22nd Australasian Transport Research Forum
Sydney, September 1998

Reducing the impact of the car – a sustainable approach: TravelSmart Adelaide

Elizabeth Ampt
Steer Davies Gleave

Andrew Rooney
Transport SA

Abstract:

The technique of travel blending – an individual action approach to the reduction of the impact of the car – has now been trialled in a number of cities around the world over the past two to three years. The method makes use of simple principles to help people make equally simple changes to their travel behaviour to fit in with their lifestyles. It is based on: giving people an understandable, overall goal (e.g. improving the quality of life in Adelaide through reducing the use of the car), letting them measure their existing travel behaviour, giving them personalized tips for change (tips that fit into their existing lifestyle, and providing an environment of reinforcement (e.g. family, work or school situation).

The application in Adelaide is more extensive than other approaches in making sure the method is viable, undertaking a survey and then a series of trials, each one more extensive than the previous one – allowing modifications at each stage based on feed-back from participants of 20%, and reductions for the population as a whole of around 11%. Furthermore there are indications that these reductions are sustainable. Finally this paper describes the latest and most extensive trial undertaken to test the applicability of the method on a region-wide scale.

Contact author:

Elizabeth Ampt
Steer Davies Gleave
32 Upper Ground
LONDON SE1 9PD UK

Telephone: +44 171 919 8500
Email: lizampt@adg.co.uk

Fax: +44 171 827 9852

Introduction

Throughout the world there has been a focus on reducing the impact of the car because of its negative impacts in terms of pollution (both air and noise), congestion and associated time losses, the severance caused by the road network, decreasing levels of fitness among the population and so on.

In the United States, Clean Air legislation and the Intermodal Surface Transport Efficiency Act (ISTEA) have combined to focus attention on the link between motor vehicle use and air quality. In the UK, the Royal Commission on Environmental Pollution (1994) suggested that transport "has become possibly the greatest environmental threat facing the UK and one of the greatest obstacles to achieving sustainable development". For this and other reasons the UK Parliament passed the Road Traffic Reduction Act this year (1998). In Australia, as in other countries, the cost of congestion is now widely discussed.

A variety of solution approaches have been formulated and are being implemented to varying degrees to address these issues. These include:

- technological improvements to the car to reduce emissions,
- construction of new infrastructure to reduce congestion or provide public transport or other alternatives to the private car, and
- other measures, excluding provision of major infrastructure, which aim to modify travel decisions. These are commonly called demand management or mobility management measures

There is a wide range of policy instruments that governments can apply to encourage traffic reduction and modify travel behaviour. The paper focuses on the last of these approaches - demand or mobility management - which can be characterised (ECOMM, 1998) as aiming to influence individual travel behaviour while:

- being voluntary in nature, using incentives rather than coercion to influence behaviour
- relying on the use of information and marketing, better management practices and small scale investment in local areas
- involving site owners and companies as key new players in the process of change, and
- working in partnership with private and public sector organisations with an interest in transport issues.

Although the approach described in this paper broadly falls into 'mobility' or 'demand' management category, we would argue that the strength of travel blending which is not seen in all other approaches is that it seeks to retain accessibility to all activities and to place the choice of method of reducing the impact of the car on each individual decision maker.

This is done by using a personalised approach:

- measurement of current travel behaviour and

- presenting this in a simplified way to the individual
- together with personalised tips for making simple, incremental change and then
- giving people a change to implement changes and measure again

Achieving Behavioural Change

Efforts to reduce the use of the car through urban and social change (as opposed to legislative and pricing measures) have primarily taken the form of "travel awareness" campaigns, pioneered in the UK. The programmes aim to encourage people to reduce car use by campaigns in which brochures, leaflets and other materials are provided to inform people of the problem (too much congestion, too much pollution etc.) and suggest solutions (e.g. car sharing, work at home etc.)

While common sense and the psychological literature would agree that a change in attitude frequently occurs before behavioural change and that attitude change cannot occur without "knowledge" or "information", many of these programmes have made little attempt to step beyond the "raising awareness" phase. In addition, there is very limited data on the degree to which behaviour has changed, if at all.

The differences along what might be considered as a continuum from awareness to attitude change to behavioural change are highlighted in the following example. In a random telephone survey of 1000 households in the Greater Sydney region (Sydney, Newcastle and Wollongong in Australia), 89% of respondents expressed concern or at least some concern for air pollution in the region (Göllner, 1995). However, in contrast, only 59% said they take action to reduce car use because of the environment. This highlights the challenge of getting people to move from awareness of a problem towards change in behaviour.

The approach described here is based on the philosophy that people need more than simply being "made aware" of problems by an external medium. In addition they need:

> to *understand* the issues so that they can *make changes themselves - changes which suit their own lives*

Needless to say, an approach with these ambitions is continually being modified and improved as we learn from participants how this understanding can be achieved, and what type of changes are readily possible. This paper, therefore:

- describes the travel blending approach as it is currently being applied;
- gives an indication of the level of change which is being achieved; and
- puts the travel blending approach into a planning context.

The Travel Blending Programme

The Concept

Travel blending was initially developed as part of Clean Air, 2000, an innovative campaign to clean Sydney's air before the Olympic Games, for and with the motoring organisation, NRMA, in Sydney, Australia. (Göllner, 1996). It is the terminology used to

describe a way for individuals to reduce the use of the car which involves (Rose and Ampt, 1996), (Ampt, 1997):

1) *thinking about activities and travel in advance* (i.e. in what order can activities be done, who should do them, where should they be done etc.) and then
2) *blending modes* (i.e. sometimes car, sometimes walk, sometimes public transport etc.), or
3) *blending activities* (i.e. doing as many things as possible in the same place, or on the same journey), or
4) blending *over time* (i.e. making small sustainable changes **over time** on a weekly or fortnightly basis).

The four components are interwoven to form the travel blending philosophy. Blending modes is, of course, nothing new in itself. Most travel demand management schemes begin by thinking of a shift to other modes. But the emphasis here is on 'blending'. Blending does not mean changing from being a car driver to a public transport user or walker or cyclist, but rather it means making sensible choices about journeys for which the car will remain appropriate (sometimes the only option in the short term), and those for which other modes are possible. We have found that, on the one hand, this approach takes the threat out of change, at the same time giving individuals the chance to make small achievements immediately.

The first tenet - that of thinking about activities - is, in some respects, the key to the whole concept. It makes possible the idea of blending activities and provides participants with the ability to understand the principles of the approach - for application in the longer term, well past the supervised stages of the initial travel blending kits described below. Finally, the fourth component of travel blending, in addition to encouraging small changes, also lets participants begin to think about long-term changes which could be possible - taking car use into consideration when choosing the location of a new day-to-day activity (sport's centre or hairdresser), a new housing location or a school for a child.

In addition to these five key components, the context and the way in which travel blending is introduced to participants is important.

An overall reason for reducing the use of the car

Studies of behaviour suggest that behavioural change is most likely if people are presented with a goal consistent with their belief or value system, or which is likely to make positive changes to their life.

In the initial travel blending study in Sydney the overall aim of the study was very clear to the government, the client, and to most people in Sydney where high air pollution levels are causing visible smog in both summer and winter. In the Adelaide study (Steer Davies Gleave, 1996) the travel blending project was preceded by an in-depth study to gain an understanding of whether people in Adelaide were 'ready for or receptive to changing (reducing) their car use'.

While many of us were slightly cynical, the study clearly found that there were, in fact, many reasons that people in Adelaide would welcome such a scheme but the most

important seemed to focus on the high value placed on retaining the current standards in Adelaide, particularly in relation to quality of life: *Adelaide is a great place to live, let's keep it that way - use your car less!!* and/or *Reduce car travel to improve the quality of your life!*

An achievable goal

Within this context, an approach which has behavioural change as an objective for both the short term and long term, needs to focus on achievable change. Achievable should mean:

- that *some* change is possible for everyone in the short term;
- that these changes can be *built into a person's life-style*, i.e without negative changes to their lives;
- that all people can see *possibilities for other changes over the long to medium term* - again without negative life-style impacts; and
- that all of these changes are *sustainable over the long term*.

A measurable goal

The goal, of course, must not only be achievable, but individuals need to be able to measure their achievement, even if it is small. In some aspects of life this is readily observable (e.g. the amount of paper in the recycle pile) or measurable (e.g. weight measurement in a weight reduction programme). It is generally not as straightforward for car use, since reducing the impact of the car is not simply measurable by observing the odometer reading, and even if it was, only about half of all car users are drivers.

Travel blending uses personalised feedback as the medium for personal measurement But information on behaviour is, in itself, insufficient to bring about change. Experience in the travel blending programme has shown that the customised tips are the component of the programme which is singularly most read and appreciated by participants in the study.

Furthermore, recent research in which people were given factual feedback about car use (awareness) without customised information on the way they may make changes suggests that people feel threatened by awareness without recourse to change. Of most interest is the fact that there was a marked tendency for people with positive attitudes to car use reduction before the scheme to change their attitudes (using cars is not all that bad) when they felt unable to change their behaviour (Tertoolen et al., 1998).

Understanding the Principles

Next, the transmission of the knowledge of achievable changes needs to be done in conjunction with transmission of the knowledge of the principles underlying the recommendations, so that these changes can be built on and future changes can be made independent of external advice.

Fitting Changes into Life-Style

The final important component of the travel blending philosophy is that of introducing individual change in the context of that person's life. This is critical because the goal of

reducing the impact of the car can be achieved in a multiplicity of ways, many of them dependent on life-cycle and life-style. The travel blending programme is always encouraged for all members of the household simultaneously for two reasons. The first is to ensure that *intra-household interdependencies can be used* to their fullest - people sharing rides, one person doing an activity for another. The second is *to exploit the mutual reinforcement* which can be offered by other people sharing similar goals.

Furthermore, recent applications of the programme have suggested that reinforcement from sources external to the household is also very important in providing both these types of support. For this reason travel blending is now being encouraged for groups of people working or playing together (together with their households). Examples of this are work-mates, school classes, interest groups, and so on. In addition, participating in the programme as part of an out-of-home group seems to encourage people to discuss the reasons behind their new behaviours, and to talk about their attempts at behavioural changes, leading to a domino effect among non-participants.

The Method

The travel blending method as it has been developed to date, therefore, gives participants four key things:

- *knowledge* of their current travel behaviour in terms of time spent travelling by all modes, distance travelled as a car driver, level of pollution generated as a car driver; and
- *customised tips* on ways in which they might make both short and long term changes to their travel;
- *a short term yard stick* to see the ways in which their initial efforts to change are acting, and
- *an ongoing measuring tool* to help reinforce and maintain the behaviour.

A fundamental component of the travel blending programme is, therefore, a series of diaries which are completed by or for (in the case of young children) each member of the participating household. These diaries provide

- the knowledge of their current travel activity - for making it 'tangible' for the participants in the programme (Rose and Ampt, 1996), and
- a basis for giving quantitative and qualitative 'feedback' to participants about ways in which they may be able to make changes.

Diaries to Measure Travel Activity

The diaries are designed to obtain sufficient information to prepare the customised feedback while being easy to use by participants. They are, therefore, less detailed survey instruments than in traditional one day self-completion travel surveys (Richardson, Ampt and Meyburg, 1995). The travel diary records information for each trip stage including the start and end times, the odometer readings (when the person is driving a vehicle), the mode used and the destination/purpose.

There are two types of diaries - one for people with a driver's licence which includes space for odometer readings, and a slightly simpler version for people without a licence

which does not require recording of the distance travelled. At the moment distance is not recorded for car passengers.

The diaries are completed over a one week (seven day) period. This is in contrast to the majority of travel surveys which collect data for only a single survey day. Covering the whole week is considered to be critical in this case because travel blending relies on modifying travel activity over time, for example, going by public transport one day per week rather than driving. In addition, weekend travel is very different from weekday travel and people may find their capacity to practice travel blending is different at the weekend than through the week

Response Aids

Despite this, it was perceived as extremely important to ensure a high 'internal' or 'item' response rate to minimise underreporting in the seven day diary and there are several aspects of the method which are designed to provide an inbuilt reminder system.

The travel diaries are designed to be kept in a 'diary holder' (cardboard box) which can be kept on the refrigerator (using attached magnets) or stood on a desk/table/counter top. The diaries are designed to display each person's name and the day of the diary they are completing. When placed in the diary holder the names of everyone in the household, and the diary day that they are completing, is visible. Thus, for example, a glance at the box would show that Tom and Julia have completed their Wednesday diary but Greg has not completed his diary for Tuesday. This serves as an inbuilt reminder system with peer pressure within the household encouraging everyone to complete their diaries.

The travel blending programme involves four 'kits' and a total of nine stages. The purpose and contents of each are outlined below.

Stage 1 *Gathering background information*

At the outset, base information is gained from participating households and includes names and age of all household members, licence holding and mobility levels of each person, bicycle and car ownership of the household, and details of household cars, including engine size, age, and number of seats. These details are used for the feedback - factual and tips. In addition, household size information is collected for non-willing participants to allow calculation of overall behavioural change for the population.

This data seems to be most successfully collected by a 'co-ordinator' from each of the non-household bases (e.g. work groups). This person has served as the link, in terms of distributing and collecting kits as well as being a key motivational factor in each group.

Stage 2 *Kit 1: Getting Started*

Included in the first kit is a letter of introduction from a prominent person - in Adelaide the Head of the Department of Transport and the Minister of Transport. Also included are two information booklets. The 'Why' booklet explains the link to the problem (air pollution, congestion or quality of life) and vehicle use and describes why there is a need for action. The 'How' booklet outlines the range of potential solutions, noting the role of government, industry and the individual. It introduces the concept of travel

blending and indicates that the first step for a person to change travel patterns is to understand the amount of travel they currently undertake

The kit also includes a one week travel diary for each member of the household. Also included is a diary holder box which serves as a depository for the diaries and an inbuilt reminder system. In addition, a set of 'Count your Kilometres' stickers are included - designed to be placed on the steering wheel of household vehicles to remind drivers to complete odometer records.

Stage 3: Completion of diaries

Participating households complete the diaries over seven days and return them for processing.

Stage 4: Preparation of feedback

The data is then entered into a database and an automatic feedback generation system (based on an expert system method) is used to prepare the customised feedback sheets comprising facts and tips as described below.

Stage 5: Kit 2: Help Make a Difference

This kit contains customised feedback from the travel diaries. Feedback is presented on a sheet headed "Did you know these things about your household's travel?". There is one feedback sheet for the household, and one each for each household members including children and babies ("Some information and tips for John "). The *facts* are described first - details of the total number of trips, trips by mode and total time spent travelling. For each vehicle the total kilometres travelled is summarised along with the number of engine cold starts and an indication of the emissions produced (in terms of kilograms of carbon monoxide, hydrocarbons and oxides of nitrogen).

The feedback begins by *highlighting positive* steps which people are already taking, for example:

> We noticed there are some things you are doing which already help to reduce pollution and congestion:
> - P% of your trips were walk trips. These trips cause no pollution in Adelaide! Well done!

The feedback then includes *ideas for ways of reducing vehicle use*. In some cases these are general:

> Peter, if you are the person who looks after the car that you are driving then try and make sure that you tune the engine regularly and keep the tyres inflated to their recommended level.

but in many cases detailed suggestions are made. For example, trip chaining is recognised and encouraged in the following way:

> We noticed that on Friday you drove from home to drop a child at school at Modbury and then on to work at Walkley Heights all in one journey. This is sometimes called *Trip Chaining* and it already reduces pollution compared to driving to each of those places on separate car trips. From your diary there were 5 journeys where you were trip chaining.

And short car trips are discouraged

> We noticed that on Saturday you made 5 short car driver trips to and from home Could you have done some of the activities on the same trip, or got someone else to do some of them while they were out?

Two other examples illustrate the type of feedback suggestions made to participants. The first is in the case that the person goes to work at times of day when there is a bus service, and does not make stops on the way to or from work, and the second is the case where that person owns a bicycle and has no mobility problems.

> Could you sometimes use public transport for your journey to and from work? For example, on Tuesday you travelled to work in the car and did not use the car all day at work. Maybe you could try it out? We have provided free ticket and a booklet 'Using the bus - Michael' which tells you all about using the bus for this trip and other trips in your area..

> If you are not carrying heavy items and if you are not travelling with anyone else, could you sometimes ride your bike for short trips such as the one on Saturday from home to the gym? It can be quicker than you think and it is also healthy

Also included in Kit 2 is a booklet titled "Thinking about your travel". This brochure is designed to encourage households to think about their travel using the details provided on the travel feedback sheets. It also included 'tips' to help people practice travel blending to help reduce motor vehicle emissions.

Finally a goal card is provided. This allows either the household as a whole, or individuals, to record their travel blending goals. This card has a magnetic strip on the back so that it can be placed on the front of the refrigerator

Stage 6 *Changing behaviour*

Participating households are given about four weeks to practice travel blending and then they are sent the next kit.

Stage 7 *Kit 3. Are you on Track?*

The purpose of this kit is to measure the impact of travel blending on the household's travel activity. This kit includes another set of travel diaries. The household again completes these over a seven day period and returns them for analysis. To encourage a higher response rate, a booklet titled, "Track your travel 2" explained the importance of completing this second set of diaries.

Stage 8 *Completion of second set of diaries*

The household completes these over a seven day period and returns them for analysis. After analysis, the household is then sent the final kit.

Stage 9 *Kit 4: Continuing to Make a Difference*

This final kit includes the summary of travel activity from the second set of diaries and an analysis of the changes in travel between the first and second sets of travel diaries. This comparative summary identifies changes in the total time spent travelling and number of trips by mode for the household as a whole and also for each individual

within the household. Changes in motor vehicle use are reported in terms of the changes in total kilometres travelled and changes in the number of cold starts as well as the changes in emissions.

In addition participants are given further tips. For example, people may have used the car less, but not been aware that there was more environmental impact in using a larger car rather than a smaller one.

Kit 4 also includes a log book so that people can continue to monitor the odometers of their vehicles once a week. This has been shown in Adelaide to be particularly valuable for households which have very varied travel each week. In these cases the diaries sometimes do not do justice to people's very positive attempts to reduce car use - while an ongoing monitor is ideal for highlighting downward trends which are not necessarily a smooth curve.

Achievement of Change

Changes in Opinions and Attitudes

Interviews with individuals and households after people have received the second round of feedback suggest that there is unanimous agreement that the travel blending package resulted in increased awareness of the use of the car and its associated environmental consequences for people of all ages. The feedback - the facts together with the customised tips - was given as the major reason for this. In most households, this feedback also fostered discussions between household members about their ongoing travel behaviour.

- At one extreme, for one individual who did not reduce her car travel, she said that *"I started valuing my trips in the car"* This respondent came to appreciate the role the car played *"as an important tool to communicate"* and for the access it provided for speciality shopping and leisure activities.
- Another respondent said *"I used to consider convenience and cost when making travel decisions, now I consider three things: convenience, cost **and** environment"*

Reported Behavioural Changes

Respondents also provided concrete examples of behavioural change which they attributed to having been involved in the travel blending programme. Some changes were intuitive:

> Many respondents reported significant increases in 'trip chaining' - thinking before they travelled made it easy! In one case a participant had done this by simply using a shopping list before leaving home.

> One respondent used to drive to the station every day. In response to a specific suggestion made in the feedback sheet, he now catches the bus one day per week. This results in a 12 km reduction in distance travelled and the elimination of 2 cold starts per week. He needs to get up slightly earlier on that morning, and he chooses a day when he does not go to University after work. Most important, this respondent indicated that this was a sustainable long term change in behaviour.

Another household bought a household-bicycle and started using it to substitute short car trips.

Still another family moved house during the course of the programme and sought out and began using public transport - something which had 'never occurred to them' before.

Post-study interviews also suggested indications of change not measured in the diaries either because they were counter-intuitive, or did not happen in the diary week.

One young woman's car driver trips actually increased during the second diary week due to the fact that she had picked up two friends on various journeys (and reduced two car journeys and two cold starts by them on each occasion)!

Another respondent who indicated that he had set no specific goals, and who, indeed, exhibited no change between diaries, had gone to some trouble to shift the bikes from the back of the shed to the front where they were more visible. And somewhat sheepishly admitted to actually having had quite fun riding to the shop on Sunday morning. Importantly the study team would have regarded this person as being resistant to change on the basis of initial discussions making the reported change in behaviour even more encouraging.

Measured Behavioural Changes

One of the benefits of the two-diary format of the travel blending system is the ability to measure reported changes in travel behaviour and car use. Some results for the Adelaide project are included here. Note that results are given in two ways - changes by participants, and relative impact of these changes given the non-willingness of some people to participate.

	Diary 1	**Diary 2**	**% Change**
Participants			
Car Driver Trips	2572	1988	-22.7%
Car Driver Kilometres	26856	21131	-21.3%
Total Hours in the Car	1325	977	-26.2%
Total People Approached			
Car Driver Trips	3089	2669	-13.6%
Car Driver Kilometres	32251	28534	-11.2%
Total Hours in the Car	1603	1310	-19.3%

Table 1: Examples of Reduction in Car Use, Adelaide, June-July 1997

For the purposes of preparing the above data, it has been assumed that each person in a non-participating household[1] (household size was ascertained) travelled in the same way as the average for all persons in Diary 1 (i.e. before they received any feedback). There are several notable features of this data:

[1] In Round 1 the non-response level (people not wishing to participate) was about 12% with a further 12% choosing not to complete the second diary.

- the size of the reduction in car use - between 21% and 26% for participants, and between 11% and 19% for the population as a whole. This is particularly significant since the sample chosen to approach people to participate was completely random;
- the fact that the most significant decrease was for time spent travelling in cars (including driver and passenger) travel; and
- the importance of a greater reduction in trips than kilometres.

The results support the qualitative feedback which suggested that the most important way in which people in Adelaide could blend was the simplest - thinking before they travelled. The predominant result was an increase in 'trip chaining' - *still using the car, but using it more efficiently*. from a policy point of view this has the implication that is also the cheapest option.

The Longevity of Change

Although the results show a high degree of change over the 2 month period, any attempt to implement the method at a broader scale, clearly needs to include an assessment of longer term effects. Do people continue to use the car less? Do they revert to the old, higher levels or use, or do they simply 'regress' slightly after the initial enthusiasm is over?

These issues were addressed in a follow-up study carried out in November, 1997 about 6 months after the initial travel blending scheme. As noted earlier, people in households who had participated in the scheme were asked to fill in a Kilometre Monitor for the months after the program and the assessment of these log books together with some depth interviews with some households formed the basis of this evaluation.

Although the sample size was relatively small (21 households) the results showed that, contrary to expectation, there was a surprising *further reduction* in car kilometres by travel blending participants of just over 5%.

The depth interviews reported the following reasons for these results:

- People could not implement some of the feedback suggestions in the change period of 4-5 weeks built into the program either because of the need to plan or because of the inertia of current behaviour – 'I took a while to get round to it'.
- People developed other time-saving measures themselves which also reduced the use of the car.
- Some changes occurred at other changes in life-style or cycle, e.g. change of school, job, home location or other activities.
- Time savings was the most often quoted reason for the sustainability and continuation of change.

Next Steps

The pilot study reported here was considered extremely encouraging, but five key issues emerged from it, each of which is being addressed in an ongoing study which began in April, 1998.

The five issues were

- the way in which the travel blending process could be *extended to the broader community;*
- the need to *continue to monitor behaviour over the longer term*, to check for a) longevity of changes, and b) trends which might be masked by short term variability in travel behaviour ;
- the need to know *more about the travel patterns*, particularly car use, *of people who refused* to take part in the programme to discover whether these people are using the car more, less or the same as people who take part If they are travelling more, the methodology may need to make more attempt to include them, while if they make less, their non-participation will make less impact;
- the need to gain a *better understanding of reactions to the programme*; and
- the extent to which the increase *in non-response with the second diary could be reduced*

Each of these is discussed in more detail below

Expansion into the Community

Dissemination Channels

The first step is to determine the best strategies or routes for travel blending to become accepted at a wide scale in the community To date we had tested the use of an employee based sample, but schools are considered likely to be extremely important from the points of view of 1) peer-group pressure, 2) the fact that children will be the future citizens and custodians of the environment, and 3) bearing in mind the important role that children play in influencing adult behaviour The current test includes 70 students and staff (and their households) from a middle school in Norwood-Morialta In addition, three private sector organisations are being included in the current study to see if an approach via a private organisation has any significant differences or needs than the approach via public sector organisations

Osmosis or Domino Effect

The extent to which travel blending is a tool for everyone in the community or simply a vital catalyst for extending a philosophy into the community is also an important consideration This is important to answer the challenge - "so 200 households or 700 households can change, but how does that help the situation in Adelaide with its 250,000+ households?"

While it would seem important that as many people as possible are exposed to the actual experience of the travel blending programme, it would clearly be desirable that a future in which it provides a catalyst is also described For this reason it is important that there is a test of the extent to which people who work and live along side of 'blenders' take on the philosophy and behaviour of the blenders themselves

The objective of the osmosis test has been to see if households or people who did *not* take part in the travel blending program actually reduce their car use if they came into close contact with households or people who did

The design of the osmosis test was as follows:

- Choose two private firms of similar type (in terms of personnel and life-style type) and in similar geographic areas;
- In one firm, randomly choose two similar groups of people (households) - one is offered to take part in the travel blending program, the other group is given vehicle log books only.
- In the other firm, no-one is asked to participate in travel blending, but a matched group of households is given log books only.

Better Monitoring of Long-Term Behaviour

To monitor longer term behaviour households who had taken part in the previous study (1997) were given a vehicle log book to observe changes since that time.

In addition, 100 households in Transport SA who are not travel blending have been given log books to check that there is no significant difference between participants and non-participants.

Better Monitoring of Non-Participants

Furthermore, it is vital to have knowledge of those people who do not take part as well as those who do since it could be hypothesised that people who travel a lot may refuse to take part either

- because they realise the larger amount of effort involved, or
- because they feel that the car-orientation in their lives may be threatened.

In the Adelaide pilot study, we assumed that refusals travelled at the average level of all people who took part in round 1. It would, however, be more reliable to have a more accurate figure for this estimate.

Therefore, *those households refusing to take part* in the program have been given a vehicle log book.

Better Understanding of the Reactions /Needs of Participants

In the previous studies it was noted that people divide into three rough groups in their reactions to the programme:

- those who are pre-disposed to change,
- those who need a lot of assistance in understanding/changing, and
- those who are resistant in different ways?

In order to understand these groups better, and in particular to discover whether there may be simple ways to identify them at the outset and to approach them in slightly different ways. This has been done using the following steps:

- 70 participants in the study have completed a self-assessment questionnaire to assess their 'level of acceptance of the concept';
- these participants have been categorised into 'receptive', 'need assistance 'and 'resistant' categories as appropriate;
- in-depth discussions will take place with 4 people in each category to understand methods which may be helpful in promoting a better response from their point of view.

Furthermore, 8-10 people reporting 'non-normal' diary weeks are being interviewed to understand the nature of the differences. This is the first step to understanding ways in which we may better package the approach for these people in the future

Improved Response/Reducing Costs for Diary 2 (Kit 3)

Finally the current study deals with reducing the costs of Diary 2 and at the same time improving response. This is being done by giving a small sample of households a much simpler diary in round 2. It is anticipated that it will be cheaper to process the data and that it will cause loess response burden.

The Travel Blending Approach in a Planning Context

In concluding this report on travel blending it seems appropriate to place the approach in a planning context. Given that it is seen as a useful way of reducing car travel, where does it belong in the scheme of things? The following diagram (Ampt, 1997, Figure 1) shows three ways in which people can be approached to reduce their use of the car.

The first is **regulation** or **intervention** (such as increasing parking prices, reducing access to city centres). This brings about change - though often resented, and not clearly understood by many people

As a response to the prescriptive nature of regulation, **travel awareness campaigns** have been developed - focusing their attention on giving information on the negative effects of the car and on schemes such as walk-to-school week or leave-the-car-at- home days. Well executed, these bring about increased levels of knowledge, though not often of "next steps"

Travel blending, however, focuses on getting **people to understand their current behaviour** by measuring their current car use, giving them personalised options to change, and then **observing actual change (reduction) in the use of the car.**

One of the interesting aspects of travel blending - in which people understand their own behaviour and choose their own way of changing - is that it puts the awareness campaigns and regulation in proper perspective and actually allows them to reinforce the behavioural change. For this reason it is proposed that the ordering of processes shown in Figure 2 is a much more likely way to achieve change.

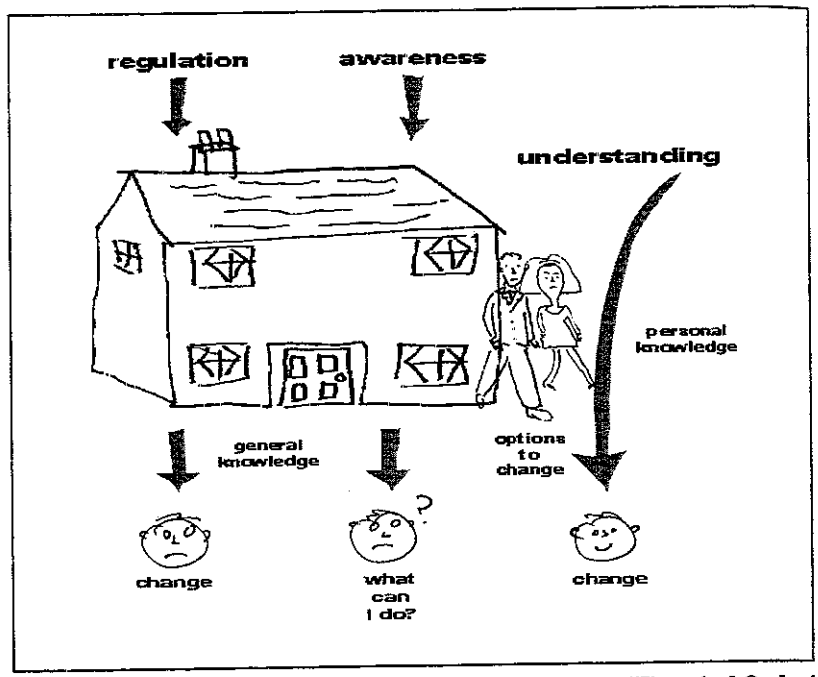

Figure 1: Three Methods to Approach the Reduction of Car Use - Historical Ordering

The awareness campaigns make much more sense when presented in a context where people are already thinking about changing their own behaviour. Furthermore - and relevant to both local authorities and small businesses contemplating regulatory change - 'regulation' becomes much easier to understand, and is likely to be met with much less resistance.

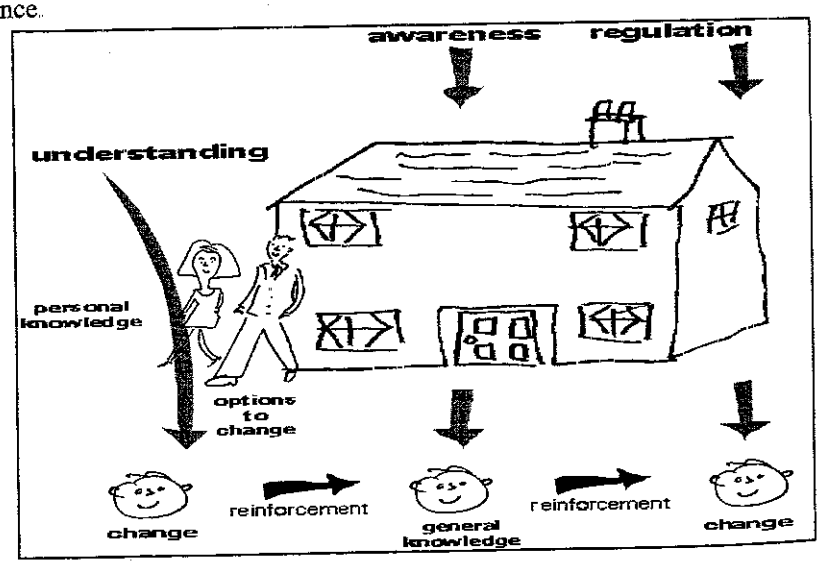

Figure 2: Three Methods to Approach the Reduction of Car Use - A System for Change

Issues and Challenges

While the travel blending method appears to be a useful one to bring about reductions in the use of the car, there are clearly several issues and challenges which it raises. Fortunately there are several ongoing and new applications planned, and it will be possible to address them incrementally as part of these projects – though undoubtedly they will raise even more challenges.

Widespread Application

As has been mentioned, the pilot study showed that travel blending was successful in Adelaide and has also been successful in two case studies in the UK in Nottingham and Leeds (Steer Davies Gleave 1998a, 1998b). These successes have led to experiments intended to lead to a wider application as reported in this paper – planned for community level application in the near future. Although the method is labour intensive and personalised, it remains a cost efficient method when compared with other measures such as improvement of public transport or traffic management procedures, and it will be vital to monitor applications at a broader level.

Integration with Other Demand Management Measures

While it has been argued that travel blending is one of the most effective ways of getting people to reduce the impact of the car, it is by no means intended that it should work in isolation. Indeed, in the brochures included with the travel blending kits, there is a strong emphasis on the role of all people in the community – government, industry and the individual. For this reason it is important that parallel projects are developed.

At Transport SA this is being piloted in the form of a rideshare scheme (RideShare SA) which is also being presented as part of TravelSmart Adelaide. A key innovative aspect is that people are given a clear overall goal – ridesharing is *one* way to achieve the aim of reducing the impact of the car. And at the same time other ways of reducing the impact of the car are being mentioned – travelling occasionally by public transport or bike, working at home or travel blending.

Non-car Owners

Finally, an aspect which has received little attention in the Adelaide situation is that of non-car owners who are likely to own (or wish to own) a car in the future. It seems particularly important to gain an understanding of the aspirations of these people and to develop a method to target them in the future. It is hoped that lessons from this study will be able to soon be applied to younger people in Adelaide, particularly in the context of the school study.

Conclusions

Travel blending makes use of simple principles to help people make equally simple changes to their travel behaviour to fit in with their life-styles. It has resulted in reductions of car kilometres of 21% for the participants and 11% for the community. It is argued that the method is a powerful tool in bringing about change at the individual, and hence, community level and that it will bring about lasting changes based on understanding as opposed to regulation or intervention.

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Acknowledgement: Recognition is given to Lisa Buchanan's tireless contribution to the effective running of the Travel Blending programmes, and to Geoff Rose of Monash University, Australia for the many hours of discussion which gave rise to the concept