

SMART

*Sustainable Mobility and Accessibility
in Rural Transport*

The Costs of Rural Travel

Final Report

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Executive Summary

This report addresses some of the issues raised by recent increases in traffic in the countryside alongside a decrease in bus services. It is based on research in two Oxfordshire villages, both of which exemplify changes commonly found in many in 'commuter belt' or semi-rural locations in SE England and elsewhere. In one of the villages studied, Chalgrove, there has been a doubling of the number of households, car ownership and average distance travelled over the last twenty years. These villages have experienced an influx of people many seeking what they perceive to be a better quality of life in the countryside and also, in many cases, living a 'commuting' lifestyle, travelling to work in London, Oxford or other cities.

Quantitative and qualitative data was collected and the attitudes and travel patterns of high and low energy users compared. Respondents' attitudes to acceptable travel provision were also sought, both for themselves and for 'families with young children in areas like this'.

The travel rich

- Those who travel the most are more unhappy than those who travel less: they are three times more likely to assert that their quality of life would improve with less travel.
- Those who travel the most are twice as likely to agree with the statement that the 'quality of rural life is threatened by car use' than those who travel least.
- It is clear that there is a big difference between those who travel a great deal and those who do not. The respondents in the 10% of households using the most energy travelled ten times further than people in the 10% of households using the least energy. It is not travel by the poor that is creating the environmental damage.

The travel poor

- Non-car-owning rural residents went to only a third of the places visited by car-owners indicating less access to facilities than car-owning households.
- Bus passengers' have about half the opportunities to choose to travel by car compared to those who use other modes of transport.
- People without cars are much less likely to be given lifts by neighbours (4% of 1995 trips in car-less households were made by car, compared with 28% in 1977).
- The alternative is to use public transport, but bus services have declined, despite the increasing number of people living in rural areas.

Greener Options

- Twenty-five percent of car journeys were four miles or less and seven percent were half a mile or less. Up to a quarter of car journeys could be made by bicycle if more respondents were willing and able to cycle four miles.

- Nearly one in five journeys to work by car were of less than four miles, and took an average of 10 minutes. It would have taken 25 minutes or less to walk, instead of using the car, on 40% of the journeys to work.

Introduction: Choosing our Future

This study arose out of a desire to look at rural people's travel needs. Traffic growth was increasing, and rural traffic was forecast to increase more than that in urban areas, (Root *et al*, 1996). Were rural residents happy with this increase? What did it mean in terms of their lifestyles? Did they see others or their own travel as a threat to their quality of life?

Underpinning this work is the premise that transport patterns and the increase in traffic, are among the most important environmental issues of our times. What happens in rural areas is important in terms of affecting the people who live in them, those who visit them and those who share air and use other resources affected by car use. The quality of life in the future depends, to a large extent, on decisions made by this generation, and the next, about domestic energy use, including transport (Table 1).

Table 1: Percentage of economic contribution and pollutants from all sources in the UK

	Economic output	Greenhouse gases	Acid rain	Black smoke
Private households (including cars)	0	22	11	34
Agriculture	2	4	10	0
Extraction	2	5	3	0
Energy & water	3	26	44	5
Construction	5	0	0	0
Transport industries	8	7	10	27
Education & health	12	2	0	0
Distribution	14	2	0	5
Manufacturing	21	20	16	8
Other	33	10	18	5

Source: Office for National Statistics, in Hamer (1996)

The Intergovernmental Panel on Climate Change (1995) has written that there is a "discernible human influence on global climate". Most Western governments have agreed to stabilise or reduce greenhouse gas emissions to protect the environment. Private households make the second biggest contribution to greenhouse gases, the fourth biggest to acid rain and the largest to black smoke (i.e. particulates which are known to be carcinogenic) (Table 1). About a third of domestic energy is used in transport, and the proportion is rising, (Stanners and Bourdeau, 1995).

This report is written in the wake of 'new realism': amongst transport professionals who share the idea that it is not possible to accommodate traffic growth by road-building (Goodwin *et al*, 1993). Current debates by professionals involved in transport and planning acknowledge that it is important to address rising car use because of its effects on the quality of life that everyone, both country and urban dwellers, will experience in the future.

Most people regard the countryside as providing better community life, more healthy surroundings and a beautiful landscape (Clope *et al*, 1994). Yet it has been established by many studies that these valued qualities are threatened by the growing use of the car. Cars are associated with less interaction with neighbours and less activity on streets. They pollute by their emissions (21% of

carbon dioxide stems from transport), the noise (11% of the UK population are exposed to high noise levels) the vibration they make unacceptably and the danger they bring to our roads (Suffolk County Council, 1996). Each of these factors can cause or exacerbate a variety of ill-health ranging from respiratory disease to stress. The presence of roads, car parks and parked cars (sometimes with rogue car alarms) is marring the beauty and peacefulness of the countryside. Yet car use is growing nationally and a predicted national growth of 142% will produce a displacement of traffic to rural areas of between two and four times current usage (Stokes *et al.*, 1992). The Confederation of British Industry estimates that traffic congestion costs £15 billion per year and the social and economic cost of road traffic accidents is estimated as over £6 billion per year (Suffolk County Council, 1996).

It would be presumptuous, and wrong, to suppose that many people are indifferent to environmental issues. However, information about environmental damage, such as climate change, can seem confusing, improbable or unconnected to daily car use. Despite widespread concern about the environmental damage it is clear that many people have not thought about the polluting role of the car now or in the future, nor have they considered alternative patterns to their current travel. For most people there are no compelling social or financial pressures to consider the impact on the environment of their travel.

These observations raise questions about the interconnectedness of choices, behaviour and values with travel. This report started out, in part, as an attempt to find out how young people living in rural Oxfordshire travelled: what were their travel needs and how did they feel about travel? Do young people, for example, use public transport more than other age groups? From this many other questions arose about the need to understand how young people (broadly defined as 16-29 year olds) travelled relative to the resources in their villages and in their households. It seemed important to find out if young people were buying their own cars, or if Mum or Dad, tired of being unofficial taxi-drivers, were purchasing vehicles to enable their children to be independently mobile. The questions have developed and changed since the inception of the study. What options do people have? Which ones do they choose? How do they perceive their choices, and what constraints do they experience? What are the reasons that mean they travel ever greater distances by car? Do those who travel most value the environment least? What ways would most easily reduce car use to protect the environment?

Insights, developed from psychoanalysis, post-structuralism and other theoretical frameworks into the shifting and contradictory nature of subjectivity, have made the researchers' task of quantifying of needs difficult. It is increasingly recognised that various studies are coloured by an imprint of the narratives and contexts in which data was collected (Silverman, 1995). In other words, researchers are probably getting snapshots deriving from the method of data collection: there is no empirically verifiable or stable set of needs that can be measured or quantified.

It is possible, however, to unravel the ways in which choices are constrained and options understood in culture, by different social groups. The 'multi-dimensionality' of such issues has only

recently begun to be explored in the context of current 'demand management' debates using household interview techniques and ethnography¹.

This study uses techniques that place travel in the context of household culture: the resources and lifestyles of members of a household. The techniques involve looking at household travel patterns as a way of determining options, both perceived and real, that exist for people in rural areas. It was decided to focus on the travel and attitudes of young people, as it was felt that their views could indicate the extent to which there is a willingness to tackle environmental problems in the near future. Some questions are, of course, seen differently if they relate to the public than to the individual or family: these are explored using techniques based on Mack and Lansley, 1985.

Options are filtered through a complex of interdependency, conflict and co-operation in the relationships between members of households. This study begins with the focus on intra-household relationships and holistic analysis of household travel and attitudes. Few studies have looked at transport provision and its environmental impact in relation to internal household dynamics.

Unravelling these complexities may inform debates about the gains and costs associated with current transport trends: such a debate is a prerequisite to building more sustainable² transport policies (UK Government, 1996). The emphasis has to be on users of transport, not on systems or modes, as previously in what has been called the 'predict and provide' era. Not only should there be a focus on users of transport, but their needs should be seen in the context of their household's resources and lifestyles. This is a new area of investigation for transport studies and one, in the context of a growing concern over the environmental and social impact of travel, that will ensure the complexities of these issues are brought to the debates.

Environmental Issues

There are concerns about the environment, emissions associated with transport and global warming. The current rate of emissions associated with transport is not sustainable. Current levels of mobility are increasing so it is necessary to reduce distances travelled, use less-energy intensive modes and/or have more efficient, cleaner, vehicle technology if the impact is to be stabilised or reduced (Royal Commission on Environmental Pollution, 1994).

There is a conflict between individuals who wish to travel further and the ability of the environment to cope with the by-products of travel. Unless society travels within the limits set by the environment it runs the risk of making long term changes to the environment which would grossly outweigh the short-term benefits enjoyed by the individual from travel, no matter how pressing those short-term benefits may appear to the individual. The longer it takes to moderate the levels of emissions, the greater will be the hardship and/or conflict which will have to be suffered if the environment is not to be damaged.

¹ Previous approaches to choice have focused on stated preference techniques or household or individual characteristics such as stage in the life-cycle. These studies have not always assessed, or sought to understand, the complex issues that shape travel decisions.

² Commentators on sustainability have emphasised that it has social equity implications as well as environmental ones.

A synopsis

The first chapter describes the changes that have taken place in Chalgrove over an approximately 20 year period. It describes the 'internalisation' of transport costs and services, i.e. greater reliance on car provision originating from within the household, rather than public transport and behaviour that reinforces this situation.

Chapter 2 looks at how households finance travel. It examines expenditure and shows how the burdens of car use are shouldered unevenly between rich and poor in urban and rural areas. Low-income rural people pay a higher proportion of their income towards travel than their urban equivalents. The dynamics within households are examined in Chapter 3, to establish car allocation priorities between household members. This chapter shows how inequities and lack of choice of travel mode were focused in the households studied. Time and money are examined in detail, as they are the resources many people valued most.

Attitudes to 'public' goods and personal behaviour and the energy implications of different household profiles are examined in Chapter 4, followed by an examination of the options for 'greener' travel in Chapter 5. The conclusions are presented in Chapter 6.

What is meant by rural?

There are over 25 definitions of rurality commonly used in the UK (Barnes, 1993). There is no consensus on which is the 'correct' definition. Different criteria of what is properly or 'authentically' rural are often very controversial, perhaps because funding can follow a proven case of 'rural' need.

Several authors have produced 'indices of rurality' which list factors such as land-use and/or socio-economic factors, to distinguish rural and non-rural areas (Cloke and Edwards, 1986). It would appear that 'horizontal' or socio-economic rather than spatial variables are now favoured by many organisations concerned to define rurality. Some authors have further defined rurality by distinguishing peri-urban or 'counterurbanised' areas lying just beyond the boundaries of urban settlements, and largely defined by their socio-economic characteristics (Champion, 1989).

The two villages studied are in 'accessible' rural areas (Rural Development Commission, 1993). Planners have established criteria such as 'green belt' and 'areas of outstanding natural beauty' as alternative definitions of 'accessible' rurality. These villages contrast with those in inaccessible, 'peripheral' or 'remote' areas, for example, parts of Cumbria or Scotland. It was felt to be appropriate to study areas that were accessible because these areas are the predominant type of rurality found in the South-East of the UK. They are also under considerable threat:

As a result of economic growth, house prices are bid up, the pressure on the existing infrastructure (social amenities, roads etc.) increases. The increased demand for industrial and residential accommodation in the countryside adds a huge potential development gain to land prices. Where planning permission is granted, the fortunate few make substantial windfall gains, pushing up the demand for land even further and attracting more job-seekers, so further

increasing the pressure on existing infrastructure and land prices."

(Errington, 1994)

The problems of 'overheating', and the associated inadequacy of the infrastructure to cope with the demand placed upon it, are echoed and amplified in transport issues. In 'inaccessible' rural areas there are similar problems caused by diminishing infrastructure, but they require different solutions.

Why rural?

The country and the city are interconnected, not only in transport but in the economic patterns of production and consumption. It is worth quoting the cultural analyst Raymond Williams on this point at some length, as these divisions are cornerstones of some of the problems discussed here:

The division and opposition of city and country, industry and agriculture, in their modern forms, are the critical culmination of the division and specialisation of labour which, though it did not begin with capitalism, was developed under it to an extraordinary and transforming degree. Other forms of the same fundamental division are the separation between mental and manual labour, between administration and operation, between politics and social life. The symptoms of this division can be found at every point in what is now our common life: in the idea and practice of social classes; in conventional definitions of work and education; in the physical distribution of settlements; and in temporal organisation of the day, the week, the year, the lifetime. Much of the creative thinking of our time is an attempt to re-examine each of these concepts and practices. It is based on the conviction that the system which generates and is composed by them is intolerable and will not survive. In many areas of this thinking there is not only analytic but programmatic response: on new forms of decision-making, new kinds of education, new definitions and practices of work, new kinds of settlement and land-use.

(Williams, 1975)

The connections between the city of Oxford and the villages of Chalgrove and Cholsey are, if this analysis is accepted, underpinned by a range of issues, in which the division of country and city are echoed in stratified social groups and ways of life.

Only a few studies quantify how travel in and through rural areas has increased. Yet rural residents do disproportionately, more damage to the environment: they drive approximately twice as far as urban residents for example (Stokes, 1995a). Over two-thirds of journeys in the countryside are by car, compared to a national average of about half (Department of the Environment, Ministry of Agriculture, Fisheries and Food, 1995).

The focus of much recent transport research has been on urban or inter-urban traffic. Rural traffic did not receive much attention, with the notable exception of Gordon Stokes, as it was not perceived to be a source of problems such as congestion. Some researchers had looked at the problems of mobility faced by those in rural areas, but these studies were mainly conducted in the 1970s.

Focus has now shifted to the countryside itself. It is widely acknowledged that some rural areas serve a vital function:

The crux of this problem is to keep the countryside intact from an environmental point of view, not only so that it can fulfil its function as an ecological buffer and source of natural reproduction, but also to provide it with new and lasting scope for development as an area providing recreation and leisure for city-dwellers.

(European Commission, 1988)

The recreational functions of the countryside are, however, under threat from transport. Although the number of miles per person nationally has increased 31% between 1985/86 and 1991/93 (House of Commons Environment Committee, 1995) this increase cannot be extrapolated to increased traffic in rural areas. There is not generally assumed to be much capacity for growth on urban roads, so commentators assert that greater increases in traffic will take place in rural areas (Goodwin, 1994). One study (Council for the Protection of Rural England, 1996) suggests that traffic levels on rural roads will more than double by 2025. In 1995, 10.4 million recreational visits were made to Wales alone, of which 83% were made by car (Wales Tourist Board, 1996).

Subjective experience echoes the broader picture of heavy car use in accessible rural areas. Many people are trapped in what has been called 'car dependency'. The danger of being 'trapped' into car use is particularly prevalent in rural areas: 43% of people in a country village agreed with the proposition that a 'car is too convenient to give up', compared to 33% of those in a big city (Royal Automobile Club, 1995). However, the feeling was very strong amongst those interviewed that their lifestyles could not be supported without the use of a car. The UK Government has admitted that 'ownership of two cars may not be a luxury in rural area, especially where at least one of the cars is used for commuting to work' (Department of the Environment, Ministry of Agriculture, Fisheries and Food, 1995).

Current rural transport policies

This is not a study of the policies that are currently in place, affecting rural transport. However, the current policy context is relevant to choices made. The division of powers between local and central government means that, broadly speaking, central government has powers over trunk roads and motorways and local government has responsibility for other roads, cycle tracks and pavements. There is a division of responsibility between County Councils and District Councils, which can result in some confusion as to where authority lies for particular decisions. There is also a perceived unfairness in the powers given to different parts of government: for example, the County Council has paid for and installed speed cameras, but the revenue they collect goes to the Treasury.

Central government initiatives are numerous and cannot all be included here. Amongst important initiatives are Planning Policy Guidance 13, (PPG13), which highlighted the need for land-use and planning policies that reduce the need to travel, and the need for package bids. Package bids are intended to ensure that the needs of all travellers - pedestrians and cyclists as well as motorists - are taken into account in infrastructure proposals. About ten per cent of Department of Transport funds are ear marked for package bids. There is much discussion amongst local planners about the suitability of these package bids for tackling rural problems. Some people feel that the nature of a package, which focuses exclusively on a particular area, is unhelpful as transport problems need to be handled on a regional basis.

In the mid-1980s many of the regulations which controlled the provision of bus services were removed. In Chalgrove there was considerable public controversy over deregulated public

transport. The bus company running the service to Oxford withdrew, giving six weeks' notice. The County Council then ran a subsidised replacement service and sought tenders to continue a wholly subsidised service. The day before tenders were due a different bus company introduced a commercial service which did fewer journeys than before. The County Council began subsidising two journeys on this service, one in the early morning and one in the early evening but, because of the new company, it was less frequent than before. The bus times had also changed, without advertisement at the time, so some local residents were left waiting at bus stops when no services were due.

Parish councils are currently being encouraged to take more responsibility for transport issues. However, the amount that they can levy as the Parish precept is controlled by central government. This was deemed to be a restriction on local democracy - interviewees argued that Parish Councils should have the freedom to authorise services and then to face the local electorate who would decide whether or not to re-elect them on the basis of their performance. It was argued that the restrictions on parish spending prevented this. (Although it was also said that some parishes in the County had overspent on community transport and other services).

The 1995 Study

The 1995 study of Chalgrove and Cholsey had been planned to focus on the travel of younger people and so households selected for study were chosen with this aim in mind. Other households, for instance of pensioners, were excluded (details in Appendix 1). Self completion travel diaries were left for all household members over 12 years old, as it was felt that it would be inappropriate for the younger members to answer the questions. In common with many self completion questionnaires, 100% coverage was not obtained. Therefore, in relation to the populations of Chalgrove and Cholsey, the study sample is biased one. Thus the travel patterns etc. only relate to those who completed the travel diary and are not necessarily representative of the travel behaviour and attitudes of the village residents. An idea of the bias in the respondents can be obtained when their age distributions are considered in Table 2.

Table 2: Distribution of ages (percentages) of Cholsey and Chalgrove, the target population and actual respondents in the 1995 study

Age group	Census (1991)	Target population	Respondents
<12	}	5	2
12-15	} 24	12	10
16-29	}	34	32
30-59	} 62	46	54
60+	14	2	2
TOTAL	6,248	397	279

Targeting resulted in a greater proportion of 30-59 year olds being studied there was no attempt to achieve a representative sample.

Non-response also had consequences for the ability to examine travel at a household level. Some data were collected at a household level by enumerators, but information about trips and modes only relates to those household members (respondents) who completed a travel diary. The effect of the

survey method and non-response on coverage of household travel enabled travel to be examined on 80% of household members (Table 3).

Table 3: Household size and number of respondents per household in the 1995 study of Chalgrove and Cholsey

	Mean	No. of households
Household size	3.86	111
No. of people over 12/household	3.67	111
No. of respondents/household	3.05	94

A summary of the households covered in the survey is given in Table 4 for reference. It should be noted that information on households can be expected to underestimate travel use as 0.62 people over 12 years old per household did not record their travel. Also data that relate to travel mode, frequency of use and distance only relate to the study group and any inferences made to a wider population should be treated with caution.

*Table 4: Summary of recorded trips (car, bus, train, bicycle and foot) by household and selected household characteristics in two Oxfordshire villages, 1995 (Energy use estimated following Root *et al.*, 1996).*

	Chalgrove	Cholsey
No. respondents	145	134
No. of responding households	54	40
Total no. of trips	832	866
Total no. of miles	5,803	4,917
Total energy used per village (MJ)	13,670	11,220
<hr/>		
No. of cars per household	2	2
No. of recorded trips per household	15	21
No. of trips per respondent	5.7	6.5
No. of respondents per household	2.7	3.4
Median energy recorded/household (MJ)	168	247
Min : Max energy recorded/household (MJ)	0.4 : 1,420	0.9 : 700

The needs of the travel poor versus the environment

Travel is, on the whole, a means to an end. Most people do not want to travel as such, but only wish to get to the meeting, event or place or make the communication which is the destination of their journey. The need for many journeys could be removed by greater accessibility, i.e. more facilities closer to the people who need to use them. Much work, by planners and others, is taking place to increase accessibility. However, access cannot be the whole answer. There are always reasons why people wish to travel: the nuances and richness of face-to-face meetings can never be wholly superseded by telecommunications; neighbouring schools will often offer opportunities that local schools seem unable to match.

Travel needs are linked to 'ways of life' (Williams, 1965), lifestyles (Turrentine, 1994) and communities:

Community life in the past was imposed on people, being largely based on involuntary relationships. Now people choose their associates – and perhaps more importantly, choose with whom not to associate.

(Pahl, 1995)

It is important to realise that the ability to choose those with whom one spends time, choose entertainment etc., and not be forced by lack of transport into activities which are geographically nearest, is liberating. In this sense travel choices bring an improved quality of life.

In the context of many needs for travel, there are some who are not as mobile, and do not have as much access as they would like. This condition, called by us travel poverty, has been defined as 'inadequate access to choice of transport' (Root et al, 1995). In this report we are particularly concerned with the needs of the rural young people, who are often without access to cars or regular or affordable public transport. There is a danger that this group might suffer disadvantages in employment and other forms of social deprivation because of their inability to travel.

There are, as outlined above, environmental issues arising from rising levels of travel. There is a contradiction between meeting the latent demands which arise out of travel poverty - for greater access and for more travel - and protecting the environment. Although such extra journeys are likely to be a small proportion of total distance travelled, the needs of this group, and the contradiction between their needs and environmental protection, should not be forgotten.

These issues are tantalising and, for the moment, evade resolution in a form which is sustainable i.e. socially equitable and less environmentally damaging. All that remains is to find viable policies to reach these goals. This study is a small contribution to that end.

Chapter 1: Villagers' travel: an historical overview of Chalgrove from 1977 to 1995

Introduction

This research describes changes and compares travel in the villages of Chalgrove and Cholsey in South Oxfordshire. Chalgrove and Cholsey are typical of many villages in the 'Shire counties': they are within commuting distance of London and residents can also use facilities of the city region, in this case Oxford. (For location of Chalgrove and Cholsey see Figure 2). These villages are part of an increasingly dominant pattern of 'counterurbanised' rural life, in which faster travel, social and economic change permits many to enjoy the benefits of living in the countryside as well as having daily access to major cities (Champion, 1989).

This chapter focuses on Chalgrove, because data is available to compare travel across an 18 year time gap. This comparison is possible because in 1977 Professor David Banister carried out a study³ on travel in six parishes near the South Oxfordshire-Berkshire border, one of which was Chalgrove. Cholsey will be discussed in the next, and subsequent, chapters.

Chalgrove is a village of with a population of 2,832 residents in 970 households (1991 Census). The village has grown substantially in the post-World War 2 period. Various housing estates and a by-pass have been built over the last fifty years, and houses have been 'in-filled' in spare plots of land (see Figure 1). A by-pass was also constructed around the village, in what some local people see as a informal 'exchange' for their willingness to accept new housing. It is a relatively prosperous village (4% of the economically active were unemployed at the 1991 Census). Chalgrove has maintain a wide selection of local amenities (for example, the village has approximately ten shops, a GP surgery, a primary school, a village hall and about 30 voluntary sector groups). There is also a considerable amount of commuting out of the village for employment purposes: 45% of those over 16 were working outside their district of residence, according to the 1991 Census.

Differences in travel patterns reflect the restructuring of employment, lifestyles and changing facilities in these areas. This chapter aims to illuminate not only the patterns, but also the cultural and subjective experiences behind them. The methodology used in both studies is reviewed in Appendix 1. Further information about changing travel patterns has been obtained through five interviews with people resident in Chalgrove over this period and longer: they are a District and County Councillor; the Parish Clerk and Chair of the local history group; a Parish Councillor and two others. This group of two women and three men were interviewed in the summer of 1996.

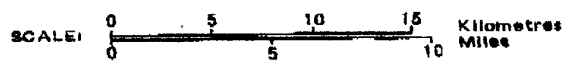
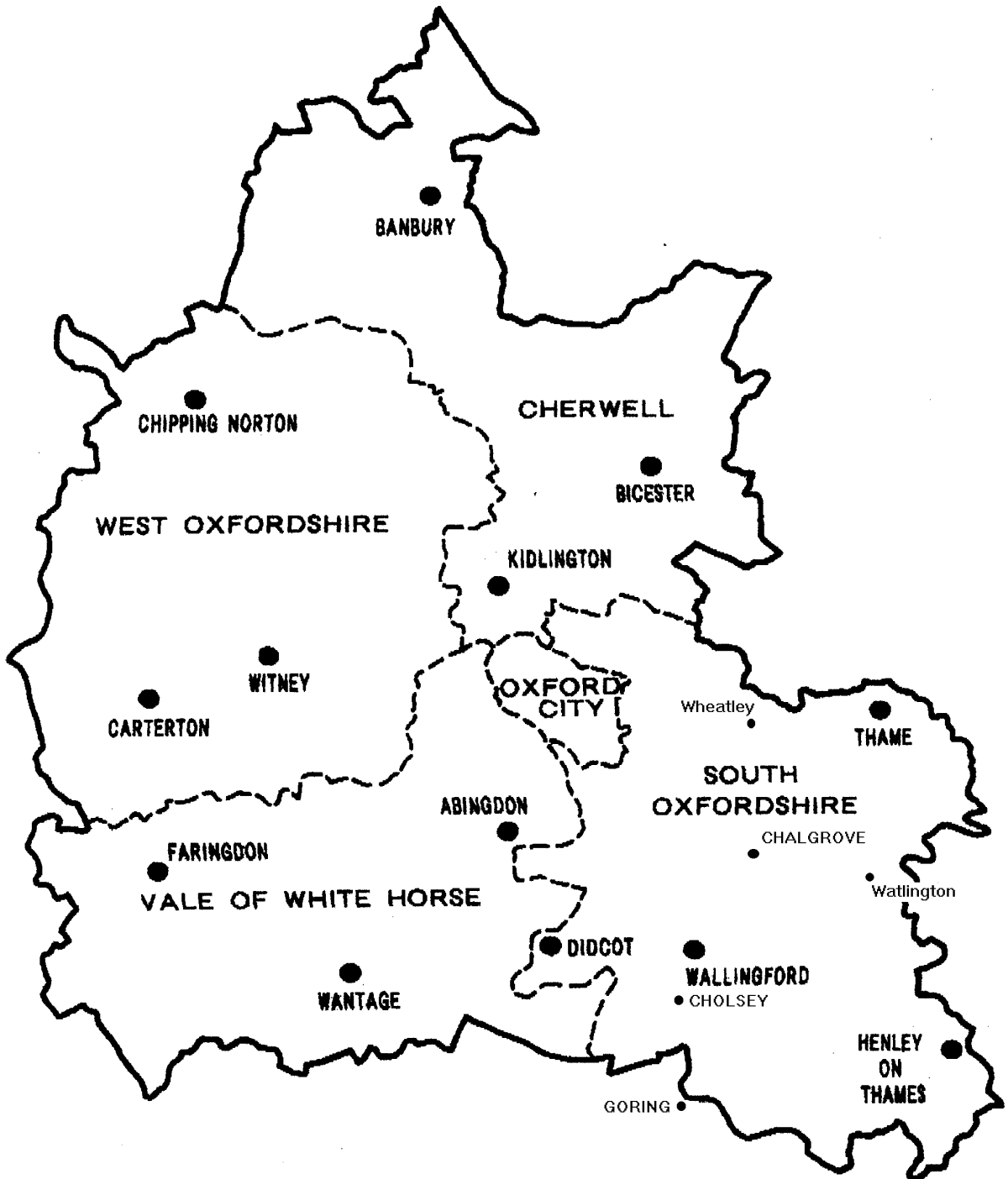
Chalgrove: a village of migrants, growth and change

Chalgrove, once a small farming community, site of a battle in the English Civil War, has been greatly expanded since the Second World War through the arrival of migrants.

³ The comparison in this section draws upon Banister (1980) and personal communications (Banister (1996) unless otherwise referenced.

Figure 1: Map of Chalgrove
(Scale 3.5 inches to one mile)

Figure 2: Map of Oxfordshire, showing Chalgrove and Cholsey



The 1960s were seen as a watershed period for Chalgrove and the interviewees suggested that the population of the village rose ten-fold from 350 to 3,500. One woman said 'Chalgrove suffered through being a site for building'.

Despite initial resentment, most migrants seem to have become accepted after a few decades. For the 'incomers' movement has brought, on the whole, better access to jobs and prosperity. Some interviewees revealed that central to many of their perceptions is the sense of migration, new houses, jobs and other opportunities. These largely positive attitudes to travel and the transitory nature of 'community' inform attitudes to travel and its provision. Culture, in addition to infrastructure, is an important determinant of travel needs and behaviour.

The 'locals' and non-local amenities

By 1995, Chalgrove, like other villages in similar accessible rural locations, is in danger of 'overheating' with too much demand for its resources. Chalgrove was described as a village that has outgrown its facilities. However, it has a number of facilities with, perhaps, the poorest provision for young people. It has two small supermarkets and several village shops, described below, although social facilities specifically aimed at young people are limited to pubs and a weekly youth club. It has a reputation for being sought after as a residential location, particularly as its ease of access to London makes it attractive to commuters.

The changing habits of some village residents were revealed when one interviewee commented how restaurants from Oxford now offer free delivery of food. This respondent then commented how a meal in the privacy of one's own garden could be more enjoyable than a crowded, smoky restaurant. The direct marketing of hot take-away food from Oxford (approximately ten miles away) indicates the level of service that people living in the countryside can enjoy due to fast transport.

Shopping

Chalgrove has two small supermarkets, a baker, a Sub-Post Office, a butcher and greengrocer, a florist and chemists. In 1977, 11% of respondents in Chalgrove said that they never used local shops, implying that 89% did use them. In 1995 only seven percent said that they used local shops, although this figure may underestimate Saturday trade, as the study was carried out mid-week. The figures still suggest a substantial decline in the patronage of the local shops despite a growth in population.

An important area of change is in lifestyles and expectations. One interviewee said that although she tried to use village shops, the produce that local shops stocked was inadequate. People wanted aubergines, or okra and different sorts of pasta: the more conservative fare ('potatoes, carrots and bacon') which the local shops stocked was not sufficient for their needs. Another respondent mentioned that the local shop usually stocked tinned food while the out of town supermarket offered more range.

One interviewee commented on saving money as a perceived advantage of non-local shops:

Everyone has the idea that local shops are expensive, but they don't think about the costs of travel and time. They drive miles and save 20p and think they've got a bargain.

Implicit in this comment is the idea that many people do not recognise the value their time or the cost of using their car; issues explored in Chapter 3.

The supermarkets that were most frequently mentioned were at Wheatley ('impossible to reach without a vehicle') and at Cowley, near Oxford. It would appear that many people used large supermarkets for most of their shopping, and 'topped up' with purchases from local stores. No courtesy bus service was provided by the supermarkets to take people from Chalgrove to their shops.

Jobs

Since the Second World War employment at local factories has declined and has been partially replaced by small industrial units on the old airfield. One respondent said 'women do pickling and bottling'; another commented that people were mainly self-employed, for instance, 'printing works, designer, architectural draughtsman and as importers of garden pots'. A few work at home; as there are more women in paid work there are more nurseries for children. 'The only unemployment is amongst school-leavers' said one interviewee, and 'Jobs cover the costs of cars'.

Historically, the interviewees agreed that 'people move to Chalgrove to be nearer jobs'. But one person asserted that 'transport hasn't kept up with the changes in jobs'. The irregular hours and disparate locations of much employment mean that the bus services are not appropriate for many people to commute to work; three percent used the bus and one percent used the train to travel to work from Chalgrove ward (Oxfordshire County Council, 1996a).

Schools and the travel implications

Increased emphasis on parental choice has contributed to 'lots of children going out of the village for their schooling'. It was stated that traffic congestion was less in school holidays. Data were not collected on this aspect of travel as the survey was carried out in the summer.

Why the comparisons?

Chalgrove was studied in 1977 because it had experienced large population increases; had average transport and good services and facilities, in comparison to similar rural parishes (Banister, 1980). By 1977 Chalgrove had become a dormitory settlement for Oxford and had a younger than average population. The reason for Chalgrove being studied in 1995 was that it was regarded as an example of a village with rather limited public transport (Root *et al.*, 1996).

Chalgrove exemplifies the problems and opportunities of particular kinds of accessible rurality. As one respondent commented, people in Chalgrove are 'Oxford orientated' and function as part of the 'city region' of Oxford. Many of the jobs and resources that Chalgrove residents use - for example, launderettes, supermarkets and cinemas are located in Oxford. However, residents did use facilities in other local towns, such as the swimming pool in Didcot and the Berinsfield Sports Centre.

Trip purpose

The reason for each trip was recorded in both studies (Table 5). The 1995 study revealed an increase in the proportion of miles to work to 20% and a drop in the proportion of miles travelled

for social purposes to four percent. The change in emphasis of reason for travelling suggests a more mobile work force and a more static social life. Explanations offered by the interviewees included the theory that Chalgrove has a population with wider age range now, which means that people feel ‘settled’ in the village. So the residents, who formerly travelled to see relatives, now have to travel less. There could be a change in the demographic structure to a less mobile population, or less travel for social reasons could be a reflection of travel poverty, as people cannot afford to travel so much at their own expense.

The total distance travelled per respondent has increased from an average of 20 miles per day in 1977 to 41 miles in 1995 between the two surveys⁴. Journeys to work have increased from 15 to 20 per cent. The proportion of escorted miles, i.e. journeys which are lifts, has remained almost constant over the period. Journeys for shopping have decreased slightly, in percentage terms, which may reflect the fact that other trips are increasing in length faster, or that higher levels of car ownership enable easier carrying of heavy bags (the ‘weekly shop’). Cars may facilitate fewer, but longer, journeys for shopping.

Table 5: Trips by journey purpose, trip distance (percentages of all miles travelled)

Purpose	% miles 1977 Survey	% miles 1995 Chalgrove
Home	42	36
Work	15	20
Social	12	4
Shopping	11	9
Personal business	7	2
Employers’ business	5	18
Entertainment sport *	4	8
Escort	4	3
Education *	1	0
TOTAL (miles)	14,300	5,800
Number of respondents	705	143

* the 1995 survey was made during school holidays

The national percentage of journeys for leisure travel is 40%, compared to the 12% recorded for Chalgrove for social and entertainment/sport purposes in 1995 (Royal Commission on Environmental Pollution, 1994). One explanation for this difference might be that the hot weather, during which the 1995 survey was conducted, may have discouraged travel that was ‘optional’, i.e. social trips.

Another explanation might be that during the school summer holidays many ‘leisure’ activities are suspended, for example evening classes or golf lessons. The percentage of trips for personal business has decreased from seven to two. This might reflect higher levels of travel for other purposes, and it may show the higher prevalence of telecommunications since 1977 which allows

⁴ These figures appear higher than those quoted in other sections of this report. This is because in order to get comparative figures from the two studies means have been used. Elsewhere, medians are (generally) used as they are robust to extreme values.

‘personal business’ to be done via the telephone. Local respondents were aware of the possibility of using computer-based communications.

The percentage of miles travelled in the course of employers’ business has changed from five to eighteen. This increase is probably accounted for by a shift from ‘fixed’ manufacturing jobs (e.g. at the Cowley car factory (near Oxford) or the local ejector-seat manufacturer) to ‘service sector’ employment in which travel, for sales purposes or to visit clients, is more commonplace (Hutton, 1995). The current percentage of miles travelled in journeys to work, and during the course of work, reflects national figures (Royal Commission on Environmental Pollution, 1994).

Distribution of trip lengths

In both studies a trip is a sub-division of a journey. In 1977 the average number of trips per respondent was 2.6; in 1995 it was 5.2. The distribution of reported trip lengths (all modes) from the two studies is given in Table 6.

Table 6: Trip lengths as percentage of total made by respondents of Chalgrove in 1977 and 1995

Trip distance miles	1977	1995[#]
<1	13	17
1-2	5	14
2-3	2	4
3-5	15	15
5-10	16	22
10-16	28	16
16-20	4	5
20-30	8	2
30-50	5	3
50-100	4	1
>100	<1	<1

[#]Trips under 0.2 miles were omitted

* Omits trips of less than five minutes

The length of a trip now being made by rural residents appears to have decreased since 1977. This may reflect the fact that the 1977 survey omitted trips of less than five minutes (walking or equivalent). It should be noted that in 1977, 22% of the trips were 16 miles or over, and only 11% were in 1995. This difference may indicate that respondents now make more connected or ‘chain’ trips, ie. longer trips but with stops at various points. Each stop would be categorised here as a trip. Overall people are travelling further. This observation is backed up by a modest reduction in the average stage length for car trips, as shown in Table 7. It was also noted (Root *et al.*, 1996) that the trips by Chalgrove residents formed a web with many nodes and that this could be expected to lead to short stage lengths (see Chapter 5). Diverse trip purposes may be linked in a ‘chain’, centred on Chalgrove.

Table 7: Mean distance of trips (miles) and number of trips/respondent by selected modes by residents of Chalgrove

	Mean distance		Number of trips/respondent	
	1977*	1995#	1977*	1995#
Car	14	10	2	3
Bus	7	7	0.18	0.19

* trips less than five minutes long by foot were excluded.

trips less than 0.2 miles were omitted.

In 1977, 46% of the journeys to work ended in Oxford and 14% ended in Chalgrove; in 1995, 23% ended in Oxford and 24% in Chalgrove. This change in work pattern and the reduced frequency of trips, between 10-16 miles (Table 3) may be related as Oxford is about ten miles from Chalgrove (Table 7). One reason why people are travelling further in 1995 than in 1977 is that the number of trips per respondent has increased, even when the small trips in the 1995 study are omitted.

Travel modes

The 1977 survey established a negative association between car ownership and public transport use, i.e. bus use declined with rising car ownership. This relationship was reproduced in 1995 but was even clearer; 18% of all trips were made by bus in car-less households, but no more than five percent of trips were made by bus in car-owning households (Table 8). This suggests that buses are used when no other mode of transport is available, i.e. they provide a safety net for the car-less. As would be expected, the greater availability of cars resulted in more car journeys. By 1995, Chalgrove car owners effectively chose between car and walking as their modes of travel. Walking was less likely to occur as the number of cars owned per household increased. (Although the figures show that the proportion of walked journeys was generally higher in 1995, this may reflect the method of data collection). The majority of journeys (59%) in the 1995 survey were by car. ‘People drive everywhere and don’t think of anything but using their cars’, said one interviewee.

The use of public transport in Chalgrove is less than the national average and only a little up on the 1977 level for car-less households (Table 8). In 1977, Chalgrove had an hourly bus service to both Oxford and Wallingford, (and according to the interviewees, three buses morning and evening to the car works in Oxford). In 1995, the only bus service was between Oxford and Watlington and this was less than hourly. The reduction of public transport availability would be expected to reduce the number of bus journeys, but this was not observed. However, since 1977 there has been a reduction in the proportion of trips by car by respondents from car-less households. This suggests that people are less likely to give neighbours lifts. This change in behaviour may be forcing people to use the bus.

Table 8: Method of travel by selected mode by household car ownership in Chalgrove in 1977 and 1995 (Percentage of trips)

No. cars/ household		Walk	Car	Bus	Bicycle	n
0	1977 Survey	49	28	13	7	72
	1995 Chalgrove	42	4	18	9	45
1	1977 Survey	16	72	6	3	298
	1995 Chalgrove	17	67	5	5	148
>1	1977 Survey	6	85	4	2	143
	1995 Chalgrove	20	56	2	3	493

Note: n = number of trips. Modes such as van and motorcycle are not included.

Percentage of bicycle use has increased slightly for each set of households. Walking has also increased most markedly for households with more than one car. This suggests cars are not convenient for all trips.

Changes in car use

Since 1971 census, the demographic and car ownership profile of Chalgrove has changed (Table 9). Although the proportion of car owning households has increased from 83% to 91%, the proportion of the population in the 18-60 age group has increased from 55% in 1971 to 60% in 1996. The increase in demand for transport caused by this population shift has had to be met from a reduced public transport service and an increased supply of cars.

Table 9: Population structure and car ownership between 1971[#] and 1996* in the ward of Chalgrove

Year	House holds	Popu- lation	Males <18	Males 18-60	Males >60	Females <18	Females 18-60	Females >60	Car owning	Non car owning
1971	732	2,432	491	662	72	441	676	90	611	121
1996	1,548	3,074	435	937	200	369	917	216	1411	137

[#] Banister (1980); * Estimates based on figures from Oxfordshire County Council (1996a)

More households rely on two wage earners, more people travel to work, thus adding to the demand for transport within households. In addition, as more children are driven to school, a greater proportion of the population needs daily access to transport (Hillman *et al.*, 1990).

Car ownership

In the two studies, the proportion of households with a car has increased in Chalgrove from 86% to 92% between 1977 and 1995; this latest figure repeats that reported in the 10% study of the Census of 1991 (Oxfordshire County Council, 1996a). These levels of car ownership are higher than the national averages of 61% in 1983 and 68% in 1993 (Department of Transport, 1995). Current levels of car ownership in Chalgrove remain above those in south Oxfordshire of 83% (Oxfordshire County Council, 1996a). The high level of car ownership is probably attributable to the relative affluence of the area in 1977 (Banister, 1992) and its current relative prosperity (Oxfordshire County Council, 1995).

As would be expected, the proportion of new households gaining access to a car is less in Chalgrove than nationally because of the high level of ownership which already existed. A reason for this, suggested by interviews, was the employment, in 1977, of a relatively large number of villagers by a car factory (formerly British Leyland) at Cowley, on the same side of Oxford as Chalgrove. The car factory provided workers with loans to help with the purchase of their cars in 1977, as now. The role of the car factory in 1977 may have facilitated higher levels of car-ownership than would otherwise be expected in similar socio-economic groups where a significant proportion are not car workers. Since 1977, the number of vehicles per household has almost doubled (Table 10).

The social implications of car ownership were summed up by one interviewee as follows:

We are a village full of two-car households with only the retired breaking that rule. The young people are desperate to get cars, to get about and because it gives them ‘street cred’.

Table 10: Average number of vehicles per household in Chalgrove

Date:	1977	1995
Cars	1.02	1.96
Bicycles	0.84	1.92
Motor cycles	0.17	0.08
Vans	0.14	0.23
TOTAL	2.17	4.19

The largest single increase was in the availability of bicycles (Table 10). The low use of bicycles may suggest that they are used for leisure, in particular by children, or that they are not serviceable (Table 11).

Table 11: Average number of vehicles per household member in Chalgrove

Date:	1977	1995
Cars	0.31	0.55
Bicycles	0.25	0.54
Motor cycles	0.05	0.02
Vans	0.04	0.07
TOTAL	0.65	1.18

Cars

The 1991 Census information indicates an even higher dependence on the car for commuting from Chalgrove than indicated in our study (Table 12). Car use in this period may appear to be relatively static, but the “other” class in the 1995 study included vans etc. so if these modes are included in the “car” class, the private motorised mode accounts for 78% of peak period travel. (“Public” refers only to modes open to fare paying passengers; “other” includes motor cycles, vans etc.) Public transport is less important than cycling at peak times for Chalgrove residents.

Table 12: Modes used by respondents for journeys at the morning peak period*. Percentage of trips

	1977 Survey ^a	1995 Chalgrove ^b	1991 10% census Chalgrove Ward ^{c#}	1992/94 National: not urban ^{d#}
Car	70	66	79	70
Walk	12	15	5	15
Public transport	8	3	5 (3)	6
Other	6	12	8	4
Cycle	4	5	3	5

*In the 1977 survey this included all journeys between 7 and 9 am; in the 1995 survey this included journeys to work from home.

[#] journeys to work

() excluding train journeys

Sources: ^aBanister (1980);

^b(Authors' study);

^cOxfordshire County Council (1996a);

^dDepartment of Transport (1995).

Buses

One consequence of changing work patterns, the poor bus service and high car ownership is that few trips to work are now made by bus from Chalgrove (Table 12) and this proportion (3%) is not only less than in 1977 but also less than the national non-urban percentage (6%). Further aspects of bus use are discussed in Chapter 2.

Bicycle

Twenty-six percent of households in Chalgrove undertook trips by bicycle. Thirteen percent of the sample (37 individuals) made bicycle journeys. Using cycle use as a measure of the number of households with serviceable bicycles, 40% of households had at least one bicycle, similar to the national average of 37% (Department of Transport, 1995).

Interviewees suggested that in the 1960s and earlier it was relatively common for people to cycle ten miles to work in Oxford. In our survey, only one cycle trip was over ten miles, suggesting a decline of this length of trip.

Although the number of bicycles per household has increased since 1977, bicycle use decreased 25% nationally between 1975/76 and 1992/94. In 1975/76, cycling represented 1.1% of all miles travelled, in 1992/94 that figure had become 0.6%, while the proportion of miles travelled by car was 68% in 1975/76 and 77% in 1992/94 (Department of Transport, 1995). Nationally, journeys to work account for most bicycle journeys (38% of trips) (Department of Transport 1995) so it is suggested that the increased level of bicycle ownership (Table 10) relates to bicycles which are either redundant, used off-road, or possibly for children's leisure.

Conclusions

Despite the growing size of Chalgrove, public transport has declined. This means that more people are served by fewer bus services. While there has been little increase in bus use, car use and walking have increased. The average respondent travels twice as far in 1995 as in 1977. Whilst not representative of the whole village, increased travel per person combined with village growth results in a substantial increase in journeys and mileage. At the same time there has been an increase in car ownership. Transport provision (apart from walking) now centres on what the household can provide.

There have also been substantial changes in waged work and social life, the imprints of which are found in this study. For instance, the proportion of respondents who journey to Oxford for work purposes has halved; perhaps due to the changes in the size and location of workplaces, particularly the decline of car manufacturing in Oxford. The number of journeys and mileage per respondent has doubled. More cars are being used for more, often shorter, trips. It is suggested from national data that there is an increasing number of households where there are two waged workers. Time spent at work has also increased since the 1970s (Hewitt, 1993). These factors effect social and community interaction. For example: households are less likely to use village shops, go on trips for social reasons or give neighbours lifts.

The 'internalisation' of transport provision and costs has taken place across this 20 year time period. Not only have average miles travelled increased, but some opportunities for travel like the hourly bus service with two routes have gone. Public transport is now less important than bicycle use at peak times. The culture of travel is now different. The car is an integral part of work for many people. With the decline of public transport, non-car owners in villages suffer social exclusion.

From an environmental point of view, there are two causes for slight optimism. Bicycle use, as a proportion of trips, has increased between the two surveys, although the actual number of trips may have fallen (in line with national figures.) The proportion of walked trips has also increased for those households with more than one car. This suggests that there are limits to the utility of cars for all journeys

Chapter 2: Travel costs and rural households

Introduction

This chapter uses information on travel in both Chalgrove and Cholsey, two villages in South Oxfordshire. Cholsey consists of 3,428 people and 1,247 households, according to the 1991 Census. Cholsey has a main street, Honey Lane, this street and the rest of the centre of the village contains over a dozen shops (Figure 3). Both villages are similar in size and socio-economic terms and they are similarly located within the commuter belt of London and Oxford (for further information, see Appendix 2 and Root et al, 1996). Cholsey and Chalgrove differ inasmuch as Cholsey has a railway station, with approximately half-hourly trains to Oxford and London. The closest railway stations to Chalgrove are at Didcot and Oxford, each about ten miles away. Both villages, in the summer of 1995, had approximately hourly buses.

The previous chapter showed that travel in Chalgrove is increasingly dominated by the car. This chapter looks at contemporary results from our study of Chalgrove and Cholsey (Root *et al.*, 1996) to examine the scope of this domination.

National household expenditure figures are used to look at what typical modal splits mean in terms of transport costs are borne by households from different socio-economic groups in various regions. Not enough information was collected on household costs in the Chalgrove and Cholsey study to make comparisons with national data possible.

Travel in Chalgrove and Cholsey

A summary of travel methods used on the study day in 1995 is given in Table 13, it reveals the extent of car usage for rural travel. The car was used for 48% of all trips, and used to travel almost 70% of the miles travelled on the study day.

Table 13: Frequency of use and percentage of total distance travelled by mode by respondents of two Oxfordshire villages

Travel Mode	Percentage of trips	Percentage of total distance travelled
Car	48	69
Walk	32	3
Other	7	13
Bicycle	7	2
Bus	4	7
Train	2	6

Notes: "Car": includes all journeys made in a car

"Other" includes all modes except those specified, e.g.: motor cycle, van

Only households which did not run a car used public transport to any extent (Table 14). Cars were the most widespread form of motorised transport, except for car-less households. where public transport was the most common. From data for both villages, seven percent of households sampled had no car, 25% of households had one car and the overall average number of cars per household was two.

The subject of giving, or receiving, a lift is complex. Lifts can be given, by car drivers, to both household members and to friends. The lift can be an incidental and friendly function, as a result of going somewhere anyway, and may not be identifiable as part of the main purpose of travelling, in our survey. Alternatively, the main journey purpose for the driver can be to give a lift to someone else (an escorted trip, as in Table 5). Most escorted trips are given to household members in two car-owning families.

The need for a lift is clearest in non-car-owning families. The strongest evidence for a decline in giving lifts to friends was shown in the previous chapter (Table 8), where people without cars now only make 4% of their trips by car, compared with 28% in 1977. Thus, there appears to be a clear drop in lifts given by drivers to friends. As the proportion of escorted trips has stayed the same (Table 5), this appears to indicate an increase in drivers giving lifts to other members of the same family, as the sole reason for the journey. This would be an understandable result of less frequent public transport.

Lifts from friends - where the respondent is the passenger - as a proportion of all journeys, were most frequently given to people in households with four cars or from non car-owning households (Table 14).

Although car-less households were given more lifts and were more likely to use public transport than other households, these methods only accounted for 21% of all trips. The social isolation of car-less families through lack of lifts is clear.

Table 14: Percentage of trips made by selected transport modes by respondents of two Oxfordshire villages in 1995

Mode	No. of cars/household				
	0	1	2	3	4
Car	0	40	41	61	55
Friend's car	7	2	4	4	6
Public transport	14	5	6	2	0
No. of trips	59	178	1,119	275	67

Although walking was a widespread activity, its use was confined to short trips. Almost a third of the trips were on foot, their short length accounted for only three percent of the total distance travelled. The average number of bicycles per household was two, but bicycle use is more important than all public transport.

Respondents in the interviews complained that there was no taxi service in Chalgrove. The nearest taxi company was in Wallingford and, it was asserted, a charge was made for both journeys when collecting fares from Chalgrove. There was reputedly one person who provided a taxi service 'on the side', but this operation was probably unlicensed.

Figure 3: Map of Cholsey
(Scale 3.5 miles to 1 inch)

Travel by train (including the tube) from Cholsey

None of the Chalgrove residents used the train. This was expected as people who wished to use the train, in particular to travel to work, would be more likely to choose to live in Cholsey, which has a railway station. Car-oriented people might be attracted to Chalgrove. According to local estate agents, those who wanted access to the M40 motorway tended to choose Chalgrove.

Although relatively few respondents used the train, it was used for longer journeys (Table 13) by a range of occupations. Only unskilled manual workers and housewives did not use the train. Those using the train (see Chapter 3) did so as it was seen as an acceptable alternative to using the car and so potentially alleviated the need for another car for journeys to work and could improve the mobility of other household members.

Bus usage in Chalgrove and Cholsey

Our study revealed little use of buses (Table 13). Twenty percent of households in Chalgrove used the bus (15 individuals) and 33% of households in Cholsey (19 individuals). The higher bus usage in Cholsey may reflect the strong public transport awareness that comes from living near a railway and on a 'public transport corridor' (Root et al, 1996).

In our study, households with two or more cars travelled about one tenth of the distance per household by bus of that travelled by car-less households (1.7 miles/household compared with 16.3 miles). Nationally, residents of households without access to a car travel over three times as many miles by bus as residents of households with a car (Department of Transport, 1995); see also Chapter 4.

No manager and no male professional used the bus. Women made over twice as many journeys by bus as men and 42% of bus journeys were made by women over 30. The more frequent use of buses by women was also reported in the *National Travel Survey* (Department of Transport, 1995). Interviewee 'When I think of buses I think of poor old women'.

In practice buses do not currently offer a viable service for many purposes, such as evening trips. For instance, in the 1995 study only two journeys, from 72 bus trips, started after 6.00 p.m.; and the return journey (from a cinema) had to be done by car. There are no bus services to Chalgrove in the late evening. In a national survey, rectifying the lack of frequent evening and weekend services was ranked second (behind cost of fares) as an improvement to local bus services (Department of Transport, 1995).

An hourly bus service was the most frequent in the study area. Despite this level of service, even where buses could be used they are shunned in favour of cars (see Chapter 6). Many factors influence the low level of usage: including the perceptions that petrol cost is the cost of running a car, frequency of service, and cost of fares (see Chapter 4).

Although it was cheaper (in our study) for a single person to travel by bus (for journeys over 11 miles) than by car (Root *et al.*, 1996), buses resulted in longer journey times (see Chapter 3) and their use was constrained by frequency of service.

The cost of bus travel

In 1984 the Government felt that local councils and a deregulated market could ensure that rural transport needs were met:

Local authorities have to ensure that transport is available for rural communities even though the number of potential passengers is small. A free market will help but cannot on its own solve this.

(Department of Transport, Scottish Office, Welsh Office, 1984)

It was proposed to increase funding to the Rural Development Council for community transport schemes; to introduce competitive tendering and to provide four years of transitional funding when changes to licensing regulations meant that councils could not specify the services bus operators were to offer (*op. cit.*).

The Government also announced its intentions of removing cross-subsidy of less profitable or loss-making routes by profitable ones, with the following justification:

...cross subsidy has perverse effects. It raises fares on the more heavily used routes higher than is necessary for profitable operation in order to preserve services for which there is less demand. So it drives people away from using buses.

(Department of Transport, Scottish Office, Welsh Office, 1984)

This and similar arguments were used to end cross-subsidisation, so that non-profitable rural bus services were expected to diminish (Rural Development Commission, undated).

The lack of bus services in rural areas is illustrated by the percentage of households which have varying levels of service (Table 15).

Table 15: Frequency of bus service by population density in Great Britain (Percentages of households)

Frequency of service	Built-up areas	Towns over 25 k	Towns 3-25k	Rural
15 mins or less	53	38	12	7
About every 30 min	31	35	32	18
About every 60 mins	5	10	25	21
Less frequent daily service	-	2	10	29
No daily service	-	-	2	8

“Don’t knows” account for the remaining households

Source: Department of Transport (1996)

It is clear that rural people are less well served by buses than other areas and so must look to other forms of transport. The lack of service in the countryside is a likely reason why rural residents spend less on bus tickets than urban dwellers (see next section). The national bus use figures show that bus usage remains highest in urban areas and that the decline in bus use has been least in London. Current national usage indicates that rural residents use the bus on average less than once a week (Table 16).

Table 16: Bus use in England and Wales, Number of stages per person per year

	1985/86	1989/91	1992/94	%change 85/86-92/94
Other English Mets.	164	127	119	-27
South East, excl. London	43	37	34	-21
Rest of England & Wales	59	58	48	-19
London	127	114	113	-11

Source: Department of Transport (1995)

Does public transport compensate for the lack of cars?

Given the variable access to cars (Chapter 3), to what extent is public transport used to supplement car travel? Those who are members of larger households tend to make more use of public transport (particularly the train) than those who belong to smaller families (Figure 4). Train use is dependent upon location - for access to a station - and in the survey, trains were used by a few respondents in Cholsey, but for longer journeys (Table 13). But not Chalgrove residents. As a result of this travel pattern, larger households in our study, were “greener” than smaller households.

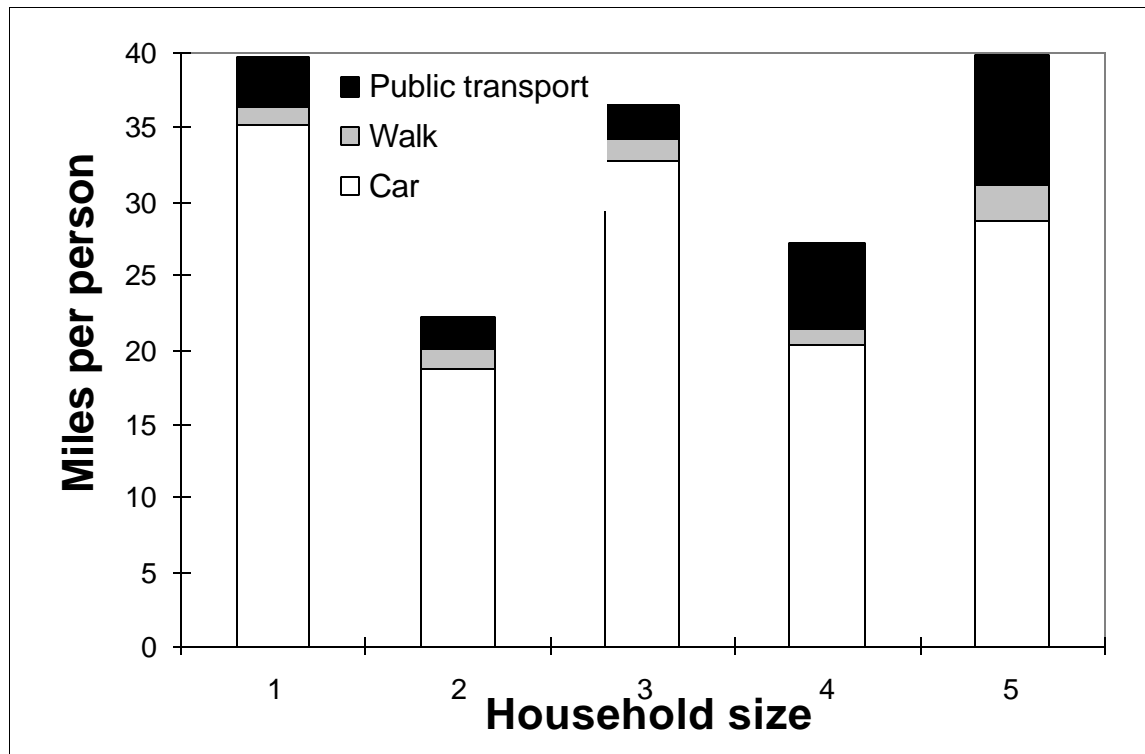


Figure 4: Extent to which selected travel modes contribute to the total distance travelled per respondent by household size as reported in two Oxfordshire villages, 1995

Rural households' expenditure on travel

As has been shown, most rural households in this study use private cars in their daily activities. A higher percentage of rural households have a car than urban households (81% compared to 65%) and a higher percentage of rural households (37%) have two cars or more than urban households (21%) (Stokes, 1995b) (also Table 5).

Rural residents spend less than half in real terms on public transport than the amount spent by urban dwellers. The costs of car ownership (purchase costs etc.) are £12 a week higher⁵ - £39 for rural instead of £27 for London households (Central Statistical Office, 1996a). (Note that this information from the *Family Spending Survey* relates to the household so company cars and their costs are not included.)

Transport costs represent over 15% of rural household expenditure; more than double that spent on fuel and power in the house (Central Statistical Office, 1996a). Some of the household expenditure associated with transport is given in Table 17.

Table 17: Household expenditure on transport (£/week) by population density in the UK, 1995

Item	Greater London	Other Met. areas	High Pop. density	Medium Pop. density	Low Pop. density
Household expenditure	316.25	255.27	282.32	293.61	289.19
Fuel & power	12.05	12.90	12.22	13.17	13.85
Total motor costs	30.94	31.60	36.45	38.05	40.60
New car/van purchase	2.43	2.93	6.22	3.61	5.67
Petrol	7.74	8.05	9.78	10.61	11.44
Diesel	0.38	0.41	0.53	0.61	1.13
Insurance & Tax	5.87	5.45	6.16	6.42	6.62
Repairs etc.	3.88	2.78	3.10	3.27	4.10
Second hand car/van	7.91	9.22	7.24	10.27	8.74
Rail & tube fares*	2.31	0.49	1.17	1.38	0.76
Bus & coach fares*	1.53	1.95	1.30	1.20	0.82
Motor costs as % of total expenditure	9.8	12.4	12.9	13.0	14.0
Rail & Bus fares as % of motor expenditure	12	8	7	7	4

Population density (persons per ha); High; >7.9; Medium: 2.2-7.9; Low: <2.2

Table only lists selected aspects of motor costs.

* excludes season tickets. Source: Central Statistical Office (1996a)

Rural households spend 18% more on energy (for household fuel and power, and motor oils ie. mainly petrol and diesel) also spend less on using environmentally friendlier forms of transport (buses, trains). As a result, rural households can be expected to contribute more per household to climate change than non-rural households through using more fossil fuels. These costs, together with the other higher costs of living in the countryside (3% more than urban areas, excluding London) (Central Statistical Office, 1996a) place an additional strain on poor rural residents' budgets.

The increase in expenditure on petrol and diesel is associated with population density: with rural households spending 55% more on all motor oils than households in Greater London. This, in turn, reflects the greater mileage of rural residents, about 1.4 times that of urban dwellers (Stokes, 1995a). These figures support the view that not only do rural households use cars more than their urban counterparts, but they also use public transport less.

⁵ Other household energy costs are also higher in real terms and as a percentage of the budget.

Income and rural household expenditure

Weekly household expenditure on transport and on household fuel and power varies even more with occupation than location (Table 18).

A similar proportion of the weekly budget is spent on motoring by low income groups as by the managerial group but this represents very different real expenditure. Family expenditure on transport is less for unemployed and retired heads of household heads (39% and 34% respectively of the managerial household expenditure). The unemployed spend the most on public transport and pensioners the lowest actual expenditure. A key aspect of mobility by car can be assessed by the expenditure on fuel, which is a proxy for miles travelled. Professional headed households spend 1.3 times more on motor fuel than unemployed household heads, which indicates an important constraint on the distances which can be travelled by poor households. This problem is compounded as each pound spent by rural households buys less fuel than that spent by urban households as petrol can be 14% more expensive in rural areas (Warrington, 1994).

Table 18: Weekly household expenditure (£) by head of household in the UK, 1995

Item	Professional	Managerial	Unemployed	Retired
Household expenditure	456.42	455.45	175.98	156.53
Fuel & power	14.74	15.71	11.88	10.87
Total motor costs	82.03	55.74	20.71	16.76
New car/van purchase	5.68	8.17	0.49 [#]	3.99
Petrol	16.91	15.18	6.08	3.79
Diesel	2.00	1.15	0.53	0.12
Insurance & Tax	10.27	8.70	3.81	3.16
Repairs etc.	3.28	2.52	1.13	1.08
Second hand car/van	34.38	12.91	5.77	2.47
Rail & tube fares*	3.76	2.00	0.62	0.32
Bus & coach fares*	1.21	1.18	2.55	0.76
Motor costs as % of total expenditure	18	12	12	11
Rail & Bus fares as % of motor expenditure	6	6	15	6

* excludes season tickets; [#] values based on less than 10 households

Source: Central Statistical Office (1995)

The small amounts of money spent on petrol by retired households are similar in all locations (Table 19), but pensioners in rural areas spend 75% more on petrol than their urban counterparts. This comparison is even more marked for the unemployed.

Table 19: Weekly household expenditure (£), by household head, on motor oils (i.e. petrol, diesel)

	Full time employed	Self employed	Unemployed	Retired
Met. Areas	12.88	14.93	4.83	3.03
High density	14.44	17.44	7.04	4.38
Medium density	16.51	17.49	7.08	3.54
Low density	17.08	17.81	10.53	5.23

Source: Central Statistical Office (1996a)

When all motoring costs are considered, households with employed heads spend similar amounts of money on motoring irrespective of their location; this is not so with unemployed heads of household, who spend up to 50% more in rural than urban areas (Table 20). Thus motoring costs are density independent for employed households and density dependent for unemployed households. This means that unemployed people suffer a greater penalty for living in the country than employed people through having to provide their own transport.

Rural unemployed households spend the highest proportion of their motoring costs on petrol (Tables 19 and 20). Pensioners spend the lowest proportion on petrol. However, both of these groups are spending £16/week for the convenience of having a car available and only £10 or £5 respectively on petrol to travel. For people on fixed incomes (such as people on retirement) this high level of household expenditure on motor transport may be failing to meet the travel needs of the households. The limited petrol or diesel that can be afforded could mean journeys are made less often than desired. This is illustrated in Table 21.

Table 20: Weekly household expenditure (£), by household head, on motoring

	Full time employed	Self employed	Unemployed	Retired
Met. Areas	50.81	52.36	17.77	10.15
High density	51.06	56.55	19.16	21.68
Medium density	52.51	70.02	23.93	15.72
Low density	52.10	52.66	26.92	22.45
Average % of budget	13.6	14.0	11.8	10.7
Average household budget	379.29	401.76	175.98	156.53

Source: Central Statistical Office (1995 & 1996a)

Table 21: Weekly household expenditure (£), by household head, on motoring

	Full time employed	Self employed	Unemployed	Retired
Motor oils	17.08	17.81	10.53	5.23
Motoring	52.10	52.66	26.92	22.45
% on motor oils	33	34	39	23

Source: Central Statistical Office (1996a)

Shopping

Rural communities are less likely to have the facilities commonly found in urban areas (Oxfordshire Rural Community Council, 1994). Rural residents have to travel further, as many facilities can be many miles from their village (see Chapter 1). Lack of accessible leisure facilities and lack of transport can diminish the quality of life for people on low-incomes (Hirst, 1995).

Low income rural householders are penalised twice. Shopping locally can mean spending more. In Scotland, lower income consumers shop at stores close to home, while the more affluent use shops in a variety of locations (Mackay & Macleod, 1992). Nationally, the 20% of rural households with the lowest incomes travel about 25 miles/week to shop, compared to 12 miles/week for similar households in urban areas. Low income householders in rural areas travel further than their urban

counterparts to shop. Rural households travel at least 20 miles/week to shop (Stokes, 1995b). Living in a rural area can mean shops are further away. Therefore it costs more to get to the shops.

In our study residents of car-less households went on proportionately more shopping trips (compared to their overall travel) than car-owning household residents: 24% of journeys in car-less households were for shopping, compared to 10% in one-car households and eight percent in multi-car households, probably to minimise the carrying of heavy shopping. Car-less households travelled on average a total of 4.5 miles in connection with shopping (of which distance 86% was by bus) while one-car households travelled three miles, and multi-car households 12 miles. The difference between our figures and those reported by Stokes is probably explained by the proximity of Wallingford, Watlington and Oxford to the study villages.

Respondents of car-less households only visited 31% of the travel destinations visited by members of households with two or three cars. Thus car-less households would be expected to have less access to fewer facilities than car-owning households.

Economically inactive households may have even less petrol or diesel available for other purposes, as it is estimated that journeys to shops may account for about 20% of the weekly budget for running a car (based on distance travelled to shops and money spent on fuel). Residents of households which are rented, privately or from a local authority, travel 47% and 97% more miles by bus per person than those in owner-occupied accommodation (Department of Transport, 1996). These figures, together with public transport use by car ownership (Table 8) indicate that bus services provide a transport safety net for poor people.

Pekkarinen (1994) has stressed the need for detailed and reliable data for the estimation of the impacts of raising the price of fuel. However she estimated that in Finland an 18% rise in fuel prices could decrease car use by eight percent. Clearly, such a rise in prices would have a bigger impact on rural households than on urban ones, making the countryside even more expensive to live in or more potentially isolating.

Conclusions

Car-less householders in our survey were penalised in relation to shopping, as they went to far fewer destinations. This reduced choice (in terms of number of shops within a particular distance) and increased costs (cheaper shops may be further away).

Overall, those in non-car owning households visited only 31% of the destinations of members of households with two or three cars, indicating less access to facilities than car-owning households. Financial constraints, as well as inadequate access to choice of transport, might account for this pattern.

Most villagers have their own cars, probably partly as a result of the real and perceived inadequacies of public transport. In some cases the use of cars overlaps routes covered by public transport, but its level of frequency places severe constraints on its use. As noted in the Introduction, there is little or no “peer” pressure on rural households to adapt their lifestyles to lessen car use.

Rural households have a lower average budget than people in more densely populated areas and have to spend more, both in absolute terms and as a percentage of their weekly expenditure on travel. The higher costs go on car maintenance and running costs, not on public transport. As rural households have more cars than urban ones, this additional expenditure is not on more expensive cars, but both on more cars and more petrol.

It has been argued that travel costs are disproportionate for rural dwellers, particularly those typically on low-incomes, the unemployed and pensioners. Rural old age pensioners spent an average of £5 per week on petrol, compared to £17 for the full-time employed.

There are two main sources of expenditure on road transport: a public subsidy on roads, which is larger than for public transport (Local Transport Today, 1996a), and costs incurred by households for car purchase and maintenance which are also greater than those connected with public transport. This economic cost which is imposed on individuals and households, is disproportionately large for those with low incomes.

There is a clear positive relationship between expenditure on public transport and population density. Rural residents have to pay both to travel further and to provide their own private transport. As motoring costs are population density independent for employed households and density dependent for unemployed households, this means that unemployed people suffer a greater penalty for living in the country than employed people, through having to provide their own transport.

Some commentators suggest that due to their higher expenditure on motor fuels, rural residents will be likely to be penalised more by petrol tax increases than urban residents (e.g. Stokes, 1995a). Based on petrol expenditure, the retired already drive less than half the amount of miles driven by the unemployed and a third of the distance travelled by the economically active. These proportions imply that the unemployed and the retired might already be constrained in their driving patterns by economic hardship, and so would be likely to be disproportionately damaged by fuel tax increases. There is a considerable literature that addresses this issue, namely the equity aspects of environmental taxation (Potter in Jerichow, 1995, Whitelegg, 1992). It is clear that there are some pricing mechanisms which could, to some extent, mitigate the inequalities of fuel taxes - e.g. a 'smart card' for petrol in which cost was increased only after allowing each driver enough fuel at a cheaper rate for going average distances. There is a range of possible policy options, but, as yet, little consensus on which, if any, of the current policy options are acceptable to the public or to politicians (Labour Party, 1996; UK Government, 1996).

Chapter 3: Car use in rural households: winners and losers

Introduction

As rural households travel mainly in their own cars, many of the decisions about travel occur within the family. The respondents in the study travelled widely differing amounts and the extent to which this was acceptable is discussed in Chapter 4. It is possible that within a context of limited access to travel, the desires for transport results in the allocation of resources within households according to various culturally-based hierarchies. Household roles and relationships are crucial in determining who gets the car, and when and why it would be possible to approach the issue of how travel resources are divided by either examining what is happening or what is possible. This chapter focuses upon the travel patterns that were found in the 1995 study, not on possibilities. Possibilities will be examined in Chapter 6.

Because it is difficult to assess how much people need to travel and how important certain journeys are, the sections below consider differences in distance travelled from the average. Variations in distance travelled by members of the same household would be expected as each person has specific needs⁶, hence it is not possible to connect inequalities to amounts of individual travel. However, it is of interest to compare families with different numbers of cars in order to assess how car use is allocated. Questions on prioritisation were asked and information sought on use of time and money in relation to transport. Linkages between economic activity and priority for use of cars have also been sought.

Who gets where?

(i) Unequal mileage between respondents

The wide disparity in the miles travelled by individuals in the rural survey is shown in Figure 5. If the total mileage were shared equally within the population the straight line would be obtained. The difference between the straight and curved line - the actual distribution of miles within the population - indicates the degree of disparity. Thus, half the respondents account for 17% of the total distance travelled, while 61% of the total distance was covered by the 25% who travelled most. This distribution is displayed in an alternative form in Figure 6.

Estimation of total distance travelled is complicated by the fact that the distribution of the total distance travelled is not normal⁷. For example: the mean total distance travelled per individual was 38 miles (median 25); for women, 26 miles (median 22); and men, 51 miles (median 32)⁸. This information is based on those that completed travel diaries, so may be altered when there is information from all adults or drivers. The majority of respondents were in two-car households and travelled up to 50 miles by car on the survey day.

⁶ Needs, in this context, are impossible to quantify 'objectively': 'subjective' needs change over time and according to conscious and unconscious drives, desires etc, needs are also shaped by social and cultural change.

⁷ Coefficient of variation = 118%, kurtosis = 15.2 and skewness = 3.3.

⁸ These figures are different to those given in Chapter 1 as they relate to both villages.

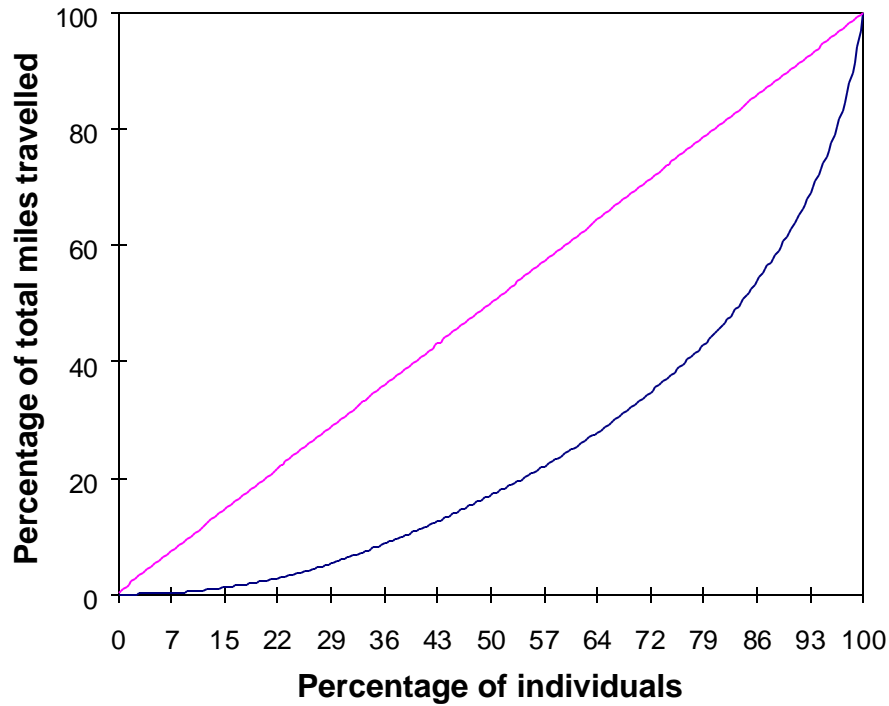


Figure 5: A Lorenz curve showing the disparity in the percentage of travelling done by respondents from two Oxfordshire villages, 1995

From our survey, the number of cars in the family (company cars or cars owned by the household) influenced the variability of the distance travelled by individuals. The median distances indicate a moderate increase in the distance travelled with changing car ownership: 19, 26, 24, and 21.5 miles for one, two, three and four cars (Figure 6).

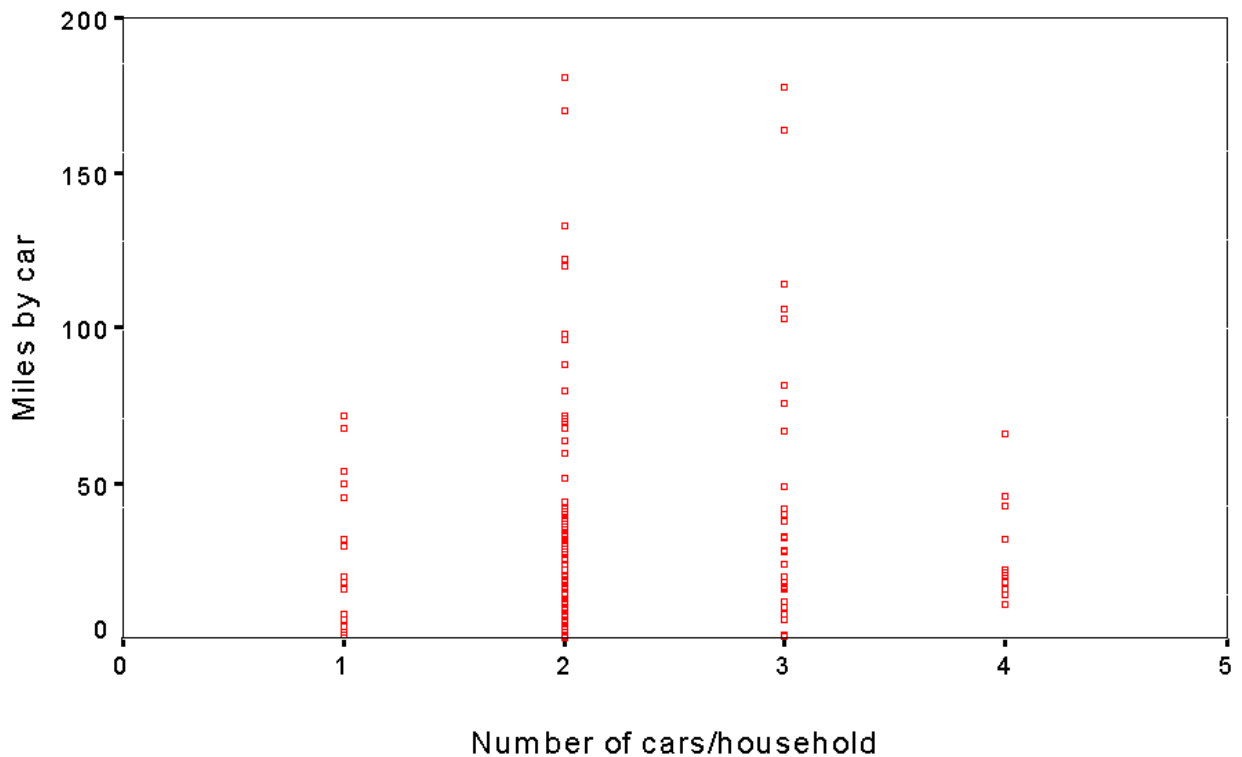


Figure 6: Total miles travelled in cars per respondent (aged 16 or over) in rural households by household car ownership in two Oxfordshire villages, 1995 (One individual in a three car household travelled over 200 miles)

(ii) Distribution of cars

As demonstrated, individual access to a car depends on household size and the number of vehicles owned and in the two villages studied was highest in households with four adults (Table 22).

Table 22: Car ownership by potential drivers (adults over 16) in two Oxfordshire villages in 1995

	Household size				
	2	3	4	5	6
Number of cars	1.1	1.8	2.5	2.5	2.0
Number of cars/person	0.53	0.59	0.63	0.50	0.33
Number of households	17	55	27	2	2

(iv) Availability of cars

Sometimes people have no choice over how to make a journey: there is only one method of transport available. Where there is a choice, this demonstrates a preference, for whatever reason, for the mode used. “Choice” is defined in relation to whether or not a journey could alternatively have been made by car, i.e. did a person choose to use a mode other than the car?

If choice of travel mode is made in relation to a car, then if a car is available but another travel mode is used then the level of choice index is 100. Conversely, if a car is unavailable for a journey made

by a particular mode the level of choice is zero. The level of choice for selected modes is summarised in Table 23.

Table 23: Level of choice of transport mode for journeys by occupation in two Oxfordshire villages, 1995. (% of trips which could have been made by car but the traveller used another mode)

Occupation	Bicycle	Walking	Train	Bus	Overall
Managerial	-	100	100	-	100
Professional	100	100	100	67	96
Skilled manual	93	82	100	-	85
State benefit/pension	100	77	-	-	81
Skilled white collar	100	77	62.5	78	78
Housewife	-	63	-	50	62
Unskilled manual	0	46	-	-	39

- mode not used

Choice of travel method is a function of income. Table 23 shows that, of public transport services, trains tend to be used by choice (high choice index) but not buses (low choice index). Nationally, people in the lowest income quintile make 2.5 times as many bus trips as those in the highest quintile (Department of Transport, 1995). Overall, the level of choice by occupation also showed variations, with housewives and unskilled manual workers having least choice.

Age is also a determinant in the level of choice. Younger residents had significantly less choice of mode of transport compared to older residents (Table 24); thus family ownership of a car affects age groups differently.

Table 24: Level of choice of transport for journeys by age in two Oxfordshire villages, 1995. (Percentage of trips which could have been made by car but the traveller used another mode)

Age:	<16	16-29	30-59
% with choice	0	24	40
No. of journeys	122	294	386

Note: Households with retired members were deliberately under-sampled (see Introduction)

Additionally, there are differences in the frequency of use of transport mode by sex. Table 25 shows that women use cars proportionately less than men, and make proportionately more journeys on buses and foot. A car was unavailable for 12% of journeys made by women and for 11% by men. Choice of travel mode does not seem to be an important influence on the travel patterns of the sexes. Other differences were based on gender: women made on average seven trips each (compared with five for men), their average total distance travelled was 26 miles, compared with 51 miles for men. The difference between distance travelled between the sexes is echoed in the *National Travel Survey* (Department of Transport, 1995) which might be reflected in the fact that in our study 75% of men over 16 years old owned a car compared to 64% of women. (Nationally, 64% of men own a car compared to 35% of women (Department of Transport, 1995)).

Table 25: Percentage of trips by sex and mode of transport by respondents from two Oxfordshire villages, 1995

	Males	Females
Car	50	46
Walk	25	39
Cycle	8	6
Bus	2	5
Train	2	2
Other	13	2

The higher level of walking (39% to 25% of trips) by women is interesting, in the light of fairly equal levels of car availability. It suggests more local trips, possibly around the village. In our survey, level of choice is generally high as a result of most households having two or more cars. In the 13 single car households, women were twice as likely not to have a car for a journey than men (car not available for 38% of trips made by women compared to 15% of trips made by men.)

(v) Travel by housewives

In this study only ten respondents identified themselves as housewives (although some of these had jobs) from 134 women in 94 households. Housewives would not be expected to be the major earner in a household. Two (of only four responding) did not own a car, and this was the highest level of non-ownership apart from young people who were not students. Given the attitudes to priority of car use expressed below, it is to be expected that housewives would have less use of a car.

The housewives rarely took the car (7% of trips) and nearly always walked (85% of trips). On the survey day they travelled an average of 7.5 miles compared to 38 miles in the entire sample and 25 miles for all women. The reason for all but one of the motorised trips was to go shopping. Twenty-four percent of all their trips were to local shops and these, and all other trips were made on foot. The average (median) trip length was 0.5 miles which may indicate their limited mobility. Overall, the average total distance travelled by women respondents for shopping was four miles compared to three miles for housewives. Even if housewives are content with their level of mobility, the distance travelled limits their choice of goods compared to other female shoppers.

Thus, household size, occupation, gender and age all have a bearing on the level of choice of travel mode which is likely to be available to individuals.

Priority of car use

Questions on priority of car use or conflicts over car use suggest that the position of household head and/or driver is still a key determinant in having access to the car. There is also an indication that the needs of the children may be given more weight than was the case in 1977 (Table 26). Less travelling together is done by partners but this could be due to the increased number of cars per household.

Table 26: Priority of car use⁹ in two studies of Oxfordshire villages. Percentage of replies

	1977 survey*	Chalgrove 1995	Cholsey 1995
Partner/car owner/driver	41	63	50
Each has car		15	11
No conflict	27		
Make an arrangement	15		
Parents/partners travel together	13	9	3
Children/other	2	8	11
Anyone according to need/varies	2	5	18
No. of replies	112	101	90

* Source: Banister (1980)

The priority given to household members for access to the car or cars was similar regardless of level of economic activity (Table 27). In general ownership is perceived to confer access to the car(s).

Table 27: Priority of access to car use split by economic activity in two Oxfordshire villages, 1995. Percentage of replies classified by respondent

Priority given to:	Respondent economically active	Respondent economically inactive
Owner	37	14
N/A: each has car	14	18
Husband & wife/parents	8	4
Female partner/mother	12	14
Male partner/father	9	25
According to need	11	18
Children	10	7
Number of replies	115	28

In each economic group, ownership or age give precedence to car use. The differences in responses from the economically active and inactive indicate possible mismatching of views on how car-use should be prioritised within households. Being the car owner (owner/each has car) was stated as the commonest reasons for car access with economically active respondents (Table 28). For this group, ownership confers a right of access, but it was not always paramount. For the economically inactive being the male partner/father and need plus ownership were most important.

However, interpretation of Tables 26 and 27 requires care as relationships between respondents are unknown. Positions within a household will affect priorities and attitudes towards them. Forty-three percent of respondents considered a car essential for work, which may be a reason for buying a car. Only one respondent stated that lack of public transport was a reason for using the car and only three mentioned the weather (Table 28). Thus, in relation to the economically active, commuting and car ownership confer a “right” to the car, rather than other cultural hierarchies within the household.

⁹ 1977 questions on conflict were asked only to car drivers without exclusive use of the only or first car; in 1995 everybody was asked who has priority in using the car.

The converse of these priorities is that household members who do not work or do not own a car will have less access to travel than others. These attitudes, in particular, may encourage a higher level of car ownership and result in less use of public transport. As a third of the mileage travelled to work by car coincided with public transport routes, this raises questions about car use along such routes (Chapter 5).

Although journeys to work account for only 18% of the miles per person they account for the largest percentage of miles travelled per person for a single purpose and the second largest number of journeys per person (after shopping), (Department of Transport, 1995). Economically inactive respondents have a more flexible household strategy for car usage than economically active households: 28% of replies cited “need” rather than 10% (Table 28).

Table 28: Reasons for giving family members priority to use the car in two Oxfordshire villages, 1995. Percentage of replies classified by respondent

Reason for priority:	Respondent economically active	Respondent economically inactive
Work	27	16
Owner	23	16
Each has car	15	24
They drive	13	8
Need	10	28
Use company car	3	4
Insurance	3	
Weather	2	4
No public transport	1	
They pay for the car	1	
Number of replies	98	25

The real costs of running a car

From the survey of Chalgrove and Cholsey, those who contributed to the running of the car tended to underestimate the real cost. The overall cost of running a car is £41 per week in rural areas (Table 17). Most respondents underestimated these costs. Seventy-two percent of respondents said that it cost less than £41 per week to run a car, and 20% said that it cost £13 or less. As rural residents spend about £13 per week on petrol (Table 19), this suggests that some car owners only consider the fuel cost as the cost of using a car and therefore consider the car as a cheaper form of transport than it really is. Alternatively, people who rely on cars may not wish to acknowledge the true cost as they may feel that its use cannot be justified on strict economic grounds. If this is so, it could indicate that car costs would have to rise considerably in order to reduce the number of cars per household. These perceptions on running costs could have implications for car users’ unwillingness to use public transport which then may appear to be much more expensive than it really is when compared to car travel.

‘Saving time’

‘Saving time’ and ‘convenience’ were reported as the most important benefits of the car by employed rural people, and as a result the car was chosen despite some acknowledged negative

environmental consequences (for further information on attitudes see Chapter 4). The basis for these responses and household attitudes can be assessed by examination of the times for individual journeys together with the time taken to travel one mile (Table 29).

These figures indicate that considerable time savings can be expected by using a car in uncongested conditions as opposed to walking (20 minutes/mile) or cycling (8.2 minutes/mile). Although the bus travels only a little more slowly than the car, the indirect routes often taken by buses can increase journey times compared with those of a car. For instance, from Chalgrove to Oxford the bus stops at a number of hamlets and villages, delaying its progress.

As can be seen (Table 29), trains are likely to be the fastest form of transport (although allowance has to be made for reaching the station and waiting for the train), but journeys by car are quicker than those by bus.

Table 29: Estimated travel times (minutes) to selected destinations and modal speeds from two Oxfordshire villages, 1995

Cholsey to:	By bus*	By train*	By car[#]
Reading	46	20	30
Oxford	79	18	38
Wallingford	9		10
Didcot		7	12
London		56	120
Chalgrove to:			
Oxford	43		24
Watlington	12		10
Median journey time (minutes)	20	15	25
Travel time (minutes)	4.0	1.8	2.5
Time to reach work (minutes)	25	30	18

* Taken from timetables; # estimated from travel diaries

Congestion and delays

Saving time is an important reason for using cars. This advantage, together with the car's perceived convenience (Chapter 4), combined to make respondents more tolerant of delays in traffic jams than they would be to delays in public transport (Table 30).

One interpretation of these responses is that although traffic congestion is increasing (Local Transport Today, 1996b) it has still not reached a point where it is intolerable to rural road users. This may be because congestion, when it happens, is either sufficiently infrequent as to be tolerated or so predictable that journeys can be modified to take it into account. Some drivers may feel that as they have no choice but to use the car, they also have no choice but to tolerate delays in traffic. The intolerance to delay on public transport may stem from the fact that as most respondents were car users, if they used a public transport it would be through choice and so they would expect a punctual service.

Table 30: Length of waiting times rural respondents are prepared to incur by mode of transport in two Oxfordshire villages, 1995. (Percentages of men and women by mode)

Waiting time	In traffic		For bus		For train	
	Men	Women	Men	Women	Men	Women
5 minutes	7	1	9	7	3	5
10 minutes	8	13	66	66	52	60
Up to 30 minutes	33	13	1	3	-	-
Never use	-	-	4	3	6	4
Have to wait	42	50	-	-	-	-

“Waiting” is time spent not travelling and tolerated by respondents

The fatalism of attitudes about time use in cars is striking. About half of all men and women feel they ‘have to wait’ in traffic. The contrast with public transport is marked. In relation to public transport, most people will not wait more than ten minutes. There are some gender differences. Nearly three times as many men as women are prepared to wait up to 30 minutes in traffic when in cars. But negligible numbers of either sex would wait this long for public transport. These different attitudes to waiting might reflect greater time pressures on women (Hewitt, 1993).

However the expense of the train, compared to the car, can be prohibitive. In the literature on fuel poverty, for example, 10% or more of income being spent on fuel is considered unaffordable (Boardman, 1991). An annual season ticket to travel from Cholsey to London by rail now costs £2,856 (standard class), which is 15% of the average household income (Central Statistical Office, 1995).

Where choice of mode exists, the traveller makes the choice of the transport mode based upon a complex index of time, cost, convenience etc. Chapter 4 sheds some light on important aspects associated with travel, but time is clearly important to many travellers. Thus the need to “save time” is really an issue of respondents saying that they are using their time better by driving for a short time than by using public transport for a longer time.

Table 30 shows a slight inconsistency between the sexes over the value of their time. Men are more prepared to wait up to 30 minutes. As women use slower forms of transport (average speed 16 mph) compared to men (25 mph), this suggests that women are under more pressure to save time. It is not known to what use respondents put the “saved time”, but the needs to balance paid work with domestic responsibilities are often greater for women than for men (Hewitt, 1993).

Conclusions

Actual mobility is affected by the variations in priority use of the car. The data suggest that access to transport can be heterogeneous within a household. Age, gender and occupational status are related to priority use of cars, length of journeys to work and car ownership. Relationships and roles within households determine how cars are allocated to household members: the owner and/or men are likely to have priority over car use. These hierarchies mean that women, the economically inactive and young adults can find it difficult to gain access to cars.

Our survey did not allow us to identify specific household strategies for allocating the car but gave an outline of some forms of prioritisation. Some of the household decisions about the car were intergenerational, rather than between partners.

The majority of households have more than one car per household, and a lot of our households had young adults in them. For households with one car, the use of a car by one person to travel to work imposes limitations on the mobility of other household members. Another issue that arises from the fact that households are largely responsible for provision of transport is that there may be few or no alternatives to private cars.

It has been shown that there is considerable disparity in the distances travelled by individuals, especially those in two and three car households. The difference appears to be made up for some people through using trains rather than buses.

Limited public transport means few choices for those who have least access to the household car. Respondents appeared to have little idea of their real motoring costs and this is likely to colour their view of the cost of using public transport.

In general, the car is viewed as a way by which journeys can be completed in the shortest time. The circuitous routes taken by buses can make short journeys seem painfully slow as well as limited services imposing restrictions on when journeys can be made.

There were disparities in the way time was allocated to different modes of transport. About half of our sample were prepared to wait as long as they had to in traffic, but most respondents would not wait longer than ten minutes for public transport. Approximately three times more men than women were prepared to wait up to 30 minutes in traffic, which could reflect a number of factors such as the greater number of demands on women's time, due to a combination of paid work and greater time spent doing housework (Hewitt, 1993). It could also reflect factors such as the greater importance that men attach to car travel or doing journeys irrespective of the length of time that they take. These findings indicate that debates about time spent travelling needs to recognise differences between individual's evaluation of time. These differences would seem to be structured by age, gender and economic activity.

Chapter 4: Who cares? Attitudes to personal travel

Introduction

Personal transport offers a clear case where the needs of the environment require to be 'balanced' with those of society. What are peoples' views about the balance that they would like to see between these issues, arising out of their travel behaviour? An outline of the attitudes expressed on personal (i.e. 'private') and then general (i.e. 'public') travel and environmental issues is given below.

The relationship between the environment and travel is complex. For example, there is confusion for many about the causes of climate change and holes in the ozone layer (Hinchliffe, 1996; Strang, 1996). Making the connections between transport, pollution and environmental damage may be far from obvious for many. There are also differences between what is regarded as acceptable for others, and what is viable for oneself. Perceptions of public and private needs - for travel and other 'goods' - were sought, to establish a picture of different attitudes and values associated with these issues.

1. Personal travel

(a) Use of the car

When asked whether the car is essential, useful or not essential, just over half of men consider the car to be essential for all purposes other than education (Table 31). Approximately a third more men than women regard cars as essential for personal business (e.g. shopping, going to a bank, getting a hair-cut), work and leisure/pleasure. This finding runs counter to the stereotype that women's fear of travel alone, particularly at night, would mean they would find a car more essential for these journeys than men. More women than men believe a car to be useful rather than essential.

Table 31: Percentage of respondents who considered the car essential or useful for selected purposes, in two Oxfordshire villages, 1995

Activity	Essential		Useful	
	Males	Females	Males	Females
Work	60	45	22	36
Leisure/pleasure	58	38	33	54
Personal business	55	40	34	52
Other purposes	42	55	28	25
Education	23	18	21	25

The men consistently view cars as more essential than women. This perhaps reflect higher levels of use of cars, particularly for work (Table 32) and cultural linkages between masculinity and driving (Marsh and Collett, 1986).

The main reasons cited were the complexity of journeys, the unavailability of public transport and the need to maximise the use of their time. The empirical data confirms these views. The only area in which women scored more highly than men was 'complex journeys that cannot be done by public transport'. This finding supports the view that some women do more complex 'chain' trips than men

for which cars are considered essential. Maps of the journeys destinations, which show common destinations are given in Chapter 5. Approximately two-thirds of all car journeys do not coincide with public transport routes. The figure might be higher if connected journeys, or chain trips, are included.

Table 32: Selected reasons why a car was considered essential by respondents from two Oxfordshire villages, 1995 (Percentage of replies)

Reason	Males	Females
No public transport, pleasure of car travel, complex journeys & time pressure	23	15
Complex journeys, time pressure and no public transport	18	8
No public transport & pleasure of car travel	8	2
Time pressure and no public transport	6	7
Complex journeys that cannot be done by public transport	3	11

These responses reflected the observed travel patterns. The car was used for the majority of journeys (Table 13) and this resulted in journey times being shorter (Table 29). The most important benefit of car use was considered to be its “convenience” and similar practical aspects. Social aspects of car use were considered less important (Table 33). Women valued the time-saved by car travel more than men.

Table 33: Benefits of car use ranked by respondents in two Oxfordshire villages, 1995 (1 = most important, 10 = least important)

Benefit	Men	Women
Convenience	1	1
Independence	2	3
Freedom	3	4
Time-saving	4	2
Private space	5	6
Security	6	5
Excitement	7	8
Speed	8	9
Power	9	7
Sex-appeal	10	10

Overall, the car is seen as essential for most activities due to the inability of public transport to permit rural residents to make journeys or, where it is available, within an acceptable time. The convenience of the car is seen to outweigh any delays on roads (see Chapter 3).

(b) Balancing one’s own needs to travel with protecting the environment

There is evidence that public concern about the environmental impact of transport is mounting. Thirty-six percent of the population in England and Wales considered traffic congestion and related problems as their chief environmental concern (Central Statistical Office, 1996b). Stokes and Taylor (1994) reported a continuing increase in concern over road travel and damage to the countryside which rose from 25% to 33% between 1990 and 1993.

There was a difference in men's and women's responses to the idea that their quality of life suffered from the time spent travelling (37% of men and 25% of women). This difference may reflect the fact that men travelled, on average, 31 miles per day by car and women 17 miles.

Seventy-eight percent of respondents said it was important to conserve fossil fuels. Fifty percent thought that the quality of rural life was threatened by car use and 55% agreed the health risks associated with car pollution required action to reduce car use. However, most respondents did not associate health risks from car pollution with the quality of life in the countryside (only 30% of respondents linked these two aspects).

(c) Car-sharing

One way of lowering emissions is to share cars. This was defined as 'a few neighbours jointly owning and sharing a car' in the survey (Root *et al.*, 1996). Studies have shown that this form of car use usually means car-sharers are more 'rational' in their use of cars: using them for journeys where destination or time is crucial, but using other modes of transport when they are appropriate (Cousins, 1996).

However, the dispersed pattern of many of the journeys made by respondents indicates that car-sharing may be more difficult to organise in rural areas than urban ones (see Chapter 5). For example, the fact that rural employment is characterised by many small employers (Errington, 1994) makes it less likely that rural neighbours would travel to similar work locations. Similar reports were noted from interviews in Chalgrove (Chapter 1).

Rural residents have less enthusiasm for car-sharing schemes now than in 1977 (Table 34). This is similar to reduced levels of giving lifts to neighbours and confirms the trend towards family-centred travel provision and less community focus.

Table 34: Attitude of rural respondents to car-sharing in 1977 and 1995

	Henley 1977*	Other parishes 1977*	Chalgrove 1995	Cholsey 1995
Willing	40	42	29	14
Not willing	59	58	55	56
Not sure			16	30

* Banister (1980)

The lack of enthusiasm about car sharing might be explained by respondents' unfamiliarity with car-sharing schemes or a belief that their journeys are too complex to be fitted into such a scheme. The increased levels of car ownership may also serve to make the concept of car-sharing seem an unnecessary venture, except for those who either see the scheme's environmental advantages or as a way of reducing travel costs.

Scepticism with car sharing schemes was also associated with seeing fossil fuel saving as unimportant ($p < 0.06$) (Table 35). Agreement with the idea of conserving fossil fuels does not reduce the median trip length by car; however, those who considered conservation important travelled further per trip than those who did not (eight miles compared to 4.5 miles, $p < 0.10$). Nor

did this awareness increase the trip distance walked or cycled. Awareness of fossil fuel conservation was similar across age groups.

Table 35: Relationship between attitudes of respondents to fuel conservation and car sharing in two Oxfordshire villages, 1995

	Important to save fossil fuel (%)	Unimportant to save fossil fuel (%)
Would car share	26	12
Would not car share	48	76
Not sure	26	16

Thus we have examples of both a consistency between views, i.e. those who want to save fossil fuel are more prepared to car-share, and a variance between attitudes and practice, in terms of no reduction in length of car trips by those who want to save fossil fuels. These figures show that there is a discrepancy between awareness and potentially supportive actions.

Respondents who thought that more money should be spent on roads travelled further by car than those who disagreed (35 miles per day compared to 27 miles, $p < 0.14$). Those who thought that their quality of life would improve if they travelled less, travelled more miles by car (34 miles) than those who did not (22 miles).

These attitudes suggest that those who use cars most would like to use them less but would be able (and so by implication are in a position) to pay more to continue to travel by car. However, nearly half (49%) of respondents were unwilling to pay more for motoring. The understanding that car use is reducing their quality of life means that for some, an aspect of travel problems may result from an excess of travel while for others the reverse is true. However, the general impression from these answers and travel practice is that the respondent's view of the utility of their travel comes before wider considerations of how their actions affect the environment, or others' quality of life, either in the short or long term.

(d) Public transport

Despite the lack of use of public transport, both nationally and in our survey, respondents felt able to comment upon public transport. In one interview, a woman (who did not use the service) stated that buses come "when they feel like it", indicating unreliability. Use of a local Oxfordshire bus route over many weeks by one of the authors showed the contrary: the service was reliable.

Respondents complained that transport to local railway stations (Oxford or Didcot) was a 'nightmare' without a car. (To get to Oxford station from Chalgrove involves going through the frequently congested town centre, and the journey to Didcot is cross-country with no direct bus routes.) Going to the nearest hospital (Watlington) was also said to be difficult without a car, as it is 'three quarters of a mile, up a hill' from the bus stop. The last bus from Watlington to Chalgrove leaves at 3 p.m., making evening visits impossible.

Therefore, when reporting attitudes of respondents towards public transport it should be noted that some of these are expressed by people who make little use of the services and so has little direct experience of them. We did not ask if these perceptions were the reason why the respondents do

not use public transport (nor would it be easy to disentangle motives and attitudes from other factors determining use). These are important perceptions, potentially limiting greater future use of buses.

(e) Willingness to pay more for motoring

As shown in Table 31, women see the car as less of a necessity than men. This finding can be extended by asking respondents about their willingness to pay more for motoring. Nearly two-thirds of women would not pay more, compared with 39% of men (Table 36).

Table 36: Percentage of respondents (over 16 years) willing to pay more for motoring in two Oxfordshire villages, 1995

Change:	Males	Females
No	39	61
50% more	18	7
Double	20	12
Other	23	20

Although there was no statistical difference in the number of miles travelled by those who were and were not prepared to pay more for their motoring, two-thirds of respondents who did not wish to pay more travelled less than average, whereas of those who were prepared to pay twice as much, two-thirds travelled more than average. This indicates that many of those who travel considerable distances by car, whether to work or at work, have no choice about this travel and would feel compelled to pay more, even if the price doubled.

At the other end of the spectrum, there is a combination of less distance travelled together with an unwillingness to pay more. This could be a result of low incomes, or just a satisfactory lifestyle that is not dominated by the car. It is difficult to discern which groups would be most severely affected by a rise in motoring costs, particularly as our sample did not include pensioners or many on a fixed income.

(f) Latent travel demand

One of the reasons for this research, and the reason for the sampling bias towards young people, was to investigate latent travel demand. Through a question about willingness to pay more for travel for leisure (on the assumption that there is little choice with travel for work and education), respondents aged 16-29 were twice as likely to be prepared to double expenditure on travel for leisure than respondents aged 30-59. This finding raises questions about latent travel demand for young people. In Chalgrove 16-29 year olds travelled half the distance of the 30-59 age group. The difference in distance travelled was minimal in Cholsey, the village which has better public transport (Root *et al.*, 1996). The extent of travel poverty and the unmet travel needs of low-income households have been impossible to establish, in the absence of qualitative interviews with each household. Travelling short distances may indicate a rural lifestyle curtailed by income, but not necessarily.

2. Attitudes to others' needs to travel

(a) Public expenditure and travel

Information was sought on what issues concerned householders, including lack of public transport¹⁰. Concerns for children's employment prospects were placed first (by 70%), in our survey, despite the fact that Oxfordshire has one of the lowest unemployment rates in England and Wales (Office of National Statistics, 1996). The deficiencies of local public transport were cited second, by 60% of respondents, despite the fact that most households studied owned two cars and under five percent of journeys were by bus. This could be interpreted as a signal that people would like to travel by modes other than car.

Respondents were asked to nominate areas in which government should increase and decrease public spending. The responses suggested that spending on public transport should be increased and that for building new roads and cycle lanes decreased. Nationally, 64% of rural households are in favour of improvements to public transport (Stokes and Taylor, 1994). The opposition to paying more for motoring, from 48% of respondents, despite the awareness of the environmental damage done by cars, is a common feature of both rural and urban households (*op. cit.*).

Attitudes to government spending (increases and decreases) were similar to those found nationally (Stokes and Taylor, 1994). Respondents were more willing for public spending to be decreased than increased.

It is important to notice that the context plays an important part in determining which answers are given, and with what overt or hidden intentions (Silverman, 1995). For example, the research was conducted in partnership with Oxfordshire County Council, so respondents may have thought that commenting on public transport could bring more services. One interviewee commented that this research came immediately after a row in the local press about the cost of cycle paths. This might account for the low priority accorded to them. A reaction which seems contradictory was that more than 70% of respondents thought saving fossil fuels was a good idea (Table 37).

Generally, men and women showed considerable agreement in their attitudes to transport and the environment. Attitudes to transport related matters reiterated the concern about jobs and indicated an awareness of the need to conserve fossil fuels and of travelling in order to optimise time use.

The preference for better public transport compared to new roads was independent of the perception of fossil fuel conservation. Overall, those who agreed that conserving fossil fuels was important travelled as far as those who did not. However, the data suggested that men who expressed this view travelled less by car than those who did not.

Table 37: Percentage of respondents in two Oxfordshire villages who agreed with the following statements:

¹⁰ Most answers analysed in this part of the survey were given by people answering a questionnaire collected by the interviewer. However, one set of questions was posed to the householder who answered the door.

Statement	Males	Females
Having a job is more important than having a car	90	83
It is important to save fossil fuels	73	74
Saving time is the most important reason for owning a car	72	77
I would prefer better public transport to more new roads	70	69
Reduce car use because of the associated health problems	66	71
Public transport and the streets are safe	49	42
Travel is a good way to spend leisure	44	37
Security is a key issue in encouraging car ownership	38	44
Car use reduces neighbourliness	37	33
Less daily travel would improve my quality of life	37	25
Quality of life in the country is threatened by car use	35	39

(b) Others' travel in relation to minimum needs¹¹

Part of this project tried to assess the consensus about acceptable levels of provision of transport and its environmental impacts, while recognising that concern for the 'travel poor' might contradict the aim to reduce traffic.

Public transport was an area where increased public spending would be approved (by 11% and placed fourth after health, education and policing) but spending on cycle lanes was not approved (by 15%; only 3% said spending should be increased). This may reflect the low level of bicycle use (Table 7) and that cycling may be associated with leisure rather than essential day-to-day activities. A bicycle was also considered the least essential of all the items in Table 38. However, this response is of interest given the Sustrans (Sustainable Transport) initiative to build cycle ways throughout the UK, backed by the Government (Government press release, 1996). It should also be noted that on average households in our study owned two bicycles, yet attached little importance to them.

When asked to prioritise items for 'a family with young children living in an area like this' most respondents put home-related amenities highest on the list. These views indicate that quality of home life is valued more than travel as more time is spent at home than elsewhere. Expenditure on house purchase or rent also exceeds that on motoring by rural households (Central Statistical Office, 1996b).

Public transport was given a high priority place after good housing and warmth. The priority given to a warm coat is understandable given the dominance of walking and the need for protection from the elements once outside the home.

It is interesting that respondents gave cars such a low priority for others when they considered cars 'essential' for many of their own purposes (Table 31). The respondents were not adverse to public transport in principle. It appears that respondents want the public service of public transport. In an imagined world, such as that they were asked to think about, the benefits of private transport may not be so overwhelming.

¹¹ The methodology used for this section is given in Appendix 3.

Table 38: Percentages of male and female respondents who considered each item necessary for other families in two Oxfordshire villages, 1995

Item	Men	Women
Damp-free home	94	94
Warm house	93	98
Warm coat	86	85
Public transport	80	82
A washing machine	73	80
Daily meat or fish	60	66
A telephone	53	67
One week's holiday/year	40	33
New clothes	39	25
Children's leisure equipment	37	27
A car	30	29
Fortnightly visit by child's friends	22	32
A fortnightly night out	19	25
A bicycle	11	11

Concepts such as 'cognitive dissonance', or 'discourses' are used to describe contradictory attitudes and behaviour that are held or maintained, but not made consistent (Rosenburg and Ableson, 1960). This is, perhaps, an area of 'cognitive dissonance' in which recognition of personal needs differs widely from the perception of others' wants. Cars were eleventh in the list, suggesting that respondents thought they were more appropriately designated as useful or desirable, rather than necessary, if travel via public transport were available.

Discrepancies and inconsistencies between views and behaviour are legendary in travel circles. This has been referred to as the PTOOK syndrome (Public Transport for Others, OK) (Wolmar, 1995). Some commentators have sought to turn the difficulty of contradictory attitudes and behaviour to advantage by suggesting that they are a catalyst for change:

It is often the tensions that cut across the range of attitudes to motoring that provide the best explanation for cultural change.

(Liniado, 1996)

In this study, inconsistencies are regarded as evidence of possible change (Chapter 5), but not as evidence that shifts of attitudes or behaviour will take place.

The high ranking of public transport compared to a car may also reflect the view that respondents want it "just in case" they should need it, but clearly this preference is contradicted by their lack of use of public transport. The lack of consistency illustrated by rural respondents (Table 35) is shown nationally, not only with regard to transport and the environment but also other environmental and social aspects (Witherspoon, 1994). Some of this inconsistency is undoubtedly due to both

researchers and respondents endowing the word ‘environment’ with a range of meanings (Strang 1996).

3. High and low energy users

(a) Estimated energy use

The data reported in Root *et al.* (1996) related to individual journeys. Although all modes of transport were used in estimating transport energy use, the dominant contributor to energy consumption is the car. Thus energy use for transport is, in practical terms, synonymous with energy used by cars in this survey.

The difference between the median household energy use in the two villages was not significant (Table 4) and the energy per person was similar for each village. There were more trips per household in Cholsey than Chalgrove (22 compared to 15), but this reflected the greater number of respondents per household in Cholsey of 3.4, compared to 2.7 in Chalgrove.

(b) Household travel energy profiles

Household energy consumption was estimated following Root *et al.* (1996). Forty percent of the total energy consumption associated with travel was consumed by 25% of households, while 25% of lowest energy using households used only 10% of the total energy, Figure 7. Thus, the quarter of the households that travel the most are responsible for four times the energy use - and probably pollution - of the quarter that travels the least. If our sample had included pensioners, the range would probably have been extended. Even so, this is a substantial variation between households with similar age profiles in two similar villages in South Oxfordshire.

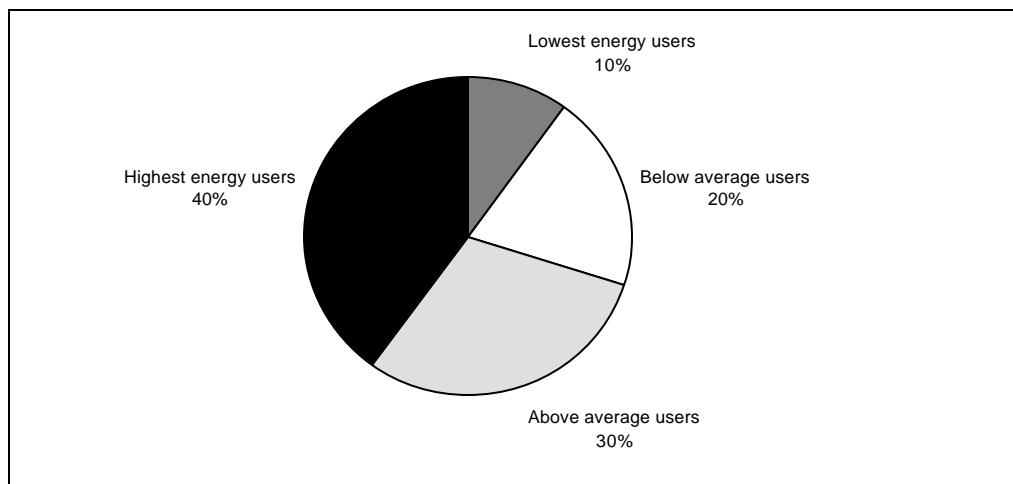


Figure 7: Estimated reported energy consumption by household in two Oxfordshire villages, 1995. The segments each contain 25% of the households, and their size shows the proportion of the total energy for travel expended

Looking at the extreme ends of the distribution, however, the decile of households which used least energy were defined as “low” energy users and the 10% of households that used most energy were defined as “high” energy users. A summary of the characteristics of the two contrasting decile household types is given in Table 39.

Table 39: Description of responding rural households in the high and low energy groups in two Oxfordshire villages, 1995

	Low energy group	High energy group
Respondents per household	2.2	3.5
Total reported miles travelled (all households)/day	269	2,722
Total energy use (all households)/day (MJ)	400	7,700
Percentage of respondents earning over £20,000	0	17
Percentage of respondents in full-time work	44	59
Modal age group of respondents	30-59	30-59
Percentage of households with at least two cars	90	100
Number of households	10	10

Thus, high energy households were economically more active, better off and all owned cars. They travelled over ten times as far as the low-energy users, but, because of the different modes used, the ratio of energy used was nearly double this (1:19). This difference is to be expected from the family budget data presented in Chapter 2.

These differences in car ownership, age and earning power resulted in different methods of travel and the frequency and distance travelled (Table 40). The high energy users are travelling further by all methods, except by bus and cycle, than the low energy users. The low energy users do more walking trips than by car, though, of course, for substantially different distances. In both groups, half of all journeys are by car.

Table 40: Daily use of selected travel modes by respondents of low and high energy use rural households in two Oxfordshire villages, 1995

Mode	Total number of trips		Total distance travelled (miles)	
	Low energy	High energy	Low energy	High energy
Car	29	99	79	1,818
Walk	59	70	37	95
Bus	11	5	87	28
Pedal cycle	14	11	11	4
Train	2	12	28	256

Trips to work and at work were a greater proportion of trips for the high energy households (31%, 1,583 miles) than the low energy households (10%, 35 miles). Conversely, shopping trips represented 11% of the journeys made by high energy households and 29% by low energy households. Additionally, no managers resided in low-energy using households; the association of distance and income was observed nationally by Stokes (1995).

Although high energy households used buses less than low energy households, overall they travelled more miles per person by public transport (mainly train). This reflects the level of economic activity of these households rather than usage for environmental reasons.

(c) Attitudes of those in high and low energy using households

The attitudes of respondents from high and low energy households were compared (Table 41). Attitudes of household members reflected some quantitative differences between the households but health and fuel conservation were considered important by both groups.

Table 41: Attitudes expressed by the respondents of low and high energy use households in two Oxfordshire villages, (percentage of those responding in each type of household)

	Low energy users	High energy users
Agreed that lack of time encourages car ownership	50	93
Agreed that health risks require less car use	79	81
Agreed on importance of conserving fossil fuels	74	81
Want money spent on public transport rather than roads	53	75
Agreed that a car is essential for work	27	72
Unwilling to pay more for motoring costs	50	55
Unwilling to use a car sharing scheme	44	37
Agreed that a car is essential for shopping etc	53	52
Quality of rural life is threatened by car use	22	45
Quality of life would improve with less travel	11	34
Modal time to wait for bus (minutes)	10	10
Modal time to wait for trains (minutes)	10	10
Modal time to wait in traffic (minutes)	Have to wait; no choice	Have to wait; no choice

The socio-economic differences (Table 39) may help to explain some of the differences in attitudes in Table 41. The high energy users were, perhaps predictably, more likely to agree that the car is essential for work and less prepared to pay extra for their motoring. They recognise that they use the car more partly as a result of pressure on their time. They were more aware of the damage the car does to the rural environment and of the health risks associated with car use. These high energy users were more responsive to the idea of car sharing, would like money spent on public transport rather than on roads and are more likely to believe that their quality of life would be improved by less travel. These big travellers are not very happy with their lifestyle and are aware of its negative impacts on them and the environment.

The respondents in low energy using households were equally likely to believe that the car is essential for shopping and would tolerate similar travel delays as high energy using households, confirming that time is of equal importance to them as respondents in high energy households.

Conclusions

At both ends of the travel spectrum there is dissatisfaction. In terms of those seeking environmental and/or travel 'feel good' factors, there are few, if any, 'winners'. Those who travelled most, here synonymous with high energy use, were also more aware of the disadvantages of car use to themselves (quality of life) and the environment (threat to the countryside) than those who used cars less. Awareness of the disadvantages of car use give the impression that high car users feel trapped, inasmuch as their life style cannot be accommodated by public transport and they are forced to use cars despite the long term implications for themselves and the environment. As a result of their

dependence upon cars to maintain their life style, high energy households were less prepared to pay increased motoring costs but more willing to participate in car sharing than low energy users.

The picture which emerges from a comparison of high with low energy users (for travel) is one in which high energy households are larger and more economically active than low energy using households. High energy users have more access to cars and travel further, but use trains when they can speedily transport them. The study suggests that the top 10% of high energy users are more likely than others to wish to reduce their travel. The converse also applies: the bottom 10% of low-energy users are more reluctant than those in the whole sample to reduce their travel.

More men found the car a necessity. This perhaps reflect higher levels of use of cars, particularly for work and cultural linkages between masculinity and driving, whereas most women thought it was desirable and particularly valued its time-saving properties.

Public transport is still seen as a basic necessity for a family with young children in rural areas by four out of five people. It is seen to be of more importance than a washing machine or daily meat or fish. Only 30% of our respondents thought a car was a necessity in similar circumstances - less than half the priority given to public transport (which was supported by 80% of respondents).

Public transport was supported in general, (i.e. 70% wanting better public transport rather than new roads), but not through usage or attitudes towards it expressed in the interviews. This raises possible difficulties for getting a modal shift towards public transport. Support in principle, but negative views towards actual bus or train services, may mean that the public are resistant to future use of public transport.

There is one positive aspect. The shift to the personal provision of travel - the car - has been accompanied by a reduction in the number of lifts given to friends and neighbours, perhaps because they are less needed. However, about half of our respondents would have been interested in a car-sharing scheme, indicating that community-based travel provision could be successful.

Chapter 5: Opportunities for ‘greener’ travel

Introduction

The previous chapter described attitudes to personal travel. This chapter considers what could happen, in the context of current travel patterns, to encourage a change to greener transport. The emphasis is on transport users’ needs, in contrast to approaches which have stopped at the study of traffic volumes and flows.

As described in Chapter 2, only six percent of trips and 13% of miles were on public transport. The most common forms of transport, for the respondents, were car, bicycle and walking. Use of more than one mode within households on the travel day is to be expected as few journeys can be completed without walking at least a short distance. Driving and walking account for 80% of all trips (Table 13). These observations show that many respondents already use more than one mode of travel. In order to reduce pollution associated with transport, it is necessary for either more journeys to be made by ‘greener’ modes or travel or for at least more stages of a journey to be made by environmentally sensitive modes.

In this chapter, the focus is on the opportunities that might exist for respondents to switch to greener travel: that is from car to public transport, walking or cycling.

Use of different modes of transport

Figure 8 indicates the diversity of journeys made from the two villages studied. Journeys from Cholsey end in fewer destinations than from Chalgrove. These ‘transport corridors’ are routes for a large number of journeys - by car, bus and train (Root *et al.*, 1996). In this context, the maps show that it would be easier to cater for journeys from Cholsey by public transport than those from Chalgrove. The proportion of miles travelled to common destinations specifically when going to work by car is given in Table 42.

*Table 42: Work destinations from Chalgrove and Cholsey made by car in 1995
(Values are percentages of total mileage for journeys to work. The values reflect the frequency and length of a route)*

Destination to:	From Chalgrove:	From Cholsey:
Cholsey		0.2*
Reading		4.3*
Chalgrove	0.4*	
Thame	1.0	
Watlington	2.9*	
London	3.2	4.5*
Wallingford	5.8	1.4*
Oxford	13.8*	5.7*
Other Oxon	15.7	6.1
Other non-Oxon	20.6	10.6
Total mileage	736	357

* Coincides with public transport route.

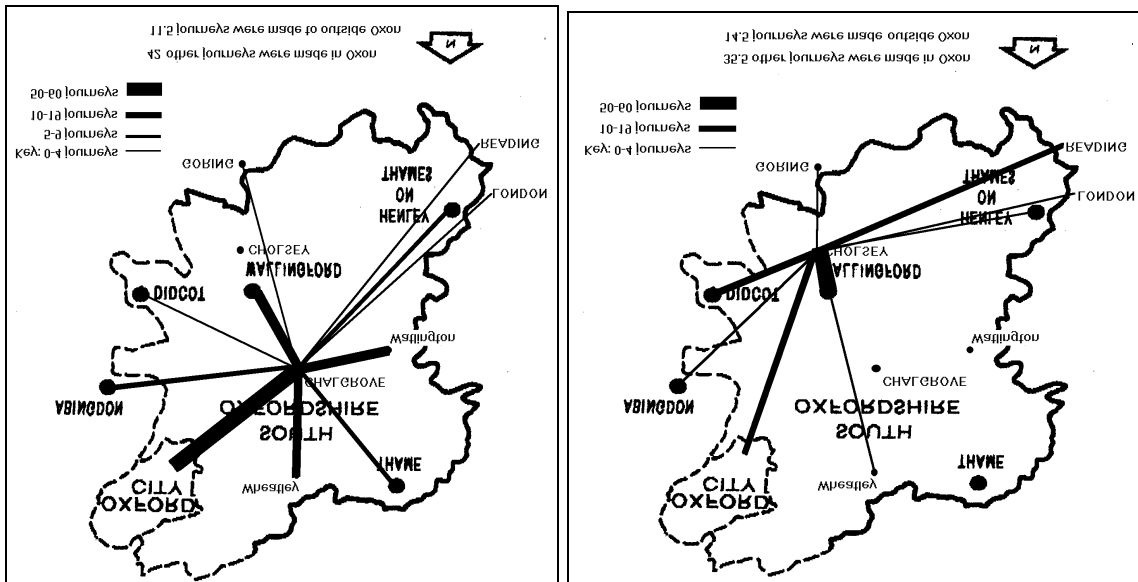


Figure 8: Pattern of journeys made to and from Chalgrove and Cholsey

A third of all the mileage travelled to work was accounted for by car journeys which coincided with public transport routes (Table 42). This would suggest that existing public transport could make a substantial contribution to reducing car use, if it was at appropriate times and speeds. When villagers duplicate journeys for which a subsidised public transport service already exists, they are effectively paying twice for their travel: once through taxes and again through the cost of using their car.

Those in managerial classes travelled furthest to work (over all modes) and the unskilled manual class least. There was a difference in distances travelled by bicycle or walking but age did not affect the distance travelled by these modes. Respondents travelling to work by bus only travelled to Oxford; those travelling by train (from Cholsey only) went to Oxford, Reading, London and beyond.

Trips to work

Journeys to work are considered in detail as they have to be made and regularly, therefore are of special interest when considering journeys which could be completed by less polluting modes of transport. There are two types of trips, associated with work, that are not included here. Because of the complexity of journeys by respondents, it was frequently not possible to establish which trips under the heading 'going home' were actually part of (or primarily) returning from work. The following discussion is, therefore, solely about one half of the travel to work pattern, the getting there.

In addition, a lot of respondents' mileage was listed as 'at work'. It is probable that in reality, some people who do short journeys to work, or who parallel public transport routes, could not change from using the car, because the car is needed once they get to work. The 'at work' journeys are not included in the following discussion either.

Fifty-five percent of journeys to work were made by car, 25% were made on foot and 8% by bicycle. Our figures which were lower for cars but higher for bicycles and walking than the national ones might be explained by the facts that Oxfordshire is relatively flat and that the study was conducted on a sunny day in August.

Professionals and managers used the car for 65% of their journeys to work compared with 53% by the other occupation groups. Those in managerial classes travelled furthest to work (over all modes) and the unskilled manual class least. There was a difference in distances travelled by bicycle or walking, but age did not affect the distance travelled by these modes.

As would be expected, walking to work only took place within the villages, but cyclists also went outside the village to Wallingford from Cholsey, and to Thame, other nearby villages and outer Oxford from Chalgrove. Although walking accounted for 25% of the journeys to work, walking as a mode of transport is limited by the unwillingness of respondents to walk more than half a mile or for about 15 minutes. Summaries of journey length to work by mode are given in Table 43.

Table 43: Summary of the distributions of journey lengths (miles per day) by respondents of journeys to work by selected modes from two Oxfordshire villages, 1995

Mode	25%ile	Median	75%ile	No. of observations
Car	4.0	8.5	12.0	106
Walk	0.1	0.2	0.4	45
Bicycle	0.8	2.0	4.5	16

Twenty-five percent of car journeys were four miles or less and seven percent were half a mile or less. An interesting point is the minimal overlap between the distance travelled by each mode: half a mile is the cut-off between walking and cycling; four miles is the dividing line between bicycle and car. Up to a quarter of car journeys could be made by bicycle if more respondents were willing and able to cycle four miles. There is no environmental benefit from a change between cycling and walking.

Car users who travel less than four miles to work

In our study 19% of the journeys to work were four miles or less. On average, these journeys were three miles and took ten minutes. Based on the estimated speeds for trips by car, bicycle and foot, these trips of three miles could have been completed in one hour by foot or 25 minutes by bicycle. Twenty-five minutes was the average journey time (Table 29) and so appears to be a travel time acceptable to many. If walking trips were limited to 25 minutes, (1.25 miles), 40% of the journeys of four miles or less could be made in this time.

Those making these trips lived in 28% of the responding households; 10% were professionals, 7% managers and 50% skilled white collar workers. Thus, 67% of the respondents making these short trips could be in a financial position to move to a greener mode through buying a bicycle and related equipment.

Travel by car within the villages

If people choose to use the car even when public transport is available, are there other journeys which are currently made by car which could be made by environmentally friendlier modes?

Short journeys by car and at lower speeds produce relatively more pollution than longer journeys or those at reasonable faster speeds. In addition, the temperature of the engine has a major effect on the emissions produced, in particular hydrocarbon emissions which are doubled when the engine is

cold (Gover *et al.*, 1994). Thus, short trips within the village (i.e.: those that started and ended inside the village) are relatively more polluting per mile than other types of trip. Although residents may feel that they are not going far and therefore will do little harm to the environment, they can be responsible for as much carbon dioxide pollution by travelling 0.2 miles to the village shop in a car with a cold engine as they would be by travelling fifty percent further on minor roads with a warm engine. Therefore, a reduction in the number of short car trips has a disproportionate reduction in emissions in relation to distance travelled: this means that travel within the village by car merits special attention.

Eighty-nine trips were made by car within the villages; the average trip distances are given in Table 44. The average distances travelled within the villages were similar between the villages and similar to the distances which others were prepared to cycle or walk. This suggests that these trips could be undertaken by foot or bicycle. Longer trips were undertaken by members of the 16-29 age in order to “hang out” or take driving lessons. The lifestyles of this group appear to be both car-biased already and with a latent additional travel demand.

Table 44: Distances travelled by respondents within the village by car in two Oxfordshire villages, 1995 (miles/trip)

Age group:	16-29		30-59	
	Median	Max*	Median	Max
Chalgrove	0.9	20.0	0.5	1.0
Cholsey	1.0	15.0	0.5	3.0

*These long trips are generated by ‘hanging out’; driving lessons, etc.

(i) Chalgrove

Fifty-one journeys were made within the village by car of which 69% of journeys were made by respondents in the 30-59 age group. Nine trips were made to local shops and six were for going to work. One car trip was made to take the dog for a walk.

Of the ten reasons for making journeys, only trips to local shops, medical visits and a driving lesson appear to have warranted the use of a car. If the criteria of distance, baggage and frailty are used to determine the necessity of using a car for a short trip, then 24% of journeys within the village appeared to have required a car. The use of cars for 76% of trips may have been determined by cultural factors. Such influences could include the need to complete a journey, complete trips as quickly as possible (“pop out to...”) or the wish not to be ‘stopped for a chat’ by neighbours.

(ii) Cholsey

Thirty-eight journeys were made within the village by car. Three of these were for going to work, and two for going to local shops.

Sixty-six percent of journeys were made by respondents in the 30-59 age group, of which 16% were to visit friends. Thirteen reasons were given for making the journeys. Of these, going shopping, to a child day care centre and medical visit (13% of trips) appear to have needed a car according to the criteria used here.

There appear to be a large number of short trips for which respondents elected to use the car. Use of cars for such short trips not only contributes to environmental pollution but also deters others from walking who are worried by the volume of traffic and safety aspects due to few people on the streets. In addition, since 65% of the trips within the village were made by respondents in the 30-59 age group, younger people may perceive this to be acceptable behaviour and so reproduce it when they obtain access to cars.

Changing travel patterns: problems and possibilities

Changing transport mode is not simply about getting around in a different way, it also involves some change in the individual's priorities and the relationship between a traveller and those around him/her, for instance, in relation to time, costs and benefits in terms of money and effort and relationships to other people.

The concept of 'total journey quality' (Buchan, 1996) will also be used, to explore some of the issues in relation to critiques of transport modes. The concept of 'total journey quality' highlights the need to be aware of all aspects of travel, not just the speed of getting from A to B, but also the costs and the time and safety factors all need to be considered. Buchan gives as an example the way in which some people use their cars to store shopping while they make further purchases. He cites the provision of shopping lockers as one way of ensuring higher quality of outing for bus users. Yet shopping lockers would rarely be considered as part of a bus provision package.

Public transport

Public transport provision is market-based but frequently seen as a poor option to private car. The following comment was typical of this kind of unfavourable comparison:

Well, if they improved the [public] transport then it would mean that people would use it rather than the car, I think. If it was a more reliable frequent service then people would use it rather than using the car. It is so restrictive that it means you can't use it whenever you want really.

(Boy, A Level student, 18 years)

Cost is often seen as prohibitive:

Well, the college bus is very expensive, it is £3 single and they don't do returns anymore, which is £6 a day which is getting quite steep. Lowering prices would always be good or even just student discounts. (...) That's a problem when you've missed lifts or whatever and your parents aren't there to give you your bus fare and it's got to come out of your own money. I've had to take days off before when there has been no one home and I haven't had any money. That does cause a lot of problems.

(Girl, A Level student, 18 years)

Such comments suggest that transport provision is based on the individuals' or families' ability to pay, which prevents those who cannot afford the cost from travelling.

The potential for using public transport services to provide greener, more accessible transport is present in the following quotation about use of minibuses:

There's opportunities for low-cost transport services. I know, for example, that there's mini-buses that Aunt Sally [a competitive pub game] teams use. There's five leagues of Aunt Sally, with ten teams in each. That means there's at least 20 mini-buses that are only being used a few nights a week. One of the drivers has his own company, I know. He would be glad of extra work.

(Man, Councillor, 50s)

Part of the problem is that public transport is seen as hierarchical¹² i.e. unresponsive to customer demand. Hierarchical organisations can, however, accommodate locally felt needs. As this quotation shows, individuals could be willing to initiate new transport services. An interviewee suggested:

I want to arrange to take local young people to a sports centre. The District Council could run a mini-bus service and charge £2 a head. It would pay them to run the service, they'd make money on entrance fees to the sports centre. I've said to the local young people that I'll try and arrange for it to happen, but only if they commit themselves to using it regularly. It's no good if they don't come after the second week.

(Man, Councillor, 50s)

One respondent advocated subsidy instead of markets in relation to transport:

They should provide free buses. Free rural buses, that's what we want. We pay our taxes, we deserve them!

(Man, councillor, 60s)

This suggestion would cost about £450 million per year at current levels of service¹³. It is interesting to speculate on the extent to which passenger miles would increase if this idea was implemented. It is clear that this person was not fatalistic (Thompson, undated) about low levels of service.

Walking and cycling

For work journeys, the dominance of the car and acceptability of cycling to an office was explained in terms that indicated they were perceived as unalterable:

You couldn't arrive at work having cycled. You'd be hot and sweaty and need a change of clothes. Or you'd be dirty - soaking wet and filthy. It just isn't on. You'd also need loads of panniers to carry papers. You can't mix it with local

¹² The term 'hierarchical' is used in the sense developed by Michael Thompson, under the rubric of 'cultural theory'. He divides social relations into four types hierarchy, egalitarianism, individualism and fatalism. These provide a key to understanding the dynamics of different ways of inter-personal relationships (Thompson, undated).

¹³ The current bus subsidy for about one fifth of the service is £88 m. Thus, to maintain existing levels of service would cost approximately £440m. (Her Majesty's Government, 1996).

traffic either. You can turn a corner on a bike and suddenly find a horse in front of you. It does put the risk factors up.

(Woman, part-time employee, 50s)

The total journey quality of cycling in these circumstances would be enhanced by showering and changing facilities.

Walking not only makes no demands on others, but it allows social contact that might not otherwise happen. Walking can be egalitarian as it is cheap and largely under the control of the users and can be operated with a large amount of autonomy. This interviewee comments about the 'value added' facet of social contact gained through walking.

The local lollipop lady was knocked off her bike the other day. I only heard about that because I was using the local shops and I met someone who told me. If I didn't walk around the village I'd miss out on what happens.

(Woman, part-time employee, 50s)

Cycling and walking can be seen as egalitarian inasmuch as the impetus and organisation for these modes comes primarily from individuals and not via hierarchies or the market-place.

The local shops survive by sheer hard work. They do delivery services, sending out boys on bicycles.

(Woman, part-time employee, 50s)

Cars

Respondents gave many examples where cars have damaging environmental consequences. For instance, they were recognised to marginalise other transport modes such as cycling and walking.

Carol: I'm not too confident on the roads, either. I think cycle paths could be made.

AR: Would that help?

Carol: Especially between Reading and Henley when there are not even any pavements for you to walk on. It's all those winding country roads.

Alison: And you get some mad drivers out there.

Carol: Oh definitely. Along the Henley Road between Reading and Henley is just...

Alison: It's open roads with hardly any bends and they can speed.

(Girls, A-level students, 18 years)

Total journey quality is clearly reduced by lack of cycle paths and 'mad' driver behaviour. In contrast, car-sharing with friends allows level of self-determination of costs, and is more energy efficient than travelling alone in cars.

The following excerpt indicates how sharing petrol costs can be organised amongst a group of young people, coupled with the mixing of bus and car modes.

Several people who are in our peer group, so to speak, have cars (three to four of them) but what often happens is that we all share lifts because petrol costs money

and it is quite expensive to run a car. If we are going to Henley for example, a friend who lives the other side of Reading has to come through Reading to get to Henley, so we will all meet in Reading, get a bus there, and he will pick us up and take us to Henley. So we share the car rather than drive individually or get the parents to take us (*sic*). We're quite good about sharing cars.

(Boy, A Level student, 17 years)

These examples show young people using their initiative to create transport modes that are greener and more egalitarian than a single person driving alone in a car. These examples also show that it is possible for greener travel to be developed, using the range of available transport modes. It is also possible for different kinds of social relationships - hierarchical, individualistic, egalitarian and fatalistic to be used in creating greener transport.

Conclusion

The study suggests that there is, potentially, plenty of scope for change. For instance, there are a substantial number of trips both within and outside the villages which could be made by non-car modes. Trips of less than half a mile can often be walked if people are willing to allocate a little more time to travelling. The avoidance of walking and cycling may be linked with the maintenance of 'total journey quality' - the perceived disadvantages of cycling, such as arriving hot and sweaty at a workplace.

The evidence shows that each mode of transport, and its uses, is wrapped up in culturally ascribed uses, meanings and behaviour. The same factors are not at work in each set of choices. For example: it is clear that for very short journeys respondents walked, rather than cycled. Yet for slightly longer journeys subjects used their cars when they could have cycled. There is a high level of ownership of cycles in the households, but low use of them. This may be because they belong to children under 12 years old (and usage does not show up in the travel diaries) or perhaps a high proportion of cycles are lying in a state of disuse in garden sheds.

Interviewees gave examples of various 'green' and less 'green' ways of using different transport modes. Different forms of transport can provide a setting in which people co-operate in many ways to use greener travel modes which provide for their travel needs. The limit is not a lack of ideas, or of the different types of transport.

A lot of the car usage in villages is from 16-29 year olds who are "hanging about". It is unclear why this should involve so much travel within the village and how it could be displaced.

Chapter 6: Future prospects

Introduction

How, if at all, can transport use be equitably moved towards better outcomes for the travel deprived, the environment and those who travel a great deal but have strong reservations about it? In this chapter the findings from the study are brought together in order to identify possible policy directions.

The present situation confirms that residents in Oxfordshire villages are dependent upon cars and that this is the policy of the Government. Travel in rural areas has to be provided by the private household. An inability to afford car ownership means that non car-owning adults can find it difficult to live in rural areas. This level of exclusion and strain raises a crucial question about the acceptable social costs of environmental protection.

The Planning Context

Oxfordshire County Council is currently in the process of consultation to produce a new County Structure Plan for Oxfordshire to the year 2011. In the Draft Plan (Oxfordshire County Council, 1996) there is a continuing attempt to introduce measures 'to reduce the need for private travel' (op cit.). One of the forms that this is taking at the moment is in the continuation of the 'four towns' policy (i.e. of putting development in Banbury, Bicester, Witney and Didcot where possible. It is planned to put increasing emphasis on Didcot and Banbury, as these two towns are best served by rail links (Figure 9).

Transport in rural commuter villages

The number of journeys and mileage per respondent has doubled between 1977 and 1995. More trips (parts of whole journeys) are being undertaken, for shorter distances. The proportion of journeys over 16 miles decreased from 22% in 1977 to 11% in 1995. These fragmented journeys demonstrate the more efficient use of time - doing the shopping on the way home from work - but compound the problem for rational transport planning.

Nearly one in five journeys to work by car were of less than four miles, and took an average of 10 minutes. It would have taken 25 minutes or less to walk, instead of using the car, on 40% of the journeys to work. The practical opportunities for change are unclear, but total mileage could be decreased substantially if the respondents were prepared to walk or cycle more.

The picture that has been painted is of villages where transport is dominated by cars. Car ownership has increased since 1977: the car is the most commonly used transport mode and most households in this study had two cars. Only 4% of the households had no car.

Figure 9 Draft Structure Plan Diagram for Oxfordshire.

Figure 10: Key to Draft Structure Plan Diagram.

The typical household in our study, with two cars, contained three adults (over 16) and two people in paid work. Thus, if both cars were taken to work, then one of the three adults was left car-less. This was confirmed as only 67% of our respondents drove themselves on the travel day. These non-employed adults are effectively isolated at home - they may or may not be able to drive the car - and dependent upon lifts or public transport.

The explanations for increasing car domination include social changes, such as more employment of women, and longer, more irregular working hours for many. This means that employed adults now have a greater range of responsibilities and so wish to spend less time on travelling. Cars are still the fastest mode of travel and women, in particular, value cars because of the time that they save.

Buses are used most by those people from the households without cars: people did not go by bus when they had an alternative form of transport. Buses, in these two villages, have become social safety nets. In Chalgrove bus services have declined, despite a doubling of households in the village. Thus, the deprivation suffered by car-less households, and the limitations placed on their travel, are getting worse. The divide between the car-owning and non-car-owning households is getting wider.

At peak times, in Chalgrove (where there is no nearby station) bicycle use is now more important than bus use. Even where the household owns several cars, walking is still an important activity. Trains are used by people from car-owning households, most commonly those who wish to commute to London from Cholsey by rail.

Each village had about ten shops. These provided 'basics' such as some groceries and fruit and vegetables. Most respondents did much of their shopping outside the village, probably because of the perception that goods sold in the village were more expensive and due to the greater choice of goods which could be found in non-local shops. The 1995 study identified a substantial decline in the proportion of trips where members of non-car owning households were given lifts from other households. The non-car-owners are now more dependent upon their own resources and public transport and less likely to receive help from their neighbours. One clear outcome of this home-focused behaviour is that it increases travel difficulties for those from car-less households.

Young adults, 16-29 year olds, use the car extensively on social activities within the village and can travel up to 20 miles in this way. It is unclear how it could be displaced, except by both changed perceptions and additional facilities. The car provides the music, the shelter and the privacy, as well as the transport. Older adults drive shorter distances - up to three or four miles - in the village.

Expenditure patterns

Another concern was to examine the problems that might be caused for rural residents if the price of petrol is increased, in order to reduce national traffic growth. The concept of sustainability requires the matching of environmental objectives with social equity, however, travel for many people is an area fraught with what have been identified as 'prisoners dilemmas': situations where what is best for an individual is not the best collective option.

Rural households have lower, total weekly expenditure than people in more densely-populated areas and have to spend more, both in absolute terms and as a percentage, on their travel. These higher travel costs are spent by households on cars, a 'private' form of travel, rather than on public transport.

Pensioners in rural areas (not the main focus of this study) spend £22 a week on their cars, only £5 of which are on petrol. The cost for these households of personal travel provision is extremely high, but does not provide them with much mobility.

Motoring costs are population-density independent for employed households (they spend the same in rural and urban areas) and density-dependent for unemployed households, this means that unemployed people suffer a greater penalty for living in the country than employed people through having to provide their own transport.

At the moment, respondents appeared to have little idea of their real motoring costs and tend to equate them solely with the cost of petrol. This colours comparisons with the cost of public transport.

The energy divide

This report has highlighted the range of travel amongst groups of the population: 60% of the miles were travelled by 20% of the population, whereas 50% of the population travelled less than 20% of the miles. There are large disparities in mileage between those who travel the most and those who travel the least. Some of this can be explained by a few individuals who commute long distances by train from Cholsey. However, the quarter of the households that travel the most are responsible for four times the energy use - and probably pollution - of the quarter that travels the least. If our sample had included pensioners, the range would probably have been extended. Even so, this is a substantial variation between households with similar age profiles in two similar villages in South Oxfordshire.

High energy households were economically more active, better off and all owned cars. They travelled over ten times as far as the low-energy users, but, because of the different modes used, the ratio of energy used was nearly double this (1:19).

With all the factors identified - greater car dependence, less public transport and budgetary constraint - there would be a likelihood of disparities growing, particularly if petrol prices are increased. There will in the future probably be a greater gulf between those who can travel adequately and those who cannot - a view supported by Adams (1996). It is also likely to be true that physical travel will never be entirely superseded by telecommunications (*op cit.*).

High energy and low energy users

The long-distance car travellers are the high energy users and, perhaps predictably, they strongly agree that the car is essential for work. Only high energy users are slightly less prepared to pay extra for their motoring than the 10% of households with the lowest energy use. Without further qualitative work it is not possible to identify the different household priorities and the extent to which they indicate an aspect of travel poverty.

High energy users recognise that they use the car more partly as a result of pressure on their time. They were more aware of the damage the car does to the rural environment and of the health risks associated with car use. These high energy users were more responsive to the idea of car sharing, would like money spent on public transport rather than on roads and are more likely to believe that their quality of life would be improved by less travel. These big travellers are not very happy with their lifestyle and are aware of its negative impacts on them and the environment. The high energy users appear to be trapped, as they have no public transport alternative to their cars. This is particularly true for the 10% that travel the most.

The 10% that travel the least are the most reluctant to envisage reducing their travel. They state that it would damage their quality of life if they had to. This may, of course, just indicate a state of contentedness with the present level of travel and a wish not to be made to change. The ability to afford any extra costs was not identified.

The households that pollute the least are already using the car relatively little: only seven of the 22 respondents got into a car on the travel day. In comparison, 25 out of 35 respondents in the most polluting households used the car.

Attitudes to travel

Public transport is still seen as a basic necessity for a family with young children by four out of five people. It is seen to be of more importance than a washing machine or daily meat or fish. Public transport is still seen as a basic ingredient of daily life, even in rural areas at the end of the twentieth century. Only 30% of our respondent though a car was a necessity in similar circumstances.

This is complemented by the support given to expenditure on public transport: 70% wanted better public transport, rather than new roads. However, public transport, at present, was seen as providing a poor level of service, but mainly by those who do not use it. This will provide an obstacle to any plans for better rural public transport, as many potential users have lost faith in the idea of a quality service.

Most respondents considered a car essential: for men it is seen as necessary, whereas women are more likely to consider the car useful. Flexibility about the use of the car was demonstrated by half of our respondents who were interested in the possibilities for car-sharing. These were predominantly high energy users. At the moment, there is little or no pressure on households to adapt their lifestyles to lessen car use, as well as limited opportunities to do so.

However, the perception that buses travel slowly, and circuitously, accurately reflects reality and is cited as an important reason for choosing the car, by car-owners. The respondents were inconsistent over time-pressures and find waiting for a bus for more than 10 minutes unacceptable, but accept that car travel includes even more time wasted in traffic jams.

This tolerance of waiting time is different between the sexes. Men drive further and accept delays in traffic more readily than women. However, the women, driving less and shorter distances, give time-saving as the main reason for the use of the car.

Household priorities

Age, gender and occupational status are related to the priority given to car use within the household. As a result, women, the economically inactive and the young adults can find it difficult to gain access to cars. Whilst this is not surprising, it does result in travel deprivation when there is no public transport alternative and few facilities within the village.

There was no decline in the proportion of escorted trips - the sole reason for the journey was to give someone else a lift. As this represents a larger number of actual trips and there has been an increase in the priority accorded to the needs of the children when allocating the car, it indicates that car drivers have to act as chauffeurs for their children more often. The majority of the lifts are given to members of the same household in two-car owning households. This is a further example of the effects of declining public transport.

Travel poverty

The concept of 'travel poverty' defined earlier as 'inadequate access to choice of transport' (Root et al, 1996) needs clarification. Travel poverty is based on subjective feelings of lack of deprivation, not on 'absolute' needs. It may be that the benefits of living in the countryside more than compensate some people who have inadequate access to choice of travel. Clearly, individuals might make very few journeys, and be perfectly happy about their limited mobility, in which case they would not be travel poor. Some people might be choosing to live in the countryside, knowing that they will be travel poor but having similar motivation to those who choose to live in urban car-free housing experiments.

Satisfactory access would also tend to mitigate against someone feeling travel poor. But the issue is not simply one of distance travelled. Someone could be doing above average mileage and feel that they do not have the option of making these trips by the modes that they want, (e.g. they might wish to use trains but be confined to a wheelchair and so unable to use many stations) so they would suffer deprivation of choice. Not being travel poor means having a subjectively defined level of freedom to choose how and where travel is undertaken.

Banister (1980) examined perceived transport deprivation and suggested that dissatisfaction declined with age. Twenty-three percent of respondents in the 1977 survey identified trips which they could not make. The trips were for work, entertainment/sport and social purposes. He also found that 18% of children (under 16s) were unable to take part in after school activities due to transport difficulties.

In a context of a generally more mobile population, lack of transport can function as deprivation and as a form of social exclusion:

- public transport provision has declined, despite increasing village population;
- 4% of households have no car;
- 33% of respondents did not use the family car on the travel day (some did receive lifts);
- in the least polluting households the reverse is the situation: only 31% of respondents did use the car;
- people from non-car owning households in our survey went to only 31% of the destinations of those from car-owning households;

- 16-29 year olds are most likely to want to travel more for leisure;
- people without cars are much less likely to be given lifts by neighbours in 1995 than in 1977.

In this context, the response of young people, 'We need transport or we need facilities', is understandable.

In the 1995 survey, respondents were asked if less travel would improve their quality of life. Over half the respondents in 1995 felt that their quality of life would be compromised if they travelled less, and a third of respondents, if not already suffering travel poverty, could be at risk of it if they reduced their travel, as they were already travelling below average amounts. For a third of respondents the opposite was true and they felt that they could reduce their present travel and improve their quality of life. By implication, they are being required, through their present travel options, to travel more than they wish.

Clearly car ownership alone is not solving the problems of travel poverty. Indeed, as suggested above, increasing levels of car-ownership and use could be exacerbating travel poverty by linking what is perceived to be acceptable levels of mobility to cars. Non-car modes of travel, (e.g. walking, cycling, public transport) where they are possible, are sometimes not even considered. Similarly, the dominance of car travel can mean the virtual absence of pedestrians and cyclists. Respondents' fear of the largely empty streets may mean they do not feel able to walk at night. This may encourage feelings of 'travel deprivation', especially if the person concerned does not have access to a car.

Conclusions

There is no single solution to the problems of the environmental damage and social exclusion caused by personal travel and travel poverty. This is an obvious point, but it needs saying. Many different kinds of measures will be needed to bring about improvements: for instance, better land-use and planning to bring about more accessibility and better public transport provision: these concerns have emerged in the new draft structure plan for Oxfordshire (Oxfordshire County Council, 1996c). A particularly useful role could be played by local discussions which highlight some of the tough choices described here, for instance through Agenda 21.

One problem is that issues of transport services have largely become disconnected from ideas of how they are paid for. The mechanics of tax collection - at a national level, via local government and as part of travel e.g. in vehicle excise duty or tax in petrol, have become, or maybe always were, remote from the idea that they provide more bus services or more roads. Enabling more people to see the connection between tax and public services is important.

The financial, social and environmental implications of different options - such as business as usual, better infrastructure for pedestrians and cyclists, traffic management in various forms (such as local authorities having the power to impose lower speed limits) and better public transport - need to be fully debated by rural and urban dwellers alike. The issues are too important to neglect.

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Appendix 1: Methodological notes on the two studies

The methodology of a survey of travel in six locations, including Chalgrove by Banister (1980)

Seven parishes were selected which a cluster analysis indicated were representative of Bullingdon, Henley and Wallingford rural districts. One of the parishes selected was Chalgrove. Four hundred and forty households (which had been randomly selected) were successfully sampled. At least two household members were interviewed, or every other person; thus 705 people were interviewed. One thousand, four hundred and ten people lived in these households. Details were obtained on 1,817 trips which were “more than five minutes walk in duration or equivalent”. The survey was carried out in July 1977.

Eighty-five households comprising 152 respondents were sampled in Chalgrove. The survey considered travel patterns, car ownership and travel deprivation.

The methodology of a study of Chalgrove and Cholsey by Root et al. (1996)

The study of Chalgrove and Cholsey (reported by Root *et al.*, 1996) involved a team of six interviewers visiting households identified from the Electoral Register and sometimes by local contacts, as likely to have residents in the 16-29 age group. (This banding was picked to coincide with *National Travel Survey* categories). Interviewers visited in August 1995, and if the household did contain a 16-29 year old person and if those concerned were willing, each member of the household was left a form to complete, which consisted of a day’s travel diary and a questionnaire. The questionnaire contained 35 questions about employment, costs of transport and who in the household pays them, control of household finances, attitudes to cars and other forms of transport and opinions about public spending priorities, including transport. The questionnaire was reproduced in Root *et al.* (1996).

All the travel diaries were put onto a database, in all 1,692 individual journeys. Two hundred and seventy nine people filled in travel diaries and questionnaires. Information was gathered fairly evenly from both villages: from Chalgrove 145 people (52% of the sample), and from Cholsey 134 people (48% of the sample) returned and completed questionnaires (Table 1a). A large number of journeys were labelled as ‘going home’. These have been largely ignored, as it was felt that this description was too general to enable useful analysis to be done on the data. It must be remembered, however, that many of the distances given in the tables represent about half of the mileage undertaken.

Table 1a: Sample by age group in Chalgrove and Cholsey

Village	Age					Total
	Under 12	12-15	16-29	30-59	60+	
Chalgrove*	1	7	50	82	3	143
Cholsey	4	20	38	69	3	134

* two missing cases from Chalgrove

The sample was almost equally divided between the sexes, Table 2a.

Table 2a: Sample by gender in Chalgrove and Cholsey

	Chalgrove	Cholsey	Total
Men	76 (52)	56 (48)	145
Women	69 (42)	78 (58)	134

Percentages are in brackets

Although more men than women responded in Chalgrove and more women than men in Cholsey, the proportion of males to females in each village are close enough to be regarded as similar.

A total of 94 households were included in the travel survey, of which 54 were in Chalgrove and 40 were in Cholsey.

Information about the socio-economic groups of individuals from the two villages is given in Table 3a.

Table 3a: Socio-economic groups in the sample in Chalgrove and Cholsey

Socio-economic group	Village	
	Chalgrove	Cholsey
Number of employed people		
Professional & managerial	11 (16)	25 (34)
Other non-manual & skilled manual workers	46 (67)	40 (55)
Semi- and unskilled workers	12 (17)	8 (11)
Number of unemployed people		
Student	11	12
State Benefit/ Pension	6	6
Housewife	5	3
Other (including no response)	54	40
TOTAL	145	134

Percentages are given in brackets

General

Like all self completed questionnaires, the 1995 study resulted in the questions have a different response rate. Thus there is always the concern that those who elected not to answer a question may bias the results in an unknown way. In addition, each respondent will have put his own interpretation on the questions which need not correspond to the intended meaning, thus again making interpretation of the data ambiguous. These difficulties particularly affect Chapter 4.

It should also be remembered that the data in the travel diaries relate to one weekday's travel in the summer. Thus, the implications of the reported travel patterns should be seen as "pointers" rather than firm evidence. However, it will be noted than many of the findings in the study are similar to those reported elsewhere, which suggests that despite the limitations of the dataset the data may have captured the main features of the rural villages.

Most of the information presented in the tables from the 1995 study relates to individual trips. Although trips and stages have been used interchangeably for variety, they relate to one part of a journey. No attempt has been made to estimate journey lengths, although total distance travelled is given.

The classification of trips by mode has been simplified to concentrate on those which occurred most often. All travel by car has been included in the “car” class, so, for example, hitch-hiking and “friend’s car” were grouped as travel by car.

Results were judged to be of statistical significance at the five percent level or less. Where results were close to this level of significance the P value is given in the text.

The sample size used in this study allows for the means for total individual mileage to be estimated to within 15% with 95% confidence and the total household mileage to be estimated to within 13.5% with 95% confidence. However, these estimates make no allowance for non-sampling errors, and so these figures indicate the best expected precision.

Notes on Chapter 1

In attempting to draw comparisons between the two studies the similarities and differences should be noted. Both studies were carried out in the summer and the travel diaries were recorded for one day. In the 1977 survey trips less than five minutes were not recorded, whereas all trips were recorded in the 1995 study. The original data collected in the 1977 study no longer exist and so comparisons have been restricted by the available summaries. In an attempt to overcome the differences in methodology between the two surveys, all trips of less than 0.2 miles recorded in the 1995 survey have been omitted in this chapter. Thus Tables 1 to 8 relate to only subsets of the 1995 dataset. In some cases the data which relate to Chalgrove cannot be desegregated from all the other locations and where this occurs the heading “1977 survey” has been used.

As would be expected, although the two studies often tried to answer similar questions, the way the answers were elicited means that some readjustments of classifications have been required for the purposes of comparison.

Household information

The 1995 data which relate to households come from two sources. One source was a brief interview with a senior household member on the doorstep. This was part of the screening process to ensure that a range of household types was included in the study. These data gave general information about the household. Travel diaries were left for each member of the household over 12 years old. Clearly not all household members participated, and this has implications for assessing travel at the household level

Although trips can be classified according to the number of cars available to a household, the data in the tables (e.g. Chapter 5) are only approximate due to the non-response of some family members. Travel diaries were left at 111 households and from these 94 provided travel diaries which matched

the household which also supplied general household information to the interviewer. Where a diary was not completed by an eligible person, the household size has been adjusted downwards.

Because diaries were not left with those under 12 years old, the household size is a measure of the “number of individuals over 12”, and so under estimates the household size by one, on average.

Sources of information

All data presented in the figures and tables were collected from our study of Chalgrove and Cholsey in south Oxfordshire in August 1995, unless otherwise stated.

In Chapter 1 only the data from Chalgrove are used; in the subsequent chapters all data from both villages are presented.

Appendix 2: A brief description of Cholsey

Cholsey is a village (population 2,832) in South Oxfordshire about four miles south of Wallingford and 20 miles south of Oxford. Fifty-three percent of the population is economically active, of which 29% occupy professional or managerial positions. Twenty-two percent of the population are under fifteen years old and 12% are retired.

Cholsey has a reputation for being sought after as a residential location. It has a railway station with approximately half-hourly trains to Oxford and Reading. There is also an hourly bus service between Reading and Oxford. Passengers can change at Wallingford to catch buses to other towns or cities including London and Heathrow Airport.

There are twelve shops in Cholsey, providing a range of services that stock most 'ordinary' food and household items. The village has sports facilities, such as tennis and football clubs.

The neighbouring market town, Wallingford, (population 6,460) has over 50 shops and two supermarkets.

It was chosen for the 1995 study as it was considered to share many characteristics of Chalgrove but to have better public transport services.

Appendix 3: Methodology used in Chapter 4: assessing the acceptability of others' travel poverty (section 2b)

The method used was adapted from Mack and Lansley (1985). These authors sought to establish how the general population viewed poverty, by asking people from all socio-economic groups to rank different 'goods' (e.g. not being able to afford a warm winter coat, not having a week's annual holiday away from relatives) as 'necessary' or 'desirable'. This approach provides a basis for consensus about controversial topics such as poverty. The study states:

this approach makes some contribution to the question of tackling poverty. In establishing a minimum standard of living on the basis of what is to most people unacceptable, it establishes a politically credible level. The people who fall below this minimum level are in most people's opinion entitled to more. In a democratic society like Britain, this is an important criterion on which to base policies to help the poor.

(Mack and Lansley, 1985)

In this study self-completion questionnaires were used so it was not possible to imitate the method of asking for choices from randomised cards, used by Mack and Lansley. Instead items were presented on randomised lists and respondents were asked to indicate if they thought they were 'necessary' or 'desirable' for 'a family with young children in Britain today' (Root *et al.*, 1996).

Such views follows EC definitions of poverty as 'social exclusion', i.e. as the inability to live in the same way as one's peers, and this study uses a definition for travel poverty comprising the need for choice within a context of relative, socially based criterion of mobility and accessibility (Oliver, 1993). For example, going shopping, for items beyond the bare essentials, (both in terms of access and having money to spend) is an activity concomitant, for most people, with a minimum standard of decency and societal membership (Mack and Lansley, 1985); shopping is still primarily a female responsibility (women made 63% of shopping trips in the Oxfordshire study).

In the Chalgrove and Cholsey study, these methods were used to assess both views on transport and the environment, and views on 'travel poverty': attitudes towards travel facilities and social contacts/amenities. Not all respondents answered each question, thus the total number of respondents was often less than 279. For simplicity of presentation, results are given as percentages, but the outcome of statistical tests refer to actual counts.