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Analysis for Policy

Department for Transport

Climate Change and Transport Choices

Segmentation Model - A framework for reducing CO2 emissions from personal travel

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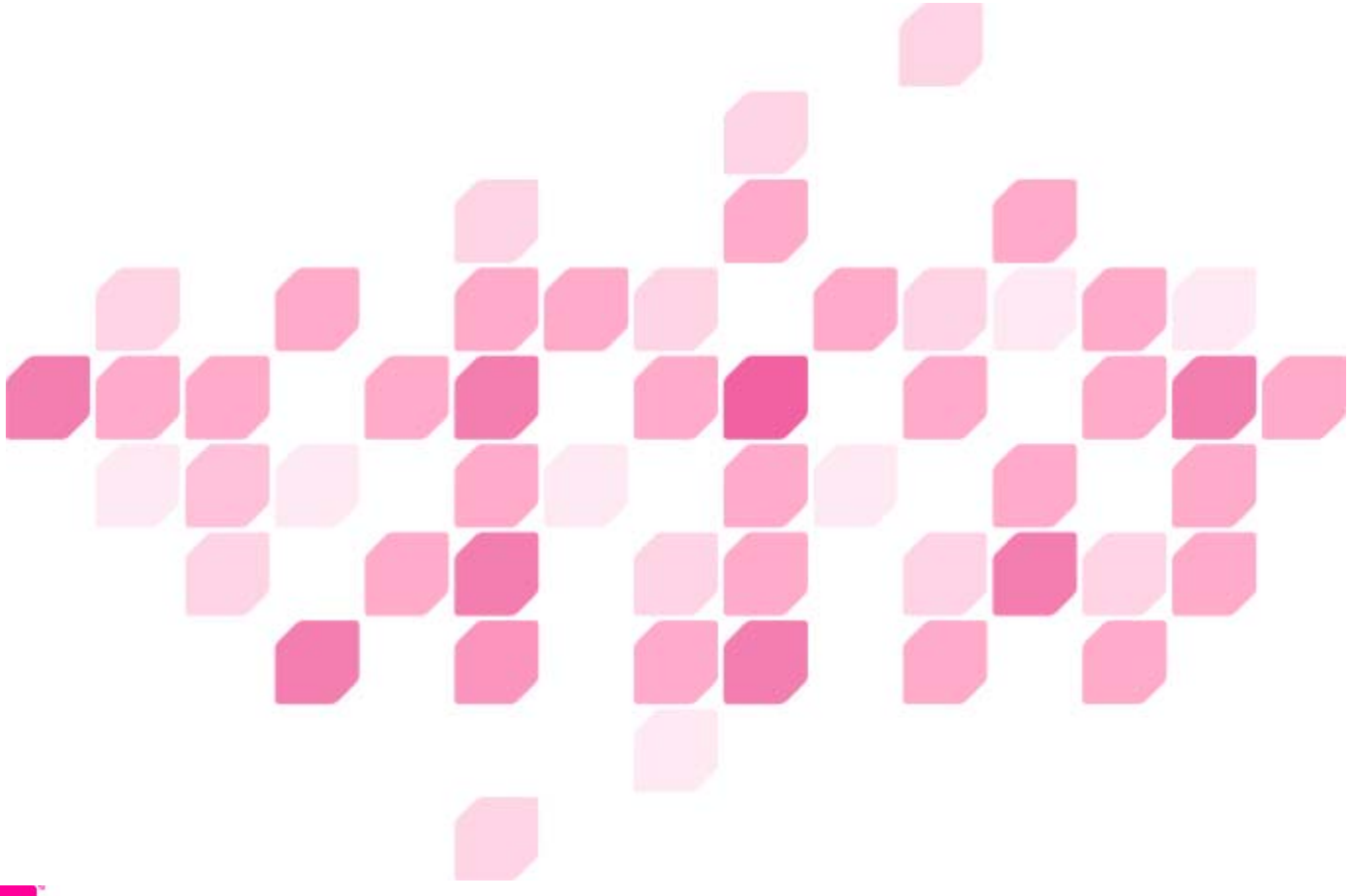

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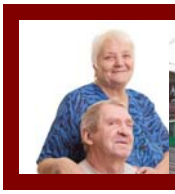
Segment Snapshots

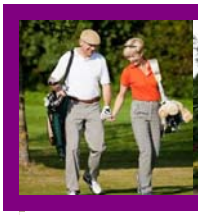
Car owning segments (at least one vehicle in household)

1 *Older, less mobile car owners* (9% of population)
- Older, all have mobility difficulties
- Transport behaviour shaped by lack of mobility
- Travel less than all other car owning segments
- Heavily reliant on the car to get around

2 *Less affluent urban young families* (21% of population)
- Lower travel needs, desire to own larger/faster car but behaviour constrained by relatively low income
- Relatively less reliant on the car than other car owning groups
- Less well educated, more ambivalent about climate change



3 *Less affluent older sceptics* (12% of population)
- Older, very few have mobility difficulties; less affluent.
- Lower travel needs, related to lower incomes and life-stage
- Low level of education, more sceptical about climate change



4 *Affluent empty nesters* (9% of population)
- Older, largely retired, affluent, well educated
- Average levels of car travel; drive less than younger affluent segments
- Mostly likely segment to buy cars brand new
- Pro-environmental but more sceptical about climate change specifically

5 *Educated suburban families* (17% of population)
- Working age, higher income, well educated, many have children
- Travel and drive a lot; most likely segment to travel by plane
- Positive about cycling, but distances and safety are barriers
- Concerned about climate change but have high travel needs

6 *Town and rural heavy car use* (13% of population)
- Working age, higher income but less well educated
- Most 'rural' segment, but also living in urban areas
- Highest levels of car ownership and car travel; own largest cars
- Speed/performance and style/design important in car buying

Non-car owning segments (no vehicle in household)

7 *Elderly without cars* (6% of population)
- Oldest segment, high level of mobility difficulties
- Very low travel needs, do not travel long distances
- Reliant on lifts from others and public transport to get around

8 *Young urbanites without cars* (7% of population)
- Younger, well educated, big city-dwellers (many in London)
- Heavily reliant on walking and public transport to get around
- Transport behaviour results from location and life-stage, may change

9 *Urban low income without cars* (5% of population)
- Younger, low income, low education, high levels of unemployment
- Low travel needs, reliant on walking and public transport
- Aspire to car ownership but cannot afford a car

1. Executive summary

This report outlines a segmentation of public attitudes to climate change and transport choices, as commissioned by the Department for Transport. The segmentation model provides a framework for local authorities and the voluntary, communities and social enterprises sector seeking to develop effective, targeted sustainable transport initiatives which take account of the nature of their local population. The segmentation focuses primarily on surface transport with some findings related to air travel behaviour.

The segmentation was developed using statistical analysis of data from a nationally-representative survey of adults living in England. The analysis identified nine distinct segments. These were subsequently refined using a series of qualitative focus groups with seven of the nine segments. The main aims of the segmentation were to:

- identify and quantify groups or segments within the population that differ in terms of the factors relevant to reducing CO2 emissions from personal transport use;
- enable a better understanding of the segments that exist within the adult population of England;
- provide a model which could be used by the Department and its partner organisations (including local authorities) to develop more targeted and effective sustainable transport initiatives.

This segmentation report follows an interim report and accompanying dataset of the survey findings published in December 2010[1]. The segmentation model described in this report is based on data from 3,923 face-to-face, in-home interviews conducted between November 2009 and June 2010 with adults (aged 16 plus) living in England. The main survey found a great deal of variation in travel behaviour and attitudes towards the environment among different groups of people and across different types of locations. In particular:

- Higher income groups showed less sustainable transport behaviour, tending to own more cars; own cars with larger engines; travel by car more often; travel more miles a year by car; and fly by plane more often; than lower income groups

[1] Thornton, A. Bunt, K. Dalziel, D. Simon, A. *Climate Change and Transport Choices*, available here: http://www.dft.gov.uk/pgr/scienceresearch/social/climatechangetransportchoices/

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- Better educated respondents tended to hold more 'pro-environmental' attitudes.
- As there are strong links between education and income, this led to an apparent disconnection between attitudes and behaviour; higher income, highly educated respondents tended to be more pro-environmental in their attitudes but less sustainable in terms of their actual transport behaviour than lower income, less well educated respondents.
- Those living in rural areas tended to show particularly high levels of car travel, more positive attitudes about cars and less positive attitudes about alternative modes.
- Older age groups cycled less and tended to hold greater concerns about cycling.

The quantitative segmentation model was produced using a combination of factor (or principle components analysis) and cluster analysis. This report describes nine distinct clusters, or segments, within the adult population. Respondents who lived in a household with at least one vehicle were segmented separately from those who lived in a household with no vehicles. This produced six segments of 'car owners' and three segments of 'non-owners'. An overview of the nine segments is provided in Table A.

Table A. Summary of segmentation

Segment	Description of segment	% of population
	Car owners (at least one vehicle in the household)	
1	Older, less mobile car owners	9%
2	Less affluent urban young families	21%
3	Less affluent, older sceptics	12%
4	Affluent empty nesters	9%
5	Educated suburban families	17%
6	Town and rural heavy car use	13%
	Non-owners (no vehicle in the household)	
7	Elderly without cars	6%
8	Young urbanites without cars	7%
9	Urban low income without cars	5%

Figure 1 presents the segments in relation to each other, comparing their transport behaviour with perceptions of their own environmental attitudes and behaviours.

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Transport behaviour was defined as how frequently respondents travelled by car and by public transport or bicycle[2]. Environmental attitudes and behaviours were summarised using a combination of self-reported behaviour and willingness and interest to do more to reduce their CO2 emissions[3]

Figure 1 highlights the substantial and predictable differences in travel behaviour between car owners (segments 1-6) and non-owners (segments 7-9): car owners' transport behaviour consisting mainly of car travel; non-owners' transport behaviour consisting mainly of travel by other modes. It also shows more subtle variations in environmental attitudes and behaviours within the car-owning and non-car owning segments which related to differences in levels of education (*affluent empty nesters* (4), *educated suburban families* (5) and *young urbanites without cars* (8) having the highest educational qualifications). As might be predicted based on the previously published survey findings, Figure 1 also indicates that those segments with the most rural profiles (*town and rural heavy car use* (6) and *affluent empty nesters* (4)) were amongst those exhibiting the greatest tendency to travel by car rather than by other modes.

[2] To be regarded as travelling 'frequently' respondents had to be using a mode of transport at least once a week. Respondents are divided into three sub groups, those who travelled frequently: (i) *only* by car; (ii) by car *and* public transport / bicycle; or (iii) *only* by public transport / bicycle.

[3] Environmental attitudes and behaviours were summarised using a combination of how much the respondent reported doing that was environmentally-friendly, whether or not they wanted to do more than they already did, and how interested they were in finding out more about what they could to do reduce their CO2 emissions. This measure produced nine distinct sub-groups which are described more fully in the interim report of survey findings. All behavioural measures were self-reported and are therefore perceptions of behaviour rather than measures of actual behaviour. The interim report and accompanying dataset can be accessed here: http://www.dft.gov.uk/pgr/scienceresearch/social/climatechangetransportchoices/

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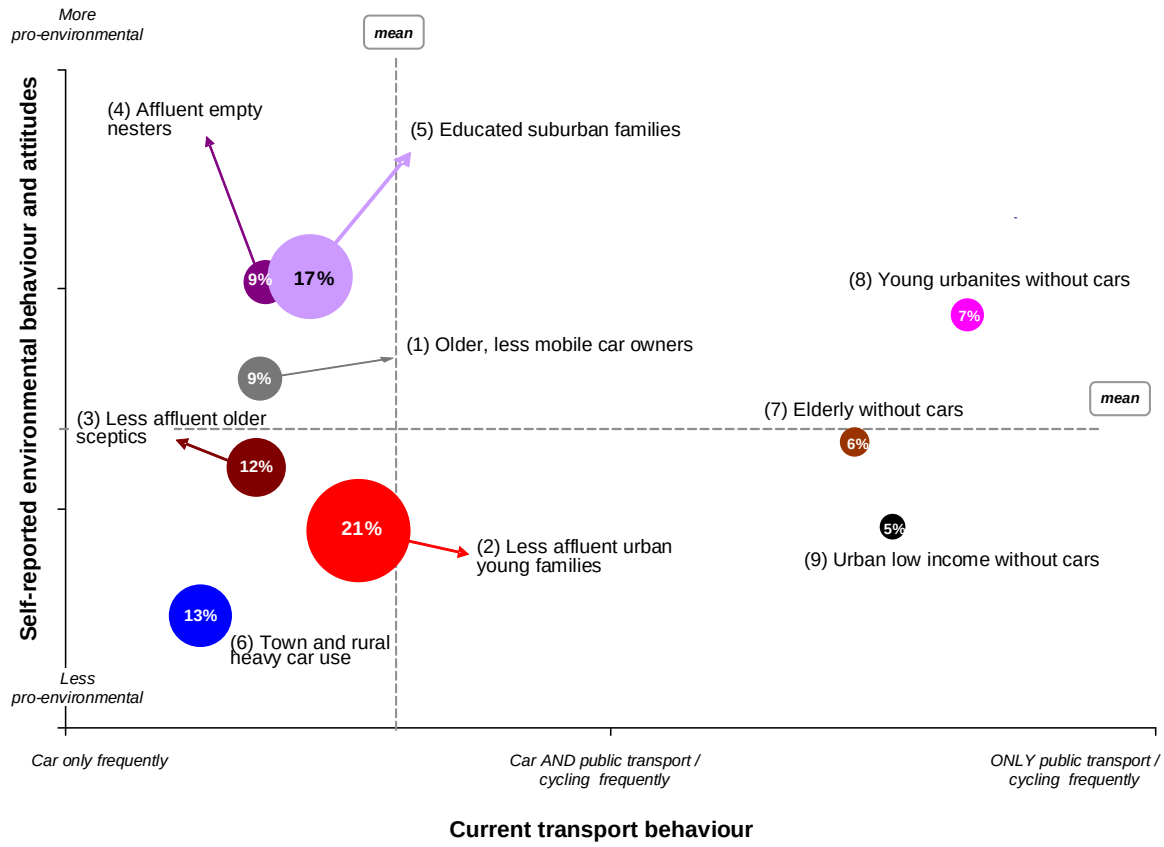
Figure 1. Summary of the nine segments in terms of self-reported current transport behaviour and environmental attitudes and behaviours



The nine segments are described briefly below:

Car owners (at least one vehicle in the household)

(1) Older, less mobile car owners (9% of population)

All in this segment had mobility issues that restricted their use of public transport or ability to walk or cycle and many were elderly. They were the least likely of all the car-owning segments to travel by car every day and personally drove a low annual mileage. Around a third were solely car passengers as they did not have a driving licence. They were very attached to their cars as they relied heavily on them to get out of the house and to attend frequent hospital appointments, where punctuality was essential.

They were fairly receptive to using Demand Responsive Transport (e.g. Dial-a-Ride) services and were keen to learn more about the options available - Demand Responsive

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Transport was seen as potentially helpful for hospital appointments and visits. Going shopping was seen as a major social activity and their lack of confidence in using the internet prevented some from shopping online. However, others were using the internet to shop online, typically for non-food purchases, so that they did not have to walk round shops.

Overall, mobility issues among this segment restricted their ability to use public transport (with the exception of Demand Responsive Transport) or to walk or cycle. This, coupled with their already-low annual mileage, indicated that they offered the least potential of any car-owning segment to reduce their carbon emissions from car travel.

(2) Less affluent urban young families (21% of population)

Most of this segment were under 40, from lower socio-economic groups and living in urban locations. They were also the least affluent of the six segments of car owners. Many in this segment had children living at home and in around a quarter of cases the respondent interviewed for the survey was a young person (aged 16-20) living at home with their parents. Most of the segment appeared to have started work without going to university. They showed below-average levels of concern about climate change and interest in learning more about what they could do to tackle it.

While everyone in the segment lived in a household with a car, the household tended to own just one vehicle and this segment's travel was more varied (less car travel and more public transport or cycling) than other 'car-owning' segments. Furthermore, only around a half described themselves as the 'main driver' of their household vehicle; many only used the vehicle as a passenger. *Less affluent urban young families* were the most likely of the car-owning segments to own older, second-hand cars with smaller than average engines, with some having traded down to a car with a smaller and/or more fuel efficient engine in the last few years (in response to rising fuel costs and financial pressures). However, along with *town and rural car use* (6) they were among the most likely to say they would like to own a larger or faster car. They were the most likely of all the car-owning segments to see car ownership as a sign of success and their car appeared to be an important purchase for them, reinforcing their sense of identity.

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For *less affluent urban young families*, concerns about personal safety related to crime or anti-social behaviour and feelings of vulnerability when using alternative forms of transport appeared to be key barriers to walking, cycling and using buses and trains instead of their car. Nevertheless, their young age profile and relatively short commute (on average, less than seven miles) suggested they may have greater potential to walk or cycle more to work than all the other car-owning segments. Those with younger children appeared to value the option of online shopping as a more convenient and less stressful alternative to shopping trips.

(3) Less affluent, older sceptics (12% of population)

Less affluent older sceptics consisted of middle-aged and older individuals from lower socio-economic groups, mostly living in urban areas outside London. Unlike *older, less mobile car owners* (1), they were very unlikely to have mobility difficulties. Nine in ten held a driving licence and over half (55%) travelled by car every day. Similar to *less affluent urban young families* (2), they were more likely to own older cars with smaller engines than other, more affluent, car-owning segments. However, unlike *less affluent urban young families* (2), they tended not to want to own a larger or faster car.

Less affluent older sceptics used buses and trains occasionally for journeys where parking was difficult and were more likely to use these modes if they yielded cost savings. Those with free bus passes valued them and attributed their use of buses to having this benefit. As they did not have the mobility issues of *older less mobile car owners* (1), they were willing to walk for short journeys and valued the health benefits of walking, but did not see cycling as relevant or practical for people of their age. They were motivated by cost savings and saw trip avoidance and trip-chaining as sensible behaviours to adopt.

They were the least well educated of all the car-owning segments (63% had none of the qualifications listed in the survey) and were fairly sceptical about climate change; they were only prepared to change their travel behaviour if the alternative option was easier or cheaper for them. The focus group discussions suggested they saw the development of electric cars, new energy sources and government action, such as making city centres

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car free and car scrappage schemes, as the sort of actions needed. Demand Responsive Transport (e.g. Dial-a-Ride) might be promoted as a more convenient alternative for some types of journey. Better understanding of fuel efficiency might encourage some to buy smaller or more efficient petrol or diesel cars when they change cars as they tended to think of 'fuel efficient cars' as hybrids and electric vehicles which, for now, were seen as too expensive for them to buy.

(4) Affluent empty nesters (9% of population)

This was one of the most affluent segments and the majority were from socio-economic groups ABC1. Nearly all were aged 50 or over and two-thirds were retired at the time of the survey. They tended to be well educated (relative to the other older segments 1, 3 and 7) and were unlikely to have children at home anymore. The segment was evenly split between those living in rural areas and those living in urban locations outside London.

Affluent empty nesters tended to use their cars frequently, travelling by car out of habit[4] but their personal annual mileage was low relative to the other more affluent car-owning segments 5 and 6 (notably the *town and rural car use segment* (6) who were also more likely than other segments to live in rural locations). They were the most likely of the car-owning segments to buy new cars and to own a car under five years old. They tended to buy the same type and/or brand of car each time. They tended not to be interested in speed and performance when buying a car, instead prioritising reliability, safety and comfort, although they were still more likely to own a car with a large engine (1801cc or more) than the three less affluent segments (1 to 3). Retirement was identified as a key trigger point for buying a new car among this segment and some may be receptive to buying a smaller or more fuel efficient car if it met their requirements for reliability, safety and comfort and was not too dissimilar to their usual type and brand of car.
Affluent empty nesters were receptive to messages about trip chaining and about walking more because of the health benefits. A lack of IT skills prevented some within

[4] Car travel was defined as a habit where respondents said that three statements describing the nature of travelling by car applied to them. A habit has been defined in psychological literature as the semi-automatic performance of a well-learned behaviour; one that is subconscious and triggered by environmental stimuli (Anable et al, 2006)

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this segment from using journey planning tools and shopping online. While they showed relatively positive attitudes towards the environment, they were more sceptical about the concept of climate change specifically, in this respect being similar to the other older segments (1, 3 and 7).

(5) Educated Suburban Families (17% of population)

This was the best educated and the highest social grade segment; most were financially comfortable. After the *town and rural car use segment* (6) they tended to have the highest household incomes; a quarter with an annual income of £60,000 or more. Mainly aged 30-59, most worked full-time and many still had children living at home.

Educated suburban families drove a lot, being the second most likely segment after *town and rural heavy car use* (6) to drive 9,000 miles or more a year; they also had the second longest average commute (nearly 11 miles). Unlike *town and rural heavy car use* (6), *educated suburban families* were very unlikely to see car ownership as a sign of success or say that they would like to own a larger or faster car; they were also by far the most likely car-owning segment to say they would prefer to drive less than they do. While *educated suburban families* were the most likely segment to say in the survey that environmental concerns/low CO2 emissions were important to them when buying a car, still only 30% of them said so. The focus groups suggested that family commitments often dictated the size of car they chose but that they were prepared to at least consider buying more fuel-efficient cars. Some of the focus group participants were aware of the recently-launched government electric car grant.

They continually reviewed their transport modes for regular journeys as a function of trip chaining and some had recently changed their travel behaviour as a result of family or work changes or the cost of petrol. While two thirds used their cars every day, they were the most likely of all the car-owning segments to cycle regularly, with one in five cycling at least once a week. *Educated suburban families* were prepared to cycle more because of the health benefits, cost savings and, in some cases, time savings; for some cycling to work was quicker than other modes. However, many were deterred from cycling because of the danger from traffic (they were the most likely segment to cite traffic-related safety concerns as a reason for not cycling to work); the lack of secure

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storage; and the difficulties of washing and changing at work. Only around 30% of those with a regular commute lived within 'cycling distance' of five miles from their workplace.

Their attitudes were not opposed to bus or train travel but they found these modes of transport inconvenient, slow/infrequent or too far away, although they were less likely to cite proximity (e.g. train stations being too far from home) as a reason for not commuting by bus or train than those in the *town and rural heavy car use* segment (6). Their work and domestic commitments and income levels meant that they were prepared to pay more to save time. Many had second cars that were not heavily used and they may be willing to join a car club instead of running a second car. They were the most likely of all the segments to work from home and use home delivery already and appeared to have the greatest capacity to do these actions more. They already trip chained to save time. They were the most likely of any segment to have taken a flight in the last 12 months and were the most likely segment to have taken one or more domestic flights within the UK.

Of all the segments, *educated suburban families* were the most concerned about climate change and were aware that their transport behaviour had an impact on the climate, even though they may not have fully understood the scientific details. However, the focus groups suggested that some saw environmental benefits as more 'nice to have' outcomes of actions that would primarily save them money or time. Nevertheless, overall this behavioural and attitudinal profile suggested they may be more likely to change their transport behaviour, with suitable incentives, than other segments.

(6) Town and rural heavy car use (13% of population)

The *town and rural heavy car use* segment tended to be middle aged, middle class families living in urban areas outside London or in rural areas. In most cases both partners were working. They were the most likely to live in a rural area and were less likely than most other segments to live close to public transport links. Although they had relatively high household incomes similar to *educated suburban families* (5), they were less well educated. They were ambivalent towards the environment and climate change and sceptical about the impact they could make by changing their behaviour. They were

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the least likely to report that they were currently doing things to reduce their CO2 emissions.

The *town and rural heavy car use* segment were the most frequent car travellers, they drove the greatest annual mileage, they owned the highest number of vehicles per household (typically three or more) and the car they used most often had the largest (petrol or diesel) engines, typically 1801cc or greater. Along with *less affluent urban young families* (2) they were among the most likely to see car ownership as a sign of success and to say that they would like to own a larger or faster car (although unlike *less affluent urban young families* (2), they had higher incomes and already owned a car with a relatively large engine). They were by far the most likely car-owning segment to say that speed/performance and style/design were important to them when buying a car. They commuted the longest average distance (nearly 14 miles) to work of any segment and were the most likely to travel to work by car.

Those in rural communities, where public transport infrastructure was more limited, said that having a car at their disposal made them feel less isolated. Buses, trains, cycling and walking were not considered viable options for their most regular journeys due to time, convenience, distance, lack of any, or direct, bus/train services, cost and the (poor) weather. Walking and cycling were viewed as leisure activities rather than a mode of transport. They were the second most likely segment (after *educated suburban families* (5)) to have taken a flight in the last 12 months.

The actions they could be most easily encouraged to adopt would be trip avoidance and switching at least one of their cars to smaller or more efficient models, as this would have least impact on their current lifestyle. Time and convenience and, to a lesser extent, cost would be the primary motivators for behaviour change. They might also be encouraged to make more mixed mode journeys and walk and cycle short journeys, where they offer time savings or health benefits. However, these wider forms of behaviour change would be difficult to achieve amongst this segment, due in part to structural and practical barriers but also because they travelled by car as much out of habit and desire as necessity. They would probably be more difficult to encourage to think about other options than *educated suburban families* (5) who have more pro-environmental views.

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Non-car owners (no vehicle in the household)

(7) Elderly without cars (6% of population)

This was the oldest segment, with most members being aged 70 years or older. Consequently many had mobility issues related to a disability or longstanding health problem. Many came from lower socio-economic groups and a high proportion were retired (and were almost certainly drawing a state pension). Despite this, most felt they were coping or living comfortably financially. Most of the segment lived in towns and cities outside London.

They were relatively reliant on cars to get around (receiving lifts from friends and relatives) but few members of the segment held a driving licence or were keen to own their own car. Those who were able to tended to travel by bus a lot but, in contrast, long distance travel was uncommon; few travelled by train regularly and almost no one in this segment had flown in the last 12 months. Realistically, given their age and high levels of mobility issues, cycling and walking were not forms of transport this segment were likely to adopt.

The *elderly without cars* felt their lifestyles had a low impact on the environment (most felt they were environmentally-friendly in most or everything they did). They were the least well educated of all nine segments (73% had none of the qualifications that were listed in the survey) and were among the least knowledgeable and least concerned about climate change. They tended not to feel personal responsibility for climate change and most said they were not interested in finding out more about what they could do personally to tackle climate change.

(8) Young urbanites without cars (7% of population)

Two in five of this relatively young, affluent and well-educated segment lived in London, the rest in other urban areas. City centre living meant that day-to-day they did not travel far and many walked to work. They did not see themselves as needing a car, which would be costly to run and park, given the amount they would use it. They appeared to be the only non-car owning segment likely to travel long distances; they were the most

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frequent users of trains of all the nine segments and half of them had taken a flight in the last 12 months. Day to day, they were heavily reliant on walking, buses, trams (where available) and, in London, the Underground. Outside London, the available housing stock and the perceived quality of the schools meant that city centre living was not perceived as child-friendly, so they expected to move to the suburbs and may become *educated suburban families* (5) later in life.

The main challenge with this segment appeared to be to ensure that their personal transport CO2 emissions do not increase as they get older. The focus groups suggested this segment tend to expect that electric or hybrid cars will be a viable option by the time they come to buy a car and some expected to buy such cars. Car clubs might mitigate the need for them to own a second (or any) car in future. Good information about public transport access might encourage continued use particularly among those with young children; it might also help those moving out to the suburbs in future to consider proximity to public transport links and local amenities in their choice of future home. Messages and infrastructure that enable and encourage walking or cycling for short trips if they move or have children could also help to enable continued travel by these modes.

(9) Urban low income without cars (5% of population)

Nearly all members of this segment were less affluent than average and most lived in urban locations. They also tended to be much younger than the overall population. They were defined by their relatively low socio-economic profile and high levels of unemployment; they were by far the most likely of the three non-car owning segments to feel that not having a car had seriously damaged their career or job prospects. They were also the least financially comfortable of the nine segments.

Most aspired to own a car and their reasons for not owning one tended to be financial (they would buy a car if they could afford one) and related to the fact that relatively few of them (only 17%) had a full driving licence. Their views on public transport were not generally positive. While many used buses on a regular basis, they tended to do so reluctantly and held relatively negative views about buses and bus travel. Long distance travel was uncommon, with few travelling regularly by train and hardly any having taken a flight in the last 12 months.

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They were by far the least well educated of the younger segments (51% had no qualifications) and they were among the least concerned about climate change. They tended to report doing less that was environmentally-friendly than other segments and did not generally want to increase the amount they were doing for the environment. They tended to feel their lifestyles were already low impact and they seemed uninterested in changing their behaviour. Given their aspiration to car ownership, they might become *less affluent urban young families* (2) in future.

Summary of transport behaviours that each segment might adopt

Figure 2 summarises the transport behaviours that people in each segment might be most easily encouraged to adopt. For the car-owning segments, trip avoidance and chaining and buying smaller/more fuel efficient cars were the changes they might be most willing to make as these can be accommodated more easily within their current lifestyle. However, other potential changes reflected the profiles and attitudes of the particular segments. For the non-car owning segments, notably the younger segments (8 and 9), actions could enable and encourage them to maintain their current transport behaviour or help to minimise the extent and impact of car ownership on their future personal transport CO2 emissions.

The conclusion to this report provides a hierarchy of importance which divides the nine segments into four broad groups according to the priority the Department and its delivery partners could attach to these. This order of priority is based on the 'impact' that each segment currently has and the 'potential for change' among the segment. Overall, *educated suburban families* (5) and *affluent empty nesters* (4) should be considered the highest priority. Both segments currently have a reasonably high impact in terms of their CO2 emissions and there is a good level of potential for change in both segments. In contrast *older less mobile car owners* (1), *elderly without cars* (7) and *urban low income without cars* (9) should be regarded as relatively low priority. They have a low impact in terms of their travel behaviour as compared with other segments they travel less frequently and travel infrequently by car.

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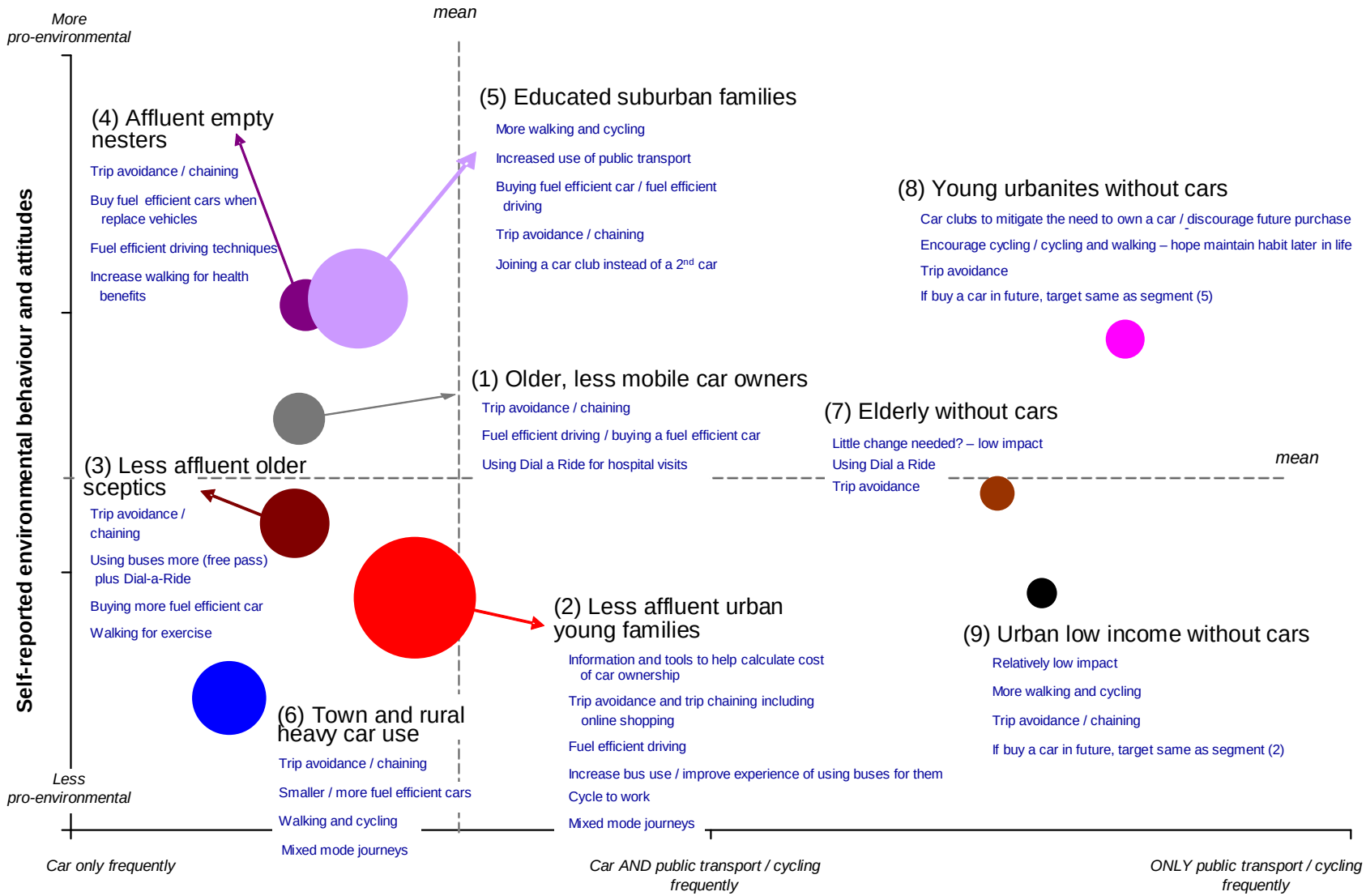
Figure 2. Summary of the nine segments in terms of more transport behaviours they might adopt



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2. Introduction

This report outlines a segmentation of public attitudes to climate change and transport choices, as commissioned by the Department for Transport. The segmentation model provides a framework for local authorities and the voluntary, communities and social enterprises sector seeking to develop effective, targeted sustainable transport initiatives which take account of the nature of their local population. The segmentation focuses primarily on surface transport with some findings related to air travel behaviour.

The segmentation was developed using statistical analysis of data from a nationally-representative survey of adults living in England. The analysis identified nine distinct segments. These were subsequently refined using a series of qualitative focus groups with seven of these nine segments. The main aims of the segmentation were to:

- identify and quantify groups or segments within the population that differ in terms of the factors relevant to reducing CO2 emissions from personal transport use;
- enable a better understanding of the segments that exist within the adult population of England;
- provide a model which could be used by the Department and its partner organisations (including local authorities) to develop more targeted and effective sustainable transport initiatives.

The report builds on interim findings and survey data which were published in December 2010[5].

2.1. Background

This research was designed to draw and build upon the Department's social research evidence base in this area. Since 2006, DfT has been implementing a research programme to further understand how individuals' attitudes to climate change relate to their travel behaviour. The programme began with an evidence base review of public attitudes to climate change and travel[6].

[5] Thornton, A. Bunt, K. Dalziel, D. Simon, A. (2010) *Climate Change and Transport Choices*, available here: http://www.dft.gov.uk/pgr/scienceresearch/social/climatechangetransportchoices/

[6] Anable, J. Lane, B. and Kelay, T. (2006) *An Evidence Base Review of Public Attitudes to Climate Change and Transport Behaviour*, available here: http://www.dft.gov.uk/pgr/sustainable/climatechange/areviewofpublicattitudestocl5731

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The review observed that the population is not homogeneous in terms of its attitudes and motivations to reduce CO2 emissions from personal travel. Consequently, attempts to both engage the public on issues related to climate change and to influence travel behaviour change need to reflect and respond to differences across different groups or segments within the population. To this extent a 'one size fits all' solution to enabling and encouraging more sustainable transport behaviours was unlikely to be effective. The review suggested that the segments that exist will not be defined or differentiated by demographic features alone. However, the review noted that existing (pre-2006) research studies to segment the population according to its travel use had not accounted for attitudes, motivations and wider psychographic factors. The review concluded that this is primarily due to the absence of a detailed understanding of public attitudes towards climate change and their relation to travel choices; the motivations or barriers that exist in relation to travel behaviour change; or how psychographic factors relevant to both differ across the population. The review also concluded that influencing knowledge and/or attitudes in isolation were unlikely to lead to widespread changes in travel behaviour and detailed a typology of barriers to travel behaviour change. Barriers may be categorised into four broad types according to whether they act at the individual or collective level and whether they should be regarded as subjective or objective. The review concluded that these types of barriers do not operate in isolation, rather they interact with one another:

- Individual subjective – *e.g. attitudes, values, moral norms, perceived behavioural control*
- Individual objective – *e.g. knowledge, habit, personal capabilities*
- Collective subjective – *e.g. group / social norms, trust, social dilemmas*
- Collective objective – *e.g. contextual factors, the nature of climate change, the availability / accessibility of transport infrastructure, the distances between locations*

Based on the conclusions and recommendations from the evidence base review the Department commissioned an 18-month qualitative study to explore in more depth public attitudes, informational needs and motivations and barriers to behavioural change relevant to climate change and personal travel-related CO2 emissions[7]. This study, which focused on a range of travel-related behaviours, considered differences in psychographic variables including intentions, moral obligation, beliefs, and norms that provided an important foundation for the development of

[7] King, S. Dyball, M. Webster, T. Sharpe, A. Worley, A. DeWitt, J. (2009) *Exploring public attitudes to climate change and travel choices: deliberative research*, available here: http://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/pgr/scienceresearch/social/climatechange/

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the segmentation. A key finding of this qualitative study was that while increasing individuals' understanding of climate change appeared to increase their willingness to change their travel behaviour, there was little corresponding change in actual travel behaviour.

The current DfT segmentation study has also built on the Department for Environment, Food and Rural Affairs (Defra) segmentation of pro-environmental behaviours published in January 2008[8] together with other previous studies and regular surveys including the National Travel Survey[9]; a 2008 knowledge review of public attitudes to travel[10] and a number of other regular and ad-hoc surveys of public attitudes to travel commissioned by DfT[11]. The need for a transport specific segmentation model was highlighted as the Department's existing evidence base concluded that the barriers to more sustainable travel behaviour were particularly complex, requiring a range of challenges to be addressed simultaneously. While the Defra segmentation included general questions on transport, the DfT study has focused on a far wider range of travel behaviours and influencers, which enables a greater understanding of the range of relevant issues in order to inform transport-related policy development and transport behaviour change initiatives.

Finally, the current research focused on car travel and options for reducing CO2 emissions from car travel, in terms of buying a lower emissions car, adopting eco driving techniques, trip avoidance or making journeys by walking, cycling or public transport. This focus reflects the contribution that car travel makes towards domestic transport CO2 emissions. As reported in DfT's Carbon Pathway Analysis[12], road travel is responsible for the majority of CO2 emissions from the domestic transport sector and car travel is the largest single contributor to this.

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[8] TNS Social Research (2009). *Public attitudes and behaviours towards the environment - tracker survey: A report to the Department for Environment, Food and Rural Affairs.* TNS. Defra, London, available here: http://www.defra.gov.uk/evidence/statistics/environment/pubatt/download/report-attitudes-behaviours2009.pdf

[9] The National Travel Survey (NTS) provides up-to-date and regular information about personal travel within Great Britain and monitors trends in travel behaviour. First commissioned in 1965/1966, it has been a continuous survey since 1988. Further information can be found on the DfT website here: http://www.dft.gov.uk/pgr/statistics/datatablespublications/nts/

[10] Lyons, G. Goodwin, P. Hanly, M. Dudley, G. Chatterjee, K. Anable, J. Wiltshire, P. *Public attitudes to transport: Knowledge review of existing evidence*, available here: http://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/pgr/scienceresearch/social/evidence.pdf

[11] Further information about regular DfT surveys on public attitudes to transport is available here: http://www.dft.gov.uk/pgr/statistics/datatablespublications/trsnstatsatt/

[12] DfT (2008) *Carbon Pathways Analysis: Informing Development of a Carbon Reduction Strategy for the Transport Sector*, available here: http://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/pgr/sustainable/analysis.pdf

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Therefore, any strategy which seeks to reduce emissions from personal travel must focus on the role of the car. The research also looked at air travel, albeit in far less detail.

2.2. Research aims and objectives

There were four main objectives for the research:

1. To develop a fully tested quantitative survey tool for use in the collection of data to underpin a robust segmentation of public attitudes to climate change and travel choices
2. To conduct high quality fieldwork to enable a comprehensive, robust and representative segmentation model of the population to be produced
3. To produce a full segmentation model based on public attitudes, motivations, psychographic variables and behaviours relevant to climate change and travel choices
4. To produce refined survey materials and guidance to enable future conduct of segmentation fieldwork.

The interim report[13] and accompanying dataset from this study (published in December 2010) outlined the findings from the large-scale survey which formed the basis of the segmentation model. This final report focuses on outlining the segmentation model and includes discussion of both the quantitative survey findings and the findings from a series of qualitative focus groups conducted with seven of nine segments identified within the survey data.

2.3. Quantitative survey methodology

The survey was conducted by TNS-BMRB between 5 November 2009 and 27 June 2010. Fieldwork was suspended between 5 March and 21 May 2010 due to the 2010 General Election on 6 May 2010. All interviews were carried out in respondents' homes using face-to-face computer-assisted personal interviewing (CAPI) technology. Interviews lasted an average of 45 minutes and a copy of the questionnaire can be found in the separate Annex document that accompanies this report. The survey questionnaire was designed to complement, but not duplicate, previous studies. With this aim, the questionnaire included a number of questions taken from previous studies including Defra's segmentation of pro-environmental behaviours[8]; the National Travel Survey[9]; and other regular and ad-hoc surveys of public attitudes to travel commissioned by DfT[11]. It should be noted that the focus of the study was on car travel and the

[13] Thornton, A. Bunt, K. Dalziel, D. Simon, A. Climate Change and Transport Choices, available here: http://www.dft.gov.uk/pgr/scienceresearch/social/climatechangetransportchoices/

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main modal alternatives to cars both in general and in relation to three key types of journey (commuting to work or study; business travel; and food shopping). Plane travel was not covered in detail.

A total of 3,923 interviews were completed with an overall response rate of 58%. Further details of the main survey methodology are provided in Appendix A in this document. A copy of the survey questionnaire can be found in the separate Annex which has been published alongside this main report.

The rest of this section is concerned specifically with the development of the final segmentation model.

2.4. Description of the segmentation process

Segmentation analysis is by its nature interpretative and the success of the resulting model relies on the judgment of the researchers and analysts involved. This section describes the specific processes used for the current segmentation, which was developed using a combination of factor (or 'principal components') analysis and cluster analysis. There were three distinct stages to the development of the model:

(1) *Selection of survey and sample variables to include in the analysis*
(2) *Factor analysis of selected variables to produce a smaller number of underlying factors or dimensions*
(3) *Cluster analysis using the resulting factors plus a number of additional structural variables to produce the final segmentation*

At each stage of the process the existing evidence base (as discussed in the Introduction) was taken into consideration to ensure the most appropriate variables and types of analysis were used.

(1) Selection of survey and sample variables for the analysis

Variables were selected after extensive discussions between TNS-BMRB, PSP and DfT and taking into account the existing evidence base. Variables were selected that were shown to influence travel behaviour and/or attitudes towards the environment. The final list of questions is

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included in Appendix A3. This includes a description of how missing values were imputed (e.g. where a respondent had not answered a specific question).

Using structural and behavioural variables

Many 'traditional' segmentations have been created purely using attitudinal measures - grouping people in terms of how similar they are to one another in terms of their attitudes. However, the existing evidence base suggested that transport and travel behaviour were not strongly determined by attitudes - correlations between attitudes and behaviours in the area of travel and transport being relatively weak (creating a so-called 'attitude-behaviour gap'). Anable et al concluded that existing evidence suggests '[…] the attitude-behaviour gap can be wider in relation to travel behaviour compared to other green behaviours'. A purely attitudinal segmentation may have led to a model which did not differentiate between behaviours in the resulting segments. This would have been less valuable to the Department as the segmentation needs to inform policy decisions which are primarily concerned with behaviour change in the population.

Additionally a segmentation that also discriminated by demographic factors (such as age, gender and socio-economic group) was required. This is particularly relevant as the segments will contribute to the Department's communications strategy. Producing segments that are demographically distinct helps to ensure that messages and campaigns can be clearly targeted at specific segments, as much is already known about the demographic profiles of media audiences. Demographic variables were therefore included in the segmentation analysis.

The current segmentation therefore used a very wide variety of questions including many behavioural and/or structural variables. A full list of these measures is provided in Appendix A3 but, very broadly, these included:

- Attitudes towards climate change and the environment
- Attitudes towards specific modes of transport
- Current transport behaviour (across all modes)
- Car ownership and purchasing behaviour
- Personal demographics (including age, gender, social grade, level of education, children in household)
- Details about the respondent's location (including whether they lived in a rural or urban area and how far they lived from the nearest bus stop and train station)

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Initial analysis provided further justification for the inclusion of a large number of structural and behavioural variables. Preliminary factor and cluster analysis carried out by TNS-BMRB using just attitudinal measures (and only a very small number of behavioural measures) produced an indistinct model. The model did not produce readily identifiable segments either in terms of demographic or behavioural factors and the resulting segmentation was rejected. Widening the scope of the segmentation to include a greater number of structural and behavioural variables improved the clarity of the model.

Segmenting car owners and non-owners separately

In addition, it was decided that car owners should be segmented separately from non-owners. In this context a 'car owner' was defined as anyone who lived in a household that owned or had continuous use of a private vehicle (a car or van). It was felt that this provided two major advantages over a single model to segment the whole population:

- Firstly, transport behaviour among the two groups is very different. In most instances, non-owners have no choice but to use public transport or walk or cycle to get around. In contrast, car-owners tend to be heavily reliant on a private vehicle.
- Secondly, segmenting the groups separately enabled the widest possible selection of attitudinal, behavioural and structural factors to be included in the segmentation model. Ideally, segmentation techniques work best when all measures have been asked of all respondents. Using a single segmentation would either have resulted in the exclusion of certain key variables or the need to use a system of 'imputation'. The questionnaire was heavily filtered so that respondents only answered those questions which were relevant to them. This meant many questions about cars were only asked of those who owned a car. Conversely a small number of questions were only asked of non-owners (including one question about perceived disadvantages of not owning a car).

(2) Factor analysis

Factors were created using Principle Components Analysis (PCA) to reduce the selected variables to a smaller number of factors or dimensions.

The preferred solutions were:

- Car owners – 27 factors
- Non owners – 25 factors

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A full list and description of all 52 factors is provided in Appendix A3. Not all variables were suitable for factor analysis, these were withheld and entered into the segmentation independently of the factors. The list of variables in Appendix A3 summarises which variables were entered independently.

(3) Cluster analysis / producing the final segmentation

Cluster analysis produced a range of different solutions which were discussed between DfT, TNS-BMRB and PSP. The preferred solutions are summarised below. For car owners, a six segment solution was selected and for non-owners, a three segment solution was selected. Both solutions were statistically robust and, most importantly, produced a segmentation that was coherent with distinct and recognisable segments. Table 3 below provides the labels assigned to each of the nine segments and the percentage of the population they account for.

Table 3. Summary of nine segments

Segment	Description of segment	% of population
	Car owners	
1	Older, less mobile car owners	9%
2	Less affluent urban young families	21%
3	Less affluent, older sceptics	12%
4	Affluent empty nesters	9%
5	Educated Suburban Families	17%
6	Town and rural heavy car use	13%
	Non-owners	
7	Elderly without cars	6%
8	Young urbanites without cars	7%
9	Urban low income without cars	5%

The names given to the nine segments were chosen based on a combination of analysis of the survey data and findings from the qualitative focus groups (for the seven segments which were included in the qualitative stage).

The descriptions of the nine segments provided in this report focus on analysis of the 'golden questions'. These 'golden questions' were selected on the basis of their ability to discriminate between the nine segments and are summarised in Appendix A4. Using these questions it is possible to accurately estimate the segment to which a specific respondent belongs. The

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allocation algorithm[14] which defines this process is provided in Appendix A4. Local authorities and others working at a local level may wish to use the 'golden questions' to identify which segments predominate within their local populations. In turn, this could help them identify which types of initiatives are likely to be more effective at enabling and encouraging more sustainable transport behaviour in their local areas.

2.5. Qualitative methodology

Qualitative research was used to test the segmentation and further understand the barriers and motivations towards using various modes of transport or sustainable travel behaviours. Twelve specific behaviours were tested in the groups, as detailed below along with propositions on a cycle hire scheme, Dial–a-Ride and car clubs. The descriptions of the propositions, together with the discussion guides used in the focus groups and the scripts used to recruit focus group participants, can be found in a separate Annex published alongside this main report.

The twelve behaviours were as follows:

A. Can you cycle instead of going by car?
B. Can you walk instead of going by car?
C. Can you go by bus instead of going by car?
D. Can you go by train instead of going by car?
E. Can you use Dial-a-Ride services instead of going by car?
F. Can you buy a car (or cars) that use(s) less fuel?
G. Can you reduce the number of vehicles owned/used (e.g. by joining a Car club)?
H. Can you avoid owning a car at all (e.g. by joining a Car club)?
I. Can you drive in a more fuel-efficient way?
J. Can you avoid a journey / combine multiple trips into one trip / make fewer journeys by car or public transport (relocate, work at home, internet shopping)
K. Can you car share?
L. Can you use a journey planning tool more?

[14] A mathematical algorithm which is used to determine membership of a specific segment for each respondent. Allocation algorithms are developed to ensure segmentations are replicable in future studies. If the questions from the algorithm are asked in a comparable survey, the allocation algorithm can be used on the survey data to allocate respondents to the correct group or segment.

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Focus groups were conducted with seven of the nine segments. They were not conducted with segments 7 & 9 as they exhibited the lowest levels of travel overall, with limited potential for change. The groups took place in November and December 2010 in fourteen areas. The groups were conducted in two waves to test the effectiveness of the recruitment tool and allow further modifications to be made. The recruitment tool proved to work well and only minor modifications were required for the second wave of fieldwork.

The focus groups for each segment were conducted in carefully chosen areas that corresponded to the demographics of the segment. The tables below show the area from which each segment was recruited:

Table B. Fieldwork schedule for wave 1: November 2010

Segment	Area
1 Older, less mobile car owners	Rochdale
2 Less affluent urban young families	Hull
3 Less affluent older sceptics	Rochdale
4 Affluent empty nesters	Kidderminster
5 Educated suburban families	Kingston
6 Town and rural heavy car use	North Essex
7. Elderly without cars	N/A
8 Young urbanites without cars	Camden
9. Urban low income without cars	N/A

For wave two the decision was made to exclude *older, less mobile car owners* (1) and replace them with an extra group with *educated suburban families* (5). The reasoning behind this decision was as follows:

- *Older, less mobile car owners* (1) did not travel much relative to other segments.
- There were practical constraints (related to their lack of mobility) which prevented *older, less mobile car owners* (1) from changing or varying how they travelled; this meant there was less value in exploring their capacity for change.
- By excluding this segment the research was able to accommodate both a younger and an older sub-group of *educated suburban families* (5).

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Table C. Fieldwork schedule for wave 2: December 2010

Segment	Area
1 Older, less mobile car owners	N/A
2 Less affluent urban young families	Bristol
3 Less affluent older sceptics	Newcastle
4 Affluent empty nesters	Paddock Wood, Surrey
5 Educated suburban families - younger	Nottingham
5 Educated suburban families - older	Manchester
6 Town and rural heavy car use	Rural Devon
7. Elderly without cars	N/A
8 Young urbanites without cars	Manchester
9. Urban low income without cars	N/A

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3. The segments

The remainder of the report describes each of the nine segments in detail. The descriptions show how the segments varied on a range of demographic, behavioural and attitudinal factors, namely:

- Socio-demographics
- Attitudes to environment and climate change
- Current transport behaviour; attitudes to transport; and the motivators and barriers to transport behaviour change
- Cars – including: ownership and purchase, and car travel behaviour
- Buses and trains
- Cycling and walking
- Trip avoidance and journey planning

The descriptions draw together the findings from the main survey and group discussions (for the seven segments where follow-up discussions were undertaken). Detailed tabulations of key survey questions for each of the segments are provided in Appendices A1 and A2.

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CAR-OWNING SEGMENTS

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Segment 1: Older, less mobile car owners

9% of population

Socio-demographics

The *older less mobile car owners* (1) formed around one in ten of the adult population and all had mobility issues. They were geographically dispersed but the majority lived in urban areas outside London (57%). Similar to the *less affluent older sceptics* (3), the *affluent empty nesters* (4) and the *elderly without cars* (7), individuals in this segment tended to be older, with 87% aged over 50 and 43% aged over 70. Consistent with this, a high proportion of the segment were retired (62%) and they were the most likely of all the segments to be long-term sick or disabled (10%).

Unlike most other segments, *older less mobile car owners* came from a broad spectrum of socio-economic groups, with just over half (53%) coming from socio-economic groups ABC1 and just under half (47%) coming from socio-economic groups C2DE. This segment was comparable with the *less affluent older sceptics* (3) and the *elderly without cars* (7) in that 38% felt they were living comfortably on their present income. Nearly half of the *older less mobile car owners* (45%) had no formal educational qualifications,(as listed in the survey questionnaire) with the *elderly without cars* (7) (73%), the *less affluent older sceptics* (3) (63%) and the *urban low income without cars* (9) (51%) the only segments that were more likely to have no qualifications.

The *older less mobile car owners* (1) were similar to the *less affluent older sceptics* (3), in that they tended to have lived in their home for more than 20 years (48% compared to 49%) and most (86% compared to 83%) did not have children in their household. This segment was the most likely to live more than 44 minutes walk from a train station (53%); and the least likely to live within a two minute walk of a bus stop (29%). They showed an average likelihood of saying that

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public transport links had been important in their decision to move to their current home (with 38% saying public transport links had been important compared with 40% saying so in the population overall).

Comparison of *older less mobile car owners* with the *less affluent older sceptics* (3) showed that they were similar in terms of age profile and living circumstances. However, the *older less mobile car owners* all had mobility issues compared to only 7% of the *less affluent older sceptics* (3). The impact of mobility issues on transport choices will be considered throughout this section.

Attitudes to environment and climate change

The *older less mobile car owners* were similar to other older segments (*less affluent older sceptics* (3) and *elderly without cars* (7)) in having more sceptical attitudes towards climate change, with only 36% saying it was happening and already impacting on the UK. Along with the *elderly without cars* (7) (53%) and the *less affluent older sceptics* (3) (33%) they were among the most likely to agree that 'the effects of climate change are too far in the future to really worry about' (with 39% agreeing). The *older less mobile car owners* were, however, the most likely, behind the *less affluent older sceptics* (3), to agree that they had noticed a change in the seasons in the last few years.

In line with this tendency towards being sceptical about climate change, and similar to the *less affluent older sceptics* (3), this segment was the least likely of all the car-owning segments to agree that they personally could make a real difference to climate change (45% and 48% of *less affluent older sceptics* (3)), or that the way in which they personally travel made a real difference to climate change (38% compared to 35% of *less affluent older sceptics* (3)).

The *older less mobile car owners*, again similar to the *less affluent older sceptics* (3) were the most likely of all the car-owning segments to say they had done as much as they could to reduce their CO2 emissions and the least likely to agree that they should try to limit their car travel for the sake of the environment. Along with the *less affluent older sceptics* (3) they were also the most likely to agree that 'it's not worth Britain trying to combat climate change, because other countries will just cancel out what we do' (40%).

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Segment 1: Older, less mobile car owners

Three-quarters (74%) of *older less mobile car owners* said that they did not want to do more for the environment, and along with the *less affluent older sceptics* (3) they were the most likely to say they were doing a few things and did not want to do more (31%). However, there was considerable variation in the number of environmentally friendly behaviours they reported doing at the time of interview; a quarter said they were doing nothing/one or two things, 41% quite a few things, and 32% said they were doing most or everything.

In line with this, neither the environment nor climate change was mentioned at any stage during the focus group discussions with *older less mobile car owners*. When the group was directly asked whether they felt climate change was an issue for them, they confirmed that they did not feel that they could personally have an impact.

> *"Well what's the point? Can we change it, can we alter what's happening with this world, can we alter what damage the human race has done in hundreds of years, who are we, we can't change it"* (older less mobile car owners)

The focus group discussions revealed that this segment tended not to know which transport options would help to reduce emissions. Encouraging more people to use the bus was seen as a potential solution, however participants did not know if this would actually reduce emissions.

> *"For everyone to use the bus they'd have to put thousands of buses back on to cater for the people using them. So consequently again you're in a vicious circle to accommodate everybody, so would they gain anything?"* (older less mobile car owners)

Participants highlighted the need for a *'good alternative'* to the car, although they did not know what that might be. They also suggested that newer cars were more environmentally friendly and so believed that the *"car manufacturing industry hopefully is taking care of that side of things".*

Slightly more than half (55%) of *older less mobile car owners* agreed that they would rather save energy at home than change the way they travel – a theme which emerged in many of the other segments. Some of the focus group participants blamed business for climate change and resented being asked to change their behaviour.

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The scepticism towards climate change was reaffirmed when they asked whether they were concerned about the impact of climate change on their grandchildren:

> *"What's the point in learning about something which might or might not happen, you educate your children and grandchildren to appreciate life and recycling and whatever, you cannot do any more than that. The damage is already done."* (older less mobile car owners)

Current transport behaviour; attitudes to transport; and the motivators and barriers to transport behaviour change

Compared with other segments, *older less mobile car owners* tended not to travel much. As discussed later in this section they tended to drive a low mileage per year and were infrequent users of trains, suggesting that when they travel, they travel relatively short distances. After the *town and rural heavy car use* segment (6), they were the most likely segment to report travelling only by car (73%) and just 2% reported travelling only by public transport. As already discussed, the *older less mobile car owners* were similar to the *less affluent older sceptics* (3) in their socio-economic circumstances and attitudes towards climate change. However the *older less mobile car owners* reported less travel using a mix of car and public transport (22% compared to 31%) and reported negative experiences of public transport resulting from mobility issues, as explored later in this section. This suggests that the segment has a greater reliance on their cars, largely related to their mobility issues.

Older less mobile car owners were the least likely of all car-owning segments to report taking any flights in the last 12 months, be that domestic, short or long haul.

Car ownership and purchasing

The *older less mobile car owners* were the most likely of all the segments to have only one car in the household (69%), and the least likely of all the car-owning segments to have a driving licence (69%)[15], being more likely to travel by car as a passenger. Despite this, most (75%) still said they were either a joint, main or sole decision maker when it came to buying a car for their household.

[15] It should be noted that older, less mobile car owners (1) were still more likely to hold a driving licence than all three of the non-car owning segments.

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Segment 1: Older, less mobile car owners

The *older less mobile car owners* were most likely to have cars with mid-sized engines, with 35% owning a car with an engine size of between 1,400 and 1,800cc. Along with the *less affluent older sceptics* (3) and the *affluent empty nesters* (4) they were among the least likely to agree that they would like to own a larger or faster car (5%). Similarly, along with these two older segments they were the most likely to report habitual car purchasing and brand loyalty; buying the same brand of car (40%) and type/size of car (65%) repeatedly. This is in contrast to the younger groups who were more likely to buy different brands and types of car. Two members of the focus group reported that they were given a car every three years through 'motability' as part of their disability living allowance.

Like the other car-owning segments, *older, less mobile car owners* were reluctant to give up their car and 65% disagreed that 'if I could I would gladly do without a car'.

Members of this segment tended to choose their car based on its reliability (63%) and comfort (58%) and calculated costs based on running and purchasing a vehicle. Some of the focus group participants reported buying a car with a diesel engine because it was considered cheaper in terms of fuel and maintenance. The discussions also supported the survey findings in that participants felt their mobility issues made comfort an important factor in their choice of car.

> *"I've actually had to go up a size in car just for ease of getting in and out, plus it's got a tailgate, so it's easier getting stuff in and out rather than having to lift it out. Those are the two things that sold it to me."* (older less mobile car owners)

The *older less mobile car owners* were the least likely of all segments to say they were likely to buy a smaller/ lower emissions car next time (53%).

Electric cars were not seen as a practical option by the focus group participants due to concerns that they would need constant charging and might be prone to breaking down.

Similar to participants in other focus groups, none of the *older, less mobile car owners* who took part had joined a car club, and this was reflected in the response to this concept in the focus group. Car clubs were thought of as prohibitively expensive in comparison to owning a car.

> *"It doesn't cost you £30 to have your car for the day."* (older less mobile car owners)

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One *older less mobile car owner* in this group also suggested that the day-to-day cost of using their car was not 'top-of-mind' and suggested *"I just jump in the car and that's it".* Reflecting their mobility issues, concern was also expressed that car club cars would not be available on the "*door step*" when required.

Car travel behaviour

As discussed previously, *older less mobile car owners* were the least likely of all the car-owning segments to have a driving licence, with 37% of them travelling only as a passenger. This differentiated them from the other older car-owning segments (3 and 4) who were more likely to hold a driving licence. Reported annual mileage in this segment was below average, with 43% reporting a low annual mileage (less than 5,000 miles per annum). This was comparable with the *less affluent older sceptics* (3) (38%) and the *affluent empty nesters* (4) (39%). Nearly all individuals in this segment reported travelling by car at least once a week (95%) which suggests they made short but frequent car journeys. This is supported by further analysis showing that *older less mobile car owners* (66%) along with *less affluent older sceptics* (3) (67%) and the *town and rural heavy car use* segment (6) (86%) were the most likely to report travelling by car out of habit.

Focus groups with *older less mobile car owners* revealed that their reliance on cars stemmed from mobility issues, which made it hard for them to use other forms of transport. They tended to have a number of hospital appointments at different hospitals. Convenience was therefore very important.

> *"It's at the door, you don't get wet, you can get in the car and drive off ASAP, you can get to where you're going ASAP… you can do whatever you need to do, get back in your car and be home before the second bus comes along the road, and you've done it all in comfort at your own convenience."* (older less mobile car owners)

The focus group members were extremely reluctant to give up their cars in case of an emergency.

The survey results showed that 43% of *older less mobile car owners* felt they drove in a fuel efficient manner and were most likely to report not accelerating too hard (58%) and regularly checking tyre pressure (54%) as eco driving techniques they were currently using. All the focus

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group participants felt that they were dong a certain amount of fuel efficient driving and reported staying within the speed limit and keeping tyres pumped-up to minimise fuel costs.

In the survey less than 1% of *older less mobile car owners* reported using a formal car-sharing scheme. However, members of the focus group could see the value in car-sharing on a more informal basis but they were concerned about safety, even with people who were known to them.

Public and community transport

Older less mobile car owners reported low levels of travel by public transport. They were the second most likely segment, behind the *town and rural heavy car use* segment (6), to say they travelled by bus less than once or twice a year or never (61%) and the most likely of all the segments to say they travelled by train less than once or twice a year or never (66%).

The *older less mobile car owners* reported negative experiences of travelling by bus: 34% (compared to 21% of the *less affluent older sceptics* (3)) agreed 'I find travelling by bus stressful', and 64% (compared to 62% of the *less affluent older sceptics* (3)) said that 'I would only travel by bus if I had no other option'. The focus groups with *older less mobile car owners* revealed that the main barrier to using the bus was mobility issues which made waiting at bus stops or using buses uncomfortable, if not impossible. There was discontent that bus drivers set-off before passengers sat down and some focus group participants reported that they were intimidated by school children using buses.

> *"I hate it when I've got to come back on the bus when the kids are coming out of school. Kids are a problem on buses, absolute nightmare..."* (older less mobile car owners)

Other barriers to travelling by bus that were raised in the focus groups and reflected a mix of experience and perception included:

- bus stops had been vandalised and did not provide shelter
- buses were unreliable, and often did not run on time
- buses did not always stop when flagged down
- no bus stops nearby
- buses were not very frequent
- buses were slow because of the number of stops they made and congestion
- bus stations were dangerous (robberies and muggings were mentioned)
- bus station was not well designed and it was necessary to cross busy traffic lanes

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Participants also recalled negative experiences with bus drivers (e.g. being rude and not taking bank notes for fares). *Older less mobile car owners* participating in focus groups felt that the re-introduction of conductors would make them feel safer and address a number of their concerns.

The main benefit of using the bus for *older less mobile car owners* who participated in the focus group was the cost, as a number of them had free bus passes or discount cards. Others felt they would be motivated to use buses if they had a free bus pass. This was reflected in the survey findings, with a lower percentage of this segment than average agreeing that they found travelling by bus expensive (27% compared to 43% of the average). The survey results showed that although negative about bus travel, factors associated with mobility issues meant the *older less mobile car owners* were the least likely to agree with the statement 'in general, when I have a choice I would rather walk or cycle than go by bus' (24% compared with 46% of the *less affluent older sceptics*).

Similar to their attitudes to bus travel, *older, less mobile car owners* reported negative experiences of taking the train. Nearly two thirds (62%) of *older less mobile car owners* compared with 56% of the *less affluent older sceptics* (3) agreed that 'I would only travel by train if I had no other choice'. They were also the least likely of all the segments to agree that 'I like travelling by train' (53% compared to 62% of *less affluent older sceptics*), and the most likely of all the car-owning segments to agree 'I find travelling by train stressful' (24% compared to 11% of *less affluent older sceptics* (3)).

The focus group participants were fairly familiar with the concept of Demand Responsive Transport (or Ring-a-Ride as it was known locally) although only one member of the group had used it. Those who were unfamiliar with the idea reacted positively and could see it would be useful for attending their numerous hospital appointments. It was also considered to be a way to avoid young people or school children on buses.

> *"It's safer; there wouldn't be any groups of lads jumping on."* (older less mobile car owners)

However, Demand Responsive Transport was not seen as practical for spontaneous shopping trips or flexible enough if plans changed, because of the need to pre-book.

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Cycling and walking

All *older less mobile car owners* had mobility issues, making walking and cycling difficult if not impossible. Focus group participants said that they used to walk on a regular basis, but were no longer physically able to do so. This again highlighted the differences between *older less mobile car owners* and *less affluent older sceptics* (3) in terms of the impact mobility issues have on their transport behaviour.

Trip avoidance and journey planning

Related to the older, largely retired profile of *older less mobile car owners*, the survey showed that very few of them were making regular trips to work, school or college. The focus group discussions revealed a degree of trip-chaining for journeys involving shopping and socialising, which was done spontaneously to save time.

The survey showed that *older less mobile car owners* were the least likely of all the car-owning segments to have access to the internet. This was reflected in focus group discussions with participants expressing concern and a lack of knowledge about using the internet. In contrast, shopping online for non-food items was popular with some of the focus group participants because they could avoid the discomfort of walking around shops.

> *"I can't traipse round town … Its convenience, you don't have to go out in the cold, you don't have to lug your bags about which I can't do anyway."* (older less mobile car owners)

Older less mobile car owners did not tend to use online journey planning tools.

Conclusion

The *older less mobile car owners'* attitudes to travel were heavily affected by their mobility difficulties and their age and it was important to them to have constant access to a vehicle in case of an emergency. The segment was motivated by comfort and cost and would only consider using alternative modes of transport to a car if they were easier to use and more cost effective. They were unlikely to be motivated by climate change issues as they were among the least likely of all car-owning segments to agree that they personally could make a real difference to climate change or to believe the way in which they personally travel made a real difference to climate change.

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Segment 1: Older, less mobile car owners

The *older less mobile car owners* were reluctant to use other forms of transport such as trains and buses because their mobility issues made walking and standing uncomfortable. Previous stressful experiences also coloured their views of public transport. While heavily reliant on their cars, the *older less mobile car users* tended to have low annual mileage, suggesting that they offered the least potential of any of the car-owning segments for reducing.their CO2 emissions from car travel.

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Segment 2: Less affluent urban young families

21% of population

Socio-demographics

Less affluent urban young families constitute the largest segment, accounting for about one in five adults. This segment tended to consist of younger families living in more urban locations. Around half were under 30 and they were the most 'urban' of any car owner segment. Furthermore, more than a quarter of the segment were living in their parents' home rather than living independently. They were the least affluent segment of car owners, with around one in seven saying they found it difficult to live on their current household income. Consistent with this, apart from *less affluent older sceptics* (3) they were the most likely of the car owner segments to come from lower socio-economic groups (55% were C2DE). Two-thirds (66%) were in work, leaving a relatively high proportion not in work – including people who were unemployed (6%), still in education (15%) or looking after the family or home (11%). Most members of the segment were educated to GCSE or 'A'-level standard, but relatively few had a higher qualification, suggesting most had left full-time education without going to university. Those in work were most likely to be employed in semi-routine or routine occupations, with relatively few employed in professional or managerial roles.

Less affluent urban young families tended not to have lived in their current home for a long period of time – with a quarter having lived no more than one year in their current home. Consistent with their urban profile, they tended to live closer to public transport links than other segments and those who had to make a regular journey to work, school or college tended to live close to their place of work or study relative to other segments. However, there was little evidence that transport links played an important role in their decision to move to their current home.

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Attitudes to environment and climate change

Overall *less affluent urban young families* were fairly ambivalent towards the environment and climate change. They tended to be doing relatively few environmentally-friendly things (nearly half said they did nothing or only one or two things) although they were split evenly between those who said they would like to do more and those who were happy with what they did already. The segment expressed average levels of interest in finding out more about how they could personally tackle climate change. Just over half agreed that what they did personally could make a real difference to climate change but this was only marginally more than average.

Within the focus groups, responsibility was deferred to government and it was felt that government should play a stronger role in encouraging science and technology to create and develop environmentally friendly travel solutions.

In many ways the *less affluent urban young families'* attitudes towards the environment were fairly average, although they had below-average levels of concern about climate change and they were among the most likely to agree they would rather save energy in the home than change the way they travelled. The focus groups confirmed this and highlighted that they struggled to comprehend what level of impact any change in behaviour had on the environment. They guessed that travel behaviour may have more impact but wanted a measure of how much more.

> *"We need to know that if you use your car less and make this much mileage a year you will save the environment by this much.* (Less affluent urban young families)

Less affluent urban young families were also opposed to taxation measures to control CO2 emissions; only a third agreed that higher taxes should be imposed to stop people having cars with higher CO2 emissions (making them the least supportive of this after the *town and rural heavy car use* segment (6)).

Current transport behaviour; attitudes to transport; and the motivators and barriers to transport behaviour change

Less affluent urban young families were the least likely of the car-owning segments to solely use their car at least once or twice a week (and no other forms of transport). While more than half (56%) only travelled frequently by car (at least once a week), around four in ten travelled

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frequently by public transport. Furthermore 5% *only* travelled frequently by public transport, using a car less than once a week. *Less affluent urban young families* were average users of air travel.

Car ownership and purchasing

Along with *older, less mobile car owners* (1) and *less affluent older sceptics* (3), *less affluent urban young families* tended to own just one vehicle; only around one third had two or more (much lower than the other car-owning segments). It should also be noted that only around half of the segment described themselves as the 'main driver' of the vehicle they used most often and more than a third did not personally drive the vehicle (travelling only as a passenger). The *less affluent urban young families* tended to own slightly older vehicles than average and were among the least likely to own a car with a large engine (i.e. greater than 1,800cc). Although, given that many were not the main driver of their household vehicle, knowledge of the vehicle's specification was limited; one in six (twice as many as average) did not know the engine size of their vehicle.

As with all the car owners, most *less affluent urban young families* were reluctant to give up their car. The majority disagreed that they would gladly do without a car if they could and only 1% had joined a car club. The focus groups revealed a strong desire to own cars and property brought on in part by cultural values that prize home ownership and other material possessions. For this reason, they rejected the concept of a car club. Some also reasoned that the pay structure of a car club might disadvantage those who did not work or had no regular income.

> *"You pay the membership and then come summer you might be skint and couldn't afford to hire it"* (Less affluent urban young families)

Furthermore, there were strong fears about the possibility of spending more money on the car club than it would cost to own and run their own car and for a group with limited financial resources they were unwilling to take this risk.

This discourse also highlighted some knowledge gaps around the true costs of owning and running a car. *Less affluent urban young families* acknowledged that insurance, MOT, maintenance (and even fuel) costs tend to be excluded from their calculations. They provided examples of how they had bought cheap cars and calculated the cost of this purchase over the period of ownership (excluding the running and maintenance costs)

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Segment 2: Less affluent urban young families

> *"You can get a really cheap car for £200 and drive it around for 6 months and then scrap it. I paid £150 for my Clio and drove it around for 9 months. It worked out £2.50 a week."* (Less affluent urban young families)

The only appeal of a car club idea to this segment was in having access to different types of cars for one off situations e.g. a larger car for a family holiday or a more prestigious car for special trips and situations.

Less affluent urban young families were the most likely of all car owners to have bought a second-hand vehicle – more than eight in ten regularly drove a car which had been bought second-hand. They were also among the most likely of the car owning segments to agree that they would like to own a larger or faster car, in this respect being similar to the *town and rural heavy car use* (6) segment. However, unlike the more affluent *town and rural heavy car use* (6) segment, speed, performance, and interior space were not among the most important factors that *less affluent urban young families* considered when buying a car. In fact they were most concerned about the cost of a new vehicle - specifically the purchase cost and running costs. This, together with the finding (noted above) that *less affluent urban young families* were the least likely car owning segment to own a car with a large engine (in contrast to the *town and rural heavy car use* (6) segment who were the most likely to do so) suggested that *less affluent urban young families'* car purchasing decisions were constrained by their relatively low incomes. They were the least likely of all the car-owning segments to say that environmental-friendliness and/or CO2 emissions were important to them when buying a car (14% of those who were the main or joint decision maker when buying a car for their household). Despite this, the fact they tended to own cars with smaller engines suggests that their relatively low incomes, and related concern about purchase and running costs, resulted in them owning cars with lower CO2 emissions than those owned by more affluent segments.

The focus group discussions revealed that some *less affluent urban young families* had changed their car ownership behaviour in recent years triggered by rising petrol costs to buying cars with diesel engines; converting existing engines to diesel; or buying cars with smaller engines. Some barriers remained to buying fuel efficient cars (either cars with smaller engines and less emissions or electric or hybrid cars) and these were:

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- The cost of electric or hybrid cars and the general unaffordability of newer (more efficient) cars
- A disconnect in the image of fuel efficient cars (hybrid and electric) and their perceptions of their identity. Such cars were perceived as 'functional' and driven by the older generation
- A lack of knowledge about fuel efficient and hybrid cars amongst females in this segment
- The need to buy or keep larger, family friendly cars (especially after the birth of a second child)

Car travel behaviour

Some *less affluent urban young families* relied on lifts rather than driving themselves. While most of the segment held a driving licence and were 'active drivers' at the time of the survey, a relatively large proportion could be classified as 'passengers only' – either not holding a license or holding a license but not currently driving a household car. More than a third (36%) could be classified as 'passengers only' which is much higher than the average among car owners and is comparable with *older less mobile car owners* (1) (as discussed previously).

Like most car owners, the majority of *less affluent urban young families* travelled by car at least once a week, and their annual mileage was comparable with car owners overall. What is more interesting is that, reflecting their younger age profile[16], members of this segment were the least likely of all car owners to travel by car out of habit; although around half did travel by car out of habit only slightly fewer did not. This suggests that car use in this segment is less ingrained than among other car owners. Among those who travelled to work, school or college by car, most cited the relative speed (compared with other modes) and/or convenience as the reason for choosing to travel this way.

Those who took part in the focus groups and who had young children explained that they relied on their car for convenience, because it was easy, and to avoid embarrassing situations in public with noisy children.

[16] As reported in the *Climate Change and Transport Choices* interim report (Thornton et al, 2010) people aged 40-69 were considerably more likely to travel by car out of habit than younger age groups.

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Segment 2: Less affluent urban young families

> *"I've got a 14 month baby so I'm using the car for everything. It's a trauma to even think about using anything else."* (Less affluent urban young families)

The focus groups with *less affluent urban young families* brought to light some important motivations for car use centred on personal safety and feelings of vulnerability. The car was regarded as a safe place in contrast to walking or travelling by bus or train and there were strong fears about being at risk of and feeling vulnerable to being attacked or abused in some way.

> *"I don't even like walking from my car to the front of my house."* (Less affluent urban young families)

It is also worth noting that *less affluent urban young families* were the least likely segment to say they had started to drive in a more fuel efficient manner in the last 12 months. A third said they had done this compared with nearly half overall. They were also the least likely to use fuel efficient driving techniques such as 'going easy on the accelerator', 'reading the road to avoid unnecessary braking and acceleration', and 'switching off the engine when stuck in traffic'. However, the focus groups also revealed that some eco driving techniques had been used by some (mostly males) for years as a way to save fuel and money.

As with other segments there was little use of formal car sharing among *less affluent urban young families*. However they were the most likely segment to acknowledge that they could potentially make their regular journey to work or place of study by getting a lift with someone else. The experiences of those in the focus groups who had used informal car sharing were negative however. They recalled that this prevented them from trip chaining, restricted their personal freedom and invaded the privacy of their car environment. Furthermore, they rarely received a rebate or money for the fuel incurred on these shared journeys because the passenger did not offer and they failed to ask.

Buses and trains

As discussed at the start of this section, a significant proportion of *less affluent urban young families* travelled by public transport at least once a week. Their use of public transport was generally higher than most other car owners (although it remained significantly lower than non-owners, who relied on public transport to get around). Their train travel was only moderate, but more than a quarter of the segment (28%) travelled by bus at least once a week. This made them

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the most frequent bus travellers among all car owners. Many of those who lived in close proximity to an Underground, light rail or tram station also tended to use this form of transport on a frequent basis.

While many *less affluent urban young families* used public transport regularly, their views on buses (in particular) were not necessarily positive and many did not enjoy travelling by bus. Buses were described by focus groups participants as 'dirty', 'smelly', 'overcrowded' and 'unreliable'. The exception to this description was 'Park & Ride' which was praised for being clean, frequent and not crowded. The focus groups revealed a myriad of barriers to travelling by bus. The strongest of these barriers were emotional and related to bad experiences and particular incidents:

- It was felt that there were personal safety risks associated with travelling by bus and these involved all stages of the journey, including on the bus, waiting at bus stops and walking to and from the bus stop
- The bus was deemed to be more a mode of transport for those that could not afford a car and that many 'undesirable' people travelled by bus. This segment strived not to be labelled in this way and avoided the bus in part for this reason

  "You always have a weirdo that sits next to you [on the bus]*"* (Less affluent urban young families)

Conversely, their motivations for using buses included avoiding parking costs and time saving, a benefit of bus lanes during the commuter hour.

Consistent with the focus group findings, two thirds of *less affluent urban young families* said that they would only travel by bus if they had no other choice and a similar proportion said when they had the choice they would rather walk or cycle than go by bus. Furthermore, among the small number of respondents who usually travelled to work, school or college by bus (55 people) many said this was because they had no choice. More positive reasons given for travelling to work by bus included general convenience and because there was a direct route to where they worked. *Less affluent urban young families* tended to feel that bus travel generally was expensive.

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Some *less affluent urban young families* in the focus groups also felt that bus services were archaic (particularly younger participants). They bemoaned the concept of waiting for a bus with no knowledge of when it was due. They were surprised that technology had not advanced enough to help people to avoid needing to wait.

Their views on train travel were less clear cut, and probably reflect the fact they used this mode of transport less often. Although, after *older, less mobile car owners* (1), they were the least likely of the car owner segments to agree that they liked travelling by train (only half agreed this was the case).

Overall, the survey findings suggested that *less affluent urban young families* used public transport out of necessity and/or for practical reasons.

Cycling and walking

Less affluent urban young families were only slightly less likely than average to own or have continuous use of a bicycle (about half did have regular access to one) although they were considerably less likely to own a bicycle than the more affluent *educated suburban families* (5) and *town and rural heavy car use* (6) segments. None had a mobility issue which made it impossible for them to ride a bicycle. Among those who had learnt to ride a bicycle only around one in ten rode a bicycle at least once a week – which is again consistent with the population overall. Some of those in the focus groups with children had rediscovered their enthusiasm for cycling as a leisure pursuit. Others had been encouraged to buy bicycles through a cycle to work scheme and had commuted to work during the summer months (males tended to this more than females). Those who travelled to work, school or college by car and for whom cycling was a realistic option[17] tended to say that nothing would encourage them to cycle instead of travel by car (62% gave this response which is comparable with those who travelled to work in the *less affluent older sceptics* (3) and *town and rural heavy car use* (6) segments). Conversely, the small number of respondents (13) who already cycled to work tended to say they cycled because it was quick, cheap, enjoyable or to keep fit.

Less affluent urban young families who were in work tended to live nearer their workplace than all the other segments, with 45% living less than five miles from their usual workplace compared with

[17] Limited to those who were able to ride a bicycle and lived within 10 miles of their usual workplace / place of study.

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30% of *educated suburban families* (5). Despite this, *less affluent urban young families* were no more likely to cycle to work than *educated suburban families* (5) (3% of *less affluent urban families* cycled to work compared with 4% of *educated suburban families* (5)). *Less affluent urban families* were also slightly more likely than *educated suburban families* (5) to cite living too far away or cycling taking too long as a reason for not cycling to work. Unsurprisingly, given they were less likely to own a bicycle than *educated suburban families (5)*, they were also more likely than that (more affluent) segment to cite not owning or having access to a bicycle as a reason for not cycling to work.

Less affluent urban young families' views on cycling tended to be in line with the population average – particularly when it came to safety. They did have concerns about the safety of cycling but no more than the population overall. As discussed elsewhere, the majority of all respondents rated bicycles as the least safe form of transport. However, in some ways they appeared slightly more confident than average – more than four in ten said they would 'feel confident' cycling on the roads and they were less likely than average to say they would find this 'stressful'.

An average proportion of *less affluent urban young families* walked to work or walked to do their local shopping. The focus groups uncovered that almost all were walking as a leisure pursuit and that they felt very strongly about the value of walking. Walking was felt to:

- Improve health and fitness
- Enhance general wellbeing through getting sunlight, fresh air, being in nature and slowing down
- Help to teach children road sense
- Have cost benefits if substituting walking for a mode that costs

In one focus group, *less affluent urban young families* described school initiatives to encourage walking to school in a bid to reduce congestion around the school and to teach children road sense. They acknowledged that they had been encouraged to walk with their children all or part of the way between school and home.

> *"Sometimes I park round the corner just so the kids can do a bit of a walk. There is a Walk to School Day – every Wednesday – to encourage you not to drive – I think they give the children stickers and so many ticks for every time the child walks…..It's to stop*

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congestion around the school and to teach them road sense".(Less affluent urban young families)

Some with very young children (generally mothers) in the focus groups had started walking more whilst at home on maternity leave as a way to escape being indoors and had started getting their food from the local shops on a daily basis instead of doing a weekly supermarket shop.

The obstacles for *less affluent urban young families* to engaging in more cycling and walking were:

- Personal safety and vulnerability (especially females) and fear of assault or attack.
- Risks associated with road accidents (walking on congested roads with children or cycling)

  "If I'm on an enjoyable walk in the park to feed the ducks or what have you, that's ok but I find it a bit stressful to go to the shops with the roads and everything. They (the children) run off and you are chasing them down the road." (Less affluent urban young families)

- The weather (especially females)
- Theft of bicycles

The theme of theft continued into *less affluent urban young families'* thoughts about the success of a potential cycle hire scheme in their area. They were convinced that the bicycles would be stolen and were fearful of how this impacted on the user. Some were unaware that there was already a cycle hire scheme operating in London. Their psychological needs around ownership (as discussed in relation to car clubs) also acted as barriers to their use of such a scheme. In addition they reasoned that the bicycles may be heavy and cumbersome to use and that the cost seemed expensive.

In conclusion, prevalence of cycling and walking among *less affluent urban young families* was roughly in line with the wider population. However, there may be scope to increase these behaviours among this segment given their relatively young age profile and urban location. Specifically, this segment was the youngest of any of the car-owning segments including *educated suburban families* (5) and the *town and rural heavy use* segment (6). Also, members of this segment who were working at the time of the survey tended to live relatively close to their

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usual workplace. Around a quarter (23%) lived less than two miles away from their usual workplace which was around twice as many as among other comparable car-owning segments, specifically *educated suburban families* (5) (14%) and the *town and rural heavy use* segment (6) (12%).

Trip avoidance and journey planning

Four in ten *less affluent urban young families* (similar to the population overall) said they could not combine their regular work or study journey with another trip (such as food shopping). A quarter said they usually did combine their regular journey which was also comparable with the population average. In the focus groups, this segment frequently described trip chaining (without referring to it as such) as a way to be efficient and save time. Those with more awareness of their fuel consumption (mainly males and those who were used to calculating mileage to claim expenses at work) also attributed saving fuel as a motivator to trip chain and avoid journeys by car.

> *"I do less miles and only take the car when I have to because the cost of petrol is ridiculous…a 100 mile trip will probably cost you 25 pounds so I think about what I'm going to do so I combine Costco with something else I have to do."* (Less affluent urban young families)

Similarly *less affluent urban young families* were only moderate users of home delivery either for food or non-grocery shopping. A third had used home delivery for food shopping at some point but very few used it regularly. Focus group participants with young children explained that this style of shopping was increasingly appealing as an escape from the embarrassment of child tantrums in shops.

The focus groups revealed that *less affluent urban young families* were unlikely to have a job that enabled them to work from home. This reflected the survey findings (noted above) that those *less affluent urban young families* in work tended to be employed in routine or semi-routine occupations.

Nevertheless, there may be some potential for less affluent urban young families to reduce the number of trips they make, given that the urban locations in which they tended to live may make trip chaining and/or home delivery more of a possibility.

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Conclusion

Less affluent urban young families were limited by their financial circumstances and by the logistics of transporting themselves and their children. This segment aspired to owning a car and their car was an important purchase for them. It reinforced their sense of identity and reflected concerns about their personal safety and feelings of vulnerability when using alternative forms of transport, which were key barriers to walking, cycling and using buses and trains instead of their car. That said, they were already travelling reasonably frequently by bus and there may be scope to increase their use of public transport and/or mixed mode journeys if these concerns can be addressed and their experiences of using public transport improved.

While they aspired to car ownership, *less affluent urban young families* tended to own just one vehicle and were among the least frequent car travellers among car owners - many in this segment only used their household vehicle as a passenger. They were also likely to own cars with smaller than average engines and some had already traded down to a car with a smaller and/or more fuel efficient engine in the last few years (in response to rising fuel costs and financial pressures). Information and tools to help them calculate the costs associated with car ownership and use may persuade them to avoid more journeys, trip chain or drive in a more fuel efficient way than they already do. Those with younger children value the option of online shopping as a more convenient and less stressful alternative.

Overall, *less affluent urban young families'* relative lack of concern about the environment and climate change and their desire to own a larger or faster car, paints them as attitudinally very similar to the *town and rural heavy car use* (6) segment. However, unlike that more affluent segment, their actual behaviour appears to be constrained by their relatively low incomes, resulting in them owning fewer cars, cars with smaller engines, travelling by car less frequently and driving considerably fewer miles per year. Given their relatively young age profile, it may be that some may shift to the *town and rural heavy car use* (6) segment if their incomes increase in future (as they get older) while others who remain on lower incomes may simply join the *less affluent older sceptics* (3). Further (longitudinal) research would be needed to substantiate this.

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Segment 3: Less affluent older sceptics

12% of population

Socio-demographics

The *less affluent older sceptics* mainly consisted of middle aged and older individuals, with 97% of the segment aged over 40. In this regard they were similar to *older less mobile car owners* (1), *affluent empty nesters* (4) and the *elderly without cars* (7) (with 98%, 99% and 100% over 40 respectively). The majority lived in urban areas outside London (61%), again this was similar to the *older less mobile car owners* (57%).

Overall, *less affluent older sceptics* formed around one in eight of the adult population. They were the most likely of the car-owning segments to come from lower socio-economic groups (75% were from groups C2, D and E). They were the least likely of the car-owning segments to have any formal educational qualifications (with 63% having no qualifications), a reflection of a wider pattern whereby older age groups and lower socio-economic groups (C2DE) were less likely to have qualifications. They were mainly working full-time (36%) or retired (39%), although they were less likely to be retired than the other older segments (the *older, less mobile car owners* (1); the *affluent empty nesters* (4); and the elderly without cars (7)). Of those in work, they were most likely to be employed in semi-routine or routine occupations; few were employed in professional or managerial roles. The *less affluent older sceptics* were the most likely of all the car-owning segments to say they were 'coping' on their present income (50%).

Reflecting the age profile of *less affluent older sceptics*, a majority (83%) did not have any children living in their household, again this was similar to the other older segments (1, 3 and 7).

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Like the other older segments (1, 3 and 7) the *less affluent older sceptics* tended to have lived in their household for more than 10 years (74%). Two-thirds (67%) had not considered access to transport links in their decision to move to their current home. Consistent with this, 63% lived more than 27 minutes walk from their nearest railway station.

The socio-demographic profile of *less affluent older sceptics* suggests that they were similar to the *older, less mobile car owners* (1) in terms of age and living circumstances. However, one major difference was that very few (7%) had mobility issues, compared to 100% of the *older, less mobile car owners* (1).

Attitudes to environment and climate change

Less affluent older sceptics had varied and sometimes conflicting attitudes to climate change suggesting they had less understanding and awareness of climate change and its effects than members of some of the other groups. Relatively few (32%) felt climate change was already having an impact on the UK and the same proportion felt that climate change would only impact on the UK in the future. This was similar to the views held by other older segments: the *older, less mobile car owners* (1) and the *elderly without cars* (7). They were the second most likely of the car-owning segments to agree 'the effects of climate change were too far in the future to worry about' (33%) after the *older, less mobile car owners* (1).

Survey data for *less affluent older sceptics* supported the focus groups which showed that the issue of climate change was not 'top-of-mind' for them and did not arise spontaneously as a topic during discussions on travel options. Once raised by the facilitator some focus group participants talked about air quality and pollution in relation to climate change and believed, wrongly, that the situation had improved because of cleaner air.

However in contrast, and demonstrating the conflicts in their views, *less affluent older sceptics* were, along with the *older, less mobile car owners* (1), the most likely to agree that 'climate change is beyond our control - it's too late to do anything about it' (19%). They were also the most likely of all the segments to agree that 'I've noticed a change in the seasons in the last few years' (86%) with the *older, less mobile car owners* (1) the second most likely to agree with this. They were also among the most likely to agree that 'we seem to have more severe weather in the UK these days' (68%).

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Segment 3: Less affluent older sceptics

The survey showed that although the *less affluent older sceptics'* attitudes varied in terms of their views on whether climate change was happening, they did not feel they were personally responsible or that they should act. This segment was the second most likely, after the *older, less mobile car owners* (1), to disagree that the way that they personally travelled makes a real difference to climate change (35% compared to 38%). Like the *older, less mobile car owners* (1) they were more likely to feel they had done as much as they could to reduce CO2 emissions (56%). The focus groups revealed that this segment was reluctant to make any changes that would cost them money.

> *"Why does it have to be a money making thing? If we're all gonna be green and watch our carbon footprint or all this palaver then why do we have to pay more money to be able to do that?"* (Less affluent older sceptics)

The *less affluent older sceptics* were less interested than most of the other segments in finding out more about what they could do to help the environment. Along with the *older, less mobile car owners* (1) they were the most likely of all the segments to say they were doing quite a few things but did not want to do more (29% compared to 31% of the *older, less mobile car owners*).

Less affluent older sceptics who participated in focus groups were cynical about the government's commitment to climate change and thus unwilling to act themselves. For example, they highlighted increases in train fares and the removal of some bus passes as proof that climate change was not a priority for the government and believed that the high level of petrol tax was a revenue generating mechanism, rather than a climate change initiative.

The focus group participants viewed business and government as the key players in taking action on climate change. They saw the development of electric cars, new energy sources and government action, such as making city centres car free, and car scrappage schemes, as the sort of actions needed. This was supported by the survey which showed that they were the most likely of all the car-owning segments to agree that 'developments in technology will stop climate change so we won't have to change how we live' (20%). Along with the *older, less mobile car owners* (1) the *less affluent older sceptics* were the most likely of the segments to agree that 'it's not worth Britain trying to combat climate change, because other countries will just cancel out what we do' (42%).

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In general, *less affluent older sceptics* felt they would rather save energy in the home (in order to save money) than change their travel behaviour (59%). Those who took part in focus groups reported recycling, increasing loft insulation, turning off heating and using low energy light bulbs.

Current transport behaviour; attitudes to transport; and the motivators and barriers to transport behaviour change

Around two-thirds of *less affluent older sceptics* reported travelling by car at least once or twice a week and using no other forms of transport as frequently. While roughly a third reported that they travelled by public transport or cycled at least once a week, few said that they solely used public transport or a bicycle as their most frequent mode of transport. In this respect they were fairly typical of car owners generally.

As previously described *less affluent older sceptics* were fairly similar to the *older, less mobile car owners* (1) in socio-economic characteristics and their attitudes to climate change. However, their current transport behaviour was reportedly less reliant on cars only (67% compared to 73%) and they were more likely to say that they travelled using a combination of car and public transport (31% compared to 22%).

Reflecting their socio-economic background, *less affluent older sceptics* were slightly less likely than more affluent segments to have flown in the last 12 months. In this respect they were similar to the *older, less mobile car owners* (1) (who also tended to be older and less affluent). However, they were more likely to have flown than both the *elderly without cars* (7) and the *urban low income without cars* (9).

Car ownership and purchasing

The majority of the *less affluent older sceptics* had one car in their household (61%) - fewer than the *older, less mobile car owners* (1) (69%) but similar to the *less affluent urban young families* (2) (61%). Almost all (91%) had a driving licence, which was a higher proportion than the *older, less mobile car owners* (1). Along with the *less affluent urban young families* (2) (81%) they were the most likely to own a second hand car (76%) and in line with this they were more likely than average to have older cars (66% owned a car that was over 5 years old). The *less affluent older sceptics* were the most likely to own a car with a smaller engine size (32% had a car with a 700-1,400cc engine).

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Segment 3: Less affluent older sceptics

The *less affluent older sceptics* like the other older car-owning segments (the *affluent empty nesters* (4) and the *older, less mobile car owners* (1)) were likely to buy the same brand (43%) and type (63%) of car. Along with these same segments they were the most likely to disagree they would like to own a larger or faster car (83%). The focus group discussions supported the survey findings that purchase and running costs were the main factors when choosing a car.

Although some *less affluent older sceptics* who took part in the focus groups suggested that they felt safer and more comfortable in a larger car, the survey showed that this segment was the second most likely behind the *educated suburban families* (5) (79%) to say that they would buy a smaller car / car with lower emissions next time. This reflected their age and life stage and as some focus group participants suggested, retirement led to changing needs and natural downsizing.

> *"In ten years I'm going to downsize my house, so I don't see any difference in downsizing my car"* (Less affluent older sceptics)

In general, *less affluent older sceptics* who took part in the focus groups were fairly receptive to buying a more fuel efficient car. They had already considered or bought diesel cars because of perceived fuel savings, but some were unaware that they needed to consider the length and types of journeys they made when deciding between fuel type. However, there was a perception that more fuel efficient cars were newer and therefore the perceived purchase cost was a barrier to up-take. Around one in five (22%) of those who were a main or joint decision maker when buying a car for their household said that environmental-friendliness and/or low CO2 emissions were an important factor to them when buying a car or van. This was consistent with the average for all car-owning segments. However, as with *less affluent urban young families (2)*, the fact they tended to own cars with smaller engines suggests that their relatively low incomes, and related concern about vehicle purchasing and running costs, resulted in them owning cars with lower CO2 emissions than those owned by more affluent segments.

Some focus group participants saw electric cars as unreliable and limited in range and there was concern that they may run out of power in an emergency - leading to the fear that they may get stranded or not be able to leave the house in a rush. They were also considered to be high maintenance and the need to regularly charge them and lack of available charging points were seen as problems. The current purchase cost of an electric car was also seen as preventative for

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people in this segment. Among *less affluent older sceptics*, electric cars were very much seen as something that would change car travel in the future.

> *"I think in 10 years everybody will want electric cars and they'll be so cheap to run. They're really expensive now because they're just developing them."* (Less affluent older sceptics)

Hybrid cars were also mentioned as something for the future.

Car clubs

Like most other segments, very few (1%) of the *less affluent older sceptics* had used either a formal car sharing scheme or a car club. During the focus groups, participants raised numerous barriers to using car clubs, which were mainly around liability if cars were stolen or damaged and, as with other segments, their lack of availability in an emergency. However, the main criticism related to the cost, which they calculated on the basis of having the car every day and not by the day, despite being prompted by the facilitator.

> *"Car doesn't cost £45 a day; my car doesn't cost me that"* (Less affluent older sceptics)

Less affluent older sceptics did not see a need for car clubs, in that they felt the only people that could afford the cost would already have their own car and so would not use the service.

Car travel behaviour

Most *less affluent older sceptics* drove their household vehicle (87%) and, in this way, they differed from the *older, less mobile car owners* (1) who were more likely to be passengers (37% compared to 13% of the *less affluent older sceptics*). Nearly all of the *less affluent older sceptics* (98%) reported travelling by car at least once a week, although their annual mileage was among the lowest of all the car-owning segments, suggesting they made frequent shorter journeys. Further analysis also showed that, along with the *older, less mobile car owners* (1) and the *town and rural heavy car use* (6) segments, this segment tended to travel by car out of habit.

For some *less affluent older sceptics* in the focus groups the car represented freedom and a chance to visit friends and family.

> "*I would never get out if I didn't use the car*." (Less affluent older sceptics)

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Related to the fact that those *less affluent older sceptics* still in work were typically employed in semi-routine or routine occupations, the focus groups found that for shift-workers in this segment, the car was seen as crucial for travelling to work at times of the day when public transport services were less likely to be operating.

Those *less affluent older sceptics* who travelled to work by car suggested that they did so because it was the quickest (44%) and/or most convenient (40%) way. They were also the most likely of the car -owning segments to say that they drove to work because it was the most comfortable option (9%), reflecting their age profile. A significant proportion (40%) of this group suggested that 'nothing' would motivate them to change to public transport for their journeys to work. Those that could be motivated suggested convenience/if there was a more direct route (25%), a cheaper/better value service (20%) or a more frequent services (18%) as potential motivators.

Public and community transport

In general, *less affluent older sceptics* travelled less frequently by public transport than average.

Only a quarter (23%) of *less affluent older sceptics* reported travelling by bus at least once a week but the segment had some positive views on bus travel; 58% disagreed that they found travelling by bus stressful and 45% said they liked travelling by bus. In this way they differed from the *older less mobile car owners* (1) who were less likely to use the bus and more negative about it as an experience, suggesting there may be less of an attitudinal as well as physical barrier to bus travel for the *less affluent older sceptics* compared to the *older less mobile car owners* (1).

In the focus groups, *less affluent older sceptics* reported travelling by bus for occasional trips, often when time was not an issue. Some said that they had been motivated to use buses by a discount card. The survey showed that this segment was divided on whether bus travel was perceived as expensive (46% agreed that it was and 36% disagreed). This may have reflected different individual experiences of charging and discount systems. The focus group discussions suggested changes to bus pass schemes would deter some from travelling by bus as, without a discount, buses were seen as expensive.

As would be expected given their greater mobility, the *less affluent older sceptics* were significantly more likely than the *older, less mobile car owners* (1) to agree that 'in general, if I

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have the choice I would rather walk or cycle than go by bus' (46% compared to 24%). However, despite relatively positive attitudes to buses, both segments tended to agree that 'I would only travel by bus if I had no other choice' (62% of *less affluent older sceptics* compared to 64% of *older, less mobile car owners* (1)).

The *less affluent older sceptics* felt there was a stigma associated with travelling by bus as they were the most likely of the car-owning segments to agree that successful people tend to travel by car instead of bus (63%).

Other barriers to travelling by bus that emerged from focus group discussions with *less affluent older sceptics* were lack of reliability, a fear that the bus may be full, congestion, the removal of (or uncertainty about) routes, having to wait and a lack of comfort. Participants also reported actively planning bus routes to avoid school children.

> *"I think it's quite scary when you get on and all the school kids get on and there's no guard there's only the driver and he's no control of what's going-on on those buses, and those school kids are a nightmare, terrifying."* (Less affluent older sceptics)

Interestingly, a number of this group had started using coaches to go on UK holidays.

Only 4% of the *less affluent older sceptics* reported travelling by train at least once a week, which along with the older less mobile segment (1) (2%) and the *elderly without cars* (7) (4%) was among the lowest levels of all segments. Along with the *older less mobile car owners* (1) they were the most likely to say that they would only travel by train if they had no other choice (56% and 62% respectively).

In terms of actual experiences of train travel, *less affluent older sceptics* were more positive than the *older less mobile car owners* (1), as 62% compared to 53% said that they liked travelling by train and just 11% agreed that they found the train stressful compared to an average of 18% across all the segments. The focus group participants supported this view suggesting that travelling short journeys by train (such as travelling to city centres) could be quick and comfortable.

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Segment 3: Less affluent older sceptics

The *less affluent older sceptics* felt there was a stigma associated with travelling by train as they were the most likely of the car-owning segments to say successful people tend to travel by car instead of train (40%) as with bus travel.

The main perceived barrier to train travel among *less affluent older sceptics* was access to a service. Some focus group participants (those who did not have discount cards) also saw trains as expensive; although others suggested that off-peak train fares could be less expensive than paying parking charges in city centres. One participant said that in Manchester a free bus from the train station made using the train more attractive.

Less affluent older sceptics who took part in focus groups had mixed reactions to the concept of Demand Responsive Transport (e.g. Dial-a-Ride). Some felt it would greatly help older people, particularly those with a disability and were keen to learn more. They saw it as a reliable alternative to the bus and less expensive than a taxi. Some felt that Demand Responsive Transport would be particularly helpful for hospital trips and would provide support for carers.

> *"As a carer, I need breaks and I'm desperate for breaks, and the only reason I don't get more breaks is because there is nothing like this, every time he goes out he needs some help and that would be fantastic."* (Less affluent older sceptics)

Others reiterated that car ownership gave them additional flexibility. There was also some scepticism about who would fund Demand Responsive Transport if it was free for the user. In particular people were concerned that local authorities would be reluctant to fund it.

Cycling and walking

In general, cycling was seen as a leisure pursuit with 60% of the *less affluent older sceptics* saying that they would cycle as a leisure/holiday activity. This was also reflected in focus group participants' reactions to the idea of a cycle hire scheme, which they saw as something for weekend trips, holidays, children, rural areas or universities. There was also concern that hire scheme bicycles would be vandalised or stolen. A majority (78%) of *less affluent older sceptics* felt that cycling was less safe than cars, buses and trains in terms of susceptibility to crime.

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Segment 3: Less affluent older sceptics

Less affluent older sceptics reported lower levels of cycling than average and two thirds (66%) said they cycled less than once a year. In common with the other older segments (1, 4 and 7) they were also more likely than average to agree that it was too dangerous for them to cycle on the roads (70% compared with 60% overall). The focus group participants also suggested that cycling was not suitable for people their age, although perhaps reflecting their greater mobility, they tended to be more positive about cycling than the *older less mobile car owners* (1).

In the focus groups the *less affluent older sceptics* could see the cost and health benefits of cycling, but they saw a number of barriers such as carrying shopping, bad weather, the cost of bicycles, and the impracticality of cycling in work clothes. Concern was also raised about the safety of cycling in congested areas and many reported previous negative cycling experiences. The need for dedicated cycle paths was raised in the discussions and one participant felt that every new road should have a cycle path. The survey showed that *less affluent older sceptics* tended to agree that they would be more willing to cycle if there were dedicated cycle lanes (54%); 47% also agreed that they would cycle if there were more secure places to store bicycles.

Fewer *less affluent older sceptics* than the average said that they usually walked to do local shopping (27% compared with 34%) although, as would be expected, this was higher than the *older less mobile car owners* (1) (15%). The focus group participants suggested that walking was something they were happy to do occasionally (to local shops, the pub or schools) as it was a way for them to keep fit but, for others, their age restricted their walking. Choosing to walk depended on the purpose of the trip and the circumstances. Concerns about personal safety, carrying shopping and the weather were all mentioned as barriers to walking. In the survey, lack of time and/or the car being quicker was cited as a key reason for driving rather than walking to work among those who still worked and lived up to two miles from their usual workplace.

Like cycling, walking was seen as a leisure pursuit by *less affluent older sceptics*. Focus group participants tended to say that other people should do more walking, for instance parents on the school run. This reflected this segment's image of themselves as older; more physical modes of transport being perceived as less relevant and accessible to them.

Trip avoidance and journey planning

The survey results showed that, along with the *older less mobile car owners* (1), *less affluent older sceptics* were less likely than others to say that they already did or could potentially combine

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trips to work or a place of study with other trips (49% said they could not combine trips which was similar to *older less mobile car owners* (1) (54%)). As many were retired, most *less affluent older sceptics* no longer had a regular journey to work that could be combined with other trips. In the focus groups, participants suggested that trip-chaining was something that they did naturally for shopping trips and visiting friends and which was '*common sense'.* However, they cited barriers to trip-chaining, including long distances between shops and parking restrictions in city centres prohibiting return visits on the same day.

Reflecting their age and socio-economic profile, *less affluent older sceptics* were among the least likely of the car-owning segments to have access to the internet at home (67% had no access at home). Amongst car owners, only *older, less mobile car owners* (1) were less likely to have access at home (61% had no access) although it should be noted that two of the non-car owning segments (*elderly without cars* (7) and *urban low income without cars* (9)) were by far the least likely segments overall to have access to the internet at home (17% and 49% respectively). This segment was the most likely of any to say they never used home delivery for shopping (94% never did). Focus group participants emphasised the need for personal choice in relation to shopping for food online. Many could see that shopping online could bring cost savings (in terms of not buying additional items that were not on their list) but they had not tried it themselves and suggested that they liked to see the food they were buying, were concerned about replacement items and felt shopping provided them with an opportunity to get out of the house.

Less affluent older sceptics also raised concerns about the security of shopping online and their lack of computer skills was also a barrier. Similar barriers discouraged the use of online journey planning tools, although a few participants used satellite navigation to avoid traffic.

Conclusion

Perhaps reflecting their low levels of education, the *less affluent older sceptics* had little understanding of climate change and often held conflicting attitudes about the issue. This segment was among the most likely to disagree that the way they travel makes a real difference to climate change and the focus group discussions showed that this group was reluctant to make any changes to their travel behaviour that would cost them money or inconvenience them.

The *less affluent older sceptics* tended to travel by car out of habit in that they were travelling frequent short distances by car. They used public transport less frequently than average and

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highlighted barriers to its use associated with their age and inconvenience. This segment was however, motivated to use public transport on occasions when it was less expensive than travelling by car and will primarily be motivated by options that save them money. Demand Responsive Transport services might be promoted as a convenient and cost effective alternative for some journeys. They might also be encouraged to walk short journeys for health reasons. In line with their desire to save money, the *less affluent older sceptics* were receptive to buying smaller, more fuel efficient cars, although the focus group highlighted that more fuel efficient cars were associated with high purchase costs, which was perceived to be a barrier.

Despite being very unlikely to have mobility issues, *less affluent older sceptics* do not feel that physically active travel options, such as cycling, are realistic for them simply because they *see* themselves as being 'old'.

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Segment 4: Affluent empty nesters

9% of population

Socio-demographics

Affluent empty nesters, who represented one in ten adults, were the oldest of the six car owner segments and one of the most affluent. The segment mostly comprised people aged 50 years old and over with no children living in their household. Half of *affluent empty nesters* lived in urban locations (other than London), the remaining half living mainly in town and fringe locations and rural areas, this profile being similar to the *town and rural heavy car use* segment (6).

Two thirds of *affluent empty nesters* were retired at the time of the survey - the highest proportion of any car owner segment. Most came from socio economic groups ABC1 (88%) and they were the most likely of any segment to say they were living comfortably on their present income. The segment also tended to have high levels of education; a quarter had a university degree or higher.

Most *affluent empty nesters* had lived in their current home for more than 10 years. Two thirds said public transport links did not play an important role in their decision to move to their current home and, consistent with this and their more rural profile, they did not tend to live particularly close to public transport links. It is also worth noting that although this was one of the oldest segments, the majority had no mobility difficulties.

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Attitudes to environment and climate change

Affluent empty nesters' attitudes towards the environment were fundamentally different to their attitudes towards climate change specifically. While they tended to be quite sceptical about climate change (and certainly more sceptical than *educated suburban families* (5)), they were in some respects more positive about the environment than other segments. They also tended to feel that they were doing enough to protect the environment already.

Only three in ten *affluent empty nesters* thought that the effect of climate change was already impacting on the UK which was the lowest proportion of any segment. Many agreed that climate change would only impact on the UK in the future and around one in ten said it would have no impact on the UK or that climate change was not happening at all. They were also the most likely of any segment to disagree that 'we seem to have much more severe weather in the UK these days'

> *"It's a natural variation – if you look over a longer time period you see that there are always peaks and troughs. A few years ago they were saying that we had just come out of the last ice age."* (Affluent empty nesters)

Affluent empty nesters were also less likely than the other segments to think that what they did personally and how they travelled could make a real difference to climate change.

In contrast, *affluent empty nesters*, tended to feel they were environmentally-friendly in most or everything they did; around a third said this was the case – more so than any other car owner segment (with the exception of *older, less mobile car owners* (1)). Half also agreed that they had already done as much as they could to reduce their CO2 emissions.

Furthermore, after *educated suburban families* (5), *affluent empty nesters* were the most likely of any segment to disagree that 'I don't have time to worry about my impact on the environment' (around three quarters disagreed with this) and that 'being green isn't something people like me worry about' (70% disagreed with this). They were also the most likely of any segment to disagree that 'I find it hard to change my habits to be more environmentally-friendly' (two thirds disagreed with this).

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Current transport behaviour; attitudes to transport; and the motivators and barriers to transport behaviour change

Affluent empty nesters travelled relatively frequently by car. Two thirds said they did not regularly use any other form of transport and that they travelled by car at least once or twice a week. Three in ten frequently used both public transport and their car (at least once or twice a week) and almost none of the segment only travelled frequently by public transport, travelling by car less than once a week. These figures are consistent with the other car owner segments described in this section. They were slightly more likely than average to have travelled by plane in the 12 months prior to the survey.

Car ownership and purchasing

Half of *affluent empty nesters* had just one car in their household. The others tended to own two cars with few owning three or more cars. They were the most likely of all car owners to own newer vehicles (especially vehicles aged one year or less but also vehicles between two and five years old). Overall, they were the third most likely segment to own a car with a large engine (1,801cc or more): less likely than *town and rural heavy car use* (6) and *educated suburban families* (5) but more likely than the three less affluent car-owning segments (segments 1, 2 and 3).

Similar to the other car owner segments, *affluent empty nesters* tended to enjoy driving and indicated they would miss it if they did not have a car. Two thirds disagreed that if they could, they would gladly do without a car which was the highest proportion after the *town and rural heavy car use* (6) segment. They were also very unlikely to be member of a car sharing scheme, this was in part justified in the focus groups by the fact that most of them had retired and they perceived car sharing schemes to be set up through work.

Affluent empty nesters were the most likely segment to have bought their current car new (56%). Importantly, retirement was identified as a key purchasing time for buying a new car within the focus groups. However, the survey suggested they also tended to have strong purchasing 'habits': half of the segment mentioned that they tended to buy the same brand of car and three quarters the same type or size of car each time. This suggests that purchasing habits may be a key barrier to them buying a car with lower CO2 emissions. More generally, the survey findings suggested that *affluent empty nesters* were particularly likely to prioritise reliability, safety and comfort when buying a car. Although they did not seem particularly interested in owning a larger

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or faster car, they were no more likely than the other segments to be interested in buying smaller cars or cars with lower emissions. In the focus groups, participants did show some receptivity to buying smaller and more fuel efficient cars after retiring as they became more cost conscious. However, overall the findings suggested that environmental concerns were a relatively low priority for them when buying a car compared with reliability, safety and comfort. Furthermore, a key barrier to purchasing hybrid or electric cars appeared to be a lack of knowledge about them, especially amongst females.

Car travel behaviour

The majority of *affluent empty nesters* were 'active drivers'. They held a license and drove the household car. Only a minority (14%) did not hold a license and relied on lifts - being classified as 'passengers only'. The proportion of 'active drivers' and 'passengers only' in this segment was comparable to the *less affluent older sceptics* (3) and average among the car owner segments.

Like most car owners, *affluent empty nesters* tended to travel by car at least once a week. They were also likely to travel by car out of habit. Six in ten could be classified as travelling by car out of habit which is again average among car owners. In the focus groups, they referred to the pleasure they received from driving, with their car representing 'freedom' and 'independence' and the almost default response of the convenience of driving to the destination.

> *"I wouldn't dream of taking my wife on a bus because she wouldn't let me! It's just so much more convenient by car."* (Affluent empty nesters, urban location)

However, perhaps reflecting their tendency to be retired and the lack of children in their households, *affluent empty nesters* tended to have a low personal annual mileage compared to the other segments. A third personally drove less than 5,000 miles a year.

Affluent empty nesters were positive towards fuel efficient driving. Half said they were already driving in a more fuel efficient manner which, along with *educated suburban families* (5), was the highest proportion of any car owner segment. They were also the most likely to have adopted fuel efficient driving techniques such as 'not accelerating too hard/going easy on the accelerator', 'reading the road to avoid unnecessary acceleration and braking', and 'regularly checking their tyre pressure'. The focus groups with *affluent empty nesters* revealed that they were keen to learn more about these techniques.

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Affluent empty nesters who worked full or part-time (19% altogether), tended to use their car to travel to work and did not see any realistic alternative. However, they were slightly more likely than other segments to combine their trip to work with other trips (e.g. food shopping).

Buses and trains

As previously mentioned, just less than a third of *affluent empty nesters* travelled by public transport at least once a week which was average among car owners. The majority tended to travel by bus and train only occasionally ranging from once or twice a month to once or twice a year. Buses were the main mode of public transport used. A quarter travelled by bus at least once a week which makes this segment the second most frequent bus travellers among car owners after the *less affluent urban young families* (3). In contrast, only 6% used trains at least once a week.

Focus group discussions with *affluent empty nesters* highlighted that one reason for travelling by bus was to use a free bus pass held by those aged 60 and over. Buses tended to be used for part of a journey, for example taking the bus back with shopping after walking into town. The reasons given by focus group participants for not travelling by bus (more often) related to perceptions and experiences of the bus service in their local area. Buses were felt to be slow, indirect and not very frequent.

Affluent empty nesters were also differentiated by their relatively positive attitudes toward public transport. They were the most likely among the car owners to say they liked travelling by bus (half agreed this was the case). Along with *educated suburban families* (5), they were also the most likely to say they liked travelling by train with three quarters agreeing this was the case. They were also less likely than other segments to indicate that they would only travel by bus or by train if they had no other choice. Consistent with these views, they also tended to disagree with the idea that travelling by bus and by train was stressful. Additionally, they were the least likely to find buses expensive (possibly due to some of them having free bus travel).

Nevertheless, a large proportion of *affluent empty nesters* agreed that successful people tended to travel by car rather than by bus.

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Cycling and walking

As with *older, less mobile car owners* (1) and the *elderly without cars* (7) (the other two segments that were predominantly 50 years old and over), *affluent empty nesters* tended to be quite negative about cycling and walking. However, unlike these segments, few had mobility issues which made it difficult or impossible to ride a bicycle. They were slightly less likely than average to own a bicycle and three quarters said they cycled less than once or twice a year or never. They were also more likely than the general population to say they were not the kind of person to ride a bicycle.

Furthermore, similar to *older, less mobile car owners* (1) and the *elderly without cars* (7), the majority (about three quarters) of *affluent empty nesters* did not feel confident cycling on the roads and they tended to view cycling as stressful and too dangerous. They also expressed more concerns than the overall population about safety when riding a bicycle – particularly in terms of the risk of accidents. Focus group discussions with *affluent empty nesters* revealed that perceptions about safety were rooted in incidents that had happened many years previously but were nevertheless at the forefront of their minds.

> *"A friend of mine got knocked off his bike fifty years ago – and I have never gone on a bike since."* (Affluent empty nesters, urban location)

Dedicated cycle paths and secure places to store bicycles were not likely to encourage *affluent empty nesters* to cycle more. Along with *older, less mobile car owners* (1) and the *elderly without cars* (7), they were the most likely to say they would rather use buses and trains than bicycles.

Few *affluent empty nesters* said they usually walked to do either top-up shopping or smaller more regular shops.

Affluent empty nesters in the focus groups who did walk tended to do so as a leisure pursuit in their free time with no purpose other than enjoyment and as a positive contribution to their health and fitness. Some used a combination of walking and buses (walking to shops, returning by bus with shopping) as part of their daily or weekly grocery shop. A difficulty was raised over walking more in certain (more rural) areas due to the absence of pavements.

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Trip avoidance and journey planning

Most *affluent empty nesters* did not make a regular journey to work and this limits the scope for this segment to combine their journey to work with other trips. As mentioned previously, the relatively small proportion who still worked tended to combine their journey to work with other trips, but some felt they could do this more often.

Affluent empty nesters were slightly more likely than average to have internet access at home but tended to use home delivery for food shopping slightly less than the general population. Only 13% had ever ordered food online/ by telephone but around half had used home delivery for non-food shopping (which is comparable with the other segments).

Awareness of journey planning tools among *affluent empty nesters* who took part in the focus groups was mixed and use of these tools was generally restricted to times when the destination was new or difficult to find. Those who had yet to try them felt that they were too complicated – or only available online. This was a barrier to some who said they lacked the necessary IT skills to use these sites.

Conclusion

Affluent empty nesters were among the most well-off segments and many were retired. Consequently, at least in theory, they had the financial resources and a reasonable degree of flexibility to make changes to the way they travel. However, the segment was evenly split between those living in rural areas and those living in urban locations outside London and their behaviour is limited by both structural and psychographic factors. Members of the segment tended to use their cars frequently, travelling by car out of habit but their personal annual mileage was low relative to other car owners. They were the most likely of the car-owning segments to buy new cars and to buy the same type and/or brand of car each time but they tended to not be interested in speed and performance when making a purchase. They may be open to the possibility of buying a smaller or more fuel-efficient car when they replace their current vehicle.

Other behaviours that *affluent empty nesters* may be likely to consider included adopting fuel-efficient driving techniques and walking rather than using their car for shorter journeys for health reasons. They were unlikely to use journey planning tools or do their shopping online as they tended to lack IT skills.

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Segment 5: Educated suburban families

17% of population

Socio-demographics

Educated suburban families represented about one in six of the adult population of England. Most were middle aged (82% were aged 30-59), in this way being similar to the *town and rural heavy car use* (6). Just over half of *educated suburban families* (55%) had children living at home. Just over half (54%) lived in urban areas outside London and a further 16% lived in London: as such they can be seen as a more 'urban' segment than the other (more rural) affluent car-owning segments (*town and rural heavy car use* (6) and *affluent empty nesters* (4)).

Educated suburban families had the highest proportion of people in work; almost all worked either full-time (70%) or part-time (19%): in this respect they were again similar to the *town and rural heavy car use* segment (6). Virtually all of the *educated suburban families* were from higher socio-economic groups (91% from groups ABC1), with twice as many as the average in groups A (13%) and B (40%). Only *affluent empty nesters* (4) had a similar proportion of members in socio-economic group A (15%). Related to this, *educated suburban families* were the most likely of any segment to be employed in professional or managerial roles, with by far the largest proportion (28%) of any segment employed in higher professional or managerial roles.

More than half (56%) of *educated suburban families* said that they were living comfortably on their current income with most of the remainder saying they were coping (39%). The *affluent empty nesters* (4) and *town and rural heavy car use* (6) segments were significantly more likely than the *educated suburban families* to say that they were living comfortably (67% and 65% respectively). Nevertheless, the *educated suburban families* and the *town and rural heavy car use* (6) segments had very similar household income profiles. Just over a quarter of the *educated suburban*

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families (26%) and of the *town and rural heavy car use* (6) segment (27%) had an annual household income of £60,000 or higher, a much higher proportion than any of the other segments[18].

Educated suburban families seemed to be fairly settled in that a third (35%) had lived in their current home for more than 10 years and overall six out of ten had lived in their current home for more than five years (61%). Consistent with their urban profile, almost all (94%) of the segment lived within 13 minutes walk of a bus stop and nearly half of them (46%) lived within a 26 minute walk of a train station. The segment as a whole was split between those for whom access to public transport links was important (41%) and those for whom it was not important (54%) in their decision to move to their current home. Focus groups with *educated suburban families* suggested that access to public transport links could be more important in future moves.

Educated suburban families were the best educated of the nine segments; 50% had a first degree or higher qualification, compared with 20% of all respondents. The next best qualified segment was segment 8 (*young urbanites without cars*), 30% of whom had degrees and a further 24% of whom were students.

Educated suburban families were differentiated by their high level of education, in particular from the *town and rural heavy car use* segment (6) who had a similar age and income profile. These high levels of education drove their attitudes which, as discussed below, were more pro-environmental compared with all other segments. Their level of education also drove their occupations and their profile was more skewed towards social grades A and B than the *town and rural heavy car use* segment (6), and is closer to that of the *affluent empty nesters* (4). The *town and rural heavy car use* segment (6) had a much higher proportion of social grade C2 (9% of the *educated suburban families* were classified as social grade C2 compared with 22% of the *town and rural heavy car use* segment (6)). The length of time the *educated suburban families* had spent in education had impacted on family formation and they tended to have younger children than the *town and rural heavy car use* segment (6), 62% of whom had no children in their households.

[18] It should be noted however, that 23% of the total sample refused to answer this question and 14% did not know the answer.

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Attitudes to environment and climate change

Educated suburban families were significantly different from all the other nine segments in that their claimed understanding of climate change and willingness to change their behaviour was greater. The closest of the other segments (on a few of the measures discussed below) were the *young urbanites without cars* (8), reflecting their similarly high level of education. However, in the main, the comparisons made below are between the *educated suburban families* and the average of all respondents to demonstrate how they stand out.

Educated suburban families were by far the most likely of all the segments to believe that climate change was already impacting on the UK (54% compared with an average of 40%), with another fifth (21%) believing that it will have an impact on the UK in their lifetime. Furthermore, they were the least likely to agree that 'the effects of climate change are too far in the future to really worry me' (82% compared with an average of 60%).

This segment was also far more likely than any other to say that they were doing at least quite a few environmentally-friendly things, wanted to do more and would be interested in finding out what else they could do (35% compared with 17% of all respondents). This, taken with the 8% who said they were environmentally friendly in most of everything they did and still wanted to do more and find out more, makes them the most pro-environmental of all the segments. Indeed, they were the most likely of all the segments to agree with the statement 'what I do personally can make a real difference to climate change' (59% compared with an average of 52%).

Focus group discussions with *educated suburban families* revealed that while participants felt that individual actions could make some difference, they believed that many people must adopt the behaviour to make a difference to climate change. The role of government in setting an example and providing the infrastructure to support behaviour change was seen as crucial. Some felt that government should take action, as it had in banning smoking in public places, and that Britain lagged behind other countries in this respect.

> Male 1: *"Because I've lived in Europe, I think they're a bit more definite about what they think is right."*
> Female 1: *"Yeah, it's a bit half hearted here."*
> Female 2: *"Yeah, they're just so worried about getting the vote, it's ridiculous."*

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> Male 1: *"They just have to say this is what we're about, this is what we're doing."*
> Female 2: *"There's too much debate. If it's a good thing to do and it needs doing there should be a decision made. We'd all get used to it. … People would just do it."*
> (Educated suburban families)

The survey data showed that *educated suburban families* were the best able to take a world view of the climate change issue; with a much higher proportion of this segment (75%) than of any other disagreeing with the statement 'it's not worth Britain trying to combat climate change, because other countries will just cancel out what we do'. This reinforces the findings in the previous longitudinal qualitative research[19] which also found that better educated groups were more able to appreciate the role Britain's contribution could make than less well educated groups.

Along with *young urbanites without cars* (8), the *educated suburban families* were the most likely segment to agree that 'if things continue on their current course, we will soon experience a major environmental disaster' (59% and 58% respectively).

Educated suburban families were the least likely segment to believe that we can rely on technological developments to stop climate change (77% disagreed compared with 58% overall). However, *educated suburban families* were also the segment most likely to disagree that it was too late to take action, again by several percentage points; three-quarters (76%) of this segment disagreed compared with 70% of *young urbanites without cars* (8) (the next highest level of disagreement).

Looking specifically at attitudes to climate change in relation to reported transport habits and aspirations, *educated suburban families* were the most likely to agree that low carbon emissions would be high on their list of 'must haves' if they were buying a new car (70%), with less affluent older sceptics (4) the next most likely to agree with this (67% against 56% of all respondents). *Educated suburban families* stood out from all the other segments in agreeing that they should limit their car use 'for the sake of the environment', with 75% agreeing compared to an average of 53%. Along with *young urbanites without cars* (8), they were also the most likely to agree with the

[19] *Understanding public attitudes to climate change and the links to travel choices,* (2009) King et. al, Department for Transport. Available here: http://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/pgr/scienceresearch/social/climatechange

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statement 'how I personally travel makes a real difference to climate change (58% and 56%, respectively). *Educated suburban families* were the *least* likely to agree that 'I would rather save energy at home than change how I travel' (44% compared with 54% overall). The focus group discussions revealed that improved recycling provision and better energy saving bulbs had supported behaviour change around the home. Despite their reported actions to date, their attitudes and knowledge supported the finding that this segment was the most likely to say that they have not done as much as they could to reduce their CO2 emissions. About half (54%) of *educated suburban families* believed this and only the *town and rural heavy car use* segment (6) were anywhere near as likely to believe this (48%).

In the focus groups *educated suburban families* suggested that pollution was visible and this was said to be more of a motivator to behaviour change than climate change.

Current transport behaviour; attitudes to transport; and the motivators and barriers to transport behaviour change

The discussions in the focus groups revealed that *educated suburban families* continually reviewed their travel behaviour. Decisions about mode could vary from day-to-day depending on other activities, such as collecting children from school or meeting friends after work. They continually weighed-up the balance of cost and time and selected the most convenient mode, which was influenced by the time of day, day of the week and purpose of the trip.

Six out of ten (59%) respondents from *educated suburban families* said that they travelled by car at least once or twice a week and used no other forms of transport, which was a lower proportion than all of the other car-owning segments, except *less affluent urban young families* (2) (56%). More of this segment than of any other reported that they travelled by car *and* public transport at least once or twice a week (39%). Just 1% said that they *only* travelled frequently by public transport, using a car less than once a week, which was marginally lower than that reported by any of the other car-owning segments, except the *town and rural heavy car use* (6) segment, where none said that they only used public transport. They reported the heaviest use of air travel for domestic, short and long haul flights, but were closely followed by the *town and rural heavy car use* (6) segment.

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Segment 5: Educated suburban families

Car ownership and purchasing

As with all the car-owning segments, all *educated suburban families* reported owning or having access to a vehicle in their household.

Educated suburban families were most likely to have two cars in their household (53%) with the *town and rural heavy car use* segment (6) being the only segment with a higher average number of vehicles in their household (typically three or more). The focus groups revealed that the need for a second car was mainly driven by the requirement to take children to out of school activities or for both partners in the household to travel to work. Some in the focus groups had reduced their car ownership from two cars to one because they realised one car was rarely used, perhaps because children no longer needed to be taken to activities. When they had decided to have a family, some couples had sold two cars they had bought when single to purchase a more family friendly car.

Educated suburban families were by far the most likely to agree that 'if I could, I would gladly do without a car'. However, as a group, *educated suburban families* were polarised about whether they would gladly do without a car if they could, with 43% agreeing and 42% disagreeing. The focus groups revealed that some had enjoyed driving but no longer did so, mainly because of congestion and what they considered to be bad driving on the part of other drivers. Increases in petrol prices and the general costs of running a car also mitigated against car ownership but there was also a 'hassle' factor in owning and running a car and not having a car was, for some, *"one less thing to worry about'.* Additionally, reduced usage meant some questioned the need for a car. Nevertheless, barriers to giving up their car completely remained; including personal freedom, convenience and possible emergencies, such as a child becoming ill.

> *"I wouldn't get rid of all the cars – what if one of the children is sick?"* (Educated suburban families)

> *"I would see it as a huge loss of independence if I had to live without a car."* (Educated suburban families)

A third (34%) of respondents from *educated suburban families* said that they had owned their primary car for less than five years, which was about average across all car-owning segments. Nearly three-quarters (72%) of this segment reported buying their cars second hand, which again

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is about average for all respondents. While they tended to report buying the same class of car, they were not particularly brand loyal nor did they report buying high performance (fast or large engine size) cars – this was borne out by the focus group discussions where cars were very much seen as functional.

This functional view of cars made *educated suburban families* reportedly more amenable to buying smaller/lower emission cars in the future than any other segment; four out of five (79%) said that they were likely to buy a smaller or lower emission car in the future and few (12%) said that they wanted to own a larger or faster car. The focus group discussions with the *educated suburban families* found that cars were chosen to meet the needs of the household, and participants tended to agree that children come with a lot of 'equipment' that required a larger car. Along with the *town and rural heavy car use* (6) segment they also ranked interior space and boot size as relatively important in car purchase decisions. However, the focus group discussions found that the *educated suburban families* did not tend to see cars as a status symbol and there was some price sensitivity among this segment. Despite their relatively high household incomes, this segment was the most likely to rank cost as an important factor in deciding which car to buy. Along with all the other car-owning segments, reliability and safety also emerged as important considerations for *educated suburban families* when buying a car.

The focus group discussions revealed that, in principle, *educated suburban families* were in favour of buying electric or hybrid cars because they were environmentally-friendly. However, the main perceived barriers to the purchase of electric cars were practical and focused on the availability of recharging points, the difficulty of recharging at home (for those without garages) and the limited speed and distance such vehicles were thought to be able to travel before they needed recharging. In the focus groups some were aware of the subsidy on the purchase of electric cars which had been announced just before fieldwork took place. However, none were aware of the cost of this new category of electric car[20]. Little mention was made in the discussions of hybrid cars; the focus was on all-electric vehicles.

Car clubs

Educated suburban families were more likely than any other segment to have joined a car club, with 2% reporting having done so compared with 1% of all respondents. However, in the focus

[20] The Nissan Leaf costed around £30,000 at the time of the focus groups and the government was offering a £5,000 subsidy on purchases (thereby bringing the cost paid by the purchaser down to around £25,000).

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groups, awareness of car clubs was low and when these were explained to them they were viewed with some ambivalence. Participants had many questions about how the clubs operated, including:

- Is there a bay near to where I live?
- Will a car always be available? What if the previous driver is late back?
- How do I know it's in good condition?
- Will it be clean? How will it be cleaned between users? What if I leave it dirty?
- How does the company know if the previous user damaged it?
- Is this really cheaper than hiring a car? Does it include petrol? Does it include insurance?
- Do you build-up a no claims bonus/what happens to your no claims bonus if you want to buy a car in the future?
- Do they have baby and child seats?
- Can you smoke in the car?

Car clubs were seen as needing a certain density of population before being viable and many of these suburban dwellers felt it would not be viable in their area but would work in central/inner London.

> *"It's a big city thing."* (Educated suburban families)

There was an existing car club in central Manchester at the time of the survey but an alternative scheme had recently been rejected by the council in the suburb where some of the Manchester group was recruited. Generally, car clubs were felt to be rather expensive and fears were expressed that a car would not always be available in case of emergency.

Car travel behaviour

After the *town and rural heavy car use* (6) segment, *educated suburban families* were more likely than any segment to report holding a full driving licence and to drive a household vehicle (95% compared with an average of 66%). After the *town and rural heavy car use* (6) segment, *educated suburban families* showed the second highest levels of car travel of any segment: two thirds (67%) said they travelled by car at least once a day and nearly half (45%) said that they drove more than 9,000 miles a year. *Educated suburban families*, again similar to the *town and rural heavy car use* (6) segment, reported spending very little time as passengers, compared with the other car-owning segments.

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Segment 5: Educated suburban families

Educated suburban families had the second longest average commute to work (after the *town and rural heavy car use* (6) segment) of any segment, at just under 11 miles. Three quarters (78%) of those who worked or who were in full-time education reported that they travelled to work, school or college by car at least once a week. In common with other segments, those who travelled to work, school or college by car, tended to cite the relative speed (compared with other modes) and/or convenience as the reasons for choosing to travel this way. Further analysis also showed that only 57% of the segment could be classified as travelling by car out of habit (i.e. without consideration of the alternatives). This is less than any of the other car owner segments except *less affluent urban young families* (2) (54%). The focus groups found that some *educated suburban families* had increased their car use when their children had started school because of increased time pressures.

Along with the *affluent empty nesters* (4), respondents from *educated suburban families* who said that they had a driving licence and a car in their household were the most likely to say that they already drove in a fuel efficient manner. They also claimed above average use of all the eco-driving techniques covered by the survey.

Educated suburban families were twice as likely as average to claim to use formal car sharing schemes but this still only equates to 2% of the segment. In the focus groups it was found that one man had registered with an online car sharing scheme but had never used it even though there were people who matched his requirements. Few others had heard of this type of scheme. None of the participants in any of the three focus groups, including the man who had registered, felt safe sharing a car with a stranger and this was the main deterrent for schemes of this nature.

With respect to informal car sharing, the focus groups with *educated suburban families* showed that some sharing was already happening or had happened in the past. Focus group participants identified incentives to car sharing. Some found driving stressful so they liked the idea of not driving every day and others highlighted the cost savings associated with sharing and the ability to discuss work issues during the journey which saved time at work.

The main barriers to car sharing for *educated suburban families* were wanting to trip chain on the way home and not being able to leave work at the same time as colleagues (given *educated suburban families* were predominantly employed in professional or managerial roles, they tended not to work fixed hours). Some felt that they would not want the pressure of being ready to leave

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with someone else or obliged to listen to someone else's choice of music or radio station. Indeed, one woman in Manchester travelled to work by train because she did not want to car share with her husband. There was also some reluctance to spend time with work colleagues during non-work time, as this would lead to unwanted discussions about work.

> *"I wouldn't want to start talking about work before I've even got there. I like a bit of space between getting up and getting to work."* (Educated suburban families)

Buses and trains

Fewer respondents from *educated suburban families* (16%) reportedly travelled by bus at least once a week than of any of the other segments, except the *town and rural heavy car use* (6) segment (6%). They did not particularly like traveling by bus compared with the other car owner segments and 28% said that they found it stressful. Fewer respondents in this segment than in any other rated bus travel as the safest mode of transport in terms of crime (5% rated it as the safest form compared with cars, trains and bicycles).

Perhaps not surprisingly therefore, *educated suburban families* were the most likely to agree with the statement 'in general, when I have the choice I would rather walk or cycle than go by bus' (68%) and the least likely to disagree (19%). Moreover, as discussed below, this behaviour was borne out by other survey findings and by the discussions in the focus groups on cycling and walking.

Nevertheless, of all nine segments, including the non-owners, *educated suburban families* were the *least* likely segment to agree with the statement 'in general I think that successful people tend to travel by car rather than by bus' (40%) and the *most* likely segment to disagree with this statement (35%).

The focus group discussions found that the main motivations for using buses among *educated suburban families* were avoiding parking costs and to take advantage of the benefits of travelling in bus lanes at peak times.

In all three cities where focus groups were conducted, *educated suburban families* saw overcrowding at peak times as the main problem with bus travel. Some also felt the costs were high when compared with other modes. However, in a few cases where individuals had used

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buses after a gap of several years, they were impressed with the service. This suggests that if this segment can be persuaded to travel by bus once, their attitude to travelling by bus may change.

About one-sixth of *educated suburban families* reported that they travelled by train at least once a week, at least twice as many as any of the other car-owning segments. Related to this, they were also the most likely of the car-owning segments to usually travel to work by train (with 8% doing so). However, the majority (63%) said that they used trains less than once or twice a month. The small number of survey respondents from this segment (40 people) who travelled to work by train tended to say this was because the train service was quick, frequent, convenient or because there was a direct service to where they worked.

Consistent with their views on buses, this segment was the least likely to agree with the statement 'in general, I think that successful people tend to travel by car rather than by train' (13%). Three-quarters of the segment (76%), which is more than in any other segment, agreed that 'I like travelling by train', and although a third (31%) agreed that 'I would only travel by train if I had no other choice', only 15% agreed that they found travelling by train stressful. In the focus groups participants rated trains highly in terms of comfort. Additionally, this segment was the most likely to rate trains as the safest form of transport with respect to accidents compared with buses, cars and bicycles (65%).

The focus group discussions with *educated suburban families* showed that trains were used for both business and leisure trips. Indeed the focus groups suggested that leisure trips were increasingly being made by train among this segment. This was because they found journeys by train less stressful than driving, there was no need to worry about parking availability or costs, they could drink alcohol and, with planning, they could find cheaper advance tickets that made driving uneconomic. However, the survey found that three-quarters (76%) reported that they found travelling by train expensive. This segment had widespread geographic social networks as a result of going to university and moving for work as the quote below explains. So, increasing awareness of the availability of cheap advance tickets may encourage switching to trains for leisure trips.

> *"Something that has really changed in our generation, people have moved away from their homes. My parents still live in the same village – their homes were four miles apart. …*

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Segment 5: Educated suburban families

> *I've moved to Nottingham, that's an hour away. You go to university, you meet people, you get married; my in-laws live in Devon. I've got friends all over the country. … Our lives are very spread out. We've met people from all over the country whereas my Mum and Dad don't go anywhere. Everything they need is nearby. They only travel a long way to go on holiday. Everyone they know is local."* (Educated suburban families)

The focus groups revealed that, although *educated suburban families* travelled by car frequently and had a high annual mileage, they were not opposed to bus or train travel. Rather they tended to feel these modes of transport were not convenient or comfortable for most journeys. Bus and train travel among focus group participants were limited because both were largely confined to routes into city centres. This reflected the survey findings which found that a lack of direct, fast, or any train or bus services between the home and workplace were key reasons cited for driving to work among this segment. However, overall the findings suggested that a lack of services and in particular service proximity (e.g. train stations being too far from the home or workplace) were less of a barrier for *educated suburban families* than for the *town and rural heavy car use* (6) segment.

Despite the barriers to using some modes*, educated suburban families* appeared to regularly reassess the most appropriate mode(s) of transport for their journeys, which meant they used different modes for the same journey, depending on the time of day and other commitments they had on the specific day (such as collecting children or doing shopping). *Educated suburban families* changed modes of transport frequently for specific journeys and these choices were driven by relative costs, the time taken and levels congestion. For example, some focus group participants had changed from bus to car for their journey to work because of other commitments or from train and tube to train and bicycle to save money.

Cycling and walking

More respondents from *educated suburban families* said that they were able to ride a bicycle[21] than those in any other segment (98% compared with 80% of all respondents). More also reported owning a bicycle compared with the other segments (71% compared with 49% of all respondents). They also claimed to use them more often than any other segment except the *young urbanites without cars* (8) – 20% of both these segments, who could ride a bicycle, said

[21] Had learnt to ride a bicycle and were physically still able to do so.

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that they cycled at least once a week, compared with an average of 14% among those who could ride a bicycle.

The focus groups supported the survey findings that *educated suburban families* cycle relatively frequently and, at least in principle, would be prepared to cycle more. However, the focus group participants added that their free time was limited and this, plus habit, led them to travel by car for personal business and top-up shopping trips at weekends. The findings from the focus groups also supported the survey findings which showed this segment was the most likely to agree that 'in general, I would rather cycle than use public transport' (48%). This sentiment was clearly evident in the focus groups and some participants had switched from buses, trains or cars to cycling to work. The health benefits and improvements in general well-being, cost savings and sometimes the time saved, were found to be the main incentives to cycling in the focus groups. Consistent with this, the small number of survey respondents from this segment (21 people) who cycled to work tended to say they cycled because it was quick, cheap, enjoyable or to keep fit.

The focus groups and the survey found that for some respondents from *educated suburban families* cycling to work could be quicker than going by car because of congestion and 27% of survey respondents agreed that this was true. One participant in the London group reported that his employer paid staff 20 pence per mile to those who cycled to work, although he had tried to cycle all the way from Surrey (about 20 miles) he found it too far to do daily. He had, however, found it to be quicker than train and tube.

Overall, *educated suburban families* were among the most positively pre-disposed towards cycling in terms of their personal norms. Members of this segment who could ride a bicycle were more likely to disagree with the statement 'I'm not the sort of person who rides a bicycle' than respondents in the other segments who could ride a bicycle (72% compared with 53%). Those in the segment who could ride a bicycle and lived less than ten miles from work were also more likely to disagree with the statement 'I'm not the kind of person who cycles to work' (43%) than those with similar characteristics in the other segments.

The majority (84%) of *educated suburban families*, and far more than of any other segment, agreed that they (would) enjoy cycling as a leisure or holiday activity.

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Segment 5: Educated suburban families

Given the average distance between home and work was nearly 11 miles for *educated suburban families*, it is perhaps unsurprising that distance emerged as a key barrier to cycling to work among this segment. As noted in the interim report of this study[22], the survey found that within the wider population, cycling to work was most common among those living less than three miles of where they usually worked, with far smaller proportions cycling 3-9.9 miles to work, and almost no-one cycling 10 miles or more to work. Within the *educated suburban families* segment, 41% lived 10 or more miles away from where they worked, second only to the *town and rural heavy car use* (6) segment (of whom 46% lived 10 or more miles away). When those *educated suburban families* who regularly drove less than 10 miles to work were asked why they did not cycle to work, the proportions saying 'it takes too long to cycle / too far away' increased with distance: only 15% of those who lived less than 5 miles from where they worked said this, compared with 43% of those who lived 5-9.9 miles from where they worked. More generally, the *educated suburban families* focus group participants said they felt about 30 minutes was the maximum distance for walking or cycling, other than as a leisure activity.

Safety concerns, related to the weight of traffic and the risk of accidents, were a key barrier to cycling more for *educated suburban families*. While *educated suburban families* were among the most likely to agree that they were willing to cycle on the roads (56%) and that they would feel confident cycling on the roads (41%), nearly six in ten (57%) agreed that 'it's too dangerous for me to cycle on the roads', and nearly two thirds (65%) agreed that they would find cycling on the roads stressful. Among all survey respondents who drove to work, those in the *educated suburban families* segment were the most likely to cite 'too much traffic / it's too dangerous' as a reason for not cycling to work.

In the focus groups, participants felt that the negative attitudes of many car and bus drivers towards cyclists contributed towards this problem, acting as a major barrier to cycling more and especially to cycling to work, where it could make cycling a very stressful start to the working day. One woman felt that the driving test should include teaching drivers how to overtake a bicycle. The quote below sums up the feelings expressed in all three focus groups.

> *"Cars want to kill you. Buses drive as if you're not there."* (Educated suburban families)

[22] Thornton et al, (2010) *Climate Change and Transport Choices*, available here: http://www.dft.gov.uk/pgr/scienceresearch/social/climatechangetransportchoices/

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Segment 5: Educated suburban families

By comparison with experiences in Europe it was felt that the UK was not 'geared-up' to making cycling easy. One participant reported that where he had previously lived in Germany where cycling was the norm, the whole experience was much calmer and it was not therefore necessary to wash and change on arrival at work. The experience of cycling in Cambridge was cited as similarly positive by another participant but elsewhere in the UK cycling was felt to be a far more fraught experience.

Some keen cyclists from this segment had found it impossible to cycle with more than one child because of safety concerns. A child seat was felt to be safe but a buggy pulled by a cycle was thought to be too low for drivers to see, even with a flag attached.

Focus group participants felt that safety issues related to traffic and the risk of accidents should be addressed by creating physically separate cycle lanes, adding that they would cycle more if such facilities were made available. The survey findings supported this: *educated suburban families* were more likely than any of the other segments to agree that they would cycle (more) if there were more dedicated cycle paths (68%). Consistent with this, those who travelled to work, school or college by car were slightly more likely than the *less affluent urban young families* (2) and *town and rural heavy car use* (6) segments to say they would be encouraged to cycle to work, school or college if it 'was safer', there 'was less traffic' or if there were cycle paths / better cycle paths. The focus group discussions suggested that women in this segment were more likely to have concerns about traffic and safety than men. This was supported by findings from the survey which showed that women were more likely than men to agree that it was 'too dangerous for me to cycle on the roads'.

Other barriers to cycling to work that were identified by both the survey and the focus group discussions were:

- the weather;
- the terrain (with hills especially making cycling hard work);
- the lack of washing and changing facilities at work places; and
- the security of bicycle racks.

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Segment 5: Educated suburban families

Focus group participants felt it was not only the lack of washing and changing facilities at workplaces but also the complexity and time to wash and change that was a barrier to cycling to work. They added that it would be difficult to transport smart office clothes on a bicycle along with a wash kit. Women commented on the need for hair dryers and a second make-up bag.

Around half (53%) of respondents from *educated suburban families*, which is more than in any other segment, said that they would cycle (more) if there were more secure places to store bicycles.

In the focus groups with *educated suburban families* we explored the concept of bicycle hire schemes, such as the Barclays Cycle Hire scheme in London using information from that website as an example of how such a scheme might operate (see accompanying appendix document). For the group who commuted into central London every day this was felt to be useful, although finding a docking station was said to be stressful. Outside London such schemes were not felt to be useful. Both in Manchester and the other urban location participants felt that there was no need to cycle round the city centre because they were small enough to walk around. They felt that bicycles would have to be available in the suburbs for people to cycle into the centre, rather than available in the centre to cycle round the town. Participants therefore felt that they might as well buy a bicycle.

Only 5% of respondents from *educated suburban families* who said that they regularly went to a workplace/college walked there, which is the lowest of any segment other than *town and rural heavy car use segment* (6). However, a third (34%) said that they walked to do top-up shopping or smaller more regular shops, which is significantly higher than all the other car owner segments except the *less affluent urban young families* (2). Some reported during the focus group discussions that they found it easier to walk than to go by car for these short trips, partly because of getting the car out and partly because of the difficulty and cost of parking. Parking charges were often quite low, less than a pound in some cases, but it was the principle, not the amount that drove their decision. One woman with three children aged under five said that it was quicker to walk with a buggy than to get them all in and out of the car with child seats. Others felt that walking was good for children and younger children to primary school. However, the distances that could be walked with young children were said to be very limited.

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Trip avoidance and journey planning

The focus groups revealed that *educated suburban families* lead quite busy lives. As discussed above, almost all worked, the majority full-time. They fitted domestic chores, taking children to various activities and their own social lives, into the remaining time. Hence they tended to plan out-of-work time to minimise the time spent on domestic chores and this had led some to use cars at weekends for journeys they could have walked or cycled. The survey showed that more of this segment than of any other (33%) said that they regularly trip chained on the way to or from work and a further quarter (26%), which was also more than any other segment, said that they could do so more often. The focus group discussions showed that weekend chores were combined into a single trip to save time.

As noted previously, *educated suburban families* contained by far the highest proportion of people employed in higher managerial and professional roles of any segment. Related to this, *educated suburban families* were the most likely of any segment to say that they already worked from home at least once a year (37% of those who usually worked outside the home said this); and the most likely segment to say they already worked from home at least once a week (16% of those who usually worked outside the home said this). They were the least likely of any segment to say they could not do any of their work from home (45% of *educated suburban families* who usually worked outside the home said this compared with 53% of *town and rural heavy car use* (6); 61% of *young urbanites without cars* (8); 74% of *less affluent older sceptics* (3); and 77% of *less affluent urban young families* (2). This pattern suggests that those segments with the largest proportions employed in semi-routine or routine occupations were the most likely to say they could not do any of their work from home, whereas those segments with larger proportions in higher managerial or professional roles were more likely to say they could do at least do some of their work from home.

The focus groups uncovered some distinct barriers for this segment to working from home more often and these included the need to visit clients, access to computer systems and a general lack of trust from employers.

Almost all (98%) respondents from *educated suburban families* claimed to have access to the internet at home and this was higher than any other segment, although 97% of the *town and rural heavy car use* segment (6) also had access. It is not surprising therefore that this segment was the most likely to have shopped online for food; a fifth (19%) did so, although nearly as high a

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proportion of the *young urbanites without cars* (8) (17%) also shopped for food online. However, the focus groups found online shopping was said to be combined with trips to the shops to select some food items, such as meat, fruit and vegetables, and for top-up shopping between deliveries. There were also some people who did not like the idea of other people choosing their food and who had not therefore tried it; and the survey found that half (52%) of this segment had never tried online shopping for food.

Some participants in the focus groups with *educated suburban families* said that they tried to reduce their food miles by buying local and seasonal produce. Some believed that local food was now more widely available but it was thought to limit choice in some cases.

> *"I usually cave in around February and decide that Holland is not that far."* (Educated suburban families)

These participants were conscious that they were more aware of food miles as an issue than they had been and felt that this was because the issue had been raised in the media.

The survey found that shopping for non-food items online was more common among *educated suburban families* and the focus groups confirmed this, with some saying that they had done all their Christmas shopping without going into a shop. The survey found that a fifth (46%) of the *educated suburban families* interviewed said that they regularly used online shopping for non-food items, which is significantly higher than all the other segments; another 37% claimed to use it sometimes. The only other segment that made such significant use of online shopping was the *town and rural heavy car use* (6) segment (39% used it regularly and 33% sometimes used it).

In relation to journey planning, the focus group discussions with *educated suburban families* found that Google maps, the AA and the RAC facilities and local passenger transport websites (such as Greater Manchester Passenger Transport Executive – gmpte) were used to find routes to locations that were unfamiliar but were not used to check routes to familiar destinations.

Conclusion

The *educated suburban families* were defined by a high level of education and economic activity, but despite relatively high incomes, they did not tend to perceive themselves to be living comfortably. Saving time was very important to them and they looked for the most convenient

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transport options, perceived as a trade-off between comfort, speed and convenience. They were prepared to pay for convenience.

Compared to the other groups they were more aware of the impact of transport on climate change and were relatively willing to change their behaviour and use their cars less. Indeed, nearly half would like to do without a car. They saw an important role for government in setting an example and providing the infrastructure to facilitate changes in behaviour. The findings suggest that more cycle lanes, especially those that physically separate cars and bicycles, may support increased cycling and, together with better provision of bicycle storage and washing and changing facilities, might encourage more cycling to work. Increased awareness and availability of car clubs and a better understanding of how these work could lead some to give up their second car. Information about changes in bus stock and bus lanes could also stimulate bus use to save time. Train travel for inter-city leisure and business trips could be increased by raising awareness of lower priced advance tickets. Stimulating thought about access to public transport when moving home could also reduce car use in the longer term. Ensuring information on car emissions was easily available for second hand car purchases would support the purchase of lower emission cars. Working with employers to enable and encourage working from home more often and encouraging greater use of home delivery could help to reduce unnecessary trips.

The *educated suburban families* appeared to be relatively well organised and to assess their travel needs on a day-to-day basis, depending on the tasks they needed to complete that day. This continual reassessment of travel mode, together with their more pro-environmental attitudes, suggests that they could be more easily encouraged to change their behaviour compared with other segments because they were less likely to be creatures of habit, especially where driving was concerned.

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Segment 6: Town and rural heavy car use

13% of population

Socio-demographics

The *town and rural heavy car use* segment represented about an eighth of adults in England. They tended to be middle aged, middle class families living in urban areas outside London or rural areas. They were the most rural segment, with 30% living in villages, hamlets or more isolated dwellings, but half lived in urban areas outside London. Like the *educated suburban families* (5), they tended to be aged between 30 and 60, with the majority working (82%, 69% full-time). Consisting mainly of people in the middle socio-economic groups (85% were B,C1 or C2), they were one of the most affluent segments (along with *affluent empty nesters* (4) and *educated suburban families* (5)) with two thirds feeling they were living comfortably on their present income.

While the *town and rural heavy car use* segment were very similar to *educated suburban families* (5) in terms of their household income levels, they lacked the high education levels present in that segment. Most of those in *the town and rural heavy car use* (6) segment were educated to GCSE or 'A'-level standard (in common with *affluent empty nesters* (4) and *less affluent urban young families* (2)), but only about a fifth had a higher qualification (compared with half of the *educated suburban families* (5)). As with *less affluent urban families* (2) this describes a group who had largely started work without going to university. However, unlike *less affluent urban families* (2), those in the *town and rural heavy car use* segment were frequently employed in managerial or professional occupations, with relatively few in semi-routine or routine roles: in this respect, the *town and rural heavy car use* segment was far closer to the *educated suburban families* (5).

Most in the *town and rural heavy car use* segment had been living in their current home for quite a long time (typically 5-20 years) and they were the segment for whom proximity to public transport

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was least important in their decision to move to their current home. Consistent with this and their more rural profile and, similar to *affluent empty nesters* (4), they were less likely than other segments to live close to public transport links (particularly train stations).

Attitudes to environment and climate change

The *town and rural heavy car use* segment were largely ambivalent towards the environment and climate change and sceptical about the impact they could make. Whilst half agreed with the statement 'what I do personally can make a difference to climate change' more than a quarter (28%) disagreed. Other segments, notably *educated suburban families* (5), were more convinced of the impact they could personally make. The *town and rural heavy car use* segment were the least likely to state that they were currently doing environmentally-friendly things (over half said they did nothing or only one or two things, compared with a quarter of *educated suburban families* (5)). Furthermore, although they were split evenly between those who said they would like to do more and those who would not, they were the most likely to say they were not interested in finding out more about how they could personally tackle climate change; *less affluent urban young families* (2) were similarly uninterested. They were also the segment that was most likely to agree that they would rather save energy at home than change the way they travelled (closely followed by *less affluent urban young families* (2)) and only around two fifths (43%) agreed that how they personally travelled made a real difference to climate change, compared with half of *less affluent urban young families* (2) and over half (56%) of *educated suburban families* (5). Overall, the views of the *town and rural heavy car use* segment in relation to the environment and climate change were more similar to those of the *less affluent urban young families* (2) than the (better educated) *educated suburban families* (5) reflecting the overall survey findings that more highly educated people tended to express more pro-environmental views.

The focus groups with the *town and rural heavy car use* segment revealed that they were already recycling, installing energy saving light bulbs and insulation and not leaving appliances on standby but that this behaviour was either 'forced' on them or done primarily to save money or increase their own comfort.

The focus group discussions also revealed that whilst they felt that logically what they did, including their travel behaviour, impacted on the environment, there was some scepticism about the difference they personally could make reflecting:

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- A perception that 'experts' held conflicting opinions about climate change and its causes
- Apparent lack of consistency in recommended actions (for example you could recycle some items but not others; buses were viewed as heavier polluters than cars)
- A feeling that all sectors (such as heavy industry and transport) and countries needed to take similar measures to have any impact

> *"I think we are quite good in this country but until the whole world gets on the same wave length, it's not worth it"* (Town and rural heavy car use – rural location)

It is worth noting that in the main survey, although a quarter of the *town and rural heavy car use* segment agreed with the statement 'it's not worth Britain trying to combat climate change, because other countries will just cancel out what we do', the majority (61%) disagreed. Whilst this proportion was lower than for *educated suburban families* (5) (75%) it was higher than any of the other segments.

Those attending the focus groups with the *town and rural heavy car use* segment were also strongly of the view that more environmentally friendly options were more costly (e.g. buying hybrid cars or installing solar panels) and this was a key barrier, as financial savings would be the main trigger to changing their behaviour.

Some participants felt that technological developments were likely to be the solution and the government needed to play a stronger role in encouraging this.

> *"I think hydrogen cars is the future, but we've got to find ways of storing it safely or converting it ….I think oil companies have too much hold on the car industry and technological developments are being stalled, it needs the government to set a firmer lead"* (Town and rural heavy car use – rural location)

However, the main survey findings indicated that the majority of the *town and rural heavy car use* segment did not feel we could wholly rely on technological developments and would not need to make some changes to how we lived.

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Current transport behaviour; attitudes to transport; and the motivators and barriers to transport behaviour change

The *town and rural heavy car use* segment used their cars frequently. Three-quarters only travelled frequently by car (at least once a week), with the remainder using a mix of car and public transport. They were above average users of air travel, with only *educated suburban families* (5) being more frequent fliers.

Car ownership and purchasing

The *town and rural heavy car use* segment had the highest level of car ownership of any segment. Almost all (95%) had at least two cars in their household with over half (53%) having three or more. They tended to own newer vehicles than average (only *affluent empty nesters* (4) were more likely to own a car which was less than 3 years old) and were markedly more likely than any other car-owning segment to own a car with a large engine (over half most frequently used a car with an engine size greater than 1,800cc).

The *town and rural heavy car use* segment was also the most reluctant to give up their car. Three quarters disagreed that they would gladly do without a car if they could. The focus groups revealed that they had owned two or more cars for many years and could not see this changing in the foreseeable future. To a large extent this reflected that both partners worked and that they used their cars to travel to work and/or carry out their job. For the rural group a car also helped them feel less isolated.

> *"We need two cars particularly during the week for getting to work. Maybe in 10-15yrs when we retire and the kids have all left home"* (Town and rural heavy car use – urban location)

> *"You would feel isolated if you didn't have a car – it's the freedom and independence"* (Town and rural heavy car use – rural location)

Almost no one in the *town and rural heavy car use* segment had joined a car club although the concept of car clubs appealed to those who took part in the more urban focus group. It was seen as a potential alternative to owning a second car, but *only if* it was practical to use for commuting to work and was significantly cheaper than running a car to offset the inconvenience of not having constant access to a car. They recognised that using a car club might help to break the habit of

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'just jumping into the car whenever they wanted' and encourage them to plan and use the car more efficiently.

> *"If you had it for an hour it would encourage you to be more efficient and plan all the things you needed to do, so you could get it done and the car back within the time"* (Town and rural heavy car use – urban location)

However, using a car club was not seen as a viable option for those attending the rural focus group. Whilst they could see that it might be attractive for people living in towns and cities, it was not seen as suitable for people living in rural areas who needed their cars most of the time as other forms of travel were not an option for most journeys. They also felt it was more costly than renting a car for ad-hoc purposes.

> *"It's fine if you lived in Exeter and can walk to the shops and use local transport and didn't need a car on a daily basis –although it might be cheaper to just hire a car for the day if you wanted to go a long distance"* (Town and rural heavy car use – rural location)

Reflecting the affluence of this segment, a relatively high proportion of the *town and rural heavy car use* segment (37% and second only to *affluent empty nesters* (4)) bought new cars, but most had bought their current car secondhand.

Nevertheless, in common with other segments, both purchase and running costs were important considerations in their choice of car. Buying a car with low carbon emissions per se was not a priority for them but they were notably more likely than all other car-owning segments to consider the style/design, features, speed and performance and image of the car as important. This was confirmed in the focus groups, but size was also a consideration for comfort, accommodating the family and / or animals and for safety (small cars being seen as less safe for making long journeys). They were also aware of the running costs, particularly fuel costs given their relatively high mileage.

> *"My sensible other half might think about the running cost, but I would go for the one I liked"* (Town and rural heavy car use – urban location)

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"We have a bigger car and a Ka –I wouldn't dream of taking the three of us up North for the weekend in the Ka – it's just not safe and so noisy and we wouldn't get all the bags in either" (Town and rural heavy car use – urban location)

Whilst the *town and rural heavy car use* segment was amongst the least likely to consider buying a smaller or lower emission car, well over half (61%) said they were likely to consider buying a car with a petrol or diesel engine, with lower emissions and/or a smaller engine than their current vehicle. They were also the most likely of any of the car-owning segments to already own a car with a diesel engine – 40% owned a diesel car compared with 30% of car owners overall.

The focus groups revealed that some had bought a smaller second car or switched to a diesel engine or would do so in future; rising petrol costs and the wish to reduce running costs more generally (lower tax and insurance) being the primary motivators.

The focus group participants saw some specific obstacles to buying hybrid or electric cars including:

- The cost of electric or hybrid cars
- The time delay before they were available on the second hand market
- They were seen as less suited to rural or long distance travel due to perceived limitations on speed, distance and lack of availability of recharging sites
- A lack of knowledge about electric and hybrid vehicles
- A disconnect in the image of hybrid/electric cars and the participants' self-image. They were perceived as 'functional' (and therefore lacking in terms of the importance this segment placed on 'style/design' and 'speed/performance' when buying a car) and driven by more wealthy and environmentally conscious groups

"An electric car just doesn't float my boat – the thought of not being able to go very fast or far without stopping wouldn't work for me" (Town and rural heavy car use – urban location)

Car travel behaviour

Consistent with their high levels of car ownership, almost all in the *town and rural heavy car use* segment (95%) were active drivers (only 5% were passengers only) and they personally drove the highest annual mileage of any segment (50% drove 9,000+ miles per annum). They all travelled

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by car at least once or twice a week, it being their main form of transport for getting to work, school or college. Their reliance on cars to get to work, school or college may relate to the distances they needed to travel – the average distance travelled to get to their place of work or study was 14 miles which was higher than for any other segment (including both car-owners and non-owners). Furthermore, and in common with other segments, those who travelled to work, school or college by car, tended to cite the relative speed (compared with other modes) and/or convenience as the reasons for choosing to travel this way.

The *town and rural heavy car use* segment was also the most likely to be classified as travelling by car out of habit - markedly more than any other segment (86% compared with 67% for *less affluent older sceptics* (3) which was the next highest segment, 57% for *educated suburban families* (5) and 54% for *less affluent urban young families* (2)).

The focus groups showed that the *town and rural heavy car use* segment lead full and busy lives juggling work, home and family commitments and leisure activities. Speed and convenience were the primary reasons for using the car and, particularly for those in the rural group; it often being the only viable form of transport. They also recognised that they generally just did not think about the alternatives.

> *"It's just habit - you don't think about it or plan it, you just jump in the car"* (Town and rural heavy car use – urban location)

The *town and rural heavy car use* segment used cars for almost all their journeys, and other forms of transport or walking were not considered unless it was a short distance, the weather was good, parking or congestion were an issue or they wanted to drink alcohol. It also required more time and planning.

> *"I used to take the train to work, but got out of the habit and it's quite difficult to get back into it as it means getting up 15-20 minutes earlier. I haven't worked it out but it's probably cheaper to go by train too"* (Town and rural heavy car use – urban location)

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> *"The school is not that far away so I could walk, but I usually drive because we are running late – it's easier with the younger ones to just scoop them up in their pyjamas and put them in the car. I'm more likely to walk, if it's nice weather to pick up the children as we've got more time"* (Town and rural heavy car use – urban location)

Safety was also an issue with concerns expressed about walking or cycling on narrow, windy roads without pavements in rural areas. In the urban group concerns were expressed about cycling on busy roads with lots of traffic. There were also concerns about personal safety related to the risk of crime or anti-social behaviour if travelling on buses or trains late at night.

The *town and rural heavy car use* segment exhibited similar levels of more fuel efficient driving behaviour to other car owners. They had also adopted similar types of fuel efficient driving behaviours. As with other segments, there was little use of formal car sharing among the *town and rural heavy car use* segment and they were less likely than other segments to acknowledge that they could potentially cut their regular journey to work or place of study by getting a lift with someone else or through car sharing. Only *affluent empty nesters* (4) (a smaller proportion of whom were still working) were less likely to feel they would do this. Those participating in the focus groups had some experience of informal car sharing such as taking children to school or to activities or travelling with a colleague for business. They felt the potential for this was limited, particularly in relation to the journey to work, as no one else travelled the same route or because they used their car to undertake their work and were travelling to different locations each day. It also restricted the ability to trip chain.

> *"You are tied to the person giving you a lift and their timings, so you lose that bit of freedom to do things on the way there or back"* (Town and rural heavy car use – urban location)

Buses and trains

As discussed, only around a quarter of the *town and rural heavy car use* segment travelled by bus or train at least once a week, which might in part reflect that their lack of proximity to transport links. Their use of trains was similar to other car-owning segments; only *educated suburban families* (5) travelled by train more frequently, but they travelled by bus less frequently than any other segment, with almost two thirds travelling by bus less than once a year or never. Even *affluent empty nesters* (4) who had a similarly rural profile and proximity to transport links, were

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more frequent bus travellers (only a third used them less than once a year or never and a quarter used them at least once a week), but this may be because journey time was less of an issue given most *affluent empty nesters* (4) were retired.

The *town and rural heavy car use* segment had a negative image of buses; they did not feel that successful people used buses and were the segment that was least likely to agree that they liked travelling by bus. They were also the most likely to say they would only use the bus if they had no other choice. Their views of trains were more ambivalent, but they did feel that travelling by train was expensive. In terms of the risk of accidents, trains were seen as the safest form of transport and buses were perceived to be safer than cars. Buses were seen to pose the greatest risk to personal safety in terms of the risk of crime or anti-social behaviour, with almost a quarter saying they were the least safe (which was significantly higher than most other segments except *educated suburban families* (5)). As noted previously, there were also concerns expressed in the focus groups about the risk to personal safety of travelling on buses and trains late at night.

Focus group participants from the *town and rural heavy car use* segment reported using buses and trains infrequently. Views were therefore based on limited use, memories or hearsay. Trains were mainly used to commute to London (and, in the rural group, the nearest city, Exeter) for both business and leisure, as it was quicker than travelling by car and there were no problems parking. Buses were hardly used at all and were seen as being for the old, school children or the poor who had no alternative form of transport.

> *"I've never thought to use the train to go shopping or into town in the evening – it would be nice to have a drink occasionally and not have to worry about driving back"* (Town and rural heavy car use – rural location)

The main barriers to using buses and trains for the *town and rural heavy car use* segment were time and that the routes were not convenient. Cost was also an issue, particularly when there was more than one person travelling.

> *"I did take the bus when I first started college but it took over an hour compared to a 20 minute drive and it cost over £5 a day. Even allowing for parking, it's a lot cheaper to drive. I tried it because I thought it would be easier and cheaper but its not"* (Town and rural heavy car use – urban location)

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Segment 6: Town and rural heavy car use

In the rural focus group, travelling by bus or train was often not a viable option for most regular journeys because there was no service covering the required route or at a suitable time - and using a combination of car and bus or train was felt to be no quicker. The only exception was the Park and Ride service into Exeter which was regarded as frequent and cheap. It was seen as the quickest way to travel into the congested centre of Exeter as it used bus lanes and avoided the problem of parking in the city centre, but the service stopped at 7pm and was not thought to be suitable if you had lots of shopping.

> *"My son works in next village and although there is a bus, he can't use it as he needs to be in by 9am and the bus doesn't get there by that time"* (Town and rural heavy car use – rural location)

In the urban focus group, bus and train routes were similarly not convenient for regular journeys and buses were not seen as a reliable or pleasant form of transport.

> *"It's the cost, the waiting in the cold, wondering when the bus will come, who you might have to sit next to..... the Nigel Mansells behind the wheel..... it's not really one things it's a combination of things that just puts you off - it's so much easier and nicer to use your own car"* (Town and rural heavy car use – urban location)

Cycling and walking

Ownership and usage of bicycles among the *town and rural heavy car use* segment was high compared with other segments, being only slightly lower to that of *educated suburban families* (5). Almost three quarters (72%) owned or had continuous use of a bicycle and over half rode their bicycle with one in six riding at least once a week. Only a small proportion (3%) had a disability or mobility issue which made it impossible for them to ride a bicycle. Some of those in the focus groups with children had rediscovered their enthusiasm for cycling as a leisure pursuit.

The *town and rural heavy car use* segment were the most confident and willing to ride on roads and the least concerned about the dangers of cycling on the road, albeit that, in line with the population overall, most thought it was the least safe form of transport. Concerns about crime (notably bicycle theft) were lower than among the other segments except *educated suburban families* (5).

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However, they viewed cycling as principally a leisure activity and not for travelling to work. This was mainly due to the distance between the home and workplace and, as a result of the distance, because it would take longer to cycle than drive (as noted earlier this segment had the greatest average distance – nearly 14 miles – of any segment to travel to work). Those who travelled to work, school or college by car and for whom cycling was a realistic option[23] tended to say that nothing would encourage them to cycle instead of travel by car (66% gave this response which is comparable with *less affluent urban young families* (2)). Furthermore, three quarters of those who rode a bicycle and lived 10 miles or less from their workplace which they went to at least twice a week, disagreed that it would be quicker to cycle than drive, which was comparable with *less affluent urban young families* (2) but significantly higher than *educated suburban families* (5), who were more likely to be regular cyclists. The town and rural car use (6) segment were also the least likely to walk regularly to work or their place of study (only 1% did so) or to make small or top-up shopping trips on foot (12% compared with over a third of *educated suburban families* (5) and *less affluent urban young families* (2)).

The focus groups confirmed the *town and rural heavy car use* segment saw cycling and walking as leisure pursuits, with or without children, or for walking their dogs. This was mainly because it was not possible for them to walk because of the distances or because they needed their car for work. Where it was possible to walk or cycle, the fact that it would take longer, the vagaries of the weather, not being able to do other things on the way there or back and simply 'getting out of the habit' were the primary barriers. There were also concerns about having an accident or their bicycle being stolen.

> *" It takes me 7 minutes to cycle to work, but it involves getting up a bit earlier and if I need to be in at 5am for milking –it just doesn't happen"* (Town and rural heavy car use – rural location)

> *"My journey to work is 8-9 miles so you would only cycle if you were really fit and get there looking like you have been through a hedge backwards"* (Town and rural heavy car use – rural location)

[23] Limited to those who were able to ride a bicycle and lived within 10 miles of their usual workplace / place of study.

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There was little awareness of cycle to work schemes among the *town and rural heavy car use* segment and they were sceptical that these would encourage more people, who were not already minded to, to cycle to work.

Some walked to carry out smaller shops, pick up children from school or go to the pub, if the destination was local, the weather was fine, and they had the time. However, the wish to trip chain was a barrier for some.

> *"We are within walking distance of the town and if I haven't got a lot of shopping, because you obviously can't walk if you have 10 bags of shopping, I just walk as it's quicker and easier. With the car you need to go all the way round the one way system and find a space to park in the car park and get the kids in and out of the car- so if I just need a few bits I will walk …. assuming it's not really cold or raining of course"* (Town and rural heavy car use – urban location)

The *town and rural heavy car use* segment felt the main benefits of cycling and walking were increased health and fitness, but also recognised that it was sometimes quicker for a short journey and, if walking, there were no parking issues.

They were not aware of any journey planners or websites for identifying off road or quieter cycling routes, but did not see a need for these as they were generally aware of routes for leisure cycling.

> *"There are quite a few routes around Braintree for cycling off the road. We know them as they are local and my son and I frequently use them"* (Town and rural heavy car use – urban location)

Trip avoidance and journey planning

About one in eight people in the *town and rural heavy car use* segment who travelled regularly to the same place of work said they usually or sometimes did other things like taking the children to school or doing shopping on the way. This was comparable with *less affluent urban young families* (2) but significantly lower than *educated suburban families* (5) a fifth of whom usually did other things on the way to work. Furthermore over half of those who made regular journeys to

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work, school or college usually or sometimes combined this trip with other journeys to reduce the amount they travelled and a quarter felt they could do more of this.

In the focus groups, the *town and rural heavy car use* segment frequently described trip chaining (without referring to it as this) as a way of juggling all the things they had to do and saving time. Those more sensitive to fuel costs, notably in the rural group, also said it was a way of saving money.

> *"Generally because fuel is so much more expensive, I will try and think a bit more about where I go and do two or three things at same time"* (Town and rural heavy car use – rural location)

Trip chaining was mainly done on the way to and from work or where they had a number of errands to do, but was not something they did when they were making social or leisure trips.

> *"Work, shopping, picking up the kids – that's all chores so the quicker and easier they are to do the better but going out is different, I wouldn't tend to do these together"* (Town and rural heavy car use – urban location)

Working from home was not generally an option due to the nature of their work. Almost all (97%) of the *town and rural heavy car use* segment had access to the internet at home and reflecting this, they were significant users of internet shopping for grocery and non-grocery items; only *educated suburban families* (5) were more frequent users. A third had used the internet for food shopping at least once, with a quarter using it at least some of the time and one in ten on a regular basis. Use of the internet for buying non-grocery items was much higher; eight out of ten had used it and four in ten (39%) used it regularly.

In the focus groups with the *town and rural heavy car use* segment, those shopping online for groceries explained that it was mainly to save time and although some had been prompted to try it by a voucher for free delivery, it was also felt that it was probably no more costly as you were not tempted to 'impulse buy'. However, it was recognised that it required more planning. Cost and convenience were the main benefits of shopping online for non grocery items, but they also felt the choice and availability of all sizes (for clothes shopping) was generally better online.

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> *"I use Tesco home delivery if I've got a voucher for free delivery – its so much more convenient than putting kids in the car, going round store and getting it all packed etc."* (Town and rural heavy car use – urban location)

> *"I haven't done it yet, but bet it would be cheaper and easier than going shopping a few time a week, as you always buy things on impulse"* (Town and rural heavy car use – urban location)

Use of satellite navigation systems was very common amongst those participating in the focus groups with the *town and rural heavy car use* segment and they were aware and used websites to help with planning of long journeys. However, these tools were used to determine the quickest route and not the shortest or most fuel efficient.

Conclusion

Overall, trip avoidance and switching at least one of their cars to a smaller and more efficient model offered the most potential for encouraging more sustainable travel behaviour among the *town and rural heavy car use* segment as they would be the actions that were least likely to impact on their lifestyle; saving money and time (in the case of trip avoidance) being the primary motivators. They might also be encouraged to make more mixed mode journeys and either walk or cycle for short journeys, where they offer time savings or health benefits. But the potential amongst this segment for switching to walking, cycling or public transport was likely to be limited by structural barriers and the fact that they were the most likely to travel by car out of habit.

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NON-CAR OWNING SEGMENTS

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Segment 7: Elderly without cars

6% of population

Socio-demographics

The *elderly without cars* were the oldest of all nine segments (and the first of the three non-owner segments). Nearly two thirds were aged 70 or older and therefore nearly all were retired. After *older less mobile car owners*, they were the segment most likely to have mobility issues. Around three-quarters had some form of mobility issue, with half having problems going out on foot.

The segment tended to come from lower socio-economic groups, with a high proportion in groups D and E. This was probably a reflection of the high proportion of retired people in the segment (80%) - all people whose sole income comes from a state pension are categorised in group E. Despite this, most of the segment described themselves as either living comfortably or coping financially. Consistent with the age and socio-economic profile of the segment, they were the least likely of any segment to hold formal qualifications; nearly three-quarters held none of the qualifications which were listed in the survey.

Very few of the *elderly without cars* lived in rural areas with the vast majority living in urban areas and town and fringe locations. Most had lived in their current home for 20 years or more.

Attitudes to environment and climate change

The *elderly without cars* tended to feel that their lifestyles were already low impact and therefore did not feel they had a personal responsibility to change their behaviour for the sake of the environment or climate change. A higher than average proportion felt that they had already done as much as they could to reduce their CO2 emissions, even though they tended not to think that they could personally make a difference to climate change. Regardless of how much they felt they

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already did, most (more than three quarters) said they were not interested in finding out more about what they could do personally to tackle climate change.

Current transport behaviour; attitudes to transport; and the motivators and barriers to transport behaviour change

The *elderly without cars* were the most regular users of cars among the three non-owner segments; and despite not owning a car themselves, around half travelled by car at least once a week (generally as a passenger). Around one in five travelled regularly only by car while a quarter travelled regularly by both car and public transport. Conversely they were less likely than other non-owners to regular travel by public transport, although more than half travelled by public transport at least once a week, with a third saying they travelled regularly only by public transport.

However, it was most noticeable that one in five of the *elderly without cars* did not travel regularly at all - neither travelling by car or by public transport on a regular basis. This made them the least regular travelers of all the nine segments. Furthermore, along with the *urban low income without cars* (9) (who were the least affluent segment), they were the least likely to have flown in the 12 months prior to the survey (just one in ten had taken a flight in that time period).

As discussed, most of the *elderly without cars* were already retired, so very few needed to travel on a regular basis to get to work or a place of study.

Car ownership and purchasing

None of the *elderly without cars* owned a car at the time of the survey and the majority of the segment did not have a driving licence. Few of the small number (47) who held a driving licence were keen to own a car in the future and a relatively high proportion said they did not own a car because they were too old or unwell.

Car travel behaviour

Since none of the *elderly without cars* owned a car, it was no surprise that they travelled less frequently by car than the population overall. However, they tended to travel more frequently by car than any of the other non-owner segments (also noted above). This reflects the high proportion of the segment who had mobility issues and therefore relied on lifts from others to get around.

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Buses and trains

There were two distinct and polarised sub-groups among the *elderly without cars*; those who used buses at least once a week (59% of the segment) and those who never used buses or used them less than once a year (24%). The second of these sub-groups tended to have mobility issues, with a high proportion having difficulties going out on foot or using local buses. However, for those who were able to get out and about, local buses were a very important mode of transport and one which most of the segment said they liked using.

The *elderly without cars* saw buses as a very safe way of travelling and they were the most likely segment to select buses as the safest mode of transport, above cars, trains and bicycles, both in terms of risk of crime and accidents. They were also the least likely segment to think that travelling by bus was expensive, which may reflect the high proportion of pensioners entitled to free travel on buses.

The *elderly without cars* rarely travelled by train – two thirds indicated that they never travelled by train or travelled by train less than once a year. However, it was likely this was because they tended not to make the kind of (long distance) journeys that trains generally serve; most of the segment agreed that they liked travelling by train, few found train travel stressful and they were the least likely of any of the segments to agree that travelling by train was expensive. Interestingly, they were the most likely to agree that successful people tend to travel by car rather than by train.

Cycling and walking

Cycling and walking were not realistic options for the *elderly without cars* for most journeys. This is to be expected given their age profile and the prevalence of mobility issues in the segment. They were the least likely of any segment to own a bicycle and nearly all of the segment never cycled or cycled less often than once a year. They were also very worried about how safe cycling was although, given their mobility issues, addressing their concerns would be unlikely to encourage them to cycle.

Similarly, they were less likely to walk to get around than some other segments, although four in ten said they usually walked to do top-up shopping or smaller more regular shops. This was more than the average in the population overall.

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Trip avoidance and journey planning

Very few in the *elderly without cars* segment used home delivery for either food or non-grocery shopping. This was unsurprising given that most of the segment were at least 70 years old and only 17% had access to the internet at home (compared with 79% overall).

Given that most of the *elderly without cars* did not make regular journeys for work or study, there was little scope for them to avoid making journeys altogether or use techniques such as trip chaining to reduce their impact. Also, as previously mentioned, most people in the segment were reliant on lifts and did not have their own driving licence.

Conclusion

The *elderly without cars* had a relatively low impact in terms of the CO2 emissions resulting from their transport behaviour but, as a result of their mobility issues, they did tend to rely on lifts more than the other non-owner segments. Those who were able to, already used local buses on a frequent basis and this segment tended not to make longer trips using trains or planes. Reflecting how little they travelled, this segment tended to feel their lives had a low impact on the environment and climate change and that they had already done everything they could already. Given their age and high levels of mobility issues, walking and cycling more were not realistic options for most members of this segment. Therefore, as a group, there was little scope (or need) to change their behaviour. However, there may be some limited possibilities to encourage their use of Demand Responsive Transport (e.g. Dial-a-Ride) services and to avoid making unnecessary trips.

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Segment 8: Young urbanites without cars

7% of population

Socio-demographics

Young urbanites without cars represented a small proportion (7%) of the adult population in England. Over half (55%) were aged under 30, compared with an average of a quarter (23%) of all respondents. A quarter (25%) had children aged under-18 living with them. Two out of five (41%) lived in London with most of the rest (53%) living in urban areas outside of London. Nearly half (47%) worked full-time, with another 14% working part-time. Most (63%) were from the higher socio-economic groups (ABC1); with half (53%) from social grade C1. This segment was the second most highly qualified after the *educated suburban families* (5), 30% had a first degree or a higher level qualification, compared to 20% of all respondents and a further quarter (24%) were full-time students[24].

For their age, a relatively high proportion (26%) of those already in work were in managerial or professional roles, mostly in more junior positions, although a sizeable proportion (44%) were in semi-routine or routine jobs. Given their young age profile and relatively high level of education, this gave an overall picture of an upwardly-mobile group at the start of their careers. Nearly a third (31%) said they were living comfortably on their current income with another half (53%) saying that they were coping financially. As with the other younger segments (the *less affluent urban young families* (2) and the *urban low income without cars* (9)) the *young urbanites without cars* have greater ethnic diversity than the older segments.

As might be expected among such a young segment, over half (53%) of *young urbanites without cars* had lived in their current home for less than two years. Consistent with their urban profile,

[24] Full-time students are graded as C1.

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almost all of them said that they lived within 13 minutes walk of a bus stop (99%) and nearly half of them (47%) that they lived within 13 minutes walk of a train station. For two-thirds (66%) of the segment access to public transport links was said to be important in their decision to move to their current home.

Attitudes to environment and climate change

Two in five (39%) *young urbanites without cars* said that they believed that climate change was already impacting on the UK, which was the same as the average among all respondents (40%), but another quarter (24%) believed that it will have an impact on the UK in their lifetime, which is a higher proportion than in any of the other segments. Moreover, a lower proportion than in many other segments (56%) disagreed that the effects of climate change are too far in the future to really worry me.

Young urbanites without cars, along with the *educated suburban families* (5), were the most likely to agree that 'if things continue on their current course, we will soon experience a major environmental disaster' (58% and 59% respectively). However, they were the second most likely segment, after the *educated suburban families* (5), to disagree that climate change is beyond control and it's too late to do anything about it (70% and 76% respectively).

Commensurate with the view that it is possible for individual behaviour to make an impact on climate change, over half of *young urbanites without cars* agreed that what they did personally could make a real different to climate change (55%), although a quarter (25%) neither agreed nor disagreed and a further fifth (20%) disagreed. Perhaps surprisingly, given the relatively short distances this segment claimed to travel day-to-day, they were the most likely to agree with the statement 'how I personally travel makes a real difference to climate change' (58% compared with 47% overall). Nevertheless, the focus group discussions revealed that while participants felt that individual actions could make some difference, they believed that many people must adopt the behaviour to make a substantial impact on climate change. The focus group participants tended to see climate change as an international issue, but recognised that this was not a reason not to take action. They discussed the increased publicity given to the issue and considered that future generations would have different views. Indeed, they believed that they could already see changes in public attitudes over the last decade or so.

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Segment 8: Young urbanites without cars

Young urbanites without cars who participated in focus groups believed that they had very small carbon footprints and in the main survey 44% agreed that they had done as much as they could to reduce their CO2 emissions. They did not see themselves as generating additional CO2 by using buses and trains, as illustrated by the following quote.

> *"The bus runs without me."* (Young urbanites without cars)

Young urbanites without cars were the most likely of all the segments to say that they were doing most or everything they could in terms of environmental behaviours **and** that they were interested in finding out more (13% compared with 7% of all respondents). Overall, four in ten (41%) were interested in finding out what more they could do to change their behaviour, compared with a third (35%) of all respondents.

In the focus group discussions *young urbanites without cars* largely agreed that financial incentives would be the main motivator for most people in changing behaviour. This segment was the most likely to believe that developments in technology will stop climate change so we won't have to change how we live, although only a fifth agreed (21%). Indeed, some of those in the focus group expected that new technology would have a big role to play in reducing CO2 emissions, as electric cars, for example, were developed. Participants were rather sceptical that behaviour would change because they did not think that the public would give up the comfort of travelling by car.

Current transport behaviour; attitudes to transport; and the motivators and barriers to transport behaviour change

Young urbanites without cars, along with the *urban low income without cars* (9), were by far the most likely to say that they used only public transport at least once or twice a week (54%). Only 6% travelled by car at least once a week and used no other forms of transport. Their levels of air travel were close to the average for the population overall, although they were considerably more likely to have flown in the past 12 months than the other two non-car owning segments (*elderly without cars* (7) and *urban low income without cars* (9)).

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Segment 8: Young urbanites without cars

The focus group discussions with *young urbanites without cars* showed that they tended to look for the quickest routes, trading-off cost and time, and were prepared to pay more for a quicker route. This was especially true in London.

Car ownership and purchasing

None of the *young urbanites without cars* had a car in their household but the survey showed that nearly half (44%) of them held driving licences, which is considerably higher than the other non-car owning segments; only 3% were too young to drive yet. The main reason given for not having a car by members of this segment who could drive was cost (72%)[25] and the focus group discussions confirmed that this was very important.

However, one in three (29%)[24] *young urbanites without cars* who held a driving licence said that they had no need of a car and this was also reinforced in the focus group discussions. Participants said that they did not have cars because of the cost in relation to their likely usage and the difficulties and cost of parking near to their home. In inner city locations a car was not seen as more convenient than either walking or using buses, trams and the London Underground for the journeys participants made day-to-day. Participants said that they were to be able to get lifts from family and friends or in some cases to borrow cars on the occasions when they were needed.

In general *young urbanites without cars* who participated in the focus group did not aspire to own a car unless they needed one for family or work commitments and they did not see cars as aspirational (unlike *urban low income without cars* (9), who were considerably more likely to see car ownership as a sign of success). Neither did they see cars as a natural lifestage progression, although learning to drive might be.

> *"A car is more of a need, not to prove I've made it in the world."* (Young urbanites without cars)

Some focus group participants had given-up a car on moving to the city centre. All felt that living in the suburbs and/or having children made a car more of a necessity and that some people would always want their own transport.

[25] NB The base is very small.

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Segment 8: Young urbanites without cars

Over half of *young urbanites without cars* (58%) agreed that low carbon emissions would be high on their list of 'must haves' if they were to buy a car. In the focus groups participants said they were prepared to consider fuel efficient cars. Even though they did not anticipate buying a car in the foreseeable future in their current circumstances, living in the city centre, they could see the benefits of small cars for ease of maneuver and parking, as well as lower purchase and running costs. They expected hybrid and electric cars to be more viable options when they potentially came to buy cars in the future and some expected to buy cars in these categories. Safety was a very important consideration in any future car purchase for some female focus group participants. The male focus group participants tended to assume that all cars were safe or they would be removed from the market.

Car clubs

Along with the *educated suburban families* (5), the *young urbanites without cars* were more likely than other segments to have joined a car club, with 2% having done so compared with 1% of all respondents. However, in the focus groups when car clubs were explained there were mixed views. Some thought the idea excellent and convenient. Others found the concept very expensive in comparison to hiring or borrowing a car or even buying a cheap car and in view of the ready availability of all forms of public transport. Some said that a car was an asset that could be sold and that the cost of car clubs did not seem to have factored in the resale value of a car. Those who expected to buy a car in the future did not see car clubs as an alternative because they felt that owning a car would ensure instant and constant access, which was important to them.

Participants had many questions about how car clubs operated, and they were especially concerned about the condition of the cars that were available, specifically:

- How do I know it's in good condition?
- Will it be clean? How will it be cleaned between users? What if I leave it dirty?
- How does the company know if the previous user damaged it? They envisaged taking photographs of the car before setting off to demonstrate the condition of the car in case of later queries from the car club company.

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Segment 8: Young urbanites without cars

Those who took part in the focus group discussions generally expected to move to the suburbs and have children. Envisaging themselves in this situation included owning a car as a necessity with young children. Joining a car club instead of buying a car was not seen as providing the instant and continuous access they thought they would want and need.

Car travel behaviour

Young urbanites without cars reported travelling by car less frequently than the other two non-car owning segments, with about a third (36%) saying that they travelled by car at least once or twice a week but 22% said they travelled by car only once or twice a month and a fifth said that they never travelled by car. Fewer in this segment than in any other (11%) reported travelling to work, school or college by car at least once a week and fewer reported only travelling by car (6%) than in the other two non-car owning segments.

Young urbanites without cars were no more likely than average to be users of formal car sharing schemes and the focus group discussions revealed that concerns about personal safety underlay their reluctance to join. Focus group discussions showed that informal car sharing and getting lifts, were frequently used ways of getting around. Participants found that friends and family would go out of their way to give them a lift because they sometimes had no alternative to make a journey other than by taxi. They acknowledged that they may be generating additional CO2 via those who were giving them lifts.

Buses and trains

Two-thirds (69%) of *young urbanites without cars* said that they travelled by bus at least once a week and this segment was one of the most favourable towards buses. This segment, along with the *urban low income without cars* (9), was the most likely to *disagree* with the statement 'I would only travel by bus if I had no other choice' (48% and 49% respectively), although 43% of the *young urbanites without cars* agreed with the statement. Moreover, of the non-car owning segments, this was the segment that was *least* likely to agree with the statement 'in general I think that successful people tend to travel by car rather than by bus' (42%) and the *most* likely to disagree with the statement (27%). Fewer of this segment than of either of the other non-car owning segments said they found travelling by bus stressful.

Nevertheless, fewer respondents in this segment than in any of the other non-car owning segments rated bus travel as the safest means of transport with respect to accidents compared

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with cars and trains (33%). Similarly, in terms crime, a quarter (23%) rated buses as the safest form of travel, compared with 22% of the *urban low income without cars* (9) and 40% of the *elderly without cars* (7) and they were the most likely (12%) to rate buses as the least safe option.

The focus group discussions revealed that bus lanes were a key motivation to using buses.

> *"It always feels good when you go past in the bus lane."* (Young urbanites without cars)

However, for *young urbanites without cars* outside London, buses were not regarded as reliable, especially for the journey to work and the London group favoured the Underground over buses because they felt it was more reliable and they could be more confident of arrival times. Furthermore, among the small number of survey respondents from this segment who usually travelled to work, school or college by bus (68 people) many said this was because they had no choice. More positive reasons given for travelling to work by bus included general convenience, speed, cheap costs, and because there was a direct route to where they worked.

Outside of London, focus group participants felt that bus services seemed to be poorly planned and coordinated, resulting in duplicated provision, which in turn contributed towards congestion in the city centre. They also found the different companies running bus services confusing and restrictive in that return tickets were not always accepted by all companies.

Compared with *all* the other segments, considerably more of the *young urbanites without cars* reported travelling by train at least once a week (26%), but half (48%) said that they used trains less than once or twice a month. The focus groups participants said that they used trains for business and leisure trips and that they felt that trains were more reliable than buses.

Young urbanites without cars tended to be positive towards train travel. The survey found that they were the least likely of the non-car owning segments to agree with the statement 'in general, I think that successful people tend to travel by car rather than by train' (19%). Over two-thirds (70%), which was more than any other non-car owning segment, agreed that 'I like traveling by train', and although over a third (39%) agreed that 'I would only travel by train if I had no other choice', this is well below average (46%). Additionally, of all the non-car owning segments, they were the most likely to rate trains as the safest form of transport with respect to accidents compared with buses and cars (56%). Moreover, a considerably higher proportion of the segment

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than of any other rated trains as the safest form of transport compared to cars and buses in relation to crime (29%).

However, a quarter (26%) of *young urbanites without cars* said that they found travelling by train stressful, which is a relatively high proportion compared with all the other segments; only the *urban low income without cars* (9) were more likely to say that they found traveling by train stressful (30%). Furthermore, three-quarters (74%) claimed that travelling by train was expensive.

Cycling and walking

More *young urbanites without cars* said that they could ride a bicycle[26] than in any of the other non-car owning segments (90% compared with 84% of the *urban low income without cars* (9) and 33% of the *elderly without cars* (7)). However, only a third (32%) of those who said that they could ride a bicycle owned one, although 20% of those who could cycle, reported cycling at least once a week. The small number of respondents (21) who cycled to work tended to say they cycled because it was quick, cheap, enjoyable or to keep fit. This segment and the town and rural car use (6) segment were second only to the *educated suburban families* (5) in disagreeing with the statement 'I'm not they kind of person who rides a bicycle', (58% of the former two segments, compared with 72% of the latter).

A third (34%) of *young urbanites without cars* agreed that they would feel confident cycling on the roads, whereas 56% agreed that 'it's too dangerous for me to cycle on the roads' and over half agreed that they would cycle (more) if there were more dedicated cycle paths (54%). The focus group discussions highlighted the importance of safety from traffic when cycling, especially for the women.

> *"It seems like they* [bus drivers] *just think you're* [cyclists] *an inconvenience."* (Young urbanites without cars)

> *"I never cycle, I don't feel confident enough"* (Young urbanites without cars)

[26] Had learnt to ride a bicycle and were physically still able to do so.

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The other main barriers to cycling to work that emerged from the focus group discussions were:

- the weather;
- the volume of traffic;
- the attitude of many car and bus drivers;
- the lack of washing and changing facilities at work places; and
- the security of bicycle racks.

Nearly half (46%) of *young urbanites without cars* agreed that they would cycle (more) if there were more secure places to store bicycles. This sentiment was reflected in the focus group discussions, especially relative to the security of leaving a car parked.

> *"If I'd cycled here tonight I would have thought, where can I leave my bike? Will it still be there when I leave? But I never would have thought with parking a car, will it still be there? Will it have been vandalised?"* (Young urbanites without cars)

In the focus groups with *young urbanites without cars*, we explored the concept of bicycle hire schemes, such as the Barclays Cycle Hire scheme in London using information from that website as an example of how such a scheme might operate. In general this type of scheme was not felt to be useful for their lifestyles. For those living in Zone 2 in London, getting to a docking station involved using public transport to get to Zone 1, and there seemed little point in then transferring to a bicycle. If there were docking stations in Zone 2, this might be an incentive to use the scheme as it would avoid using public transport in Zone 1, which was more expensive. Outside London participants felt that there was no need to cycle around city centres because they tended to be small enough to walk around.

Some participants disliked the uncertainty of bicycle availability, despite an 'app' giving information on availability in real time, because it was not possible to plan ahead. Some also felt that the absence of a helmet was a barrier to use and that the service was expensive if used for more than 30 minutes[27].

A higher proportion of *young urbanites without cars* who regularly went to work, school or college than in any other segment said that they usually walked there (31%). In addition, more of this

[27] The need to pay a registration fee has been removed since the focus group fieldwork was conducted.

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segment than of any other (80%) indicated that they usually walked to do top-up shopping or smaller more regular shops. In the focus groups participants said that they tended to shop on a more-or-less daily basis; usually buying what they needed on the way home from work. They also pointed out that walking cost nothing and some chose to walk because they were conscious of the environmental benefits.

Safety at night reportedly deterred some female *young urbanites without cars* from walking alone once it was dark and there were fewer people on the streets.

Trip avoidance and journey planning

In the survey, the small number (14) of *young urbanites without cars* who said they usually travelled to work by car (all but one of whom said they travelled as passengers) tended to say that they could not combine trips to work, school or college with other trips, presumably because they were reliant on someone else driving.

With high levels of internet access in their homes (83% had access), *young urbanites without cars* were the second most likely segment to regularly use home delivery for food shopping (after the *educated suburban families* (5) (17%)), with a further 10% using it sometimes. However, when it came to non-food shopping, far fewer of this segment, compared to the *educated suburban families* (5) and the town and rural car use (6) segment shopped online (19%).

Most *young urbanites without cars* were single (55%, compared with an average of 23%) and this was reflected in the focus group participants. Going out tended to relate to their work and/or social life and was focused locally with only occasional trips to other towns or cities to visit family and friends. The focus group participants believed that they were already trip chaining where this was possible.

In the focus groups, *young urbanites without cars* said that they used journey planning websites to find places they had not been before, rather than to improve regular routes or avoid traffic. In London, the Transport for London (TfL) website was widely used to check whether services were running on schedule. They also used trainline.com, national rail and QJump for rail information and tickets. Participants also accessed the internet on their mobile phones to check services and train times, which they found more convenient than paper printouts.

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Segment 8: Young urbanites without cars

In the survey, *young urbanites without cars* who were working showed an average likelihood of ever working from home - nearly two-thirds (64%) of those who did not usually work from home said they worked from home less than once a year or never. None of those who participated in the focus group discussions felt that they could work at home because they were too junior. This reflected the survey findings (noted previously) that those *young urbanites without cars* who were already in work appeared to be young, upwardly-mobile people at the start of their careers. The focus group participants also said that self-motivation would be a problem and that working at home might motivate them to go out more to socialise having been alone all day.

Conclusion

At present the *young urbanites without cars* had lifestyles that suggested their CO2 output from travel was relatively low. However, attitudinally and educationally this group was similar to the *educated suburban families* (5). The challenge is therefore to prevent their travel patterns becoming more car-dependent as they grow older, move to the suburbs and have children. In London, inner city living with children may be seen as a viable lifestyle choice but elsewhere the nature of the accommodation available and the quality of the schools were major barriers to living in areas where a car was not required. However, given their more pro-environmental attitudes, they could, and should be, encouraged to consider proximity to public transport links and local amenities in their choice of future home. Good information about public transport links would also be helpful in this regard. Further, encouraging more cycling and walking now might help to sustain these habits as their lifestyle changes. As they progress in their careers, home-working may become more of an option and help to reduce the impact of any future increases in transport-related CO2 emissions.

Young urbanites without cars expected to be able to purchase cars that were sustainable as a result of technological developments, if and when they needed to purchase a car. It is therefore important that information about emissions is available at the time of purchase. Car clubs might mitigate their need to own a (second) car.

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Segment 9: Urban low income without cars

5% of population

Socio demographics

As described above, *young urbanites without cars* (8) were the most 'London-centric' segment. However, the *urban low income without cars* were also highly likely to be living in London (27% compared with 15% overall), and more than 90% of the segment lived in an urban location. They tended to be young with most of the segment aged between 21 and 49 and a very high proportion of 21-29 years olds. Along with *less affluent urban young families* (2) and *educated suburban families* (5) they were among the most likely to have children living at home and a particularly high proportion had young children (aged less than 5).

Relatively few people in the *urban low income without cars* segment were working at the time of the survey and many were either unemployed, looking after the family / home, or long-term sick or disabled. Of the small number in work, most were in routine or semi-routine jobs. Reflecting this, nearly two thirds came from socio-economic group E and nearly everyone in this segment came from groups C2, D or E. They were also among the least well educated of the segments. Many were struggling to cope financially with less than one in ten saying they were living comfortably.

As we might expect given their age and location, many of the *urban low income without cars* had been living in their current home for a short period of time (around half had lived there for 2 years or less). Transport links were felt to be important in the decision to move to their current home and many were within a 2 minute walk of their nearest bus stop.

Attitudes to environment and climate change

Overall, the *urban low income without cars'* views on environmental issues and climate change were fairly typical of the wider population, although notably they were among the least likely to

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say they were concerned about climate change. They were also moderately more likely than average to agree that: they had already done as much as they could to reduce their CO2 emissions, that climate change was beyond our control, and that the weather in UK was more severe these days. Otherwise their views were not particularly different from the norm.

The *urban low income without cars* were among the least 'pro-environmental' in terms of their self-reported environmental behaviour and expressed willingness to do more. A high proportion said they did nothing or only one or two things that were environmentally-friendly and they were inclined to be happy with what they were currently doing.

Current transport behaviour; attitudes to transport; and the motivators and barriers to transport behaviour change

Although they did not own a car, most of the *urban low income without cars* regularly travelled by some form of transport (i.e. at least once a week). Just 5% indicated that they did not travel either by car or public transport at least once a week. Similar to *young urbanites without cars* (8), more than half travelled regularly *only* by public transport, around a third regularly travelled using a combination of cars and public transport, and just one in ten travelled regularly *only* by car. This suggests they were highly reliant on public transport.

The majority of the *urban low income without cars* had not flown in the 12 months leading up to the survey. In fact after the *elderly without cars* (7), the majority of whom were aged 70 or older, they were the least likely to have taken a flight. This was likely to be because they could not afford to fly (see earlier discussion on working status and financial situation).

Car ownership and purchasing

Of the three non- car owner segments, the *urban low income without cars* were the most likely to aspire to own a car, with the majority saying they were 'keen' to own one. The main reason they gave for not having a car currently was the cost of buying and/or owning one. This may be expected given the financial situation of many in this segment. They were the least likely to say they did not own a car because they did not need one. It is also interesting to note that 30% of the segment held a full driving licence. By implication many people in this segment would probably buy a car and/or learn to drive if their financial situation improved.

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Segment 9: Urban low income without cars

***Car travel behaviour**.*

Slightly less than half of the *urban low income without cars* travelled by car at least weekly (presumably relying on lifts from others). This was considerably less than the proportion that travelled by public transport, and specifically by bus, on a weekly basis.

Buses and trains

The *urban low income without cars* were 'reluctant bus travellers'. Of all the segments they travelled the most frequently by bus; more than three-quarters travelled by bus at least once a week and a third did so everyday. However, many expressed negative views about bus travel. They were the most likely of any segment to agree that travelling by bus was expensive, that successful people tended to travel by car rather than by bus, and that they found travelling by bus 'stressful'. It is reasonable to assume that many were travelling by bus out of necessity, this being the only feasible option; despite frequently travelling by bus the majority agreed that they would only travel by bus if they had no other choice. In fact among the small number of survey respondents from this segment who usually travelled to work, school or college by bus (37 people) most said this was because they had no choice.

Frequency of train travel amongst the *urban low income without cars* was similar to the population overall – around one in ten could be described as a regular train traveler, travelling by train at least once a week. Their views on train travel were similar to their views on bus travel, suggesting they were negative about public transport at a more general level. A relatively high proportion agreed that successful people tended to travel by car rather than by train, they would only travel by train if they had no other choice and they found travelling by train 'stressful'. Compared with other segments, they also tended to see trains as less safe in terms of becoming a victim of crime.

Cycling and walking

Other segments were more likely to own bicycles (only a quarter of *urban low income without cars* owned one) but they were among the most frequent cyclists; one in five cycled at least once a week and one in ten cycled every day (more than among any of the other segments). The results suggest that those who did own a bicycle tended to cycle on a very frequent basis. Despite this, the *urban low income without cars* did share most of the same safety concerns as the wider population, although they were less likely than others to describe cycling as the least safe form of transport in terms of accidents when compared to cars, buses and trains.

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Segment 9: Urban low income without cars

After *young urbanites without cars* (8), this segment were the most likely to walk to do local food shopping (either top-up shopping or smaller more regular shops).

Trip avoidance and journey planning

As with the *elderly without cars* (7), few of the *urban low income without cars* made regular journeys for work or study and most who did travelled by bus. Consequently there was little scope for them to avoid making regular journeys or reduce their impact through trip chaining or combining. Of the small number in work, the largely routine nature of their work appeared to preclude working from home.

Only half the *urban low income without cars* had access to the internet at home so use of home delivery for food and non-grocery shopping was limited. Even among those who did have internet access, only around one in ten regularly used home delivery for food shopping.

Conclusion

Many of the *urban low income without cars* were struggling – they were the least comfortable financially of all nine segments and many were unemployed. Most were living in urban locations and they were much younger than average. Their current travel behaviour was relatively low impact; they tended to use public transport (and buses specifically) more often than cars or other private vehicles. It was unlikely they would be willing or able to use public transport more frequently particularly as many of the segment were reluctant to travel by bus, only doing so out of necessity. They might be encouraged to consider cycling and walking more for shorter local trips. However, it is important to understand that this segment tended to feel their lifestyles were already low impact and many were uninterested in changing their behaviour for the sake of the environment.

While none of the segment currently owned a car, most aspired to own one. Their reasons for not owning a car tended to be financial (they would buy a car if they could afford one) and related to the fact that relatively few of them (only 17%) had a full driving licence. Given their aspiration to car ownership, they might become *less affluent urban young families* (2) in future. This being the case, some of the actions to promote behaviour change amongst *less affluent urban young families* (2) might also be appropriate for this segment, including actions to improve their experience/use of buses, walking and cycling.

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4. Conclusion

The segmentation analysis identified nine distinct segments and the extent and nature of the changes in behaviour they might be encouraged to make to reduce carbon emissions from transport and car travel particularly. This section provides a hierarchy of importance which divides the nine segments into four broad groups according to the priority the department and its delivery partners including local authorities and the voluntary, communities and social enterprises sector, could attach to these. The order of priority was decided considering two main factors – the 'impact' and the 'potential for change' in each segment:

- '**Impact**'. How sustainable their current transport behaviour is in terms of their CO2 emissions from travel and therefore the positive impact they could have if they change their transport behaviour in future
- '**Potential for change**'. As described in the preceding sections, for some of the segments it will be far more challenging to change their transport behaviour. Potential for change can be limited by a number of factors including psychographic (e.g. habit, values, social norms), demographic (e.g. life-stage, mobility issues) and structural factors (e.g. availability of public transport services covering the journeys travelled, journey distances).

Segments with a higher impact and/or higher potential for change are afforded the highest priority, these being the segments where policy initiatives are likely to have the greatest effect. Those with a lower impact and/or lower potential for change are afforded the lowest priority. To a lesser extent, the hierarchy also takes into account the relative size of the segments as this also affects the size of impact that targeted interventions will have on the population overall (the top four priority segments described below account for more than 50% of the population). The groups are described in descending order; group (A) representing the highest priority segments and group (D) representing the lowest. The descriptions below provide a rationale for the proposed hierarchy and suggestions for the types of behaviour change that could be most easily encouraged in each segment.

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As highlighted by previous research[28], it should be noted that single policy initiatives are unlikely to be effective on their own; rather, integrated packages of interventions which address the multiple barriers to behaviour change (as faced by each segment) are likely to be needed. The survey findings highlighted the great extent to which car owners travel by car out of habit (i.e. without consideration of the alternatives) and how most car buyers, particularly older car purchasers, tend to buy the same type of car each time they buy one. This suggests key challenges will be to encourage individuals to *think* about what they are currently doing, the ways they are doing it and how and why they should change (which are not to be under-estimated) and/or to design infrastructure and services in ways which enable/encourage behaviour change without such thinking being required (e.g. by incorporating nudges[29] into their design).

It should be noted that, at the local level, the proportion of the population belonging to each of the segments will vary considerably. For example, *affluent empty nesters* (4) and *town and rural heavy car use* (6) will be more prominent in more rural areas or small towns; in contrast, *educated suburban families* (5) will be more prominent in the affluent suburbs of larger towns and cities; and *young urbanites without cars* (8) and *urban low income without cars* (9) will be more prominent in city centres, particularly London. Further details on how local authorities and other bodies working at the local level can identify which segments are prominent in their local area are provided in Appendix A4.

Types of behaviour change relevant to all groups

For all nine segments trip avoidance and trip chaining offer potential for encouraging more sustainable travel behaviour. These should be strongly promoted as they are among the behaviours that would be most easily encouraged - offering cost and time savings without significantly impinging on people's lifestyle and habits. Starting with the behaviours which are simplest and easiest to adopt is likely to be most effective in the short term and could potentially make it easier to encourage further, more substantial, changes in the longer term.

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[28] Anable, J. Lane, B. and Kelay, T. (2006) An Evidence Base Review of Public Attitudes to Climate Change and Transport Behaviour, available here: http://www.dft.gov.uk/pgr/sustainable/climatechange/areviewofpublicattitudestocl5731

[29] Thaler, R. and Sunstein, C. (2008) *Nudge*, Penguin Books. Thaler and Sunstein define a nudge as an aspect of 'choice architecture' (defined as the situation or context in which a choice is made) which 'alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives'. Nudges are usually aspects of design which take advantage of aspects of human behaviour which are largely unconscious, uncontrolled, fast, effortless and/or automatic. This is usually achieved without people being aware that their decision is being influenced.

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Among the six car-owning segments buying fuel-efficient vehicles and adopting fuel-efficient driving techniques also offer considerable potential. Again these are behaviours that car owners/drivers can be more easily encouraged to adopt as they should not impact significantly on their lifestyles and they also offer cost savings. However, in encouraging the purchase of fuel-efficient vehicles the focus should be on the promotion of more efficient vehicles rather than the most efficient vehicles as:

- The most fuel-efficient vehicles are new and therefore tend to be more expensive (e.g. hybrid and electric cars). They are not a viable option for many car owners, particularly those in the less affluent car-owning segments (1, 2 and 3)
- Most people buy second hand cars, so there will be a time lag before newer/more fuel efficient cars become more widely available in the market
- People's car choices reflect their wider needs and aspirations (e.g. for larger, family size or high performance vehicles)

Furthermore, initiatives to encourage the purchasing of more fuel efficient vehicles are likely to be more effective if they promote purchasing of the most efficient vehicle within the size and type required and if information on fuel efficiency is provided in an accessible way (for example the most efficient 2-3 year old family cars).

The discussion below focuses on behaviours which are specific to each segment.

Group (A) – Highest priority

Educated suburban families (5) and *affluent empty nesters* (4) should be considered the highest priority. Both segments currently have a reasonably high impact in terms of their CO2 emissions and there is a good level of potential for change in both segments.

Educated suburban families (5)

Educated suburban families currently travel a lot – tending to drive a high annual mileage and take a relatively high number of flights per year. The potential impact of behaviour change in this segment is therefore large compared with most other groups. Crucially, compared with the other car-owning segments, they are less likely to travel by car out of habit and regularly reassess the most appropriate mode of transport for the journeys they make. This means they are already

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open to trying alternative modes of transport. Compared to all the other segments, *educated suburban families* are also relatively aware of the impact of transport on climate change and are willing to change their behaviour. They see an important role for government in setting an example and providing the infrastructure to facilitate change. In terms of car purchasing, *educated suburban families* were the most likely segment to say that environmental considerations/low CO2 emissions were important to them when buying a car; they were also among the least likely to select speed/performance. This suggests they may be relatively receptive to initiatives to encourage the purchasing of more fuel efficient cars. Their relatively affluent profile also suggests they should be more likely to be able to afford the most fuel efficient cars which, given their high levels of car use, may also be particularly effective among this segment in terms of reduced CO2 emissions and fuel/cost savings. More generally, increased awareness and availability of car clubs and a better understanding of how they work could lead some to give up their second car and thereby further reduce the extent to which this segment travel by car out of habit.

Their already relatively positive attitudes to cycling and high levels of bicycle ownership suggest that *educated suburban families* should be a priority group for efforts to increase cycling. The findings suggest that integrated packages of measures to increase cycling among *educated suburban families* should include:

- More cycle lanes, especially those that physically separate cars and bicycles, which may address the relatively high level of traffic-related cycling safety concerns in this segment
- Initiatives which enable/encourage the uptake of electric bicycles (which increase the distances that individuals can typically cycle) which may be particularly effective for this segment given the relatively long distances they commute
- Better provision of bicycle storage and washing and changing facilities at workplaces.

Looking at public transport, information about improvements to bus services (e.g. newer, more comfortable buses or more frequent services) and bus lanes could also stimulate bus use to save time. Train travel for inter-city, leisure and business trips could be increased by raising awareness of lower priced advance tickets. Stimulating thought about access to public transport when moving home could also enable greater choice between modes in the longer term.

Educated suburban families appear to be the most readily able segment to work from home and use home delivery. Working with employers to enable and encourage home working and

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supporting initiatives to encourage greater levels of home delivery could therefore be particularly effective among this segment.

Affluent empty nesters (4)

Affluent empty nesters also have a reasonably high impact although less than *educated suburban families* (5). They tend to travel by car regularly and do not like using buses, although, compared with other segments, their annual mileage is not particularly high. It should also be noted that they are among the most well-off segments and as many are retired they have, at least in theory, the financial resources and a reasonable degree of flexibility to make changes to the way they travel. However, their potential for change may be limited by their location – around half of *affluent empty nesters* live in rural areas, meaning that public transport services are less likely to cover the routes travelled. Furthermore, walking may be less of an option given the longer journey distances associated with rural living, although *affluent empty nesters* may be encouraged to walk some, shorter, journeys, particularly if the health benefits of doing so are highlighted. Their older age profile, and relatively low levels of cycling and bicycle ownership suggest that cycling is less likely to be an option for this segment. Members of the segment also tended to travel by car out of habit. This suggests that initiatives to encourage the purchasing of smaller, more fuel efficient vehicles may be most effective among this segment. The focus group discussions indicated that retirement is a key point when people *consider* buying smaller cars and/or reducing the numbers of cars they own to reflect the change in their lifestyle, although the survey data suggested that many *affluent empty nesters* continue to drive larger cars and own more than one car beyond retirement. This suggests there is considerable scope for further change among *affluent empty nesters* in terms of the number and type of vehicles owned.

Group (B)

Less affluent urban young families (2) and *young urbanites without cars* (8) have been allocated to the second level of priority for very different reasons. *Less affluent urban young families* (2) have an average impact in terms of their travel behaviour but while there are significant barriers to change, they are the largest segment and still relatively young, so the potential gains (in terms of tons of carbon saved over their lifetime) even from relatively small changes in behaviour will be significant. Furthermore, key aspects of their circumstances mean they may find changing their behaviour easier than other segments. Conversely, while *young urbanites without cars* (8)

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currently appear to have lower personal travel carbon emissions than the car-owning segments, their young, 'upwardly-mobile' nature means they have a high potential for increasing their personal travel carbon emissions in the future, particularly if they have children and/or move out of the city centre.

Less affluent urban young families (2)

Less affluent urban young families are limited by their financial circumstances and by the logistics of transporting themselves and, for some, their children. They aspire to owning a car and their car is an important purchase for them. Although their choice and number of cars is currently constrained by their lower incomes, their view of car ownership as a status symbol and their desire to own a larger or faster car means that some may own more and larger, less fuel efficient cars in future if their income increases and they move to the *town and rural heavy car use* segment (6). However, many may remain on a lower income and become older, less affluent sceptics (3) as they age. Their car reinforces their sense of identity and reflects concerns about their personal safety and feelings of vulnerability when using alternative forms of transport. That said, they are already travelling reasonably frequently by bus and there may be scope to increase their use of public transport and/or mixed mode journeys if these concerns can be addressed and their experiences of using public transport improved. Crucially, their urban and young age profile and the relatively close proximity of their usual workplace to their home mean that walking, cycling and public transport are far more likely to be viable options for *less affluent urban young families* (2) than for other car-owning segments who (for example) may not be able to cycle to work due to living too far away or having mobility difficulties related to being older. Information and tools to help *less affluent urban young families* (2) calculate the costs associated with car ownership and use may persuade them to avoid making unnecessary car journeys, trip chain or drive in a more fuel efficient way. Connected to this, online shopping may be promoted to them as a more convenient and less stressful alternative to shopping trips, particularly for those with young children.

Young urbanites without cars (8)

At present, *young urbanites without cars* lead very low impact lifestyles. The concern is that, attitudinally and educationally, this group is similar to the *educated suburban families* (5). The challenge is therefore to prevent their travel patterns from changing as they grow older,

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particularly if they have children and/or move to the suburbs (thereby potentially increasing their personal travel carbon emissions). What is positive is they are prepared to act to reduce their CO2 emissions. The focus groups suggested this segment tend to expect that electric or hybrid cars will be a viable option by the time they come to buy a car and some expected to buy such cars. Car clubs might also mitigate the need for them to own a car in future. Good information about public transport access might encourage continued use particularly among those with young children; it might also help those moving out to the suburbs in future to consider proximity to public transport links and local amenities in their choice of future home. Messages and infrastructure that enable and encourage walking or cycling for short trips if they move or have children, could also help to enable continued travel by these modes.

Group (C)

The *Less affluent older sceptics* (3) and *town and rural heavy car use* (6) segments offer less potential (again for different reasons). *Less affluent older sceptics* (3) currently have a fairly low impact and their potential for change is limited. And, while the *town and rural heavy car use* (6) segment have a very high impact, their potential for change is very low compared with other segments (with the exception of those in group (D)). The cost effectiveness of targeting these segments is therefore more limited.

Less affluent older sceptics (3)

Less affluent older sceptics currently lead fairly low impact lifestyles. Although they do tend to make a lot of shorter trips by car, their annual mileage is relatively low compared with other car owners and they use public transport less frequently than average. Furthermore, effecting behaviour change may be challenging. *Less affluent older sceptics* were among the most likely to disagree that the way they travel makes a real difference to climate change and they are reluctant to make changes to their travel behaviour that cost them money or inconvenience them. In keeping with this, they are motivated by options that save them money. In addition to buying more fuel-efficient cars and adopting fuel-efficient driving techniques, they are receptive to using buses (particularly those who already have a free bus pass), Demand Responsive Transport (e.g. Dial-a-Ride) services (where they are convenient and cost effective) and walking shorter journeys for health reasons .

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Town and rural heavy car use (6)

The *town and rural heavy car use* segment probably generate higher levels of CO2 emissions from transport than any other segment. Often living in rural areas they were less likely than other segments to live close to transport links and rarely use public transport. They were the most frequent car travellers, drove the greatest annual mileage, owned the highest number of vehicles per household and tended to own cars with larger engines. In addition, both partners were usually working and they tended to commute long distances to work and/or use their cars for work. Overall, they appeared to be among the least willing and able to switch mode to change their transport behaviour. Buses, trains, cycling and walking were not considered viable options for most regular journeys due to time, convenience, distance, cost and the (poor) weather. Walking and cycling were viewed as leisure activities rather than a mode of transport. Those in rural communities also feel that having a car at their disposal makes them less isolated. The actions this segment might be encouraged to adopt would be trip avoidance (with time, convenience and cost savings being motivators for this) and switching at least one of their cars to a smaller and more efficient model. However the importance this segment places on speed/performance and style/design when buying a car suggests they may be less willing to switch to a more fuel efficient car than other segments; certainly, any messages which aim to encourage them to buy a more fuel efficient car would need to be very different from those that will be effective among *educated suburban families* (5). The *town and rural heavy car use* segment might also be encouraged to make more mixed mode journeys and walk or cycle short journeys, where these offer time savings or health benefits. Overall, the findings suggest that behaviour change will be difficult to achieve among the *town and rural heavy car use* segment given the structural barriers they face to increased walking, cycling and public transport use, their attitudes towards car purchasing, and the fact they travel by car out of habit and desire.

Group (D) – Lowest priority

The three segments in this lowest priority group (*older less mobile car owners* (1), *elderly without cars* (7) and *urban low income without cars* (9)) all have a relatively low impact in terms of their travel behaviour. Compared with other segments they tend to travel less frequently overall and, more specifically, travel infrequently by car. Their CO2 emissions are therefore likely to be low. Furthermore the *elderly without cars* (7) and the *urban low income without cars* (9) do not currently own a car and although segment (9) aspire to own a car in the future, segment (7) are unlikely to buy a car in the near future (for financial reasons and because relatively few have a

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driving licence). *Older less mobile car owners* (1) tend to use their cars infrequently (often only as a passenger) and personally drive a relatively low annual mileage. They are reliant on cars due to mobility issues (which pose real barriers to using public transport, walking or cycling) and it is therefore neither likely nor desirable for them to give up their car.

Consistent with how little they travelled relative to other groups, respondents in all three segments tended to think their lifestyles have little impact on the environment or climate change and therefore did not feel either a need or a desire to change their travel behaviour. For both *older less mobile car owners* (1) and the *elderly without cars* (7) mobility issues were also a significant barrier to change, although there may be some possibility to encourage the use of Demand Responsive Transport (e.g. Dial-a-Ride) services and to avoid making unnecessary trips in these segments.

In contrast the *urban low income without cars* (9) represent a challenge for the future. Given their young age profile and aspiration to car ownership, they might become *less affluent urban young families* (2) in future if their income increases. This being the case, efforts to mitigate the risk that their personal travel carbon emissions may increase in future may be best designed to account for the issues facing *less affluent urban young families* (2).

Note on hierarchy

The commentary above provides a hierarchy of importance but while some segments have been afforded a higher level of priority this does not imply lower priority groups should be ignored. Rather it highlights those segments which should be the focus, and where future activity is likely to be more cost effective. It is also important to understand that some of the suggested actions, including trip avoidance and chaining, are relevant to all segments.

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Appendix A – Quantitative appendices

The tables presented below (Appendices A1 and A2) summarise key survey data by segment. Appendix A1 provides a series of tables summarising the results from questions which were used to develop the segmentation and subsequent allocation algorithm (i.e. those which can be used to replicate the current segmentation). Appendix A2 is a set of 'thematic' tables, presenting key survey findings by theme for each of the nine segments. The tables can be used to further understand the composition of the segments.

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APPENDIX A1 – Segmentation data tables

Demographics / circumstances

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Rural/urban										
Urban - London	15	9	16	8	8	16	4	14	41	27
Urban - Other	59	57	67	61	51	54	52	68	53	64
Town and Fringe	12	15	9	14	13	14	14	12	5	7
Village, Hamlet and Isolated Dwellings	15	18	8	16	28	16	30	7	1	2
Age of respondent F5										
16-20	8	1	20	-	-	5	9	-	16	9
21-29	15	-	33	-	*	10	16	-	39	36
30-39	17	1	30	3	*	27	20	1	19	22
40-49	19	11	14	17	3	38	25	5	12	22
50-59	15	15	3	29	21	17	21	12	9	9
60-69	13	29	*	31	39	3	7	19	5	1
70+	14	43	*	20	36	*	1	64	1	1
SEG										
ABC1 (Net)	57	53	45	25	88	91	72	30	63	6
A	6	3	1	-	15	13	9	1	1	-
B	20	15	10	4	37	40	35	6	8	-
C1	32	36	35	21	36	38	28	23	53	6
C2DE (Net)	43	47	55	75	12	9	28	70	37	94
C2	22	22	32	39	10	9	22	19	20	6
D	13	13	17	29	1	-	6	26	13	25
E	8	12	6	7	*	*	*	25	5	63
Employment status A4										
Working full time (30 hours or more per week)	44	16	50	36	19	70	69	6	47	15
Working part time (less than 30 hours per week)	14	6	16	15	11	19	13	3	14	14
Net unemployed (inc. Registered unemployed/ signing on for jobseekers allowance and Not registered unemployed but seeking work)	4	0	6	4	2	1	4	1	5	27
Looking after family or home/not seeking work	6	4	11	4	1	3	4	3	4	22
Long-term sick or disabled	3	10	1	2	*	*	-	7	2	11
Retired	22	62	*	39	66	2	4	80	4	2
Net in education (incl. full-time education, local or government training scheme (GTS) and Apprenticeship)	7	1	16	0	0	6	5	0	24	7
Other / Refused	*	*	*	*	0	0	1	0	*	1
Highest level of education F12										
University Higher Degree or First degree	20	9	14	-	25	50	22	3	30	3
Diploma in HE or A level	30	20	37	9	40	35	41	11	41	9
GCSE	27	23	38	28	28	14	29	13	26	37
None of the above	23	45	11	63	6	1	7	73	3	51
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

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	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Presence of children in household (youngest child) F5										
Age 0 - 4	12	3	24	1	0	17	12	1	15	25
Age 5 - 11	11	6	16	5	1	22	13	1	5	8
Age 12 - 17	11	5	14	10	3	16	13	4	5	18
None	66	86	46	83	96	45	62	94	74	49
Disability/difficulty riding bike B2/39										
Any mobility difficulty	19	100	3	7	15	3	3	77	4	16
No difficulties	81	0	97	93	85	97	97	23	96	84
Financial situationF15										
Living comfortably on present income	44	38	33	36	67	56	65	39	31	8
Coping on present income	42	44	47	50	30	39	32	48	53	35
Finding it difficult on present income	11	14	15	11	2	5	3	10	15	35
Finding it very difficult on present income	3	4	5	2	-	*	1	2	1	22
How long lived in current home A1										
Up to 1 year	13	4	26	2	1	7	8	1	38	30
More than 1 year, up to 2 years	7	2	11	4	1	7	5	3	15	21
More than 2 years, up to 5 years	16	9	21	7	3	25	18	6	19	19
More than 5 years, up to 10 years	17	13	18	13	10	26	23	10	10	9
More than 10 years, up to 20 years	22	24	20	25	22	25	28	20	11	19
More than 20 years	25	48	4	49	64	10	18	58	8	3
Don't know / Refused	*	0	*	0	0	0	0	1	0	0
Length of time to walk from home to nearest bus stop or place to get bus B28										
2 minutes or less	43	29	54	40	31	44	37	32	62	50
3-6 minutes	38	38	34	40	45	40	34	43	32	40
7-13 minutes	10	15	6	11	14	10	13	15	5	8
14-26 minutes	4	9	2	5	4	4	7	7	1	1
27minutes or longer	3	7	2	3	5	1	6	1	0	0
Don't know	2	2	2	1	1	1	4	2	0	0
Length of time to walk from home to nearest railway station B32										
6 minutes or less	10	4	13	6	6	12	6	5	28	11
7-13 minutes	12	8	13	10	10	14	8	14	19	17
14-26 minutes	22	19	26	20	21	20	20	18	24	25
27-43 minutes	15	13	17	17	14	15	14	13	12	15
44 minutes or longer	39	53	29	46	49	38	50	43	14	30
Don't know	2	2	2	2	0	*	2	7	3	2
Importance of public transport links in decision to move to current home A3										
Very/fairly important	40	38	41	30	29	41	25	52	66	64
Neither important nor unimportant	4	3	6	3	3	5	4	6	3	3
Not very/not at all important	55	59	51	67	67	54	70	41	31	32
Don't know	1	*	3	*	*	*	2	*	*	1
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

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Attitudes towards the environment and climate change

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Views on effect of climate change (D10/11)										
Yes - already impacting on UK	40	36	40	32	30	54	43	34	39	39
Yes - not yet impacting on UK but will in lifetime	18	14	21	15	17	21	20	9	24	15
Yes - will only impact on UK in future	21	25	16	32	29	15	22	22	19	17
No - will have no impact on UK / climate change not happening	6	9	7	6	9	2	5	11	5	8
Unsure / Don't know	14	16	17	15	15	8	10	24	13	22
Current environmental behaviour and willingness/interest in changing (D4/5 and D25)										
Do nothing / 1 or 2 things - do not want to do more	20	19	25	24	13	6	28	29	17	30
Do nothing / 1 or 2 things - want to do more - not interested in finding out more	5	4	7	2	2	5	9	2	5	5
Do nothing / 1 or 2 things - want to do more - interested in finding out more	11	2	14	8	5	16	16	4	10	10
Do quite a few things - do not want to do more	20	31	18	29	28	14	16	25	15	12
Do quite a few things - want to do more - not interested in finding out more	5	3	6	3	4	6	7	1	5	6
Do quite a few things - want to do more - interested in finding out more	17	7	16	13	14	35	15	2	18	13
Do most or everything - do not want to do more	13	24	6	13	23	8	6	27	14	12
Do most or everything - want to do more - not interested in finding out more	1	2	1	1	2	0	1	2	2	3
Do most or everything - want to do more - interested in finding out more	7	6	6	6	9	9	2	6	13	5
Not Applicable	1	1	*	1	0	0	0	3	1	2
D23a. We seem to have much more severe weather in the UK these days										
Definitely/tend agree (Net)	60	55	69	68	38	52	60	65	59	70
Neither agree nor disagree	17	13	18	10	16	23	19	10	24	13
Tend/definitely disagree (Net)	22	32	13	21	46	24	21	24	13	15
Don't know	1	1	*	*	-	*	-	1	4	2
D23b. I've noticed a change in the seasons in the last few years										
Definitely/tend agree (Net)	77	83	78	86	68	72	77	78	80	78
Neither agree nor disagree	11	6	13	6	13	14	11	7	8	10
Tend/definitely disagree (Net)	12	10	9	8	19	13	12	15	10	11
Don't know	1	*	1	1	*	*	-	*	2	1
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

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	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
D23c. The effects of climate change are too far in the future to really worry me										
Definitely/tend agree (Net)	23	39	18	33	24	9	13	53	24	27
Neither agree nor disagree	16	13	23	14	17	9	16	12	19	19
Tend/definitely disagree (Net)	60	47	58	52	56	82	70	32	56	51
Not Applicable	*	*	-	*	2	-	1	1	-	*
Don't know	1	1	1	1	1	*	-	3	*	4
D23d. It's not worth Britain trying to combat climate change, because other countries will just cancel out what we do										
Definitely/tend agree (Net)	27	40	19	42	29	16	25	39	23	22
Neither agree nor disagree	16	13	25	14	13	8	13	15	14	32
Tend/definitely disagree (Net)	56	47	53	43	56	75	61	40	60	40
Not Applicable	*	-	-	-	1	-	-	*	-	2
Don't know	2	1	2	2	1	*	1	6	3	4
D23e. If things continue on their current course, we will soon experience a major environmental disaster										
Definitely/tend agree (Net)	50	44	51	50	34	59	46	49	58	50
Neither agree nor disagree	29	26	32	27	30	26	35	21	25	27
Tend/definitely disagree (Net)	18	22	14	20	32	14	18	20	14	14
Not Applicable	*	-	-	-	*	-	-	-	-	2
Don't know	4	9	3	4	4	1	1	11	4	7
D23f. What I do personally can make a real difference to climate change										
Definitely/tend agree (Net)	52	45	56	48	46	59	51	42	55	48
Neither agree nor disagree	22	22	27	22	24	16	21	14	25	27
Tend/definitely disagree (Net)	25	30	17	28	29	24	28	40	20	22
Not Applicable	*	*	-	*	*	-	-	1	-	2
Don't know	1	2	1	1	1	1	-	4	1	2
D23g. Developments in technology will stop climate change so we won't have to change how we live										
Definitely/tend agree (Net)	15	17	15	20	12	9	15	19	21	16
Neither agree nor disagree	23	23	30	22	22	14	22	22	21	27
Tend/definitely disagree (Net)	58	52	52	53	60	77	62	39	57	50
Not Applicable	*	-	-	-	1	-	1	*	-	2
Don't know	4	9	3	4	5	*	*	19	2	6
Base : All respondents	3923	389	681	511	398	641	400	398	255	250

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	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
D23h. Climate change is beyond control - it's too late to do anything about it										
Definitely/tend agree (Net)	14	20	11	19	9	10	9	29	14	22
Neither agree nor disagree	19	19	22	18	20	13	21	19	16	25
Tend/definitely disagree (Net)	64	55	65	60	66	76	67	44	70	49
Not Applicable	*	*	-	*	2	-	*	*	-	2
Don't know	3	5	3	3	2	1	2	7	1	3
D26 a) Low carbon emissions would be high on my list of 'must haves' if I were to buy a new car										
Definitely/tend agree (Net)	56	57	49	67	61	70	50	28	58	39
Neither agree nor disagree	19	13	26	15	17	17	22	9	19	26
Tend/definitely disagree(Net)	17	18	21	15	19	11	28	9	11	17
Not Applicable/ Don't know (Net)	8	12	4	3	3	1	0	54	11	19
D26 b) I should try to limit my car use for the sake of the environment										
Definitely/tend agree (Net)	53	44	54	54	49	75	53	22	53	35
Neither agree nor disagree	18	17	21	20	17	12	19	11	21	21
Tend/definitely disagree (Net)	20	29	19	24	30	12	27	9	9	13
Not Applicable/ Don't know (Net)	9	10	5	2	3	1	1	58	17	32
D26 c) I would rather save energy at home than change how I travel										
Definitely/tend agree (Net)	54	55	59	59	54	44	61	48	47	45
Neither agree nor disagree	27	25	26	25	25	35	25	23	29	32
Tend/definitely disagree (Net)	16	15	13	14	20	20	12	15	22	17
Not Applicable/ Don't know (Net)	3	4	2	2	1	1	2	15	1	6
D26 d) How I personally travel makes a real difference to climate change										
Definitely/tend agree (Net)	47	38	50	39	42	56	43	36	58	49
Neither agree nor disagree	24	21	28	23	23	23	26	16	23	22
Tend/definitely disagree (Net)	27	38	20	35	33	20	30	33	16	24
Not Applicable/ Don't know (Net)	3	4	2	3	1	1	*	14	2	4
D26e) I have already done as much as I can to reduce my CO2 emissions										
Definitely/tend agree (Net)	39	62	29	56	47	24	22	63	44	47
Neither agree nor disagree	24	17	31	22	27	22	30	15	21	23
Tend/definitely disagree (Net)	34	16	37	20	25	54	48	8	34	26
Not Applicable/ Don't know (Net)	3	5	3	3	1	1	0	14	1	4
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

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Current transport behaviour

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Most frequent mode of transport (B20, 30, 33 and 40)										
Car only (use at least once or twice a week but no other forms)	55	73	56	67	67	59	75	22	6	11
Mixed car and public transport (use both at least once or twice a week)	32	22	37	31	30	39	25	26	30	30
Public transport only (use at least once or twice a week & not car)	10	2	5	2	2	1	0	34	54	54
Neither (do not use car or public transport frequently)	3	4	2	0	1	*	*	18	10	5
Whether flown in last 12 months (domestic, short-haul or long-haul) – B48 / B50 / B51										
Yes	49	31	48	41	59	70	65	11	49	17
No	51	69	52	59	41	30	35	89	51	83
Extent of flying (overall number of flights taken in last 12 months) – Domestic Flights – B48										
None	95	99	97	97	93	89	93	100	97	100
One	2	*	2	1	5	4	4	*	1	0
Two	1	*	*	*	1	3	1	0	1	*
Three	1	*	1	1	1	4	2	0	*	0
Extent of flying (overall number of flights taken in last 12 months) – Short Flights – B50										
None	64	78	68	68	56	47	51	94	63	89
One	19	15	18	20	20	24	26	4	16	8
Two	9	5	8	8	15	13	10	2	10	1
Three	8	2	5	4	10	16	13	1	11	1
Extent of flying (overall number of flights taken in last 12 months) – Long Flights – B51										
None	80	89	80	87	76	69	72	94	81	95
One	12	7	12	8	14	18	18	5	11	5
Two	5	3	6	4	6	8	7	1	4	0
Three	3	1	3	*	4	5	3	0	4	*
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

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Car ownership

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Number of cars in household B5										
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*
None	18	-	-	-	-	-	-	99	100	99
One	38	69	62	61	52	36	4	-	-	-
Two	31	22	32	31	41	53	42	-	-	-
Three or more	13	9	5	9	7	11	53	-	-	-
Don't Know/ Refused	*	0	0	0	0	0	0	1	*	1
Engine size of car used most frequently B10										
Base : All with car in household	*3025*	*389*	*681*	*511*	*398*	*641*	*400*	-	-	-
701 to 1400cc (0.7 to 1.4 litres) (Net)	26	27	28	32	29	26	18	-	-	-
1401 to 1800cc (1.4 to 1.8 litres) (Net)	29	35	28	30	28	29	26	-	-	-
1801cc plus (1.8 litres or more) (Net)	36	27	28	32	37	39	54	-	-	-
Don't know / Not stated	8	11	16	6	6	6	2	-	-	-
Age of car used most frequently B8										
Base : All with car in household	*3025*	*389*	*681*	*511*	*398*	*641*	*400*	-	-	-
1-2 years (Net)	17	20	9	12	27	19	22	-	-	-
3-4 years (Net)	16	12	15	12	21	15	24	-	-	-
5-9 years (Net)	38	32	37	41	30	44	36	-	-	-
10-14 years (Net)	21	22	26	23	16	20	14	-	-	-
15 years or more(Net)	4	7	4	9	5	2	2	-	-	-
Unknown	4	7	10	2	0	1	2	-	-	-
B24 k) If I could, I would gladly do without a car										
Base : All with car in household	*3025*	*389*	*681*	*511*	*398*	*641*	*400*	-	-	-
Definitely/tend agree (Net)	26	22	23	27	21	43	15	-	-	-
Neither agree nor disagree	12	10	15	9	10	14	9	-	-	-
Tend/definitely disagree (Net)	61	65	60	63	68	42	76	-	-	-
Not applicable	1	3	2	*	1	1	-	-	-	-
Don’t know	*	*	-	*	*	*	-	-	-	-
Whether hold driving licence- B3										
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*
Yes (Net)	77	69	78	91	89	97	99	14	44	30
No - too young	4	3	5	*	1	1	1	8	13	11
No – currently disqualified	-	-	1	-	-	-	-	-	1	2
No	19	28	16	9	11	1	*	78	43	57
Bases vary (see descriptions)										

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	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Reasons to not have a car – B15										
Base : No car in household but hold a driving licence	*156*	-	-	-	-	-	-	*47*	*72*	*37*
Cost / it's too expensive	69	-	-	-	-	-	-	48	72	82
I have no need of a car / van	24	-	-	-	-	-	-	24	29	9
I am too old/unfit/ unwell	6	-	-	-	-	-	-	22	1	5
I don't like to drive	5	-	-	-	-	-	-	5	5	4
I am temporarily without car / van	3	-	-	-	-	-	-	6	2	4
Given it up to reduce my Co2 emissions	2	-	-	-	-	-	-	-	4	-
I have access to someone else's car/van whenever	1	-	-	-	-	-	-	1	2	-
I am currently banned from driving	1	-	-	-	-	-	-	-	1	-
Other	8	-	-	-	-	-	-	12	6	8
Keenness to own car – B15a										
Base : All who don't have a car in household but who hold a driving licence	*156*	-	-	-	-	-	-	*47*	*72*	*37*
Keen (Net)	36	-	-	-	-	-	-	23	33	56
Not sure/it depends	17	-	-	-	-	-	-	-	22	19
Not keen (Net)	47	-	-	-	-	-	-	77	45	25
Bases vary (see descriptions)										

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Car purchasing

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Whether current car bought new or second hand B13*										
Base : All with car in household	*3025*	*389*	*681*	*511*	*398*	*641*	*400*	-	-	-
New	29	35	14	23	56	28	37	-	-	-
Second hand	69	63	81	76	42	72	62	-	-	-
Don't know/Not sure	2	2	5	1	2	1	1	-	-	-
B24 m I would like to own a larger or faster car										
Base : Own/use a car	*3025*	*389*	*681*	*511*	*398*	*641*	*400*	-	-	-
Definitely/tend agree (Net)	19	5	34	9	5	12	32	-	-	-
Neither agree nor disagree	15	9	19	7	11	12	27	-	-	-
Tend/definitely disagree (Net)	64	82	44	83	82	76	41	-	-	-
Not applicable	2	4	3	1	*	*	*	-	-	-
Don’t know	*	*	*	*	1	-	-	-	-	-
B24q. Agreement with q) I tend to buy the same brand of car (e.g. Ford Toyota)										
Base : Own/use a car and make car purchasing decisions	*2540*	*308*	*463*	*450*	*361*	*581*	*374*	-	-	-
Definitely/tend agree (Net)	35	40	29	43	49	30	29	-	-	-
Neither agree nor disagree	19	17	23	13	14	22	20	-	-	-
Tend/definitely disagree (Net)	45	41	46	43	34	48	51	-	-	-
Not applicable	1	2	2	1	2	*	*	-	-	-
Don’t know	*	-	-	*	*	-	1	-	-	-
B24 r) I tend to buy the same type / size of car (e.g. small car family estate sports car)										
Base : Own/use a car and make car purchasing decisions	*2540*	*308*	*463*	*450*	*361*	*581*	*374*	-	-	-
Definitely/tend agree (Net)	59	65	49	63	75	59	54	-	-	-
Neither agree nor disagree	16	10	21	9	11	18	18	-	-	-
Tend/definitely disagree (Net)	24	22	28	26	12	22	27	-	-	-
Not applicable	1	2	3	1	1	*	*	-	-	-
Don’t know	1	-	*	1	1	*	1	-	-	-
Factors important when buying new car B17										
Base : Main or joint decision maker for buying a car	*2540*	*308*	*463*	*450*	*361*	*581*	*374*	-	-	-
Reliability	68	63	62	68	78	68	69	-		
Costs - purchase/ running/resale value/ tax/insurance	55	45	58	50	58	61	52	-	-	-
Safety	50	43	51	44	57	50	53	-	-	-
Comfort	49	58	45	45	56	41	57	-	-	-
Interior space/ functionality/boot size	34	31	24	22	39	42	45	-	-	-
Environmentally friendly/low CO2 emissions	22	21	14	22	22	30	21	-	-	-
Style/design	22	15	15	12	17	12	58	-	-	-
Small engine	18	27	17	30	17	17	9	-	-	-
Features	15	10	10	9	14	12	30	-	-	-
Speed/performance	13	6	7	5	14	5	40	-	-	-
Image of brand / brand preference	11	6	8	5	13	5	30	-	-	-
Image of model / model preference	10	5	9	8	7	4	23	-	-	-
Large engine	5	3	2	4	5	3	12	-	-	-

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	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Costs considered when buying car B18b										
Base : All who think cost is important when buying a car	*1386*	*142*	*258*	*219*	*210*	*356*	*199*	-	-	-
Running / fuel costs	76	76	63	79	83	78	79	-	-	-
Purchase costs	72	66	71	65	68	77	77	-	-	-
Insurance	42	35	52	38	40	40	40	-	-	-
Tax	22	21	23	30	19	18	23	-	-	-
Resale value	12	5	9	6	16	13	21	-	-	-
Other	1	1	1	1	3	1	*	-	-	-
Don't know	1	3	-	2	*	-	1	-	-	-
Likelihood to buy a smaller/lower emission car next time CN 108										
Base : All who decide about car purchase	*2681*	*332*	*505*	*470*	*380*	*610*	*381*	-	-	-
Likely (Net)	67	53	66	68	62	79	61	-	-	-
Not likely (Net)	28	36	26	26	32	20	35	-	-	-
Don't know	5	11	8	6	5	2	4	-	-	-
Not stated	*	1	-	-	1	-	-	-	-	-
Bases vary (see descriptions)										

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Car travel behaviour

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Driving status and annual mileage (B5/19)										
Base : All Respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*
Private vehicle driver - full license & drive household vehicle (ALL)	66	62	62	87	86	95	94	-	-	-
Private vehicle driver–high annual mileage (9,000 miles +)	25	14	18	21	28	45	50	-	-	-
Private vehicle driver– medium annual mileage (5,000-8,999 miles)	21	20	20	30	24	28	30	-	-	-
Private vehicle driver–low annual mileage (0–4,999 miles)	19	27	20	33	33	21	13	-	-	-
Private vehicle driver – annual mileage unknown	2	1	5	2	1	1	1	-	-	-
Non active driver - full license but no vehicle in household / do not drive household vehicle	4	0	0	0	0	0	0	12	31	17
Passenger - no full license / do not drive but household vehicle	15	37	36	13	14	4	5	0	0	0
Non-user - no full license and no household vehicle	14	0	0	0	0	0	0	87	69	82
Not applicable	1	1	2	1	0	*	1	0	0	1
Frequency of car travel– B20										
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*
At least once or twice a week (Net)	87	95	93	98	97	99	100	48	36	41
Less than that but more than twice a month	2	1	2	1	1	1	-	6	4	4
Once or twice a month	5	2	4	*	2	*	*	14	22	19
Less than that but more than twice a year	2	1	1	*	-	-	-	8	12	7
Once or twice a year	1	1	-	-	-	-	-	4	4	2
Less than that or never	4	1	1	*	*	-	-	19	20	26
Frequency of travelling to work/school/college by car – B21										
Base : All who work or in full time education	*2212*	*75*	*537*	*234*	*122*	*590*	*347*	*26*	*202*	*79*
At least once a week (Net)	68	66	65	81	72	78	90	28	11	20
Less than that but more than twice a month	2	-	2	1	1	3	1	-	3	2
Once or twice a month	3	-	4	3	1	2	2	5	2	6
Less than that but more than twice a year	1	-	1	1	2	1	*	-	5	*
Once or twice a year	1	2	1	1	1	1	*	-	4	1
Less than that or never	26	32	28	13	22	16	6	68	76	71
Habitual car travel - B23 (1 on statements b, d, e)										
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*
No - Not Habitual	47	34	46	33	39	43	14	92	95	93
Yes - Habitual Driver	53	66	54	67	61	57	86	8	5	7
Whether a member of formal car sharing scheme of car club – CN111										
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*
Formal car sharing scheme	1	*	1	-	1	2	1	*	1	*
Car club (e.g. Street Car, Zip Car, City Car etc.)	1	*	1	*	1	2	*	-	2	*
Neither	95	97	96	95	94	92	95	98	93	99
Don't know	3	3	2	4	4	4	4	1	4	1
Bases vary (see descriptions)										

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	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Eco driving CN102 (1) *Base : All who have a driving licence and have at least one car in their household*	*2713*	*296*	*557*	*465*	*368*	*628*	*396*	-	-	-
Driving in a more fuel efficient manner	45	43	35	46	51	51	45	-	-	-
Eco driving CN105 *Base : All who have a driving licence and who drive at least one car in their household*	*2561*	*270*	*480*	*447*	*356*	*620*	*386*	-	-	-
Regularly checking my tyre pressure	56	54	60	54	60	56	53	-	-	-
Not accelerating too hard / going easy on the accelerator	56	58	43	57	72	58	56	-	-	-
Reading the road to avoid unnecessary acceleration and braking	51	55	39	41	68	58	53	-	-	-
Changing my speed to save fuel	47	47	41	46	51	48	48	-	-	-
Planning my journey to avoid congestion/road works/getting lost	41	42	32	34	49	44	44	-	-	-
Using air conditioning only when I really need it	38	33	34	27	42	44	41	-	-	-
Driving off from cold / Not warming up the car before driving off	28	25	21	27	39	28	30	-	-	-
Switching off my engine when stuck in a traffic jam	22	27	13	22	32	26	17	-	-	-
Checking revs / changing gear between 2000rpm and 2500rpm	22	21	14	19	30	25	23	-	-	-
Removing unused roof racks	7	7	4	5	11	9	8	-	-	-
Other	*	1	*	1	*	*	-	-	-	-
None-I've not adopted any of them	10	11	12	12	6	6	11	-	-	-
Don't know	1	1	1	1	1	1	1	-	-	-
Alternative way to make the journey to work or school/collegeCN21										
Base : All who drive regularly to work or to school / college	*1221*	*43*	*276*	*166*	*71*	*387*	*275*	-	-	-
By getting a lift with someone going the same way / going to the same place	25	18	32	25	15	26	20	-	-	-
Through a car share scheme	11	-	9	13	6	14	9	-	-	-
None	67	78	64	69	82	64	69	-	-	-
Don't know	3	4	3	1	*	3	6	-	-	-
Potential to combine trip to work or school/college with other trips – CN22										
Base : All who make regular journey to work or to school / college using a car as a driver or passenger	*1331*	*48*	*328*	*174*	*73*	*396*	*280*	*7*	*14*	*11*
Yes - I usually do this	25	13	23	19	30	33	22	9	3	6
Yes - I do this sometimes, but could do it more	23	18	23	16	16	26	24	18	8	14
Yes - I do this sometimes, but could not do it more	12	16	15	11	10	10	11	-	9	22
Yes - but I have not done this yet	2	-	2	5	4	2	1	-	-	-
No	39	54	38	49	40	29	42	73	80	59
Don't know	*	-	-	-	-	*	1	-	-	-
Bases vary (see descriptions)										

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Buses

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
B30. Frequency of bus use										
At least once a week (Net)	29	20	28	23	24	16	6	59	69	77
Less than that but more than twice a month	4	2	4	3	5	3	2	3	5	4
Once or twice a month	10	11	11	11	18	8	6	6	12	13
Less than that but more than twice a year	6	6	7	5	7	10	6	5	4	2
Once or twice a year	12	7	13	14	11	18	15	5	4	1
Less than that or never	39	54	37	44	35	44	64	24	6	4
B31a. In general, I think that successful people tend to travel by car rather than by bus										
Definitely/tend agree (Net)	52	57	50	63	58	40	52	62	42	67
Neither agree nor disagree	22	21	24	15	19	25	25	15	31	12
Tend/definitely disagree (Net)	24	18	24	21	21	35	22	17	27	20
Not applicable	1	1	*	*	1	1	1	1	-	-
Don't know	1	3	1	1	1	*	*	4	*	1
B31b. I would only travel by bus if I had no other choice										
Definitely/tend agree (Net)	60	64	66	62	49	54	75	41	43	60
Neither agree nor disagree	9	7	9	10	10	10	11	6	10	8
Tend/definitely disagree (Net)	30	26	25	27	40	35	12	49	48	31
Not applicable	1	2	*	1	1	*	1	4	-	-
Don't know	*	*	*	-	*	*	*	*	-	1
B31c. In general, when I have the choice I would rather walk or cycle than go by bus										
Definitely/tend agree (Net)	51	24	60	46	50	68	50	27	50	46
Neither agree nor disagree	15	10	15	16	15	13	20	10	19	16
Tend/definitely disagree (Net)	32	57	25	36	34	19	27	54	31	37
Not applicable	2	8	*	1	1	*	2	8	-	-
Don't know	*	-	-	1	1	*	1	1	-	1
B31d. I find travelling by bus is expensive										
Definitely/tend agree (Net)	43	27	59	36	24	50	35	20	51	72
Neither agree nor disagree	16	14	16	12	15	20	31	8	9	5
Tend/definitely disagree (Net)	31	42	20	38	45	24	22	55	39	22
Not applicable	4	12	1	5	9	2	5	13	1	1
Don't know	5	5	4	9	8	5	8	4	*	1
B31e. I like travelling by bus										
Definitely/tend agree (Net)	37	41	26	45	50	34	15	69	49	51
Neither agree nor disagree	23	18	23	23	25	25	28	9	23	16
Tend/definitely disagree (Net)	37	36	50	27	23	40	51	18	28	32
Not applicable	2	4	1	2	2	1	4	4	-	-
Don't know	1	1	1	2	1	*	2	-	-	1
Base: All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

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	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
B31f. I find travelling by bus stressful										
Definitely/tend agree (Net)	32	34	43	21	15	28	34	24	36	55
Neither agree nor disagree	18	13	19	17	17	21	25	9	15	13
Tend/definitely disagree (Net)	46	46	36	58	62	49	33	64	49	32
Not applicable	2	4	1	3	3	1	4	3	-	-
Don't know	2	2	1	3	3	1	4	*	*	*
B45. Rating safety of buses in terms of risk of <u>accidents</u> (relative to cars, buses and trains)										
(1) Safest	25	30	23	28	23	19	16	47	33	37
(2) 2nd	50	47	43	53	56	56	60	42	46	45
(3) 3rd	22	22	32	19	21	22	22	11	20	15
(4) Least safe	2	2	3	1	*	3	2	1	2	3
B46. Rating safety of buses in terms of risk of <u>crime</u> (relative to cars, buses and trains)										
(1) Safest	14	14	12	18	14	5	7	40	23	22
(2) 2nd	38	45	39	44	40	31	32	37	35	41
(3) 3rd	34	35	33	31	41	38	38	20	30	28
(4) Least safe	14	6	16	7	6	26	23	3	12	9
Base: All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

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Trains

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
B33. Frequency of train use										
At least once a week (Net)	9	2	8	4	6	16	8	4	26	11
Less than that but more than twice a month	2	1	2	1	3	3	3	1	3	4
Once or twice a month	13	5	15	7	13	17	13	8	23	18
Less than that but more than twice a year	14	7	13	9	16	24	17	6	17	11
Once or twice a year	23	20	23	24	28	25	24	17	12	25
Less than that or never	38	66	39	56	34	14	36	64	19	30
B34a. In general, I think that successful people tend to travel by car rather than by train										
Definitely/tend agree (Net)	27	34	24	40	24	13	21	46	19	44
Neither agree nor disagree	30	31	35	25	31	27	40	22	31	20
Tend/definitely disagree (Net)	40	29	39	31	43	59	37	22	49	32
Not applicable	1	2	1	1	1	*	-	2	*	*
Don't know	2	4	2	2	2	*	1	8	1	4
B34b. I would only travel by train if I had no other choice										
Definitely/tend agree (Net)	46	62	51	56	32	31	45	50	39	54
Neither agree nor disagree	15	11	17	12	14	15	20	12	16	10
Tend/definitely disagree (Net)	37	21	30	28	50	54	35	29	44	33
Not applicable	2	4	2	2	1	*	-	6	1	*
Don't know	1	2	*	1	1	-	*	3	-	2
B34c. I find travelling by train is expensive										
Definitely/tend agree (Net)	66	61	64	61	66	76	71	41	74	68
Neither agree nor disagree	13	11	15	13	9	13	13	13	11	9
Tend/definitely disagree (Net)	14	12	15	13	18	10	12	22	15	18
Not applicable	2	7	2	4	1	*	2	9	1	1
Don't know	5	9	4	10	6	1	2	16	*	4
B34d. I like travelling by train										
Definitely/tend agree (Net)	64	53	54	62	77	76	60	67	70	59
Neither agree nor disagree	19	18	26	19	14	13	24	9	16	13
Tend/definitely disagree (Net)	14	22	17	13	7	11	14	15	13	24
Not applicable	2	6	3	4	1	*	2	6	1	1
Don't know	1	2	1	2	2	-	1	2	-	2
B34e. I find travelling by train stressful										
Definitely/tend agree (Net)	18	24	19	11	10	15	18	15	26	30
Neither agree nor disagree	18	13	21	19	12	19	23	13	16	14
Tend/definitely disagree (Net)	59	51	56	61	74	65	56	60	55	52
Not applicable	3	8	3	5	1	-	3	7	1	2
Don't know	2	3	1	4	2	*	1	5	2	2
Base: All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

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	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
B45. Rating safety of trains in terms of risk of <u>accidents</u> (relative to cars, buses and trains)										
(1) Safest	50	42	42	49	62	65	59	32	56	28
(2) 2nd	26	31	25	27	24	23	21	36	27	28
(3) 3rd	20	23	25	21	12	10	18	28	14	33
(4) Least safe	4	3	8	4	3	1	2	3	3	10
B46. Rating safety of trains in terms of risk of <u>crime</u> (relative to cars, buses and trains)										
(1) Safest	14	9	11	17	14	13	13	13	29	14
(2) 2nd	32	36	30	32	36	32	26	35	33	28
(3) 3rd	39	46	41	37	37	36	42	41	25	35
(4) Least safe	16	10	18	13	13	20	19	10	13	23
Base: All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

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Cycling and walking

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Ownership of bicycle (B39)										
Own a bicycle yourself	49	37	42	43	38	71	67	19	32	28
Have regular use of a bicycle owned by someone	4	1	5	2	1	3	5	-	3	4
have no regular use of a bicycle	47	62	52	55	60	26	28	81	65	68
Frequency of cycling (B40)										
At least once a week (Net)	14	10	13	12	7	20	15	5	20	19
Less than that but more than twice a month	3	-	2	3	2	7	4	1	2	3
Once or twice a month	10	5	13	8	5	14	12	2	5	7
Less than that but more than twice a year	7	2	6	4	4	10	14	1	5	2
Once or twice a year	10	8	10	8	9	15	10	2	8	3
Less than that or never	55	75	56	66	74	34	45	87	60	67
B42a. I'm not the kind of person who rides a bicycle										
Definitely/tend agree (Net)	34	56	38	38	45	16	27	64	34	43
Neither agree nor disagree	13	10	13	16	13	12	15	12	8	9
Tend/definitely disagree (Net)	53	31	49	46	40	72	58	24	58	48
Not applicable	*	3	*	1	1	*	*	*	*	-
Don't know	1	-	1	*	-	-	-	-	-	-
B42b. I (would) feel confident cycling on the roads (e.g. to work/school/the shops)										
Definitely/tend agree (Net)	37	9	42	30	22	41	52	13	34	39
Neither agree nor disagree	10	11	14	10	7	6	11	11	7	10
Tend/definitely disagree (Net)	52	79	44	58	71	53	37	73	56	52
Not applicable	1	2	*	2	1	*	-	2	*	-
Don't know	*	-	*	1	-	-	-	-	2	-
B42c. It's too dangerous for me to cycle on the roads										
Definitely/tend agree (Net)	60	78	58	70	71	57	47	76	56	67
Neither agree nor disagree	13	6	14	10	9	15	15	5	15	13
Tend/definitely disagree (Net)	26	11	28	19	19	28	37	17	29	20
Not applicable	1	2	*	1	1	*	-	2	*	*
Don't know	*	2	*	*	*	-	-	1	-	-
B42d. I would cycle (more) if there were more dedicated cycle paths										
Definitely/tend agree (Net)	52	34	51	54	36	68	48	33	54	59
Neither agree nor disagree	16	19	18	15	14	12	21	9	19	12
Tend/definitely disagree (Net)	30	44	30	30	47	19	31	53	27	28
Not applicable	1	2	1	2	2	*	*	5	*	*
Don't know	*	1	*	-	*	*	-	-	-	*
Base: All who can ride a bicycle	*3155*	*114*	*611*	*487*	*357*	*628*	*386*	*132*	*230*	*210*

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	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
B42e. I would cycle (more) if there were more secure places to store bicycles										
Definitely/tend agree (Net)	41	18	42	47	18	53	37	24	46	55
Neither agree nor disagree	21	15	23	15	18	21	30	13	25	11
Tend/definitely disagree (Net)	36	63	34	35	61	26	32	56	29	33
Not applicable	1	4	1	3	3	1	1	6	*	1
Don't know	*	1	1	*	*	*	*	2	*	*
B42f. In general, I would rather cycle than use public transport										
Definitely/tend agree (Net)	35	22	39	29	17	48	37	14	31	39
Neither agree nor disagree	17	9	17	16	12	20	23	9	17	13
Tend/definitely disagree (Net)	46	66	44	53	68	31	39	75	51	48
Not applicable	1	2	*	2	3	*	1	3	*	*
Don't know	*	1	*	1	-	*	-	-	-	-
B42g. I (would) enjoy cycling as a leisure / holiday activity										
Definitely/tend agree (Net)	66	38	67	60	44	84	74	41	63	61
Neither agree nor disagree	10	11	14	10	14	5	9	7	11	9
Tend/definitely disagree (Net)	23	45	18	29	41	10	16	49	24	30
Not applicable	1	5	*	1	2	1	*	2	2	-
Don't know	*	1	*	1	*	-	*	1	-	*
B42h. I am willing to cycle on the roads (e.g. to work/school/the shops)										
Definitely/tend agree (Net)	45	18	47	39	28	56	53	16	50	40
Neither agree nor disagree	10	5	13	10	5	9	13	8	11	7
Tend/definitely disagree (Net)	44	74	39	49	63	35	33	70	38	53
Not applicable	1	2	*	2	3	*	1	2	*	-
Don't know	*	1	*	*	*	-	*	4	2	-
B42i. I (would) find cycling on the roads stressful										
Definitely/tend agree (Net)	63	78	57	69	76	65	50	76	65	66
Neither agree nor disagree	11	10	15	9	5	12	15	4	9	9
Tend/definitely disagree (Net)	24	7	28	19	17	22	34	14	25	25
Not applicable	1	2	1	2	2	*	*	2	*	*
Don't know	1	3	*	1	*	*	*	4	1	*
B42j. I'm not the kind of person who cycles to work										
Base: All who can ride a bicycle and live 10 miles or less from their place of work	*1131*	*25*	*303*	*146*	*50*	*279*	*143*	*15*	*122*	*48*
Definitely/tend agree (Net)	53	59	57	60	72	43	49	85	52	62
Neither agree nor disagree	12	5	13	15	3	13	13	-	10	4
Tend/definitely disagree (Net)	33	34	29	22	24	43	34	15	37	34
Not applicable	*	-	-	1	-	1	-	-	1	-
Don't know	*	2	-	*	-	-	-	-	-	-
Base: All who can ride a bicycle	*3155*	*114*	*611*	*487*	*357*	*628*	*386*	*132*	*230*	*210*

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	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
B42k. It would be quicker for me to cycle to work than go by car										
Base : All who can ride a bicycle and own at least 1 car, live 10 miles or less from their work and go to the same place of work at least twice a week	*947*	*25*	*303*	*146*	*50*	*279*	*143*	-	-	-
Definitely/tend agree (Net)	18	36	14	17	7	27	13	-	-	-
Neither agree nor disagree	8	10	9	8	3	9	7	-	-	-
Tend/definitely disagree (Net)	71	47	75	73	90	61	76	-	-	-
Not applicable	1	6	*	1	-	1	-	-	-	-
Don't know	*	-	-	-	-	*	-	-	-	-
B45. Rating safety of bicycles in terms of risk of <u>accidents</u> (relative to cars, buses and trains)										
(1) Safest	2	2	3	2	1	1	1	1	2	9
(2) 2nd	3	1	6	1	1	3	3	2	4	7
(3) 3rd	8	6	8	7	5	9	11	7	9	10
(4) Least safe	86	91	83	90	94	86	85	90	86	73
B46. Rating safety of bicycles in terms of risk of <u>crime</u> (relative to cars, buses and trains)										
(1) Safest	4	2	4	2	5	4	4	3	5	10
(2) 2nd	17	6	20	10	8	29	29	6	12	14
(3) 3rd	13	10	14	10	10	16	12	8	14	18
(4) Least safe	65	82	62	78	77	50	54	82	68	59
Whether usually walk to work or place of study (CN2a)										
Base : All who make regular journey to work or to school / college	*2007*	*66*	*509*	*207*	*99*	*527*	*318*	*22*	*186*	*73*
Yes – usually walk to work	10	17	14	6	8	5	1	19	31	18
Whether usually walk to do top-shopping or smaller more regular shops (CN57a)										
Base : Respondents who usually do both main and top-up shopping or regular little shops	*2093*	*183*	*353*	*264*	*243*	*369*	*179*	*188*	*154*	*160*
Yes – usually walk to do top-shopping or smaller more regular shops	34	15	35	27	24	34	12	41	80	59
Base: All respondents (unless otherwise stated)	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

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Trip avoidance and journey planning

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
A9a. Whether usually go straight to work or do other things on the way (e.g. take children to school / do some shopping)										
Base : All who go at least twice a week to the same place of work	*1659*	*62*	*414*	*178*	*84*	*452*	*242*	*23*	*145*	*59*
I usually go straight to work	85	96	85	94	89	78	85	98	94	83
I usually do other things on the way to work	13	4	12	5	11	20	12	2	4	14
It varies too much to say	2	-	3	1	-	1	2	-	1	4
Don't know	*	-	-	-	-	*	-	-	1	-
CN22. Could you combine the trip to work / school / college with other trips (e.g. food shopping) to reduce the amount you travel overall?										
Base : All who make regular journey to work or to school / college using a car as a driver or passenger	*1331*	*48*	*328*	*174*	*73*	*396*	*280*	*7*	*14*	*11*
Yes - I usually do this	25	13	23	19	30	33	22	9	3	6
Yes - I do this sometimes, but could do it more	23	18	23	16	16	26	24	18	8	14
Yes - I do this sometimes, but could not do it more	12	16	15	11	10	10	11	-	9	22
Yes - but I have not done this yet	2	-	2	5	4	2	1	-	-	-
No	39	54	38	49	40	29	42	73	80	59
Don't know	*	-	-	-	-	*	1	-	-	-
CN74a. Can I just check, do you have access to the internet at home?										
Base: All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*
Yes	79	61	90	67	81	98	97	17	83	49
No	21	39	10	33	19	2	3	83	17	51
CN75 And from this list, how often, if at all, do you use home delivery (e.g. internet shopping / telephone ordering) <u>for your food shopping</u> nowadays?										
Base : All who do shopping	*3326*	*338*	*561*	*448*	*358*	*541*	*279*	*325*	*239*	*237*
Regularly	9	6	7	1	5	19	11	5	17	11
Sometimes	10	11	14	3	4	17	14	6	10	5
Have only done this once or twice	8	5	11	3	4	12	8	4	9	3
Never	73	77	68	94	87	52	67	85	64	81
Don't know	*	-	*	-	-	-	1	-	-	-

Bases vary (see descriptions)

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	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
CN76 And how often nowadays, if at all, do you use home delivery (e.g. internet shopping / telephone ordering) <u>for any non-food shopping</u>, such as for buying books, CDs, clothes, holidays, or insurance?										
Regularly	21	10	19	7	15	46	39	3	19	3
Sometimes	29	24	35	20	32	37	33	14	33	6
Have only done this once or twice	6	7	6	5	6	4	7	2	8	2
Never	44	59	39	67	46	13	20	81	40	88
Don't know	*	-	*	-	-	-	1	-	-	-
Base : All who do shopping	*3326*	*338*	*561*	*448*	*358*	*541*	*279*	*325*	*239*	*237*

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APPENDIX A2 – Thematic data tables

Car ownership and purchasing

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Number of cars in household - B5										
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	-	-	-
None	18	-	-	-	-	-	-	-	-	-
One	38	69	62	61	52	36	4	-	-	-
Two	31	22	32	31	41	53	42	-	-	-
Three or more	13	9	5	9	7	11	53	-	-	-
Don't Know/ Refused	*	0	0	0	0	0	0	-	-	-
Engine size of car used most frequently - B10										
Base : All with car in household	*3025*	*389*	*681*	*511*	*398*	*641*	*400*	-	-	-
701 to 1400cc (0.7 to 1.4 litres) (Net)	26	27	28	32	29	26	18	-	-	-
1401 to 1800cc (1.4 to 1.8 litres) (Net)	29	35	28	30	28	29	26	-	-	-
1801cc plus (1.8 litres or more) (Net)	36	27	28	32	37	39	54	-	-	-
Don't know / Not stated	8	11	16	6	6	6	2	-	-	-
Whether current car bought new or second hand - B13										
Base : respondents with car in household	*3025*	*389*	*681*	*511*	*398*	*641*	*400*	-	-	-
New	29	35	14	23	56	28	37	-	-	-
Bases vary (see descriptions)										

Car travel

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Whether hold driving licence for car- B3										
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*
Yes, full licence for car	72	67	67	89	89	96	95	13	31	17
Number of miles a year personally driven in the cars/vans owned/used by household - B19										
Base: All who hold a driving licence and who own and drive a car	*2561*	*270*	*480*	*447*	*356*	*620*	*386*	-	-	-
1 - 4,999 miles (Net)	29	43	31	38	39	22	13	-	-	-
5,000 - 8,999 miles (Net)	31	31	31	34	27	30	31	-	-	-
9,000 miles or more (Net)	37	22	28	24	33	47	53	-	-	-
Frequency of traveling by private car/van - whether as a driver or passenger - B20										
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*
At least once a day	49	38	55	55	44	67	80	4	6	7
Less than once a day, but at least 3 times a week	22	29	22	30	39	21	16	10	8	11
Once or twice a week	16	28	17	13	13	11	4	34	23	23
Less than once a week but more than once a year (Net)	9	5	6	1	3	1	0	32	43	32
Less than once a year or never	4	1	1	*	*	-	-	19	20	26
Bases vary (see descriptions)										

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Bus travel

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Frequency of bus travel - B30										
At least once a week (Net)	29	20	28	23	24	16	6	59	69	77
Less than once a week but at least once a year (Net)	32	26	35	33	41	40	30	18	25	19
Less than once a year or never	39	54	37	44	35	44	64	24	6	4
Base: All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

Train use

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Frequency of train travel - B33										
At least once a week (Net)	9	2	8	4	6	16	8	4	26	11
Less than once a week but at least once a year (Net)	53	32	53	40	60	70	57	32	55	58
Less than once a year or never	38	66	39	56	34	14	36	64	19	30
Base: All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

Cycling

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Disability or other long standing health problem that makes it difficult or impossible to ride a bicycle - B39b										
Base: All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*
Yes - impossible	10	65	*	-	*	-	*	58	1	5
Yes - difficult	6	21	2	7	13	2	2	12	2	4
No	84	13	98	93	85	98	98	30	97	90
Ownership of bicycle - B39										
Base: All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*
Own a bicycle yourself	49	37	42	43	38	71	67	19	32	28
Frequency of cycling - B40										
Base: All who can ride a bicycle	*3155*	*114*	*611*	*487*	*357*	*628*	*386*	*132*	*230*	*210*
At least once a week (Net)	14	10	13	12	7	20	15	5	20	19
Less than once a week but at least once a year (Net)	30	16	31	22	19	46	40	7	19	15
Less than once a year or never	55	75	56	66	74	34	45	87	60	67
Bases vary (see descriptions)										

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Air travel

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Types of flights starting from the UK taken in the last 12 months - B47										
Domestic	5	1	2	3	7	12	7	*	3	1
Short-haul international	36	22	32	32	44	53	49	6	37	11
Long-haul international	20	11	20	13	24	31	27	6	19	5
None	51	69	52	59	41	31	35	89	50	83
Overall number of flights taken in last 12 months (combine domestic, short-haul and long haul flights) – B48, B50, B51										
None	51	69	52	59	41	31	35	90	51	83
One	23	20	24	23	24	26	32	8	22	13
Two	12	7	15	11	17	18	12	1	9	2
Three or more	13	4	9	7	18	25	21	1	19	1
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

Work Travel

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Distance to place of work - A8										
Base: All who go at least twice a week to the same place of work	*1659*	*62*	*414*	*178*	*84*	*452*	*242*	*23*	*145*	*59*
Under 1 mile (Net)	8	14	8	9	4	6	6	9	18	14
1 to under 2 miles (Net)	11	12	15	11	13	8	7	7	15	21
2 to under 5 miles (Net)	27	34	30	37	31	22	19	38	30	40
5 to under 10 miles (Net)	23	22	22	25	23	23	23	41	26	16
10 to under 25 miles (Net)	22	16	20	15	18	30	30	3	5	6
25 miles or more	8	3	5	3	12	10	15	0	5	4
Mode of transport usually used to work or place of study (CN2a)										
Base : All who make regular journey to work or to school / college	*2007*	*66*	*509*	*207*	*99*	*527*	*318*	*22*	*186*	*73*
Car/van as driver	59	55	47	79	69	72	87	4	*	-
Bus	12	20	13	5	14	4	4	38	34	59
Walk	10	17	14	6	8	5	1	19	31	18
Car/van as passenger	6	7	13	5	3	2	2	35	5	12
Railway train	5	-	4	1	4	8	5	4	9	9
Tube/metro/light rail/Tram	3	-	3	1	1	4	1	-	11	*
Bicycle	3	1	3	2	*	4	1	-	8	2
Motorbike/moped/scooter	1	-	3	1	-	*	1	-	1	-
Bases vary (see descriptions)										

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Trip avoidance

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
CN75 And from this list, how often, if at all, do you use home delivery (e.g. internet shopping / telephone ordering) <u>for your food shopping</u> nowadays?										
Regularly	9	6	7	1	5	19	11	5	17	11
CN76 And how often nowadays, if at all, do you use home delivery (e.g. internet shopping / telephone ordering) <u>for any non-food shopping</u>, such as for buying books, CDs, clothes, holidays, or insurance?										
Regularly	21	10	19	7	15	46	39	3	19	3
Base : All who do shopping	*3326*	*338*	*561*	*448*	*358*	*541*	*279*	*325*	*239*	*237*

Climate change

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Level of concern about climate change - D21										
Very/fairly concerned	68	62	63	68	64	84	71	57	74	58
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

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Demographics / circumstances

	Total	Segments								
		1	2	3	4	5	6	7	8	9
	%	%	%	%	%	%	%	%	%	%
Rural/urban										
Urban - London	15	9	16	8	8	16	4	14	41	27
Urban - Other	59	57	67	61	51	54	52	68	53	64
Town and Fringe	12	15	9	14	13	14	14	12	5	7
Village, Hamlet and Isolated Dwellings	15	18	8	16	28	16	30	7	1	2
Age of respondent F5										
16-20	8	1	20	-	-	5	9	-	16	9
21-29	15	-	33	-	*	10	16	-	39	36
30-39	17	1	30	3	*	27	20	1	19	22
40-49	19	11	14	17	3	38	25	5	12	22
50-59	15	15	3	29	21	17	21	12	9	9
60-69	13	29	*	31	39	3	7	19	5	1
70+	14	43	*	20	36	*	1	64	1	1
SEG										
ABC1 (Net)	57	53	45	25	88	91	72	30	63	6
A	6	3	1	-	15	13	9	1	1	-
B	20	15	10	4	37	40	35	6	8	-
C1	32	36	35	21	36	38	28	23	53	6
C2DE (Net)	43	47	55	75	12	9	28	70	37	94
C2	22	22	32	39	10	9	22	19	20	6
D	13	13	17	29	1	-	6	26	13	25
E	8	12	6	7	*	*	*	25	5	63
Highest level of education F12										
University Higher Degree or First degree	20	9	14	-	25	50	22	3	30	3
Diploma in HE or A level	30	20	37	9	40	35	41	11	41	9
GCSE	27	23	38	28	28	14	29	13	26	37
None of the above	23	45	11	63	6	1	7	73	3	51
Base : All respondents	*3923*	*389*	*681*	*511*	*398*	*641*	*400*	*398*	*255*	*250*

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APPENDIX A3 – Survey methodology and additional information relating to the segmentation analysis

Survey methodology

A detailed description of the survey methodology is available in the interim report[30]. This appendix provides a brief overview of the methodology with further details of the segmentation. A separate Annex, published alongside this main report, includes the fieldwork documents used in the survey, including the survey questionnaire.

The survey was conducted by TNS-BMRB between 5 November 2009 and 27 June 2010. Fieldwork was suspended between 5 March and 21 May 2010 due to the 2010 General Election on 6 May 2010. All interviews were carried out in respondents' homes using face-to-face CAPI technology. A total of 3,923 interviews were carried out during the survey period, with an overall response rate of 58%.

The sample for the survey was selected from the small user Post Office Address File (PAF) in England using a Random Probability approach. Interviewers were issued with a set number of pre-selected addresses constituting their 'assignment'. Interviewers posted an introductory letter to their assigned addresses around one week before attempting to make contact at the address. A copy of the introductory letter can be found in the separate appendix document which accompanies this report. Upon making contact with an adult living at a selected address, interviewers were instructed to randomly select one eligible adult per household. All adults (aged 16 and over) in England were eligible to take part, no interviews were carried out in the rest of the UK. Every attempt was made to carry out an interview at each pre-selected address with interviewers required to make a minimum of six attempts to make contact at each address.

Survey data were weighted to correct for sampling and non-response bias. Sample weights were first applied to correct for known differences in the probability of selection (notably affected by the number of eligible adults the household). Subsequently non-response rates were applied to correct for potential non-response bias. Weights were

[30] Climate Change and Transport Choices Segmentation Study – Interim Report, TNS-BMRB, December 2010

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based on population estimates taken from the Labour Force Survey (April - June 2009) and included age, gender, level of education, Government Office Region (GOR), rural / urban locations, and presence of children in household.

The rest of this section is concerned specifically with the development of the final segmentation model.

Additional segmentation analysis information

A description of the segmentation process is provided in the introduction of the report. To support this, the following tables provide information relating to:

- The questions / variables selected for the segmentation
- Results from the factor analysis (for both car owners and non-owners)

The first set of tables (i – iv) present the survey variables selected both the segmentation. There are four sets of tables:

(i) Attitudinal and behavioural variables which were used for both car owners and non-owners
(ii) Structural variables which were used for both car owners and non-owners
(iii) Additional variables which were used only for car owners
(iv) Additional variables which were used only for non-owners

Each table provides the variable label, a description of the answer code categories, a description of the treatment of missing values and don't know responses, and whether or not the variable was used in the factor analysis or entered into the cluster analysis independent of the resulting factors.

The second set of tables (v and vi) present the results of the factor analysis (created using Principle Components Analysis (PCA)). The preferred solutions were:

- Car owners – 27 factors (Table (v))
- Non owners – 25 factors (Table (vi))

The tables provide a description of the underlying factors or dimensions.

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Table (i) Attitudinal and behavioural measures (USED FOR BOTH CAR OWNERS AND NON-OWNERS)

Variable	Description (with original scale)	Transformation (imputation / treatment of Don't knows etc.)	Final scale (for use in analysis)	In factor analysis
A3	How important would you say public transport links were in the decision to move here? 1. Very important 2. Fairly important 3. Neither important nor unimportant 4. Not very important 5. Not at all important 6. Don't know/not sure	Don't knows and Not applicable are assigned the mean score	1. Very important 2. Fairly important 3. Neither important nor unimportant 4. Not very important 5. Not at all important	YES
B19	Approximately how many miles a year do you personally drive in the cars/vans owned/used by your household? 1. 0 2. 1-499 miles 3. 500 - 999 miles 4. 1,000 - 1,999 miles 5. 2,000 - 2,999 miles 6. 3,000 - 3,999 miles 7. 4,000 - 4,999 miles 8. 5,000 - 6,999 miles 9. 7,000 - 8,999 miles 10. 9,000 - 11,999 miles 11. 12,000 - 14,999 miles 12. 15,000 - 17,999 miles 13. 18,000 - 20,999 miles 14. 21,000 - 29,999 miles 15. 30,000 miles and over 16. Don't know / not sure	All who do not drive are allocated to zero miles, so all respondents have valid score. Don't knows and not stateds are given a mean score	1. 0 2. 1-499 miles 3. 500 - 999 miles 4. 1,000 - 1,999 miles 5. 2,000 - 2,999 miles 6. 3,000 - 3,999 miles 7. 4,000 - 4,999 miles 8. 5,000 - 6,999 miles 9. 7,000 - 8,999 miles 10. 9,000 - 11,999 miles 11. 12,000 - 14,999 miles 12. 15,000 - 17,999 miles 13. 18,000 - 20,999 miles 14. 21,000 - 29,999 miles 15. 30,000 miles and over	YES

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B20	How frequently do you travel by private car or van? 1. At least once a day 2. Less than once a day, but at least 3 times a week 3. Once or twice a week 4. Less than that but more than twice a month 5. Once or twice a month 6. Less than that but more than twice a year 7. Once or twice a year 8. Less than that or never	No don't knows or not applicables on this question	1. At least once a day 2. Less than once a day, but at least 3 times a week 3. Once or twice a week 4. Less than that but more than twice a month 5. Once or twice a month 6. Less than that but more than twice a year 7. Once or twice a year 8. Less than that or never	YES
B21	How frequently do you travel by private car or van to or from [work] or [school/college].. 1. At least once a day 2. Less than once a day, but at least 3 times a week 3. Once or twice a week 4. Less than that but more than twice a month 5. Once or twice a month 6. Less than that but more than twice a year 7. Once or twice a year 8. Less than that or never	All who do not answer this question are allocated to less than that or never so all respondents have valid score	1. At least once a day 2. Less than once a day, but at least 3 times a week 3. Once or twice a week 4. Less than that but more than twice a month 5. Once or twice a month 6. Less than that but more than twice a year 7. Once or twice a year 8. Less than that or never **+ non-responders**	YES
B24**e, f**	Here are some statements people have made about cars. **e) I enjoy driving** **f) I find driving stressful**	Don't knows and Not applicable are assigned the mean score. Those who did not answer the question (i.e. don't have a license) are also allocated to midpoint score (3 - neither)	1. Definitely agree, 2. Tend to agree, 3. Neither agree nor disagree + **non-responders** 4. Tend to disagree, 5. Definitely disagree,	YES
B26b	Looking at the following list, what would you miss most if you did not have a car in your household? **1. Sense of freedom** 2. Ability to go shopping 3. Ability to get to work 4. Going to a leisure activity 5. Visiting relatives 6. Going on holiday 7. Taking children to school 8. Other (SPECIFY) 9. Don’t know	3-point scale - whether or not would miss 'sense of freedom'. Only use first answer code from B26b. If B26b=1 respondents are given a score of 3, Those who answer 2-9 (any other response) score 1. For all others who have not answered the question this is 'not applicable' (those who don't have a car or don't travel by car frequently). They score 2.	1. No - Would not miss sense of freedom 2. Not applicable 3. Yes - Would miss	YES

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B28	About how long would it take (me) to walk from here to the nearest bus stop or place where I could get on a bus? 1. 2 minutes or less 2. 3-4 minutes 3. 5-6 minutes 4. 7-13 minutes 5. 14-26 minutes 6. 27-43 minutes 7. 44 minutes or longer 8. DK	Don't knows are assigned the mean score	1. 2 minutes or less 2. 3-4 minutes 3. 5-6 minutes 4. 7-13 minutes 5. 14-26 minutes 6. 27-43 minutes 7. 44 minutes or longer	YES
B30	How frequently do you use an ordinary bus? 1. At least once a day 2. Less than once a day, but at least 3 times a week 3. Once or twice a week 4. Less than that but more than twice a month 5. Once or twice a month 6. Less than that but more than twice a year 7. Once or twice a year 8. Less than that or never	No don't knows or not applicables on this question	1. At least once a day 2. Less than once a day, but at least 3 times a week 3. Once or twice a week 4. Less than that but more than twice a month 5. Once or twice a month 6. Less than that but more than twice a year 7. Once or twice a year 8. Less than that or never	YES
B31	Here are some statements people have made about buses. a) In general, I think that successful people tend to travel by car rather than by bus b) I would only travel by bus if I had no other choice c) In general, when I have the choice I would rather walk or cycle than go by bus d) I find travelling by bus is expensive e) I like travelling by bus f) I find travelling by bus stressful	Don't knows and Not applicable are assigned the mean score	1. Definitely agree, 2. Tend to agree, 3. Neither agree nor disagree 4. Tend to disagree, 5. Definitely disagree,	YES

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B32	About how long would it take (me) to walk from here to the nearest railway station? 1. 2 minutes or less 2. 3-4 minutes 3. 5-6 minutes 4. 7-13 minutes 5. 14-26 minutes 6. 27-43 minutes 7. 44 minutes or longer 8. DK	Don't knows and Not applicable are assigned the mean score	1. 2 minutes or less 2. 3-4 minutes 3. 5-6 minutes 4. 7-13 minutes 5. 14-26 minutes 6. 27-43 minutes 7. 44 minutes or longer	YES
B33	How frequently do you use a train, not including underground, tram or light rail ? 1. At least once a day 2. Less than once a day, but at least 3 times a week 3. Once or twice a week 4. Less than that but more than twice a month 5. Once or twice a month 6. Less than that but more than twice a year 7. Once or twice a year 8. Less than that or never	No don't knows or not applicables on this question	1. At least once a day 2. Less than once a day, but at least 3 times a week 3. Once or twice a week 4. Less than that but more than twice a month 5. Once or twice a month 6. Less than that but more than twice a year 7. Once or twice a year 8. Less than that or never	YES
B34	Here are some statements people have made about overground trains. a) In general, I think that successful people tend to travel by car rather than by train b) I would only travel by train if I had no other choice c) I find travelling by train is expensive d) I like travelling by train e) I find travelling by train stressful	Don't knows and Not applicable are assigned the mean score	1. Definitely agree, 2. Tend to agree, 3. Neither agree nor disagree 4. Tend to disagree, 5. Definitely disagree,	YES

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B40	How frequently do you use a bicycle? 1. At least once a day 2. Less than once a day, but at least 3 times a week 3. Once or twice a week 4. Less than that but more than twice a month 5. Once or twice a month 6. Less than that but more than twice a year 7. Once or twice a year 8. Less than that or never	All who do not own / have access / can use allocated to 'less than that or never' so all respondents have valid score. No don't knows or not applicables to recode.	1. At least once a day 2. Less than once a day, but at least 3 times a week 3. Once or twice a week 4. Less than that but more than twice a month 5. Once or twice a month 6. Less than that but more than twice a year 7. Once or twice a year 8. Less than that or never **+ those who do not own / cannot use a bike**	YES
B47	Looking at this list, what types of flights starting from the UK have you taken in the last 12 months?	Combined with B48 - B51 as described below.	N/A	YES
B48	Looking at this list, how many flights within the UK, did you make by plane during the last 12 months?	Combined with B47, to create derived var **1) No domestic flights (B47 <> 1) 2) 1 domestic flight (B48=1) 3) 2 domestic flights (B48=2) 4) 3 or more domestic flights (B48=3)**	1. No flights 2. 1 flight 3. 2 flights 4. 3 flights or more	YES
B50	Looking at this list, how many short-haul flights starting from the UK did you make to Europe during the last 12 months?	Combined with B47, to create derived var? **1) No short-haul flights (B47 <> 2) 2) 1 short-haul flight (B50=1) 3) 2 short-haul flights (B50=2) 4) 3 or more short-haul flights (B50=3)**	1. No flights 2. 1 flight 3. 2 flights 4. 3 flights or more	YES
B51	Looking at this list, how many long-haul flights starting from the UK did you make during the last 12 months?	Combined with B47, to create derived var? **1) No long-haul flights (B47 <> 3) 2) 1 long-haul flight (B51=1) 3) 2 long-haul flights (B51=2) 4) 3 or more long-haul flights (B51=3)**	1. No flights 2. 1 flight 3. 2 flights 4. 3 flights or more	YES

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B23	When I have to choose how I will travel, choosing the car is something... a) I do frequently. b) I do automatically. c) That would require effort not to do it. d) That belongs to my (daily, weekly, monthly) routine. e) That's typically "me." f) I have been doing for a long time.	B23 (a-f) are treated as a count variable. For each yes response the respondent receives a score of +1. So everyone is scored between 0 and 6 (0 indicating low habitual use / 6 the most). Anyone who does not use cars is allocated to zero (the lowest score)	Simple numeric scale from 0-6.	YES
B24	Here are some statements people have made about cars. a) I think most people judge others by the car they drive b) I think owning a car is a sign of success c) People who don't own a car are at a disadvantage d) People should be allowed to use their cars as much as they like	Only included statements in initial analysis which are asked of all respondents. Don't knows and Not applicable are assigned the mean score	1. Definitely agree, 2. Tend to agree, 3. Neither agree nor disagree 4. Tend to disagree, 5. Definitely disagree,	YES
B31	Here are some statements people have made about buses. a) In general, I think that successful people tend to travel by car rather than by bus b) I would only travel by bus if I had no other choice c) In general, when I have the choice I would rather walk or cycle than go by bus d) I find travelling by bus is expensive e) I like travelling by bus f) I find travelling by bus stressful	Don't knows and Not applicable are assigned the mean score	1. Definitely agree, 2. Tend to agree, 3. Neither agree nor disagree 4. Tend to disagree, 5. Definitely disagree,	YES
B34	Here are some statements people have made about overground trains. a) In general, I think that successful people tend to travel by car rather than by train b) I would only travel by train if I had no other choice c) I find travelling by train is expensive d) I like travelling by train e) I find travelling by train stressful	Don't knows and Not applicable are assigned the mean score	1. Definitely agree, 2. Tend to agree, 3. Neither agree nor disagree 4. Tend to disagree, 5. Definitely disagree,	YES

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B42**a, c, i**	a) I'm not the kind of person who rides a bicycle c) It's too dangerous for me to cycle on the roads i) I (would) find cycling on the roads stressful	Don't knows and Not applicable are assigned the mean score.. Also - those who have not answered the question (i.e. never learnt to ride, find it impossible to ride) are imputed as '**definitely agree**'	1. Definitely agree, **+ non-responders** 2. Tend to agree, 3. Neither agree nor disagree 4. Tend to disagree, 5. Definitely disagree,	YES
B42**b, d, e, f, g, h**	b) I (would) feel confident cycling on the roads (e.g. to work/school/the shops) d) I would cycle (more) if there were more dedicated cycle paths e) I would cycle (more) if there were more secure places to store bicycles f) In general, I would rather cycle than use public transport g) I (would) enjoy cycling as a leisure / holiday activity h) I am willing to cycle on the roads (e.g. to work/school/the shops) i) I (would) find cycling on the roads stressful	Don't knows and Not applicable are assigned the mean score. Also - those who have not answered the question (i.e. never learnt to ride, find it impossible to ride) are imputed as '**definitely <u>dis</u>agree**'	1. Definitely agree, 2. Tend to agree, 3. Neither agree nor disagree 4. Tend to disagree, 5. Definitely disagree, **+ non-responders**	YES
B45 (safety of **buses** - accidents)	Thinking about safety in terms of the risk of accidents (INTERVIEWER STRESS ACCIDENTS VERSUS CRIME), please rate these forms of transport in order of safety from the most safe to the least safe. 1st, 2nd, 3rd, 4th	Turned into a scalar variable - 4 - Most safe (IF B45a=1), 3 - 2nd Safest (IF B45b=1), 3rd Safest (IF B45c=1), Least safe (IF B45d=1)	1. Least safe 2. 3rd safest 3. 2nd safest 4. Most safe	YES
B45 (safety of **trains** - accidents)	Thinking about safety in terms of the risk of accidents (INTERVIEWER STRESS ACCIDENTS VERSUS CRIME), please rate these forms of transport in order of safety from the most safe to the least safe. 1st, 2nd, 3rd, 4th	Turned into a scalar variable - 4 - Most safe (IF B45a=2), 3 - 2nd Safest (IF B45b=2), 3rd Safest (IF B45c=2), Least safe(IF B45d=2)	1. Least safe 2. 3rd safest 3. 2nd safest 4. Most safe	YES
B45 (safety of **cars** - accidents)	Thinking about safety in terms of the risk of accidents (INTERVIEWER STRESS ACCIDENTS VERSUS CRIME), please rate these forms of transport in order of safety from the most safe to the least safe. 1st, 2nd, 3rd, 4th	Turned into a scalar variable - 4 - Most safe (IF B45a=3), 3 - 2nd Safest (IF B45b=3), 3rd Safest (IF B45c=3), Least safe (IF B45d=3)	1. Least safe 2. 3rd safest 3. 2nd safest 4. Most safe	YES

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B45 (safety of **bikes** - accidents)	Thinking about safety in terms of the risk of accidents (INTERVIEWER STRESS ACCIDENTS VERSUS CRIME), please rate these forms of transport in order of safety from the most safe to the least safe. 1st, 2nd, 3rd, 4th	Turned into a scalar variable - 4 - Most safe (IF B45a=4), 3 - 2nd Safest (IF B45b=4), 3rd Safest (IF B45c=4), Least safe(IF B45d=4)	1. Least safe 2. 3rd safest 3. 2nd safest 4. Most safe	YES
B46 (safety of **buses** - crime)	Thinking now about personal safety, that is the risk of being a victim of crime, please rate these forms of transport in order of safety from the most safe to the least safe. 1st, 2nd, 3rd, 4th	Turned into a scalar variable - 4 - 1st Safest (IF B46a=1), 3 - 2nd Safest (IF B46b=1), 3rd Safest (IF B46c=1), Least safe(IF B46d=1)	1. Least safe 2. 3rd safest 3. 2nd safest 4. Most safe	YES
B46 (safety of **trains** - crime)	Thinking now about personal safety, that is the risk of being a victim of crime, please rate these forms of transport in order of safety from the most safe to the least safe. 1st, 2nd, 3rd, 4th	Turned into a scalar variable - 4 - Most safe (IF B46a=2), 3 - 2nd Safest (IF B46b=2), 3rd Safest (IF B46c=2), Least safe (IF B46d=2)	1. Least safe 2. 3rd safest 3. 2nd safest 4. Most safe	YES
B46 (safety of **cars** - crime)	Thinking now about personal safety, that is the risk of being a victim of crime, please rate these forms of transport in order of safety from the most safe to the least safe. 1st, 2nd, 3rd, 4th	Turned into a scalar variable - 4 - Most safe (IF B46a=3), 3 - 2nd Safest (IF B46b=3), 3rd Safest (IF B46c=3), Least safe (IF B46d=3)	1. Least safe 2. 3rd safest 3. 2nd safest 4. Most safe	YES
B46 (safety of **bikes** - crime)	Thinking now about personal safety, that is the risk of being a victim of crime, please rate these forms of transport in order of safety from the most safe to the least safe. 1st, 2nd, 3rd, 4th	Turned into a scalar variable - 4 - Most safe (IF B46a=4), 3 - 2nd Safest (IF B46b=4), 3rd Safest (IF B46c=4), Least safe (IF B46d=4)	1. Least safe 2. 3rd safest 3. 2nd safest 4. Most safe	YES

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D3	Here are some statements people have made about the environment: a) There is too much concern with the environment b) It's only worth doing environmentally-friendly things if they save you money c) I don't have time to worry about my impact on the environment d) I find it hard to change my habits to be more environmentally-friendly e) Most people I know do their bit for the environment these days f) Sometimes I feel under pressure to say that I am doing more to help the environment than I am g) Being green isn't something people like me worry about h) What I do in my life doesn't make any real difference to the environment i) It's not worth doing things to help the environment if others don't do the same j) It would embarrass me if my friends thought my lifestyle was purposefully environmentally friendly	Don't knows and Not applicable are assigned the mean score	1. Definitely agree, 2. Tend to agree, 3. Neither agree nor disagree 4. Tend to disagree, 5. Definitely disagree,	YES
D4	And which of these would you say best describes your current lifestyle? 1. I don't really do anything that is environmentally friendly 2. I do one or two things that are environmentally friendly 3. I do quite a few things that are environmentally friendly 4. I'm environmentally friendly in most things I do 5. I'm environmentally friendly in everything I do 6. Don't know	Don't knows and Not applicable are assigned the mean score	1. I don't really do anything that is environmentally friendly 2. I do one or two things that are environmentally friendly 3. I do quite a few things that are environmentally friendly 4. I'm environmentally friendly in most things I do 5. I'm environmentally friendly in everything I do	YES
D5	Which of these best describes how you feel about your current lifestyle and the environment? 1. I'm happy with what I do at the moment 2. I'd like to do a bit more to help the environment 3. I'd like to do a lot more to help to environment 4. Don't know	Don't knows and Not applicable are assigned the mean score	1. I'm happy with what I do at the moment 2. I'd like to do a bit more to help the environment 3. I'd like to do a lot more to help to environment	YES

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D6	Which of the following best describes your views about climate change? 1. Climate change is definitely not happening 2. Climate change is probably not happening 3. I'm not sure if climate change is happening 4. Climate change is probably happening 5. Climate change is definitely happening	No don't knows or not applicables on this question	1. Climate change is definitely not happening 2. Climate change is probably not happening 3. I'm not sure if climate change is happening 4. Climate change is probably happening 5. Climate change is definitely happening	YES
D8	Thinking about the causes of climate change, which of the following best describes your views? Please note, by 'human activity' we mean everything that humans do, make or use across the world. 1. Human activity is definitely not changing the world's climate 2. Human activity is probably not changing the world's climate 3. I'm not sure if human activity is changing the world's climate 4. Human activity is probably changing the world's climate 5. Human activity is definitely changing the world's climate	No don't knows or not applicables on this question	1. Human activity is definitely not changing the world's climate 2. Human activity is probably not changing the world's climate 3. I'm not sure if human activity is changing the world's climate 4. Human activity is probably changing the world's climate 5. Human activity is definitely changing the world's climate	YES
D9	How much would you say you know about climate change? 1. A lot 2. A fair amount 3. A little 4. Hardly anything 5. Nothing but I've heard about it 6. Hadn't heard about it before now 7. Don't know	Don't knows and Not applicable are assigned the mean score.	1. A lot 2. A fair amount 3. A little 4. Hardly anything 5. Nothing but I've heard about it 6. Hadn't heard about it before now	YES

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D10	Thinking about the effects of climate change, which of the following best describes your views? 1. Climate change is already having a real impact 2. Climate change is not yet having a real impact, but will do in my lifetime 3. Climate change will not have a real impact in my lifetime, but will have a real impact on future generations 4. Climate change is not happening / will never have a real impact 5. Don't know	Don't knows and Not applicable are assigned the mean score.	1. Climate change is already having a real impact 2. Climate change is not yet having a real impact, but will do in my lifetime 3. Climate change will not have a real impact in my lifetime, but will have a real impact on future generations 4. Climate change is not happening / will never have a real impact	YES
D11	Thinking about the effects of climate change, which of the following best describes your views? 1. Climate change will have as much of an impact on the UK as on other countries 2. Climate change will have less of an impact on the UK than on other countries 3. Climate change will have an impact on other countries, but not on the UK 4. Climate change is not happening / will not have an impact on the UK or other countries 5. Don't know	Don't knows and Not applicable are assigned the mean score.	1. Climate change will have as much of an impact on the UK as on other countries 2. Climate change will have less of an impact on the UK than on other countries 3. Climate change will have an impact on other countries, but not on the UK 4. Climate change is not happening / will not have an impact on the UK or other countries	YES
D21	How concerned are you about climate change? 1. Very concerned 2. Fairly concerned 3. Neither concerned nor unconcerned 4. Fairly unconcerned 5. Very unconcerned 6. Don't know	All who do not think that CC is happening are allocated to 'very unconcerned' so all respondents have a legitimate score. Don't knows and Not applicable are assigned the mean score.	1. Very concerned 2. Fairly concerned 3. Neither concerned nor unconcerned 4. Fairly unconcerned 5. Very unconcerned **+ non-responders (don't believe it is happening)**	YES

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D22 / 22a	Here are some statements about climate change. For each, please give the response which best fits with your view: a) Climate change is the result of the hole in the ozone layer b) Transport is one of the major contributors to climate change c) A two degree rise in global temperature will not make much difference to our lives d) Overall in the UK buses, lorries and trains together emit more CO2 than cars e) CO2 is one of the gases that causes the greenhouse effect f) The greenhouse effect traps heat which is created by the sun shining on the earth's surface from escaping g) Most scientists believe that recent temperature increases are the result of a natural cycle h) Most scientists believe that human activity is a cause of climate change	Transform into a count variable (0-8) based on number of correct responses (i.e. knowledge about climate change). Add 1 to score for every correct answer. Correct answers are (a) FALSE (b) TRUE (c) FALSE (d) FALSE (e) TRUE (f) TRUE (g) TRUE (h) TRUE. Those who have not responded to (a) and (b) do not believe climate change is happening so should score 0 for these questions (as we would judge this to be incorrect).	0. All wrong / don't know 1. 2. 3. 4. 5. 6. 7. 8. All correct	
D23	Here are some statements people have made about the environment. a) We seem to have much more severe weather in the UK these days b) I've noticed a change in the seasons in the last few years c) The effects of climate change are too far in the future to really worry me d) It's not worth Britain trying to combat climate change, because other countries will just cancel out what we do e) If things continue on their current course, we will soon experience a major environmental disaster f) What I do personally can make a real difference to climate change g) Developments in technology will stop climate change so we won't have to change how we live h) Climate change is beyond control - it's too late to do anything about it	Don't knows and Not applicable are assigned the mean score.	1. Definitely agree, 2. Tend to agree, 3. Neither agree nor disagree 4. Tend to disagree, 5. Definitely disagree,	YES

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D24	How much do you feel you know about what you personally can do to tackle climate change? 1. A great deal 2. A fair amount 3. A little 4. Hardly anything 5. Nothing 6. Climate change is not happening/is not caused by human activity 7. Don't know	Don't knows and Not applicable are assigned the mean score. Those who say 'Climate change is not happening/is not caused by human activity' are also assigned a mean.	1. A great deal 2. A fair amount 3. A little 4. Hardly anything 5. Nothing	YES
D25	How interested would you be in learning more about what you personally can do to tackle climate change? 1. Very interested 2. Fairly interested 3. Neither interested nor uninterested 4. Fairly uninterested 5. Very uninterested 6. Climate change is not happening/is not caused by human activity 7. Don't know	Don't knows and Not applicable are assigned the mean score. Those who say 'Climate change is not happening/is not caused by human activity' are also assigned a mean.	1. Very interested 2. Fairly interested 3. Neither interested nor uninterested 4. Fairly uninterested 5. Very uninterested	YES
D26	Here are some statements people have made about the environment. For each please say the extent to which you agree or disagree: a) Low carbon emissions would be high on my list of 'must haves' if I were to buy a new car b) I should try to limit my car use for the sake of the environment c) I would rather save energy at home than change how I travel d) How I personally travel makes a real difference to climate change e) I have already done as much as I can to reduce my CO2 emissions f) Higher taxes should be imposed to try to stop people having cars with high CO2 emissions	Don't knows and Not applicable are assigned the mean score.	1. Definitely agree, 2. Tend to agree, 3. Neither agree nor disagree 4. Tend to disagree, 5. Definitely disagree,	YES

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CN75	And from this list, how often, if at all, do you use home delivery (e.g. internet shopping / telephone ordering) for your food shopping nowadays? 1. Regularly 2. Sometimes 3. Have only done this once or twice 4. Never 5. Don't know	Treat as five point scale including a new point on the scale for those who have not answered (i.e. do not do regular shopping). This new category is judged to be more positive than never. Scale becomes: **1- regularly / 2-sometimes / 3-Have only done this once or twice / 4-Not Answered (do not shop) / 5 Never.** Don't knows are assigned the mean score	1. Regularly 2. Sometimes 3. Have only done this once or twice 4**. Not answered (do not shop)** 5. Never	YES
CN76	And how often nowadays, if at all, do you use home delivery (e.g. internet shopping / telephone ordering) for any non-food shopping, such as for buying books, CDs, clothes, holidays, or insurance? 1. Regularly 2. Sometimes 3. Have only done this once or twice 4. Never 5. Don't know	Treat as five point scale including a new point on the scale for those who have not answered (i.e. do not do regular shopping). This new category is judged to be more positive than never. Scale becomes: **1- regularly / 2-sometimes / 3-Have only done this once or twice / 4-Not Answered (do not shop) / 5 Never.** Don't knows are assigned the mean score	1. Regularly 2. Sometimes 3. Have only done this once or twice 4**. Not answered (do not shop)** 5. Never	YES

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Table (ii) Structural measures (USED FOR BOTH CAR OWNERS AND NON-OWNERS)

Variable	Description (with original scale)	Transformation (imputation / treatment of Don't knows etc.)	Final scale (for use in analysis)	In factor analysis
Location	Urban or rural location	N/A	1. Village, Hamlet and Isolated Dwellings 2. Town and Fringe 3. Urban – Other 4. Urban – Outer London boroughs 5. Urban – Inner London Boroughs	NO
A1	How long have you lived in your current home? 1. Up to 1 year 2. More than 1 year, up to 2 years 3. More than 2 years, up to 5 years 4. More than 5 years, up to 10 years 5. More than 10 years, up to 20 years 6. More than 20 years 7. Don't know 8. Refused	Don't knows and refused are assigned the mean score. Less than 1% answered this way so not a major issue	1. Up to 1 year 2. More than 1 year, up to 2 years 3. More than 2 years, up to 5 years 4. More than 5 years, up to 10 years 5. More than 10 years, up to 20 years 6. More than 20 years	NO
B2/B39	Do you have any disability or other long standing health problem that makes it difficult for you to do any of the following… 1. Go out on foot 2. Use local buses 3. Get in or out of a car 4. None of these (SPONTANEOUS) B39b Do you have any disability or other long standing health problem that makes it/would make it difficult or impossible for you to ride a bicycle? 1. Yes – impossible 2. Yes – difficult 3. No 4. Don't know	Combine variable from these 2 questions - **Disabled** - **3 - 'Yes - Disabled' (IF B2=1 thru 3 OR B39b =1) / 2 'No - but find it difficult to ride bike' (IF B2=4 AND B39b=2) / 1 'Not disabled' (ALL OTHERS)**	1. Not disabled 2. No - but find it difficult to ride bike 3. Yes - Disabled	NO

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B3 (full license only)	Do you hold a licence valid in England to drive either a car, or a motorcycle, scooter or moped? 1. Yes, full licence for car 2. Yes, full licence for motorcycle, scooter or moped 3. Yes, provisional licence for car 4. Yes, provisional licence for motorcycle, scooter or moped 5. Currently disqualified 6. No – too young [SPONTANEOUS] 7. No (SINGLE)	Create a simple binary variable from this - **'Whether hold full driving licence' - 1 - 'Yes' (IF B3=1) / 0 'No' (IF B3<>1)**	0. No 1. Yes	NO
B5	How many vehicles does your household own or have continuous use of at present? 3 or more, 2, 1, None	Treat as 4 values: **4 - 3 or more cars, 3 - 2 cars, 2 - 1 car, 1 - No cars.** Don't knows and refused are assigned the mean score. Less than 1% said don't know or refused so this isn't a major issue. **EXCLUDED FROM NON-OWNER SEGMENTATION**	1. No car 2. 1 car 3. 2 cars 4. 3 or more cars	NO
F5	Age: 16-20 / 21-29 / 30-39 / 40-49 / 50-59 / 60-69 / 70+	Treat as 7 values: **7 - 70+ through to 1 - 16-20.**	1. 16-20 2. 21-29 3. 30-39 4. 40-49 5. 50-59 6. 60-69 7. 70+	NO
F5	Presence of children (use combined variable from SPSS)	Treat as a binary variable: **1 - Yes have children / 0 - No have no children**	0. No children 1. Yes have children	NO

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F12	Please look at this screen and tell me whether you have any of the educational or school qualifications listed. Start at the top of the list and tell me the first one you come to that you 1 University Higher Degree (e.g. MSc; PhD) 2 First degree level qualification (e.g. BA; BSc) including foundation degrees; PGCE 3 Diploma in higher education; HNC; HND; Nursing or Teaching qualification (excluding PGCE) 4 A level; AS level; NVQ level 3; GNVQ Advanced; or equivalent 5 GCSE grade A* - C; O level; CSE grade 1; NVQ level 2; GNVQ intermediate; or equivalent 6 GCSE grade D – G; CSE below grade 1; NVQ level 1; GNVQ Foundation level; or equivalent Y None of the above Z Refuse	Treat as 5 point scale: 5 - codes 1 or 2 / 4 - codes 3 or 4 / 3 - code 5 / 4 - code 6 / 5 - code Y. Don't knows and refused are assigned the mean score. Only 25 people so doesn't make a large difference.	1. No listed qualification 2. 3. 4. 5. Highest	NO
SEG	Add social grade on full 6-point scale	**6 - A / 5 - B / 4 - C1 / 3 - C2 / 2 - D / 1 - E**	1. E 2. D 3. C1 4. C2 5. B 6. A	NO
F15	From this list, which of these phrases comes closest to describing your feeling about your household income these days? 1. Living comfortably on present income 2. Coping on present income 3. Finding it difficult on present income 4. Finding it very difficult on present income	Add as four point scale	1. Finding it very difficult on present income 2. Finding it difficult on present income 3. Coping on present income 4. Living comfortably on present income	NO
B39	Excluding exercise bikes do you currently... 1. ...own a bicycle yourself, 2. have regular use of a bicycle owned by someone else, 3. or have no regular use of a bicycle?	Combined into a binary measure **1. Own a bicycle or have regular use (if B39=1 OR 2) 0**. **Do not own / have regular use (if B39 = 3 OR NOT ANSWERED)**	0. No - do not own 1. Yes - do own	NO

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Table (iii) Attitudinal and behavioural measures (CAR OWNERS ONLY)

Variable	Description (with original scale)	Transformation (imputation / treatment of Don't knows etc.)	Final scale (for use in analysis)	In factor analysis
B8	What is the approximate age of the car/van?	Split into 5 groups. **1 - 1 OR 2 YEARS / 2 - 3 OR 4 YEARS / 3 - 5-7 YEARS / 4 - 8 OR 9 YEARS / 5 - 10 YEARS OR MORE.** Don't knows and refused are assigned the mean score. Around 4% do not know their cars age.	1 - 1 OR 2 YEARS 2 - 3 OR 4 YEARS 3 - 5-7 YEARS 4 - 8 OR 9 YEARS 5 - 10 YEARS OR MORE	YES
B10	Looking at the following list, what is the engine size? 1. Up to 700 cc (0.7 litre) 2. 701 to 1000cc (0.7 to 1 litre) 3. 1001 to 1300cc (1.0 to 1.3 litres) 4. 1301 to 1400cc (1.3 to 1.4 litres) 5. 1401 to 1500cc (1.4 to 1.5 litres) 6. 1501 to 1800cc (1.5 to 1.8 litres) 7. 1801 to 2000cc (1.8 to 2.0 litres) 8. 2001 to 2500cc (2.0 to 2.5 litres) 9. 2501 to 3000cc (2.5 to 3.0 litres) 10. 3001cc and over (3 litres and over) 11. Don't know	Split into 5 groups. **1 - codes 1 - 3 / 2 - codes 4 OR 5 / 3 - code 6 / 4 - code 7 / 5 - codes 8 - 10.** Don't knows and refused are assigned the mean score.. Around 7% do not know	1 - Up to 1300 2 - 1301-1500 3 - 1501-1800 4 - 1801-2000 5 - 2001 or more	YES
B13 (new)	Was this car/van bought/obtained new or second hand? 1. New 2. Second hand	Create 2 binary variables the first is this one: Whether car use most often is new - **1 - Yes (IF B13= code 1) / 0 - No (ALL OTHERS)**	0. No - not new 1. Yes - new	YES
B13 (second hand)	Was this car/van bought/obtained new or second hand? 1. New 2. Second hand	Second variable: Whether car use most often is second hand - **1 - Yes (IF B13= code 2) / 0 - No (ALL OTHERS)**	0. No - not second hand 1. Yes - second hand	YES

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B16	Generally speaking, which one of the following statements best describes your role when it comes to buying a car or van for your household? 1. Sole decision maker (I alone decide which car/van to buy) 2. Main decision maker (I have the main say, but take others' views into account) 3. Joint decision maker (I have equal say in which car/van to buy) 4. Secondary decision maker (I have some influence, but someone else has the main say) 5. No influence (I have no say in which car was bought) 6. Don't know/not sure [SPONTANEOUS]	Don't knows and refused are assigned the mean score.	1. Sole decision maker (I alone decide which car/van to buy) 2. Main decision maker (I have the main say, but take others' views into account) 3. Joint decision maker (I have equal say in which car/van to buy) 4. Secondary decision maker (I have some influence, but someone else has the main say) 5. No influence (I have no say in which car was bought)	YES
B17 (env friendly / CO2)	Looking at this list, which of these things are important to you when buying a car or van? 1. Comfort 2. Costs – purchase/running/resale value/tax/insurance 3. Small engine 4. Large engine 5. Environmentally friendly/low CO2 Emissions 6. Image of brand / brand preference 7. Image of model / model preference 8. Interior space/functionality/boot size 9. Reliability 10. Safety 11. Speed/performance, 12. Style/design 13. Features – sat nav; CD player; music system; power steering etc (all features mentioned) 14. Other [WRITE IN] 15. Don't know	Convert into 7 binary variables, the first is **Whether <u>Environmentally friendly/low CO2 Emissions</u> are important: 1 - Yes (IF B17=5) / 0 - No (ALL OTHERS)**	0. No - not important 1. Yes - important	YES
B17 (small engine)	See above	Whether Small Engine is important: 1 - Yes (IF B17=3) / 0 - No (ALL OTHERS)	0. No - not important 1. Yes - important	YES
B17 (large engine)	See above	Whether Large Engine is important: 1 - Yes (IF B17=4) / 0 - No (ALL OTHERS)	0. No - not important 1. Yes - important	YES
B17 (speed / performance)	See above	Whether Speed / Performance is important: 1 - Yes (IF B17=11) / 0 - No (ALL OTHERS)	0. No - not important 1. Yes - important	YES

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B17 (image of brand / brand preference)	See above	**Whether <u>Image of brand / brand preference</u> is important: 1 - Yes (IF B17=6) / 0 - No (ALL OTHERS)**	0. No - not important 1. Yes - important	YES
B17 (style / design)	See above	**Whether <u>Style / design</u> is important: 1 - Yes (IF B17=12) / 0 - No (ALL OTHERS)**	0. No - not important 1. Yes - important	YES
B17 (interior space)	See above	**Whether <u>Interior space</u> is important: 1 - Yes (IF B17=8) / 0 - No (ALL OTHERS)**	0. No - not important 1. Yes - important	YES
B24 **h, i, j, k, l, m, q, r**	Here are some statements people have made about cars. For each, please try to give your initial feeling rather than thinking about it too much, and say whether you: h) Not having a car would seriously damage my career / job prospects i) For me, there are no practical alternatives to travelling by car j) In general, it's usually cheaper for me to go by car than use public transport k) If I could, I would gladly do without a car l) I couldn't manage without a car m) I would like to own a larger or faster car q) I tend to buy the same brand of car (e.g. Ford; Toyota) r) I tend to buy the same type / size of car (e.g. small car; family estate; sports car)	Each statement treated as a 1-5 scale in its original form. Not Answered, don't knows and not applicable are assigned the mean score.	1. Definitely agree, 2. Tend to agree, 3. Neither agree nor disagree 4. Tend to disagree, 5. Definitely disagree,	YES
CN108	How likely would you be to buy a petrol or diesel car with lower carbon dioxide/CO2 emissions and/or a smaller engine size than your current car when you next buy a car? 1. Very likely 2. Fairly likely 3. Not very likely 4. Not at all likely 5. Don't know	Don't knows and not applicable are assigned the mean score.	1. Very likely 2. Fairly likely 3. Not very likely 4. Not at all likely	YES

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Table (iv) Attitudinal and behavioural measures (NON-OWNERS ONLY)

Variable	Description (with original scale)	Transformation (imputation / treatment of Don't knows etc.)	Final scale (for use in analysis)	In factor analysis
B24 **g**	Here are some statements people have made about cars. For each, please try to give your initial feeling rather than thinking about it too much, and say whether you: g) Not having a car has seriously damaged my career / job prospects	Don't knows and not applicable are assigned the mean score.	1. Definitely agree, 2. Tend to agree, 3. Neither agree nor disagree 4. Tend to disagree, 5. Definitely disagree,	YES

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Table (v). Summary of factors for car owners

Factor	Description of factor
1	Lack of interest in / concern about environment
2	Negativity towards cycling
3	Perception that we need to change for sake of environment
4	Weight of car use and dependency on car (and low bus use)
5	Perception that cycling is not dangerous
6	Negativity towards bus travel
7	Age of car / whether car is second-hand
8	Scepticism about climate change and impact of human activity
9	Negativity towards train travel
10	Level of knowledge about climate change
11	Whether look for additional factors when buying a car
12	Whether feel like I already do my bit / happy with what I do
13	Extent do not like driving / would not miss driving
14	Whether feel that successful people travel by car / not public transport
15	Perception that trains are safer than cars (in terms of crime)
16	Perception that cars safer than trains (in terms accidents)
17	Belief that climate change is already happening / on its way
18	Perception that buses are safe (in terms of crime and accidents)
19	Perception that cars are a status symbol
20	Extent look for / own cars with small engines / low emissions
21	Distance to public transport links
22	Number of flights taken / amount of long distance travel
23	Whether tend to buy the same type / brand of car
24	Low frequency of use of home delivery
25	Perception that bikes are safe (in terms of crime and accidents)
26	Perception that public transport is expensive
27	Whether prefer to change save energy in home than change travel behaviour

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Table (vi). Summary of factors for non-owners

Factor	Description of factor
1	Negativity towards cycling
2	Lack of interest in / concern about environment
3	Level of knowledge / concern about climate change
4	Perception that it's not worth worrying about climate change / changing our behaviour
5	Negativity towards bus travel
6	Belief that climate change is already happening / on its way
7	Whether feel that successful people travel by car and not public transport / that cars are a status symbol
8	Perception that I / we should limit by travel / transport emissions
9	Negativity towards train travel
10	Frequency of car use / extent to which travel by car out of habit
11	Perception that trains are safer than cars (in terms of crime and accidents)
12	Whether uncomfortable with environmental social norms / believe that technology will solve the climate change issue
13	Perception that bikes are safe (in terms of crime and accidents)
14	Perception that cars are safer than buses (in terms of crime)
15	Scepticism about climate change and impact of human activity
16	Extent do not like driving / find it stressful
17	Public transport links were not important in choosing where to live and low use of trains and buses
18	Feel like already done as much as I can / happy with what I do / people I know do their bit
19	Perception that buses are safe (in terms of accidents)
20	Low frequency of use of home delivery
21	Number of flights
22	Perception that not having a car is a disadvantage / distance to nearest railway station
23	Distance to nearest bus stop
24	Perception that public transport is expensive
25	Amount personally drive / whether prefer to save energy in home than change travel behaviour

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APPENDIX A4 – Replicating the segmentation model: golden questions and allocation algorithm

Golden questions

As described in Appendix A2, a large number of survey variables were included in the segmentation model (either via the factor analysis or directly into the cluster analysis) to define the nine segments. In order to replicate the segmentation in future quantitative surveys a smaller number of questions was identified. These questions can be included in future surveys to generate the segmentation model using the method described below. Statisticians at TNS-BMRB identified a reduced set of survey variables, the 'golden questions' which can be used to replicate the segmentation model when combined with an algorithm. The questions were identified using statistical (discriminant) analysis selecting those which were the most effective predictors of segment membership.

A different set of golden questions were identified for the car-owning and non-car owning segments; 10 questions for the car-owning segments and 11 for the non-car owning segments. A separate approach for the two sets of segments was developed as this provided much greater levels of accuracy when allocating respondents to specific segments and therefore provides a more robust replication method. In addition to these questions a further question must be asked to establish whether a respondent's household owns or has access to a private vehicle.

Tables vii and viii summarise the survey variables required for replication – the 'golden questions'. In order to replicate the segmentation reliably, variables must be asked in the same form as the questionnaire from the survey and recoded using the exact numeric values described below. The variable names are also provided below:

Table vii – Golden questions for replicating car-owning segments

Step 1: Define car owners (non-owners are excluded from algorithm)
B5 - How many vehicles does your household own or have continuous use of at present?
Car-owner=1 or more
Non-owner=No cars
Step 2: Apply algorithm (using categories below)
(B2 & B39) - Mobility / disability issues (combined from 2 questions)
1=Respondent has no mobility or disability issues
2=Respondent has a disability or long standing health problem that makes it difficult (but not impossible) to ride a bicycle but no problems going out on foot, or use local buses, or get in or out of a car
3=Respondent has a disability or long standing health problem that makes it difficult to go out on foot, or use local buses, or get in or out of a car, or makes it impossible to ride a bicycle
F5(b) - Age of respondent
1=16-20
2=21-29
3=30-39
4=40-49
5=50-59
6=60-69
7=70+
F12 - Highest level of education from pre-coded list
1=University first degree or above
2=Diploma / A levels or equivalent
3=GCSE A-C or equivalent
4=GCSE D-E or equivalent
5=No qualifications listed at question

continued…

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B5 - How many vehicles does your household own or have continuous use of at present?

1=No car
2=1 car
3=2 cars
4=3+ cars

B17 - Whether Speed / performance is important when buying a car or van

1=Yes
0=No

Social - social grade

6=A
5=B
4=C1
3=C2
2=D
1=E

A1 - Years lived in current home

1=Up to 1 year
2=More than 1, to 2 years
3=More than 2, to 5 years
4=More than 5, to 10 years
5=More than 10, to 20 years
6=More than 20

B17 - Whether or not style/design is important to you when buying a car or van?

1=Yes
0=No

B42(4) - Agreement with: I would cycle (more) if there were more dedicated cycle paths

1=Definitely disagree
2=Tend to slightly
3=Neither agree nor disagree
4=Tend to agree
5=Definitely agree

B19 - Miles personally driven per year

1=0
2=1-499
3=500-999
4=1,000-1,999
5=2,000-2,999
6=3,000-3,999
7=4,000-4,999
8=5,000-6,999
9=7,000-8,999
10=9,000-11,999
11=12,000-14,999
12=15,000-17,999
13=18,000-20,999
14=21,000-29,999
15=30,000 or more

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Table viii – Golden questions for replicating non-car owning segments

Step 1: Define car owners (non-owners are excluded from algorithm)

B5 - How many vehicles does your household own or have continuous use of at present?

Car-owner=1 or more

Non-owner=No cars

Step 2: Apply algorithm (using categories below)

F12 - Highest level of education from pre-coded list

1=University first degree or above

2=Diploma / A levels or equivalent

3=GCSE A-C or equivalent

4=GCSE D-E or equivalent

5=No qualifications listed at question

(B2 & B39) - Mobility / disability issues (combined from 2 questions)

1=Respondent has no mobility or disability issues

2=Respondent has a disability or long standing health problem that makes it difficult (but not impossible) to ride a bicycle but no problems going out on foot, or use local buses, or get in or out of a car

3=Respondent has a disability or long standing health problem that makes it difficult to go out on foot, or use local buses, or get in or out of a car, or makes it impossible to ride a bicycle

Social - social grade

6=A

5=B

4=C1

3=C2

2=D

1=E

CN76 - Frequency of use of home delivery for non-food shopping

1=Regularly

2=Sometimes

3=Once or twice

4=Don't know

5=Never

(B47 & B50) Number of short-haul flights taken in last 12 months

0=No flights

1=1 flight

2=2 flights

3=3 flights or more

B42(8) - Agreement with: I am willing to cycle on the roads (e.g. to work/school/the shops)

1=Definitely disagree

2=Tend to slightly

3=Neither agree nor disagree

4=Tend to agree

5=Definitely agree

B46 - How safe are trains relative to other modes (in terms of risk of being a victim of crime)

1= Least safe

2=3rd most safe

3=2nd most safe

4=Most safe

F15 - Which of these phrases comes closest to describing your feeling about your household income these days?

1=Living comfortably on present income

2=Coping on present income

3=Finding it difficult on present income

4=Finding it very difficult on present income

continued…

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F5(b) - Age of respondent

1=16-20
2=21-29
3=30-39
4=40-49
5=50-59
6=60-69
7=70+

B31(1) - Agreement with: In general, I think that successful people tend to travel by car rather than by bus

1=Definitely disagree
2=Tend to slightly
3=Neither agree nor disagree
4=Tend to agree
5=Definitely agree

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Allocation algorithm / weighting coefficients

Tables ix and x provide the weighting coefficients which should be used in determine segment membership. Membership is determined on a respondent by respondent basis in four steps:

a. The respondent's answer to the each of the golden questions is multiplied by the relevant weighting coefficient – this is done for each of the segments / columns in the table
b. The products for each question are summed generating a single total score for each respondent for each column in the table
c. The relevant 'constant'* is subtracted from each of the column totals
d. The respondent is allocated to the segment / column which they score highest against once the constant has been subtracted

Table ix – Weighting coefficients for car-owners

	Coefficients for 6 Segments					
Variables	**Segment 1**	**Segment 2**	**Segment 3**	**Segment 4**	**Segment 5**	**Segment 6**
B2_B39 - Mobility / disability issues (combined from 2 questions)	31.69499	10.90149	11.73576	12.21710	11.04677	11.14930
F5_b - Age of respondent	4.76361	2.25679	4.43519	4.81527	3.04875	3.12341
F12 - Highest level of education from pre-coded list	1.61234	2.46750	1.21981	2.82662	3.08955	2.49465
B5 - How many vehicles does your household own or have continuous use of at present?	6.84815	7.00689	7.17285	7.40678	7.67473	10.36731
B17 - Whether Speed / performance is important when buying a car or van	0.85221	0.60548	1.08672	1.52037	0.44677	5.04625
Social - social grade	2.57846	2.12591	2.05020	3.10691	3.10564	2.81858
A1 - Years lived in current home	2.08327	1.19514	2.05797	2.30350	1.63197	1.67484
B17 - Whether or not syle/design is important to you when buying a car or van?	0.53561	0.43243	0.42176	0.29506	-0.02409	3.37571
B42_04 - Agreement with: I would cycle (more) if there were more dedicated cycle paths	2.05982	1.61760	1.36296	1.75761	1.18885	1.53030
B19 - Miles personally driven per year	0.29543	0.35912	0.44257	0.43462	0.58981	0.56081
Constant (subtracted from total) *	**-85.38568**	**-29.83490**	**-40.04420**	**-54.19450**	**-42.44767**	**-50.17748**

Table x – Weighting coefficients for non-owners

	Coefficients for 3 Segments		
Variables	**Segment 7**	**Segment 8**	**Segment 9**
F12 - Highest level of education from pre-coded list	1.17153	2.98486	1.64898
B2_B39 - Mobility / disability issues (combined from 2 questions)	3.60936	0.77332	1.27561
Social - social grade	2.07312	2.44424	1.47091
CN76 - home delivery non food shopping	2.68713	2.40626	3.10983
B47 - Use of short haul flights in last 12 months	0.63313	1.63136	0.56284
B42(8)- Agreement with: I am willing to cycle on the roads (e.g. to work/school/the shops)	1.93977	1.17098	1.55200
B46 - How safe are trains relative to other modes (in terms of risk of being a victim of crime)	2.16234	2.92211	2.21290
F15 - Perception of household income these days	3.25463	3.87662	5.12073
F5_b - Age of respondent	3.51519	1.67595	1.36022
B31(1) - Agreement with: In general, I think that successful people tend to travel by car rather than by bus	2.94934	2.58275	2.89275
Constant (subtracted from total)	**-40.99708**	**-31.35068**	**-30.34247**

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Reliability of allocation algorithm

Using a reduced sub-set of survey questions (i.e. not including every single variable used in the original segmentation) means the accuracy of the allocation process can never be 100%. The process described above does however provide a reliable method of estimating segment membership. Table xi below summarises the accuracy of the two algorithms both at a total level (all respondents) and for each of the nine segments. The percentages indicate the proportion of cases which were allocated to the correct segment when the algorithms were applied to the existing survey data. Overall, the accuracy is very good – at the total level the accuracy of both algorithms was 80% or above and the accuracy for any single segment is 70% or above.

Table xi – Reliability of allocation algorithms (% accuracy)

Car owners (10 Variables)	**80%**
Segment 1	96%
Segment 2	78%
Segment 3	81%
Segment 4	79%
Segment 5	70%
Segment 6	76%
Non-owners (11 Variables)	**92%**
Segment 7	96%
Segment 8	88%
Segment 9	92%

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