

# Personalised travel planning: evaluation of 14 pilots part funded by DfT

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## Management summary

*Prepared by the Operational Research Unit, DfT, for the Sustainable Travel Branch, DfT  
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Personalised travel planning is a generic term covering a range of targeted marketing techniques aimed at encouraging people to switch some of their car trips to walking, cycling or public transport. In December 2002, the DfT awarded grants of up to £50,000, on a match funded basis, to 14 Local Authorities in England to run pilot personalised travel planning projects. Of these, seven targeted residential populations, six targeted workplace populations and two targeted schools (one Local Authority covered two types of target population).

Reports were prepared for each of the pilot projects by the project teams, and these were used by the Operational Research Unit in DfT to evaluate the methodology and results of each pilot project. The majority of the pilots were methodologically robust, with results which were comparable across all the pilots. There were some exceptions to this, and details are given in this report.

The objectives of the pilots varied. Some projects focused on exploring the most effective method of personalised travel planning intervention, whilst others aimed to maximise the effect of the personalised travel planning intervention in terms of car kilometres saved.

In total, the pilots cost £894,554 and delivered an estimated saving of approximately 11.4 million car km a year. The average cost per car km saved was 8p.

The pilots that targeted residential populations were consistently the most effective at reducing car kilometres and increasing use of sustainable modes of transport. All seven residential pilots saw a modal shift away from car use, with estimated reductions in car use over a year ranging between 0.05 million and 6.2 million car kilometres. The cost per car km saved varied between 3p and 18p per kilometre (or between 2p and 10p if monitoring and evaluation costs are excluded).

The effectiveness of the residential pilots appeared to be largely due to well chosen target populations, sizeable intervention groups, and well orchestrated individualised marketing and personalised travel planning. In addition, the robust methodology used in these pilots made comparison of results and an evaluation of the benefits of the pilots relatively straightforward to establish.

The workplace pilots tested a wider range of approaches and methodologies were tested, with wider variations in results than for the residential pilots. The monitoring and evaluation analysis provided in some reports was limited. With the exception of Cambridge-Addenbrooke's and Oldham (which did not record a reduction) the workplace pilots demonstrated a reduction in car kilometres of between 18 thousand and 186 thousand car kilometres per year. However, where a control group was not used, it is not clear how much of the reduction was due to the personalised travel planning, and how much may have been due to external factors. The workplace pilots were cheaper to run overall compared to the residential pilots, but the cost per km saved varied between 13p and £3.71 per kilometre, compared to 3p - 18p for the residential pilots.

The two school pilots reported a modal shift away from car use, but control groups were not used in these projects, and therefore it is not possible to establish whether this modal shift was due to the personalised travel planning intervention, or as a result of external factors affecting modal choice. The monitoring and evaluation analysis provided for the school pilots did not include the distances travelled, and therefore it was not possible to estimate the total number of car kilometres saved as a result of the school based personalised travel planning pilots, and neither was it possible to calculate the cost per km saved.

Current official DfT figures use a calculation of the benefit of reduced congestion as 15p/car km, rising to 45p/car km in heavily congested areas. Therefore the residential pilot results and some of the workplace pilot results demonstrate a significant cost benefit in car km reduction. If rolled out for

larger projects, with economies of scale, cost per km saved could reduce further, as suggested by the larger scale Quedgeley project achieving a cost per km saved of 3p.

By its nature, personalised travel planning is tailored to the individual. Therefore it is hard to say with any certainty what the effect of a particular intervention or method or approach would be on another individual, or group of individuals. This makes it difficult to evaluate how easily the results from these pilots could be replicated in other areas across the country. However, it should be noted that the TravelSmart projects achieved reasonably consistent reductions in mode share of car driver trips ranging from three to six percentage points. There is sufficient evidence to suggest that well tailored personalised travel planning projects undertaken in carefully chosen areas should realise cost-effective car km per year savings.

It is clear from the Quedgeley project that larger scale residential projects can deliver economies of scale. It is likely that the approach taken in many of the pilots could be extended to a larger target audience, especially in residential personalised travel planning, and that costs per participant associated with monitoring and evaluation and staffing would be reduced. There may be a limit to the size of target populations in workplace and school projects, due to the practical location of the target populations. Furthermore, in the case of workplace schemes, simply having a large target population is no guarantee of widespread participation.

## **Introduction**

### **Aims and Objectives**

Personalised travel planning is a generic term given to a range of targeted marketing techniques which aim to encourage a switch from car based trips to more walking, cycling and public transport through a combination of tailored travel advice, information and incentives. In December 2002, the DfT awarded grants of up to £50,000, on a match funded basis, to 14 Local Authorities in England to run pilot personalised travel planning projects. The pilots took place during 2003 and 2004.

The Department for Transport's Operational Research Unit (ORU) were commissioned by the Sustainable Travel Team to provide an independent evaluation of the final reports submitted by the 14 pilot authorities.

The aim of part-funding the pilots was to improve understanding of the relative effectiveness of the different approaches to personalised travel planning, including individualised marketing, use of travel diaries and personalised journey plans, and to identify best practice in their application.

The pilots focused on one of three target audiences: school pupils, employees at specific workplaces, or individuals or households in certain residential areas. Of the 14 Local Authorities, seven targeted residential populations, six targeted workplace populations and two targeted schools (one Local Authority covered two types of target population).

As these were pilots, the DfT did not specify a methodology to carry out the personalised travel planning or to monitor and assess the impact of the pilots across the target populations. Whilst this has made comparison between projects more difficult to assess, it did enable a wide range of approaches to be tested.

The purpose of ORU's evaluation was to provide a critique of each pilot report. Specifically, this involved providing an independent assessment of:

- The robustness and validity of the methodologies used;
- The replicability of the effects of the pilot;
- The potential for extending successes to other areas, considering local contexts;
- The value for money of the pilots.

In addition, ORU were asked to provide a common framework for monitoring and evaluating future personalised travel planning projects.

### **Report**

ORU have developed a framework for monitoring and evaluating personalised travel planning pilots. This framework presents the key components of carrying out a personalised travel planning project, from ensuring the project is set up correctly, to putting procedures in place to ensure that the results claimed are robust and representative.

The framework is shown in Annex B. It lists the key components, defines them, states at what stage of the project they should be considered, and provides further detail and explanation to assist with implementing each component.

This report is split into three sections covering the residential, workplace and school based pilots. Each section sets out a framework for monitoring and evaluating a pilot and then evaluates each of the pilots against these criteria. The replicability of the pilot effects is then discussed, contextual data presented, and the value for money of the pilots assessed. The report finishes by making some recommendations for undertaking personalised travel planning projects in the future.

## Personalised travel planning: evaluation of 14 pilots part funded by DfT

In addition to presenting a framework for running a pilot, and evaluating each against this, this report also discusses relevant differences between pilots and a wider roll-out.

## **Methodology**

### **Evaluation**

The evaluation carried out by ORU and described in this report was based on the information provided in the project reports submitted to DfT by each of the Local Authorities involved in the pilots. No additional information was sought from the project teams, as on the whole there was sufficient information and analysis contained in the reports to carry out the evaluation. Where information was not provided in the pilot report, this is marked as not available (n/a) in the tables of results.

Additional data to assess the context of each pilot was collected from publicly available sources; references are given in Annex G.

The evaluation first compared each pilot against an evaluation framework, which looked at aspects of the planning and design of the pilots, and monitoring and evaluation of the results. Following this, the contexts of the pilots were explored and the effect these contexts might have on the results discussed. Additional analysis was carried out to convert the results given in the reports to a format which would make comparison across the pilots possible. Finally, the value for money of each pilot was considered.

### **Framework**

The frameworks used for evaluating the residential, workplace and school based projects are very similar. Any differences are due to the practical constraints of implementing personalised travel planning for the different target groups, for example, the need to include a whole class as an intervention group as opposed to a sub set of a class for the school based pilots.

The framework details an approach to planning and running a personalised travel planning project based on best practice from the pilots, and the results of the evaluation carried out by ORU.

The framework suggests ideal sampling approaches to ensure that a 'before' and 'after' survey is used for both the control group and the intervention group, and that the results from these groups are comparable. There are differences in approach depending on the sample size used.

The guidelines in the framework need to be adapted to the aims and objectives of the project. Many of these pilots had an aim of evaluating the effectiveness of personalised travel planning; in these cases the emphasis is on testing out the effectiveness of different styles of intervention and approach. Future, larger scale personalised travel planning projects may have an objective of maximising the effect of the intervention, and this would need a different approach to targeting, marketing and evaluation.

### **Comparison of Results**

The DfT did not specify a framework for monitoring or presenting results. Consequently, the results of the pilots were presented in a variety of ways. This made a direct comparison of the pilots difficult. Therefore, some of the pilots' results have been re-presented in a different format. For example, some of the reports demonstrated the percentage change in car use as the percentage of car users in the before survey who then moved to other modes of transport in the after survey. The measure chosen for this report was the change (from before survey to after survey) in the percentage modal share of all trips. It was possible to calculate this for all the pilots, even if results were not presented in this format initially.

More detail is given in Annex F about specific assumptions that have been made in order to adjust results from different pilots to make them comparable across all pilots.

Not all of the pilots used a control group. Where one was used, and the results were included in the pilot report, the control group effects were taken into account when evaluating the modal shift resulting from the pilot. For example, if the control group had seen a 2% reduction in car use, this was taken into account in the intervention group results (so that a modal shift greater than 2% was required before the intervention could be said to have had an effect).

Statistical tests have not been carried out on the results. Due to the many different ways in which the data were collated, variation in use of control groups or not, and variation in use of paired or independent samples, it would be difficult to carry out statistical tests consistently. It is also important to consider that some pilots involved a small number of participants. This was true for workplace pilots in particular. Therefore comparisons of the results and performance of different pilots where participant group sizes vary should be considered as not particularly robust.

### **Value for Money**

The value for money of each pilot was calculated where possible. The measures used were as follows:

- Cost per participant - where the participant was an individual who received a personalised journey plan or received information as part of the intervention.
- Cost per person targeted.
- Cost per car km saved - where the number of car km saved were estimated from the information provided in the pilot report, or through use of data on travel to work distances available from the 2001 census, or based on average trips lengths (DfT data, 2003). It was not possible to calculate cost per car km saved for the school pilots, as there was no suitable information available on trip distances.

### **Replicability**

The replicability of each pilot was hard to establish. The very nature of personalised travel planning means that the intervention and approach is designed with the target population in mind, and therefore applying the same approach to a different population may not have the same effect. The conclusions of this report suggest ways in which results can be maximised, based on the best practice demonstrated in the pilots. However, the results of the TravelSmart pilots on car use were consistently encouraging.



## Residential Personalised Travel Planning

### Evaluation of Pilots

Each of the seven residential personalised travel planning pilots was assessed against a framework, to determine how many of the components had been rigorously considered in the pilot.

Table 1 gives a high level overview of whether each pilot considered each of the key components identified in the framework. Further detail on how the pilots addressed each area of the framework is given in Annex C.

**Table 1**

	<b>Aims &amp; Objectives</b>	<b>Target Population</b>	<b>Experiment Group</b>	<b>Control Group</b>
<b>Bracknell</b>	Yes	Yes	Yes	Yes
<b>Bristol</b>	Yes	Yes	Yes	Yes
<b>Cramlington</b>	Yes	Yes	Yes	Yes
<b>Nottingham (Lady Bay and The Meadows)</b>	Yes	Yes	Yes	Yes
<b>Quedgeley</b>	Yes	Yes	Yes	Yes
<b>Sheffield</b>	Yes	Yes	Yes	Yes
<b>York</b>	Yes	Yes	Yes	Yes

	<b>Incentives</b>	<b>Intervention Period</b>	<b>'Before' Survey</b>	<b>'After' Survey</b>	<b>Analysis</b>
<b>Bracknell</b>	Yes	Yes	Yes	Yes	Limited
<b>Bristol</b>	Yes	Yes	Yes	Yes	Yes
<b>Cramlington</b>	Yes	Yes	Yes	Yes	Yes
<b>Nottingham (Lady Bay and The Meadows)</b>	Yes	Yes	Yes	Yes	Yes
<b>Quedgeley</b>	Yes	Yes	Yes	Yes	Yes
<b>Sheffield</b>	Yes	Yes	Yes	Yes	Yes
<b>York</b>	Yes	Yes	Yes	Yes	Yes

As the table shows, each residential pilot did, to some extent, consider each of the key criteria and the majority carried out a robust analysis of the results of the pilot.

### Bracknell

The original aim of the Bracknell pilot was to study the effect of Individualised Marketing on those going through lifestyle changes (e.g. people starting a new job or retiring, people moving house). The project aimed to compare the effects of an incentive based intervention to an information only intervention. The target population was nearly 8,000 employees from 15 Bracknell companies (mainly private sector companies, but the local council was also included).

However, serious problems were encountered recruiting participants to the study, resulting in only 34 participants in the first phase of the study, and 25 in the second phase. As a result of this, the original aim of comparing incentive based intervention to information only intervention was abandoned, and recruits were accepted to the programme even if they were not undergoing a lifestyle change. Whilst phase one of the project focused on workplace participants, phase two focused on an incentive based approach to residential participants, and the residential results are covered in this section.

Of the 2,758 target residential population, only 18 returned both a 'before' and 'after' survey, meaning that quantitative results from the pilot were severely limited, although extensive qualitative information was given in the form of comments. However, results did suggest a decline in car use, which is encouraging, particularly given that the study was carried out in the autumn and winter when participants may be less likely to travel by bicycle or walk.

Despite the extremely low response rate, the pilot has generally incorporated all the key aspects of a rigorous and robust pilot evaluation. A control group was used, albeit a small one, and the 'before' and 'after' surveys largely asked the same questions, allowing changes in travel behaviour to be easily tracked. The pilot has focused on attempting to change the frequency of travel by car, and does not appear to have considered distances travelled by different modes.

### **The TravelSmart Projects**

Five projects were carried out using the TravelSmart approach developed by Socialdata and applied in the UK in co-operation with Sustrans. These projects were in Bristol, Cramlington, Gloucester (Quedgeley), Nottingham (Lady Bay and The Meadows) and Sheffield. The aim of TravelSmart is to use Individualised Marketing as a soft measure for changing personal travel behaviour. The TravelSmart approach is based on the Individualised Marketing (IndiMark®) technique developed in the late 1980s, and has been used in UK projects since 2001. Therefore the programme is well-established, and well tested, and as such should follow a robust and reliable methodology.

Each of the TravelSmart pilots followed all of the key components identified in the monitoring and evaluation framework. The group of individuals surveyed to assess travel behaviour is a sample of the target population, and this sample is adjusted to ensure it is representative of the whole target population. Another positive feature of these projects is that a control group is used, and changes in the experiment group's travel behaviour are adjusted to take into account changes in the control group's behaviour. Results are presented for changes in distance travelled, and travel time, as well as changes in modal split.

The aim of the all the TravelSmart pilots was to demonstrate the effectiveness of TravelSmart Individualised Marketing as a tool for changing travel behaviour amongst a target population. The size and demographics of the target populations varied across the pilots, and are shown in Table 2.

### **City of York**

The aim of the York pilot was to examine the potential for changing travel behaviour by reducing car use and encouraging walking, cycling and public transport use which promote health, fitness and a better environment. The project used two different approaches to recruiting participants to test the effectiveness of different recruitment methods.

The York pilot incorporated all of the components of the framework set out above, including a control group, and a 'before' and 'after' survey (although it is not clear if these surveys took the same format). Results were shown for changes in modal split, and also changes in the number of users, trips and distance travelled, by mode. All results applied to participants only.

### **Table 2 Target populations and take up rates for each residential pilot**

<b>Pilot</b>	<b>Target population</b>	<b>Number of recipients of intervention/ information (participants)<sup>1</sup></b>	<b>Take-up rate</b>
<b>Quedgeley</b>	10,700	5,280	49%
<b>Bristol</b>	5,000	2,251	45%
<b>Cramlington</b>	2,045	855	42%
<b>Sheffield</b>	3,210	1,461	46%
<b>York</b>	5,701	432	8%
<b>Nottingham</b>	1,900	567	30%
<b>Bracknell</b>	2,758	25	1%

### **Comparison of Pilot Results**

This section looks at the results achieved by the residential personalised travel planning pilots. A number of different measures were used in each of the pilots. Table 3 indicates with a 'Y' which measures were used in the pilot reports to evaluate the results of personalised travel planning interventions, and with an 'N' results which were not provided in the pilot reports, but which it is possible to calculate from other results provided.

The use of different measures does not make comparison of the results easy. Five of the pilots were carried out using the TravelSmart methodology, and therefore these are easier to compare. For the remaining two, an attempt has been made to compare the results where possible. Four of the measures identified in Table 3 are used in, or can be easily estimated for, all pilots, and these are highlighted in bold and are used in the next section of this report which compares the results and looks at replicability.

All of the residential pilots made use of a control group to assess the change in travel behaviour of the intervention group. This helps a comparison of true changes in travel behaviour to be made.

**Table 3**

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<sup>1</sup> This includes participants who were already users of sustainable modes of transport to some extent, but who asked for further information on alternative modes or requested travel plans.

Measure	Pilots		
	Bracknell	TravelSmart projects	York
Trips by different mode, per person, per week	Y		Y
Modal share for all trips (%)	N	Y	Y
Mode choice by trip purpose (work, leisure, shopping, school run) (%)	Y	Y	
Trips per person, per year, by mode	N	Y	Y
Number of single occupancy car trips, per person, per year	N	Y	Y
Personal daily mobility <sup>2</sup>		Y	N
Time spent travelling, per person, per day, by main mode (minutes)		Y	
Number of single occupancy car trips per day/week	Y	Y	Y
Spatial distribution of trips (%)		Y	
Trip purpose (%)		Y	
Average car occupancy		Y	
Distances travelled by car, per day/week (km)	N	Y	Y
Mode choice by time of day (%)		Y	
Mode choice by age and gender (%)		Y	

Table 4 shows the change in comparable measures, following the personalised travel planning intervention. As control groups were used to measure external effects on modal shift and travel behaviour, the results take these into account where possible. The Bracknell report states that the control group changed little in their travel behaviour, but it has not been possible to incorporate the background changes into the results in Table 4.

It is important to note that the Bracknell and York pilots measured the impact of the personalised travel planning on the participant group only. The TravelSmart pilots on the other hand measured the impact across whole target population because the sample surveys included a representative proportion of households that were not interested in being involved in the marketing. This should be borne in mind when considering the results in this section of the report, as the Bracknell and York results may look misleadingly more favourable than the TravelSmart results.

**Table 4**

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<sup>2</sup> This measure included the number of activities undertaken on a daily basis, the number of trips made and distances travelled, and the time spent travelling.

	<b>Results of personalised travel planning interventions</b>			
	<b>Total number of participants</b>	<b>Reduction in number of single occupancy<sup>3</sup> car trips per participant per year<sup>4</sup></b>	<b>Reduction in number of car trips per participant per day</b>	<b>Reduction in car km per year across target population</b>
<b>Bracknell<sup>5</sup></b>	25	-129	-0.4	-0.05 million km <sup>6</sup> .
<i>Bristol</i>	2,251	-41	-0.3	-1.7 million km
<i>Cramlington</i>	855	-53	-0.3	-1.1 million km
<i>Nottingham (Lady Bay)</i>	298	-	-0.3	-0.4 million km
<i>Nottingham (The Meadows)</i>	269	-	-0.3	-0.2 million km
<i>Quedgeley</i>	5,280	-55	-0.3	-6.2 million km
<i>Sheffield</i>	1,461	-45	-0.3	-0.9 million km
<b>York</b>	432	-159	-0.4	-0.55 million km <sup>5</sup>

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<sup>3</sup> Car trips as driver and passenger were treated as one mode for the York pilot.

<sup>4</sup> This assumes that the results demonstrated in the pilot studies can be maintained beyond the pilot period and for up to a year, and is based on an average number of trips per person per year of 1,014.

<sup>5</sup> The results are different to those published in the final project reports, as a re-presentation of the results was necessary in order to compare them with the other pilots. Annex F gives details of the conversion of the results into the format shown above.

<sup>6</sup> Result only shows reduction across participant group for Bracknell and York, not across whole target population

\* The results are different to those published in the final project reports, as a re-presentation of the results was necessary in order to compare them with the other pilots. Annex F gives details of the conversion of the results into the format shown above.

## Value for Money

Another way to compare the effectiveness of the pilots in achieving modal shift is to look at value for money. The value for money of each pilot can be evaluated in a number of ways, as described in the Methodology section, and shown in Table 5.

The most expensive pilot, in terms of costs per participant, was York. It also had a low take up rate (8%) compared to the TravelSmart pilots, contributing to the high cost per participant. However, once recruited, the York project generated a greater change in travel behaviour per participant than the TravelSmart projects.

The cheapest pilot, in terms of cost per participant, was in Quedgeley, suggesting that there are significant economies of scale achievable through targeting larger populations (particularly through lowering the per capita cost of evaluation).

The cheapest project in terms of overall cost and cost per person targeted was Bracknell. However, participation rates were low and car km saved commensurately low.

**Table 5**

<b>Pilot</b>	<b>Cost (£)</b>	<b>Number of individual participants</b>	<b>Number in target population</b>	<b>Cost per participant (£)</b>	<b>Cost per person targeted (£)</b>
<b>Quedgeley</b>	160,306	5,280	10,700	30.36	14.98
<b>Bristol</b>	104,750	2,251	5,000	46.53	20.95
<b>Cramlington</b>	68,628	855	2,045	80.27	33.56
<b>Sheffield</b>	91,121	1,461	3,210	62.37	28.39
<b>York</b>	100,000	432	5,701	231.48	17.54
<b>Nottingham</b>	101,911	567	1,900	179.74	53.64
<b>Bracknell</b>	4,445	25	2,758	177.80	1.61

**Table 6**

<b>Pilot</b>	<b>Cost (£)</b>	<b>Number of car km saved (approx)</b>	<b>Cost per km saved (£)</b>
<b>Quedgeley</b>	160,306	6,200,000	0.03
<b>Bristol</b>	104,750	1,700,000	0.06
<b>Cramlington</b>	68,628	1,100,000	0.06
<b>Sheffield</b>	91,121	900,000	0.10
<b>York</b>	100,000	551,000	0.18
<b>Nottingham</b>	101,911	600,000	0.17
<b>Bracknell</b>	4,445	50,000	0.09

Table 6 shows the estimated cost per km saved for each pilot. Given that the five TravelSmart pilots used the same methodology (and therefore can be compared), it is interesting to see the variation in cost per car km saved, which ranges from £0.03 (Quedgeley) to £0.17 (Nottingham). This shows that the Quedgeley pilot delivered the best value for money of these five pilots, and did so because of factors outside of the methodology, i.e. because the monitoring costs were spread over a larger target population and also because the area had been highlighted through previous research as one with a high potential for travel behaviour change.

### **Context and Demographic Background of Pilot Areas**

The results above look at the effect of the personalised travel planning interventions and their success in moving people away from using their car, assuming that all other factors are equal. In reality, it is likely that there will be underlying factors which make the location chosen for personalised travel planning and the method and type of intervention more or less successful. This section explores the context of the seven pilots, and the effect that context might have on success.

In order to achieve the greatest return on an investment of time and money in personalised travel planning, the participants need to be both willing and able to make a change in their travel behaviour. Therefore contextual analysis was carried out to look at factors which could affect the ability of participants to change the mode of transport they use. These included factors such as:

- Access to public transport, cycle paths and good footpaths in an area
- The road accident rate in the area for pedestrians and residential cyclists (used as a proxy for perceived road safety)
- Age profile of the residents of an area - are the participants likely to be younger or older, have child care responsibilities or limited mobility?
- The household composition for an area - travel behaviour will be different for families as opposed to students, for example
- The level of vehicle ownership in the area, and the proportion of people in an area who already use public transport whilst owning a car
- Economic activity in an area
- Average distance to work for people living in an area
- Current modal splits for travel to work for an area

Annex G shows the contextual data gathered for each ward/Local Authority for each of the areas covered by the pilots. It should be noted that these are figures at an aggregated ward or Local Authority level, and may not accurately reflect the characteristics of the participants in the pilots. They can, though, be used to paint a picture of the background to the pilots in each area. The majority of these data were obtained during the 2001 census.

All of the pilot reports discussed the context of the areas chosen for the personalised travel planning pilots. For example, the report on Quedgeley pointed out that the traffic congestion on routes into Gloucester from Quedgeley was a problem, and that this may have helped to persuade people to look at alternatives to the car for travel into the centre of Gloucester. Contextual information for each of the residential pilot areas is discussed in more detail in the following paragraphs.

#### ***Quedgeley***

The contextual data suggest that Quedgeley is an area with a high proportion of families who live in houses they own, high levels of employment, and a high level of car ownership (90% of households have at least one car). It also indicates that people living in that area have a good standard of health. Information collected during the 2001 census shows that relatively few people walked to work in the

Quedgeley area, which may be connected to the higher than average distance travelled to work by people living in Quedgeley.

Quedgeley was chosen as an area for personalised travel planning as it has high levels of car ownership, good walking and cycling links and a regular bus service to the city centre. It is also an area which suffers from peak hour congestion on routes into the city centre.

The pilot in Quedgeley resulted in 6% of all trips moving from car to other forms of transport, of which the biggest increase was seen in walking trips. The biggest decrease in car use was seen in trips for education, shopping, personal business and leisure - which corresponds with the fact that the distance to work for people living in Quedgeley is relatively high.

### ***Cramlington***

Cramlington is also occupied by a high proportion of families, living in houses they own, and has slightly higher than average levels of employment. Cramlington differs from Quedgeley in having a lower general standard of health, and a lower than average number of households owning two or more cars. The proportion of lone parent households is higher than average. A higher than average proportion of residents in Cramlington take the bus to work, or use a car (as driver or passenger), but walking to work is relatively low. This baseline modal split for travel to work is likely to be influenced by the relatively high average distance to work for people living in Cramlington.

Cramlington was chosen by Northumberland County Council as a potential site for personalised travel planning as it had high levels of car ownership, an extensive walking and cycling route and frequent bus services.

The pilot in Cramlington resulted in 5% of all trips moving from car to other forms of transport, of which the biggest increase was seen in walking trips. The biggest decrease in car use was seen in trips for shopping, personal business and leisure, rather than for travel to work - which corresponds with the fact that the distance to work for people living in Cramlington is relatively high.

### ***Sheffield***

The Sheffield pilot was set in Hillsborough, an area of Sheffield with a population approximately fitting the national age profile. There is a slightly higher proportion of retired people in the area than the national average, with a higher than average proportion of these living on their own, and the overall health of the area is slightly below the national average. Employment is relatively high, and there are relatively few students in the area. Car ownership is relatively low, and the distance to work also relatively small.

The Hillsborough area of Sheffield was selected as it has good public transport services in the form of the Supertram and buses. It is also close to a new interchange point linking public transport services to the city centre and outside of Sheffield.

The personalised travel planning pilot in Sheffield resulted in 6% of all trips moving from the car to sustainable modes of transport. There was no increase in bike use; Sheffield had a low baseline level of bike use for travel to work. 4% of trips moved to being carried out on foot, and 2% moved to public transport - Sheffield had a relatively high take up for public transport before the intervention, and especially for Supertram services. The biggest increases in use of sustainable transport modes were for shopping, personal business and leisure.

### ***City of York***

The York pilot was set in three different areas of York, and the combined age profile of these areas is very similar to the national age profile. There is a slightly higher proportion of retired people in the area than the national average, with a higher than average proportion of these living with someone else, and the overall health of the area is good. Employment is relatively high, and there are relatively few students in the area. Car ownership is relatively high, and the distance to work also relatively



high. Within the three areas of York chosen for the pilot, there were quite diverse socio-economic conditions.

Among participants in the York pilot, 20% of all trips moved from car to other forms of transport. There was no increase in the modal share for bikes, and this may be because York has a much higher than average take up for cycling to work generally. The biggest increase in modal share was for walking trips. There is no information provided in the York report on modal split by trip purpose, but before the intervention, the areas of York covered by the pilot had a relatively low take up for walking to work, and an average take up for use of public transport to travel to work.

### ***Lady Bay (Nottingham)***

The Lady Bay area has a higher than average proportion of residents who are aged 20 to 59, many of whom are in families, a relatively high number of students, and a relatively low proportion of retired people. It has low unemployment, and a high proportion of residents who have achieved higher educational qualifications. Car ownership is high and the average distance to work is the same as the national average (13 km).

The Lady Bay area of Nottingham is served by a recently improved bus route that serves the city centre and main rail station. Whilst Lady Bay and The Meadows share the same public transport routes, they were chosen because of their contrasting socio-economic profiles.

8% of all trips in the Lady Bay pilot moved from car to other modes of transport. Both walking and public transport use for travel to work were high in Lady Bay prior to the pilot, but these modes of transport saw a substantial shift towards them following the personalised travel planning intervention. Bike use for travel to work was also high prior to the intervention, and this saw a 1% shift.

### ***The Meadows (Nottingham)***

The Meadows pilot was carried out in an area covering one ward in Nottingham. The age profile of this area shows a population with a lower than average number of children, and a significantly higher than average proportion of residents aged 20 to 29, many of whom are also likely to be students, as the area has a high student population. There are a low percentage of residents who are owner occupiers. Employment is very low and the proportion of retired households is low. The general health of the residents in the area is worse than average, and this is reflected in the high proportion of residents claiming incapacity benefit. The proportion of lone parent households is higher than average. Car ownership is significantly lower than average, and the average distance to travel to work is lower than the national average.

The Meadows area of Nottingham is served by a recently improved bus route that serves the city centre and main rail station. Whilst Lady Bay and The Meadows share the same public transport routes, they were chosen because of their contrasting socio-economic profiles.

The Meadows pilot resulted in 4% of all trips moving from the car to other modes of transport. The biggest gain was to walking - a mode of transport which was used much more than average in this area for travel to work before the pilot. Bike and bus use for travel to work was also relatively high in this area prior to the pilot, and these too saw an increase as a result of the interventions. The biggest changes in mode were seen for trips for shopping, personal business and leisure.

### ***Bracknell***

The Bracknell pilot was carried out in an area covering two wards in Bracknell. The combined age profile of these areas shows a population with a larger than average proportion of people aged 20 to 59, and this corresponds with the low proportion of retired people, and low proportion of students. The health of the people in the area is good. Car ownership in Bracknell is high, and the average distance residents have to travel to work is relatively low.

The households targeted by the Bracknell pilot were chosen because of the area they were in, which was thought to have good access to bus services and walking and cycling routes which would ensure there was a potential for a move away from car use.

10% of all trips made during the pilot in Bracknell moved from car to another mode of transport. The biggest increase in sustainable modes of transport was for walking, although Bracknell had a relatively high take up for walking to work prior to the pilot. Bike use for travel to work was also high in Bracknell prior to the pilot, and this was increased by a further 1% of trips. Public transport use also increased, although this was a less favoured means of travel to work prior to the pilot. The biggest decreases in car use were seen in trips to the shops, for leisure and for educational purposes.

### ***Bristol***

The Bristol pilot was carried out in an area covering three wards in Bristol, with the control group in a fourth ward. The combined age profile of these areas shows a population with a lower than average number of children, and a significantly higher than average number of residents aged 20 to 29, many of whom are also likely to be students, as the area has a high student population living in private rented accommodation. Employment is relatively low, and the proportion of retired households is low. The proportion of lone parent households is higher than average. The health of the people in the area is good. Car ownership is around average, and the average distance to travel to work is lower than the national average.

The areas in Bristol chosen for the pilot by Bristol City Council were chosen because they had relatively high levels of car use, good walking and cycling links and access to a frequent bus service to the centre of Bristol.

The Bristol pilot resulted in 4% of all trips moving from the car to other modes of transport. The biggest gains were to walking and public transport - both modes of transport which were used significantly more than average in this area before the pilot. Bike use for travel to work was also high in Bristol prior to the pilot, and this too saw an increase as a result of the interventions. The biggest changes in mode were seen for trips for shopping, personal business and leisure.

## Modal Shift

Table 7a and 7b shows modal share changes from the before survey to the latest after survey. Where available, control group results were used to adjust the model shift results to take into account general trends in modal shift for the area. The TravelSmart projects all adjust their results to allow for underlying trends in modal shift, which gives more accurate results on actual model shift. The results for the control group in the Bracknell study are not stated explicitly in the report; this would have been useful in this comparison. The Bracknell report states that the control group changed little in their travel behaviour, but it has not been possible to incorporate the background changes into the results in Table 7a and 7b.

The changes in modal share are similar for the five TravelSmart projects in Table 7a (shown in italics), and represent modal shift across the whole target population.

**Table 7a - TravelSmart pilots**

	% change in modal share, after intervention <sup>7</sup>					
	<b>Car (single occupancy)</b>	<b>Car (with or as passengers)</b>	<b>Walk</b>	<b>Bike</b>	<b>Public Transport</b>	<b>Other<sup>8</sup></b>
<i>Bristol</i>	-4%	0%	+2%	+1%	+2%	-1%
<i>Cramlington</i>	-6%	+1%	+4%	0%	+1%	0%
<i>Nottingham (Lady Bay)</i>	-5%	-3%	+5%	+1%	+2%	0%
<i>Nottingham (The Meadows)</i>	-3%	-1%	+2%	+1%	+1%	0%
<i>Quedgeley</i>	-5%	-1%	+4%	+1%	+1%	0%
<i>Sheffield</i>	-5%	-1%	+4%	0%	+2%	0%

The changes in modal share for the pilots carried out in Bracknell and York are more striking (Table 7b), but these show modal shift across the participant group alone. The big change in modal share in Bracknell may be to do with the fact that there were only 25 participants in the before survey and 18 participants in the after survey. It is highly possible that those which did not complete the after survey may not have changed their travel behaviour and lost interest during the period of the pilot - so the results might be distorted. If a larger sample had been used, this effect would not be so marked.

**Table 7b - Other pilots**

	% change in modal share, after intervention					
	<b>Car (Single occupancy)</b>	<b>Car (with or as passengers)</b>	<b>Walk</b>	<b>Bike</b>	<b>Public Transport</b>	<b>Other</b>

<sup>7</sup> Modal shift total may not be neutral (i.e. adding up to 0% across all mode types) due to rounding of the percentages. For full results, see Annex I.

<sup>8</sup> Includes motorcycle trips, taxi trips etc

<b>Bracknell</b> <sup>9,10</sup>	-13%	+3%	+6%	+1%	+2%	n/a
<b>York</b> <sup>11</sup>	-20% <sup>12</sup>	n/a	+11%	0%	+9%	n/a

## Conclusions and Recommendations

All of the residential personalised travel planning pilots resulted in moving a proportion of all car trips to other modes of transport. Some pilots were more successful in reducing car km travelled by the participants than others, but these differences in results should be considered against the background and context of each pilot.

The take-up rates for the intervention and incentives varied across the seven pilots. The five TravelSmart pilots had similar take-up rates, probably as they were using the same methodology. The York pilot had a much lower take-up rate, but whilst the actual modal share change for this pilot was high, the cost per car km saved was at the higher end of the scale for the residential pilots, though similar to the TravelSmart pilot in Nottingham.

Contextual analysis of the results of the pilots shows a few trends in factors which seem to make the pilots more successful. These should be treated with caution as they are based on the results of just eight pilot areas.

- For smaller communities, possibly in more rural areas or suburbs, and with a greater proportion of families with young children, the biggest reductions in car use were made by a switch to walking. This was especially true in areas where data from the 2001 census showed a low level of walking to work.
- For areas where walking and cycling to work were relatively common, a shift from car trips to walking or bike trips was easier in areas where the population was made up of a greater number of households without children, and where the distances travelled to work, for leisure or to the shops were shorter.
- There was an increase in public transport usage in areas where there was a more comprehensive public transport system, and also in areas where the distance to travel to work was shorter, and there were fewer children in the households.
- In all pilots, the best reductions in car use were achieved for trips for shopping and for leisure. Slightly less effective were interventions which tried to reduce car trips for education and personal business. Reduction in car use was lowest for travel to work, which is in line with the lower shift away from car use seen in the workplace personalised travel planning pilots described in the following section.

The Smarter Choices<sup>13</sup> report provides evidence that "soft" interventions, such as personalised travel planning, work better when used in conjunction with "hard" measures, such as provision of new cycle paths, new bus routes, traffic calming, new pedestrian crossings etc, or factors which put a constraint

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<sup>9</sup> The results are different to those published in the final project reports, as a re-presentation of the results was necessary in order to compare them with the other pilots. Annex F gives details of the conversion of the results into the format shown above.

<sup>10</sup> Modal shift for Bracknell and York has been measured across intervention group only. The other pilots looked at modal shift across the whole target group.

<sup>11</sup> The results are different to those published in the final project reports, as a re-presentation of the results was necessary in order to compare them with the other pilots. Annex F gives details of the conversion of the results into the format shown above.

<sup>12</sup> Car trips as driver and passenger were treated as one mode for the York pilot.

<sup>13</sup> "Smarter choices : changing the way we travel", Volume 1, DfT, October 2004

on people's use of the car - such as high levels of traffic congestion, limited parking, parking charges etc. The results from these seven residential pilots tend to back this up.

The evidence from the pilots carried out in 2003 and 2004 suggests that the following points should be considered to ensure as effective a personalised travel planning project as possible when targeting residential participants:

- Chose an area which will be receptive to using alternative modes of transport to the car. Areas may be receptive if they want an alternative to problematic car use or are being forced to consider alternatives by infrastructural changes, or they may be receptive if the residents are both willing and able to change their travel behaviour because of the good they see it bringing to their health/quality of life and the environmental benefits from reduced car use.
- Maximise the response to initial contact with residents in the target area by contacting them first by letter and then by telephone. The postal contact enables residents to have some awareness of the project before the project staff telephone them, maximising the returns on the phone calls.
- Maximise the take up rate through the use of a customer-focussed dialogue marketing process, including use of appropriate incentives. These could include reduced price or free bus travel, discounts on cycle equipment or walking clothing.
- In addition, take up rates can be affected by how personalised travel planning is presented to the target community - and this may be dependent on the individual involved and how the issues which affect them are addressed. For example, the project staff may have to adapt how they pitch for involvement, dependent on the interest of the individual - it might be that increasing walking and reducing driving can be sold more effectively to a household with a young family than using the bus can.
- A respondent friendly design for the postal questionnaire, coupled with motivation by telephone are required to ensure a good response rate to the before and after surveys. Additional incentives may also increase response rates, although evidence for this from the pilots is mixed.
- Before and after surveys need to be used to establish the effectiveness of the personalised travel intervention. They should record the number of trips taken by different modes of transport in one day or one week by each person, and ideally would also include information on trip distances. Before and after surveys should ideally be carried out at similar times of year, or a control group used to account for seasonal effects.
- Sustainability of the effects of personalised travel planning may be increased if the results are communicated to participants - however, this has not been tested in the pilots.

The results from the seven residential personalised travel planning pilots fit into the expected modal shift stated in the Smarter Choices report. The Smarter Choices report stated that studies conducted to date suggested that there would be a modal shift away from cars of between 2% and 6% in rural areas, and between 7% and 15% in urban areas. These were indicators rather than forecasts.

## Workplace Personalised Travel Planning

### Evaluation of Pilots

Each of the six workplace personalised travel planning pilots were assessed against a framework, to determine how many of the components had been rigorously considered in the pilot.

Table 8 gives a high level overview of whether each pilot considered each of the key components identified in the framework. Further detail on how the pilots addressed each area of the framework is given in Annex D.

**Table 8**

	<b>Aims &amp; Objectives</b>	<b>Target Population</b>	<b>Experiment Group</b>	<b>Control Group</b>	<b>Incentives</b>
<b>Bracknell</b>	Yes	Yes	Yes	Yes	Yes
<b>Cambridge</b>	Yes	Yes	Yes	Yes	Yes
<b>Durham</b>	Yes	Yes	Yes	No	Yes
<b>Oldham</b>	Yes	Yes	Yes	No	Yes
<b>Winchester</b>	Yes	Yes	Yes	No	Yes
<b>Worcester</b>	Yes	Yes	Yes	No	Yes

	<b>Intervention Period</b>	<b>'Before' Survey</b>	<b>'After' Survey</b>	<b>Analysis</b>
<b>Bracknell</b>	Yes	Yes	Yes	Limited
<b>Cambridge</b>	Yes	Yes	Yes	Yes
<b>Durham</b>	Yes	Yes	Yes	Yes
<b>Oldham</b>	?	Yes	Yes	Yes
<b>Winchester</b>	Yes	Yes	Yes	Limited
<b>Worcester</b>	?	Yes	?	Limited

As the table shows, the only workplace pilots to fully cover all aspects of the framework were Bracknell and Cambridge, although the analysis in the Bracknell pilot was limited. Only two of the pilots included a control group (Bracknell and Cambridge), whilst the length of the intervention periods in Oldham and Worcester are unclear from the pilot reports. The analysis carried out on the Winchester results is limited, focussing solely on those individuals who were single occupancy car users at the beginning of the project. Similarly, the Worcester project presents just the one table of 'before' and 'after' modal split.

### Bracknell

The original aim of the Bracknell pilot was to study the effect of Individualised Marketing on those going through lifestyle changes (e.g. people starting a new job or retiring, people moving house). The project aimed to compare the effects of an incentive based intervention to an information only intervention.

Although all aspects of the framework were covered, serious problems were encountered recruiting participants to the study, resulting in only 34 participants in the first phase of the study, and 25 in the second phase. As a result of this, the original aim of comparing incentive based intervention to information only intervention was abandoned, and recruits were accepted to the programme even if they were not undergoing a lifestyle change. Phase two of the project focused on an incentive based approach to residential participants; this section covers phase 1.

Of the 8,000 potential participants identified at 15 workplaces (mainly private sector companies, but the local council was also included), 800 filled in a 'before' questionnaire and expressed interest in the project, although in the event only 34 participated in the project. Of these, only 26 completed the 'after' questionnaire. This meant that quantitative results from the pilot were severely limited, although extensive qualitative information was given. However, results did suggest a decline in car use.

Despite the extremely low response rate, the pilot has generally incorporated all the key aspects of a rigorous and robust pilot evaluation. A control group was used, and the 'before' and 'after' surveys largely asked the same questions, allowing changes in travel behaviour to be easily tracked. The pilot has focused on attempting to change the frequency of travel by car, and does not appear to have considered distances travelled by different modes.

## **Cambridge**

The Cambridge pilot focused on investigating whether targeting new employees at a workplace was an effective way of changing travel behaviour. All new employees were randomly allocated to either the control or experiment groups, with the experiment group receiving personal travel advice and guidance. A further experiment group based on car park users at one particular Cambridgeshire County Council site was also selected. This method of selection ensured that there was a reasonable size control group, and that both control and experiment groups were representative of all new employees.

The experiment group was asked to complete a 'before' survey at their initial meeting with the Project Officer. 'Before' survey information for employees in the control groups was collected by two methods. New employees who were involved in the project through the recruitment process were asked at the three-month stage how many days they drove to work during their first week at work. Based on the data collected at the three-month stage and the total number of trips made at this stage, it was possible to calculate the number of car and non-car trips at the 'before' survey stage for this control group. Employees at Cambridgeshire County Council who were in the control group for the car park access sub-project completed an email survey at the start of the intervention. Both the experiment and control groups completed an 'after' study at the end of the intervention period.

## **Durham**

The aim of the Durham project was to measure the effect on modal split of personalised travel planning, and to investigate the 'tail-off' effect over time. The project took place over a year, and included an interim and final evaluation. The original aim was to recruit 300 people. 97 people participated in the interviewing and personalised journey planning package, 84 were monitored at least once and 29 were monitored at both interim and final stages. Around a quarter of these 29 were recruited at the interim report stage, and those that had not changed their travel behaviour at the interim stage, and said they did not intend to in the future, were not included in the final report.

Because of the changing group of participants it is hard to make firm conclusions about changes in travel behaviour. Whilst some participants may not have changed their behaviour by the interim stage and claimed that they would not, it is still possible that they may have changed their mode of travel at a later stage, either because their circumstances changed, because of the time of year, or because it just took them longer to get round to making the change. A disadvantage of bringing some extra people in to the study at the interim stage is that some of the final reporting group had had a shorter amount of time to make and sustain changes in their travel behaviour than others.

The Durham pilot did not include a control group, meaning that it is not possible to disaggregate changes in travel behaviour that are due to the pilot and changes that could be due to other factors.

### **Oldham**

The Oldham pilot aimed to facilitate modal shift from single occupancy vehicles to sustainable modes of transport. Intervention was attempted with all 18,000 employees at the partner organisations in Oldham<sup>14</sup>, plus 4,500 from other organisations. In practice, 849 agreed to participate, and of these 226 returned both the 'before' and 'after' survey - a very small proportion of the target population.

The Oldham study did not include a control group, so again it is not possible to disaggregate changes in travel behaviour that are due to the pilot and changes that could be due to other factors.

The analysis shown in the report is fairly simple, mainly consisting of bar charts showing the proportion of different types of journeys made by various modes of transport. The report does not show the percentage change in trips following the study or any information on savings in car kilometres, for example.

### **Winchester**

The Winchester pilot had two aims - to facilitate a positive change in staff attitudes to sustainable modes of transport, and to learn more about the effectiveness of personalised journey planning. As such, the evaluation of the pilot focused purely on those participants who had described themselves as single occupancy car users in the 'before' survey. This has the potential to overlook other changes in travel behaviour.

Whilst 'before' data were available, these were taken from an earlier workplace travel survey, and not collected specifically for this project. Although this has the advantage of reducing the burden on employees and project staff, there is a risk that the project was designed to fit the information gathered in this survey, rather than designing the survey to ensure all necessary information was gathered. However, the 'after' survey was designed to collect the same information, giving consistency throughout the project.

A control group was nominated (a fourth workplace in the locality), and the project intended to also use this workplace's workplace travel survey as the baseline measure. However, this was not made available to the project team, resulting in no control group being used. Therefore, as with other pilots, it is not possible to disaggregate changes in travel behaviour that are due to the pilot and changes that could be due to other factors.

### **Worcester**

The aim of the Worcester pilot was to address staff travel habits to Worcestershire Royal Hospital through the provision of individualised journey planning provided by a Personalised Travel Coordinator. Initial surveys were sent to 5,500 staff at the Worcestershire Royal Hospital, Kidderminster Hospital and Redditch Hospital. 1,100 staff responded to the survey, 600 had some involvement in the project, with personalised journey plans being developed for 145 staff.

'Before' data was gathered from approximately 20% of staff who responded to an initial survey of all staff. A satisfaction survey was distributed towards the end of the project, but it is not clear from the report whether this was an 'after' survey following up changes in travel behaviour, or a separate survey looking into satisfaction with the project. As such, it is not clear how many staff participated in the project from start to finish, nor is it clear if an 'after' survey was carried out using the same questions as the 'before' survey.

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<sup>14</sup> The partner organisations were: Oldham Metropolitan Borough Council; First; Greater Manchester Passenger Transport Executive; Oldham Primary Care Trust; Oldham NHS Trust; The Oldham College; SSL International.



The Worcester report presents very limited results. There is one table of modal split changes, comparing this to the modal split recorded in the census in Worcestershire. A second chart presents a split of how staff found out about the Journey to Work adviser. The project does not have a control group, so is not able to take into account more general changes in modal split in Worcester. There is also no information recorded on changes in total number of trips made or car kilometres travelled, for example.

### Take-up Rates

Cambridge achieved a 95% take-up rate as all new recruits (Addenbrooke's and County Council) were automatically included in the sample, and had an appointment with the travel planner set up for them. The other group of participants for the Cambridge pilot was also fairly prescribed, as it targeted a group of people interested in alternatives to the car due to parking problems, and the take up rate for this group was 70%.

The take-up rates in the other pilots are very low in comparison to the Cambridge pilot, due to the different approaches used for contacting employees and marketing the project. This range demonstrates the impact that successful marketing and careful selection of the target population has on the project.

**Table 9 Target populations and take up rates for each workplace pilot**

Pilot	Target population	Number of recipients of intervention/ information (participants) <sup>15</sup>	Take-up rate (%)
Bracknell	7,787	34	0.4
Cambridge	358	358	99
Durham	5,000	97	2
Oldham	22,500	1,149	5
Winchester	5,470	203	4
Worcester	5,500	145	3

Low take-up rates do not necessarily mean that the project will fail to deliver a change in modal share for travel to work. The best performing pilots based on observed results (Bracknell, Durham and Winchester) did not have the highest take-up rates, but still managed to deliver a sizable reduction in car kilometres (although these results are based on small participant groups and/or pilots without control groups). This suggests that appropriate targeting of workplaces, effective marketing, and appropriate interventions are as influential as response rates.

### Comparison of Pilot Results

This section will look at the results achieved by the workplace pilots. A number of different measures were used in each of the pilots. Table 10 indicates with a **Y** which measures were used to evaluate the results of personalised travel planning interventions, and with **N** the results which were not provided in the pilot reports, but which it is possible to calculate from the other results provided in the report. Measures shown in bold are those which it is possible to compare for each pilot.

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<sup>15</sup> This includes participants who were already users of sustainable modes of transport to some extent, but who asked for further information on alternative modes or requested travel plans. For the Winchester pilot, this number includes a relatively small but unquantified number of “participants” who contacted the project team after the initial marketing exercise to put forward comments or suggestions but did not take part in the project.

The use of different measures does not make comparison of the results easy. It has been possible to estimate some of the measures based on the information provided in the report, but some assumptions had to be made to do this.

**Table 10**

<b>Measure</b>	<b>Bracknell</b>	<b>Cambridge</b>	<b>Durham</b>	<b>Oldham</b>	<b>Winchester</b>	<b>Worcester</b>
Number of trips by different mode, per week	Y	Y	Y	Y	Partial - only looked at some transport modes	N
Modal share for travel to work trips (%)	N	Y	Y	Y	Partial	Y
<b>Trips per person, per year, by mode</b>		N				
Number of car trips, per person saved, per year	N	N	N	N	N	N
<b>Number of car trips saved per year</b>	N	N	Y	N	N	N
<b>Percentage of individuals driving alone for 5 days of the week</b>		Y			Y	
<b>Reason for mode choice</b>		Y		Y		
<b>Distances travelled to work (km)</b>	N	N	N	N	N	N
Total car km saved per year	N	N	N	N	N	N

Table 11 shows the change in comparable measures, following the personalised travel planning intervention. Only two pilots used a control group: Bracknell and Cambridge. The effect of changes demonstrated by the control group have been taken into account where possible (these are shown in italics). The figures given in the final column of Table 11 are not comparable to those in the same column in Table 4 (for the residential pilots); the table below shows the reduction in car km for the participants in the pilot, rather than the estimated car km reduction across the whole target population.

The number of car trips per person per year reduced as a result of the pilot in Bracknell is very high. This is most likely to be a reflection of the small group of participants who appeared to be highly motivated and able to make changes to their travel behaviour.

**Table 11**

	<b>Change as a result of the personalised travel planning intervention</b>			
	<b>Total number of participants</b>	<b>Reduction in number of single occupancy car trips per participant per year</b>	<b>Reduction in number of car trips per participant per day</b>	<b>Reduction in car km per year across participant group</b>
Bracknell <sup>16</sup>	34	-209	-0.6	-19 thousand km
<i>Cambridge - Addenbrooke's</i>	158	<b>+11</b>	<b>+0.03</b>	<b>+16 thousand km</b>
<i>Cambridge - County Council</i>	200	<b>-28</b>	<b>-0.06</b>	<b>-60 thousand km</b>
Durham	97	-59	-0.3	-92 thousand km
Oldham	1,149	+15	+0.04	+16 thousand km
Winchester	203	-49	-0.2	-186 thousand km
Worcester	145	-2	-0.01	-18 thousand km

The pilots in Oldham and at Addenbrooke's in Cambridge failed to reduce car usage, but instead showed an increase in car km travelled during the pilot period. For Oldham, this may be due to seasonal effects - the pilot started in the summer and the evaluation survey at the end of the pilot was issued in February, when weather conditions may have caused participants to use their car more frequently. Use of a control group would have helped to clarify this. There was a net reduction in overall trip numbers, but the reductions were seen for modes of transport other than the car.

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<sup>16</sup> The results are different to those published in the final project reports, as a re-presentation of the results was necessary in order to compare them with the other pilots. Annex F gives details of the conversion of the results into the format shown above.

## Value for Money

The value for money of each pilot can be evaluated in a number of ways, as described in the Methodology section and shown in Table 12.

**Table 12**

Pilot	Cost (£)	Number of individual participants	Number in target population	Cost per participant (£)	Cost per person targeted (£)
<b>Bracknell</b>	12,807	34	7,787	376.66	1.64
<b>Cambridge</b>	71,453	358	358	199.59	199.59
<b>Durham</b>	12,419	97	5,000	128.03	2.48
<b>Oldham</b>	100,614	1,149	22,500	87.57	4.47
<b>Winchester</b>	100,000	203	5,470	492.61	18.28
<b>Worcester</b>	66,850	145	5,500	461.03	12.15

The Winchester pilot was more expensive, per participant, than the other pilots, and the Bracknell and Worcester pilots were also expensive in terms of cost per participant.

Table 13 shows the cost per km saved for each of the pilots. The fact that the Oldham pilot increased car usage should be borne in mind when studying Table 13 - the table shows the increase in car kilometres in *italics*.

**Table 13**

Pilot	Cost (£)	Number of car km saved	Cost per km saved (£)
<b>Bracknell</b>	12,807	19,439	0.66
<b>Cambridge</b>	71,453	44,400	1.61
<b>Durham</b>	12,419	92,700	0.13
<b>Oldham</b>	100,614	<i>-16,000</i>	<i>-6.29</i>
<b>Winchester</b>	100,000	186,000	0.54
<b>Worcester</b>	66,850	18,000	3.71

The Durham pilot achieved costs per km saved which were similar to those demonstrated in the residential pilots. This seems to have been achieved by keeping overall project costs very low compared to most other workplace and residential pilots.

## Context and Demographic Background of Pilot Areas

The results in Table 11 look at the effect of the personalised travel planning interventions and their success in moving people away from using their car, assuming that all other factors are equal. In reality, it is likely that there will be underlying factors which make the location chosen for personalised travel planning and the method and type of intervention more or less successful. This section explores the context of the six workplace pilot locations, and the effect that context might have on success.

In order to achieve the greatest return on an investment of time and money in personalised travel planning, the participants need to be both willing and able to make a change in their travel behaviour. Therefore the contextual analysis looked at factors which could affect the ability of participants to change the mode of transport they use. These included factors such as:

- Access to public transport, cycle paths and good footpaths in an area
- The road accident rate in the area for pedestrians and cyclists
- Average distance to work for people working in an area
- Current modal splits for travel to work for an area

Annex G shows the contextual data gathered for each ward/Local Authority for each of the areas covered by the pilots. It should be noted that these are figures at an aggregated ward or Local Authority level, and may not accurately reflect the characteristics of the participants in the pilots. They can, though, be used to paint a picture of the background to the pilots in each area.

### ***Bracknell***

Workers in Bracknell travel a relatively long way to work each day, with 13.3% travelling at least 30km each way. There are also a very high proportion of workers in Bracknell who travel to work by car; this is likely to be related to the high travel to work distances. Bike use for travel to work is at about the national average level, but all other modes of transport to work are under utilised compared to the national average. Bracknell appears to have a good quality of footpaths, as rated by residents. The workplaces chosen for the pilots were all out of the town centre, on the Southern Industrial Estate.

### ***Cambridge***

Workers in Cambridge travel a relatively long way to work each day, with 10.3% travelling over 30km each way, although there is also a larger than average proportion of workers (41.7%) who travel less than 5km to work in Cambridge. The use of cars to travel to work is already relatively low in Cambridge. Cycling to work is at a high level (18.1% of trips as opposed to 3.0% nationally), and bus use is also relatively high. Walking to work in Cambridge is relatively uncommon, but this may be linked to the high level of cycling - some of these cyclists might have otherwise walked if they lived and worked in an area with less of a cycling culture. It is interesting to note that the workplace featured in the Cambridge pilot that had the biggest mode shift was also the workplace with parking problems - this is likely to have helped to persuade participants to try alternative modes of transport.

### ***Worcester***

Workers in Worcester have relatively low distances to travel to work, with only 5.2% of people working in Worcester travelling more than 30km, and 46% travelling less than 5km. Bus use in Worcester for travel to work is low, and car use relatively high; all other modes of transport have about the same modal share as the national average. It should be noted that the report states that the hospitals in Worcester which were the focus of this workplace pilot had recently undergone a re-organisation, with some of the services at Kidderminster Hospital moved to the hospitals in Worcester, and as a result some staff had had to move work location and were now travelling greater distances to work. It may have been difficult for personalised travel planning to incentivise some individuals who were in this situation to change their travel behaviour, either for practical reasons, or because of a high level of disenchantment with their working situation.

### ***Durham***

Workers in Durham have relatively low distances to travel to work, with only 3.4% of people travelling more than 30km. Travelling to work by train was relatively uncommon, and car use was slightly higher than the national average. Travelling to work as a passenger in a car was higher than

the national average, suggesting a high level of car sharing before the pilot. Walking to work was slightly higher than the national average, and bike use was very low.

### **Oldham**

Workers in Oldham have relatively low distances to travel to work, with only 3.1% of people travelling more than 30km, and 55.1% travelling less than 5km. Bus use in Oldham is high, and the use of cars to travel to work about the same as the national average. Cycling to work is low, and walking to work is relatively high.

The results show a positive percentage change in modal share for cars for travel to work trips. This result may have been caused in part by the fact that the before survey was taken in the summer, and the after survey in February. Unfortunately a control group was not used. If it had been it might have been possible to determine how much of this increase in car use was due to seasonal factors, and how much was due to the effects of the pilot.

### **Winchester**

60% of people working in Winchester travel between 5km and 30km to work. Train and bus use are low for people working in Winchester, despite the high overall number of bus trips made in the Local Authority area - these may be largely attributable to leisure, shopping and education and the Park and Ride service in Winchester. Travelling to work by car in Winchester is much higher than the national average, and walking is slightly higher than average.

The results for Winchester may be overstating the success - as the "other" mode of transport category used in the collection of results includes people who only use a car sometimes. It was not possible to split out those modes which involved a car, and therefore car use after the intervention is under estimated.

## **Modal Shift**

Table 14 shows modal changes from the before survey to the latest after survey, demonstrating the sustained effects of the intervention. Where available, control group results were used to adjust the modal shift results to take into account general trends in modal shift for the area. The results for the control group in the Bracknell study are not stated explicitly in the report; this would have been useful in this comparison. The Bracknell report states that the control group changed little in their travel behaviour, but it has not been possible to incorporate the background changes into the results above.

**Table 14**

	% change in modal share, after intervention <sup>17</sup>					
	Car (single occupancy)	Car (with or as passengers)	Walk	Bike	Public Transport	Other
Bracknell <sup>18</sup>	-21%	+3%	+1%	+16%	+1%	-
<i>Cambridge - Addenbrooke's</i>	<b>0%</b>	-	-	-	-	-
<i>Cambridge -</i>	<b>-12%</b>	-	-	-	-	-

<sup>17</sup> Modal shift total may not be neutral (i.e. adding up to 0% across all mode types) due to rounding of the percentages. For full results, see Annex I.

<sup>18</sup> The results are different to those published in the final project reports, as a re-presentation of the results was necessary in order to compare them with the other pilots. Annex F gives details of the conversion of the results into the format shown above.

<i>County Council</i>						
Durham	-19%	-6%	0%	+1%	+24%	-
Oldham	+5%	-2%	-2%	0%	-2%	0%
Winchester <sup>19</sup>	-17%	-	-	-	-	-
Worcester	-0.5%	+0.3%	+0.1% <sup>20</sup>	-	+0.1%	-

The Oldham results in Table 14 look at all trips, not just trips to work. The Oldham pilot was different from all the other workplace pilots in extending the interventions and personalised travel planning to friends and family of the original target group, and results were collected on all trips made over a week.

The biggest change in modal share for driving a car to work was seen in Bracknell (-21%). This was followed closely by Durham and Winchester, and then Cambridgeshire County Council. The other pilots were less successful in persuading participants to move from car to other modes of transport. There were only 34 participants in the Bracknell pilot, and this might be part of the reason for the dramatic decrease in the modal share of car journeys; just a few people changing their behaviour would have a large and unrepresentative impact on the overall results in the Bracknell pilot, whereas the same number would have a much less significant impact on a pilot where there were a larger number of participants.

## Conclusions and Recommendations

All but one of the workplace personalised travel planning pilots resulted in moving a proportion of all trips from cars to other modes of transport. Some pilots were more successful in reducing car km travelled by the participants than others, but these differences in results should be considered against the background and context of each pilot.

The response rates to initial contact with potential participants, and take up rates for the intervention and incentives varied across the six pilots. But contrary to what might be expected, the pilots with the best response rates and take up rates did not necessarily produce the greatest savings in car kms.

The increase in modal share for cars in the Oldham pilot may have been due as much to seasonal factors as any intervention. The first survey was taken in the summer and the second survey in the winter, when we may expect car use to increase. Had a control group been used, it would have been possible to identify any seasonal trends. The removal of these from the results could potentially have demonstrated a decrease in car use.

It was difficult to find any trends in the pilots which did well in the workplace personalised travel planning projects. The most successful pilots were aimed at very different business types (public and private sector), and on workplaces located in physically different places (both in and out of town). It is perhaps easier to identify learning points from the pilots that did not deliver the reduction in car km that they hoped:

- Some of the pilots did not focus solely on the journey to work. Friends and family of the participants were invited to join the scheme in some cases, and this removed the focus from the travel to work trip. It may be that by spreading the personalised travel planning intervention over a wider range of trips, the intervention became less appropriate or less individualised, and therefore less effective.

<sup>19</sup> Winchester results may be underestimating car use after the intervention (see Winchester section, above)

<sup>20</sup> Percentage in Walk column refers to walking and cycling and use of motorcycle

- Workplace personalised travel planning schemes work better in workplaces where there is some disincentive to use the car - for example traffic congestion on the journey to work, or limited or expensive car parking. In these cases, the personalised travel planning interventions should be perceived as offering viable, practical solutions to a problem, rather than just providing a choice.
- Areas where there are emotive issues about the journey to work might need to be avoided in some cases. For example, one of the least successful pilots was in Worcester, at hospitals where a recent relocation of many staff may have created problems for any positive change in modal share. On the other hand, provision of Personalised Journey Plans as part of a wider service to employees may be appropriate and beneficial in such circumstances.
- New recruits may not always be the most appropriate group in a workplace to target. They may already be adapting to change in their day to day life through a new job, and some may not wish to change their travel behaviour in addition to this. On the other hand, they have not had the opportunity to develop habits or been subjected to the prejudices that may exist about alternative forms of transport at their new workplace, and therefore may be easier to persuade to change their mode of travel. Whether or not to target new recruits should be a decision made based on an understanding of the background to the workplace selected for the personalised travel planning project.
- It is likely that more effective changes can be made when targeting workplaces where the workers do not work shifts. Working shifts makes it harder for staff to change their travel behaviour due to limited provision of public transport out of normal hours, a perceived reduction in safety whilst walking at night, and the difficulty in car sharing when working shifts.

The Smarter Choices report gives evidence that "soft" interventions, such as personalised travel planning, work better when used in conjunction with "hard" measures, such as provision of new cycle paths, new bus routes, traffic calming, new pedestrian crossing etc, or factors which put a constraint on people's use of the car - such as high levels of traffic congestion, limited parking, parking charges etc. The results and comments from these six workplace pilots tend to back this up.

The evidence of the pilots carried out in 2003 and 2004 suggests that the following points should be considered to ensure as effective a personalised travel planning project as possible when targeting workplace participants.

- Chose a company/organisation where the staff will be receptive to using alternative modes of transport to the car. Staff may be receptive if they want an alternative to problematic car use or are being forced to consider alternatives by infrastructural changes, or they may be receptive if the staff are both willing and able to change their travel behaviour because of the good they see it bringing to their health/quality of life and the environmental benefits from reduced car use.
- Maximise the response to initial contact with staff in the company/organisation by carrying out some marketing activity before contacting them by telephone. This could include emails sent to staff, adverts in communal areas of the office, notices from senior staff, presentations to staff etc. This enables the staff to have some awareness of the project before the travel planners telephone them, maximising the returns on the phone calls.
- Maximise the take up rate through the use of appropriate incentives and individualised marketing. These could include reduced price or free bus travel, discounts on cycle equipment or walking clothing, as well as provision of travel information pertinent to the member of staff.
- In addition, take up rates can be affected by how personalised travel planning is "sold" - and this may be dependent on the member of staff involved and how the issues which affect them are addressed. For example, the travel planner may have to adapt how they pitch for involvement, depending on the interest of the individual and the facilities and culture of the company/organisation - for example, it might be that promoting the use of bicycles will not be effective if there are not showering facilities and lockers at the place of work.



- Additional incentives are probably required to ensure a good response rate to the before and after surveys, for example a voucher to be used at a local store, or the chance to be entered into a prize draw.
- Before and after surveys need to be used to establish the effectiveness of the personalised travel intervention. These should record the number of trips taken by different modes of transport in one day or one week by each person, and ideally would also include information on trip distances. Before and after surveys should ideally be carried out at similar times of year, or a control group used to account for seasonal effects.

## School Personalised Travel Planning

### Evaluation of Pilots

Both of the school personalised travel planning pilots were assessed against a framework, to determine how many of the components had been rigorously considered in the pilot.

Table 15 below gives a high level overview of whether each pilot considered each of the key components identified in the framework. Further detail on how the pilots addressed each area of the framework is given in Annex E.

**Table 15**

	<b>Aims &amp; Objectives</b>	<b>Target Population</b>	<b>Experiment Group</b>	<b>Control Group</b>	<b>Incentives</b>
<b>Knaresborough</b>	Yes	Yes	Yes	No	Yes
<b>West Sussex</b>	Yes	Yes	Yes	No	Yes

	<b>Intervention Period</b>	<b>'Before' Survey</b>	<b>'After' Survey</b>	<b>Analysis</b>
<b>Knaresborough</b>	?	Yes	Yes	Yes
<b>West Sussex</b>	Yes	Yes	Yes	Yes

As the table shows, neither of the school travel planning pilots fully considered all of the key components of the framework. Neither pilot included a control group, and the intervention period was not made clear in the Knaresborough report. Further detail is given in the following paragraphs.

Because of the targeted nature of the school personalised travel planning pilots, with selected classes being taught the programme, the take-up rate for both the school pilots is high.

### Knaresborough

The Knaresborough pilot had several objectives: to distribute personalised journey plans to the pupils, to expand the procedure for contacting pupils, to develop a procedure for reaching adults via school children, and to test whether or not there had been a change in travel behaviour. 327 pupils and 314 parents were approached during the pilot. A total of 275 personalised journey plans were produced for school children and 30 for adults. Of these, 239 evaluation questionnaires were completed by children (with one class carrying out a "hands-up" survey instead to assess changes in travel behaviour), and a further seven by adults.

Only 47% of pupils actually attempted the trip recommended in their travel plan. However, following the pilot the proportion of pupils travelling by car appears to have decreased. However, as entire year groups in the pilot schools were targeted there was no control group in the pilot. Therefore it is not possible to conclude whether changes in modal split were due to the pilot or other external factors (no other initiatives in place at the time were mentioned in the report).

Results from the pilot focus as much on evaluating the personalised journey plans as assessing changes in modal split. Results are shown for how useful pupils found the plans and information provided, why pupils who did not use their plan did not attempt their recommended journey, and feedback on the incentives.

It is not clear from the pilot report how long the intervention period was. Pupils were given personalised journey plans and left to make the recommended journey if they chose to. Evaluation

questionnaires were then distributed, although it is not clear how long after the plans were provided that this happened. The evaluation questionnaire did not take the same format as the initial questionnaire.

## West Sussex

The aim of the West Sussex pilot was to develop pupils' awareness and understanding of travel and transport, and to encourage young people to consider sustainable transport. The study involved teaching a programme of lessons from a Teachers' Resource Pack to 1,355 pupils (one year group in each of eight schools). The households of pupils at two of the schools were also approached to see if they wished to try Travel Blending. As entire year groups were targeted there was no control group in the study, meaning that it is not possible to assess to what extent changes in modal split were due to the pilot as opposed to other initiatives. All the schools involved were part of the Safer Routes to School programme.

As part of the Teachers' Resource Pack programme, pupils completed two travel diaries, one at the beginning of the programme, and another around two weeks later. For the purpose of this project, pupils were also asked to complete a third diary at a later date to monitor long term trends. Of the 1,355 pupils that were taught the programme, 395 pupils completed the first diary (the 'before' survey), 522 completed the second diary and 289 completed a third diary aimed at long term monitoring. Of all the pupils completing a diary, only 156 completed the first diary and either the second or third diary (or in some cases both). The information provided in different diaries took the same format for each, ensuring that accurate comparisons can be made.

Schools taught the Resource Pack at different times of the year, but all pupils completed their third diary in February 2004. This meant that schools had varying lengths of time to make modal split changes, and also that in some cases modal split comparisons were being made between different times of the year.

In the report provided, analysis of the effects of the Resource Pack was limited to focussing solely on changes in the percent of trips made by different modes. There was no investigation of changes in numbers of trips made or kilometres travelled, for example.

## Comparison of pilot results

This section will look at the results achieved by the school pilots. A number of different measures were used in each of the pilots. Table 16 indicates with a **Y** which measures were used to evaluate the results of personalised travel planning interventions, and with **N** the results which were not provided in the pilot reports, but which it is possible to calculate from the other results provided in the report.

There was no overlap in the measurement of results in the two school projects. This made a direct comparison of the results impossible.

**Table 16**

Measure	Knaresborough	West Sussex
Number of trips to school on one day, by different mode	Y	
Number of trips to school in one week, by different mode	N	
Modal share for travel to school trips (%)	N	
Modal share for all trips (%)		Y
<b>Trips per person, per year, by mode</b>	N	
Number of car trips, per person, saved per year	N	

<b>Number of car trips saved per year</b>	N	
<b>Distances travelled to school (km)</b>	?	
Total car km saved per year	?	

Table 17 shows the change seen in the two school-based pilots in the measures used for comparison in the residential and workplace pilots, following the personalised travel planning intervention. Note that the results measured in the Knaresborough pilot were on trips to school, whilst the West Sussex pilot measured the mode of transport used for all types of trips made by the pupil and their family, and therefore the pilots were not directly comparable.

**Table 17**

	Change after intervention			
	Total number of participants	Reduction in number of car trips per student per year	Reduction in number of car trips per student per day	Reduction in car km per year
<b>Knaresborough</b>	305	-7.5	-0.04	?
<b>West Sussex</b>	1,459 <sup>21</sup>	?	?	?

It has not been possible to calculate the reduction in number of trips made overall, or the car km saved, as information on actual trip numbers was not provided in the West Sussex report, and distances travelled were not collected for either pilot. It appeared that the trip numbers were gathered in the West Sussex pilot, but details were not included in the report. Using an average trip distance was considered, but rejected on the grounds that trips to school are generally shorter than many other trips.

Part of the pilot in West Sussex involved "travel blending" for 52 households with children at the schools involved. This approach aims to reduce overall number of trips and emissions, by "blending" different trips into one multi-purpose trip. Therefore it would be expected that this pilot would have resulted in an overall reduction in the number of trips made, but this did not happen.

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<sup>21</sup> 1,355 pupils were taught the resource pack, and a further 52 households participated. The total number of participants is an estimate of the number of individuals in the households plus the pupils.

## Value for Money

Table 18 shows the cost per participant for the two school pilots, and also the take up rates. The take up rates are generally quite high, especially compared to the residential and workplace pilots, and this is likely to be due to the involvement of teaching staff and the teaching of lessons involving the personalised travel planning packs. The reports from these pilots suggest that the key to success is finding teaching staff who are willing and able to include topics on travel mode choice in their lessons.

West Sussex was the more expensive project overall, but targeted and attracted more participants so costs per participant and person targeted were lower than Knaresborough. However, West Sussex included families of the school children in the intervention group so costs are not directly comparable.

**Table 18**

Pilot	Cost (£)	Number of participants	Number in target population	Cost per participant (£)	Cost per person targeted (£)	Take up rate of respondents (%)
<b>Knaresborough</b>	35,000	305	641	114.75	54.60	48
<b>West Sussex</b>	50,000	1,459	2,079	34.27	24.05	70%

It was not possible to work out the cost per car km saved in either pilot, as there was no information on the number of trips or the average length of trips to school provided in the reports.

## Context and Demographic Background of Pilot Areas

The results in Table 18 look at the effect of the personalised travel planning interventions and their success in moving school children away from being driven to school, assuming that all other factors are equal. In reality, it is likely that there will be underlying factors which make the schools chosen for personalised travel planning and the method and type of intervention more or less successful. This section explores the context of the two school based pilots, and the effect that context might have on success.

In order to achieve the greatest return on an investment of time and money in personalised travel planning, the participants (both school staff and pupils) need to be both willing and able to change their travel behaviour. Therefore the contextual analysis looked at factors which could affect the ability of participants to change the mode of transport they use. These included factors such as:

- Access to public transport, cycle paths and good footpaths in an area
- The road accident rate in the area for pedestrians and cyclists
- The level of vehicle ownership in the area, and the proportion of people in an area who already use public transport whilst owning a car
- Economic activity in an area

Annex G shows the contextual data gathered for each ward/Local Authority for each of the areas covered by the pilots. It should be noted that these are figures at an aggregated ward or Local Authority level, and may not accurately reflect the characteristics of the participants in the pilots. They can, though, be used to paint a picture of the background to the pilots in each area.

### *Knaresborough*

Knaresborough has a resident age profile which is very similar to the national age profile, and the household composition in Knaresborough is also very similar to the national average, although with a

slightly higher proportion of pensioners. Employment is high, the health of the residents is good, and a higher than average proportion of residents have higher qualifications. The proportion of owner occupied homes is high and there is also a high level of car ownership.

### **West Sussex**

The demographic profile of West Sussex is very similar to that of Knaresborough, the main difference being a smaller proportion of residents in West Sussex with higher qualifications.

### **Modal Shift**

Table 19 shows modal changes from the before survey to the after survey, demonstrating the sustained effects of the intervention. Control groups were not used in either the Knaresborough or West Sussex pilots, and therefore these results take no account of any background changes in modal share.

**Table 19**

	% change in modal share, after intervention <sup>22</sup>				
	Car	Walk	Bike	Public Transport	Other
<b>Knaresborough</b>	-2%	+2%	0%	0%	-
<b>West Sussex</b>	-7%	+9%	-1.5%	+0.8%	-

The biggest percentage change in modal share for trips was seen as a result of the West Sussex pilot. The results shown in Table 19 are a combination of the results from the West Sussex pilots, which covered a number of schools. The results were combined to facilitate comparison with other pilots. The results for individual schools were very varied, with the interventions being more effective in some schools than in other schools.

Table 20 shows the percentage change in modal share for trips at each school involved in the West Sussex pilot. The biggest decrease in car use was seen at Our Lady School, but it is interesting to note that there were only a small number of pupils at this school who participated in the scheme, and therefore these results had a much smaller effect on the overall number of car trips made for pupils at this school.

The West Sussex report provided percentages of trips which were undertaken using each mode of transport rather than actual trip numbers. In order to combine the results from the individual schools into one figure for all the West Sussex pilots it was necessary to weight the results so that each pupil was given an equal weighting in the result, rather than each school. This means that the results shown above are different from the results stated in the report, which gave the results from each school an equal weighting.

The results from Davidson High School for Girls (West Sussex) were excluded from the evaluation as the percentages presented as results in the report were not internally consistent (the figures in the table did not sum to the totals given).

Meadows School, one of three involved in the Knaresborough pilot, received its personalised travel planning over the winter - whilst the other two Knaresborough schools were involved over the summer. Meadows School saw an increase in car use, rather than a reduction, and this is likely to be due to seasonal factors affecting car use.

**Table 20 - Change in modal share for each school (West Sussex)**

<sup>22</sup> Modal shift total may not be neutral (i.e. adding up to 0% across all mode types) due to rounding of the percentages. For full results, see Annex I.

School	Car	Train	Bus	Walk	Cycle
Chatsmore	2.1%	-1.9%	2.2%	-5.6%	3.3%
Forest	-0.5%	0.4%	2.1%	7.1%	-9.1%
Imberhorne	-0.8%	-3.5%	-2.9%	8.3%	-1.0%
Millais	-5.7%	2.7%	9.5%	-6.8%	0.3%
Sackville	-2.0%	-0.1%	0.5%	2.3%	-0.7%
Our Lady	-19.5%	-1.1%	19.8%	-0.7%	1.5%
St Andrews	-2.3%	-0.1%	0.1%	0.2%	2.1%

## Conclusions and Recommendations

Both of the personalised travel planning pilots in schools resulted in a reduction in the modal share of car trips to school. There was a wide variation in the effectiveness of personalised travel planning across all the schools involved in the pilots, and these differences may be due to differences in the context and background to the schools involved, and the method and approach employed for the personalised travel planning.

A key element to the success of personalised travel planning in schools appears to be enthusiasm from the school staff. The organisers of a personalised travel planning exercise in schools are very dependent on teaching staff to take the ideas to the children, and enthusiasm from the teachers will help the pupils become enthusiastic about the idea of changing their travel behaviour. A number of the schools initially approached for the West Sussex pilot were unwilling or unable to take part, and it is important to only involve schools who are able to devote the time and resources required for personalised travel planning. Feedback from the teachers involved in the pilots is useful to inform and improve future personalised travel planning in schools.

The collection of results in the before and after surveys was variable across the schools. This may suggest that a more hands-on approach to collecting the data is necessary from the project organisers rather than relying on teachers to do this. For example, it may be more effective for the project staff to go into schools to collect the results of the surveys in some cases.

Some of the pilots involved families and households of the school children as well as the individual school children. It is likely to be beneficial to involve the parents early on in the process, but if trips other than school trips are targeted, the target population for the scheme becomes part school children and part residential in nature. Whilst this dilutes the focus it may help to optimise the benefits from a school based personalised travel planning intervention.

With only two pilots based in schools it is not possible to draw any conclusions about what makes a more or less successful personalised travel planning project.

The evidence of the pilots carried out in 2003 and 2004 suggests that the following points should be considered to ensure as effective a personalised travel planning project as possible when targeting school children.

- Chose a school where the pupils will be receptive to using alternative models of transport to the car. Pupils may be receptive if they can see the benefits to them, the wider community and the environment, of changing the way they travel to school, and therefore it is important that this is put to them effectively by their teachers. The use of a teachers' pack may help to facilitate this.
- Maximise the response to initial contact with teaching staff at schools by preparing information packs and supporting the teachers' needs during the classes.

- Maximise the take up rate through the use of appropriate incentives and individualised marketing. These could include reduced price or free bus travel, discounts on cycle equipment or walking clothing, as well as provision of travel information pertinent to the individual pupil.
- Data collection by the personalised travel planning project staff may be required to ensure the correct data are collected, and to reduce the burden on the schools involved. Response rates may also be increased if the project staff are able to provide feedback to the school, class by class, on what effect their changes in travel behaviour have had.
- Before and after surveys need to be used to establish the effectiveness of the personalised travel intervention. They should record the number of trips taken by different modes of transport in one day or ideally over one week by each person (to reduce the influence of daily changes in weather for example), and ideally would also include information on trip distances. Before and after surveys should ideally be carried out at similar times of year, or a control group used to account for seasonal effects.

Personalised travel planning may become just one of a number of soft measures used by schools to change the travel habits of their pupils. The Travelling to School Initiative, begun in September 2003, is encouraging all schools to have a school travel plan in place by 2010. For schools developing School Travel Plans, personalised travel planning could be used as one of a number of soft measures to change travel behaviour in schools. Alternatively, for schools wishing to engage in more limited initiatives, personalised travel planning may be an attractive way to effect a change quickly and without implementing a full School Travel Plan.

Obtaining a useful control group on which to evaluate the results of personalised travel planning in schools is more difficult than for the residential or workplace schemes. There are likely to be wider effects of the personalised travel planning intervention, outside of the targeted class in any school, as pupils from one class may travel to school with pupils from other classes. But where possible a control group should be used, and the impact the intervention has had indirectly on the participants' behaviour explored.



## Conclusions

Based on the results observed in the final reports, the majority of the 14 personalised travel planning pilots showed some degree of success at either reducing the number of car trips made by participants, changing the modal share for car trips, or reducing the total number of car kilometres travelled by individuals each year. A summary of the results is shown in Table 21 and Table 22.

Table 21 shows the results from the TravelSmart pilots. Table 22 shows the results from the other pilots. Due to differing methodology for collection of data for analysis, it is difficult to compare these two sets of results directly.

**Table 21 - TravelSmart pilots - showing effect of pilot on whole target population**

Pilot	Type	% change in single occupancy car modal share	Change in number of car trips per day per person	Approx. total car km saved over one year ('000s)	Cost per car km saved over one year (excluding monitoring costs)	Cost per car km saved over one year
<b>Quedgeley</b>	Residential	-5%	-0.3	6,200	£0.02	<b>£0.03</b>
<b>Bristol</b>	Residential	-4%	-0.3	1,700	£0.04	<b>£0.06</b>
<b>Cramlington</b>	Residential	-6%	-0.3	1,100	£0.03	<b>£0.06</b>
<b>Sheffield</b>	Residential	-5%	-0.3	900	£0.06	<b>£0.10</b>
<b>Nottingham (Lady Bay)</b>	Residential	-5%	-0.3	400	£0.10	<b>£0.17</b>
<b>Nottingham (Meadows)</b>	Residential	-3%	-0.3	200	£0.10	<b>£0.17</b>

**Table 22 - Pilots showing effect of intervention on participant group**

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Pilot	Type	% change in single occupancy car modal share	Change in number of car trips per day per participant	Approx. total car km saved over one year ('000s)	Cost per car km saved over one year (excluding monitoring costs) <sup>23</sup>	Cost per car km saved over one year
<b>Bracknell</b>	Residential	-13%	-0.4	50		<b>£0.09</b>
<b>Durham</b>	Workplace	-19%	-0.3	93	£0.09	<b>£0.13</b>
<b>York</b>	Residential	-20% <sup>24</sup>	-0.4	551		<b>£0.18</b>
<b>Winchester</b>	Workplace	-17%	-0.2	186		<b>£0.54</b>
<b>Bracknell</b>	Workplace	-21%	-0.6	19		<b>£0.66</b>
<b>Cambridge (County Council)</b>	Workplace	-12%	-0.06	60	£1.29	<b>£1.61</b> (combined for both sites)
<b>Worcester</b>	Workplace	-0.5%	-0.01	18	£3.44	<b>£3.71</b>
<b>Cambridge (Addenbrooke's)</b>	Workplace	0%	+0.03	16 increase		<b>Increase in kms</b>
<b>Oldham</b>	Workplace	+5%	+0.04	16 increase		<b>Increase in kms</b>
<b>Knaresborough</b>	School	-2%	-0.04	n/a		<b>n/a</b>
<b>West Sussex</b>	School	-7%	n/a	n/a		<b>n/a</b>

The success of the pilots is affected by many factors, including:

- The receptiveness of the participants to a change in travel mode (often increased by disincentives to car use such as parking charges and congestion)
- The physical and financial ability of participants to make the change
- The availability of practical and affordable alternatives to the car
- The use of incentives, such as free or reduced price bus passes
- Method and structure of approach to participants (for example face to face contact for the marketing of personalised travel planning may be more effective)
- The sustainability of the effect - is the experience of the new mode of transport good enough to persuade the participant to make a permanent change?

<sup>23</sup> Where possible costs without the monitoring and evaluation elements are given. Not all reports broke costs down in this manner.

<sup>24</sup> Includes all car trips - single occupancy and car trips as passenger

- Careful selection of target populations, and thoughtful and appropriate marketing to this population
- The "individual" nature of the personalised travel planning, and the relationship established between the project staff and the participant
- Collaboration between partner organisations and public transport providers

The 14 pilots tackled three different populations: residential groups, workplace groups and school children. The results varied depending on the nature of the target population, as can be seen in Table 21 and Table 22.

The residential pilots tended to provide more consistent results, and provided better value for money, possibly as more individuals and more trips per individual can be reached through contact with one household. The overall impact was greater than for the other pilots, due in part to the larger target populations and large number of participants, with car km saved over the course of a year in the millions.

The workplace pilots were slightly cheaper overall on average, and produced good modal shifts away from car use. But the car km saved as a result of these pilots was lower than for residential pilots. Workplace pilots may be easier to organise, as the target population is usually contactable through their workplace, but the pilots demonstrate that companies/organisations involved need to be carefully selected.

The pilots carried out in schools saw a fairly solid change in car use, but this varied across the schools involved. School personalised travel planning may be more difficult to set up and administer, as there may be more constraints on the method and approach. The effect of school personalised travel planning is also limited by the fact that many school children may not have direct control over how they travel to school. However, the provision of personalised travel advice may encourage some school children to make their own travel decisions. The Travelling to School Initiative, with small capital grants for schools with approved travel plans has probably increased demand for comprehensive travel plans. In which case, personalised travel planning in schools may best be considered as a potential tool as part of a wider travel plan. However, for schools that still prefer to engage in more limited initiatives, a personalised travel planning project with class lessons may be attractive in its own right.

In total, the pilots cost £894,554 and delivered an estimated saving of approximately 11.4 million car km in a year. The average cost per car km saved was £0.08.

By its nature, personalised travel planning is tailored to the individual. Therefore it is hard to say with any certainty what the effect of a particular intervention or method or approach would be on another individual, or group of individuals. This makes it difficult to evaluate how easily the results from these pilots could be replicated in other areas across the country. However, the TravelSmart projects have achieved fairly consistent mode shift across the target populations in a range of locations. The most effective way to achieve the best return on personalised travel planning would be to adopt the best practice from the pilot studies, follow the framework in this report, and learn from the experiences documented in the pilot reports. It is likely that well tailored personalised travel planning in a well chosen area could realise very attractive cost per car km per year savings, as produced by some of the pilots.

Whilst personalised travel planning appears to work most effectively in areas with relatively high employment, high car ownership and high levels of education, it also provides additional benefits in other, more deprived areas. In these areas, personalised travel planning can help to reduce social exclusion by opening up opportunities for residents through increased awareness of transport options and travel incentives. As such, it may prove a useful tool in tackling accessibility.

## Recommendations

The evidence from the pilots carried out in 2003 and 2004 and evaluated in this report suggests that the following points should be considered to ensure an effective a personalised travel planning project as possible:

- Chose an area/workplace/school which will be receptive to using alternative modes of transport to the car. Potential participants may be receptive if they want an alternative to problematic car use or are being forced to consider alternatives by infrastructural changes, or they may be receptive if they are both willing and able to change their travel behaviour because of the good they see it bringing to their health/quality of life and the environmental benefits from reduced car use. Areas may be receptive to change if they have a reliable and convenient public transport service and/or the typical trip to work can be easily made by public transport, on foot or by bike.
- Maximise the response rates by making the initial contact appropriate for the type of project. For residential projects, contact residents in the target area first by letter and then by telephone or face to face on the doorstep. The postal contact enables residents to have some awareness of the project before the project staff telephone them, maximising the returns on the phone calls. For workplace projects, use corporate communication lines and senior management support to help get the message across. For school projects, find schools and teachers willing and able to incorporate travel choice lessons into the timetable.
- Maximise the take up rate through the use of appropriate incentives. These could include subsidised or free bus travel, discounts on cycle equipment or walking clothing etc.
- In addition, take up rates can be affected by how personalised travel planning is presented - and this may be dependent on the individual involved and how the issues which affect them are addressed. At all times, the project staff should adapt how they pitch for involvement, dependent on the interest of the individual.
- A respondent friendly design for the postal questionnaire, coupled with motivation by telephone, is required to ensure a good response rate to the before and after surveys.
- Before and after surveys need to be used to establish the effectiveness of the personalised travel intervention. They should record the number of trips taken by different modes of transport in one day or one week by each person, and ideally would also include information on trip distances.
- Sustainability of modal changes may be increased by providing participants with feedback on the results of the project, and letting them know how they have contributed to reducing car traffic - but this has not been tested in the pilots.

The frameworks included in earlier sections of this report provide a structure on which personalised travel planning pilots can be planned and evaluated. Evaluation may still be required for local politicians, decision makers and stakeholders, even when pilot studies are extended to larger target audiences, although it may be less onerous with adequate preparation at the planning stages of the project.

It would be useful to ensure that the following results are always collected:

- Actual number of trips made by participants or a representative sample of the whole target group, by mode, for one day/week. If possible, this could be broken down by trip purpose
- The distances typically travelled to work, the shops, school etc, or actual trip distance data for the time covered by the survey
- Any area wide initiatives which might affect modal change, and feedback from participants on why they did/did not take part
- The same results should be collected for the control group

- The same results should be collected before and after the personalised travel planning intervention

Larger projects offer opportunities for economies of scale and therefore reducing the costs per car km saved. This was particularly so for the residential pilot in Quedgeley, which achieved the lowest cost per km saved by a significant margin. A big factor in this was that monitoring and evaluation costs became a much smaller proportion of the total project cost.

## **Annex A: Travel Behaviour Survey**

Two surveys should be carried out to investigate the travel behaviour of the experiment and control groups, before any interventions (the 'before' survey), and at the end of the trial period (the 'after' survey). These surveys should cover issues such as:

- The number of trips made in the last week, by each mode of transport (with single occupancy car trips separated from car trips as/with passenger)
- The total car kms in the last week

And could also cover issues such as:

- Perceptions of different modes of transport
- The length of each journey made (time and distance)
- The purpose of each trip

The information collected in the surveys should be used to assess, amongst other things, the modal split of the experiment and control groups before and after the trial period, and the car kilometres saved by switches to sustainable modes of transport.

The same questions should be asked in the before survey and the after survey. In large target populations, use a sample of that population for the before survey, and another sample of the population for the after survey. In small target populations, for example in workplace or school projects, ensure that all the target population complete both the before and after survey.

Additional incentives may be required to encourage completion of the after survey. Additional incentives to complete the travel behaviour survey may also be required for those in the target population who did not take up the offers of personalised travel planning interventions, but it is important that the travel behaviour of these people is considered in monitoring and evaluation.

As with any survey, ensure that the survey form is clear, easy to understand and takes the minimal possible time to complete. Make sure that all questions that are asked are relevant and necessary; the longer the survey form is, the lower the response rate will be. Use pre-paid envelopes for postal returns, and follow up with telephone calls to maximise return rates where possible.

Ideally the survey should be issued to a sample of the target population, including both those who were and were not involved in the intervention. This means that the effect of the personalised travel planning intervention across the whole target population can be estimated. If this is done a sample of a size sufficient to generate at least approximately 400 valid, individual responses should be used to enable analysis to be done on a range of factors.

## **Annex B : Evaluation Framework**

<b>What?</b>	<b>Definition</b>	<b>When?</b>	<b>How?</b>
<b>Define aims and objectives</b>	The coverage and scope of the project, and who will participate.	As the first stage of the project.	<p>Decide what change in travel behaviour the project is aiming for - eg reducing journeys by car, increasing public transport use, increasing walking etc</p> <p>Is the project aiming to evaluate where/how it would be easiest to achieve change in travel behaviour, or to maximise the change?</p> <p>Decide on coverage of project:</p> <ul style="list-style-type: none"> <li>■ Focus on individuals?</li> <li>■ Focus on households, as travel choices may effect more than one person?</li> <li>■ Focus on journey to work/school only?</li> <li>■ Monitor all journeys?</li> <li>■ Attempt to recruit parents through pupils?</li> </ul>
<b>Chose the target population</b>	The entire group of individuals/ households whose travel behaviour the project is trying to change. Potential participants in the study will be selected from this group.	Before selecting participants.	<p>Target population may be all individuals/households in certain wards, or within a certain distance of the city/town centre. Or all employees at a workplace or a distinct sub group of workers, i.e new starters. Or all the pupils in one class or one year group at a school for example.</p> <p>Participants should be able, if they chose to, to change their travel behaviour, i.e. there should be reasonable public transport available, or they should live within walking/cycling distance of amenities/their workplace/their school.</p>
<b>Select the experiment group</b>	The group of individuals/households who will be asked to participate in the study through receiving a series of interventions to attempt to change their travel behaviour.	At the beginning of the project.	<p><i>For a project with the aim of evaluating the effect of the intervention:</i> Select a random sample from the target population, to be large enough to be representative of the whole population. Consider whether different groups of individuals/ households may have different travel patterns, e.g. those who are retired, families with children etc. If so, chose a stratified random sample. It may be necessary to involve the whole of one class for school based projects.</p> <p><i>For a project aiming to maximise the effect of the intervention:</i> Seek as many participants from the target population as</p>



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			possible. This will be a self selecting sample.
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<p><b>Select the control group</b></p>	<p>A group of individuals/households chosen from the target population, who will not be subject to any interventions. The travel behaviour of this group at the start and end of the project will be compared to that of the experiment group to assess any external influences.</p>	<p>At the beginning of the project.</p>	<p><i>For a project with the aim of evaluating the effect of the intervention:</i> Select a second random sample from the target population. If the experiment group was selected through a stratified random sample, use this method to select the control group.</p> <p><i>For a project aiming to maximise the effect of the intervention:</i> Seek participants from a similar population to the target population. For example, this could be in a different area of the town, or a different school/class, or a different workplace in the same vicinity.</p> <p><i>For both types:</i> Consider how to ensure that the control group are not indirectly influenced by, for example, local press coverage of the project, school assemblies, or by being contacted to record their travel behaviour.</p>
<p><b>Chose the incentives</b></p>	<p>A range of incentives can be offered to those in the selected experiment group to encourage them to agree to participate in the project.</p>	<p>Before contacting the selected experiment group.</p>	<p>Ensure that incentives are sufficient to encourage even those who are sceptical of sustainable travel modes to participate, whilst considering the impact on the cost of the project.</p> <p>Ensure that incentives are only offered to those not already using the sustainable mode in question.</p>
<p><b>Specify the intervention period</b></p>	<p>The set period that the experiment group will be subject to the project interventions for.</p>	<p>Prior to contacting the experiment group to encourage them to participate.</p>	<p>Travel behaviour will be assessed at the beginning and end of the trial period. A further assessment should be carried out several months after the end of the trial period to assess whether changes in travel behaviour have been sustained.</p> <p>Consider the effect that different seasons will have on results, and try to design the intervention period to avoid this affecting the results.</p>
<p><b>Carry out the 'before' survey</b></p>	<p>A survey carried out before any intervention takes place, to discover the travel behaviour of the experiment and control groups.</p>	<p>Prior to interventions being put in place.</p>	<p>Gather information on travel behaviour and perceptions using specific questions and definitions. Further detail and definitions are given in Annex A.</p>

<p><b>Carry out the 'after' survey</b></p>	<p>A survey carried out after the trial period ends, to discover the travel behaviour of the experiment and control groups.</p>	<p>At the end of the trial period.</p>	<p>If the sample size is small, ensure that the same group of individuals/households are surveyed as in the 'before' survey. For larger samples, a sample within the experiment group can be selected to complete the survey.</p> <p>The same questionnaire should be used so that answers can be compared.</p>
<p><b>Analyse the results</b></p>	<p>Assessment of any changes made in travel behaviour during the trial period.</p>	<p>After the 'after' surveys are returned.</p>	<p>The results of those completing both the 'before' and 'after' surveys only should be analysed so changes in travel behaviour can be tracked.</p> <p>Any changes in behaviour in the experiment group will need to take into account changes in the control group's behaviour, so that changes due to the project can be distinguished from changes due to external factors.</p> <p>Seasonal factors will also need to be considered, particularly if the 'before' and 'after' surveys were carried out at significantly different times of the year.</p>

## **Annex C: Evaluation of Residential Personalised Travel Planning Pilots**

	<b>Aims &amp; Objectives</b>	<b>Target Population</b>	<b>Experiment Group</b>	<b>Control Group</b>	<b>Incentives</b>
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<b>Bracknell</b>	To study the Individualised Marketing approach on lifestyle changes, comparing incentive intervention to information only	Residential districts 1-2km from centre of Bracknell. Based on individuals	2,758 individuals (1,417 households) contacted, 25 participated	Yes: 36 'before' and 13 'after' respondents from neighbouring ward, similar characteristics	Yes: walking, bicycle, public transport and car share
<b>Bristol</b>	Demonstrate the effectiveness of TravelSmart Individualised Marketing	5,000 people living in 3 areas (2,254 households). Based on households	735 households ordered information	Yes: 400 people	Gifts for those already using sustainable modes, bag, info, book and cycle bell for participants
<b>Cramlington</b>	Demonstrate the effectiveness of TravelSmart Individualised Marketing	2,045 people (988 households). Based on households	332 households ordered information	Yes: 300 people	Gifts for those already using sustainable modes, bag, info, book and cycle bell for participants
<b>Nottingham (Lady Bay and The Meadows)</b>	Demonstrate the effectiveness of TravelSmart Individualised Marketing	1,000 people living in The Meadows and 900 from Lady Bay. Based on households	140 households in Lady Bay and 126 in The Meadows ordered information	Yes: 400 people	Gifts for those already using sustainable modes, bag, info, book and cycle bell for participants
<b>Quedgeley</b>	Demonstrate the effectiveness of TravelSmart Individualised Marketing	10,700 people (4,631 households). Based on households	2,155 households ordered information	Yes: 500 people	Gifts for those already using sustainable modes, bag, info, book and cycle bell for participants
<b>Sheffield</b>	Demonstrate the effectiveness of TravelSmart Individualised Marketing	3,210 people (1,465 households). Based on households	540 households ordered information	Yes: 400 people	Gifts for those already using sustainable modes, bag, info, book and cycle bell for participants

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<b>York</b>	Examine the potential for changing travel behaviour. Compare different approaches to recruiting households	5,701 households in 3 wards. Based on individuals	167 individuals returned before and after survey	Yes: 600 people, 200 from each ward	Bus passes, cash prizes, cycle arm bands, bike health checks, pedometers
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	<b>Intervention Period</b>	<b>'Before' Survey</b>	<b>'After' Survey</b>	<b>Analysis</b>
<b>Bracknell</b>	5 months	Yes	Yes	Mainly qualitative
<b>Bristol</b>	Marketing and info provided at start, follow-up surveys 3 and 9 months later	Yes: on sample of 400 people	Yes: on sample of 400 people	Took into account control group changes
<b>Cramlington</b>	Marketing and info provided at start, follow-up surveys 3 and 9 months later	Yes: on sample of 300 people	Yes: on sample of 300 people	Took into account control group changes
<b>Nottingham (Lady Bay and The Meadows)</b>	Marketing and info provided at start, follow-up surveys 3 and 9 months later	Yes: on sample of 500 people in each area (control group 400 people)	Yes: all participants, 400 people in control group	Took into account control group changes
<b>Quedgeley</b>	Marketing and info provided at start, follow-up surveys 3 and 9 months later	Yes: on sample of 500 people	Yes: on sample of 500 people	Took into account control group changes
<b>Sheffield</b>	Marketing and info provided at start, follow-up surveys 3 and 9 months later	Yes: on sample of 400 people	Yes: on sample of 400 people	Took into account control group changes
<b>York</b>	6 months	Yes: 242 responses	Yes: 167 responses	

## **Annex D: Evaluation of Workplace Personalised Travel Planning Pilots**

	<b>Aims &amp; Objectives</b>	<b>Target Population</b>	<b>Experiment Group</b>	<b>Control Group</b>	<b>Incentives</b>
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<b>Bracknell</b>	To study the Individualised Marketing approach on lifestyle changes, comparing incentive intervention to information only	Employees at 15 firms who were undergoing a lifestyle change	8,000 approached, 800 filled in questionnaire and left contact details. 34 participated	Yes: 100 'before' and 134 'after' respondents from local company	Yes: walking, bicycle, public transport and car share
<b>Cambridge</b>	Is targeting new employees an effective way of changing travel behaviour? To increase the % of employees using sustainable modes. Does intervention affect retention?	New recruits joining Cambridgeshire County Council and Addenbrooke's NHS Trust. Existing employees with car park access at CCC Shire Hall Site	Half target population approached as experiment group (358 participants)	Half target population approached as control group (355 participants)	None
<b>Durham</b>	Measure the effect on modal shift of personalised journey planning, and the effect of any 'tailing off' over time	5,000 staff at 5 workplaces	97 recruited, 84 in interim evaluation, 29 in final evaluation (those that hadn't changed mode at interim not contacted, but more recruited)	None	Cycle maps, discounts a bike shops, car share database, bus routes, timetables and passes, further info
<b>Oldham</b>	Facilitate modal shift from SOV to sustainable modes.	22,500 employees from several workplaces	849 agreed to participate, 226 returned 'after' survey	None	Free public transport, cycle shop discount, journey plan, free prize draw, free breakfast for cyclists
<b>Winchester</b>	Facilitate positive change in staff attitudes to sustainable modes.	Employees at 3 workplaces on one road in Winchester	203 participants	Group selected, but data on staff travel was not available	Bus/train tickets, bicycle accessories, umbrella, torch, car



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	Understand more about effectiveness of personalised journey planning			to project, so effectively no control	share website, bicycle clips, bells and reflectors
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	<b>Intervention Period</b>	<b>'Before' Survey</b>	<b>'After' Survey</b>	<b>Analysis</b>
<b>Bracknell</b>	6 months	Yes	Yes	Mainly qualitative
<b>Cambridge</b>	3 months	Yes: experiment group only	Yes: both	Took into account control group changes
<b>Durham</b>	1 year	Yes	Yes: interim and final	
<b>Oldham</b>	Unclear	Yes: 705 responses used for baseline	Yes: 226 responses	Largely graphs comparing before and after, by mode, for different journeys
<b>Winchester</b>	~ 2 months	Workplace travel survey for earlier workplace travel plans used	Yes: used same questions as 'before' survey	Focused only on those who were single occupancy car users in 'before' survey. Also qualitative info.

## Annex E: Evaluation of School Personalised Travel Planning Pilots

	<b>Aims &amp; Objectives</b>	<b>Target Population</b>	<b>Experiment Group</b>	<b>Control Group</b>	<b>Incentives</b>
<b>Knaresborough</b>	Distribute personalised journey plans, expand procedure for contacting pupils, develop procedure for contacting adults, test for change in behaviour	Y5/6/7 pupils at two schools, those moving to a particular secondary school, Y6/7 pupils at another school. Parents/families of these pupils	Summer 2003: 245 pupils, September 2003: 46 making new journey to secondary school, September 2003: 82 pupils, 34 parents	None	Info on routes, fares, free weekly bus tickets, individual journey plans, cycle clips, reflectors, rain macs
<b>West Sussex</b>	Develop awareness and understanding of travel and transport. Encourage young people to consider sustainable travel	1 year group at 8 schools in 3 areas (Teachers' Resource Pack). Households of pupils at 2 schools (Travel Blending)	1,355 pupils taught resource pack, 156 completed 2 or more diaries	None	Weekly bus pass, discounts at cycle shops

	<b>Intervention Period</b>	<b>'Before' Survey</b>	<b>'After' Survey</b>	<b>Analysis</b>
<b>Knaresborough</b>	Not clear - ? 2 weeks	Yes	Yes: most completed evaluation questionnaire, but one class just carried out hands-up survey to identify mode travelled to school that day	
<b>West Sussex</b>	Start dates ranged from Summer 03 to Spring 04, final evaluation Feb 04	Yes: Travel diary at start of resource pack coverage	Yes: 2nd travel diary after 2 weeks, 3rd in Feb 04	Only looked at % of trips by mode

## Annex F - Notes on Adjustments Made to Results for Comparison

Results from the Bracknell project were collated from the results of the questions that were asked of participants in the Bracknell project. These were phrased in terms of "how many times do you travel to work/shops/education by car/bike/walk etc", with answers expressed as one of the following:

- Every day
- 3 or 4 times a week
- 1 or 2 times a week
- Occasionally
- Never

In order to compare the results from the Bracknell projects with the other projects, these responses were converted into the number of trips made by each mode of transport per week, based on the following number of trips for each response:

<b>Response</b>	<b>Number of times per week</b>	<b>Number of trips made to/from destination</b>	<b>Total number of trips per week</b>
Every day	7 (or 5 for work or education)	2	14 (or 10)
3 or 4 times per week	3.5	2	7
1 or 2 times per week	1.5	2	3
Occasionally	0.25 (once a month)	2	0.5
Never	0	2	0

These frequencies of trips by each mode were then multiplied by the number of respondents giving that answer. The total number of trips made were then calculated for each mode of transport.

Assumptions were also made on trip lengths to calculate total number of car kms saved for the Bracknell and Winchester pilots, as no information on trips lengths was recorded in the pilot reports. The national average trip length was multiplied by the number of trips for each different mode of transport to work out the number of car kilometres saved.

## Annex G - Contextual data

### Residential pilots

The impact of these contextual differences is discussed in the residential pilot section of the report. Data are from the 2001 census, unless otherwise stated.

**Table 23**

	<b>Target population</b>	<b>Local Authority</b>	<b>Population of whole Local Authority<sup>25</sup></b>
<b>Bracknell</b>	2,758	Bracknell Forest	109,600
<b>Bristol</b>	5,000	City of Bristol	381,600
<b>Cramlington</b>	2,000	Blyth Valley Borough Council	81,265 (300,000)
<b>Nottingham</b>	1,900	Nottingham City Council	270,000 (1,029,300)
<b>Quedgeley</b>	10,000	Gloucester City Council	110,500 (564,559)
<b>Sheffield</b>	3,210	Sheffield City Council	512,200
<b>York</b>	5,100	City of York	182,400

	<b>Number of households</b>	<b>Average gross weekly pay<sup>26</sup></b>
<b>Bracknell</b>	44,300	£613.50
<b>Bristol</b>	165,200	£453.90
<b>Cramlington</b>	34,800	N/A
<b>Nottingham</b>	113,800	£418.70
<b>Quedgeley</b>	46,500	£410.80
<b>Sheffield</b>	220,400	£412.40
<b>York</b>	77,200	£432.20

**Table 24 2002-3 BVPI data**

<sup>25</sup> Figures in brackets are County Council populations

<sup>26</sup> 2003 New Earnings Survey

	<b>Average number of bus journeys, per person, per year across LA</b>	<b>% of total length of footpaths and other rights of way which were easy to use by members of the public</b>	<b>Road accidents where a pedestrian was killed or seriously injured per 100,000 population, per year</b>
<b>Bracknell</b>	16	99	10
<b>Bristol</b>	84	70	17
<b>Cramlington</b>	50	58	8
<b>Nottingham</b>	70	N/A	34
<b>Quedgeley</b>	25	68	10
<b>Sheffield</b>	N/A	76	22
<b>York</b>	61	45	10

	<b>Road accidents where a pedestrian suffered slight injuries per 100,000 population, per year</b>	<b>Road accidents where a pedal cyclist was killed or seriously injured per 100,000 population, per year</b>	<b>Road accidents where a pedal cyclist suffered slight injuries per 100,000 population, pre year</b>
<b>Bracknell</b>	31	6	32
<b>Bristol</b>	78	7	52
<b>Cramlington</b>	35	4	15
<b>Nottingham</b>	80	8	42
<b>Quedgeley</b>	34	4	43
<b>Sheffield</b>	60	5	18
<b>York</b>	43	12	58

**Table 25 - Distance travelled to work (by resident population of area)**

	<b>Work from home</b>	<b>Less than 2km</b>	<b>2km to 5km</b>	<b>5km to 10km</b>	<b>10km to 20km</b>	<b>20km to 30km</b>	<b>30km to 40km</b>	<b>40km to 60km</b>	<b>60km and over</b>

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<b>England and Wales</b>	9.2%	20.0%	20.0%	18.2%	15.2%	5.4%	2.4%	2.2%	2.7%
<b>Quedgeley</b>	6.8%	14.6%	17.1%	31.9%	13.1%	3.7%	2.2%	4.1%	2.9%
<b>Bristol</b>	8.2%	24.2%	38.1%	14.3%	4.2%	1.4%	1.2%	1.7%	2.8%
<b>Cramlington</b>	6.9%	16.0%	12.7%	23.9%	32.2%	2.0%	0.8%	0.4%	2.2%
<b>Sheffield</b>	6.7%	17.4%	40.8%	18.2%	6.7%	1.5%	1.0%	2.0%	1.6%
<b>York</b>	8.5%	14.2%	31.4%	19.1%	6.6%	5.2%	5.2%	2.9%	3.1%
<b>Lady Bay (Notts)</b>	7.6%	17.9%	36.3%	13.4%	7.0%	6.0%	3.7%	1.1%	3.7%
<b>Meadows (Notts)</b>	6.1%	44.5%	21.1%	9.5%	3.7%	3.9%	1.6%	0.9%	4.1%
<b>Bracknell</b>	7.8%	22.2%	23.8%	13.5%	16.1%	6.3%	2.1%	2.4%	1.1%

**Table 26 - Mode of transport to work (resident population)**

	<b>Work from home</b>	<b>Metro</b>	<b>Train</b>	<b>Bus</b>	<b>Taxi</b>	<b>Car as driver</b>
<b>England and Wales</b>	5.8%	1.9%	2.6%	4.6%	0.3%	34.7%
<b>Quedgeley</b>	5.4%	0.0%	0.3%	5.3%	0.1%	55.2%
<b>Bristol</b>	5.3%	0.1%	0.7%	7.9%	0.2%	30.1%
<b>Cramlington</b>	4.5%	0.4%	0.4%	6.8%	0.3%	38.2%
<b>Sheffield</b>	4.4%	7.4%	0.3%	8.9%	0.1%	33.9%
<b>York</b>	5.2%	0.0%	0.9%	5.5%	0.3%	36.2%
<b>Lady Bay (Notts)</b>	5.6%	0.1%	1.0%	9.5%	0.2%	40.7%
<b>Meadows (Notts)</b>	3.2%	0.0%	0.7%	9.5%	0.4%	18.6%
<b>Bracknell</b>	5.9%	0.0%	2.2%	3.8%	0.3%	46.8%

	<b>Car as passenger</b>	<b>M/cycle</b>	<b>Bike</b>	<b>Walk</b>	<b>Other</b>	<b>Not working</b>
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<b>England and Wales</b>	3.9%	0.7%	1.7%	6.3%	0.3%	37.2%
<b>Quedgeley</b>	4.9%	1.5%	2.5%	4.4%	0.2%	20.2%
<b>Bristol</b>	3.1%	0.8%	5.0%	11.8%	0.2%	34.8%
<b>Cramlington</b>	7.2%	0.5%	1.3%	5.0%	0.4%	35.1%
<b>Sheffield</b>	3.7%	0.5%	0.6%	6.3%	0.3%	33.5%
<b>York</b>	3.7%	1.1%	6.2%	4.4%	0.2%	31.9%
<b>Lady Bay (Notts)</b>	3.3%	0.5%	4.4%	7.3%	0.3%	27.0%
<b>Meadows (Notts)</b>	2.8%	0.1%	2.8%	14.1%	0.4%	47.3%
<b>Bracknell</b>	5.2%	1.0%	2.8%	8.1%	0.2%	23.7%

**Table 27**

	Average distance to work (km)	Public transport users in households	
		with car	without car
<b>England and Wales</b>	13	69.4%	30.6%
<b>Quedgeley</b>	14	82.8%	17.2%
<b>Bristol</b>	10	70.7%	29.3%
<b>Cramlington</b>	15	74.3%	25.7%
<b>Sheffield</b>	9	71.9%	28.1%
<b>York</b>	16	80.9%	19.1%
<b>Lady Bay (Notts)</b>	13	74.2%	25.8%
<b>Meadows (Notts)</b>	11	38.9%	61.1%
<b>Bracknell</b>	10	71.7%	28.3%

**Table 28a - Resident population age profile (%)**

	Under 16	16 to 19	20 to 29	30 to 59	60 to 74	Over 75

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<b>England and Wales</b>	20.2	4.9	12.6	41.5	13.3	7.6
<b>Quedgeley</b>	25.4	4.1	16.1	44.1	6.8	3.6
<b>Bristol</b>	18.0	5.4	23.3	39.7	8.1	5.7
<b>Cramlington</b>	22.2	5.6	13.1	45.4	11.9	5.0
<b>Sheffield</b>	19.7	3.9	11.5	42.4	14.5	7.9
<b>York</b>	20.3	4.9	10.8	42.5	14.3	7.2
<b>Lady Bay</b>	20.8	4.3	17.4	45.1	8.2	4.2
<b>Meadows</b>	17.6	6.0	24.2	36.7	10.1	5.5
<b>Bracknell</b>	20.8	5.1	14.9	43.5	10.1	5.6

**Table 28b - General health (%)**

	<b>Good</b>	<b>Fairly Good</b>	<b>Not Good</b>
<b>England and Wales</b>	68.6	22.2	9.2
<b>Quedgeley</b>	76.5	18.6	4.9
<b>Bristol</b>	73.2	19.4	7.4
<b>Cramlington</b>	67.9	22.6	9.4
<b>Sheffield</b>	66.0	23.7	10.3
<b>York</b>	72.6	20.4	6.9
<b>Lady Bay</b>	75.8	17.9	6.3
<b>Meadows</b>	62.7	25.3	12.0
<b>Bracknell</b>	70.4	22.8	6.8

**Table 29 - Economic activity (%)**



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	<b>Employed</b>	<b>Unemployed</b>	<b>Student, Economically Active</b>	<b>Retired</b>
<b>England and Wales</b>	60.6	3.4	2.6	13.6
<b>Quedgeley</b>	77.5	2.3	2.3	6.8
<b>Bristol</b>	59.7	3.3	6.1	7.5
<b>Cramlington</b>	62.7	3.7	2.7	12.6
<b>Sheffield</b>	64.7	3.2	2.0	15.3
<b>York</b>	64.1	2.5	2.9	16.0
<b>Lady Bay</b>	68.9	1.8	4.2	7.8
<b>Meadows</b>	49.1	7.1	4.7	9.1
<b>Bracknell</b>	73.1	2.5	2.4	9.0

	<b>Student, Economically Inactive</b>	<b>Home</b>	<b>Sick</b>	<b>Other</b>
<b>England and Wales</b>	4.7	6.5	5.5	3.1
<b>Quedgeley</b>	2.0	4.9	2.4	1.8
<b>Bristol</b>	12.3	4.6	3.7	2.9
<b>Cramlington</b>	3.3	6.0	6.5	2.5
<b>Sheffield</b>	2.8	4.8	5.4	1.9
<b>York</b>	3.3	5.6	3.1	2.4
<b>Lady Bay</b>	7.1	4.0	4.0	2.2
<b>Meadows</b>	9.9	6.8	8.4	4.9
<b>Bracknell</b>	2.0	5.4	3.5	2.1

**Table 30a - Education (%)**

	<b>No Qualifications</b>	<b>Higher Qualifications</b>
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<b>England and Wales</b>	29.1	19.8
<b>Quedgeley</b>	18.3	15.2
<b>Bristol</b>	14.2	40.9
<b>Cramlington</b>	28.9	12.4
<b>Sheffield</b>	31.4	15.8
<b>York</b>	23.5	23.9
<b>Lady Bay</b>	15.4	47.4
<b>Meadows</b>	34.5	22.4
<b>Bracknell</b>	25.5	17.0

**Table 30b - Household composition (%)**

	<b>One person</b>	<b>Pensioner (alone)</b>	<b>Pensioner (other)</b>	<b>Dependents</b>	<b>Lone Parent</b>
<b>England and Wales</b>	30	14.4	9.4	29.5	6.5
<b>Quedgeley</b>	25.4	5.8	5.4	38.7	7.4
<b>Bristol</b>	32.6	10.7	5.8	25.8	10.8
<b>Cramlington</b>	27.2	11.6	6.9	31.0	9.9
<b>Sheffield</b>	30.1	16.7	9.8	28.4	5.2
<b>York</b>	24.5	12.9	11.8	31.0	5.7
<b>Lady Bay</b>	27.4	8.1	5.7	32.0	7.5
<b>Meadows</b>	49.6	14.2	3.1	21.1	9.3
<b>Bracknell</b>	30.8	11.5	6.0	30.5	7.1

**Table 31a - Ownership of home (%)**

	<b>Owner occupier</b>	<b>Council</b>	<b>Housing association</b>	<b>Private rented</b>

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<b>England and Wales</b>	68.9	13.2	6	11.9
<b>Quedgeley</b>	86.3	1.7	1.5	10.4
<b>Bristol</b>	63.4	8.3	5.0	23.2
<b>Cramlington</b>	73.7	19.3	2.1	4.9
<b>Sheffield</b>	71.6	17.3	4.7	6.4
<b>York</b>	81.5	9.4	3.3	5.9
<b>Lady Bay</b>	76.8	3.6	0.7	18.9
<b>Meadows</b>	36.1	34.3	7.7	22.0
<b>Bracknell</b>	62.5	22.3	6.4	8.8

	<b>Car (or van) ownership (%) - No car or van</b>	<b>Car (or van) ownership (%) - 2 or more cars</b>	<b>Average size of household</b>
<b>England and Wales</b>	26.8	29.4	2.4
<b>Quedgeley</b>	9.6	40.0	2.5
<b>Bristol</b>	26.5	26.7	2.4
<b>Cramlington</b>	24.3	24.4	2.4
<b>Sheffield</b>	31.6	21.2	2.3
<b>York</b>	18.8	33.6	2.4
<b>Lady Bay</b>	19.9	35.0	2.5
<b>Meadows</b>	56.3	8.9	2.0
<b>Bracknell</b>	22.0	33.6	2.4

## Workplace pilots

The impact of these contextual differences is discussed in the workplace pilots section. Data are from the 2001 census, unless otherwise stated.

**Table 32- Data from BVPIs 2003/4**

	<b>Total number of passenger journeys made annually on local buses within the area of the authority</b>	<b>% of total length of footpaths and other rights of way which were easy to use by members of the public</b>	<b>Road accidents where a pedestrian was killed or seriously injured per 100,000 population, per year</b>
<b>Bracknell</b>	1,755,500	99	10
<b>Cambridge</b>	21,086,463	59	10.4
<b>Durham</b>	32,000,000	53	9
<b>Oldham</b>	N/A	49	20
<b>Winchester</b>	27,220,000	76	9
<b>Worcester</b>	16,464,200	59	12

	<b>Road accidents where a pedestrian suffered slight injuries per 100,000 population, per year</b>	<b>Road accidents where a pedal cyclist was killed or seriously injured per 100,000 population, per year</b>	<b>Road accidents where a pedal cyclist suffered slight injuries per 100,000 population, per year</b>
<b>Bracknell</b>	31	6	32
<b>Cambridge</b>	35.2	4.8	30.4
<b>Durham</b>	41	3	15
<b>Oldham</b>	83	3	27
<b>Winchester</b>	32	5	30
<b>Worcester</b>	29	4	25

**Table 33 - Distance travelled to work (workplace population)**

	<b>Work from home</b>	<b>Less than 2km</b>	<b>2km to 5km</b>	<b>5km to 10km</b>	<b>10km to 20km</b>	<b>20km to 30km</b>	<b>30km to 40km</b>	<b>40km to 60km</b>	<b>60km and over</b>

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<b>England and Wales</b>	13.6%	20.1%	20.1%	18.3%	15.3%	5.4%	2.4%	2.2%	2.7%
<b>Worcester</b>	16.5%	24.7%	21.3%	13.0%	13.4%	6.0%	2.0%	1.3%	1.9%
<b>Cambridge</b>	7.5%	19.2%	22.5%	13.6%	15.3%	11.6%	3.2%	3.5%	3.6%
<b>Durham</b>	13.2%	22.6%	18.4%	18.8%	17.6%	6.0%	1.8%	0.7%	0.9%
<b>Oldham</b>	12.7%	24.9%	30.7%	17.8%	8.3%	2.5%	1.1%	1.0%	1.0%
<b>Bracknell</b>	13.2%	19.7%	18.3%	14.4%	15.8%	5.3%	4.1%	3.4%	5.8%
<b>Winchester</b>	14.0%	18.1%	12.1%	15.3%	23.5%	7.5%	3.6%	2.6%	3.3%

**Table 34 - Mode of transport to work (workplace population)**

	<b>Work from home</b>	<b>Metro</b>	<b>Train</b>	<b>Bus</b>	<b>Taxi</b>	<b>Car as driver</b>
<b>England and Wales</b>	10.2%	3.3%	4.5%	8.2%	0.6%	60.9%
<b>Worcester</b>	13.3%	0.0%	0.7%	4.4%	0.4%	69.7%
<b>Cambridge</b>	5.7%	0.1%	2.4%	7.5%	0.2%	55.5%
<b>Durham</b>	10.9%	0.1%	0.3%	8.1%	0.7%	63.2%
<b>Oldham</b>	9.5%	0.1%	0.6%	11.6%	1.2%	61.1%
<b>Bracknell</b>	9.7%	0.3%	2.8%	2.7%	0.4%	73.8%
<b>Winchester</b>	11.1%	0.1%	2.5%	4.3%	0.4%	69.3%

	<b>Car as passenger</b>	<b>M/cycle</b>	<b>Bike</b>	<b>Walk</b>	<b>Other</b>	<b>Not working</b>
<b>England and Wales</b>	6.9%	1.2%	3.0%	11.0%	0.4%	-
<b>Worcester</b>	8.2%	1.2%	3.2%	12.0%	0.3%	-
<b>Cambridge</b>	5.1%	1.5%	18.1%	9.3%	0.3%	-
<b>Durham</b>	12.1%	0.6%	1.1%	13.3%	0.4%	-
<b>Oldham</b>	9.5%	0.7%	1.4%	13.6%	0.3%	-
<b>Bracknell</b>	5.5%	0.9%	3.1%	10.0%	0.5%	-
<b>Winchester</b>	6.5%	1.4%	2.2%	12.7%	0.7%	-

**Table 35**

	<b>Average distance to work (km)</b>	<b>Public transport users in households</b>	
		<b>with car</b>	<b>without car</b>

<b>England and Wales</b>	13	69.4%	30.6%
<b>Worcester</b>	14	78.3%	21.7%
<b>Cambridge</b>	11	68.2%	31.8%
<b>Durham</b>	16	65.8%	34.2%
<b>Oldham</b>	10	61.3%	38.7%
<b>Bracknell</b>	13	83.4%	16.6%
<b>Winchester</b>	19	84.7%	15.3%

### School pilots

The impact of these contextual differences is discussed in the school based pilots section. Data are from the 2001 census, unless otherwise stated.

**Table 36**

	<b>Target population</b>	<b>Local Authority</b>	<b>Population of whole Local Authority</b>	<b>Number of households</b>	<b>Average gross weekly pay</b>
<b>Knaresborough</b>	373	Harrogate Borough council	150,600	63,700	£423.60
<b>West Sussex</b>	1,355	Horsham District Council	122,400	51,700	£492.50
		Worthing Borough Council	97,400	44,400	£404.00
		Mid Sussex District Council	127,200	53,100	£467.70

**Table 37 - BVPI 2003/4 data**

	<b>Total number of passenger journeys made annually on local buses within the area of the authority</b>	<b>% of total length of footpaths and other rights of way which were easy to use by members of the public</b>	<b>Road accidents where a pedestrian was killed or seriously injured per 100,000 population, per year</b>
<b>Knaresborough</b>	16,052,118	50	12
<b>West Sussex</b>	14,800,000	98	14

	<b>Road accidents where a pedestrian suffered slight injuries per 100,000 population, per year</b>	<b>Road accidents where a pedal cyclist was killed or seriously injured per 100,000 population, per year</b>	<b>Road accidents where a pedal cyclist suffered slight injuries per 100,000 population, per year</b>
<b>Knaresborough</b>	37	6	23
<b>West Sussex</b>	35	7	33

**Table 38a - Resident population (%)**

	<b>Under 16</b>	<b>16 to 19</b>	<b>20 to 29</b>	<b>30 to 59</b>	<b>60 to 74</b>	<b>Over 75</b>
<b>England and Wales</b>	20.2	4.9	12.6	41.5	13.3	7.6
<b>Knaresborough</b>	18.2	5.1	7.3	43.9	17.3	8
<b>West Sussex</b>	19.1	4.3	10.6	42.3	13.9	9.7

**Table 38b - Health of residents (%)**

	<b>Good</b>	<b>Fairly Good</b>	<b>Not Good</b>
<b>England and Wales</b>	68.6	22.2	9.2
<b>Knaresborough</b>	72.2	20.2	7.6
<b>West Sussex</b>	70.3	22.3	7.5

**Table 39 - Economic activity (%)**

	<b>Employed</b>	<b>Unemployed</b>	<b>Student, economically active</b>	<b>Retired</b>
<b>England and Wales</b>	60.6	3.4	2.6	13.6
<b>Knaresborough</b>	63.6	1.7	2.8	19.0
<b>West Sussex</b>	67.2	1.9	2.5	14.9

	<b>Student, economically inactive</b>	<b>Home</b>	<b>Sick</b>	<b>Other</b>
<b>England and Wales</b>	4.7	6.5	5.5	3.1
<b>Knaresborough</b>	3.4	4.9	2.5	2.2
<b>West Sussex</b>	2.3	5.9	3.4	1.9

**Table 40a - Education (%)**

	<b>No qualifications</b>	<b>Higher qualifications</b>
<b>England and Wales</b>	29.1	19.8
<b>Knaresborough</b>	19.6	27.6
<b>West Sussex</b>	22.9	20.0

**Table 40a - Household composition (%)**

	<b>One Person</b>	<b>Pensioner, alone</b>	<b>Pensioner, not alone</b>	<b>Dependents</b>	<b>Lone parent with dependents</b>
<b>England and Wales</b>	30.0	14.4	9.4	29.5	6.5
<b>Knaresborough</b>	25.0	15.1	13.2	28.8	3.2
<b>West Sussex</b>	30.7	16.3	11.0	27.4	4.4

**Table 41a - Home ownership (%)**

	<b>Owner occupier</b>	<b>Council</b>	<b>Housing association</b>	<b>Private rented</b>
<b>England and Wales</b>	68.9	13.2	6.0	11.9
<b>Knaresborough</b>	82.9	4.2	0.7	12.2
<b>West Sussex</b>	79.5	4.8	5.2	10.5

**Table 41b**

	<b>% of households with - no car</b>	<b>% of households with - 2 or more cars</b>	<b>Average size of household</b>
<b>England and Wales</b>	26.8	29.4	2.4
<b>Knaresborough</b>	15.9	42.4	2.4
<b>West Sussex</b>	21.4	33.9	2.3



## Annex H - Calculation of Cost per Long Term Kilometre Saved Following Intervention

Assumes that behaviour change decays by 40% each year after the intervention. This is the same assumption used in the "Smarter Choices" report.

Pilot	Number of participants	Car km saved per year after intervention	Total car km saved in long term	Cost	Cost per km saved (long term)
Quedgeley	5,280	6,200,000	15,500,000	£160,306	£0.010
Bristol	2,251	1,700,000	4,250,000	£104,750	£0.025
Cramlington	855	1,100,000	2,750,000	£68,628	£0.025
Bracknell (Residential)	25	50,016	125,040	£4,445	£0.036
Sheffield	1,461	900,000	2,250,000	£91,121	£0.040
Durham	97	92,700	231,750	£12,419	£0.054
Nottingham	567	600,000	1,500,000	£101,911	£0.068
York	432	551,000	1,377,500	£100,000	£0.073
Winchester	203	186,000	465,000	£100,000	£0.215
Bracknell (Workplace)	34	19,439	48,597	£12,807	£0.264
Cambridge	358	44,400	111,000	£71,453	£0.644
Worcester	145	18,000	45,000	£66,850	£1.486

Note: Knaresborough and West Sussex have been omitted from this table, as no data were available on car kms saved by the personalised travel planning intervention. Oldham has been omitted as the pilot resulted in an increase in car kms.

## Annex I - Modal Share data

### Residential pilots

Table 42 - Modal share before and after intervention, with control group taken into account [1]

	Car (single occupancy)			Car (with or as passengers)			Walk		
	Before	After	% shift	Before	After	% shift	Before	After	% shift
<b>Bracknell [2]</b>	67%	54%	-13%	3%	6%	3%	22%	28%	6%
<b>Bristol</b>	38%	34%	-4%	14%	14%	0%	38%	40%	2%
<b>Cramlington</b>	54%	48%	-6%	16%	17%	1%	22%	26%	4%
<b>Nottingham (Lady Bay)</b>	41%	36%	-5%	19%	16%	-3%	25%	30%	5%
<b>Nottingham (The Meadows)</b>	29%	26%	-3%	11%	10%	-1%	32%	34%	2%
<b>Quedgeley</b>	49%	44%	-5%	21%	20%	-1%	21%	25%	4%
<b>Sheffield</b>	41%	36%	-5%	16%	15%	-1%	25%	29%	4%
<b>York [2]</b>	89%	69%	-20%[3]	-	-	-	7%	18%	11%

	Bike			Public Transport			Other (includes motorcycle)		
	Before	After	% shift	Before	After	% shift	Before	After	% shift
<b>Bracknell [2]</b>	6%	7%	1%	2%	4%	2%	-	-	-
<b>Bristol</b>	4%	5%	1%	5%	7%	2%	1%	0%	-1%
<b>Cramlington</b>	1%	1%	0%	7%	8%	1%	0%	0%	0%
<b>Nottingham (Lady Bay)</b>	7%	8%	1%	8%	10%	2%	0%	0%	0%
<b>Nottingham (The Meadows)</b>	3%	4%	1%	25%	26%	1%	0%	0%	0%
<b>Quedgeley</b>	4%	5%	1%	5%	6%	1%	0%	0%	0%
<b>Sheffield</b>	1%	1%	0%	17%	19%	2%	1%	1%	0%
<b>York [2]</b>	4%	4%	0%	0%	9%	9%	-	-	-

[1] Modal shift total may not be neutral (i.e. adding up to 0% across all mode types) due to rounding of the percentages.

[2] Modal shift for Bracknell and York has been measured across intervention group only. The other pilots looked at modal shift across the whole target group.

[3] Car trips as driver and passenger were treated as one mode for the York pilot.

## Workplace pilots

**Table 43 - Modal share before and after intervention, with control group taken into account for Cambridge [1]**

	Car (single occupancy)			Car (with or as passengers)			Walk		
	Before	After	% shift	Before	After	% shift	Before	After	% shift
<b>Bracknell</b>	73%	52%	-21%	9%	12%	3%	13%	14%	1%
<b>Cambridge - Addenbrooke's</b>	29%	29%	0%	-	-	-	-	-	-
<b>Cambridge - County Council</b>	69%	57%	-12%	-	-	-	-	-	-
<b>Durham</b>	71%	52%	-19%	21%	15%	-6%	1%	1%	0%
<b>Oldham</b>	39%	44%	5%	14%	12%	-2%	12.20%	10.6%	-2%
<b>Winchester [2]</b>	66%	49%	-17%	-	-	-	-	-	-
<b>Worcester</b>	75.50%	75%	-0.50%	8.40%	8.7%	0.30%	11.70%	11.8%	+0.1% [3]

	Bike			Public Transport			Other (includes motorcycle)		
	Before	After	% shift	Before	After	% shift	Before	After	% shift
<b>Bracknell</b>	2%	18%	16%	2%	3%	1%	-	-	-
<b>Cambridge - Addenbrooke's</b>	-	-	-	-	-	-	-	-	-
<b>Cambridge - County Council</b>	-	-	-	-	-	-	-	-	-
<b>Durham</b>	0%	1%	1%	6%	30%	24%	-	-	-
<b>Oldham</b>	1.50%	1.7%	0%	33%	31%	-2%	0.50%	0.40%	0%
<b>Winchester [2]</b>	-	-	-	-	-	-	-	-	-
<b>Worcester</b>	-	-	-	4.40%	5%	0.10%	-	-	-

[1] Modal shift total may not be neutral (i.e. adding up to 0% across all mode types) due to rounding of the percentages

[2] Winchester results may be underestimating car use after the intervention, due to the way in which trip data was collected (see section on Winchester in main report)

[3] Percentage in Walk column refers to walking and cycling and use of motorcycle

## School pilots

**Table 43 - Modal share before and after intervention [1]**

	Car (single occupancy)			Walk		
	Before	After	% shift	Before	After	% shift
<b>Knaresborough</b>	44%	42%	-2%	54%	56%	2%
<b>West Sussex</b>	42%	35%	-7%	40%	49%	9%

	Bike			Public Transport		
	Before	After	% shift	Before	After	% shift
<b>Knaresborough</b>	1%	1%	0%	1%	1%	0%
<b>West Sussex</b>	6.3%	4.8%	-1.50%	12%	11.2%	0.80%

[1] Modal shift total may not be neutral (i.e. adding up to 0% across all mode types) due to rounding of the percentages