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Published paper

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May 1990

**MEASURING MOTORISTS' CHOICE
BEHAVIOUR AND RESPONSES TO
LONG-TERM CHANGES IN
TRANSPORT CONDITIONS**

PG Hopkinson

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1. INTRODUCTION

This paper reports on the finding from an in-depth survey into the choice of travel mode by a small group of respondents in Nottingham. The purpose of this study was to identify the range of factors which affect current choice of travel mode and to develop a survey method which lead to better observation and predictions of future travel choice decisions under worsening conditions for car travel or improving conditions for public transport.

The first section of the paper describes the background to the project. Section 2 describes the rationale and features of the survey method used in the study. Section 3 outlines the survey design. Section 4 discusses the findings from the survey and discusses the policy relevance of the findings. Section 5 discusses the implications of the work for the design of larger stated preference and revealed preference surveys.

1.1 Background

The ability to estimate the demand for transport is a growing pre-occupation in the UK, in the face of growing levels of congestion and the contribution of road transport to environmental pollution and damage. These concerns have raised discussion about a number of policy initiatives designed to restrain car use and affect changes in travel behaviour, by increasing the supply and quality of alternative modes, introducing new transport systems or making car driving more costly, through the use of road pricing for example. In order to successfully introduce and market a policy or set of policies it is therefore important to understand what factors lead to the choice of particular modes of travel, how the demand for a mode or between modes may be influenced and the implications of those policies on individuals' lifestyles.

The Institute for Transport Studies has recently been commissioned by Nottingham County Council to undertake a study to examine the possible demand for alternative public transport provision in the context of worsening road traffic conditions. The adopted methodology for the main part of the study was stated preference, widely used for valuing modal attributes such as journey time and over-crowding (Nash, Preston and Hopkinson, 1990). This technique is well suited to situations involving simple choices where the attributes are easily defined. Asking people how they might respond in the future, to conditions or policy alternative which they may have be unfamiliar with is more difficult however. Accordingly, it was considered that a greater understanding of current decisions and how these might be affected by future changing conditions was an important first step in the design of the stated preference experiment. Accordingly a series of in-depth interviews with a small number of motorists was proposed both to assist in the design of the stated preference techniques but also to identify factors that may not be able to be detected through questionnaire based approaches. The basis for the interview method adopted in the study is outlined below.

2. INVESTIGATING LONGER-TERM TRAVEL BEHAVIOUR

2.1 Introduction

Over the past few years the increasing attention on individual travel behaviour has led to the realisation of the complexity of both day to day travel choices and behaviour and the decisions which underlie those choices and behaviour. Jones et al. (1988) have argued that this complexity arises from the nature of travel demand due to:

- 1) its derived nature from activity participation
- 2) the range of needs and desires which motivate this activity
- 3) linkages among trips, between people and over time

This complexity requires approaches to travel demand forecasting that not only take into account the cost and journey time characteristics of modal alternatives for discrete trips but include a wide range of other features and dimensions. These include;

- 1) The role of the household as well as the individual in travel choice decisions
- 2) Consideration of sequences or patterns of travel at a daily level
- 3) Emphasis on detailed timings and duration of travel
- 4) Explicit consideration of both physical and psychological barriers in the availability and use of modes
- 5) The longer term choice processes which carry the investment for the day to day travel decisions

Activity based approaches which use activity and travel diary methods to record individuals trip by trip and daily activity patterns as the primary data collection technique have developed during the 1980's in order to tackle the complexity of micro-travel behaviour. These approaches have thrown up a number of interesting insights into travel choice behaviour which has led to better specification of variables and improved design of questionnaires which have been used on a larger scale than is possible through intensive diary based approaches. More recently diary based techniques have begun to be suggested as the focus, and a reference point for in-depth interviews around which peoples' preferences and future choices can be explored. Bonnel (1990) used a one trip-diary as the basis for an interview in which a new tramway system (which was to be built) was presented as a future travel option. The stated intended use of the proposed system was set in a context constrained by current travel activities and patterns and was then compared to its actual use by the respondent. The diary-based approach was found to be effective in terms of preventing respondents from over-estimating their expected use of the system. This was achieved by anchoring the respondents responses to their current actual travel behaviour and customs. In a recent small-scale study, involving the author, a travel diary was used in a two-stage process to explore driver stress (Lee-Gosslan, 1990). In the first stage of the survey the respondents were asked to complete a four day travel or activity diary and some supplementary information about the trips recorded in the diary. This information included self-ratings of the level of "hassle" associated with each trip, expected and actual times of arrival and importance of the journey.

The information from the travel diaries were then transferred to a chart and used as the focus for the interviews. Each interview began with a request for an autobiographical sketch by each of the respondents. This was used to quickly explore past travel behaviour and patterns, house location choices and broad aspirations and attitudes towards travel, work and future life style. These sketches proved extremely useful in understanding how current travel and locational choices had been arrived at and how these were often linked to future plans and intentions. This information could then be returned to during the remainder of the interview. The broad scenarios which were used in the different interviews were as follows:

Thresholds for change

The focus was to elicit the characteristics of the most hassling trips undertaken during the four day period, and then using those characteristics to pose hypothetical

determinations of the driving conditions of those trips, until the respondent said he could no longer accept to drive that trip.

Driving Stress

This interview asked respondents to track their level of stress during the days recorded in the travel diary. In this way we were able to detect how the trips made during a day affected the respondent's overall level of stress but also to assess whether the level of stress experienced on one day affected the starting level of stress on a subsequent day.

Susceptibility to accidents

The third experiment focused on the extent to which the respondents felt they were at risk of an accident during the trips recorded during the diary for a cross-section of trips. The respondents were asked to describe how confident and comfortable they were whilst driving on those trips. They were then presented with scenarios with increasingly punitive penalties (increased insurance premiums) for accidents. The respondent was asked how they felt they would respond over time to such penalties.

Driving modifications

The final interview was based around a diary-week in which the respondent was under a high level of personal stress, due to the imminent birth of his second child. The interview then involved asking the respondent how stressful he felt on those trips he made and how close he came to wishing he had changed any of the major parameter of each trip he drove in the diary week: departure time, route, destination or mode. The interviews lasted between one and a half to two hours. The most successful of the interviews involved scenarios built around the "worst" trips during the diary week. This "reference point" meant that future possible responses could be examined in relation to current behaviour and constraints.

This made the future scenarios much more meaningful to the respondent. In order to identify these reference points, however, and in order to be able to tailor a scenario to the individual it was necessary to obtain prior information on the respondents travel and activity patterns. The travel-diary was found to be an effective way of collecting travel and activity information. Despite the fact that this creates a two-stage process, and lengthens the survey process this was considered to be the best approach for the piece of work reported in this paper.

Figure 1: EXAMPLE OF TRAVEL DIARY USED AS BASIS FOR EXPLORING MOTORISTS' PERCEPTION AND EVALUATION OF DRIVING CONDITIONS

Drivers
please ignore

VEHICLE						DATE _____				If you drove... Number of passengers				Hassle 5 = high	Time taken A = Quicker than expected	Importance 5 = high
R P	DRI- VER	START TIME	WHERE TO?	FINISH TIME	ODOMETER AT FINISH OF TRIP	PURPOSE(S) (MOST IMPORTANT FIRST)	Age 0-5	Age 6-15	Age 16-64	Age 65+						
		<input type="checkbox"/> am <input type="checkbox"/> pm		<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="text"/>											
		<input type="checkbox"/> am <input type="checkbox"/> pm		<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="text"/>											
		<input type="checkbox"/> am <input type="checkbox"/> pm		<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="text"/>											
		<input type="checkbox"/> am <input type="checkbox"/> pm		<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="text"/>											
		<input type="checkbox"/> am <input type="checkbox"/> pm		<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="text"/>											
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		<input type="checkbox"/> am <input type="checkbox"/> pm		<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="text"/>											
		<input type="checkbox"/> am <input type="checkbox"/> pm		<input type="checkbox"/> am <input type="checkbox"/> pm	<input type="text"/>											

NOTES ABOUT PARTICULAR TRIPS (Please note, by number, which trip was involved)

- Eg:
- Anything happen during this trip to "push" you close to what you are willing to tolerate?
 - Was there anything about the route of this trip which which you particularly disliked?

Please describe the mood of your partner at the **beginning** of this day.

Please describe the mood of your partner at the **end** of this day.

3. APPROACH

3.1 Sample selection

A two stage approach was used in this study, involving collection of travel mode choice data through a travel diary format followed by an in-depth interview based around the travel data.

A list of 22 potential motorists were provided by 2 sources:-The city planning department of Nottingham City Council and the local chamber of Trade and Commerce. In this respect the sample was not based upon any sampling criteria except that the person had to travel to the City Centre by car on at least one day a week. The main difficulty with the sample from the city planning department, which was only discovered whilst the interviews were taking place, was that in almost every case the respondent had a parking permit allowing them to free city centre parking. This is unlikely to be typical across the population as a whole. The main survey will determine how many motorists have access to free central parking.

The listed names were contacted by telephone to explain the purpose of the study and to identify any problems with participating in an interview. Three of the original sample were excluded on the basis of difficulty in arranging an interview time. The remaining sample were sent a travel diary (see appendix one) which they were asked to fill in their trips made during a four day period starting on the day they received it (not to include a Sunday).

3.2 Diary details

The diary requested the following information for each trip made during the day;

- depart and arrival time
- destination
- trip purpose
- method of travel
- other people travelling with
- method of payment for fares
- fare paid

These diaries were then either returned by post or else collected from the workplaces of the respondents.

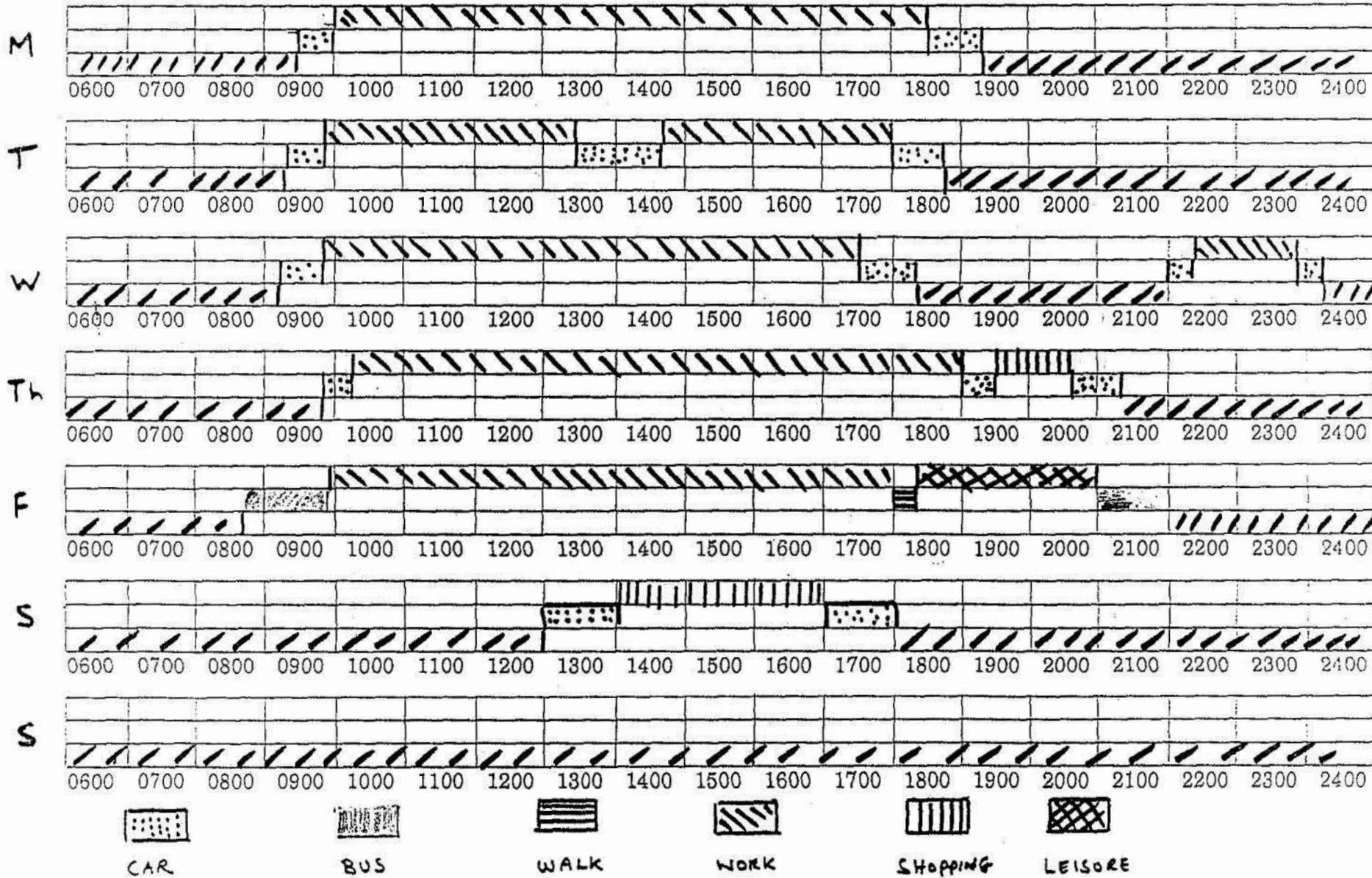
This information was transcribed to a single sheet travel/activity chart (see figure 2). This chart represented by time of day the periods when the respondent was at the home address, the times they were travelling and the method of travel (centre row) and the destination and purpose of travel (top row). The merit of this approach is that it provides the travel period at a glance. A colour coding system which does not show up on the photocopied form was used to highlight the travel mode choices.

The travel/activity charts were prepared prior to an interview. All the interviews took place at the respondent's place of work. Since many travel decisions often take place at the household rather than the individual level it is usually desirable to involve all members of a household who play a part in decisions about the use of the household car(s) in an interview. This is for two reasons. Firstly because the choice of individuals travel mode is affected by decisions made by other household members. Secondly because other household members might be affected by decisions which a respondent might make during the course of an interview.

Figure 2: EXAMPLE OF A TRAVEL/ACTIVITY DIAGRAM

FIGURE 5: EXAMPLE OF TRAVEL/ACTIVITY DIAGRAM

DAY OF
WEEK



Since other household members were not present during the interviews it was important to establish in the interview the travel patterns and constraints of other household members as reference points for any decisions which were likely to affect the household.

3.3 The interview

The interview was structured in 4 stages. The first stage of the interview focused on background information including details about the respondents household composition, number of cars, where they live and so on. The second stage examined the diary and the extent to which the trips in the diary were typical for that respondent for that time of year. The respondent was left to judge whether the trips/week was typical or not. At this stage some considerable time was spent asking the respondent to describe the journey to and from work including legs of the journeys they found it difficult or stressful, how they feel generally about the drive to/from work and what state of mind they are in when they arrive. In going through this process several respondent reported a therapeutic value in telling someone about the hassles and frustations they have in everyday travel. The third stage of the interview involved examining the range of transport mode that the respondent could imagine using to get to/from work if the modes they actually used were unavailable. This was to establish each individuals choice set. This was done in two stages. Firstly, the respondent was asked what he/she would have done during the diary period if the car they usually drove to work in was unavailable. Secondly, they were asked to imagine a situation where they were unable to drive to work for a longer period as a result of losing their licence or a broken arm. The second scenario was used to explore how difficult the alternative mode of transport was likely to be a part of a regular travel pattern. Where public transport was offered as an alternative to the car then except for those people who had used public transport in the diary period, an estimate of the fare, walk time, journey time and service frequency was obtained. In addition these respondents were asked how often they had used the service they claimed they could or would use in the recent past.

The fourth stage of the interview presented three scenarios involving change in the transport environment. The first presented a situation where journey times were increased above their existing journey times due to increases in the volume of traffic. Initially people were asked to imagine a doubling of their existing journey times. The second presented a situation where travel by public transport was cheaper and faster than was currently the case. Fares levels and journey times were adjusted in line with their actual or potential public transport trips. The final scenario involved a situation where parking charges in the city centre were raised. The actual increase was made in line with their actual current parking charges or the charges which they would have to pay for the car park where they currently parked for free.

4. FINDINGS

4.1 Sample characteristics

Table 1 summarises some of the sample characteristics. The sample comprised nearly two thirds male and one third female. Almost half the sample lived less than three miles from the city centre. Three of the sample lived more than ten miles away from the city centre.

All the respondents had at least one car at their household. Six of the cars used during the diary period were company cars. Ten of the respondents belong to two households. Three of the respondents lived alone. Under half the sample (8) had

TABLE 1 SAMPLE CHARACTERISTICS

Respondent	Household Distance M/F (miles)	N ^o in Household	N ^o of Cars in households	Company Car	N ^o of Children School Age	Partner Works	TRAVEL MODE USED DURING DIARY PERIOD			
							Car	Car/ Bus	Car/ Walk	Car/ Bus/ Walk
1	M	6	4	2	y	2			y	
2	M	18	5	2	y	3	y			
3	M	4	6	2	y	2	X	y		
4	M	14	4	2	y	2	y	y		
5	F	26	2	2	y	0	y	y		
6	F	2	2	2	X	0	X	y		
7	M	2.5	2	2	X	0	y	y		
8	M	2.5	2	1	X	1	X		y	
9	M	3	2	1	X	0	X			y
10	M	2.5	5	2	X	3	y	y		
11	F	3	1	1	X	0	X	y		
12	F	5	1	1	X	0	X	y		
13	M	3	4	1	X	2	y			y
14	F	17	1	1	X	0	X	y		
15	M	10	4	1	X	1	y		y	
16	M	9	3	2	X	1	y	y		
17	M	3	3	1	X	0	X		y	
18	M	6	4	2	X	2	y	y		
19	F	15	2	2	y	0	y	y		

children who were of school age. Over half of the sample, travelled to work by car every day during the diary period. Three of the sample had used two mode (car/bus or car/walk) and two respondents three modes (car/bus/walk) to travel to work during the four day diary period.

4.2 Trip characteristics

4.2.1 Car travel

Table 2 shows the travel mode to/from work, the depart time, a typical week, whether any lunchtime trips, other than for work were made by car and the number of days in a typical week the car is brought to work but is not used for either work purposes or other purposes.

Five of the diaries completed included a Saturday hence only 3 days travel choice to/from work were recorded. The overwhelming majority of trips made to/from work during the diary period were by car where the respondent was the car-driver. A total of 12 car trips to/from work were made by the respondents during the 4 day diary period out of a possible maximum of 14. The respondent was the sole occupant of the vehicle on 116. Nine respondents used the car, on at least one day, for other purposes on either the journey to or from work or in work, such as shopping or visiting a sports centre.

Fifteen of the respondents used the car on at least one day during the four day period for work purposes of which seven used the vehicle on more than one day. Three of the other respondents claimed that they normally use the car for work purposes on at least one day during the week or else need the car at work in the case of emergencies to do with work.

The majority of the trips undertaken during the diary period involved journeys to/from work, where the respondent was the sole occupant of the vehicle and where the car was not used or required for any other purposes (i.e. no trips-chains). In fact over the period of a typical week nearly half the number of (between 41-45 out of 95) when the car is taken to work falls into this category.

4.2.2 The need for a car at work

In the sample 14 of the 19 respondents interviewed had used the car on at least one of the diary days for work purposes. Of these 14 respondents the car was 'needed' or used on about three days a week during the course of the working day. All these respondents had a casual car users allowance which reimbursed their petrol expenditure and some amount for depreciation etc. Amongst the city planners these were mainly for site visits. These visits involved a maximum distance of 5 miles from the workplace. As noted earlier on only xx days was the car used for travelling to and from work and for no other reason. Only two respondents claimed that they could fulfil their job description without a car. This suggests a high level of captivity to the car and by itself indicates a major constraint on modal switching.

Throughout the interviews, it was frequently cited that the car was "needed" for work. We have already indicated however, that often the car is brought to work when it is not needed. As a result of the interviews it was established that even when the car was used for work that ways of avoiding use of the car could have been found in some instances. Firstly within the planning department there are alternatives to using a car. There are vans which can be booked out although generally people said it was difficult to book these out when you needed them (although most people had considerable flexibility over their site visits, the majority

preferred to make their visits in the afternoon). In addition the department issues bus tokens which provide free travel on buses. Several respondents indicated that they sometimes make site visits by bus or that they could make site visits by bus but rarely do so. Most of the sites which need to be visited are served by buses. A number of respondents argued that they find it more efficient, time-wise, to use a car which gives them the opportunity to link several site visit together. In terms of actual mileage the average monthly figure is around 40 miles. Some people make more trips than others, some make longer trips than others. A further claim that was explored was the need for the car in the event of an emergency or an unexpected event. Whilst this is undoubtedly true few of the respondents interviewed had actually used their car for an emergency or unexpected reason for some considerable time if ever.

The situation amongst the non-planners was somewhat different in terms of the number of trips and the length of trips made. Three of the non-planners make extensive use of their car during work on most days of the week. Within this however there is scope for organising the week such that the car does not have to be used every day of the week, possibly on only 2-3 days of the week. Of the other non-planners the car is either not needed as part of work or else there are other cars available within the workplace that can be used other than the respondents own car. Again then we can see that the question of captivity and freedom of choice is slightly more complex than might first be interpreted from the initial data.

From examination of the use of car at work some general conclusions can be drawn. For certain respondents and on certain days the job description and requirements necessitates the use of a car at work. For a large part of the sample the use of the car for work purposes is probably more efficient for organising work than other modes and enables other activities to be pursued out of work hours. Within this however alternative modes of transport could be used to fulfil the job description

In sum there are days when, from an outside perspective, the car is taken to work when it is not needed in the sense that other modes could be used or that the actual work purpose is not totally necessary or could be carried out on other days. However the use of the car has become part of organisational culture in terms of status, escape or perceived efficiency. There are a number of days per week, although how many it is difficult to say, for each respondent when the car could be left at home without any serious impact on the ability to perform the job they do. This would require some re-organisation of the working week. There are a number of other days when alternative modes could be used instead of the car. This would require a commitment by managers or organisations to promote or offer incentives to use other modes of transport.

4.2.3 Non-car travel

A total of 14 bus trips costing £8.66 were made during the same time period for the same journeys purposes. One respondent used the Forest park 'n' ride on a daily basis costing £1 per day. Two people walked to work on one day.

The three respondents who recorded travel data for a Saturday and who made trips into Nottingham City Centre all travelled in by car and parked in the city centre. All of these respondents had free parking.

Most of the travel recorded during the diary period were claimed to be fairly typical of the usual mode choice and trip patterns for that time of year. During the summer months several respondents indicated that they would walk to/from work on one or more days during the week on days when they did not need the car for work.

TABLE 2 TRAVEL CHARACTERISTICS

Diary	Car Driver	Bus	Park Ride	Walk	Dep. Time	Car used day for non-work purposes either in work or to/from work	Number of days in typical week car brought to work but not used for any other purpose
1	4	4	-	-	≡ 7.50	y	2
2	8	-	-	-	≡ 8.00 pm	y	1-2
3*	6	-	-	-	< 8.00 pm	y	5
4	8	-	-	-	> 8.40	y	1
5	8	-	(8)	-	7.45	-	1-2
6*	4	2	-	-	8.00	y	2
7	8	-	-	-	≡ 8.45	-	2
8	6	2	-	2	< 8.00	-	3
9	4(2)	-	-	2	≡ 8.00	-	3
10*	6	-	-	-	Varies	y	3
11	4(2)	2	-	-	≡ 8.00	y	4
12	8	-	-	-	≡ 8.00	y	3
13	6	-	-	2	≡ 8.00	-	3
14	8	-	-	-	> 8.30	-	3-4
15	6	2	-	-	≡ 9.00	-	0
16	8	-	-	-	< 7.15	-	3
17	8	-	-	-	≡ 8.10	-	2
18	6**	-	-	-	Varies	-	1-2
19	8	-	-	-	7.30	y	0-1
	128	12	8	6			41-45

* Denotes diary included saturday data
 ** Denotes only 3 days recorded
 () Denotes lift

The majority of the respondents claimed to find the overall drive to/from work to be fairly comfortable in terms of total journey time and driving conditions. Within this however many of the respondents adjust their time of travel both to and from work to avoid peak traffic levels. The majority of respondents attempt to avoid arriving in the city centre between 8.15 - 8.40. Similarly the same respondents try to avoid the period between 4.40 and 5.30pm. Only one of the respondents had no control or flexibility over the time of arrival and departure at work. Interestingly she was the one person interviewed who used park and ride, although this choice was more a reflection of the fact that she had to pay her own parking charges than a means of avoiding traffic peaks. Typically the majority of respondents follow a pattern of travelling before the morning peak or after the peak. Three of the respondents vary their departure and arrival time to fit in with other commitments.

Despite having control over the time of arrival at work the journey times for the trip to work can still vary by between 5 and twenty minutes; the variability tending to increase with the length of journey and direction of approach.

Several respondents indicated that they feel a greater urgency to get to work in the morning, to get the day off to a good start than the journey home when they use the journey home as 'decompression' time to recover from hassles at work. Against this several respondents, particularly those with young families feel a greater urgency on the trip home, wanting to get home to see their children. These people all indicated a level of hassle or 'aggro' associated with the journey home due to traffic congestion and the general behaviour of other motorists. In general their appeared to be a higher value of time for the journey to work both in terms of wanting to get on with the day but also the importance of being seen to be at work early. In contrast people appear to be less concerned about the time they leave work and are less concerned within limits about other people monitoring their time of departure.

4.3 Alternative modes

4.3.1 Main mode unavailable

Table 3 summarises the alternative modes which people claimed they would switch to in the event of a car being unavailable in the short run and in the long-run. In only two cases did the short term alternative differ from the long-term alternative. In total 15 of the sample said that if the car was unavailable or they could not drive due to an injury they would catch the bus as their first alternative.

One respondent would have got a lift from someone else in the short-term but in the longer term would have caught the bus. One respondent who would have got a lift in the short-term would have shifted to bus in the longer term. Three respondents would have travelled by train as an alternative to the car being available. These respondents all lived more than 6 miles from their place of work.

Five respondents offered that they would be able to walk as an alternative to the car being available. Two respondents claimed they would give consideration to cycling to and from work although they currently do not do so.

TABLE 3 ALTERNATIVE MODE OF TRAVEL TO CAR**All Sample**

	CAR	
	FIRST ALTERNATIVE	SECOND ALTERNATIVE
Car Lift (other household member)	2	0
Car Share (non-household)	1	1
Bus	10	5
Train	4	1
Walk	2	3
Cycle	0	2

TABLE 4 ALTERNATIVE MODE USED**(for current journeys)**

	N	Number who use bus as part of week	Number who have used mode in past 3 months	Number who used in past year	Rarely or never used
BUS	10	4	1	4	1
1st choice					
TRAIN	4			1	3
2nd choice					
BUS	2		2		
TRAIN	1				1

From this then it would appear that in the event of a sudden outbreak of broken arms or car unavailability that all the respondents could imagine themselves getting to work by some other means. This does not mean that they would find the alternative mode very convenient, attractive or even familiar.

4.3.2 Familiarity with alternative modes

Table 4 shows for those people who stated that they would switch to bus or rail in place of the car how often or how familiar they are with the alternative mode. As can be seen four of the sample already use bus to get to work on at least one day during the week and apart from needing the car as part of work would find this a relatively convenient alternative. A further four of the sample have used a bus to travel to/from work at least once in the three months preceding the interview and therefore know that a bus alternative is available as well as something of the quality of the service.

Four people have not travelled by bus for a considerable length of time but felt that they would be able to travel by bus if the need arose. Only one person in this group had never travelled by bus to or from work in the time that he had worked in Nottingham. In contrast none of the respondents who said they would travel by rail to/from work had used this mode during the past three months. Two had never used rail for their journey to/from work.

4.3.3 Time and cost characteristics of alternatives

Tables 3 and 4 have shown the general direction of modal switching in the event of a car being unavailable. Some of this switching would be relatively painless, insofar as the alternative mode already forms part of the current weekly travel pattern. We were interested though in identifying how attractive or unattractive alternative modes of transport are to people who predominately use the car. Accordingly, respondents were asked about the time and cost characteristics of them stated alternatives mode of transport.

Those respondents who solely use the car to travel to/from work were asked to estimate to the best of the ability the likely characteristics of their journey by an alternative mode (see table 5). The parameters measured for the alternative mode were depart time from home, total door to door journey time, walk or travel time to the alternative mode, frequency of the service, travel time and walk or travel time to the final destination. For respondents who claimed they would walk or cycle to work the total door to door times were requested. For some respondents the estimated times are probably inaccurate. For example none of the respondents who

TABLE 5 COMPARISON OF KEY CHARACTERISTICS FOR CAR AND PUBLIC TRANSPORT TRIPS

Range of times	CURRENT JOURNEY (IN)						PUBLIC TRANSPORT ALTERNATIVES BUS/RAIL					N ^o Bus Rail Trips Week Actual Past Year
	Total J-Time (mins)	Distance (miles)	Drive Time (mins)	Walk Time (mins)	Park Cost (day)	Total J-Time	Walk Time	Freq	Walk Time	Fare		
1 (15-30)	15	6	12	3	F	35	5	10	5	0.45	2	
2 (30-50)	30	18	30	1	F	D/K					0	
3 (15)	15	4	15	1	F	20	< 1	< 1	0.25	0	0	
4 (25-40)	30	14	29	1	F	45	3-4	D/K	20	D/K*	0	
5 (60-80)	70	26	55	2	1.00 ¹	90	15	D/K	15	5.00*		
6 (10-15)	12	2	10	2	F	12	2	5	2	0.45	10x past year	
7	15	2.5	10	5	F	25	10	2	2	0.38	10x past 4 months	
8 (15-25)	20	2.5	15	5	F	20	2	15	3	0.38	6x year	
9 (20-25)	25	3	10	5	F	25	< 1	15	3	0.38	1	
10 (15-20)	15	2.5	15	5	F	15	1	5	5	0.38	0	
11 (25-35)	25	3	25	5	F	25	5	5	5	0.38	1x week	
12 (25-30)	30	5	20	5	F	25	5	20	2	0.45	6x past 12 months	
13 (25-30)	25	3	20	5	F	25	2	10	1	0.38	1	
14 (40)	40	17	30	5	F	45	15	15	15	2.60*	2x recently	
15 (20-30)	25**	10	20	5	F	20	2	2	2	0.38	2	
16 (30-40)	35	9	30	5	F	60	10	10	10	1.25	1-2 times recently	
17 (15-25)	20	3	15	5	F	25	2	3-4	2	0.38	0	
18 (25-30)	30	6	15	5	F	45	10	30	2	1.00	0 never used	
19 (30-60)	35	15	33	2	1.20	60	3	120	2	1.00R	1-2 at Christmas	

¹ Park and Ride

F Free

R Return fare

* Rail trip

** Includes dropping children off at school

said they would travel by rail had a clear idea of the fare or service frequencies to Nottingham from their local stations. To keep the interview manageable respondents were asked about an alternative mode of travel to work only. Where a journey home from work is slower or quicker by car than the journey to work this is indicated. between the journey to work and from work by the current main mode were recorded. These are summarised in the table.

In terms of total journey times nine of the alternative public transport trips are no more than 5 minutes worse in terms of total journey time than the existing car journey. In four of these cases the respondent travels by public transport as part of the normal weekly travel pattern. The other five respondents have all used the bus to travel to/from work for various reasons during the previous three months.

Two respondents who said they would switch to rail made comments about the lack of parking facilities at their local stations (Fiskerton and Netherfield) which would inhibit them, and incidentally other people who they knew, from parking their cars at the stations.

4.4 Changing conditions

4.4.1 Increasing journey times

Having established the characteristics of the journey to/from work by each respondent was asked to imagine a doubling of their journey time and what they would do if this were the normal situation. some people find this difficult to imagine, particularly those respondents who live close to the city centre and who have short journey times, they were asked to think about days or times of year when traffic is noticeably worse such as Christmas or monday mornings. In several instances respondents had mentioned times in the past when they had been commuting longer distances than was currently the case. In these instances they were asked to imagine a return to those levels. Where the respondent felt that a doubling of journey time was beyond the realms of tolerance they were asked what the maximum journey time they would feel comfortable with on a day to day basis.

Table 6 summarises these results. Clearly these responses have to be interpreted with caution. A number of respondents asked whether the scenario meant that bus travel times would be longer as well. It was indicated that bus travel times would rise in proportion to existing journey times. Overall only 2 of the respondents interviewed claimed they were close to their tolerances for travel time (less than 15 minutes) and driving conditions. Nearly all the other respondents felt that they could tolerate a doubling of their current journey times (in all cases more than 15 minutes to their existing journey time).

There was no obvious difference in the additional amount people said they would be willing to travel between those with current short journey times and those with longer journey times. Given a further significant increase in journey time the most common initial response was to set off for work or find routes that would keep the travel time within tolerable limits. this suggested that people felt that if traffic did worsen that they would be able to find ways to keep their travel time within tolerable levels. Eight respondents claimed that if travel times exceeded their tolerance level they would travel by bus rather than move house. Four of these respondents said that this would be their likely first response.

TABLE 6 MODAL SWITCH SCENARIOS 1: INCREASING JOURNEY TIMES BY CAR

Respondent	N ^o of car days/week	Distance	Mean current J-time	Max J-time willing to travel	Additional journey time	Order of response to increasing J-time								
						A	B	C	D	E	F	G	H	I
1	2-3	6	20	35	15	1								
2	4-5	18	40	60	20		1					2		3
3	4-5	3	15	45-50	30-35	2	1							
4	3-4	14	25	45	20							1		
5	5	26	60	75	15		2				1	2		
6	4-5	2	11	N/A	-									
7	5	2.5	15	40	25	2	1			3				
8	3-4	2.5	20	45	25		1		2					
9	5	3	25	30	5	3	2		1	4				
10	5	2.5	15	20	5				1					
11	3-4	3	35	45	10		1					2		
12	3-4	5	25	45	20					1				
13	3-5	3	25	55	30		1		2					
14	5	17	45	60	15			1				1		
15	1-2	10	25	D/K	-									
16	4-5	7	35	50	15								1	
17	5	3	20	40	20		1		2					
18	5	6	25	45	15				1					
19	5	15	35	> 65	30		1	2						

D/K = Do not know A = Travel by bus C = Consider moving E = Cycle G = I = Consider Park and Ride
 N/A = Not asked B = Leave earlier D = Walk F = Travel by rail H = Get a lift

These responses suggest that people are prepared to put up with worsening conditions and are prepared to experience considerably larger journey times, or find ways around longer times, that consider switching to other forms of travel.

4.4.2 Bus improvements

The second scenario presented respondents with improvements to bus services in terms of fares reduction and journey time reductions. Where the presented fare/journey time reduction produced no increased use of a bus service or a modal switch then the respondent was asked what improvements in fares/journey time would tempt them or be a sufficient incentive to use the bus more. Table 7 shows the responses to this scenario as well as the cost and journey time of the public transport trips that are currently made or else could be made as an alternative to car travel.

All but one respondent considered reduction in fares would have any effect on their use or likely use of bus services. Total journey times were cited as more important in affecting their perception and likely response to travel by bus. Amongst those who already use the bus as part of the weekly travel pattern even with journey time improvements there would be little additional bus use. Amongst those who do not currently use the bus there were those who claimed that if the total journey time involving bus was faster than by car, by no less than 5-10 minutes, that they would probably use the bus more often on days when they didn't need the car for work or other reasons. The second smaller group indicated that they would be unlikely to use the bus regardless of journey time improvements.

Overall given the quality of bus services and the perception that bus fares are reasonable, the current level of bus use by some respondents and the need for the car at work it would appear that there would need to be dramatic changes in bus journey times to affect any significant switching to, or increased use of bus.

4.4.3 Increased parking charges

The final scenario involved a situation in which parking charges were increased. Since many of the respondents had parking permits entitling them to free parking or free parking areas at their place of work these people were asked to imagine their permit being withdrawn or their free place being removed. In these cases each respondent was asked how much they would have to pay in their current parking space or if they felt they could find cheaper parking how much they would have to pay in other locations.

Only two of the sample actually have to pay currently for parking. One of the respondents uses the Forest park and ride scheme to counter this. She was asked to imagine an increase in the fare on the park and ride service. The other respondent paid for a quarterly parking permit. This was translated to a daily payment. She was asked how she would react if this amount was doubled.

TABLE 7 MODAL SWITCH SCENARIO 2: Bus Improvements

Respondent	Current Car Travel		Current or Alternative Bus/Rail		Condition under which Bus more Likely		ΔJT (%)
	Car Distance (miles)	Journey Times (mins)	J-Time	Fare	Journey Time	Fare	
1	6	20	35	0.45	25	0.45	-29%
2	18	30	D/K	D/K	N/A		N/A
3	3	15	10	0.25	wouldn't be tempted		Non trader
4	14	25	D/K	D/K	wouldn't consider		Non trader
5	26	60	90	5.00	45 mins	3.00 R	-50%
6	2	11	12	0.45	N/A		N/A
7	2.5	15	25	0.38	15 mins	0.38	-40%
8	2.5	20	20	0.38	N/A		-
9	3	25	25	0.38	15 mins	0.35	-40%
10	2.5	15	25	0.38	15 mins	0.30	-40%
11	3	35	30	0.38	cost unimportant		Non trader
12	5	25	25	0.45	unlikely to use		Non trader
13	3	25	38	D/K	prefer to walk		Non trader
14	17	55	50	2.60	N/A		-
15	10	25	20	0.38	N/A		-
16	9	30-35	50	1.50	30 min	1.50 R	-40%
17	3.2	10-15	45		20-25 mins	20-25 p	-50%
18	6	20	45	0.50	≤ 30 mins	45-50 p	-40%
19	15	35	60	1.00	40 mins	1.00 R	-33%

N/A Not Asked due to time constraints
R Return Fare
D/K Don't Know

TABLE 8 MODAL SWITCH SCENARIO 3: Increasing Parking Charges

Respondent	N ^a of days car used	Current weekly parking cost	Estimated parking charge (day)	Max WTP	Likely response								
					A	B	C	D	E	F	G	H	
1	2-3	0	3.00	1.00		1							
2	4-5	0	D/K	0	1		2						
3	4-5	0	2-6.00	0	1	2							
4	3-4	0	40p/hr	0.80		1							
5	5	(1.00)	4.00	3.00			1						
6	5	0	D/K	N/A									
7	5	0	3.00	0	1								
8	3-4	0	D/K	0	1								
9	5	0	1.50	0		1			2		3		
10	5	0	3-4.00	0	1								
11	3-4	0	D/K	1.00		1							
12	3-4	0	3.00	1.50	1						2		
13	3-5	0	D/K	1.00	2	3		1	2				
14	5	0	2.00	2.50		2	1						
15	1-2	0		0	1								
16	4-5	0	2.00	1.50		1							2
17	5	0	D/K	0	2	1							
18	5	0	D/K	< 1.00	1								
19	5	80**	1.60-4.00	1.50p									

* Park N'Ride
 ** 3 month permit

N/A Not asked
 D/K Do not know

WTP Willingness to pay

A Park on street
 B Use Park N'Ride or bus
 C Train

D Reduce N^a of trips by car into work
 E Walk
 F Cycle

G Relevate term
 H Get a lift

Generally the thought of having to pay for parking proved to have the greatest effect upon respondents mode of travel although a more frequent response would be to attempt to alter their current parking location and travel by car to work. Many of the sample didn't know how much they would have to pay or had only a vague knowledge. Most were highly reluctant to pay any amount. Nine of the respondents who answered this question said that their likely response would be to try and park on-street. Four of the nine gave this as their only likely response; the remaining five all gave at least one other tactic.

Parking in-street would involve a 10-15 minute walk to get to their place of work, an additional 5-10 minutes compared to their current parking location for most of the respondents. For some respondents there would be some benefits from parking on-street making it easier to get out of the city centre, particularly in the afternoon rush-hour. In fact several of the respondents already use this as a tactic, parking on-street in the afternoon on those days when they have used their car for work purposes in the morning or early afternoon period. There would also be some problems in leaving their car on-street. Concern about theft or vandalism was mentioned by three of the people who said that they would probably leave their car on-street and by three other respondents who said that for this reason they would not leave their car on-street. Of the former group two respondents indicated that their willingness to leave their car on-street was due to the fact that they had a company car and that any damage would be covered by the company!

Four respondents indicated that rather than pay parking charges and a reluctance to park on-street they would travel to work by bus or use a park and ride scheme. A further four respondents indicated that they would be likely to consider travelling by bus after trying out on-street parking. Interestingly three of these nine respondents said that they would not be willing to pay for parking although clearly travel by bus incurs a cost of around 70 pence to £1.00. Three respondents indicated they would consider travelling in by train as a first or second response to parking charge increases. Finally two respondents claimed they would walk to work more often than they do currently or consider cycling.

The respondent who currently uses park 'n' ride claimed that she would be willing to pay in fares up to the amount she would have to pay for parking in the city centre, around £3.00 a day. She indicated a preference for the park and ride scheme because of the sense of danger of going into potentially deserted multi-storey car-parks late at night. On two days a week this respondent has to travel out to the park and ride to bring her car back into town because the park and ride service finishes before she has finished her work or other activities in the city centre. The only respondent who paid for parking considered that she currently pays enough for the current level of parking provision, and any further increases in parking charges for her or her staff would add to the pressure to relocate her firm outside the city or to an area where they could get a better level of parking either on-street or off-street. Interestingly however this respondent indicated that she would be willing to pay an additional amount for improvements to the current parking facilities, including better lit and manned car-parks. She had recently witnessed a break-in to her own car in a multi-storey car-park.

In thinking about their responses to this scenario all the people who claimed they need the car for work took this into account in their decisions. Most people had a very good idea of where they would be able to park on-street although it was noted by several respondents that areas where they do sometimes park on-street were currently under review as residents only parking areas. The two respondents who claimed they would travel by bus rather than pay parking charges or park on street did not need their car during work.

5. CONCLUSION

5.1 Travel choice decisions

- (a) The majority of the sample interviewed are predominantly car drivers. The majority of the sample have free parking. The use of the car to travel to and from work are influenced by four broad sets of factors in order of importance. Firstly, car ownership and availability, secondly, the cost and time advantages of car travel to other modes, thirdly, the need for a car as part of work, and fourthly, the ability to fulfil other activities during the working day and beyond.
- (b) The majority of the sample vary their travel time to avoid traffic congestion in the city centre. This is a major factor affecting the perception of overall driving conditions. Most of the respondents considered that the journey to and from work was within their threshold of comfort.
- (c) Even over a relatively short period of time people display an enormously varied range of trip-making behaviour even for daily trips for the same trip purposes. This makes the notion of typicality or variability very difficult to define in the choice of mode and travel patterns as well as depart times, number of trips per day and routes,
- (d) The majority of the sample could get to work by an alternative mode. Over half the respondents use more than one mode of travel during a usual working week. Most would use bus as an alternative to car. Bus fares are perceived as reasonable and are not a deterrent to using the bus more often. Amongst people who live within 3 miles of the city centre walk is a mode that is used or could be used. The actual time penalties of public transport alternative to car travel are small (less than 5 minutes). The reliability of bus services, especially on the return trip home, and the need for car at work were two major reasons why the bus was disliked or not used more often than it is now. A number of the sample, noticeably female respondents, had strong negative attitudes toward bus travel.
- (e) Over half the days diary data involved a respondent travelling to/from work without needing the car at work or making any other trips on the journey to/from work. Habit, laziness status and the general efficiency and preference for car travel all contribute to this pattern.
- (f) Overall the sample was split evenly between those who are dedicated car-users - that is people who could not readily conceive of travelling to/from work by an alternative mode of transport and those who already use or could conceive of travelling to work by other forms of transport. The first group would be highly insensitive to policies designed to affect car travel to and from work. The second group would be more sensitive, though the precise nature of the change in behaviour is not easy to predict. Some of the second group would be more readily deterred by policies designed to restrict car travel than others. A number are close to a threshold of change in any case. The remaining group use a variety of tactics - varying depart times, lift-giving, household sharing and so on within their weekly organisation of travel. These all indicate a highly complex possible set of reactions to new policy initiatives. Much more work of these range of reactions in relation to specific policies is needed.

5.2 Future conditions

- (a) Overall, the single factor most likely to affect peoples' travel mode choice or travel behaviour was an increase in parking charges. An increase in parking charges would make people either park on-street or else travel to work by other modes. This suggests that the most effective element deferent to car-travel is some form of pricing mechanism. The decision to park on-street is affected by the perceived safety of leaving the car unattended and would deter some people from such a strategy. Parking on-street would involve people in about an extra 5-10 minute journey time than currently.
- (b) Most people felt that they would be able to cope with more traffic on the roads largely by adjusting their departure times.
- (c) Improvements to existing bus services in terms of journey times and fares were unlikely, in isolation, to affect peoples demand for bus travel.
- (d) Generally, most people felt that they would be unlikely to use a park and ride scheme either because the existing sites are too close to the city centre or because they have access to a good bus service already they would use this instead.

5.3 Methodology

The travel diary interview method worked well as a means of grounding peoples preferences and responses to questions in their current day to day realities. Most people found the diary easy to fill in. A four day diary was found to be adequate for the purposes of the study although in future studies it would be preferable to obtain a full weeks data. Each interview lasted about 30 minutes. Ideally this needs to be longer. Each interview was different due to the nature of the diary and to the types of responses to the questions asked. This highlights a problem with trying to structure an interview format too closely. The scenarios involving increased parking charges and bus improvements were easily understood by the respondents.

It was felt that much more time is needed for the different scenarios to work through the various constraints operating on the individual and household's travel decision. More importantly the study did not explicitly examine attitudes to car travel although in several interviews image and status were clearly important factors affecting the decision to travel by car and the likelihood of switching mode.

5.4 Design of structured experiment

The information from the interviews proved invaluable to the design of the structured stated preference questionnaires (see Appendix I), both in terms of defining the choice-alternative, the attributes for each alternative and the attribute levels. The interviews highlighted the need to include questions about use of car in work in order to avoid over-estimating potential switch to bus or park and ride. For the purpose of assessing the likely demand for park and ride, the interviews indicated that for many people park and ride is not an option they would consider in their choice-set. This requires that a park and ride option needs to be modelled as a separate choice-option rather than inferred from a car versus bus comparison. The results of the main survey will be reported in a future working paper.

5.5 This brief survey represent a first attempt at understanding motorists possible reactions to long-term changes in driving conditions and possible policies for influence travel choices. There is clearly much more work, involving a range of alternative techniques, required to understand these reactions. Specifically a number of suggestion for future areas of enquiry can be made:

- (1) more detailed examination of current attitudes to car travel is required,
- (2) greater emphasis on the temporal dimension of behaviour to include past behaviour and choices as they influence current and future choices,
- (3) continued focus on the constraints operating now and in the future operating on travel choice decisions,
- (4) experimentation with different approaches, to make future scenarios appear more realistic. In particular work is needed to emphasise the emotional component of responses to future scenarios including understanding of the aspirations and plans which people have for the future.

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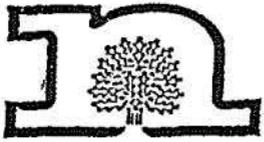
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APPENDIX I

STATED PREFERENCE QUESTIONNAIRE USED FOR MAIN SURVEY



CHANGE OF TRAVEL MODE PROJECT: GREATER NOTTINGHAM AREA

FOR OFFICE
USE ONLY

The Institute for Transport Studies at the University of Leeds, on behalf of Nottinghamshire County Council, is investigating the factors that influence travel in the Greater Nottingham area.

We would therefore be grateful if you or a member of your household could complete the attached questionnaire and return it in the FREEPOST envelope provided AS SOON AS POSSIBLE. No stamp is required. All information provided will be treated as STRICTLY CONFIDENTIAL and will not be used for any other purpose. The success of this study is dependent on a good response from the public. PLEASE HELP!

WORK TRIPS

- 1. Do you work or study in central Nottingham? Yes [/] No []
- 2. How many days a week do you normally go to work/school/college? days
- 3. At what time do you normally start? and finish?
- 4. Do you have to be at work/school/college for a certain time? Yes [] No []
- 5. How do you normally travel to work/school/college? Car Driver [] Car Passenger [] Bus [] Other []

NON WORK TRIPS

- 6. How often do you travel to central Nottingham for shopping and leisure trips?

Never	Less than once a month	Once a month	Once a fortnight	Once a week	More than once a week
[]	[]	[]	[]	[]	[]

- 7. How do you normally travel to central Nottingham for shopping and leisure trips?

Car Driver [] Car Passenger [] Bus [] Other []

- 8. How many cars and vans are available for use by your household?
- 9. How many of these are company cars?

WE WOULD NOW LIKE TO ASK YOU SOME QUESTIONS ABOUT YOUR MOST RECENT JOURNEY TO CENTRAL NOTTINGHAM. IF YOU DO NOT TRAVEL TO NOTTINGHAM PLEASE GO TO QUESTION 40.

10. What was the purpose of this journey?
 Work/Education [] Shopping/Leisure []
11. Was a car available to you for this journey?
 Yes [] No []
12. How long did it take you to get from your home to your final destination? minutes, including time spent walking and waiting.
13. How much of this time was spent travelling in a car or bus at less than normal speeds (e.g. in slow moving traffic, stopped at traffic lights or bus stops etc.)? minutes

 17

QUESTIONS 14 to 19 ARE FOR BUS USERS. IF YOU DID NOT USE BUS FOR YOUR MOST RECENT TRIP TO NOTTINGHAM PLEASE GO TO QUESTION 23

14. How much of the time involved waiting for the bus? mins
15. How much of the time involved walking to and from bus stops? mins
16. How much did this journey cost you? pence
17. What type of ticket did you use?
 Adult single [] Child single [] OAP single []
 Adult return [] Child return [] OAP return []
 Travelcard [] Other (please specify)
18. How frequent are the buses to Nottingham at the time of day that you travel? Every mins
19. If buses had not been available to make your trip what would you have done?
 Travelled as car driver [] as car passenger [] by train []
 by other means [] not travelled []

QUESTIONS 20 TO 22 REFER TO BUS USERS WHO COULD POSSIBLY TRAVEL BY CAR (EITHER AS THE DRIVER OR A PASSENGER). IF THIS DOES NOT APPLY TO YOU PLEASE GO TO QUESTION 37.

20. How much time would be spent travelling in the car? mins
21. How much time would involve walking, for example from where you parked your car to your final destination? mins
22. How much would the journey cost you? (Give the total cost after deducting any contributions made to you by passengers or your employer).
 Parking charges pence
 Petrol costs (one way journey) pence
 If your employer would contribute to the costs of this journey, please state the amount pence

 #6

QUESTIONS 23 to 27 REFER TO TRAVEL BY CAR. IF YOU DID NOT USE CAR FOR YOUR MOST RECENT TRIP TO NOTTINGHAM PLEASE GO TO QUESTION 37

23. How much of the time involved walking, for example from where you parked your car to your final destination? mins

48

24. How many other people travelled with you? people

25. How much did this journey cost you? (Give the total cost after deducting any contributions made to you by passengers or your employer)

Parking charges pence

Petrol costs (one way journey) pence

If your employer contributes to the cost of the journey, please state the amount: pence

26. Was it essential to use the car for this journey?

YES, needed the car for work.

YES, needed the car for other reasons (please specify)

NO.

27. If a car was not available to make your trip what would you have done?

Travelled by bus by train by other means
not travelled

QUESTIONS 28 to 36 REFER TO CAR USERS WHO COULD POSSIBLY TRAVEL BY BUS. IF THIS DOES NOT APPLY TO YOU PLEASE GO TO QUESTION 34

28. How long would it take you to get to the bus stop? mins

29. During the main part of the day how frequent are buses to Nottingham? Every mins

30. How long would you expect to wait until the bus arrived? mins

31. How long would you expect to spend travelling on the bus? mins

32. How long would it take you to get from the bus stop in central Nottingham to your final destination? mins

33. What increase in your car journey time would be just enough to make you travel by bus instead? mins

34. What increase in your car journey costs would be just enough to make you travel by bus instead? pence

35. What decrease in bus journey time would be just enough to make you travel by bus instead? mins

36. What decrease in the bus fare would be just enough to make this travel by bus instead? pence

80

37. IF YOU ARE A CAR USER WHO COULD POSSIBLY TRAVEL BY BUS OR A BUS USER WHO COULD POSSIBLY TRAVEL AS A CAR DRIVER. PLEASE CONTINUE. IF NOT GO TO QUESTION 40

We would now like you to reconsider your most recent journey to Nottingham and state whether you would travel by car or by park and ride in each of the following eight situations. By park and ride, we mean that you would drive to a site close to the route you currently use to travel to Nottingham and park your car there. You would then ride into Nottingham on a specially provided bus service. The car park provided would be of high quality and emphasis would be placed on providing security both for yourself and your vehicle. There would always be a bus waiting in the park and ride site for you to board and these buses would depart every five minutes.

You should assume that you are making the journey for the same purpose as the last journey you made and that everything else besides the features presented below would be the same as for the last journey you made. THE INFORMATION GIVEN BELOW IS IMAGINARY: IT DOES NOT MATTER IF IT IS VERY DIFFERENT FROM THAT WHICH YOU NORMALLY FACE.

THE THINGS YOU NEED TO CONSIDER ARE:

FOR CAR

PETROL COST. This is the amount of money you would spend on petrol for a one-way journey (i.e. after contributions made to you by passengers or your employer).

PARKING COST. This is the amount of money you would spend for parking your car for the duration of your visit to Nottingham (i.e. after contributions made to you by passengers or your employer).

WALK TIME. This is the amount of time spent walking from where you parked your car to your final destination.

IN-VEHICLE TIME. This is the amount of time that you spend travelling in your car. You should assume that this remains as it is now.

FOR PARK AND RIDE

COST. This is the amount of money spent on petrol driving to the park and ride site plus the bus fare from the park and ride site to central Nottingham.

WALK TIME. This is the amount of time spent from the stop where you get off the bus to your final destination.

IN-VEHICLE TIME. This is split into two parts:

CAR ACCESS TIME. This is the amount of time that you spend in your car driving from your home to the park and ride site. You should assume that this always takes 12 minutes.

BUS TIME. This is the amount of time that you spend travelling on the bus from the park and ride site to central Nottingham.

	IN-VEHICLE TIME of (mins) which	BUS TIME (mins)	WALK TIME (mins)	COST (pence)	
A. PARK AND RIDE	22	10	5	45	
CAR	As Now	-	10	PARKING 0	PETROL 25

In these circumstances I would travel by PARK AND RIDE [] CAR []

B. PARK AND RIDE	22	10	2	30	
CAR	As Now	-	5	PARKING 0	PETROL 60

In these circumstances I would travel by PARK AND RIDE [] CAR []

C. PARK AND RIDE	17	5	2	30	
CAR	As Now	-	10	PARKING 40	PETROL 25

In these circumstances I would travel by PARK AND RIDE [] CAR []

D. PARK AND RIDE	17	5	5	45	
CAR	As Now	-	5	PARKING 40	PETROL 60

In these circumstances I would travel by PARK AND RIDE [] CAR []

E. PARK AND RIDE	17	5	5	10	
CAR	As Now	-	10	PARKING 100	PETROL 60

In these circumstances I would travel by PARK AND RIDE [] CAR []

F. PARK AND RIDE	17	5	2	30	
CAR	As Now	-	5	PARKING 100	PETROL 25

In these circumstances I would travel by PARK AND RIDE [] CAR []

G. PARK AND RIDE	22	10	2	30	
CAR	As Now	-	10	PARKING 150	PETROL 60

In these circumstances I would travel by PARK AND RIDE [] CAR []

H. PARK AND RIDE	22	10	5	10	
CAR	As Now	-	5	PARKING 150	PETROL 25

In these circumstances I would travel by PARK AND RIDE [] CAR []

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38. Would you consider using any of these park and ride sites and if so how long would it take to drive from your home to the site?

- The Forest [] NO [] YES, it would take ... mins
- Queens Drive, Wilford [] NO [] YES, it would take ... mins
- Daleside Road, Colwick [] NO [] YES, it would take ... mins
- Southglade Drive, Bulwell [] NO [] YES, it would take ... mins
- Wilkinson Street, Basford [] NO [] YES, it would take ... mins

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39. Are there any other locations that you think would make a good park and ride site?

[] NO [] YES, please give details

WE WOULD BE GRATEFUL IF YOU COULD PROVIDE US WITH SOME DETAILS ABOUT YOURSELF AND YOUR HOUSEHOLD. THIS INFORMATION WILL BE USED TO ENSURE THAT OUR SURVEY IS REPRESENTATIVE. IT WILL NOT BE USED FOR ANY OTHER PURPOSE.

40. What age group are you in?

- Under 18 [] 25-34 [] 55-64 []
- 18-24 [] 35-44 [] 65+ []

41. Are you: Male [] Female? []

42. Which of the following income groups (before tax) applies to your household?

- £5,000 or less per annum/£100 or less per week []
- £5,001-10,000 per annum/£101-200 per week []
- £10,001-15,000 per annum/£201-300 per week []
- £15,001-20,000 per annum/£301-400 per week []
- Over £20,000 per annum/Over £400 per week []

43. How many people live in your household?

44. If you have any comments about this questionnaire or about travel in Nottingham in general, please give them in the space below.

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If you have any further comments about this survey you can contact Dr John Preston on Leeds (0532) 335345.

THANK-YOU VERY MUCH FOR YOUR HELP

Please fold the questionnaire and return it in the FREEPOST envelope provided.