

2010

## The Potential for Origin-based Mobility Management Plans in the Greater Dublin Area

David O'Connor

*Technological University Dublin, [dave.oconnor@tudublin.ie](mailto:dave.oconnor@tudublin.ie)*

Follow this and additional works at: <https://arrow.tudublin.ie/beschspcon>



Part of the [Geography Commons](#), and the [Sociology Commons](#)

### Recommended Citation

O'Connor, D. "The Potential for Origin-based Mobility Management Plans in the Greater Dublin Area", Proceedings of Irish Transport Research Network 2010 doi:10.21427/32jm-p065

This Article is brought to you for free and open access by the School of Transport Engineering, Environment and Planning at ARROW@TU Dublin. It has been accepted for inclusion in Conference Papers by an authorized administrator of ARROW@TU Dublin. For more information, please contact [arrow.admin@tudublin.ie](mailto:arrow.admin@tudublin.ie), [aisling.coyne@tudublin.ie](mailto:aisling.coyne@tudublin.ie).



This work is licensed under a [Creative Commons Attribution-NonCommercial-Share Alike 4.0 License](#)

# **THE POTENTIAL FOR ORIGIN-BASED MOBILITY MANAGEMENT PLANS (PERSONALISED TRAVEL PLANS) IN THE GREATER DUBLIN AREA**

**David O'Connor<sup>1</sup>**

1. Lecturer in Transport Planning and Urban Design, School of Spatial Planning, Dublin Institute of Technology, Ireland; email: david.oconnor@dit.ie

## **ABSTRACT**

Personalised Travel Planning, a form of mobility management planning targeted at the trip-origin (in other words at residential areas), has proved to be a reliable and cost-effective means of reducing car usage in favour of other more sustainable travel forms. These direct-marketing schemes, which target communities with individually tailored travel information materials, succeed in reducing car usage with no investment in hard infrastructure.

The concept, when subjected to rigorous academic and other independent scrutiny, has reportedly achieved consistent mode transfers away from car-usage of five to fifteen per cent. This has often taken place in low-density areas of high car ownership rates and results have been maintained over time. In Australia, every major city has commissioned personalised travel planning programmes. In the UK, the government has, on foot of successful pilot studies, recommended the implementation of such schemes across all local authorities. Recently, three “Smarter Travel Town” initiatives in the UK – where suites of “soft” transport planning measures were piloted – suggested that personalised travel planning can be a core and successful component of any such program.

This study seeks to assess the applicability of such concepts within the Greater Dublin Area. Initial evidence suggests the methodology is applicable with potentially high benefit : cost ratios. A pilot survey, undertaken as part of earlier research, revealed that within five selected newly developed areas individuals’ response to the concept is comparable, if not more favourable to that revealed in other travel markets. A benchmarking study carried out in Drimnagh during March 2010 – as part of the Dublin City Council Smarter Travel Town bid – demonstrated high levels of community receptivity to such a scheme. The context and revealed market response indicates that such schemes are likely to achieve a successful outcome within Dublin. Indeed, one recent pilot, at Adamstown, yielded very positive results after a thorough programme was piloted to more than 200 households.

Assessment of the initiative in other markets suggests certain cautions. A groundbreaking UK study, “Smarter Choices”, which thoroughly assesses all “soft”, or behavioural transport planning initiatives in the UK, warns that such initiatives should only be implemented alongside complementary demand-management measures. Otherwise, gains in reduced congestion will only be lost to alternate users not targeted by the scheme. Nevertheless, the evidence suggests that Personalised Travel Planning, when combined with demand management and introduced to areas where available public transport capacity exists, has the potential to make significant impacts on car usage within the Greater Dublin Area.

*Keywords:* Personalised Travel Planning, Smarter Travel, Origin-based Mobility Management Planning

## **1 INTRODUCTION**

This paper discusses the potential for Origin-based Mobility Management Planning in the Greater Dublin Area. By Origin-based Mobility Management Planning, it is meant to describe non-infrastructure (often described as “soft”) measures, which can be applied to residential, or primarily residential areas to reduce the demand for travel and to promote environmentally sustainable travel behaviour. Mobility Management is an attempt at improving mobility by influencing behaviour and

for this reason is often classified as a travel behavioural change initiative.

Mobility management has traditionally focused on the trip-end. Recent evidence strongly suggests that the most effective means of achieving sustainable target objectives is by targeting the trip-origin (residential areas). A number of methodologies have emerged based on this principle and some, in particular, have been shown to be very successful in other markets. These approaches, known as Personalised Travel Planning, involve programmes whereby individuals are contacted and provided

with tailored information to assist them in altering their travel behaviour should they so wish.

The first part of this paper describes a recently undertaken benchmarking study in Drimnagh, Dublin. Undertaken in March 2010 its aim was to pilot the initial stages of a Personalised Travel Planning (PTP) program and assess the potential for such a scheme in the area. The second part of this paper looks at the evolution of PTP and appraises the benefits and risks of the methodology as likely to be applied within Dublin.

## **2 PART I – DRIMNAGH SMARTER TRAVEL TOWN BENCHMARK PTP SURVEY**

During 2010 Dublin City Council prepared a bid to have Drimnagh designated as a Smarter Travel town. Smarter Travel towns are areas where latest practices and investments in sustainable travel are piloted and reviewed. One of the initiatives being explored is a Personalised Travel Plan, whereby local people are encouraged to improve their travel behaviour via direct marketing.

As part of UniverCities (part of the Creative Dublin Alliance) and *Students Learning with Communities* (SLWC) initiatives, DIT School of Spatial Planning agreed to carry out a survey of the local community to gauge interest in and the likely success of such an initiative.

This was a door-to-door questionnaire survey and was carried out by second year BSc Spatial Planning and Environmental Management students during March 2010 as part of the Techniques II – Data Collection & Survey Methods module.

The DIT Programme for *Students Learning With Communities* supports staff and students engaging in community-based learning and research (also known as service-learning), and builds links with communities. *Students Learning With Communities* involves DIT staff and/or students working with community partners (local groups, not-for-profit organisations, etc) to develop real-life projects. Learning comes alive for the students as they work on these projects with real clients, applying their specialist subject skills, and receiving course credits for their work. The community becomes part of the teaching process and benefits from the students' work. These projects give all participants the opportunity to engage in critical thinking and to develop their social awareness. The Programme for *Students Learning With Communities* ultimately aims to energise participants to work for social change.

### **2.1 Study Area Profile**

The study area is a mature, low-density residential suburb of Dublin. Public transport services to the area are good, including the Tallaght LUAS light rail line and the Crumlin Road QBC. The survey and proposed scheme represents an intervention in a mature low-density residential suburb with relatively high private car mode shares (55% per baseline survey).

The target area is characteristically low-density, fostering high car dependency. Infrastructure and public transport services are notoriously cost-ineffective in such environments. Yet Personalised Travel Planning has been demonstrated to be an effective tool for reducing car dependency and improving mobility with sustained results over time.

### **2.2 Survey Methodology**

The survey was undertaken door-to-door on Thursday 4th March 2010 between 4PM and 8PM. While most surveys were collected during this period, a small number were collected during the subsequent weekend. Conditions were fair for the duration of the survey.

233 households were surveyed. This represents approximately a 5% sample of the target neighbourhood, which itself consists of 4,780 houses.

The surveys were carried out by 5 teams of two students each. Each team was designated a locality within Drimnagh Integrated Area Plan and required to collect 50 surveys. Group E (Slievenamon) gathered 33 surveys. The localities were discussed with local community representatives at a forum organised by Dublin City Council to make sure that they were a representative sample of the wider area.

### **2.3 About Personalised Travel Planning**

Personalised Travel Planning (PTP) schemes aim to encourage increased cycling, walking and public transport usage among communities. PTP is a direct marketing scheme which targets communities with tailored, individualised information to reduce car dependency and promote public transport and cycling/walking. PTP is best suited to low-medium-density suburban and semi-suburban residential neighbourhoods, where sustainable travel gains are otherwise difficult to achieve. The proposed PTP in the Drimnagh IAP area can test the methodology with local improvements to cycle / pedestrian infrastructure.

Personalised Travel Planning normally comprises a three stage process: -

- Initial benchmark travel survey
- Household Marketing Campaign
- Ongoing travel surveys

The PTP scheme is an awareness raising exercise targeted directly in the community. A benchmark travel survey is carried out to profile existing behaviour and assess the potential for change. An individualised marketing campaign can then deliver tailored information to all households expressing an interest in the scheme. Evidence suggests that through direct marketing awareness raising households will modify their travel behaviour towards more sustainable practices. Ongoing travel surveys are finally conducted to monitor progress and benchmark the performance of the programme. Various independent UK (UK Dept. for Transport, “Smarter Choices”, 2004 / Merseyside Pilot PTP 2009 / Sutton Pilot PTP 2009) and Australian evaluations suggest that PTP typically delivers 5-15% sustained mode shift away from private car towards walking, cycling and public transport with no required investment in services or infrastructure and also suggest positive cost : benefit ratios. ([www.sustrans.org.uk/www.smartertravelsutton.org](http://www.sustrans.org.uk/www.smartertravelsutton.org) / [www.travelsmart.gov.au](http://www.travelsmart.gov.au))

In planning terms, the benefits of PTP schemes are considered to be threefold. Firstly, Sustainable Communities can be protected and developed fostering improved health; carbon footprint reduction; improved social cohesion. Secondly, Sustainable Transport is a natural aim of the program creating a reduction in traffic levels; public transport mode share increase; increased cycling / walking mode share; reduced car dependency. Finally Sustainable Planning is pursued through finding a cost-effective methodology for reducing car dependency in low / medium-density residential environments.

## 2.4 Main Survey Findings

The entire survey, some of which examined variances between areas within the study area, will not be described here. Below, however, are the responses to and analysis of the most pertinent aspects of the survey inquiry. The analysis compares the results with typical or expected results based on benchmarking studies and outcomes from other markets. These outcomes and their limitations will be discussed in greater detail in Section II of this paper (below).

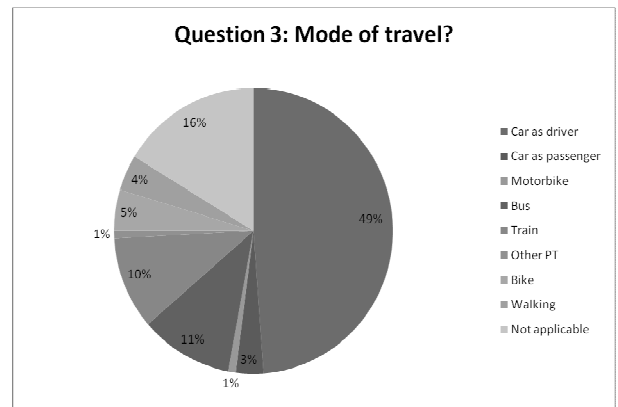


Figure 1. Mode of travel to place of work or education

- 54% of respondents travel to work or education by car
- 10% of respondents travel to work or education by rail
- 11% of respondents travel to work or education by bus
- 9% of respondents travel to work or education by bicycle or foot

Travel behaviour varied quite significantly between localities, with a higher car mode share in Comeragh Road (70%) than Brickfields Park (40%). Not applicables were made up of a relatively high number of taxi drivers and also out-of-work people. Rail was highest in Galtymore / Cooley Road (22%) but relatively consistent elsewhere (8 – 11%).

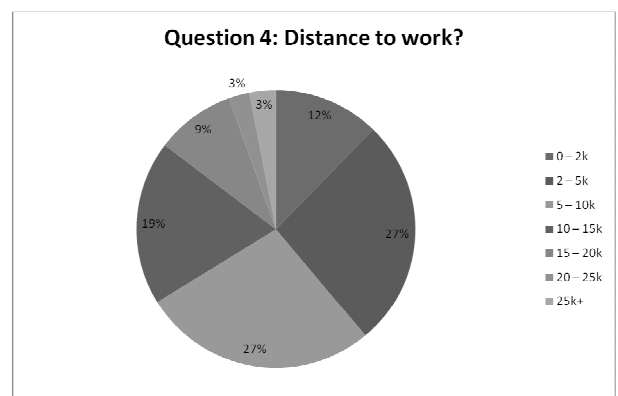
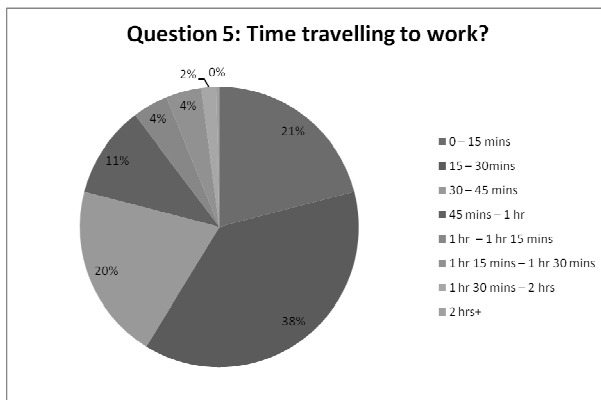


Figure 2. Distances travelled to work

- 12% of respondents travel 0 – 2km to work or education
- 27% of respondents travel 2 – 5km to work or education
- 27% of respondents travel 5 – 10km to work or education
- 34% of respondents travel more than 10km to work or education

Distances travelled to work in the area are relatively high, reflecting perhaps its suburban nature distant from main centres of employment. 39%, however, travel less than 5km and could be targeted for potential transfer to walking or cycling modes.

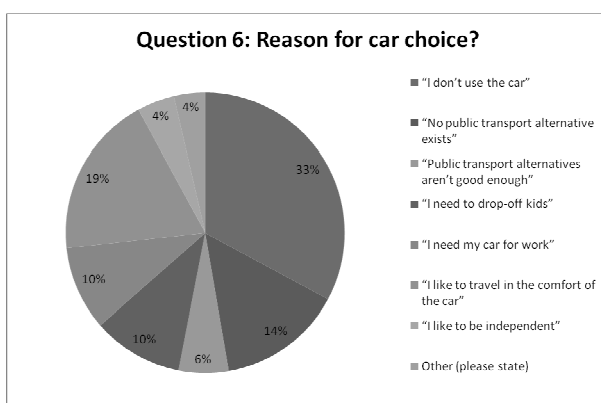
Only 20% had a necessity to use the car. Benchmarked against other markets where PTP schemes have been carried out this is quite a typical situation. Using the PTP methodology a significant percentage of the community (47%) could be targeted for mode transfer. PTP schemes are generally successful where 40% or more have the potential for change.



**Figure 3. Time travelled to work or education**

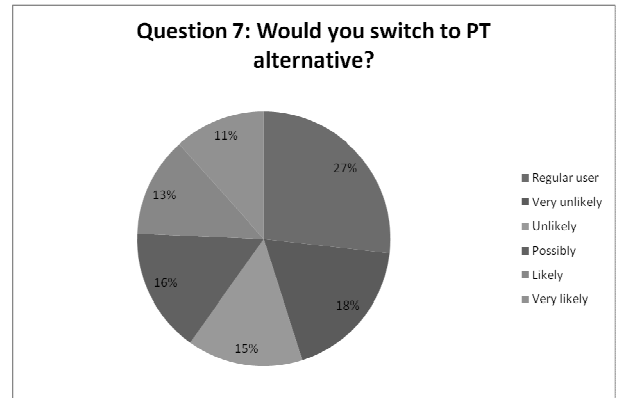
- 21% of respondents travel under 15 minutes to work or education
- 38% of respondents travel 15 – 30 minutes to work or education
- 20% of respondents travel 30 – 45 minutes to work or education
- 21% of respondents travel more than 45 minutes to work or education

Times travelled to work or education could be considered reasonable in the context of the Greater Dublin Area but are nonetheless significant. 41% of respondents take longer than 30 minutes to get to work or education. Long journey times, especially by car, have the greatest potential for mode transfer as people generally value personal time highly.



**Figure 4. Reason for car choice**

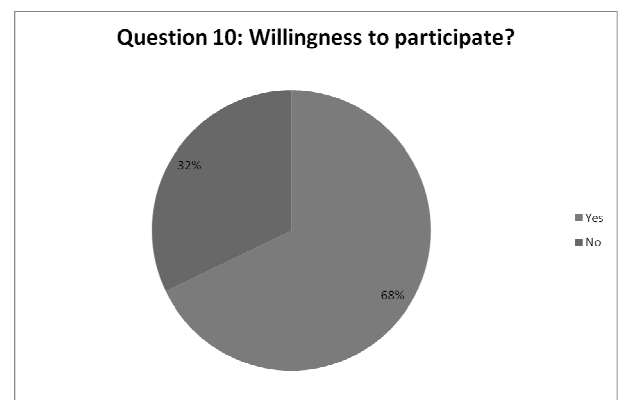
- 33% of respondents stated they do not use the car on a normal basis
- 20% of respondents stated public transport alternatives are either too poor or absent
- 20% had an absolute necessity to use the car
- 27% stated the car as a preference only



**Figure 5. Willingness to switch to a Public Transport (PT) alternative**

- 27% of respondents stated they regularly use PT
- 33% of respondents stated they were unlikely or very unlikely to opt for PT
- 40% of respondents indicated at least some willingness to opt for PT

Benchmarked against other markets and PTP schemes, a low number of respondents (only 33%) stated they were unlikely or very unlikely to opt for PT. This is again encouraging for PTP within Drimnagh. Using the PTP methodology a significant percentage of the community (40%) could be targeted for mode transfer specifically to PT. This does not include potential for transfer to non-motorised transport, which often is the highest beneficiary of changed behaviour.



**Figure 6. Willingness to participate in a Personalised Travel Planning (PTP) scheme**

- 68% of respondents stated a willingness to participate in a PTP scheme
- 32% of respondents stated no willingness to participate in a PTP scheme

Each respondent had the PTP Concept briefly explained to them. On the basis of this they were asked if they would be willing to participate in such a scheme if carried out in their community. Over two thirds of the surveyed community indicated a willingness to participate. The response rate varied greatly between localities (see appendix), with a very positive response in Comeragh Road (78%) and less so in Brickfields Park (47%).

Benchmarked against PTP surveys in other markets, both within the Greater Dublin Area (GDA) and internationally, this is a very high positive response rate (68%). Similar surveys within the GDA have yielded a positive response rate of 52-64%. The premium achieved in Drimnagh may be as a result of strong community cohesion mixed with recent participatory planning and outreach activities by Dublin City Council. PTP schemes in other markets have proven successful where 45% or more have indicated willingness to participate.

## **2.5 Other PTP Pilot Initiatives in the Greater Dublin Area**

A similar study to Drimnagh was carried out in Glasnevin during 2009, also by students of the BSc in Spatial Planning at DIT. Glasnevin is a similarly structured neighbourhood to Drimnagh with a low-density residential profile. The study revealed very similar results to Drimnagh and will not be discussed in-depth in this paper. Car mode share was 62%. "Potential for change" levels of up to 51% were recorded and a "willingness to participate" response of 64% was returned.

In order to understand people's likely responses to a PTP in newly developed areas, a household survey was undertaken in five framework development areas within the GDA during 2006. The aim of the survey was to assess the potential demand for Personalised Travel Planning within such areas. Surveys took place within the following areas: -

- Pelletstown
- Cherry Orchard
- Tyrrelstown
- Ongar
- Smithfield

Each of the above are recently occupied areas developed on the basis of framework development plans. They represent a reasonable distribution in

terms of city centre / brownfield / greenfield and inner/transitional/outer locations. A number of them also have developer-funded public transport service agreements, the most successful of which is Pelletstown, where the developer has funded the extension of an existing route into the site with a 10-minute headway.

Surveys were hand-delivered to household letterboxes. A stamped addressed envelope was enclosed to encourage a good response rate. Survey distribution was done in the evening time so that it was possible to tell whether houses were occupied or not.

220 surveys were distributed. 64 surveys were returned. This represents a response rate of 29 per cent, which is considered reasonable in survey response terms. Each survey queried the behaviour and opinions of up to two adults within each household. In total, then, 115 individual responses were received. While this is a relatively small sample size, given the resources, timeframes and scope of this thesis dissertation a larger sample was impractical. However, the response may be considered significant enough to be considered as a robust pilot study into Personalised Travel Planning within new framework development areas.

Responses were good from four of the five areas. Only Smithfield returned a low response (4 surveys returned out of 40 issued). This may be attributable to the fact that no door letterboxes were available and it was not possible to establish clearly whether homes were occupied or not.

The survey objectives were four-fold. Firstly, a number of questions were put to profile the respondents. Secondly, a number of questions were put to establish existing behaviour. Thirdly, a number of questions were put to establish the Potential for Change of the respondents. Finally, respondents were asked directly whether they would be willing to participate in a Personalised Travel Planning programme.

Respondents comprised a typical profile of newly developed areas, with a high level of professional employment and reasonably high-income levels. It was interesting that only 7 per cent of households did not possess a car. Given the large size of houses, it is likely that many of the households contained families.

61 per cent of respondents travelled to work by car. 22 per cent used public transport, while 6 per cent walked or cycled. 24 per cent of respondents travel a distance of under 5 kilometres to work. 87 per cent of respondents take less than one hour to travel

to work. Similar profiles to those undertaken within the base survey were observed. One notable difference is the significantly lower level of car-usage from Pelletstown. While the sample size is much smaller, this would suggest that the recently improved bus and rail services are having some effect.

The main reasons given for car usage were lack of realistic alternatives. Half of the respondents indicated that if a realistic alternative was available they would consider using it. Also, the proportion of respondents who had an identifiable reason for car-dependency other than lack of choice was very low (20 per cent). A further 10 per cent chose car travel based on personal preference. These may or may not be categorised as having potential for change. Either way, the survey indicates that the Potential for Change could be between 49 per cent - 59 per cent. This is higher than what is normally recorded within other markets, where 40 per cent is considered a typical response rate.

Peoples opinions of service levels were relatively benign, with reasonably high levels of approval for public transport quality as well as the quality of facilities for cycling and walking. There was a clear and (somewhat contradictory) disapproval of the level of available alternatives within the local area. The lowest level of disapprovals came from Pelletstown and Ongar, both areas where recent high-frequency bus services were put in place.

When asked directly whether or not respondents would like to participate in Personalised Travel Planning, 52 per cent said yes. This is a slightly higher rate than is generally experienced from pilot studies in other markets where interest levels of 40 - 50 per cent are considered typical. This is an encouraging indicator given a number of factors. The respondents were given a very brief written explanation of what Personalised Travel Planning involved. Respondents had just completed a questionnaire and therefore may have been affected by survey-fatigue. Respondents would also have been unaware of the strong incentivisation typically associated with Personalised Travel Planning initiatives.

Some level of skew may exist, however, given that the overall response rate was 28 per cent. Respondents may have an inherent interest in or be biased towards the concept. Such potential for artefacts are inherent in all surveys and equivalent effects are likely to be present in comparable surveys in other markets, so it is likely that the positive response can be interpreted as significant.

The survey undertaken was a small sample size, which is understandable given the scope of the study. However, it is considered large enough to form a robust pilot survey and it should be noted that pilot surveys have played a significant role in the evolution of Personalised Travel Planning programmes.

Observed behaviour from the survey was broadly in line with what had been recorded in the same areas in 2002, although the sample size restricts the level of significance that can be attached to such results. Whereas, for example, in the 2002 survey 63% travelled to work by car across the five study areas, in the 2005 survey 64% travelled by car.

Overall, the results are generally positive towards the concept of Personalised Travel Planning. The Potential for Change and Willingness to Participate, two key factors in the success of Personalised Travel Planning, measured higher than what is typically achieved in other markets where the scheme has been successful. While the overall sample was small the results are favourable towards the concept and would indicate, at least, that further more in-depth market research is worthwhile.

An important recent pilot study has been undertaken by South Dublin County Council at Adamstown (South Dublin County Council, 2010). A full PTP scheme was carried out targeting 213 households. Door-to-door contact was made with 84% of participants and car use in the area is 62%. Over the course of the study 59% of respondents said they had made some behavioural changes with 35% saying they would maintain their behaviour on a regular basis. The scheme incorporated many typical PTP measures including travel packs, pedometer challenges (considered to be one of the most successful components), door-to-door visits by representatives of the scheme and sample public transport tickets. The scheme, while relatively small in nature, is the first fully executed PTP exercise in Ireland. The result of the scheme appears to be exceptionally high and corroborate the results of pilot benchmarking exercises described above. This is an important development as it provides further vital evidence that PTP can deliver a high return on investment in the Dublin context (South Dublin County Council, 2010).

Results of benchmarking schemes in Drimnagh, Glasnevin and several new framework areas in the GDA have suggested strongly that PTP programmes are likely to exceed the results returned from other markets where the methodology is well established. The Adamstown



exercise provides the first hard evidence that this may indeed be so (South Dublin County Council, 2010).

### **3 PART II - A REVIEW OF PERSONALISED TRAVEL PLANNING PROGRAMMES INTERNATIONALLY**

#### **3.1 Introduction**

Personalised Travel Planning initiatives are becoming increasingly widespread and the extent to which they are being analysed and debated is similarly increasing. While the earliest studies were undertaken in Germany its widest application has probably been in Australia where it has been deployed at a reasonably large scale (Brog, 2005).

In the UK the environmental transportation consultancy, Sustrans generated interest in the topic by undertaking a number of small scale studies in Gloucester and Frome in 2001 (LTT, 2005a). This led to the Transport for London Travel Options initiative, which aims to provide easy access to local travel information. A Transport for London Personalised Travel Planning initiative involving 4,000 households was undertaken in 2001, while the Living Change scheme by the Scottish Executive also involved 4,000 households (Department for Transport, 2004a). A Department for Transport programme of 14 pilot projects was also undertaken across the UK including target areas of up to 18,000 residents in some cases (Department for Transport, 2005a). The Smarter Choices study provides in-depth assessments of a sample of Personalised Travel Planning initiatives and some overview of the majority of those that have taken place.

More recently, the Department sponsored three "Smarter Travel" Towns, Peterborough, Darlington and Worcester. The Smarter Travel Towns piloted a suite of behavioural travel planning measures including personalised travel planning. The results from some of the towns have recently been published and high rates of return, in terms of mode transfer, were recorded, especially for PTP initiatives (Department for Transport, 2010).

There is also considerable case study material from Australia and other markets from the various consultants behind each scheme ([www.patrec.org](http://www.patrec.org); [www.socialdata.com.au](http://www.socialdata.com.au); [www.sustrans.org.uk](http://www.sustrans.org.uk)).

#### **3.2 Fremantle, Australia**

A Personalised Travel Planning scheme using the Travelsmart methodology was undertaken in Fremantle, Western Australia (Socialdata, 2003b).

A final report including evaluative data was published by the Department of Planning and Infrastructure in October 2004. The scheme was directed at a total of 17,000 residents representing 71 per cent of the population of this suburban city within the Perth built-up area.

The results of the evaluation survey declared a 12 per cent reduction in car-as-driver trips, a 13 per cent increase in public transport trips, a 25 per cent increase in walking trips and a 38 per cent increase in cycling trips. Overall, the total private car mode share reduced from 75 per cent to 70 per cent while alternative modes of transport increased from 25 per cent to 30 per cent.

Following the initial contact phase, households were segmented into Regular User (25 per cent), Interested (48 per cent) and Not interested (27 per cent). During the scheme a total of 4,901 households expressed an interest in receiving information. A total of 3,500 travel packs were distributed.

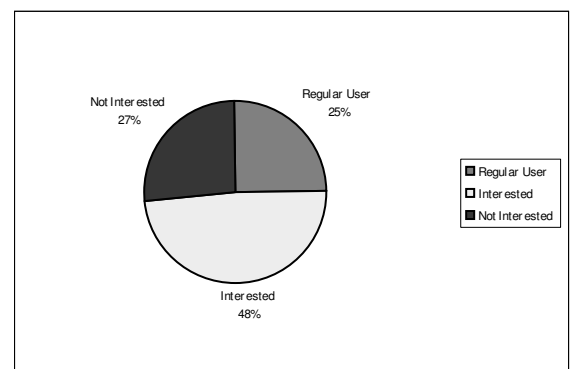


Figure 7. Segmentation of Fremantle Surveyed Households ([www.socialdata.com.au](http://www.socialdata.com.au))

As part of the scheme 143 bus stop specific timetables were devised and distributed to households. Other marketing materials distributed included: -

- A local area access map, showing bus stops, walking and cycling routes and local facilities
- Tickets and fares guide
- Bus stop specific timetables
- Standard timetables
- How to save money with Transperth Brochure
- Accessible travel brochure
- Brochures on cycling
- Cycle route maps
- Discount card from 4 local bike stores



- Guide to walking
- Walking maps and local walking event information
- Travel in Perth: facts and myths brochure

Of those who cited themselves as Regular users of an existing alternative to the car, 1,493 households or 84 per cent declared themselves interested in receiving further information. The remainder 276 were issued with a reward travel pack in line with the principles of the Travelsmart scheme.

Those regular users who expressed an interest, along with the Interested population segment were issued with service sheets to define what areas they were interested in receiving information. 11 per cent requested public transport-only information. 11 per cent requested only walking and cycling information. 78 per cent requested information pertaining to two or more modes. In total 65,000 items of information were issued. Much of this was issued by mail, but over 3,000 travel packs were distributed by bicycle couriers. According to the report, the wallet sized personalised local timetable proved to be the most popular item overall.

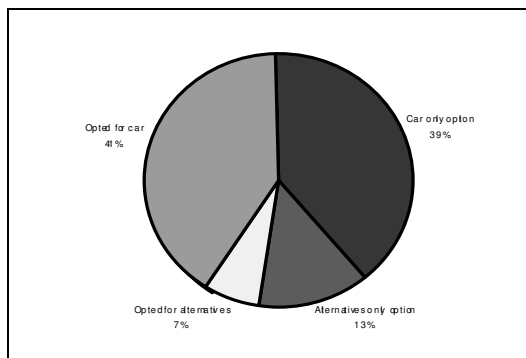


Figure 4.2: Potential for Change among Surveyed Users in Perth, Australia (source: [www.socialdata.com.au](http://www.socialdata.com.au))

### 3.3 Smarter Choices – a Comprehensive Review of Behavioural Transport Planning in the UK

The Smarter Choices - Changing the Way We Travel study represented a watershed in thinking within the UK towards Personalised Travel Planning and other behavioural travel planning measures (LTT, 2004a; Department for Transport, 2004a). Firstly, based on a comprehensive and exhaustive assessment of travel planning initiatives, the report concluded that significant mode transfers were attributable to behavioural travel planning and

that they were cost effective. Secondly, the report was influential in kick-starting a range of centrally-funded initiatives, including Personalised Travel Planning ones. It further led to the introduction of behaviour-side initiatives into transport policy, again, including Personalised Travel Planning ones (LTT, 2005a; Department for Transport, 2004b; 2005c; Wilson, 2005).

The Smarter Choices report forecasts that, with a coordinated and integrated introduction of travel planning measures as appropriate, a reduction in peak period urban traffic of about 21 per cent could come about. According to the study, the cost of implementing such “soft” initiatives is about 1.5p per kilometre; whereas the estimated benefit to the economy per 1km of congestion removed is 15p. Thus every £1 spent on well-designed soft measures could bring about £10 of benefit in reduced congestion alone.

As regards Personalised Travel Planning, Smarter Choices was no less thorough than with the assessment of other measures. Smarter Choices looked at all of the initiatives carried out within the UK and the bulk of those carried out in other markets. Notwithstanding some reservations about the independence of the evaluative process utilised within Personalised Travel Planning, Smarter Choices concluded broadly that Personalised Travel Planning had potential to deliver significant mode transfer and represented value for money: -

*...results so far available suggest that Personalised Travel Planning may lead to reductions in car driver trips of 7-15 per cent amongst targeted populations in urban areas.*

According to the study a coordinated delivery of soft-factor interventions could lead to a reduction in peak hour traffic of about 21 per cent. The Smarter Choices report concluded overall that any such behavioural initiatives should not be implemented in isolation of a complementary set of demand management measures.

*These projected changes in traffic levels are quite large (though consistent with other evidence of behavioural change at the individual level), and would produce substantial reductions in congestion. However, this would tend to attract more car use by other people, which could offset the impact of those who reduce their car use unless there are measures in place to prevent this.*

*Therefore those experienced in the implementation of soft-factors locally usually emphasis that success depends on some or all of such supportive policies as re-allocation of road capacity and other measures to improve public transport service levels, parking control, traffic calming, pedestrianisation, cycle networks, congestion charging or other traffic restraint, other uses of transport prices and fares, speed regulation, or stronger legal enforcement levels.*

Such an approach is equally likely to apply to Personalised Travel Planning programmes as any other behaviour-side transport planning measure.

### **3.4 Evaluation of Personalised Travel Planning Initiatives**

The Smarter Choices report points to a number of areas of concern facing Personalised Travel Planning evaluation. Firstly, differing methodologies have been developed that have all been categorised as Personalised Travel Planning in one form or another. However, the differing systems have inherently different evaluation frameworks. This affects the extent to which such results can be compared. Nevertheless, quantitative and subjective assessment of the results combined with the methodological framework strongly indicates that those initiatives based on individualised marketing tend to be the more successful. While the Smarter Choices report concludes that merit is to be found in Personalised Travel Planning in general, it is implicit that individualised marketing programmes have a wider applicability and have, thus far, demonstrated higher success rates.

A further issue that arises is one of objectivity. Most evaluation is carried out by the first party consultants themselves. Certain consultants have also been decidedly evangelical about, particularly, individualised marketing programmes. These programme reports are often published freely on the internet as part of the scheme. This no doubt contributes to the public awareness of the programme, an inherent element within the methodology itself. It also makes a lot of data readily available for assessment. Nevertheless, there is a clear need for objective criticism of the

programmes. The programmes could benefit by a higher level of third party independent evaluation, a principle conclusion of the Smarter Choices report. Nevertheless, the conclusion of the Smarter Choices report is that: -

*Bearing in mind these issues of data validity, (which, incidentally, may also apply to a greater or lesser extent to the monitoring of other soft factors), results so far available suggest that personalised travel planning may lead to reductions in car driver trips of 7-15 per cent amongst targeted populations in urban areas (according to trials in Germany, Australia, USA and the UK), with rather lower reductions in car driver trips (2-6 per cent) reported from a smaller number of more rural trials.*

### **3.5 Alternative Approaches to Evaluation**

The conclusions of the Smarter Choices report while positive, given its thoroughness and strong empirical approach, are not without significant caveats. In the first instance the report is very conclusive that “soft” measures are likely to be of no material benefit unless accompanied by meaningful “hard” measures, in the form of a complementary programme of demand management, service level improvement or other investment in planning and infrastructure. It also iterates strongly that evaluation should be undertaken independent of the lead-implementing agents. This appeal for an objective and independent auditing process is a strong theme in the Personalised Travel Planning debate in Australia. Other concerns have also been voiced as to the validity of claims made by Travelsmart proponents (Morton et al, 2005; Richardson et al, 2005b; Stopher et al, 2005b).

It may be tempting to suggest that the enthusiasm with which Travelsmart has been adopted as a core part of national and regional travel policy is in itself an indicator of success. Travelsmart initiatives have now been adopted in all major cities in Australia with funding assistance from central government (Morton et al, 2005; www.travelsmart.com.au). Some commentators, however, have raised concern that Personalised Travel Planning schemes are seen as “something for nothing” whereby, at relatively low cost, transport authorities can achieve meaningful dents into car mode shares without any investment in infrastructure or services (Morton et al, 2005). The

implicit suggestion here is a shifting of responsibility from the agencies responsible for transport planning onto the users of transport services.

This seems a highly plausible concern and theory dictates that any such gains would quickly be negated in any instance as alternate travellers use up whatever road capacity was freed up by the Personalised Travel Planning programme. In this instance the warnings of the Smarter Choices report authors are reinforced and it must be strongly put forward that Personalised Travel Planning should form part of an integrated transport strategy that involves infrastructural, operational as well as marketing components.

Morton and Mees, in particular, challenge the validity of the Travelsmart claims (Morton et al, 2005). In a considered analysis of the psychology of Personalised Travel Planning participation the potential for data contamination is highlighted. In the target sample groups, the authors point out there are a number of inherent conflicts of interest that may skew the data and lead to false results. The results of the scheme are based on certain predications, the main one being that “public transport is better than I thought it was once I tried it”. But there are also certain expectations of the initiative and likely respondents often act as “good subjects”, or ones who wish either to impress or have a personal interest in a positive outcome. This leads to what are known as “artefacts”, another way of saying a “self-fulfilling prophecy”, whereby the observation of a study group itself alters the likely outcome of the study. These are important concerns and there is some evidence to suggest that they are occurring phenomena within the Travelsmart framework. These are also, however, concerns that ought to be associated with any sampling study and their discussion only underlines the importance of considering them in relation to Personalised Travel Planning studies. The authors correctly conclude, however, that objective, independent evaluation is the only framework within which Personalised Travel Planning can be assessed.

A number of other studies have expanded on this theme and examined ways in which Personalised Travel Planning can be independently audited (Richardson et al, 2005b; Stopher et al, 2005a; 2005b). One particular approach is the use of panels in scheme assessment. A popular methodology within public transport market analysis, panels are based on a targeted sample

study group who are invited to act as respondents over a long time-frame. New members are co-opted onto the study group as old members decide to leave, thereby ensuring a reflection of the sampled population. In this way, the impacts of schemes can be studied in considerable detail. The panel approach has limitations, most particularly in relation to the size of the sampled population and the obvious risk of participation itself leading to skewed results through enhanced involvement and awareness.

An alternative approach is the use of corroborative evidence to validate Personalised Travel Planning initiatives. A study in Darebin, Melbourne used a combination of background data sources to verify results of a local Personalised Travel Planning initiative (Stopher et al, 2005b). The corroborative evidence confirmed mode transfer rates close to what the Personalised Travel Planning evaluation study itself revealed. Traffic count data indicated a 3 per cent reduction in car trips within the study area. Ticket validation data, recorded by individuals boarding public transport using smartcards revealed a 4/5 per cent increase in boardings. A similar rise in ticket sales was recorded in information also received from the local transit authority. Finally, independently monitored customer satisfaction surveys showed a 3 per cent increase in public satisfaction with local transit services.

**Table 5.1: Darebin Corroborative Evidence (Source: Stopher et al, 2005b)**

Data Source	Impact	Effect
Traffic Count Data	- 3%	Reduction in car trips
Ticket Validation Data	+ 4% / 5%	Increase in passenger boardings
Ticket Sales	+ 4% / 5%	Increase in sales
Customer Satisfaction Survey	+ 3%	Increase in satisfaction with transit services

### 3.6 Relative Impact by Mode Share

In almost all schemes, the greatest relative mode transfer was in favour of walking trips (Brog, 2005; Tideman, 2005). This was reflected in the number of behavioural switches completely over to walking or to walking and public transport. Figure 5.2 shows how mode transfers of 2-4 per cent overall are typically recorded.

This suggests that one of the main beneficial impacts of the scheme is on health levels among the target population. This is reflected by several cost-benefit analyses that attempt to measure these benefits (Socialdata, 2003a; 2003b). In several of the schemes, the effect which information regarding the benefits of walking had on individual health was remarked upon (Corpuz et al, 2005; Sustrans, 2004a; 2004b). The logical extension of such an argument is that Personalised Travel Planning should involve some input or support from local or regional health authorities who would lend weight to marketing initiatives and would themselves benefit from reduced healthcare burdens.

James also analysed the impact of Personalised Travel Planning schemes undertaken in the Perth area on public transport patronage (James, 2004). By assessing ticketing records, the evaluative surveys conducted following the schemes delivery could be cross-checked. Tangible increases in ridership were recorded in each target area examined, which included South Perth (17 per cent increase), Cambridge, Perth (11 per cent increase), Marangaroo, Perth (5 per cent increase) and Fremantle (12 per cent increase). The lowest increase was in Subiaco, Perth where a 4 per cent increase was recorded. This was after a 15 per cent reduction in public transport operational capacity in the area during the programme, suggesting a net possible increase of up to 19 per cent. The use of public transport ticketing records offers a useful independent evaluation and auditing tool, something that will be discussed in greater detail below.

**Table 5.2: Effects of Individualised Marketing Initiatives in other markets (Source: Department for Transport, 2004)**

	Control	Travelsmart	Fall in Car Usage
South Perth	60%	52%	-14%
Nurnberg	44%	38%	-14%
Goteburg			-13%
Viernheim			-12%
Brisbane			-10%
Portland			-8%
Kassel	48%	44%	-8%
Cambridge	60%	56%	-7%
Marangaroo			-4%
Breisgau	44%	43%	-2%

Tendency Towards The Smarter Choices report observed potential improvements to off-peak public transport patronage. In Nurnberg and Kassel, 70 per cent of behaviour change in favour of public transport was accounted for by shopping and leisure trips. While this suggests that the impact on peak-hour traffic is relatively lower, increased capacity utilisation is a considerable incentive to public transport service providers. In any case, overall peak hour car-as-driver trips are known to have been reduced in both Kassel (6 per cent) and Nurnberg (14 per cent) (Department for Transport, 2004a).

Local facility utilisation was also improved in a number of studies. Several of the schemes cited benefits to local businesses, both in terms of increased footfall, and lower congestion levels as net benefits of the scheme (Sustrans, 2004a).

### **3.7 Self-reinforcement**

One particular feature among a large number of Personalised Travel Planning schemes is a tendency towards self-reinforcement. The overall assessment of Personalised Travel Planning initiatives, particularly those tending towards an individualised marketing approach, delivers a clear picture of success. What is remarkable in a number of schemes where continuing assessment took place was that mode share figures in the targeted areas continued to improve over time. This was in the absence of continued investment in the scheme and in comparison to neighbouring, control-group areas where the scheme was not carried out (Goulias, 2001; Department for Transport, 2004a; Stopher et al, 2005; Tideman, 2005).

James, in an independent assessment of the Perth pilot scheme, showed how the impacts of the scheme had been maintained two years after the programme had been delivered (James, 2004). Studies in Nurnberg and Kassel indicated sustained impacts 2 and 4 years later respectively.

### **3.8 Targeting Areas for Personalised Travel Planning**

One final issue to be addressed regarding evaluation is the type of areas where Personalised Travel Planning is more or less likely to be successful. Interestingly, one of the least successful schemes was that conducted in Lambeth, London. Mode transfer rates achieved were low, as was the level of public interest in receiving information and incentives. This was possibly attributable to the absence of tailored incentives and information,

unlike other individualised marketing programmes. Nevertheless the results from this low car-use, high-density urban area that is comparatively well served by public transport is in contrast to the results reported by consultants in other dissimilar places (Department for Transport, 2004a).

By comparison, in Gloucester, where car ownership was considered high by the local authorities and levels of congestion low, a significant level of sustained mode-transfer was achieved (Sustrans, 2004a). The evidence from these and other studies suggests that the Personalised Travel Planning approach is a good fit for medium-low density suburban areas, provided some potential for mode transfer to an accessible alternative exists.

The Smarter Choices report, based on its comprehensive assessment and case study interviews of all schemes within the UK, puts forward a list of likely relevant factors: -

- A recognition in the community concerned that there are traffic problems
- A fairly discrete and self contained community, with reasonable local services and facilities (not just a dormitory or satellite suburb)
- A reasonable level of public transport (and, ideally, some recent improvements in services)
- Some excess capacity on public transport
- A reasonable quality of environment for walking and cycling, including lower speeds and a people-friendly street scene
- Support from the local authority and other key partners, including public transport operators

Evidence from the Smarter Towns schemes, not addressed by the Smarter Choices study (the Smarter Towns initiative came about as a consequence of the Smarter Choices report) would also suggest that effective Land Use and Transportation Planning can influence the likely success of Personalised Travel Planning programmes (LTT, 2005a). Analysis of the three study areas indicated a correlation between the proportion of trips less than 3km and the potential for change. This is supported by results from other programmes where walking was seen as the biggest potential for mode transfer. The principle of locating employment uses in relative proximity to residential areas is now well recognised and an ever-increasing priority in area planning. The evidence from Personalised Travel Planning thus far serves to underline its importance in engineering

the sustainable city. Ironically, it is the now discarded phenomenon of suburban, segregated land-use planning inherited from the garden city movement that can perhaps most benefit from the Personalised Travel Planning concept.

## **4 CONCLUSION: PTP IN DUBLIN – A WORTHWHILE INITIATIVE?**

### **4.1 Evaluation Issues**

The emerging evidence from an increasing library of scrutiny is that Personalised Travel Planning is an effective method for reducing car-usage in the long term and that it is justifiable on cost grounds (Department for Transport, 2004a; 2005a; Cohen, 2005). Furthermore, most of the available research suggests that there are considerable intangible benefits to community-health, local business and the environment that these should be factored into benefit-cost calculations. This evidence is supported by the rate at which the concept is expanding. Most major Australian cities now budget for ongoing Personalised Travel Planning programmes. In the UK it has been adopted as part of national strategy and extensive funding of initiatives has commenced. Personalised Travel Planning has been successfully deployed in the US, Scandinavia and continental Europe (Brog, 2005). Some criticism of Personalised Travel Planning schemes has come about, particularly within Australia, where the concept is perhaps most established. Most of this has been to do with the way in which schemes are evaluated. This has been echoed in the UK where official studies are recommending independent evaluation and auditing (Morton et al, 2005; Wilson, 2005).

Frameworks for such independent evaluation are emerging in Australia. Recently, a Personalised Travel Planning scheme in Victoria State was subjected to independent auditing using corroborative evidence (Stopher et al, 2005b). Results from traffic counters, public transport boardings and ticket sales all supported the results of the scheme. Analysis of bus boardings across a number of schemes in Australia, over an extended time period showed that the positive results are maintained in the medium to long term.

Similar results were found when public transport ridership figures were used to audit schemes in the UK. Overall, these schemes indicated mode transfer away from car usage, consistently, of 5 per cent - 10 per cent. Conservative estimates indicate that they support a benefit-cost ratio of at least 5:1. This is considered extremely favourable in transport

planning terms. Many infrastructural schemes are deemed of merit with benefit-cost ratios of 2:1 or less (Cohen, 2005).

One of the commendable aspects of the Personalised Travel Planning process, in fact, has been the emphasis placed on evaluation and this has probably been influential in the successful evangelisation of the concept. Such evaluation of travel behaviour is worthwhile in its own right. When deployed as part of a Personalised Travel Planning programme, it could just as easily form an integrated part of a wider transport strategy. In fact, strong arguments exist in favour of doing this.

#### **4.2 Area Targeting Issues**

Another issue within the Personalised Travel Planning debate is what areas it is likely to be successful in. This is pertinent, too, in deciding whether or not it would be a success in Dublin. Proponents of Personalised Travel Planning schemes are phlegmatic about this. They point to positive results from virtually anywhere that Personalised Travel Planning has been deployed. Also, they point to commonalities found across apparently contrasting travel markets. There are indications to suggest, however, that the Greater Dublin Area does offer some challenges to Personalised Travel Planning. Ireland has reportedly the highest average car-mileage in the world and much of this activity is attributable to the Greater Dublin Area (Bannister et al, 2000). Also, analysis of 2002 Census data shows vastly contrasting travel patterns even within otherwise broadly similar city-sectors.

Nevertheless, evidence suggests that Personalised Travel Planning can succeed within adverse environments. It should be noted that transport in Perth is predominantly car-based. The model of public transport provision in most Australian cities is market-based with commercial operators competing for business on high demand routes. This is not the optimum system for maximising boardings and accessibility (Mees, 2000; Casey, 2005). Perth is a dispersed low-density city with limited rail provisions. In other words, conditions for the promotion of public transport are not considered ideal yet significant results were achieved by Personalised Travel Planning schemes. In Quedgeley, the area was specifically chosen for its high car ownership rate and available capacity on public transport (Sustrans, 2004a). However, no serious congestion was noted in the area prior to the study commencing. This indicates that there were

no significant push factors in inducing mode transfer; yet tangible mode transfer did take place.

Walking is also the biggest benefactor in terms of mode transfer in almost every scheme (Department for Transport, 2004a; Brog, 2005). The evidence from the Sustainable Towns initiative where there was a clear relationship between distance to work and potential for change, suggests that areas where good land-use and transport planning has taken place are likely to display the biggest success rates (LTT, 2005a).

In the UK and Australia, however, higher success rates have been achieved in areas where demonstrable capacity existed on public transport routes. The Smarter Choices report was particularly effusive in suggesting that such schemes should be mixed in with harder measures, particularly service enhancements and demand management measures. Therefore, one recommendation would be to introduce Personalised Travel Planning schemes alongside new public transport initiatives.

#### **4.3 Methodology Issues**

The Smarter Choices report strongly points out that the projected changes in traffic levels and reduction in congestion, while large, are likely to attract more car use by other individuals (Department for Transport, 2004a). This would offset the benefit of the initial behaviour-change unless there are measures in place to prevent this. Therefore, the measured reallocation of road space to public and non-motorised modes can reinforce the initial programme and provide further inducements to switch modes among other users.

Of the various methodologies examined a number of features emerged as likely to be transferable to the Dublin market and contribute to successful mode transfer.

- Personalised Travel Planning Marketing Programme. A marketing programme that will assess the targets of the programme, the most appropriate means of delivering those targets and an accompanying but independent system of ongoing monitoring, feedback and improvement;
- Household surveys. The programme would rely on quality information derived from all individual households within the study area. Based on this information, fitting proposals can be devised to suit the needs of residents;
- Information tailoring and provision. The success of the scheme is based on the provision of tailored and relevant

information to each user. The preparation of travel packs with utilities such as localised bus timetables, walking information and other elements would need to be prepared as part of a programme;

- Incentivisation. As part of a marketing strategy, incentives can be organised, such as free bus passes and vouchers for cycle-stores, to promote increased use of public transport and non-motorised transport.
- Monitoring. In order to measure the success of the entire scheme as well as individual initiatives within the scheme, independently undertaken monitoring and evaluation against key performance indicators should be undertaken. The use of corroborative evidence appears to be highly valuable also;
- Formulation of individual initiatives. The overall programme will be a composite of several sub-initiatives, as deemed appropriate to the local area. These may include, among others, all or some of the following: Teleworking initiatives; School travel plans; Car-sharing / pooling initiatives; Cycle to work initiatives; Walk to PT initiatives; PT incentivisation schemes. Outreach programmes to related or compatible community organisations have also been successfully achieved in some Australian markets (Tideman, 2005).

An area that may need further analysis or piloting within the Greater Dublin Area is that of establishing contact methods. This is something that may naturally vary from market to market. While telephone contact is probably the quickest and cheapest mode of establishing initial contact and was very successful in many Australian pilots, it was less successful in some UK studies where door-to-door contact was reverted to (Socialdata, 2003a; Sustrans, 2004a). Door-to-door contact has been demonstrably successful in Adamstown but the question of transferability to much larger programs must be applied (South Dublin County Council, 2010).

Feedback processes have not been highlighted as part of previous Personalised Travel Planning studies. This is surprising given both the involvement of public transport agencies and also the high quality of information that can be assembled from a community relating to travel and mobility. It would seem an apparent waste of resources not to feed this information back into improved areas and services. A fundamental

principle of marketing is product development and this is something that can take place within Personalised Travel Planning programmes.

#### **4.4 Organisational Issues**

A notable feature of all Personalised Travel Planning schemes is the involvement of a large number of entities. Personalised Travel Planning schemes are targeted at communities. Who these are and how they should be involved can best be identified by analysing who benefits from the concept.

Naturally the community themselves benefit and their involvement is tacit. Transport agencies benefit through increased ridership and a scheme is unlikely to have credibility without their involvement. The local authority is responsible for the area and any improvements to its character or amenity accrue to it. In new development areas, the developer may also benefit financially from increased marketing opportunities.

However, there are also significant environmental and health benefits that may occur as a result of the scheme. These can have a reductive impact on the budgets of both environmental departments and health departments. Safety authorities may also benefit through indirect expedition of their aims.

Experience indicates that environmental and health issues are effective marketing tools. Therefore, a strong argument exists for a partnership approach to coordinating Personalised Travel Planning initiatives. Such has successfully been the case in, for example, the UK where up to 10 logos have been published on literature and marketing collateral. In fact, the preparation and collation of such materials is a practical example of how such a partnership can work together to deliver the scheme.

Since the benefits of Personalised Travel Planning are dispersed, it is reasonable to suggest that so should be the costs. This is a consideration in raising the budget for schemes. For example, in the majority of Australian schemes, the budget comes not from transportation departments or local authorities, but from national and state greenhouse funds.

#### **4.5 Conclusions**

This study has examined the potential for Origin-based Mobility Management Plans, most specifically the newly emerging concept referred to as Personalised Travel Planning, in the Greater Dublin Area. The concept has been undoubtedly successful in other markets, as testified by



numerous independent and official sources. In addition, it has proved successful within areas demonstrating what may be described as adverse conditions for sustainable travel planning. Without the benefit of any direct applications within Ireland, it would appear to be an applicable methodology. Caveats from independent sources should be gleaned; some form of independent evaluation needs to be incorporated, for example. A high-level study in the UK, the Smarter Choices report, confirms the effectiveness of the scheme but concludes strongly that its real potential will only be realised when integrated into an overall transport strategy incorporating effective demand management measures.

#### **4.6 Future Matters**

The concept of Personalised Travel Planning is a relatively new one within transport planning. The overall area of behavioural-side policies can itself be identified as a new wave in the science of transport planning (Department for Transport, 2004a). Traditionally transport planning focussed on the delivery of infrastructure. Later, principles such as demand management and Land Use and Transportation Planning emerged (Buchanan, 1960). Behavioural-side planning is a new and relevant aspect to transport planning. Much of it is focussed on communicating with communities and as such it is very focussed on marketing. This in itself presents challenges to transport planners who are largely untrained in complex marketing concepts such as identifying “Stages of Change”, for example (Davis, 2005).

Many analysts of Personalised Travel Planning complain of credibility issues when they quote benefit-cost ratios of anything between 5:1 up to 15:1, even though all the empirical evidence suggest that this is so (Cohen, 2005). It could be that this is a rational market response to the infinitesimally small resources that are applied to marketing alternatives to the car when compared with that invested in marketing the car.

The area of carbon-emissions trading is a matter that should be explored in relation to Personalised Travel Planning. Both seek to find market-based solutions to environmental problems. The potential for carbon emission reduction should not be lost on the proponents of Personalised Travel Planning and this could potentially provide a further revenue source to fund the scheme (Economist, 2002).

The main aim of Personalised Travel Planning must be, however, the reduction of car-based travel in favour of more sustainable options. A useful

analogy to illustrate the potential effectiveness of the scheme is the potential for turning a vicious cycle into a virtuous cycle.

Increasing congestion can be described as a vicious cycle, whereby roads become clogged, public transport services deteriorate, forcing more travellers into the car, causing roads to become clogged, etc.

A virtuous cycle, on the other hand would show people opting for public transport, revenue for public transport, to be reinvested in better services, enticing more people onto public transport, etc.

To cause a transition from one cycle to another requires a three-stage process within a transport system: -

- a) intervention
- b) momentum
- c) partnership approach

An intervention is required to halt the downward decline. A series of measures are required to give momentum to the upward cycle. A partnership approach between the responsible stakeholders is required to maintain momentum. A Personalised Travel Planning scheme can represent an intervention. However, it is unlikely to fulfil its full potential without measures to give it momentum and without a partnership approach to maintain the momentum.

#### **ACKNOWLEDGEMENTS**

The author gratefully acknowledges Edel Kelly and Vanessa Hand of the Dublin City Council Roads and Traffic Planning Division for enabling the Drimnagh Benchmarking Survey as part of the Smarter Travel Town bid. Also Catherine Bates and Elena Gamble of the DIT *Students Learning With Communities* Office for facilitating the community learning exercise.

#### **REFERENCES**

- Banister, David and Berechman, Joseph. *Transport Investment and Economic Development*, UCL Press, 2000.
- Brog, Werner. “Identifying and Achieving the Potential for Changing Behaviour: experience from the Sustainable Travel Towns and International Programmes”, paper to the *Smarter Choices Conference*, London, November 2005
- Cohen, Tom. “Demonstrating the Value for Money of Smarter Choices”, paper to the *Smarter Choices Conference*, London, November 2005

- Corpuz, Grace. Hay, Annette. Merom, Dafna. "Walking for Transport and Health: Trends in Sydney in the Last Decade", 28<sup>th</sup> *Australian Transport Research Forum*, (Papers available on [www.patrec.org](http://www.patrec.org)), September 2005
- Davis, Adrian. "Changing Travel Behaviour: Lessons from Health Psychology", paper to the *Smarter Choices Conference*, London, November 2005
- Department for Transport. *Smarter Choices – Changing the Way We Travel*, (Authors: Cairns, Sally. Sloman, Lynn. Newson, Carey. Anable, Jillian. Kirkbride, Alistair. Goodwin, Phil.), Her Majesty's Stationary Office, 2004a
- Department for Transport. *Personalised Travel Planning: evaluation of 14 pilots part funded by Department for Transport*, Her Majesty's Stationary Office, 2005a
- Department for Transport. *The Effects of Smarter Choice Programmes in the Sustainable Travel Towns*, Her Majesty's Stationary Office, 2010
- Dublin Transportation Office. *The Route to Sustainable Commuting – An Employers Guide to Mobility Management Plans*, Dublin Transportation Office, 2001b
- Dublin Transportation Office. *Mobility Management Plans*, Dublin Transportation Office, 2002a
- Economist, The. *How Many Planets: A Survey of the Global Environment*, July 6<sup>th</sup> 2002
- Goulias, Konstadinos. *Audit of South Perth Individualised Marketing Evaluation Survey*, Socialdata Australia Pty. Ltd., 2001.
- James, B. "Update on the Travelsmart Programme in Perth, Western Australia", unpublished paper, 2003, quoted in Department for Transport, *Smarter Choices*, 2004
- Mees, Paul. *A Very Public Solution – Transport in the Dispersed City*, Melbourne University Press, 2000
- Morton, Anthony and Mees, Paul. "Too Good to be True? An Assessment of the Melbourne Travel Behaviour Modification Pilot", 28<sup>th</sup> *Australian Transport Research Forum*, (Papers available on [www.patrec.org](http://www.patrec.org)), September 2005
- Local Transport Today. "Australians put brakes on car use with major programme of personalised travel planning", 14<sup>th</sup> February 2002a
- Local Transport Today. "When soft measures meet demand management", 29<sup>th</sup> July 2004
- Local Transport Today. "Can 'soft' policy measures help deliver hard results in reducing the amount of congestion", 29<sup>th</sup> July 2004
- Local Transport Today. "Travel patterns in 'smart' towns show potential for traffic reduction", 14<sup>th</sup> April 2005a
- Local Transport Today. "How much influence can marketing have on elasticity?", 18<sup>th</sup> August 2005c
- Longhurst, Mike. "Professional Marketing or Marketing by the Transport Profession", paper to the *Smarter Choices Conference*, London, November 2005
- Richardson, A.J. Davis, M.B. Harbutt, P.L. "Using Before and After Household Travel Surveys" 28<sup>th</sup> *Australian Transport Research Forum*, (Papers available on [www.patrec.org](http://www.patrec.org)), September 2005a
- Richardson, Roddis, S. Arblaster, D. Attwood, D. Newman, J. "The Role of Trend Analysis in the Evaluation of a Travelsmart Program", 28<sup>th</sup> *Australian Transport Research Forum*, (Papers available on [www.patrec.org](http://www.patrec.org)), September 2005b
- Socialdata. *Travel Behaviour Change Program for the City of South Perth under the Travelsmart Program*, Socialdata America Ltd, 2003a
- Socialdata. *Travel Behaviour Change Program for the City of Fremantle under the Travelsmart Program*. Socialdata Australia Pty. Ltd, 2003b
- South Dublin County Council, *Smarter Travel Adamstown – Personalised Travel Planning Pilot Project*, March 2010
- Stopher, Peter. Greaves, Stephen. Xu, Min. Fitzgerald, Camden. Lauer, Natalie. "A Panel Approach to Evaluating Travelsmart Initiatives in the Short Term – South Australia Pilot Survey", 28<sup>th</sup> *Australian Transport Research Forum*, (Papers available on [www.patrec.org](http://www.patrec.org)), September 2005a
- Stopher, Peter. Greaves, Stephen. Xu, Min. Lauer, Natalie. "Designing a Procedure to Undertake Long Term Evaluation of the Effects of Travelsmart Interventions", 28<sup>th</sup> *Australian Transport Research Forum*, (Papers available on [www.patrec.org](http://www.patrec.org)), September 2005b
- Sustrans. *Travelsmart Gloucester (Quedgeley)*, [www.sustrans.org.uk](http://www.sustrans.org.uk), July 2004a
- Sustrans. *Travelsmart Bristol (Bishopstow)*, [www.sustrans.org.uk](http://www.sustrans.org.uk), November 2004b
- Tideman, Jill. "Making Smarter Choices in South Australia: approaches to delivery and evaluation of Travelsmart Households in the West", paper to the *Smarter Choices Conference*, London, November 2005
- Wilson, Jacqui. "Mainstreaming Smarter Choices – what needs to be done?", paper to the *Smarter Choices Conference*, London, November 2005