

Travel Demand Management – A Background to Travel Behaviour Change

The term Travel Demand Management was first coined in the mid 1980s to describe interventions by governments to reduce the use of the car. The early years of this decade were times when in many countries there was a slow realisation that it would not be possible to continue building infrastructure indefinitely to supply an ever growing car population. Supply was not going to be enough for demand, and hence demand had to be managed in some way.

Of course, no-one was very clear on how this was going to happen – nor how anyone was going to tell the public that it needed to happen. After all, it was the people who had been supplying the roads and other infrastructure who had the first insight – and their specialty was building and encouraging use, not discouraging it.

But in most developed countries it was clear that travel demand management needed to occur. Since the planners, policy makers and engineers who had this understanding were transport specialists in one way or another, the first thing that occurred to them was to move from one mode of transport (car) to something else like public transport, cycling or walking. So initially Travel Demand Management was focussed on getting people to ‘change modes’ of transport. It included (and still does) policies as varied as improving public transport and cycling facilities and increasing parking prices and tolling roads.

Since that time, people other than transport planners have become interested, and transport planners have also become more innovative. Travel Demand Management now encompasses any initiative with the objective of reducing the negative impact of the car. Policies can therefore include things like using the car more efficiently in ways that reduce emissions.

It is interesting that once non-transport people became curious about the innovations of the transport planners, they started to see positive benefits of this Travel Demand Management for many things. For example, when people used the car a bit less in a community there were more people on the streets and other benefits accrued: there was less crime, kids were allowed to walk or ride alone more, people walked to their local shops and gave them more business, people lost weight because they walked a bit more, people got to know their neighbours better – which ended up with direct ‘travel demand’ reductions (such as sharing rides) and other community benefits (people working together to achieve community objectives) were realised.

This means travel demand management is, broadly speaking, anything that reduces the negative impacts of the car. But it happens to have positive effects and synergies which mean that, particularly for some types of travel demand management, there is great interest from people working in areas as diverse as community development, health, environment, safety, planning and even education.

As implied above, however, there are many approaches to reducing travel demand. These include infrastructure approaches such as reducing road space, regulation or

pricing mechanisms, provision of more information on alternatives, technological approaches and behavioural approaches. It is these latter approaches which are discussed in this paper.

Travel Behaviour Change

While all Travel Demand Management approaches actually bring about a change in behaviour, so-called ‘travel behaviour change approaches’ are defined here as those where the objective of the program is to allow people to *choose to change travel behaviour* rather than to expect or force reactions in response to external stimuli or pressures. Hence, for example, approaches in which road lanes are narrowed or bus services increased or construction standards for cars regulated, limit the opportunities for ‘the decision to change’. Travel behaviour change approaches are commonly called bottom-up approaches.

Martin (2001) has summarised well the appeal of the bottom up approach when she notes that the more traditional (top-down) approaches:

“.. tell people that this is what they should do to get certain benefits, without looking at what else impacts on this obviously good strategy.”

It is interesting that many policy makers and planners are seeing the travel behaviour change option as a kind of panacea, hoping that it will address what has been the failure of other alternatives. This approach is perhaps epitomised in the UK Transport White Paper of July 1998 and its ‘Transport 2010: the 10 Year Plan’ (DETR, 2001) which has led to the encouragement of many initiatives which could be categorised as behavioural change based.

Evaluation Challenges

Evaluation of Travel Demand Management programs is always slightly complicated, but never more so than when, as is often the case in behavioural change programs, the outcomes are many more than reduction in congestion, pollution and emissions but include among other things benefits to health, environment, education, community capacity, economic development and so on.

This is confounded when the client or commissioning body has primarily transport related objectives.

This paper uses the travel behaviour change tool of Living Neighbourhoods[®] in which there are transport and other outcomes to illustrate the many possible ways of evaluating, and the challenges associated with them.

Living Neighbourhood[®]

A Living Neighbourhood[®] is a neighbourhood where people are empowered to take positive action to enrich their lifestyles and the well-being of their community, and where the nature of the actions is chosen and led by the neighbourhood, not by other external individuals or authorities.

There are two key tools – the Travel Blending[®] tool and the listening tool and they are used in the following way:

- Choose a community
- **Listen** - ask individuals and groups in the community what would make the neighbourhood a better place – and how they could help to do that
- Facilitate those changes (rather than ‘do for’)
- Offer **Travel Blending**[®] to people in the community to reinforce the fact that they can bring about change
- Work towards ensuring that the Living Neighbourhood[®] is basically ‘self-sufficient’ at the end of the period of working with the community.

One of the interesting aspects of A Living Neighbourhood[®] which is particularly relevant to this paper is that there are many cases in which people have made relatively small changes to travel behaviour (i.e. in terms of reduction of kilometres and emissions) but they have reported very large improvements in other aspects of their own lives or that of the community.

The Travel Blending[®] Tool

This tool has been described in detail in many places (e.g. Ampt 1999, Ampt and Rooney, 1998) but it is summarized briefly here because it is one of the key ways to measure the travel behaviour changes arising from a Living Neighbourhood[®].

There are two separate weeks in which all people in participating households the respondents of the household complete a travel diary. To assist in the recording and collection of data from respondents’, four different kits are used with a range of materials in them. Each of these kits and their purpose is described below.

- Kit 1 - Contains the initial contact letter and materials required to introduce the participant to the Travel Blending[®] tool for round one. Importantly this kit contains the first diary/ies that the household participants will need to complete to track their travel for one week.
- Kit 2 – Contains the feedback from the Project Office to the household after the household has returned the diaries for data entry. The feedback contains helpful customised suggestions on how the household and individuals might initially be able to benefit from making small changes.
- Kit 3 - Contains the second round of materials. This kit is offered about 4 weeks after Kit 1 is completed and is used to track people’s travel for the second travel week. The kit contains the second diary/ies that the household completes to enable a comparison of their travel between round 1 to round 2.
- Kit 4 – Contains the feedback for the household to see the comparative changes they may or may not have made during the travel weeks. This feedback also contains helpful personalised suggestions on how the household can continue to benefit from small beneficial changes.

Evaluation Outcomes

Living Neighbourhoods[®] have several kinds of outcomes on which they can be evaluated or measured. The vexing issue is that only a few could be called ‘traditional’ and benefit cost analyses are difficult in many cases. In this section, we list outcomes which we have found to be highly valued by different groups of people: the community, the transport client, community development leaders, many divisions of local Council, and so on and in each case a measurement method is posed.

Outcomes relating to reduction of congestion

These could be measured by things such as:

- Reduction in kilometres by car overall (including car driver and car passenger if the trip was made especially for the passenger)
- Reduction in time spent travelling by car
- Reduction in kilometres and time spent travelling by car in key times (e.g. am and pm peaks) and other peak times
- Reduction in kilometres and time in congested areas of a city (e.g. CBD, again as determined by external data)
- Increase in car sharing on congested routes

Most of these outcomes could be measured to some extent using the Travel Blending[®] tool. Others, such as the impact on congested areas, would not come into effect until there were many Living Neighbourhoods[®] in a city but then could be measured using traffic counts.

Outcomes relating to reduction in air pollution and greenhouse gases

Reductions in air pollution and greenhouse gases – at least in the case of Living Neighbourhoods[®] - can be measured either from the Travel Blending[®] tool, but in other travel behaviour change processes it may be possible to measure or by before and after surveys. The outcomes in this category would include:

- Reduction in air pollution and greenhouse gases relating to vehicle type and km travelled;
- Reduction in cold starts;
- Reduction in hot soaks;
- Improvement in car maintenance;
- Reduction in air pollution due to using less polluting vehicles in the household; and
- Reduction in car ownership (causing reduction of pollution and greenhouse gases at the point of manufacture)

Outcomes relating to reduction in noise pollution

In principal, it would be possible to measure reductions in noise pollution at the neighbourhood level. It could, however, also be assumed that the reductions in kilometres travelled has an automatic impact on noise pollution.

Outcomes relating to reduction land uptake for road-related activities

There have been several examples of reductions in land uptake for car-related activities as outcomes of a Living Neighbourhood[®] - particularly in Christies Beach in South Australia. The following three measures are relevant:

- Reduction in car ownership – i.e. less space needed to park cars
- Reduction in the size of car owned
- Reduction in car parking space in the neighbourhood.

In doing some routine checking of people who had *not* chosen to accept the Travel Blending[®] tool, it was discovered that 4 households had disposed of an unnecessary car during the project and that one household had purchased a newer, smaller, more fuel efficient car.

Another of the outcomes of a Living Neighbourhood[®] has been the conversion of a car park to a ‘people space’ in which a school ran a competition called ‘Plot-the-Lot’ to convert the space. Not only was the design done by the community, but also the construction. During this process there were several unexpected outcomes: there was a great deal of collaboration between the primary and high school, neighbours found they were able to contribute to the design of their local area, local funding was gained for the project, and so on. This is a good example of the type of behavioural change which is unlikely to eventuate in this form from a Travel Demand Management measure which is based on the top-down approach.

Outcomes relating to increase in income from public transport fares

Living Neighbourhood[®] projects and other travel behaviour change projects have almost always meant that there has been an increased use of modes other than the car – particularly walking and public transport. The increase in public transport use can definitely be measured from the Travel Blending[®] tool, but it could also be measured from increase in public transport fares. This is important, because in the travel behaviour change approaches it is well known that non-participants as well as participants in the program make travel reduction changes – implying that the Travel Blending[®] tool can be an underestimation of change.

Road Safety Outcomes

The increase in pedestrian and cycling safety in local areas due to less car traffic and more pedestrian and cycling activity can again be measured from the Travel Blending[®] diaries, but could also be measured with observations or counts or accidents in the local area.

Personal Safety Outcomes

Qualitative reports in Living Neighbourhoods[®] repeatedly mention the increase in personal safety which people experience in their neighbourhood as they start to do more things locally and occasionally walk or cycle. Precise measurement of this feeling or attitude has not been included to date, but it would be possible to look at this more

rigorously by using a measurement tool such as the Health and Participation Survey (South Australian Community Health Research Unit 1997).

This type of survey essentially asks people about a whole range of topics and would be administered before and after the introduction of a travel behavioural change program. It includes health related issues such as emotions, covers knowledge of the neighbourhood and its people and participation in neighbourhood events and activities. Furthermore it could ask questions about how much influence you feel you have in your life and neighbourhood as well as feelings about personal and property safety. We believe that there is an increasing need to include this type of measure in travel behaviour change models.

Outcomes related to social benefits to the community

While travel behaviour change is the key outcome, it has been found in many cases that reduction in car use is so intricately bound with social benefits, that it is difficult to decide which to begin with. Measurable social benefits to the community are likely to be as varied as there are projects since the local people are shaping their futures. Changes which have been measured include:

- Improvement in local facilities in cases where people have done this themselves or been able to constructively ask authorities to make changes. In Christies Beach the neighbourhood is building their own community playground – long after the travel behaviour change intervention has officially ended.
- Increase in relevant local activities (e.g. a senior citizens walk which had decreased the loneliness of residents and reduced the need to travel further afield for leisure activities)

Furthermore using the community participation survey mentioned above, it would be possible to measure any changes in feelings of isolation and changes in the level of trust in the community.

Economic Development benefits

There are several examples of economic development benefits emerging from travel behavioural change programs, particular from the Living Neighbourhood[®] approach. They include:

- Increase in local shopping – initiated by local people who realise they do not need to drive as far and spend as much time travelling and supported by businesses who encourage the local spending (see below)
- Improvement in marketing by local shops (e.g. in Brisbane where the business community created a directory of all goods and services provided locally)
- Redevelopment of local facilities to reflect current needs (e.g. a church building is being reshaped into a medical centre by the community in Brisbane). This is likely not only to reduce travel to distant doctors but to revitalise the pharmacy which suffered at the time the previous centre closed down.

- Increase in property prices when local community efforts increase safety or positive perceptions of the community (e.g. the community's traffic calming initiatives in Christies Beach have made one street more desirable than previously).
- While the Community Playground in Christies Beach is not yet completed, it is intended that it be marketed as a tourist destination and the resulting benefit on local shops could also be measured.

Cultural Benefits

In two different Living Neighbourhood[®] programs there have been unexpected outcomes giving cultural benefits to the community. They are:

- An increase in recognition of local heritage and culture in Christies Beach where it was discovered that the site of the playground was on a site of importance to the Aboriginal community and the subsequent involvement of Aboriginal community in design of the playground, planting of local flora and fauna and so on.
- An increase in 'cultural' products in local shops in Brisbane where it was found that the Muslim community was going elsewhere for products that could easily be stocked locally.

Community Development Outcomes

Community Development – defined simplistically as the process of helping people to help themselves – is an outcome of almost all travel behaviour change programs when people's recognition that they could make change (e.g. save time) when they thought it impossible is nurtured into them thinking that they can solve other problems of their own. There are numerous examples which could be measured, even on a small scale:

- The decrease in number of complaints-without-solutions to Councils
- The increase in number of projects which can be listed as individual or group-initiated (not initiated by Councils or other authorities because they thought it would be a good idea!)

Health Outcomes

The health outcomes of travel behaviour change programs are very often used as incentives to encourage people to change behaviour. However, they could also be measured. Examples would be:

- Increase in fitness levels (due to more walking and cycling)
- Increase in health levels (due to less in-car pollution effects)
- Decrease in 'regular' visits to the doctor (e.g. by some elderly either because they are walking more or because they know more neighbours and no longer need the social aspects of the visit)
- Decrease in weight for a proportion of population (due to more walking and cycling and less sedentary car travel)
- Lower stress levels (due to less car travel, parking search etc.)

Satisfaction/Self-Esteem Outcomes

Finally, it would be possible to measure levels of satisfaction and self esteem using community health and participation type surveys.

Challenges

In listing the above outcomes which could be measured, there are two key challenges. The first is simply that the actual measurement tools are often hard to implement or the changes are on a scale that is smaller than the scale at which measurement is usually done. We believe that the way to answer this challenge is to continually report small measurable changes – even if it is not in the traditional sense.

The second challenge relates to the fact that the clients for travel behaviour change programs are – not surprisingly at the moment - transport organisations for whom the *only* valid outcome is travel changes. We believe it is important that to an increasing extent these projects are undertaken by groups of organisations since the outcomes are clearly of benefit to many. This would mean that, as in real life, travel behaviour change would be intimately linked with all aspects of life in the community and would possibly lead to greater change, and certainly to greater sustainability.

References

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