the coherence of the MMS strategy runs the risk of being diffused by local control of funding with additional local objectives. The problem becomes still more acute if part of the funding or implementation equation involves private organisations as diverse as individual firms implementing travel plans, or transport providers. Unless an implementation framework can be put in place which maintains a focus on the coherent objectives of the MMS, and has some control over the planned allocation of resources, this will remain a problem.

- Ensuring implementation

There is a potential problem, already recognised in the LTP process, of integrated approaches to transport provision falling down at the implementation stage because in principle it is easier to push forward capital projects than ongoing projects primarily involving management inputs and revenue funding. At one level, this could be taken as confirmation of Halcrow's view that reliance should not be placed on soft factors to deliver traffic reduction other than through natural trends which are self-enforcing. However, if this line is taken there is no longer an integrated strategy, but rather a delivery of elements such as road investment

which on their own are counter-productive to the overarching objectives of government transport policy. Since demand management is widely shown to be effective where it is implemented consistently and concertedly, and with adequate resources, it is not enough to leave this vital component to chance.

#### **4.0 CONCLUDING STATEMENT**

The Halcrow report has given not only an unjustifiably pessimistic assessment of the likely effects of soft factors in reducing travel demand, but also a very static view. The approach is to identify the maximum degree of effect that can be predicted to be achievable with reasonable certainty, and to make the case that hard factors will be needed to deliver the rest of what is required to solve identified problems. This report presents a more dynamic approach, based on the view that the types of policy pursued, and the level of policy intervention, demonstrably affect the level of outcome at different levels of resource input. It is believed that this approach is more in line with GoMMMS, and more in line with government transport policy use the full range of available techniques to manage travel demand.

## APPENDIX 1: DETAILED COMMENTS ON HALCROW REPORT

### Sections 1 and 2

- There is some ambiguity of purpose of the report, between reducing travel demand and reducing travel demand by car or lorry: the latter is said to be the focus of the report (Halcrow p3 last para), but the discussion on growth in personal travel (Halcrow 2.2) appears to be in terms of all travel modes. The distinction is important: it is often stated that most additional travel is coming from increased journey lengths rather than more journeys (Halcrow p6 second para), but additional travel by car - and thereby traffic growth - has been and in areas of relatively low car ownership may still be due to substitution effects with increasing levels of car ownership, as well as increasing journey lengths. A major demand management objective is to assist non-car households to choose not to enter into car ownership (which is a disproportionately heavy financial burden for low income households) if they so wish, and to counter pressures for multi-car households, by ensuring that alternative forms of transport meet travel needs.
- The relationship between tables 2.1 and 2.2 is unclear in some categories; if the average length of commuting journeys has risen by 4km in table 2.2, and there are 161 commuter journeys per person per annum (DETR Focus on Personal Travel 2001), the average total increase would be 644 km, whereas the total increase per person per annum in table 2.1 is 425km.
- The conclusions on travel mode by settlement size (Halcrow 2.5 p 9), basically that there is more travel by car and less by sustainable transport modes as settlement size reduces, are questionable. A report by Halcrow Fox for the SWRPC (January 2000) shows high modal share of walking - typically 20-30% - in small and medium sized towns in South West England, compared with typically 10-15% in the 'Principal Urban Areas'. There is no discernible pattern in modal share of trips by car relative to settlement size, except that there are often more trips by car in settlements 'Well related to' the PUAs.

### Section 3: Electronic communications

#### ***Tele-working***

The arguments against a significant take-up of teleworking are weak in several respects:-

- Experience in travel plans indicates that home working moved from being scarcely on the agenda in 1998 to a commonplace area of discussion by 2001. Many organisations are actively promoting homeworking strategies, for example Surrey County Council through their "Workstyle" initiative, which also includes 'hot-desking' in local area offices, with the potential for considerable reduction in journeys to work to centralised office sites.
- The Halcrow report states (p18) that 62% of employees do not want to work at home; a travel plan questionnaire survey of a unitary local authority in February 2002, with responses from 72% of the workforce, found that 88% of respondents want to work at home! (data not yet presented to the authority, so not named for now). The apparent disparity may relate to the frequency of home working: most people are not in favour of working at home most of the time, but a strong majority would like to do so at least some of the time. In the February 2002 survey, 43% of respondents would work from home at least one day a week, of which half would

like to do so at least three days a week: a further 22% would like to work from home less than once a week (the remaining 23% supporting homeworking felt they would be unable to do so because of the nature of their work). This is important for travel reduction: if only half of the 65% willing and able to work at home did so on average once a week, this alone would reduce trips to work by 6.5%. There is evidence from focus groups (calculation still to be done from questionnaire) that homeworking is especially supported amongst employees travelling longer distances to work by car, who benefit most from time and cost savings, so the impact on vehicle km reduction may be greater still.

- The reported resistance of employers to tele-working (Halcrow p18 second para) is out of date in a rapidly changing scene, and in any case is unspectacular if only 18% of employees have bosses opposed to home based working.
- The 'obstacles' to tele-working (Halcrow p18 third para) are no more than that, and can and are being overcome where there is a management will to do so
- Forecast traffic effects of tele-working, with suggested reductions in commuter travel by car of the order of 5-10% (Halcrow p18 and table 3.2) are far from negligible, and it is unclear why the Halcrow report suggests that "A common conclusion of many studies seems to be that though tele-working may well reduce the need to travel it is unlikely to do anything more than slightly reduce the rate of increase in trunk road and motorway travel" (Halcrow p18)
- There are some inconsistencies in table 3.2: if tele-working facilitates a 10% reduction in car commuting by 2005 (NERA), and 80+% of peak hour traffic on the strategic network is 'local', this implies a higher reduction in peak period volumes than the 2% stated in the SDG box below. Also, a reduction of 4.2 billion vehicle km on trunk roads and motorways (SDG - by when?) should be much more than a 0.3% reduction in traffic on these roads (it is a 1.1% reduction in total car vkm of 380 billion, and a 0.9% reduction in total motor vkm for Great Britain, so must be a higher percentage of vkm on trunk roads and motorways alone).
- The paragraphs downplaying the potential effects of tele-working (Halcrow pp20-21) are good examples of evidence countered by surmise or out of date research. The need for more research is flagged up, but does not feature as a conclusion.
- The overall forecast for this section (Halcrow p21 bold) does not accord with evidence presented in the Halcrow report:
  - If 5.8% of the population was engaged in some form of teleworking in 2000 (Halcrow table 3.1), and forecast growth is 9% pa (Halcrow p18 fourth para), there will be 21% of the workforce teleworking by 2015, which would another 15% of workers ( $21 \times 5.8 = 15.2$ ); there is no reason to suppose that car commuters would be under-represented in the new teleworkers, so it is reasonable to conclude that there will be an additional 15% of car commuters teleworking by 2015, rather than the 10% stated.
  - If a 10% increase in car commuting workers equates with a 6% reduction in "road traffic" (Halcrow p21 bold para: this is assumed to be inaccurate terminology for reduction in commuter trips by car), a 15% increase may be estimated to result in a 9% reduction in commuter trips by car.
  - There are several problems with the conversion of a 6% reduction in commuter trips to vkm reductions: 6% of the 2,172km per person per annum commuting distance in table 2.1 would be 130km/ person pa, not 100 as stated by Halcrow. However, the figure in table 2.1 is for *all modes*, whereas commuting distances by car are greater than the 'all modes' average so the reduction would be greater. The stated average journey length of 16km for car commuting trips implies an annual distance of at least 2,500 km/ person/ pa ( $16 \times 161 = 2,576$ : 161 trips/ person from Focus on Personal Travel 2001), which would give reductions of person/ pa at 6%, and 230 at 9% reduction.

- If a reduction of 100 km/ person pa equates with a reduction of 6 bn vkm (ie 100x60million total population), the forecast figures using the above corrections would be 9.3bn at 6% and 13.8 bn at 9%
- The reasoning behind the claim that "less than half this mileage could be expected to take place on the strategic road network" is unclear, since the disproportionate effect on longer journeys is acknowledged earlier in the paragraph, and these are likely to occur disproportionately on the strategic road network.

In summary, Halcrow have forecast - though not reported - a reduction of about 1.6% (6/380 bn vkm = 1.58%) in total vkm by car due to teleworking, although due to a simple mathematical error (6% of 2,172 = 130 = 7.8 bn vkm) this should be 2% (7.8/380 = 2.05%). In fact, using figures reported by Halcrow teleworking is likely to be practised by a further 15% of current car commuters by 2015, which would reduce car traffic by around 14 bn vkm per annum, or 3.7% of total vkm by cars. There are no grounds for supposing that this percentage reduction would not be achieved on the strategic road network, and the reduction on the most stressed parts of the strategic network at peak times will be considerably greater (using the SDG figures in table 3.2, percentage reductions in peak period volumes are 6 to 7 times the overall reduction, so peak traffic reductions of 20% should be achievable, and 10-15% would be conservative).

This is a minimum forecast, based on 'natural' growth rates without policy incentives to increase levels of home working, with only somewhere between one-third and one-half of the potential population 'captured' by 2015, and with almost certainly conservative estimates of the effect of the change in work practice on the amount of travelling. A forecast range could be established, with a best estimate based on the effects of policy measures which are a key to greater uptake.

### ***Internet shopping***

Evidence presented suggests that "e-tailing" will have an impact on some market sectors including groceries in which it could account for 5% of the market by 2005 and 15% by 2015. The one travel impact forecast quoted is from NERA, which predicts a 5% fall in car-based shopping trips by 2005, and 10% by 2010 (Halcrow p23 final para). This is followed by a series of unfounded suppositions that:-

- delivery traffic could be as much as the reduction in shopper traffic: this is questionable, since it is highly unlikely that there will be one delivery trip for every former supermarket shopping trip
- "new patterns of commerce may lead to journeys being made for other purposes": this appears to embody a suggestion that we are all desperate to make a set number of journeys, and if one reason is denied we shall seek others!
- the displaced shopping trip might happen anyway for other purposes
- the shopping trip might still happen to shop for goods other than those bought over the Internet, resulting in two trips - the original shopping trip and the white van delivery trip - instead of one
- the delivery trip may become two or three trips if goods are delivered in error or the purchaser is not at home
- the impact of Internet shopping may be greater on public transport, cycle or walking trips to shops, because the benefits of home delivery are greater

This is all in the land of what might be, and is not very helpful. The conclusion (Halcrow p24 bold) moves from this speculation to an unfounded statement that "the increase in home delivery movements - including some replacing public transport, cycle

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and walk journeys - will offset these (shopping journeys replaced by Internet transactions) to a significant extent". This is not a basis for rejecting the possibility of road traffic reduction as a result of Internet shopping.

The hardest evidence presented suggests there is potential for Internet shopping to reduce car based shopping trips by 10% by 2010. Since shopping trips account for around 12% of total vkm by car (Halcrow table 2.6), Internet shopping could bring about a 1.2% reduction in overall vkm by car by 2010, but this is currently regarded as a maximum. More research is needed to evaluate the possible counter-effects that may erode this potential.

### **E-commerce**

There are a few points to be made:-

- A number of issues relating to policy are raised, such as dispersed land use being encouraged by easy electronic communication if allowed by the planning system: quite clearly the planning system is already very careful about such issues, and policy measures are all geared towards concentrating settlement and economic activity patterns to comply with the overarching policy of reducing travel demand and travel distances.
- It is accepted that logistics systems such as 'just in time' delivery have increased freight transport activity, but there is little evidence which way this will go in future, as the pressures of congestion make such systems increasingly unworkable.
- It is difficult to understand how the Halcrow report can cite the use of electronics in freight logistics to reduce empty running by up to 20%, which alone would remove almost 6% of freight movements mostly from the strategic road network, then conclude (Halcrow p27 bold) that there is no convincing evidence of effects on freight demand separate from other limiting factors to do with public policy restrictions on vehicle sizes and movements.

There are some studies from Germany that show that freight logistics approaches can significantly reduce HGV movements in and around urban areas. Reductions of up to 70% in HGV movements, and 50% in total truck movements, have been recorded (Freiburg, Kassel: some HGV movements replaced by smaller trucks, but also some eliminated by load amalgamation). Even if most of these savings occur on the local road network, as discussed elsewhere these will have knock-on effects on the strategic network.

In general this section is unsatisfactory. There are many developments in the field of freight logistics, and a clear impetus for change even amongst freight operators, given the direct economic benefits of minimising unnecessary transport movements and maximising use of modes which can be both more efficient and more sustainable.

### **Videoconferencing**

- The Halcrow report presents evidence from NERA that videoconferencing could reduce business travel by between 5 and 20% by 2007, and between 10 and 40% by 2017 (Halcrow p 27), but concludes without a word of discussion that "it is the lower end of these forecasts that seems most likely to be realised" (p28 top line). There is evidence elsewhere of what is being achieved: for example, a single organisation (the Environment Agency) has saved an estimated 1.1 million km in one year through videoconferencing, so an estimated total potential of 2.5 billion km would appear wide of the mark

- There is more to electronic business communication and travel reduction than videoconferencing, including electronic data interchange, electronic monitoring, the use of laptops and digital cameras to exchange information from for example building sites, logistics to reduce repeat business visits (see Hop Associates report "Telecommuting 2000")
- This is an area in which government and employers' policy initiatives can be very effective in influencing travel behaviour, for example through tax incentives or disincentives, equipment grants, changes in car user allowances. Until recently most incentives, consciously or otherwise, have been to make business use of cars financially very attractive to employees, but this is changing rapidly, and again the financial benefits to organisations in reducing unnecessary travel is a direct and increasingly understood incentive for action. Recent reductions in business travel by both air and rail have revealed the potential, and the potential savings, in managing business travel.
- Reducing business travel by car has spin-offs in commuter travel plans, as very often use of a private car for work is a major reason for car use for journeys to work, which brings with it the need for costly parking often at the employer's expense.
- The Halcrow conversion from percentage reductions in travel to vehicle km saved is again open to question. A 5% reduction roughly equates to the 2.5bn vkm reduction quoted, but the "lower end of these (NERA) forecasts" is 5% by 2007, and would be 9% by 2015 (10% in 2017 = 1% increase every 2 years 2007-2017). A 9% reduction equates to 4.5 bn vkm reduction, which is just over 1% of total vkm by car.

In summary, the best available evidence on videoconferencing and other electronic developments with implications for business travel, indicates a minimum potential for a 10% reduction in business travel by 2015, which would reduce overall traffic levels by around 1%, much of it on the strategic road network. However, a forecast range of up to 40% reduction has been proposed, and the opportunities to promote change through policy initiatives are great, so a best estimate of a 20% reduction is justifiable.

#### **Section 4: initiatives to Change Behaviour**

This section essentially deals with travel plans. There are numerous inaccuracies or questionable assertions, and it seriously under-represents the potential of travel plans to deliver reductions in travel by car.

- It is inaccurate to say that there is little data other than for workplace and schools travel plans (Halcrow p32 para below table): hospitals, universities, and colleges have long been active in travel plans, and some of the earliest and most widely discussed examples are from such organisations.
- The Halcrow report suggests that case studies have shown reductions in travel to work by car of 7-12% (Halcrow p33 bottom para), but there is a terminology problem here. Travel plans have shown modal shifts away from car use of around 10 percentage points, but this is more than a 10% reduction in car use (if the baseline modal share of car use is say 70%, and there is a shift of 10 percentage points away from car use, this is a reduction of  $10/70 = 14\%$ ). Most travel plans have shown reductions in car use of 10-20% in around three years, although some have achieved around 50%. At Derriford Hospital Plymouth a reduction from 90% of staff travelling to work by car in 1995 to 53% of staff having parking permits in 2001 has been noted (this cannot quite be termed a 37% modal shift, because



different things have been measured and there are a number of complications such as car sharing and permit exemptions, but the estimated modal shift is over 20%).

- The quoted statement that "there is little ... hard evidence of the impact that travel plans have had at sites in the UK" (Halcrow p34 second line) appears to come from the University of Westminster report in May 1998, at which time it would have been very accurate as no more than a handful of plans were more than one year old. There is nowadays much more monitoring evidence, albeit yet to be consolidated into any one document (currently being brought together and evaluated in a good practice guide), which emphatically points to the significant results achieved by travel plans as indicated above; but much of the discussion in the Halcrow report perpetuates the out of date premise that there is a "current lack of unequivocal evidence that WTPs actually yield significant results" (Halcrow p36 first para). It would be more accurate to say of the current state of play that evidence of the effectiveness of travel plans still only covers relatively short time periods, and the full potential of travel plans has still to be realised.

### **Workplace Travel Plans**

Bullet points Halcrow p34 and 35

- It is no longer the case that travel plans are undertaken only by large firms: there are many examples of travel plan networks covering organisations which may have 30 or fewer employees, acting jointly to pool resources and create a critical mass of employees, and these are being actively promoted by the DTLR advice scheme
- There are many examples of travel plans in small towns or semi-rural areas, including one of the earliest and most widely known travel plans, for Pfizer at Sandwich, which is unequivocally rural: other travel plans in small places known personally include Glaxo at Barnard Castle, Maelor Hospital in Wrexham, several plans in Guildford, and a number of initiatives including a travel plan network coming on stream in Kendal.
- Whilst companies engaging in travel plans may be seeking planning permission to expand, this is not an invariable reason for embarking on one. There is evidence that around 50% of travel plans involve a planning application, but the intrinsic benefits of the plan are also part of the equation. In a recent study of organisations in NW England, researched at Liverpool John Moores University, 13 out of 17 organisations stated they were motivated by "government encouragement" and 10 by "improving environmental image"; only one out of 17 cited compliance with a planning application
- The barriers to take-up of travel plans are again no more than issues to be addressed rather than immovable obstacles to progress, and should not be given undue weight

The section on barriers to take-up of travel plans (Halcrow pp34-36) is misinformed and unjustifiably negative. It is verging on absurd to claim that "7% of businesses may represent the high water mark of WTP implementation" (Halcrow p35 last para), when both WTPs and STPs are only now really getting into gear, when they are now seen as mandatory under PPG 13 for most planning applications with transport implications, and when there is active promotion by government, including around 250 schemes a year through the advisory panel, as a key plank of demand management strategies. There are currently said to be over 2,000 travel plan co-ordinators (DTLR press release 17 January 2002) promoting the practice of travel plans, and new initiatives are constantly coming on stream. It is contradictory for the Halcrow report to suggest that UK companies are unlikely to enter into travel plans "given the current lack of unequivocal evidence that WTPs actually yield significant results", then in the following

sentence state that "this is beginning to change as evidence from monitoring is slowly emerging (Halcrow p36 first para).

A further problem with the analysis of travel plan effects is the assumption that a shift of around 10% from car use represents the full potential. Most plans have still been going for three years or less, and a 10% shift is the achievement to date. Travel plans are long term strategies which are designed to build on early wins as part of a long term shift in travel behaviour. Success breeds more success, both by supporting sustainable improvements to alternative transport modes and by influencing attitudes that underly travel behaviour. Most plans have modal shift targets of around 20% in around 5 years, so 10% in three years is a step towards the longer term goal rather than a finite end to the travel plan. Even a 20% target is not the end of the process, and whilst there will be a saturation point at which further change is difficult to achieve, longer term experience elsewhere suggests that this is well above 20%, and modal shifts of over 40% have been achieved in continental Europe and the United States.

The conclusions on the effect of WTPs are correspondingly weak:-

- the calculation of the effect of WTPs (Halcrow p36 second para) is meaningless, since it forecasts the effect of a 10% reduction in commuting distance by all modes, instead of the effect of a 10% reduction in commuting and business trips by car, then compares this with the total vkm travelled by car. The effect of a 10% modal shift from car use for commuting is not represented.
- There is no basis for assuming that "these calculations very much represent an upper limit to what can be achieved at a national level through WTPs" (Halcrow p36 third para): as discussed above, there is no reason to regard 10% as the maximum achievable reduction in car trips, and no reason to conclude that over the next 15 years a significant proportion of organisations will not have adopted travel plans when it is in their own interests to do so.
- The study quoted in the same para is so specific in its parameters (car trips *under* 1.6 km) that the result has little or no bearing on any overall conclusions

The overall forecast (Halcrow p36 bold) of an additional 15% of organisations achieving a 10% reduction in commuting and business car travel is unsubstantiated and of no practical use. There is no timescale, no basis for selecting 15% rather than any other percentage, no justification for confining the level of achievement to 10%, and no consideration of ongoing reductions through existing travel plans. The calculation of a resultant reduction of 2 bn vkm is deeply flawed, yet even this is a reduction of 0.6% to be carried to a final balance sheet.

### **Schools Travel Plans**

- It is incorrect to state that STPs are difficult in rural areas (Halcrow p38): in village schools many children live within the village within walking or cycling distance, and many (probably more than in urban areas) are entitled to free schools transport. Several issues such as the quality of walking and cycling routes, road safety, and personal security are much the same as in urban areas, and there is a challenge over transporting children not eligible for free schools transport in urban and rural areas alike, that can be addressed through STPs.
- The growth in local authorities with evidence of monitoring of STPs, from 17% to 32% in two years (Halcrow p39), is greeted with the curious conclusion that "the majority of authorities were **not** showing clear evidence of monitoring" (bold text in report): there can be few fields of endeavour in which there has been a near-doubling of activity rates in two years, and if this growth rate is maintained there will be a majority of authorities monitoring STPs some time later this year!

- the issues to be tackled in STPs (Halcrow p41, bullet points) are valid, but there is no cause to call them "considerable factors liable to limit the success of STP-type measures", as opposed to just another list of issues to be addressed.
- The evidence on effects of STPs on travel by car to schools (Halcrow p41-42) rather confusingly mixes percentages (46% of LAs said it was too early to tell effects - ie 54% reported an effect) with numbers (5 LAs reported reduction in car travel).
- The reported levels of reduction in car travel to schools are substantial, in the range 10-30%, and since around 20% of morning peak traffic is on the school run the potential reduction through this measure alone is significant, between 2-6% of all traffic. It rather demeans this significance to state that "although these plans may be helping to reduce traffic volumes at morning peaks, their impact upon travel demand at the aggregate level is likely to be minimal" (Halcrow p42, para between tables), because the average distance is low.
- The Halcrow report incorrectly equates the average school trip length of 3km with "the short distance travelled on each escort trip" (Halcrow p42 final para): any average will have a proportion of trips of considerably above the average distance. These trips, and even shorter trips on sections of the strategic road network within major urban areas, may well be on congested trunk and motorway routes, so their effect should not be dismissed.

The section on STPs does not end with a forecast reduction in vkm, but with statements that the effect on vkm on the strategic network will be minimal even at the top end of the range of achievement (30% reduction). In fact the average distance reductions quoted (50 km/ person pa for education escort, 106km/ person pa for education) would according to calculations elsewhere in the report reduce vkm by over 9 bn km per annum (about 2.5% of total vkm by car). This is not insignificant, and even accepting that much of this reduction vkm would not be on the strategic road network it still needs a reasoned estimate. Given also the inter-relationship between local and strategic networks discussed earlier, and the disproportionate effect on peak hour traffic, the handling of the effects of schools travel plans in the Halcrow report is unsatisfactory.

### **Car clubs**

There are again several inaccuracies in this section of the Halcrow report:-

- It is incorrect to suggest that the marginal cost of car use is low compared with the fixed cost of ownership (Halcrow p43 first para). At 10,000 miles pa, average marginal costs have been calculated at about 60% of total costs when properly accounted (WTPP ref), and could be higher still with a taxation shift towards use rather than ownership (an element of the current CfIT proposals for congestion charging). The problem is that marginal costs are rarely correctly perceived by car users: the solution is to promote greater awareness of the real marginal costs of car travel, rather than to accept the misconception as a fact of life.
- It is incorrect to state that there will always be a substantial gap between the marginal cost of public transport compared with that of car travel: in the Derriford Hospital travel plan the cost of a bus journey was brought down to around 75% of the real marginal cost of travel by car, and even some ordinary public transport fares are less than marginal car costs (see also WTPP ref).
- The description of car club arrangements (Halcrow p43 second para) is neither accurate nor inevitable. There is often an annual membership which goes some way towards fixed cost payments, but the main point is that fixed costs are defrayed on a 'pay as you go' basis, rather than that members pay a "smaller proportion of fixed overheads". Costs are loaded onto actual usage, so the

incentive to make less use of cars is greater, which helps overcome the common (but in many cases erroneous) perception that once the fixed costs of ownership have been paid it makes sense to use the car as much as possible.

- The assertion that car clubs are "particularly attractive to people who do not use cars a great deal" (Halcrow p43 second para) is understood albeit imprecise, but this is not the defining characteristic. Car clubs are "particularly attractive" to people for whom they represent a sensible and cost effective means of access to cars in their circumstances. This can embrace a wide range of motives beyond levels of usage, and is not confined to people who "do not use cars a great deal".
- It is unclear how the calculation of reduction in vkm through car clubs in Zurich (Halcrow p43 last para) works. If 8% of the population reduces its travel by two-thirds, this implies a reduction of 5.3% in overall vkm, unless the 8% of population amenable to car clubs are travelling untypically low average distances.

The overall conclusions on car club effects (Halcrow p44 first para) are again totally unsubstantiated. There is no evidence to suggest that "it is likely that use of club cars would be as an alternative to second car ownership"; no reason why membership might be confined to non-car households; no significance in the preponderance or otherwise of car free housing developments; and no basis for regarding the use of car clubs as limited to "a small concentration of low car users" without even defining the terms.

On the other hand, the Halcrow report presents evidence to indicate that a saturation level for car club members would be 8% of the population, and at this level there could be a reduction of 2% in total vkm by car. This may be regarded as a maximum forecast in a target range: there is a need to establish a reasonable minimum expectation, rather than dismiss the effect as negligible and localised. It is accepted that in Britain there is to date very limited experience of car clubs, so it may be necessary to gather more information from elsewhere.

## **Section 5: Public Transport**

### ***Marketing and Ticketing***

- Relative inelasticity of demand for public transport (Halcrow p49) is understood, but is not in itself a barrier to modal shift, more a factor influencing levels of shift, and is not necessarily a guide to value for money in public transport investment.
- The stated very low "cross-elasticity" between car use and public transport use - in effect saying that very little additional use of public transport is by people who would otherwise drive cars - (Halcrow p49 second para) is not substantiated, and there is evidence of modal shift from cars to public transport already happening. As discussed earlier, during the late 90s there is evidence that car use declined slightly (in terms of distance by car per capita), bus use stabilised, and rail use increased, in spite of limited changes in relative circumstances between the modes. Whilst the analysis is not simple, since the pattern could be explained in terms of where new growth was channelled as well as by modal shift, but in any case there will have been a change in modal split, with the modal share of car use declining, and the degree of change suggests that there is likely to have been a degree of modal switching. To give one example, rail passenger growth in Leeds at this time was around 18% per annum without any major improvements in rail services, and it is very unlikely that this would be accounted for by increased overall travel rates or by switching from buses. Even in rural areas, surveys of new bus services

(Wiltshire Wigglybus, Cumbria Plusbus) have shown that 15-30% of users would previously have made the journey as car drivers.

- It is not understood why tourists are regarded as a low car user target group in marketing terms! (Halcrow p51 first line)
- The treatment of individualised marketing (Halcrow p51) is especially weak. Some of the most widely publicised initiatives, such as in Perth, Australia, have achieved documented modal shift from car use of 10-15% in a population of 35,000 people, across the full range of journey purposes, in the hostile circumstances of sprawling urban areas designed around and exhibiting very high car ownership (1,000 cars per 1,000 population), at a calculated benefit: cost ratio of 30:1. It is disingenuous to describe this as "effective but not inexpensive" (Halcrow p51 final para). Results of early projects in Britain (Frome, Gloucester), and of personal marketing within travel plans, are beginning to appear and show similar patterns of achievement.
- The claim that fares and ticketing initiatives would not have much effect on overall traffic levels in areas with high levels of car use (Halcrow p52 first para) is not borne out by the Perth experience, which is across a full spectrum of users and journey purposes in a heavily car-dominated transport system. The claim that significant effects on levels of car use are confined to London (because of existing high modal share of public transport) is not borne out by the parallel experience of Sheffield, which operated a successful low fares policy through the late 1970s and early 1980s.
- Whilst it is accepted that bus deregulation has been and remains unhelpful to the objectives of demand management, the comparison between London and other areas does not illuminate the subject. There are many other factors in the differences in travel behaviour between London and other areas, such as the greater overall availability of public transport in London and extreme levels of congestion, and the comparison of average income levels masks high proportions of low income households even in London.

The forecast of the effects of marketing initiatives (Halcrow p54) is odd, since it expresses the possible impact of all forms of marketing in terms of the loss of bus traffic in deregulated areas compared with regulated London! This is at most only marginally related to one aspect of marketing for one form of public transport, and in any case is not even a forecast, merely a statement of what would happen under a given assumption.

It is unclear why the many other avenues of approach to a reasoned forecast are discarded. Given evidence that individual marketing has achieved 10-15% modal shift from car use across all transport users and journey purposes in car-dominant situations, the suggested figure of 1.5 bn vkm reduction (0.4% of total vkm by car) does not appear to be a reasonable assessment of what is achievable over the next 15 years, since it represents less than 3% (0.4/15) of the potential achievement of only one aspect of marketing.

### **Interchange**

This section of the Halcrow report considers improvements to interchange including improved connection times, but does not home in on the presence or absence of usable connecting services, which is perhaps the most important aspect of interchange in increasing public transport use. Absence can mean 'actual' physical lack of connection, but also 'effective' lack where services do not connect at a single point or where the connection time is so great as to be an absolute deterrent for anyone with access to a car. The potential for reducing travel demand by car by providing more interchange opportunities - both 'actual' and 'effective' - is likely to be much more

significant by enabling public transport use as opposed to simply improving it. The effect is not only in switching complete car journeys to public transport, but also in enabling existing public transport users to avoid car use at the beginning or end of public transport journeys.

Aside from this central issue, there are several comments on the detail of the Halcrow report:-

- The comment that "results from research into the effects of changes to (interchange attributes) are rather limited, although strong subjective and anecdotal claims are made for their effects on patronage" (Halcrow p56 first para), does something of a disservice to the 1999 TR&IN report "Getting the best from Bus and Rail in Rural Communities", and the considerable body of knowledge and experience in this and other similar organisations.
- The implied avoidance of some interchange attributes that are not "amenable to reasonable measurement" (Halcrow p56 first para) is a prime case of what Environmental Capital guidance neatly calls 'valuing what is measurable instead of measuring what is valuable'!
- The idea of expressing the effects of interchange in terms of time weightings or penalties (Halcrow p56) is interesting, although to be useful the system of weightings has to be agreed and has to be applied equally to car journeys. For example, time spent waiting at traffic lights would have the x2 rating, and use of stairs in multi-storey car parks would have at least a x4 rating and probably more, to reflect being "inflated for poor environments". Public transport could have positive weightings, say x0.6, for the ability to do other things - work, read, have meals, sleep - without interrupting or delaying the journey, whereas car journeys would have a weighting of say x1.4 to reflect the nuisance of not being able to do these things or the delay in having to stop for such purposes. There could also be penalties to reflect the relative safety of different forms of transport, and the likelihood of delay relative to optimum journey conditions (for example, there could be a x1.3 weighting on rail journeys from London to North-West England to cover the 30% of trains failing to run punctually, and a weighting of say x1.9 on daytime car journeys to reflect the near certainty of delay on the motorway network in the Midlands).
- The logic of fixed penalties for interchange increasing with journey length is not understood. Intuitively, interchange is a far more significant deterrent in a short journey than a long one, both in the relative proportion of overall journey time and in the relative time consequences of missed connections (in the latter, service frequency is surely more important than total journey length).
- The reduction of interchange improvement effects to national vkm reduction of 0.05% (Halcrow p57 bold) masks the much greater potential effect at a local level on peak flows on individual routes. The figure of 0.05% is in any case not accepted, as it depends on assumptions that have been questioned already; and even if accepted, 0.05% still amounts to 190,000,000 vkm per annum, to be added to the cumulative total rather than dismissed as "of little consequence".

The conclusion of very low levels of car travel reduction through measures to improve interchange is inadequate, because of the omission of what is probably the most important component - presence or absence - , and because of the reduction of other components to measurable but in turn questionable indices. The worked example of 0.05% reduction in total vkm by car is not accepted, and in any case applies only to modal shift to buses. The effects of rail interchange are said to be included within existing MMS modelling, though only "eliminating" interchange is mentioned, but there is no discussion of the resulting potential for reductions in travel demand by car.

## **Information**

The discussion on the effects of public transport information on modal shift from car use is very limited, since the analysis is largely confined to the incremental effects of new information technology. Even recognising the distinction drawn in the Halcrow report between marketing and information systems, there is much more to the issue of presentation of information to the public, and especially to that sector of the public unfamiliar with using public transport, than the effects of new technology. Basic public transport information and customer service facilities in Britain are still relatively poor, acting as a deterrent even for seasoned public transport users, and there is much to be got right before even considering the effects of new technology.

The conclusion that information improvements should not be credited with "any significant abstraction of car traffic" with certain exceptions (Halcrow p59 bold) is not acceptable. This section of the Halcrow report gives an estimated effect of improvements to information systems of 0.1% traffic reduction, which is not accepted but should still be reflected in the conclusion and taken forward to a cumulative total effect of soft factors. The 'exceptions' - "on busy road corridors and as part of a more comprehensive transport management scheme" - , imply a greater effect on congested corridors which should be given due weight, and are surely the essence of how 'soft' measures work, as targeted inputs to an overall strategy.

## **Bus Quality partnerships**

- The Halcrow report presents evidence from DTLR that extensive bus lane systems could reduce car travel by up to 6% (Halcrow p60), but dismisses this without real cause as likely only to be achieved in conditions of severe congestion. The comparison with levels of bus use in the 1950s is immaterial, since it refers only to numbers rather than proportions of total travel; if 6% of all car travel transfers to bus, using Halcrow table 2.3 1998/2000 figures, the modal share of car would decrease from 82% to 77% (6% of 82% = 4.92 percentage points), and that of public transport would increase from 13% to 18%, which appears entirely plausible.
- It is unclear why the Halcrow report changes its comparison of reduction of vkm by car with a "total urban road traffic load" (Halcrow p60 second para) in 2015, rather than the current 380 bn total vkm by car and taxi used elsewhere. The estimated reduction again depends on ratios of capture of car trips which are not accepted, and again talks down the significance of the overall effect rather than putting the forecast reduction towards the cumulative total.
- 23% of riders on the Ipswich Guided Bus being former car users is not a "top extreme" (Halcrow p61 first para): as discussed previously, a range of 15-30% is known.
- There is no basis for using 10% as an estimate of former car users transferring to bus in the figures presented (Halcrow p61). Elsewhere the Halcrow report implies and uses 20-25%. The forecast should at least present a range, between say 10-20%, which would result in a forecast of 0.4-0.8% reduction in vkm by car, to be taken forward to a cumulative total.

The overall conclusions on transfer of car journeys to public transport (Halcrow p61-62) are flawed. The assumptions on which estimates are based, such as the proportion of car users in growth in public transport usage, are questionable. The predicted effects under each area of discussion are played down, and there is little attempt to put them together into an overall effect. Although the section is about public transport, there is very little discussion of rail or other forms of public transport, which are generally regarded as more attractive to car users contemplating modal switch.

Even using the pessimistic Halcrow report estimates, the combined effect of the various subject areas is a reduction of over 1% in vkm by car. With relatively minor changes in the underlying assumptions, this figure doubles. When set alongside other 'soft' factors, a much more significant effect begins to build up than is suggested by the Halcrow report.

## **Section 6: Walking and Cycling**

The Halcrow report produces a reasonable summary of issues surrounding promotion of walking and cycling, but its conclusions again talk down the effects of measures to promote modal shift from cars to walking and cycling, and emphasise a minimal likely effect on the strategic road network, because of the short distances and local journey purpose of most such trips.

Car journeys of less than 3km, within walking distance for many people, account for 3% of all car vkm, and 24% of all car trips; car journeys of less than 8km, within cycling distance for many people, account for 15% of all vkm, and 57% of all car trips (DETR Focus on Personal Travel 1998). The forecasts quoted in the Halcrow report (p67), reducing car vkm by 0.5% through walking initiatives and 0.4% through cycling initiatives, are therefore relatively modest, requiring a shift of only about one in six car trips within walking distance to walking or cycling and about one in thirty car trips within cycling distance to cycling. It is not clear that "it would need strong government policies to deliver these reductions" (Halcrow p67); the DTLR "Attitudes to Local Transport Issues" report in December 2001 found (Chart 12) that 38% of people were making fewer short journeys by car than 6 months previously, mainly for health reasons. In any case there is no reason not to have strong government policies to promote walking and cycling.

Strong policies in York have produced modal share of cycle use (21% of journeys to work) around 6 percentage points higher than other places with similar geography and demography, even those with fairly strong promotion of cycling (eg Cambridge). This is approaching three times the level needed to achieve the above forecast of 0.4% reduction in vkm by car (1 in 30 of 57% of car trips = 2%; 6% more modal share of cycling is three times this amount, but some will have been captured from other modes than car). Compared with more usual modal shares of cycling of perhaps 3-7%, the effect of strong cycling policies is highly significant, and they could have the potential to deliver as much as 3.5% reduction in total vkm by car (18 percentage points modal shift, if from car to cycle, is 9 times greater than modal shift producing 0.4% reduction:  $9 \times 0.4\% = 3.6\%$ , unlikely to be widely achieved but represents an upper range figure).

The claim that promoting walking and cycling is "most likely to attract commuters away from buses rather than out of their cars" (Halcrow p69) is unfounded. There are around 13 times more journeys under 3km in length by car than by bus, and around 7 times more in the 3-8km journey length (DETR Focus on Personal Travel 2001). This highlights the danger of basing conclusions on average trip lengths, as happens in several places in the Halcrow report.

## **Section 7: Land Use and Travel Demand**

Many of the comments in this section of the Halcrow report are generalised, unsupported by evidence, and of limited value. Even accepting the difficulty of summarising such a broad subject in a few pages, there is much to criticise:-



- The first paragraph (Halcrow p72 para 7.1) seeks to show that settlement size is a major factor in the amount of travel demand, but the evidence is rather that *density* is the key factor. As discussed earlier in this report, there is evidence that smaller compact urban areas have higher levels of walking, and lower levels of car use, than large urban areas.
- It is unclear what is being argued in Halcrow para 7.2. It appears to make the case that individual organisations, including local authorities, have different objectives and priorities from those of sustainable development and sustainable transport, and these have to be respected and allowed for in any assessment of the travel effects of land use and transport planning. This is a complete negation of planning principles, and of the primacy of sustainable development strategies in government policy since the early 1990s. In the case of local authorities, it is also a negation of government guidance, including GOMMMS (para 3.4.3), which states that local objectives and plans must nest within regional and national objectives. There are sometimes inconsistent decisions in relation to planning policies, and many local authorities have been slow to implement sustainable transport policies, but the response to this should be to ensure consistency and ensure that transport has proper priority, not simply to accept it as a fact of life.
- Halcrow 7.2 also raises the issue of centralisation of services (p 73 first para). The problem here is that decisions to centralise are made largely on the basis of internal benefits to the organisation, without reference to external effects such as increased travel demand. Again, this requires a mechanism for internalising external costs, and for giving transport proper priority in planning decisions relating to such proposals, rather than accepting the trend as inevitable.
- Halcrow para 7.3 illustrates the time lag between planning policies and their effects on the ground, since PPG 13 has been around since 1994, but there are many signs that PPG 13 and other land use policy guidance such as PPG 3 on housing, are beginning to be more widely and consistently applied. The situation in the late 1990s should not be taken as a guide to the future.
- Whilst it is accepted, in relation to Halcrow section 7.4, that mixed use high density development does not in itself guarantee reductions in travel to work distances, it maximises opportunities for reductions especially if carefully implemented in concert with many other areas of policy action. It is most effective within urban areas, in contrast to the examples of new towns and growth areas cited in the quotation from ECMT (Halcrow p74).
- There is no basis for assuming that "most commuters, when offered the alternatives of travel time savings or wider choice of job and housing opportunities, tend to choose the latter" (Halcrow p74, ECMT quote). Travel plan surveys generally show over 50% of employees living within 8km of their place of employment (ie within cycling distance), which suggests that travel time and cost are still significant issues for a majority of people. There is an issue of a proportion of longer distance commuters having a 'time budget' rather than a 'distance budget' for commuting, and transport improvements - road and rail - leading to shorter journey times have tended to result in longer distance commuting rather than time savings; but this is an argument for thinking very carefully about major infrastructure improvements to the strategic network, since they do not contribute to reducing travel distances.

The conclusions attributed to the Transland project (Halcrow p74, bullet points), are not accepted without qualification:-

- In the first bullet point, the important point is to devise policies which make car travel *relatively* less attractive, which is as much about upgrading alternative forms of transport as making car travel more expensive or slower.

- The second bullet point is too generalised in claiming that people will continue to make long car trips regardless of high density or mixed land use. It rather suggests that people travel for the sake of it, whereas in practice most people travel for the sake of something else, and if requirements are met closer to hand through land use policies there is no reason to suppose that many people will not travel shorter distances to fulfil their needs.
- In the third bullet point, whilst it is accepted that there are limits on "optimum co-ordination of work places and residences" - relating to a whole range of individual preference issues, not just multiple worker households - the whole point of land use and transport policies is to promote optimum conditions for those individual choices to be made in ways that minimise the need for unproductive and costly travel day after day. Managing travel demand focuses attention on the underlying reasons for travel behaviour, and if it becomes easier, cheaper, and more pleasant to travel shorter distances by non-car modes, this in turn raises questions about whether long distance car commuting in worsening conditions is an attractive lifestyle choice.
- It is not understood and not explained in the fourth bullet point, why 'push' policies to prevent dispersed development are more effective than 'pull' policies to promote high density mixed use development. Surely both are needed in tandem.
- The fifth bullet point - that constraining car use in city centres has in no case been shown to be detrimental to economic viability - is fully endorsed, but does not appear to figure in Halcrow's conclusions.
- The final bullet point - that public transport improvements have not led to a major reduction in car travel - is far too generalised and unsubstantiated to be acceptable.

Section 7.5 of the Halcrow report discusses sensitivity testing carried out for the 1998 Transport White Paper, which concluded that "by 2010 reductions in traffic of up to 2% might be achievable by changing land use patterns, and more was possible over a longer period" (Halcrow p76 second para), with a maximum of 4% in some locations. This appears to be a central forecast from a reliable source, but is not carried through to Halcrow's conclusions.

Section 7 of the Halcrow report in effect denies the ability of policy to influence travel behaviour. Its conclusion that "the ability of the planning system to influence changes to reduce travel demand is limited" (Halcrow p76 final para) is a vote of no confidence in the planning system, is a counsel of despair, is deeply unhelpful, and is not borne out by evidence. The report concludes that land use policies "**on their own**, have little effect on travel demand" (Halcrow p77 second line, bold text in original), but the evidence presented does not really support this conclusion, and in any case the distinction is spurious since land use policies are not being promoted on their own but in concert with transport and other policy areas. The overall conclusion (Halcrow p77 bold para) that further land use changes should not be relied on to deliver reduction in travel demand, contradicts the White Paper forecast of a 2% reduction by 2010, without any justification for doing so.

## Section 8: Local Sourcing

This section of the Halcrow report is speculative, largely a series of statements of why local sourcing might increase levels of road transport which could just as easily be written to express the opposite. There are a few specific points:-

- It is suggested that at least two-thirds of freight transport is tied to present sources (Halcrow p80 para below list). This figure is not substantiated, nor is it given a timescale. Its premise is presumably that the supply points of goods will not

change over the medium term, but this is not to say that patterns of distribution cannot alter, to rationalise where goods are delivered to. There are many examples of the 'coals to Newcastle' syndrome recognised in the 1970s (in spite of the saying, at that time the same amount of coal was being transported to Newcastle as from Newcastle). The proportionally low cost of transport in total production costs promotes inefficient duplication of transport of goods in the name of trade, but this is not to say either that this will not change in the future or that nothing can be done to influence change and promote local sourcing to reduce travel demand.

- The discussion of the relative transport effects of bulk imported goods compared with locally sourced goods (Halcrow p80 final para) adds nothing to the discussion, unless there is evidence one way or the other.
- The farmers' markets discussion (Halcrow p81 first para) misses several points. The issue is not just whether local produce replaces "overseas produce", but whether it eliminates a round trip of several hundred miles from a local field to a local kitchen via Covent Garden or a Tesco distribution centre! Also, there is no basis for assuming that all trips to farmers markets are extra trips, and no basis for concluding that additional local trips amount to more total distance than the saving in distance travelled by the goods.
- The modal 'substitution' argument (Halcrow p81 second para), that shorter local journeys are more likely to be by road rather than rail or waterway, is dubious. Local produce going anywhere from the farm gate will begin its journey on the local transport network, regardless of where it is going eventually. If it is then sold locally, the onward journey as a consolidated load, whether by rail, waterway, or (most likely in Britain) road is eliminated. Some commodities such as minerals may begin their journey as consolidated loads by non-road transport modes, but the local market will still involve breaking bulk and transfer to road transport at some point.

The conclusions to this section are again generalised and unsupported. Local sourcing is said to be most unlikely to have any noticeable effect on travel demand, because trends in trade militate against it; for many products there is very little choice to switch to closer alternatives; there is no evidence that it is happening to any extent; and there appear to be no policy initiatives to promote such changes "in prospect" (Halcrow p81 second para). It is difficult to understand where these assertions are coming from, given that local sourcing is happening; marketing phrases such as "cutting out the middle-man", "saving transport costs", and "local quality assurance" are commonplace; and there is considerable policy interest in it for reasons from wealth retention by agricultural producers, supporting local economic revival, animal welfare, and countryside conservation, as well as the potential to contribute to traffic reduction. There is probably not enough evidence of current effects, but a more useful approach would have been to explore the potential for traffic reduction through local sourcing, to point to the need for research where necessary, and to offer suggestions for effective policies to manage travel demand through local sourcing.

## **Section 9: Oil Supplies and Fuel Technologies**

This section of the Halcrow report appears to argue that oil supplies will not dry up over the next few decades to the extent that fuel prices or availability will affect the demand for travel, and that CO2 emissions reductions can be achieved by technological improvements without the need for traffic reduction policies. It also appears to argue that new technologies are on hand to improve technological performance still further should it be needed or become competitive in its own right, so the likelihood of

significant reduction in travel demand for any reasons relating to fuel or emissions is small.

This is an area of intense debate at the present time, and the above conclusions appear somewhat complacent. The following specific points may be made:-

- The argument that oil reserves are more or less keeping pace with consumption (Halcrow section 9.1) is highly questionable. As long ago as 1971 it was recognised (university lecture) that there is a 'normal distribution' of consumption of natural resources over time (ie a long period of little usage, then exponential increase when specific uses are developed and supply is plentiful, then a peak and exponential decline as supply dwindles, then a slow tailing off), and the majority of consumption occurs in a relatively short period either side of the peak. For oil, it was estimated that given this distribution curve, the difference between the most optimistic and the most pessimistic forecasts of reserves would make at most 15 years difference in the date at which oil would for practical purposes run out, between about 2035 and 2050. However, long before that date consumption would peak, and declining use set in as a result of the price effects of supply and demand.

It is of far less consequence in table 9.1 that "proven reserves" are growing, than that the rate of increase in consumption doubled in 1990-2000 compared with 1980-1990, whilst the rate of increase of proven reserves fell more than seventeen fold in the same period. Almost irrespective of how much growth in known reserves occurs, the majority of the world's oil - and probably more than has been consumed to date - will be used up in the next 20 years or so, and we shall enter the period of declining consumption due to declining supply. It remains to be seen whether technological substitution will enable the current uses for oil, including transport, to be met by other fuels at comparable availability and price levels, but it seems imprudent to base future transport policy on the assumption that it will.

- The argument that a reduction of CO<sub>2</sub> emissions is possible with traffic growth of one-third and 20% reduction in fuel consumption rates (Halcrow 9.3 p84) is difficult to follow, and does not appear to accord with government policy. This seeks positive action to stem CO<sub>2</sub> emissions in all areas of activity, such as increasing the proportion of electricity generation from renewable resources and improving the energy efficiency of buildings. Transport is recognised as the fastest growing source of CO<sub>2</sub> emissions, and traffic reduction policies and initiatives are central to the government's committed level of reduction. If traffic reduction does not occur, and thereby deliver climate change objectives, government policy will have failed.
- It is implausible to suggest that "a near doubling of fuel prices in the 1990s" was "largely as a result of the fuel duty escalator" (Halcrow p85); since this only raised the fuel duty component of the total price by 5% per annum for about 5 years, it is doubtful whether it contributed more than about 20% of the increased price. The discrediting of the fuel duty escalator should not be allowed to inhibit the use of regulatory mechanisms to influence price and thereby travel demand. A transfer of taxation from ownership to use, with a tax-neutral effect for average users, could have achieved similar effects but been much more 'saleable'.