Understanding
Walking and Cycling

Summary of Key Findings and Recommendations

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Understanding

WALKING & CYCLING

Summary of key findings and recommendations

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Further information:

Understanding Walking and Cycling Project:
http://www.lec.lancs.ac.uk/research/society_and_environment/walking_and_cycling.php

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Executive summary

It is widely recognized that there is a need to increase levels of active and sustainable travel in British urban areas. The Understanding Walking and Cycling (UWAC) project, funded by the EPSRC, has examined the factors influencing everyday travel decisions and proposes a series of policy measures to increase levels of walking and cycling for short trips in urban areas. A wide range of both quantitative and qualitative data were collected in four English towns (Leeds, Leicester, Worcester, Lancaster), including a questionnaire survey, analysis of the built environment, interviews and ethnographies. Key findings of the research are that whilst attitudes to walking and cycling are mostly positive or neutral, many people who would like to engage in more active travel fail to do so due to a combination of factors. These can be summarised as:

- Concerns about the physical environment, especially with regard to safety when walking or cycling;
- The difficulty of fitting walking and cycling into complex household routines (especially with young children);
- The perception that walking and cycling are in some ways abnormal things to do so.

It is suggested that policies to increase levels of walking and cycling should focus not only on improving infrastructure (for instance through fully segregated cycle routes), but also must tackle broader social, economic, cultural and legal factors that currently inhibit walking and cycling. Together, such changes can create an environment in which driving for short trips in urban areas is seen as abnormal and walking or cycling seem the obvious choices.

One

Introduction

This report provides a summary of the aims, methods and key findings arising from a three year EPSRC-funded research project on the role of walking and cycling for everyday travel in English urban areas. The project is a collaboration between the Universities of Lancaster, Leeds and Oxford Brookes and was funded from October 2008 to September 2011 as part of an EPSRC initiative to research walking and cycling as means of sustainable urban transport. This report provides an overview of the project and summarises key findings and recommendations, with selected examples of evidence to support these results. It does not provide full evidence, but this will be made available in a series of forthcoming publications arising from the project.

Two

The problem

Despite recent policies to promote more sustainable travel (for example, Cycle Demonstration Towns, Smarter Choices and Travel Planning), British society remains heavily car dependent with many short urban trips being undertaken by car. It is often assumed that short trips could easily be made by bicycle or on foot (e.g., DfT, 2011 pg 5), and

the statistics suggest that there are many short trips that could be converted. According to the National Travel Survey (2010) 36.1% of trips under 2 miles and 53.0% of journeys under 5 miles are undertaken by car, with walking accounting for 23.4% of all trips and cycling only 1.5% of all journeys. When compared to other European countries, whilst levels of walking are broadly similar, cycling in Britain is substantially less common than elsewhere. For instance in Sweden and Finland 9% of all trips are by bicycle, in Germany 10%, in Denmark 18% and in the Netherlands 26% (Pucher and Buehler, 2010). The research reported here suggests that assuming trips (in the UK) could be undertaken by bike or on foot just because they are short is a rather simplistic approach that fails to fully understand the nature of the problem. A purely distance based understanding of the problem ignores difficulties caused by the physical environment, complex household interactions and a perception that walking and cycling are not normal.

Sustainable and active travel is relatively uncommon in British towns and increased cycling and walking could significantly reduce congestion, improve the local environment including air quality, reduce transport-related greenhouse gas emissions and improve personal health. Despite investment of c£150m in promoting cycling in British towns and cities since 2005 the overall levels of utility cycling have scarcely changed and, as shown above, remain well below levels in comparable continental European countries. Most of the investment in cycling has been focused on physical infrastructure and training schemes, but there is little understanding of how people make decisions about everyday travel or why they respond poorly to initiatives that have been undertaken. The importance of understanding behaviour change has been highlighted in a recent House of Lords report (2011), and the potential benefits to society and environment from increased walking and cycling are substantial.

Aims and scope of the project

The overall aim of the research was to gain a clear understanding of the factors that structure everyday travel in England and, especially, to investigate the reasons why people do and do not undertake short everyday journeys on foot or by bike. We identified six specific research aims:

- How are walking and cycling incorporated into everyday routines of families, households and individuals?
- How do walking and cycling as everyday means of transport interact with other modes?
- How are decisions about specific walking and cycling routes made?
- Do most individuals construct an identity of themselves and others as cyclists or walkers?
- How do specific interventions to promote cycling and walking affect everyday decision making about short-distance travel?
- How is the particular complexity and contingency of travel decision making with respect to cycling and walking best conveyed to planners and policy makers?

Four

Research methods

The project focused on four study areas: Leeds, Leicester, Worcester and Lancaster. These were selected to represent urban areas with a range of different characteristics and with varied levels of intervention to promote walking and cycling. Selected characteristics of the areas are summarised in Table 1.

A multi-method approach was used making innovative use of a range of quantitative and qualitative research tools. Four principal methods were employed:

- A questionnaire survey probing experience of and attitudes towards walking and cycling across all four towns
- Spatial analysis of connectivity and land use in the four study areas
- Household and mobile interviews (e.g. walking go-alongs) about everyday travel with respondents in the four study towns
- Household ethnographies in selected districts of the four towns

Two separate questionnaire schedules were prepared, one focusing on walking and one on cycling. Questions were designed to collect data on the experience of and attitudes towards either walking or cycling and were constructed to be analysed within the context of the Theory of Planned Behaviour. Walking or cycling questionnaires were sent to a sample of households in all four study areas stratified using location and the index of multiple deprivation to produce a cross-section of the population. There was no attempt to specifically target walkers or cyclists as the questionnaire focused mainly on attitudes and respondents were asked to complete the questionnaire irrespective of whether they walked or cycled. 15000 postal questionnaires were distributed evenly across the four areas with a response rate of almost 10% giving 1,417 usable returns (798 walking and 619 cycling). The sample of respondents was broadly representative of the total population but with some over-representation of females (especially for the walking questionnaire), older age groups, car owners and those with a degree level qualification (especially for the cycling questionnaire).

Table 1: Selected characteristics of study towns

	Worcester	Lancaster	Leicester	Leeds
District population*	93,353	133,914	279,921	715,402
Index of Multiple Deprivation**	185	135	23	114
% non-white British ethnicity*	6	5	39	11
Connect2 intervention	√	X	X	X
Sustainable Travel Town	√	X	X	X
Cycling Demonstration Town	X	√	X	X

*2001 census

**English indices of deprivation 2007. Rank of average rank where 1 is most deprived and 354 least deprived.

Research methods

Spatial analysis of the four case study towns consisted of detailed land-use mapping and identification of the network of all routes that could be used for walking and cycling (which can differ significantly from the road network). Multiple Centrality Analysis was then used to assess connectivity within the city. Network buffers of 800 metres for walking and 2500 metres for cycling (roughly the average acceptable distance travelled over 10 minutes to access everyday activities) were developed and used to calculate local and global measures of connectivity as well as prevalence of everyday services within walking and cycling distance of the home. These indices could then be correlated with self-reported data on levels of walking and cycling provided by the questionnaire survey to assess the extent to which land use and connectivity influence levels of walking and cycling.

80 semi-structured interviews were undertaken with people selected (mainly) from their questionnaire responses to be broadly representative of the population structure and travelling characteristics of the population of each of the four towns. 40 interviews were undertaken in households and probed attitudes to walking and cycling and the reasons why people chose particular modes of travel, and 40 interviews were conducted as either walking or cycling 'go-alongs'. Respondents were accompanied on a 'usual' journey and the interview focused on the motivations for travelling on foot or by bike, on route selection and on the experience of the journey. Half of the mobile interviews were on foot and half were undertaken whilst cycling, and a small number of the cycle journeys were also recorded visually with a head cam.

Household ethnographies were undertaken with 20 households (5 in each town). In each urban area one location was selected – designed to reflect particular characteristics – and all respondents were recruited from that location. This allowed the researchers to immerse themselves in the local community and begin to understand the ways in which people moved around. The purpose of the ethnography was to observe and understand the nature of everyday journeys within a community and this was done using a combination of research tools including interviews, go-alongs, mobility inventories, observations, mapping exercises and community participation. The precise nature of the ethnographic research varied across the four districts in recognition of the need to engage different communities in particular ways. This flexibility in the face of local variability is one of the strengths of employing a multi-sited ethnographic method. Approximately three months were spent in each community and the interviews and ethnographies generated 262 separate transcripts and produced over 1.5 million words of text. All names cited in the text are pseudonyms.

Five

Attitudes towards walking and cycling

Public attitudes towards walking and cycling for short trips in urban areas were addressed both through the questionnaire survey and the qualitative data. As shown in tables 2 and 3 attitudes to walking and cycling were mostly positive, especially with regard to walking. Walking was most strongly and positively associated with enjoyment, personal health, saving money and reduced contributions to both local air pollution and climate change. The key negative association with walking was risk of being exposed to wet or windy weather, which was the top reason listed for not walking. Cycling was also positively associated with health benefits, saving money and reduced contributions to local air pollution and climate change, but was rather less strongly associated with enjoyment. There were a number of negative associations with cycling, including need to negotiate difficult road junctions, cycling being a bad experience using existing roads and desire for more cycle lanes to feel safer, which together indicate notable safety concerns. Indeed poor safety was one of the key reasons for not cycling expressed by approximately 80% of respondents. Other negative associations which together with safety concerns are likely to explain the reduced enjoyment of cycling relative to walking were cycling being too

Table 2: Attitudes to walking

1= strongly agree; 3= neutral; 5= strongly disagree

Neutral scores are in the range of 2.8 to 3.2

If I make, or were to make, journeys on foot:	**Leicester** N=167	**Lancaster** N=244	**Leeds** N=200	**Worcester** N=187
I would find walking enjoyable	**1.9**	**1.9**	**1.8**	**1.9**
I would get a sense of freedom	**2.0**	**2.1**	**2.1**	**2.0**
I would feel part of my community	**2.7**	**2.7**	**2.7**	**2.7**
I would find it relaxing	**2.1**	**2.1**	**2.0**	**2.0**
It would benefit my health	**1.5**	**1.5**	**1.5**	**1.5**
It would save me money	**2.1**	**2.2**	**2.2**	**2.1**
It would be a be a bad experience using the existing footpaths	**3.7**	**3.7**	**3.6**	**3.8**
It would mean I contribute less to climate change	**2.1**	**2.1**	**2.1**	**2.0**
It would be too much physical effort	**3.8**	**3.7**	**3.9**	**3.9**
It would more than likely expose me to wet or windy weather	**2.3**	**2.2**	**2.3**	**2.3**
It would mean I contribute less to local air pollution	**1.9**	**2.1**	**2.0**	**1.9**
It would take me too long	**2.8**	**2.8**	**2.7**	**2.9**
I would be safe when crossing the road	**2.3**	**2.4**	**2.5**	**2.4**

Attitudes towards walking and cycling

much physical effort, risk of one's bike being stolen whilst parked and risk of exposure to bad weather. Results were generally consistent across all four study areas. This suggests that while there are negative associations with walking or cycling these are primarily external to the individual, relating instead to the environment, especially the built environment. The implication being, that these negative associations could in the main be reversed through appropriate engineering measures. The positive associations however are primarily intrinsic and personal, and would require more complex interventions to build on them. This was also emphasised by interview respondents with the views of Molly on walking in Leicester being typical: *'I like to think through the day, talking to myself and planning for the next day, it's a thinking and planning activity. Very relaxing, wind away all the stress and pressures of the day'.* The in-depth ethnographies also emphasised that while overall views about walking and cycling were similar in the four case study towns, there were significant differences between localities both within and between settlements, and that place and culture can be very significant.

If I make, or were to make, journeys by bicycle:	**Leicester** N=121	**Lancaster** N=193	**Leeds** N=175	**Worcester** N=130
I would find cycling enjoyable	**2.3**	**2.3**	**2.5**	**2.3**
I would get a sense of freedom	**2.3**	**2.3**	**2.4**	**2.2**
I would feel part of my community	**3.1**	**3.1**	**3.2**	**3.0**
I would find it relaxing	**2.6**	**2.5**	**2.7**	**2.6**
More cycle lanes would make me feel safer	**1.8**	**2.0**	**1.9**	**1.9**
It would benefit my health	**1.6**	**1.6**	**1.6**	**1.7**
It would save me money	**1.7**	**2.1**	**2.1**	**1.8**
It would be a be a bad experience using the existing roads	**2.5**	**2.5**	**2.3**	**2.4**
It would mean I contribute less to climate change	**2.0**	**2.1**	**2.0**	**2.0**
It would be too much physical effort	**3.4**	**3.4**	**3.1**	**3.3**
It would more than likely expose me to wet or windy weather	**2.1**	**2.1**	**2.0**	**2.1**
It would mean I contribute less to local air pollution	**1.8**	**1.9**	**1.9**	**1.9**
It would take me too long	**2.9**	**2.9**	**2.5**	**2.8**
It would put my bike at risk of being stolen whilst parked	**2.7**	**2.8**	**2.4**	**2.5**
It would mean I have to negotiate difficult road junctions	**2.3**	**2.4**	**2.0**	**2.3**

Table 3: Attitudes to cycling

1= strongly agree; 3= neutral; 5= strongly disagree

Neutral scores are in the range of 2.8 to 3.2

Attitudes towards walking and cycling

Qualitative data were analysed using Q methodology (Watts and Stenner, 2005; Eden et al 2005). This is a systematic approach to explore and summarise the discourses that are prevalent in the interview transcripts. Initially, a sample of 50 statements (or viewpoints) from the interviews covering the most pertinent topics were selected. 25 participants in our case study towns were asked to sort (rank order) these statements in relation to their level of agreement or disagreement with each. The 25 sorts were then subjected to factor analysis to identify clusters of interrelating variables or participants' sorts. Using a varimax rotation three factors were identified as significant which together explained 42% of the variance. Each of the factors was interpreted and summarised according to the component loadings from the original statements and were described as follows:

- Cycling sanctifiers (17% of the variance) – this discourse reveals a strong moral pro cycling stance. Cycling is regarded as providing ultimate freedom and more convenient access across the city (even than by car). People who subscribe to this discourse are confident cycling in traffic and are reluctant to see the implementation of segregated cycle infrastructure if this leads to the erosion of cyclists' right to use the road.
- Pedestrian prioritizers (16% of the variance) – this discourse reflects the very positive and 'normal' image of walking as a means of travel to get from place to place and because of the desire to see more priority given to people moving on foot in cities. People who subscribe to this discourse are not car averse – they own and drive cars themselves – but wish to see more restrictions placed on the use (and cultural symbolism) of cars in urban areas. There is also the desire for segregated cycle paths which are perceived to benefit people travelling on foot (reduced danger/conflict because of pavement cycling) and cyclists (reduced danger/conflict because of motor traffic).
- Automobile adherents (9% of the variance) – this discourse is most satisfied with the present car system and is underpinned by the belief that people have a choice of how to travel around and it is up to them to exercise it. Walking is regarded as a leisure activity and cycling practiced by enthusiasts or by committed environmentalist. People who subscribe to this discourse are against any measures that infringe their liberty to drive such as traffic calming even if this could improve conditions for walking and cycling. Indeed, this discourse suggests that walkers and cyclists should take more responsibility for their own safety when moving around the city.

While the data may be making the obvious statement that some people are committed cyclists, some prefer walking and some are wedded to the car, perhaps the more interesting implication is that 58% of the total variance is not explained by these 'mobility identities'. We argue that it is this large unexplained variance on which we need to focus in order to understand the factors that influence the travel decisions of people who are not currently committed to a particular form of travel, and who thus may be more open to changing their travel behaviour than those with a strong mobility identity. The remainder of this report used a range of data to explore such factors in more detail.

Attitudes towards walking and cycling

One factor that it is important to bear in mind is the gap that often exists between the values and attitudes that people have and their actual behaviour. Much policy in a range of areas (for instance climate change, health promotion, sustainable travel) works on the premise that if people's attitudes and values can be changed they will also alter their behaviour and make choices that are (for instance) good for their health or the environment. However, research has shown that there is often a 'value –action gap' (Shove 2010) and that having attitudes and values that identify with more sustainable travel or healthy living does not mean that these beliefs are carried through into everyday life. Many different barriers and constraints intervene to create an environment where people who profess to support walking and cycling actually use their car for most trips. In the sections that follow we use data from the research to examine the ways in which such factors influence short trips in urban areas.

Physical environment factors influencing levels of walking and cycling

Although we have little control over some aspects of the physical environment (such as the weather or topography) that may deter pedestrians or cyclists, there are other aspects that can be changed. Two sets of factors relating to the physical environment can be identified as important. Planners and researchers of the built environment place considerable emphasis on the connectivity of places and the permeability of the urban environment (Naess, 2006; Van Dyck et al, 2008). In other words, if places are well connected and it is easy to travel by bike or on foot between them, then levels of walking and cycling should increase. The second key factor is risk. If the physical environment is perceived as potentially dangerous for any reason, then people are likely to be much less inclined to travel through that area on foot or on a bike, and will either avoid what they perceive as risky locations or will travel in the security of their car (Pucher and Dijkstra, 2003; Jacobsen et al 2009).

The association between street connectivity and availability and mix of activities in proximity to the home with frequency of walking and cycling was investigated. GIS was used to include all cycle and walking routes that could be reasonably used (deduced from both map and field evidence) on the Ordnance Survey Integrated Transport Layer for the four cities. A street network buffer of 800m for walking and 2400m for cycling was drawn around the homes of respondents to the questionnaire survey. This was based on the average distance travelled over an 'acceptable 10 minute journey time'. Multiple Centrality Analysis (MCA), which calculates the shortest paths between nodes (intersections) across the whole network, was used to produce indices of 'betweeness', 'closeness' and 'straightness' and provided an indication of 'global connectivity' by estimating values within each buffer. Measures of 'local connectivity' included intersection density, network density and average number of junctions at each intersection within each buffer. Ordnance Survey Address Layer 2 and associated Base Function data were used to

Physical environment factors influencing levels of walking and cycling

classify ten different land use typologies and prevalence and diversity were measured within each buffer. The frequency of walking and cycling journeys recorded in the questionnaire survey was then correlated with the land use and connectivity measures. The analysis demonstrated that there was a significant positive correlation between walking trips and city-wide (global) and local measures of connectivity but that this was generally weak (r=.06 intersection density to .16 betweeness). There was also a weak positive correlation between prevalence and diversity of activities within walking distance of the home. For cycling, no correlation was found between any of the global or local connectivity measures or with the prevalence or diversity of activities within 'acceptable' cycling distance. This suggests that the connectivity of the street network and the availability of everyday activities within walking and cycling distance of the home are insufficient on their own to encourage walking and (particularly) cycling. This is not to suggest that they are unimportant, but that other factors may militate against their use as we discuss below.

There is clear evidence from the qualitative research that perceptions of risk were a major factor influencing everyday travel decisions. This was true for both cyclists and walkers but the nature of the perceived risk differed. Cyclists were most concerned about dangers from motorised traffic, and this finding was supported by the quantative analysis, but walkers were most concerned about threats from other people in a poorly supervised urban environment. Box 1 provides a small selection of quotes from the qualitative data to support these views. Interestingly the questionnaire survey provided a slightly different perspective on threats from other people in that most respondents stated that fear of being attacked was only rarely or never a concern with regard to making a journey on foot. There was a small (but significant) correlation with female gender (with women more fearful) but these views were consistent across all four study sites. Likewise, there is a small but significant negative correlation between fear of attack when it is dark and frequency of walking, which reflects concerns about walking at night expressed in Box 1. There are two related explanations for the apparent difference in response. First, in the questionnaire respondents were asked if risk from people was a concern for them if making a trip on foot. If they rarely made such trips then such factors may not have been on their radar. Second, committed walkers who travelled regularly on foot were not prevented from travelling in this way, but this does not mean that they did not experience concerns. It was these concerns that were expressed in the qualitative data.

Physical environment factors influencing levels of walking and cycling

I am not comfortable at all with cycling. I am always scared of the traffic around me. (Molly, Leicester)

As a cyclist you're not really recognized as a road user but you can't use the footpaths so its bit frustrating. (Raj, Leicester)

My ideal would be if it were possible, transport wise, for cycle paths to be absolutely physically removed from roads as in a proper kerb separating cyclists from traffic so that cyclists didn't have to use the pavement but weren't sharing the road with cars then cycling would definitely be an option and I'd find ways around the other inconveniences of cycling. But as I say, with cyclists having to mix with traffic it just seems crazy. (Holly, Lancaster)

I wouldn't tend to go walking at night generally. (June,Worcester)

I feel safer going through that street where there's a lot more people around, rather than that road where you've got the cars but you don't really have many people walking it. (Patrick, Leeds).

I feel very vulnerable walking some places because I can't run. (Jen, Worcester)

There's some places I wouldn't go on my own. And there are some places I perhaps would go if I was in a car. (Dick, Leicester)

Box 1: Physical factors influencing cycling and walking

To summarise, from our analysis of the influence of the physical environment on walking and cycling it is clear that traffic is a major deterrent for all but the most committed cyclists. Potential cyclists, recreational (off-road) cyclists and occasional cyclists are discouraged from using their bicycles for everyday urban journeys because of their fear of cars and heavy goods vehicles. For pedestrians, the major factor relates to footfall. Empty streets are perceived to be more dangerous and, again, although committed walkers are not deterred many potential or recreational walkers restrict their journeys on foot because of their perception of risk. For both walking and cycling the availability of local facilities and the structure of the built environment, although not unimportant, were not major factors determining levels of walking and cycling.

Seven

Household and family factors influencing levels of walking and cycling

Over the last half century household structures in Britain have become increasingly complex with a greater incidence of divorce or separation, while increased pressures of work and time (especially in dual-career and lone parent households) have further reshaped household dynamics (Buzar et al, 2005; Southerton, 2002). Evidence from the questionnaire survey, interviews and ethnographies collected for this research shows that the complexities and constraints of everyday life, constructed around household, family and work commitments, are major factors which influence the ability of some people who may have an inclination or intention to walk or cycle for short trips to actually use this method of transport on a daily basis. For many families it just becomes too difficult to organise themselves for more sustainable modes of travel, and using the car becomes an easy default option even for very short journeys. The extent to which the need to trip

Table 4: Household constraints on walking and cycling (%)

Source: Questionnaire survey, 2009

How often are you unable to make a journey: Because you need to give a lift to a child	on foot	by bicycle
Often	17.5	21.1
Sometimes	22.4	18.4
Rarely	9.3	9.2
Never	36.6	31.6
Not applicable	14.2	19.7
Because you need to give a lift to an older person:		
Often	6.5	15.6
Sometimes	17.3	15.6
Rarely	25.4	14.9
Never	40.0	31.9
Not applicable	10.8	22.7
Because you need to give a lift to someone else you care for:		
Often	8.6	11.8
Sometimes	20.5	22.9
Rarely	16.8	11.1
Never	39.5	31.4
Not applicable	14.6	22.9

chain forms a barrier to walking and cycling is a reflection of this (76% of respondents to the walking questionnaire who provided details of trip chaining (n=492) said it prevented them from walking at least some of the time, and 53% of cycling respondents who provided details (n=399) said the same). While there are households, including some of our respondents, who do successfully embed walking and cycling into busy lives, at present these are a distinct minority and may be perceived as making unusual lifestyle choices. Many different factors are important, and most interact with each other, but key issues include the presence of young children or elderly relatives with constraints on their mobility, ill health, the complexities of multi-purpose journeys, time pressures, and lack of space for storing cycles or walking clothes and shoes. Perceptions of risk, as outlined above, also interact with family and household factors as risks may be perceived to affect particular family members differentially.

Table 4 summarises responses from the questionnaire on the degree to which other family or household members may constrain travel. Approximately 40% of respondents sometimes or often were unable to make a trip on foot or by bicycle because of the presence of a child and 25-30% of respondents found that their mobility choices were constrained by either an elderly person or someone else for whom they cared. In the context of cities designed and built for cars much more than for cycling and walking, car use has for many households become both normal and easy, while walking and cycling are not. In such a context, a household's structure and related commitments become significant factors in influencing the mode of transport chosen for a trip, with the convenience of the car – should one be available – often becoming the decisive factor.

Such points are made even more effectively via the qualitative data collected from interviews and ethnographies. Almost all households with young children gave examples of the ways in which the presence of children to some extent either restricted travel or made it more complicated. Box 2 summarises a small selection of relevant quotations from across the four study areas. It is important to stress that many families did manage to travel sustainably with young children, but as the interchange in Box 3 shows, recorded during an ethnographic intervention, a simple journey with three small children can take a considerable amount of organisation and negotiation. For many parents this is just too much trouble and putting the children in the car for even a very short journey becomes the easier option. Such families may have aspirations to travel sustainably, but the complexities and constraints of everyday life imposed by family, time pressures and a busy schedule mean that forms of travel that are perceived to be more difficult to accomplish are only rarely executed. For such families, switching trips from cars to walking and cycling is less about changing attitudes and much more about making walking and cycling easier to accomplish in the context of busy everyday lives.

Household and family factors influencing levels of walking and cycling

Box 2: Family and household constraints on walking and cycling

We'd like to [cycle more] but when children are smaller it's actually, there's very few places where they can safely cycle, in terms of roads … [Cycling as a family] … that's very difficult while my youngest is still on stabilizers and not confident. I don't want to put her on a road with much traffic. (Jason Leicester)

Children influence walking routes (both through wanting (insisting) to go a particular way and through parents wanting to take them a nicer/safer/less polluted way). (Hailey, Leeds)

As the kids got older they liked it [walking] less and less. (Dick, Leicester).

[When you have children] You don't have any sleep and you just can't do it [¾ of an hour journey each way]. You can't get up at half six every day and go to work. (Cassie, Leicester)

With the demands of family and work and everything there's not much time or energy [for walking and cycling]. (Percy, Worcester)

Usually I go with the car because of convenience, less time, because sometimes J [age 3] is tired when I pick him up from nursery and I would have to carry him, and I have my books as well, and when there's two of them… In the week [I use the car] for two days a week, at some point I might even try just walk with the kids, but it's usually because with the two kids they have different energies, and R runs and J is a bit more like staying here and hanging round here and there, so that creates some kind of tension and also I'm on pressure to get on time to work, then it's really much more convenient to just strap them on the seats and take them and leave them and that's it. Apart from that I would just walk. (Don, Lancaster)

One reason why walking and cycling are often seen as difficult is because of the requirement for a range of kit and outdoor clothes to be readily available. If a bicycle has to be taken from a locked shed and wheeled through the house, or if outdoor clothes and shoes have to be gathered from four corners of the home, this is a major disincentive to travelling by bike or on foot. Travel by car requires a minimum of outdoor clothes or equipment and the complexities of running a car are, for most people, a taken-for granted aspect of modern life. Such views were expressed by a number of respondents during the ethnographic fieldwork which included 'mobility inventories' of where people stored the things needed for travelling by bike or on foot. Box 4 gives just two examples from Lancaster respondents. Again, what these quotes stress is that policies to develop more sustainable travel patterns are not just about changing attitudes or even the physical environment. They also have implications for housing policy and the provision of adequate

Linda: ***The water bottle is just by your pop-up book, do you want me to carry? Tell me what you want me to carry, tell me what you want to carry.…***
Mick: ***Where's my book bag dad?***
Linda: ***Oh I've got it underneath the pram do you want me to hold it? Or would you like to hold it?***
Mick: ***I want to hold it. …***
Linda: ***Come on then (puts Rebecca in pushchair)***
Mick: ***I can hold my water bottle actually.***
Linda: ***No I'll put it in my bag James, it's going to get wet.***
Paul: ***You are going to have to walk quickly today.***
Linda: ***Come on lets put that in your; I'll remind you of it when we get there (Rebecca cries) James let me help you. Careful. I'll give it to you when we get there. Come on.***
Paul: ***The dog stays here; he helps me work.***
Linda: ***Right OK guys. Mick do your coat up please it's really wet.***
Paul: ***See you later guys***
All: ***See you***
Linda: ***Do you want to take this umbrella? There's an umbrella Mick do you want that one?***

Box 3: Extract from Ethnographic go-along in Lancaster (two parents (Linda and Paul) and three children (Mick, James and Rebecca))

Yes. One of the important things about bikes is having ready access to them I find. I've just been fixing up a bike for a friend and I said you have to make it somewhere where you can get at it quickly otherwise you won't use it. It has to be somewhere where a couple of seconds and it's ready rather than having to go in the shed and have to do it and have to do this and have to do that, so it's there. (Fred, Lancaster)

J goes to work in Morecambe and endeavours to go on her bike or on the train whenever possible. And that's often down to weather, or whether there are any jobs to do on the way back or places to go where public transport and the like is not possible … We both try and walk, J cycles whenever we possibly can, I obviously walk and use public transport, then this again would apply to both of us and the boys of course as well. This is if you are walking or using public transport we need to be equipped so I have set up waterproofs, coat, trousers, waterproof trousers, hats of various varieties depending on cold, sun, rain; shoes. (Tom, Lancaster)

Box 4: Issues of storage and organisation

storage space for cycles and outdoor clothes in all homes. Those families that travelled regularly by bike or on foot had taken steps to organize their lives in such a way that walking and cycling were easy.

Concerns about safety relate not only to the nature of the physical environment, but also reflect perceptions of responsibility for the safety of children and other family members. Thus, a physical environment which might be quite acceptable to a single person without responsibility for others, may be perceived as unacceptably risky to a parent who may be concerned not only for the welfare of their child but also for their own safety and the impact of an accident on their dependents. Many respondents expressed concerns about the safety of children cycling (Box 5 gives just 2 examples) and the testimony of Brian is particularly telling as although he is himself a keen cyclist he questions the value of the cycle training provided for children as he is not comfortable with them cycling in current road conditions.

Box 5: Parental attitudes to risk

There's just no way I'd cycle in the city centre, and there's no way I'd let my kids cycle there either. It's Too dangerous. (Sandra, Leeds)

Of course I want my kids to cycle. I love cycling. They can get free training which'll make them better cyclists. But a big part of me hates the idea of them riding on the roads, so I do wonder why we're bothering to teach them. It's like creating a false expectation, isn't it? (Brian, Lancaster)

To summarise, our research shows that, under the conditions which currently prevail across urban Britain, household and family commitments are significant factors in restricting the extent to which people use walking and cycling for everyday travel, even when their own values and attitudes incline them towards more sustainable forms of transport. For most people there is no single factor that restricts the use of more sustainable travel modes, rather it is a combination of circumstances including the logistics of organising and moving with (sometimes tired) children, pressures of time and other commitments, the ready availability of the paraphernalia needed for walking and cycling and parental concerns about safety. Unless such factors are explicitly recognised and tackled, strategies to increase levels of walking and cycling for everyday trips are likely to have limited success.

Perceptions of normality

Most people prefer not to stand out as different, but tend to adopt norms of behaviour that fit in and reflect the majority experience. In Britain, travelling by car is the default position for most people (over 60% of all trips are by car) and car ownership and use is seen as normal. Although in the questionnaire survey attitudes to walking and cycling were mostly neutral or positive, qualitative evidence makes it very clear that for many people a combination of the ease and normality of car travel makes this the most obvious means of travel on many occasions. A few respondents expressed quite strong views that if you did not own and use a car you were not perceived to be 'normal', but more commonly the feelings expressed centred more on the fact that using a car for short everyday travel was what most people did, and to do anything different was, on most occasions, just too difficult. The combination of travelling in a way that was different from most people, of wearing what might be viewed as odd clothes, or of arriving slightly dishevelled from a walk or cycle ride were all too difficult to negotiate and deal with for many people. A selection of such views is presented in Box 6.

The whole thing with transport and not having a car, I do feel like a second class citizen, there's definitely a sense that as a pedestrian and a cyclist you are definitely second class citizens. (Jim, Lancaster)

People still assume that there's something wrong with you if you don't drive. (Bob, Leeds)

The general reaction or when I say I cycle to work or whatever they say 'oh do you' as though it's unusual. (Don, Worcester)

You do get a sense of some people thinking oh, you're a bit weird because you're going up on the bike you know. A bit odd. (Sally, Worcester)

It's not a cool thing for a girl to be on a bike. (Anju, Leicester)

I probably would cycle if I didn't worry so much about image and public opinion - me arriving at a meeting hot and sweaty. (Joe, Leicester)

The [cycle] helmet is a problem for me. Because … I just think it would make my hair a little squashed. (Lara, Leeds)

Walking boots and skirts and bare legs in summer are out – in winter I'll wear boots with trousers. (Jan, Leeds)

I get called the bag lady, because I walk everywhere and I have quite a lot of stuff with me. (Steph, Leeds)

Box 6: Images associated with walking and cycling

Perceptions of normality

The significance of such issues in influencing people's everyday travel decisions should not be underestimated and the regular use of a means of transport that presents a combination of physical (risk, topography, weather), familial (children, household routines) and societal (image) difficulties is a challenge that is very difficult for people to overcome – even those with strong environmental values. At the moment there is a vicious circle where the physical and household barriers to walking and cycling mean that relatively few people travel on foot or by bike and thus to do so seems abnormal, thus increasing the difficulty for many. There is clearly need to move towards a virtuous circle where the physical environment is made as welcoming as possible, and walking and cycling are made as easy as possible so that more people engage in sustainable travel, thus making walking and cycling seem normal. In this way the negative images expressed by respondents (Box 6) are likely to be dispelled.

Our research makes clear that the extent to which a household finds it difficult to incorporate walking and/or cycling journeys into its everyday routines reflects the degree to which car use has become normal, and habitual. We suggest that as walking and cycling are made more normal, more households will develop more strategies and systems to more easily accommodate walking and cycling into their ordinary, everyday movements. Ethnographic observations of households in which walking and cycling, and not driving, were usual modes of transport demonstrate this to be the case.

Nine

Policy implications

The key message that comes from this research is that at present in Britain using the car for short trips in urban areas is convenient, habitual and normal. It is what people expect to do, what most people expect others to do and what many other people who have yet to benefit from car ownership aspire to do. Alternatives to the car – especially cycling and walking – are perceived to take too much effort, need planning and equipment that causes hassle, and may be risky and uncomfortable. They also run the risk of being perceived by others as eccentric or odd. These are all powerful reasons for not walking and cycling and for using the car for most short trips in urban areas.

Solutions to this conundrum are obvious but difficult to implement because they require integrated policy and extend well beyond the usual remit of transport policy and planning. It is argued that to achieve any significant increase in levels of walking and cycling it is necessary to reverse the balance of power embedded in the issues outlined above. In short, it is necessary to make travel by car for short trips in urban areas more difficult and, most crucial, make it feel abnormal and exceptional. In contrast, policies have to be put in place that make walking and cycling easy, safe, comfortable, and accepted as the normal and obvious way of moving around urban areas for most people.

This message is not anti-car ownership, but it is arguing for a significant reduction in car use for short trips in urban areas. There will remain journeys for which a car is necessary, and individuals who due to poor health or infirmity cannot walk or cycle. But for much of the population switching to more sustainable forms of transport for many journeys is entirely feasible if such forms of transport are made accessible, safe and routine. The aim is to achieve responsible car use.

We identify several specific areas where policy change is needed. None of these is easy, and neither can they be treated as a set of independent or discrete measures. To be effective, they need to be viewed in the context of a long-term and substantial shift in priorities of actors at multiple levels of local and national government, as well as of employers, communities and voluntary organizations. However, the measures proposed have been at least partially achieved, by a variety of different means, in many cities in other northern European countries (The Netherlands, Denmark, Belgium, Sweden, and Germany). In combination these proposals are aimed at providing the best possible walking and cycling environment (both physical and cultural) on all routes. In summary, they challenge the degree to which British society is locked in to car use in urban areas, and they provide strategies through which people can comfortably find alternative means of everyday travel for short trips. Table 5 summarises these policies and responsibilities and they are spelled out in more detail below.

First, it is essential that the urban environment is made safe for cyclists and pedestrians. This requires the provision of fully segregated cycle routes on all arterial and other busy roads in urban areas. It is clear from the research that most non-cyclists and recreational cyclists will only consider cycling regularly if they are segregated from traffic, and that pedestrians are hostile to pavement cyclists.

Second, pedestrian routes must be made as welcoming as possible to increase footfall. This could include widening pavements, removing street furniture that obstructs pavements and ensuring that pavements are well lit, well maintained and kept free of leaves and ice.

Third, there need to be effective restrictions on traffic speeds, parking and access on all residential roads and other routes without segregated cycle and pedestrian paths so that both cyclists and pedestrians feel that they have a safe and convenient environment in which to travel. This could include 20mph speed limits and resident-only access by car in some areas.

Fourth, the system of legal liability on roads used by the public should be changed to protect the most vulnerable road users (cyclists and pedestrians). One approach would be to adopt 'strict liability' so that pedestrians or cyclists injured in an accident involving a motor vehicle do not have to prove fault in seeking compensation. Forms of 'strict liability' are adopted in much of continental Europe and while not changing criminal

responsibility they place a civil responsibility on drivers to obtain insurance that will pay vulnerable victims independently of fault. This may act as an incentive for car drivers to behave in a way that protects the most vulnerable road users.

Fifth, there need to be changes in the spatial structure and organisation of the built environment, enforced through planning legislation, to make accessing common services and facilities on foot or by bike easy. This would require the development of more neighbourhood shopping centres within walking or cycling distance of most people, restrictions on out-of-town developments, provision of secure bicycle parking facilities and the provision of cycle storage in most homes.

Sixth, there need to be wider societal and economic changes to give people the flexibility to travel more sustainably. Polices (that already exist in many countries) could include the greater use of flexi hours so that walking and cycling could be more easily fitted into a household routine, more family-friendly welfare policies so that in families with small children one parent could afford to reduce working hours and thus be less constrained by time commitments, and more equitable educational provision so that most children attend a school close to home.

Seventh, it is necessary to change the image of cycling and walking. To a great extent this should be consequential on the above changes: as more people walk and cycle then more people will accept it as normal. However, campaigns to promote walking and cycling as normal and something accessible to all and not dominated by super-fit or unusually committed specialists should also be adopted.

In summary, there are a number of different ways in which the above objectives could be achieved – and different solutions may be applicable in particular places – but three key points underpin our policy proposals.

First, it should not be assumed that it is sufficient to change attitudes and make people more environmentally aware. It is necessary also to make the changes that enable people to translate these values into actions.

Second, do not base policies about walking and cycling on the views and experiences of existing committed cyclists and pedestrians. These are a minority who have, against all the odds, successfully negotiated a hostile urban environment to incorporate walking and cycling into their everyday routines. It is necessary to talk – as we have done - to non-walkers and non-cyclists, potential cyclist and walkers, former cyclists and walkers, recreational cyclists and occasional walkers to determine what would encourage them to make more use of these transport modes.

Third, it should be recognized that while physical infrastructure is important, it is not on its own sufficient. There is also need for an integrated policy that embraces social welfare, employment, housing, health, and education amongst other policy areas to create a total environment that is welcoming for cyclists and pedestrians.

We recognize that the scale of changes proposed may seem daunting. The measures proposed cannot be achieved overnight – though some could be implemented quite quickly – but achieving transition to a society where walking and cycling is normal should be seen as a long-term project which creates more sustainable urban environments for future generations.

Policy goal	Main responsibility	Example policy measures
Create a safe physical environment for pedestrians and cyclists where most people feel comfortable either walking or cycling.	Local Authorities, voluntary and community agencies	Fully segregated cycle paths Restrictions on vehicle speeds and access Pavement widening Effective pavement maintenance and cleaning
Encourage motorists to be more aware of the vulnerability of pedestrians and cyclists and thus reduce perceptions of risk associated with active travel	National Government	Adopt 'strict' liability for motorists as is found in much of continental Europe
Reduce trip distances in urban areas by providing more retail, social and educational facilities close to residential areas, and facilitate access to such services.	Local Authorities, private businesses, voluntary and community agencies	Restrict out-of-town retail developments Strict land-use planning control Encourage development of neighbourhood and community-based facilities Provide cycle parking and storage facilities
Create a social and economic environment in which active travel (walking or cycling) is seen as achievable by most people for short trips in urban areas	National Government, Local Authorities, employers, voluntary and community agencies	More flexible working hours for parents of young children Family-friendly welfare policies Community-based schemes for child care, school transport etc. Cycle storage facilities in all homes
Promote the normality of walking and cycling	Local Authorities, National Government, voluntary and community agencies, media, employers, educators	Campaigns to demonstrate that walking and cycling are not only for super-fit specialists but are to some degree possible for most people for some journeys

Table 5: Summary of proposed policy implications

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