

National Travel Survey 2005 Technical Report

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Key Symbols and conventions

In tables where figures have been rounded to the nearest final digit, there may be an apparent slight discrepancy between the sum of the constituent items and the total shown.

Symbols. The following symbols have been used throughout.

- .. = not available
- . = not applicable
- = Negligible (less than half the final digit shown)
- 0 = Nil

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1 INTRODUCTION

1.1 Background

The National Travel Survey (NTS) provides up-to-date and regular information about personal travel within Great Britain and monitors trends in travel behaviour. The Ministry of Transport commissioned the first NTS in 1965/1966, and it was repeated on an ad-hoc basis in 1972/1973, 1975/1976, 1978/1979, and 1985/1986. In 1988, the NTS became a continuous survey (i.e. fieldwork was conducted on a monthly basis) with an annual set sample size of 5,040 addresses which had increased to 5,796 by 2001. In 2002 the annual set sample size increased to 15,048 addresses.

Since January 2002, the Department for Transport (DfT) has commissioned the National Centre for Social Research (NatCen), an independent social research institute, as the contractor for the NTS. NatCen is responsible for questionnaire development, sample selection, data collection and editing, and data file production. The DfT is responsible for building the database and data analysis, publication and archiving.

This report describes the methodology for sample design, fieldwork procedures, data preparation and data provision for the 2005 NTS.

1.2 Uses of the NTS data

The NTS gathers information about several different aspects of travel including: purpose of travel, method of travel (walk, car, bus etc.), origin and destination of trips, time travelling and distance, as well as detailed information about individuals, vehicles and households.

DfT publishes the survey results. The findings and data are used by a variety of organisations including: Government departments (including DfT, HM Revenue and Customs, the Department for Trade and Industry, the Department for Education and Skills), the Transport Research Laboratory, the Highways Agency, Friends of the Earth, the Institute of Child Health, Help the Aged, Safe Routes to School, Transport 2000, the AA and RAC, university academics and students, transport consultants and local councils (as background information for their local transport plans). DfT deposit the NTS dataset at the UK Data Archive at the University of Essex. Figure 1-1 gives examples of the uses of NTS data.

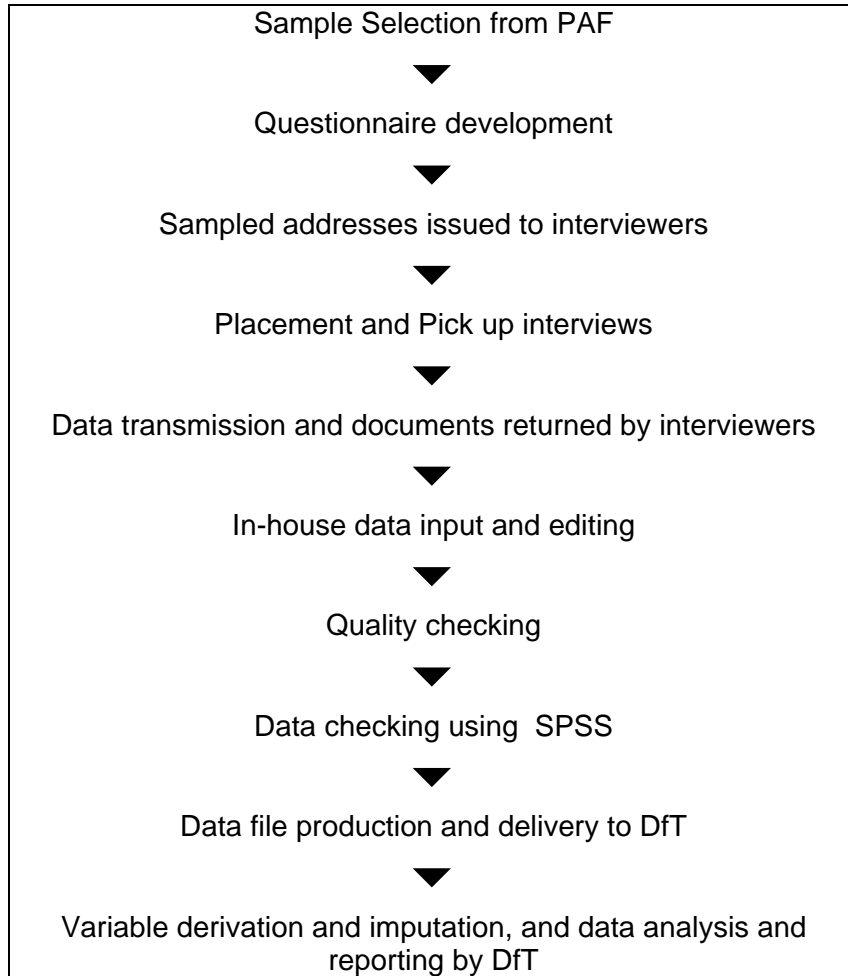
Figure 1-1 Examples of the uses of NTS data

- NTS data has been used to:
- Build up a picture of changes in personal travel over time
 - Examine travel among specific groups in the population, such as children, elderly people, disabled people etc.
 - Understand the circumstances in which people will tend to use cars rather than public transport (or vice versa)
 - Understand how people travel to the shops or to school
 - Demonstrate the relationship between increased driving licence holding and falling bus use among pensioners
 - Identify the decline in the proportion of young people learning to drive
 - Assess the take-up of OAP concessionary fares
 - Understand how increased car ownership has led to increased driving among women
 - Study the use of buses by school children and how this has changed
 - Identify travel difficulties experienced by different groups
 - Monitor accident rates amongst different types of road users
 - Establish annual mileage for cars in order to advise on road and fuel tax
 - Help to monitor journey speeds
 - Examine car ownership levels and the accessibility of bus services in rural areas

1.3 Review of fieldwork sequence

The NTS uses two data collection methods: face to face interviewing using computer assisted personal interviewing (CAPI) and self-completion of a 7 day travel record. Figure 1-2 outlines the sequence of NTS tasks.

Figure 1-2 The sequence of NTS tasks



1.3.1 Sample selection

The 2005 NTS was based on a random sample of 15,048 private households, drawn from the Postcode Address File (PAF). The sample was designed to ensure that the addresses for each quarter were representative of the total GB population (see Chapter 2).

1.3.2 The interview

Interviewers were instructed to begin fieldwork at the beginning of the quota month. Travel Week start dates were allocated within quota months, which ran from mid-month to mid-month. The field work procedure is outlined in Figure 1-3 and began with the interviewer sending **advance letters** to the sampled addresses. These letters briefly explained the purpose of the NTS, and mentioned that an interviewer would contact them. It also stated that each respondent would receive a **£5 gift voucher** if all household members completed every section of the survey. From June 2004 onwards, a **book of six first-class stamps** was also included with the advance letter.

Interviewers followed up the advance letter by making **face-to-face contact** with the household to make arrangements for the placement interview. The **placement interview** generally took place before the Travel Week started. This interview was

conducted with all the household members and gathered information about the household, its individual members, household vehicles and long distance journeys that the household members had recently made. At the end of this interview the interviewer explained and placed the 7 day **travel diaries** with all household members.

If there was a gap of more than a few days between the placement interview and the start of the Travel Week, interviewers made a **reminder call** or sent a **reminder card** to the household to remind them that their Travel Week was about to start. This was followed by a **mid week check call** (either by telephone or face-to-face) during the Travel Week which checked on the household's progress in completing their diaries.

Within 6 days after the end of the Travel Week a **pick up interview** was conducted and the diaries were collected and checked. The pick up interview was used to complete any outstanding sections of the placement interview and to also check whether anything, such as a respondent's possession of various types of travel card, had changed since placement.

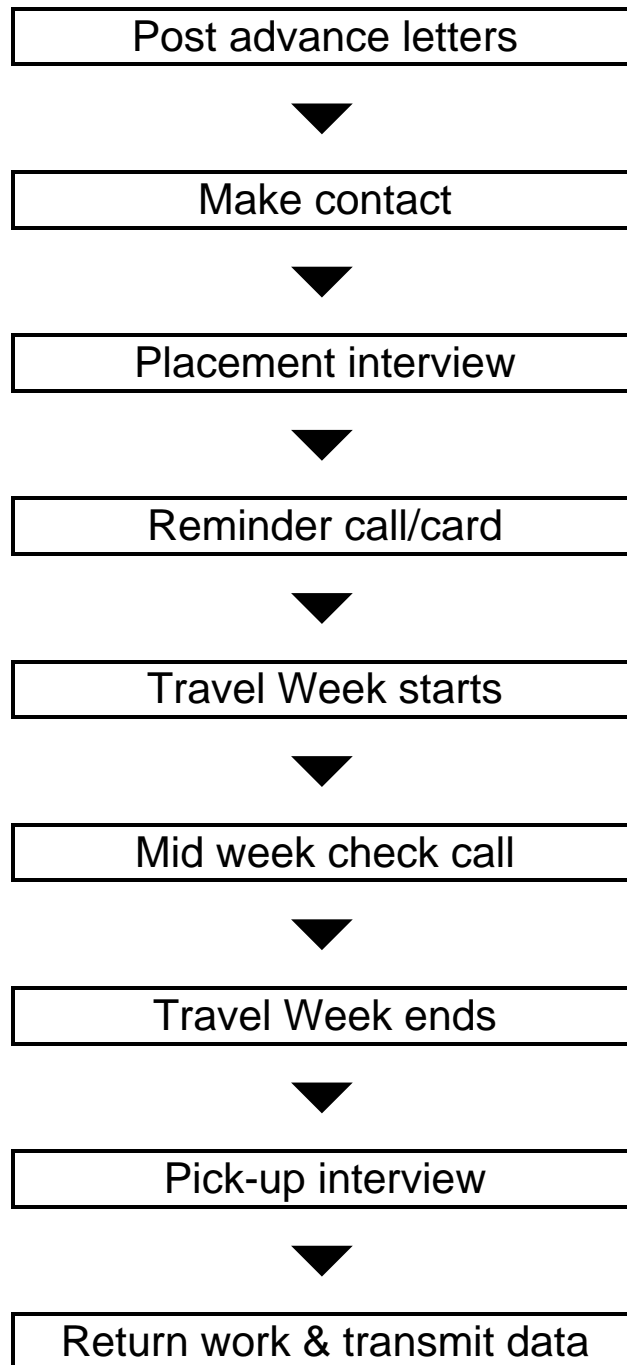
1.3.3 Data input and editing

Usually the day after the pick up call, CAPI data was **transmitted** back to the NatCen operations department and all paper documents were **returned** by post. Once the documents had been received, a team of NTS coders booked the diaries into the control system, and coded, keyed and edited the travel record information using the **Diary Entry System**. The **contents of the CAPI questionnaire** were edited and checked, and all interviewer notes examined. During this process the interviewers were contacted if there were any queries that could not be resolved by the coders. If necessary, the interviewer re-contacted respondents to resolve any issues.

Interviewers' progress was monitored on a weekly basis. The in-office deadline for fieldwork completion was approximately 8 weeks after the start of the first Travel Week for the quota month in question. For example, the cut off deadline for the January quotas was around 10th March. Quality checks were also made on selected interviewers on a rota basis and ten percent of addresses were back-checked¹.

¹ Back-checking involves contacting participating households by telephone to ensure that they were happy with the way that the interview was conducted.

Figure 1-3 NTS fieldwork procedures



1.3.4 Data file protection

The data were organised into nine record types and delivered to DfT. The nine record types consisted of households, individuals (two records), vehicles, long distance journeys made in the three weeks before the Travel Week (two records), days within the Travel Week, journeys made during the Travel Week, and the stages of these journeys. Lastly, NatCen provided DfT with PSU-level variables associated with each household - data which were not collected directly from households. See section 2.9 for a detailed description of PSU-level variables.

1.4 Response

Only households classed as ‘fully co-operating’² are included in the response calculations. A national response rate of 62% was achieved in 2005. This is equivalent to an achieved sample rate (ASR) of 56% in 2005. The ASR includes those households classified as ineligible in the denominator.

² See Section 3.11 for a definition of ‘fully co-operating’ and for full response details for 2005.

2 SAMPLE SELECTION

2.1 Sample size and structure

The sample for 2005 was designed to provide a representative sample of households in Great Britain for each survey year. The annual issued sample size in 2005 was the same as 2002 at 15,048 addresses. This is over two and a half times the sample size for 2000 and 2001, and three times that for 1998 and 1999. The sample size was increased in 2002 to provide the degree of precision required by DfT with just one year's data. Previously, it had been necessary to combine three years' data for most analyses.

The NTS is based on a stratified two-stage random probability sample of private households in Great Britain. The sampling frame is the 'small user' Postcode Address File (PAF), a list of all addresses (delivery points) in the country which receive less than 25 items of mail per day. For practical reasons, the Scottish islands and the Isles of Scilly were excluded from the sampling frame. This excludes 2.2% of addresses in Scotland and 0.2% in Great Britain.

The sample was drawn firstly by selecting the Primary Sampling Units (PSUs), and then by selecting addresses within PSUs. The sample design employs postcode sectors as PSUs. There were 684 PSUs in 2005.

2.2 Quasi-panel design

Following a review of the NTS methodology³, it was decided that the NTS should introduce a quasi-panel design from 2002 onwards. According to this design, half the PSUs in a given year's sample are retained for the next year's sample and the other half are replaced. In 2002 half the PSUs were selected at random and were used in the 2003 sample. Keeping the sample sorted in the original order, PSUs were allocated alternately to two groups. This gave two sub-samples, each representative of the entire 2002 sample. One sub-sample of PSUs was then selected at random. The retained PSUs were used in 2003 and then dropped. The PSUs selected fresh for 2003 were used in 2004. This has the effect of reducing the variance of estimates of year-on-year change. Hence 342 of the PSUs selected for the 2004 sample were retained for the 2005 sample, supplemented with 342 new PSUs. The PSUs carried over from the 2004 sample for inclusion in 2005 were excluded from the 2005 sample frame, so they could not appear twice in the sample. The dropped PSUs from 2003 were included in the sample frame.

Whilst the same PSU sectors might appear in different survey years, no single addresses were allowed to be in more than one year. The PSUs which were carried over each year had different addresses selected to those selected in the same PSU in the previous year. Each year, NatCen provided the sampling company with a list of the addresses selected for the previous year's survey. These addresses were excluded from the sampling frame before the addresses for 2005 were selected. This meant respondents to the previous year's survey in the carried over PSUs could not be contacted again.

³ Elliott, D. (2000) ONS Quality Review of the National Travel Survey: Some Aspects of Design and Estimation Methods.

2.3 Selection of sample points

A list of all postcode sectors in Great Britain was generated, excluding those in the Scottish Islands and the Isles of Scilly. Sectors carried over from each year were also excluded. Sectors south of the Caledonian Canal with less than 500 delivery points and sectors north of the Caledonian Canal with less than 250 delivery points were grouped with an adjacent sector. Grouped sectors were then treated as one PSU. On average each PSU contained about 2,900 delivery points.

This list of postcode sectors in Great Britain was stratified using a regional variable, car ownership and population density. This is done in order to increase the precision of the sample and to ensure that the different strata in the population are correctly represented. Random samples of PSUs were then selected within each stratum.

The regional strata for Great Britain are based on the NUTS2 areas, grouped in a few cases where single areas are too small. NUTS or Nomenclature of Units for Territorial Statistics is a European-wide geographical classification developed by the European Office for Statistics (Eurostat). NUTS2 roughly relates to counties or groups of counties in England, and groups of unitary authorities or council areas in Scotland and Wales. The 40 regional strata for the survey are shown in Figure 2-1.

Within each region, postcode sectors were listed in increasing order of the proportion of households with no car (according to the 2001 Census). Cut-off points were then drawn approximately one third and two thirds (in terms of delivery points) down the ordered list, to create three roughly equal-sized bands. Within each of the 120 bands thus created (40x3), sectors were listed in order of population density (people per hectare). 342 postcode sectors were then systematically selected with probability proportional to delivery point count⁴. Differential sampling fractions were used in Inner London, Outer London and the rest of Great Britain in order to oversample London (see section 2.4 for further details). These sectors were then added to the 342 sectors carried over from the previous year's survey to make the final sample of 684 sectors for each year.

⁴ After expansion by the Multiple Occupancy Indicator (MOI) in Scotland (see Section 2.7).

Figure 2-1 NTS regional stratification variable

	England	GOR code
1	Inner London – East	7 Greater London
2	Inner London – West	7 Greater London
3	Outer London – East and North East	7 Greater London
4	Outer London – South	7 Greater London
5	Outer London West and North West	7 Greater London
6	Devon and Cornwall	9 South West
7	North Somerset, North East Somerset, Bath, Somerset and Dorset	9 South West
8	Bristol, South Gloucestershire, Gloucestershire and Wiltshire	9 South West
9	Oxfordshire, Buckinghamshire and Berkshire	8 South East
10	Hampshire and Isle of Wight	8 South East
11	Kent	8 South East
12	West Sussex and East Sussex	8 South East
13	Surrey	8 South East
14	Essex	6 Eastern
15	Cambridgeshire, Suffolk and Norfolk	6 Eastern
16	Hertfordshire and Bedfordshire	6 Eastern
17	Leicestershire, Lincolnshire and Northamptonshire	4 East Midlands
18	Warwickshire and Hereford & Worcester	5 West Midlands
19	West Midlands	5 West Midlands
20	Shropshire and Staffordshire	5 West Midlands
21	Nottinghamshire and Derbyshire	4 East Midlands
22	Cheshire	2 North West and Merseyside
23	Merseyside	2 North West and Merseyside
24	Greater Manchester	2 North West and Merseyside
25	Lancashire and Cumbria	2 North West and Merseyside
26	South Yorkshire	3 Yorkshire and Humberside
27	West Yorkshire	3 Yorkshire and Humberside
28	North Yorkshire and Humberside	3 Yorkshire and Humberside
29	Cleveland, County Durham and Northumberland	1 North East
30	Tyne & Wear	1 North East

Figure 2-1 NTS regional stratification variable (continued)

Wales		GOR code
31	Anglesey, Gwynedd, Conwy, Denbighshire, Flintshire, Wrexham, Powys, Ceredigion	11 Wales
32	Carmarthenshire, Neath Port Talbot, Pembrokeshire, Swansea	11 Wales
33	Blaenau Gwent, Caerphilly, Monmouthshire, Newport, Torfaen	11 Wales
34	Bridgend, Cardiff, Merthyr Tydfil, Rhondda Cynon Taff, Vale of Glamorgan	11 Wales
Scotland		GOR code
35	Grampian, Highland, Argyll & Bute	12 Scotland
36	Tayside, Fife and Central	12 Scotland
37	Edinburgh, Lothians and Borders	12 Scotland
38	Glasgow and Dunbartonshire	12 Scotland
39	Lanarkshire, Renfrewshire and Inverclyde	12 Scotland
40	Ayrshire and Dumfries & Galloway	12 Scotland

2.4 Oversampling of London

Each year London PSUs were oversampled in order to compensate for lower response rates. Response rates tend to be much lower in London compared with the rest of Great Britain, with rates being lowest in Inner London. The NTS oversamples Inner and Outer London with the aim of achieving responding sample sizes in London and elsewhere which are proportional to their population. Estimates of response rates were made in order to oversample Inner and Outer London; 49% for Inner London, 58% for Outer London and 67% for the rest of Great Britain. These estimates were based on NTS response rates from 1995-2000 plus our own experience of achieving full household co-operation in these areas. Of the 684 sectors in the sample, 56 were in Outer London and 44 in Inner London.

2.5 Selection of addresses

Within each selected sector, 22 addresses were sampled systematically, giving a sample of 15,048 addresses (684 postcodes x 22).

About 24.7 million delivery points were available for selection in Great Britain as a whole, with about three million delivery points in Greater London. Consequently the probability of an address in Great Britain being selected for the 2005 NTS was one in 1620; in Inner London this was one in 1267 and in Outer London one in 1447.

2.6 Allocation of PSUs

As travel patterns show a seasonal variation, equal numbers of PSUs were assigned to each quota month (57 PSUs per month). Furthermore, PSUs were allocated to quota months such that a nationally representative sample would be obtained for each quarter.

2.7 Selection of households at multi-household addresses

The term 'multi-household address' relates to an address with accommodation for more than one household. An example of this would be a house (no. 15) which has been split into two

flats (15a and 15b) or there could be two families living as two separate households in one house.

In England and Wales multi-household addresses are not reliably identified on the PAF. On the whole these addresses will not be identified until the interviewer has visited the address. As a result these households will have had a lower chance of selection than others. While there are relatively few such addresses (one percent), they account for a larger proportion of households, and these households tend to be rather different to others (poorer, younger, and smaller), so consequent biases may not be entirely trivial. Special procedures are in place to minimise this bias; interviewers are instructed to include all households up to a maximum of three at each address. If there are more than three at any one address, interviewers use a selection grid on the Address Record Form to randomly select three of them. This limitation on the number of extra households leaves some residual bias that can be removed using corrective weighting. A weighting strategy for the NTS has been developed (Pickering et al, 2005). This has been used to weight NTS data for 1995 to 2004. Results from the 2005 NTS and all future surveys will be published on a weighted basis.

In contrast to England and Wales, the 'multiple occupancy indicator' (MOI) on PAF reliably identifies the number of households there are at each address in Scotland. Consequently the sampling frame for Scotland was expanded by MOI to give these extra households the same chance of being selected as households at single occupancy addresses. Thus at multi-household addresses, interviewers randomly selected one household for interview.

2.8 Ineligible (deadwood) addresses

The following types of address were classified as ineligible in 2005. (See also section 3.11 Outcome Coding):

Houses not yet built or under construction.

Demolished or derelict buildings or buildings where the address has "disappeared" when 2 addresses were combined into one.

Vacant/empty housing unit - housing units known not to contain any resident household on the date of the 1st contact attempt.

Non-residential address - an address occupied solely by a business, school, government office, other organisation, etc., with no resident persons

Residential accommodation not used as the main residence of any of the residents. This is likely to apply to second homes/seasonal/vacation/temporary residences. These were excluded to avoid double counting - the households occupying the address had a chance of selection at their permanent address.

Communal establishment/institution - an address at which 4 or more unrelated people sleep; while they may or may not eat communally, the establishment must be run or managed by the owner or a person (or persons) employed for this purpose.

Address is residential and occupied by a private household(s), but does not contain any household eligible for the survey - it is very rare for a residential household not to be eligible for NTS interview, exceptions include 'Household of foreign diplomat or foreign serviceman living on a base', addresses which are not the 'Main residence' of any of the residents and addresses where there are no residents aged 16 or over.

Address out of sample - cases where interviewers were directed not to approach a particular address. This is very rare and usually only occurs where an address should not have been listed on the original sampling frame.

2.9 PSU level variables

In addition to the information provided by members of the sampled households, the NTS also collects information measured at the PSU level (P-level). The value of a P-level variable applies to all households living within that PSU. The P-level is therefore the highest level at which the data may be analysed, coming just above the H (Household) level in the analysis hierarchy.

The 2005 NTS included fifteen P-level variables (see Figure 2-2). In addition, there are three blank fields (P3, P4 and P14) and one variable which is no longer in use (P16).

Figure 2-2 Description of P-level variables

Variable	Description
P1	PSU identification number
P2	Region (Scotland, Wales and nine Government office regions in England)
P3	Blank field, not used
P4	Blank field, not used
P5_2001	Type of Area (urban/rural classification) constructed from a classification of urban areas derived by ONS and DfT from the 2001 Census of Population.
P6	PSU Population Density derived from 2001 Census figures on the number of people living in private households per hectare
P7	LA Population Density derived from 2001 Census figures on the number of people living in private households per hectare.
P8-14	Concessionary fares This information is obtained by DfT via a questionnaire sent to all local authorities
P8	Availability of concessionary bus fares for pensioners
P9	Eligibility for concessionary bus fare schemes for pensioners
P10	Type of concession bus fare schemes for pensioners
P11	Membership fee for concessionary bus fare schemes for pensioners
P12	Times available for concessionary bus fare schemes for pensioners
P13	Geographical area covered by the concessionary bus fare schemes for pensioners
P14	Blank field, not used
P15	County of residence
P16	Regional stratification prior to 2002 No longer in use
P17	Regional stratification (from 2002)
P18	County/ Unitary Authority codes

3 FIELDWORK PROCEDURES AND RESPONSE RATE

3.1 Introduction

The NTS is a continuous survey with fieldwork taking place throughout the year. In 2005 as in previous years, respondents were interviewed face to face using Computer-Assisted Personal Interviewing (CAPI), and they recorded their travel details in a 7 day self-completion travel record.

Interviewers began fieldwork at the start of each month. The fieldwork involved making contact with households, conducting the placement interview, placing the Travel Diaries and conducting the pick up interview at the end of the Travel Week. Travel Week start dates were allocated within quota months, which ran from mid-month to mid-month. For example, the first Travel Week that interviewers could allocate for the June quota, started in mid-June. The CAPI data and NTS documents were returned to the NatCen's Operations Department for in-house data input and editing.

The 2005 CAPI questionnaires were designed and implemented using the software system Blaise 4. A single Blaise instrument was used for the household, individual, vehicle and administrative sections of the questionnaire. A separate Diary Entry System (DES) was written in Visual Basic. Selected CAPI variables were extracted and loaded into the NatCen field management system from where they were referenced by the DES. This process provides contextual information from the CAPI interview for those people inputting and editing travel record data.

3.2 Interviewer briefings

Interviewers were briefed by the lead researchers during a series of two day briefings. The briefings covered all aspects of the survey and included the completion of a dummy interview on interviewer laptops, as well as role-play exercises to practise doorstep technique and the placing and picking up of the travel records. Interviewers were also given a pre-briefing exercise. This involved completing their own travel record using their own journey details for a week, studying the definitions manual and completing a short test on this.

3.3 Questionnaire and document despatch to interviewers

Before the start of each quota month, the Operations Department transmitted the sampled addresses and the questionnaire to the interviewers by modem. The relevant NTS materials were despatched to the interviewers by post.

Any queries about transmission or other technical matters were dealt with by a computer helpline run from the Operations Department during working hours, and by a team of experienced interviewers working from home outside of working hours. Laptop maintenance was handled by a separate department within NatCen. The interviewers were also able to contact the staff in the specific team within the Operations Department which dealt with the NTS.

3.4 Contacting respondents

Interviewers were given **advance letters** to send to the selected addresses in advance of their first call (see Appendix C). A Welsh translation (and an equivalent English version) of the advance letter was used for addresses in Wales. The advance letter gave some general background to the survey and explained its importance, some of its uses, and how the household had been selected. It also stated that each respondent would receive a **£5 gift voucher** if the placement interview was complete and all household members had filled out a travel record. See section 3.12 for more details on the £5 incentive payment for respondents.

The letter included a space for interviewers to write in their name so that respondents knew who would be calling and to make the letters more personal. The letters were sent in '**On Her Majesty's Service**' envelopes and also enclosed was an **NTS fridge magnet**. From June 2004 onwards, a **book of six first-class stamps** was also included with the advance letter as a gesture of goodwill to encourage respondents to take part.

Interviewers were notified of any refusals made direct to the Operations Department as a result of the advance letter. Interviewers were not required to visit these addresses and they did not count against interviewers' individual response rates. However, they were counted as non-response (office refusals) in calculating the overall response to the survey.

A few days after the advance letters had been sent, interviewers made contact with respondents by personal visit. Interviewers were required to make a minimum of 4 calls. These had to be at different times of day and on different days of the week. If there was still no contact, only then could an interviewer return a case as a 'non-contact'. However, in practice, interviewers generally made far more calls than this. The average number of calls made for each type of outcome is shown in Table 3-1.

Interviewers had a **survey leaflet** to use on the doorstep (see Appendix E). This contained information about the reasons for carrying out the survey, how households were chosen, and selected findings from previous surveys. Interviewers could leave this with respondents who were not sure if they wanted to take part, and call back at a later date. They also left it if they made an appointment to come back and do the interview. Interviewers could also use **DfT Personal Travel Factsheets** to demonstrate to possible respondents the type of data collected by the NTS. For any young children, a themed **fun pack** (which included stickers, a colouring-in book and pens) was provided for their amusement whilst adults completed the survey.

Table 3-1 Mean number of calls, by outcome

2005	
Fully co-operating	6.1
Partially co-operating	6.3
Non-contact	8.5
Refusal	4.6
Other unproductive	4.5
Unknown eligibility	8.1
Ineligible	2.9
Overall average	5.6

3.5 Confidentiality

Respondents were informed in the advance letter that their participation was voluntary and that any information they provided would remain confidential and would not be passed on to anyone outside NatCen in a form that could be used to identify them. Respondents were provided with a telephone number for Natcen's Operations Department that they could telephone if they had any queries. Any substantive queries or complaints were subsequently passed on to researchers to deal with.

3.6 Allocation of Travel Weeks

Each household had to be allocated a Travel Week during which they kept their travel record and entered details into the **fuel and mileage chart**. Travel Week start dates were allocated within quota months, which ran from mid-month to mid-month. The travel recording periods for each month are shown in the figure below.

Figure 3-1 NTS 2005 quota month dates

2005		
MONTH	From	To
January	12 January	11 February
February	12 February	13 March
March	14 March	13 April
April	13 April	12 May
May	13 May	12 June
June	13 June	13 July
July	14 July	13 August
August	14 August	12 September
September	13 September	12 October
October	13 October	12 November
November	13 November	12 December
December	13 December	11 January

It was important that the choice of Travel Week was not left to the discretion of the respondent or interviewer as this could lead to bias. To prevent bias, it was necessary to ensure that the Travel Weeks were evenly spread over the days of the week as well as the weeks of the quota month. The method for doing this was to give each interviewer a **Travel Week Allocation Card** listing 22 Travel Week start dates for the month. These 22 dates were randomly selected from all the dates from mid-month to mid-month, thus giving each interviewer a slightly different set of 22 dates.

The interviewer had to allocate a start date to every address in their assignment, whether or not it was productive. They did this by allocating the first address at which they had a definite outcome (either a placement interview, deadwood, refusal or non-contact) to the first date available on the list, the next address to the second date and so on. In exceptional circumstances where interviewers could not contact a household in time to allocate any of the original Travel Weeks (such as a household being away on holiday), interviewers were able to request additional Travel Weeks during the week after the original travel recording period (the '5th week'). The Operations Department controlled use of these additional dates.

3.7 The placement interview

The first stage of interviewing consisted of the placement interview. This was conducted with all household members and consisted of three sections.

- The **household questionnaire** was asked of the Household Reference Person (HRP), which is the householder with the highest income, or their spouse or partner.
- The **individual questionnaire** was asked of each household member, including children (although proxy information was collected for under 11s). A maximum of 10 people could be included. On the extremely rare occasions when interviewers encountered a household with more than 10 members, they were instructed to select the oldest 10 to take part in the interview, and to ensure that all vehicle owners were included.
- **The vehicle questionnaire** was asked of the main driver for each vehicle in the household. A maximum of 10 vehicles could be recorded.

It was not always possible to interview all household members in person and so proxy interviews were allowed for adults who were difficult to contact. The percentage who were interviewed face-to-face, by proxy and not interviewed in 2005 is shown in Table 3.2. Interviewers were instructed to interview those under 11 by proxy, which is why most interviews with children were proxy interviews. In 2005 73% of interviews with children aged under 11 were by proxy.

Table 3-2 Method of individual interview at placement in 2005

2005	Aged <16	Aged 16+	Total
	%	%	%
Face-to-face	30	77	67
Proxy	69	22	32
Not interviewed	0.4	0.2	0.3
Base (individuals)	4,801	18,035	22,836

In the majority of cases, the placement interview took place before the start of the Travel Week. Table 3-3 shows the gap between the placement interview and the start of the Travel Week in 2005 (see Section 3.11 for a definition of full and partial response). In eight out of ten households, the placement interview was started and travel records placed before the Travel Week started. A further 10 percent in 2005 were started on the first day of the Travel Week and five percent were started on the second day. Very few placement interviews were started after this time.

Table 3-3 Timing of the placement interview in relation to the Travel Week in 2005

	Full Response	Partial Response	Total
Placement interview was...	%	%	%
... 8 or more days before start of Travel Week	25	23	24
... 1-7 days before start of Travel Week	54	46	53
... on day 1 of Travel Week	10	10	10
... on day 2 of Travel Week	5	6	5
... on day 3 of Travel Week	3	2	3
... on day 4 of Travel Week	1	2	1
... on day 5 of Travel Week	1	3	1
... on day 6 of Travel Week	0	2	1
... on day 7 of Travel Week	0	2	1
... after end of Travel Week	1	4	2
<i>Base (households)</i>	8430	1060	9490

3.7.1 The 2005 NTS questionnaires

The topics covered by each section of the placement interview are shown in Figure 3.2.

Figure 3.2 Placement interview topics, 2005

HOUSEHOLD	INDIVIDUAL	VEHICLE
Household grid	Disability	Registration no.
Accommodation	Walk of 20 minutes or more	Vehicle details
	Use of bicycles	Parking
Local transport services	Driving licences	Company cars
Accessibility of services	Economic activity	Mileage
	Transport barriers to employment	
Shopping	Transport-related benefits	
	Income	
Children's travel	Place of work	
	Home working	
Household vehicles	Difficulties travelling to work	
	Difficulties with shopping and other journeys	
Attitude to local services	Season tickets	
	Long distance journeys	

In 2005, there were some changes to the questionnaire. The previous questions on accessibility were replaced with a new set which were designed to be in line with the Department's accessibility indicators. Some questions about the use of powered wheelchairs and powered scooters were added for respondents who said they had difficulties going out on foot. Some questions from the non-response form on activities during the previous day were added to the individual questionnaire. Three harmonised questions on educational attainment were added. A question about where the vehicle is parked overnight was reinstated in 2005, after being dropped in 2004. Also in 2005, two questions were added to the pick interview about whether the respondent would prefer alternative modes of diary collection and whether they would be willing to take part in a follow-up study.

From 2002, some questions were designated to be 'rotated', so that they would be asked every other year. Rotated questions are listed in Figure 3.3. Questions that were completely deleted are listed in Appendix D .

Figure 3-3 Rotated questions 2005

Module B (2005 & 2007)	Module A (2006 & 2008)
<p>Time on foot or by public transport (whichever is quickest) to the nearest:</p> <ul style="list-style-type: none"> - GP surgery - general hospital - shopping centre - shop selling groceries - primary school - secondary school - school or college providing post GCSE courses for 16 to 19 yr olds 	<p>Time on foot of by public transport (whichever is quickest) to the nearest:</p> <ul style="list-style-type: none"> - GP surgery - chemist - general hospital - shopping centre - shop selling groceries - post office - primary school - secondary school - school or college providing post GCSE courses for 16 to 19 yr olds
<p>Frequency of use of ordinary buses Frequency of use of express bus/coach Frequency of use of surface rail trains Frequency of use of taxi/minicab Frequency of use of air flight within GB Frequency of use of bicycle</p>	<p>Rating of reliability of local buses Rating of frequency of local buses Rating of reliability of local trains Rating of frequency of local trains Availability of combined bus and rail tickets Rating of pavement conditions Rating of cycle lane provision</p>
	<p>Has vehicle been driven outside GB in last 12 months Estimated mileage on last trip outside GB Purpose of trip outside GB Has vehicle been driven in Northern Ireland in last 12 months Estimated mileage on last trip in Northern Ireland Purpose of trip in Northern Ireland</p>

Harmonised questions

A number of harmonised questions are used in the NTS to allow users of the data to compare NTS data with those from other social surveys. These questions are documented in Figure 3-4. In 2005 three harmonised questions on educational attainment were included in the individual questionnaire.

Figure 3-4 HARMONISED QUESTIONS USED IN THE 2005 NTS

Harmonised question	NTS question name	Year introduced
Sex	Sex	1998
Age	Agelf	1998
Date of birth	Birth	2000
Marital status	MarStat	1999
Living arrangements	LiveWith	1999
Ownership of accommodation	Hhldr	2002
Joint Ownership	HiHNum	2002
Ethnic Group	EthGroup	2001
Length of residence	HLong	1998
Relationship to head of household	RelHoH	1998
Accommodation type	Accom	2000
House type	HseTyp	2000
Flat type	FltTyp	2000
Other accommodation	AccOth	2000
Housing tenure	Tenl	1998
Car ownership	UseVcl	1998
Vehicle type	TypeVcl	1998
Company car	PrivVcl	1998
In employment	Wrking	1998
Training scheme	SchemeET	1998
Away from work	JbAway	1998
Own business	OwnBus	1998
Relative business	RelBus	1998
Looking for work	Looked	1998
Starting work	StartJ	1998
Inactive	YinAct	1998
Industry	IndD	1998
Job title	OccT	1998
Job description	OccD	1998
Job status	Stat	1998
Paid employment	EverWk	1998
Date of leaving last job	DtJbl	1998
Supervising employees	SVise	2001
Supervision responsibilities	SViseDesc	2001
Organisation size	EmpNo	1998
Self-employed	Solo	1998
Number of employees	SENo	1998
Full or part time work	FtPtWk	1998
Long-term unemployed	HowLong	2004
Educational qualifications	EdAttn1	2005
Professional/vocational qualifications	EdAttn2	2005
Highest qualification	EdAttn3	2005

3.7.2 Placing the travel record and other documents

At the end of the placement interview, the interviewer placed:

- the **seven day travel record** (Appendix F),
- the **long distance journey record** (Appendix H),
- and the **fuel and mileage chart** (Appendix I).

The seven day travel record

Each individual in a household was issued with a seven day travel record, in which they were to record details of their travel activity. There are two versions, one for adults (respondents aged 16 and over) and one for children (the Young Person's travel record).

Each trip was recorded, and the respondent provided details of origin and destination, purpose, mode, distance travelled, cost, time, vehicles used, tickets used and number in the party for each journey. In addition the adult version of the travel record asked drivers to detail where they parked their vehicle as well as associated parking costs. From 2003 a new field was added to the travel record to collect information on whether drivers paid a congestion charge or road toll for each car journey. On day 7, the child travel record asked whether the respondent spent any time in the street (e.g. playing, talking with friends etc.). See Figure 3-5 for more substantive details on the content of the Travel Diaries in 2005.

Interviewers explained to respondents in detail how to complete the travel record. They generally did this by entering the details of some typical journeys made by the respondent in the blank example pages provided, often using the respondent's previous day's journeys. Some interviewers used the **NTS definitions manual** to help describe the level and type of details required.⁵

Simplified pocket size diaries or **memory joggers** (see Appendix G), into which respondents could briefly note down their journeys, were placed with respondents if the interviewer felt they would be helpful. Everyone received an **NTS pen** to aid travel record and other NTS document completion.

⁵ All survey definitions are given in the NTS definitions manual, copies of which are available on request.

Figure 3.5 Seven Day Travel Diaries

Adult Diary (respondents aged 16 and over (blue))	Young Person's Diary (green)
Day 1-6	Day 1-6
Purpose of journey	Purpose of journey
Time Left	Time Left
Time Arrived	Time Arrived
Origin - Where the journey started (From Village/ Town/ Local Area)	Where the journey started (From Village/ Town/ Local Area)
Destination - Where the journey ended (To Village/ Town/ Local Area)	Where the journey ended (To Village/ Town/ Local Area)
Method of Travel (Car, bus, walking etc.) (Only walks that were more than one mile, or took more than 20 minutes are included)	Method of Travel (Car, bus, walking etc.) (Only walks that were more than one mile, or took more than 20 minutes are included)
Distance (yards or metres/ miles)	Distance (yards or metres/ miles)
Number in party	Number in party (split into adults and children)
Time travelling (in minutes)	Time travelling (in minutes)
Ticket Type (Single/ return/ travel card etc.)	Ticket Type (Single/ return/ travel card etc.)
Cost	Cost
Number of boardings (the number of trains/ buses etc. used to reach journey destination)	Number of boardings (the number of trains/ buses etc. used to reach journey destination)
Which car/ motorcycle etc. used (if journey was made by car/ motorcycle etc.)	Which car/ motorcycle etc. used (if journey was made by car/ motorcycle etc.)
Driver or Passenger? (whether they were a front, or rear passenger) (only if journey was made not by public transport, but by car/ motorcycle etc.)	Passenger (whether they were a front, or rear passenger)
Drivers only : where they parked and the cost	
Drivers only: Road/ Congestion charges paid (introduced in 2003)	
Day 7 additional information requested	Day 7 additional information requested
Postal address details for both the origin and destination of journeys	Postal address details for both the origin and destination of journeys
All walks over 50 yards (including those less than one mile, or twenty minutes in length)	All walks over 50 yards (including those less than one mile, or twenty minutes in length)
	Any time spent in the street not classified as a journey (e.g. playing with friends, skateboarding, riding bikes etc.)

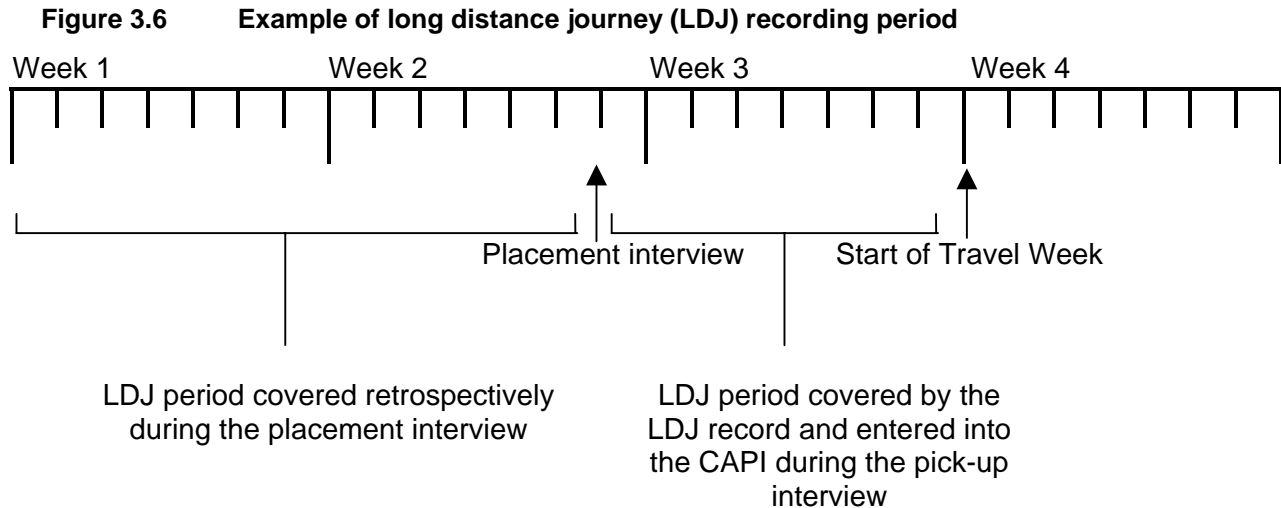
The long distance journey record

The NTS also collects details about any long distance journeys, defined as trips of 50 miles or more made within Great Britain, which a respondent makes over a four week period. A four week period is used to allow for enough journeys to be available for data analysis.

The four week period was determined by the date of the designated Travel Week for a household, with the last day of the four week period being the last day of the Travel Week (i.e. the four week period is the Travel Week plus the three weeks before it).

During the placement interview, any long distance journeys that occurred between the start of the 4 week period and the day of the interview were recorded retrospectively. If there was a gap remaining between the placement interview and the start of the Travel Week, the interviewer gave respondents the long distance journey record. Long distance journeys during this period were then asked about

during the pick-up interview. Long Distance Journeys that took place during the Travel Week were covered in the travel record. In total, a maximum of 40 long distance journeys could be recorded. See Figure 3.6 for an example of how the four week period works and Appendix H for a copy of the LDJ record.



The fuel and mileage chart

In addition to the diaries and long distance journey record, a fuel and mileage chart was placed at the end of the placement interview for each household vehicle. The driver was encouraged to keep this chart in their vehicle. The chart required the driver to record the fuel gauge and milometer readings at the start and end of the Travel Week. The amount and cost of fuel put into the vehicle during the Travel Week was also recorded. See Appendix I for a copy of the **Fuel and Mileage chart**.

3.7.3 Length of the placement call

The average length of the placement call (that is, the placement interview plus the time taken to place and explain the various documents) was 50.9 in 2005. The time it takes to do a placement interview varied according to household size (see Table 3-4).

Table 3-4 Mean length of placement call (mins) by household size in 2005

Number of people	Mean length	Base
1	36	2,397
2	51	3,234
3	57	1,282
4	63	1,233
5	71	422
6	(74)	95
7	(83)	36
8	(89)	10
9	(87)	4
10	(87)	3

3.8 The reminder call

Once the travel record had been placed, the next stage was to remind the household to start recording their journeys on the date allocated to them. Interviewers did this either by sending a **reminder card**, or by making a **reminder phone call** one or two days before the start of the Travel Week. See Table 3-5 for details of reminder calls and the sending of reminder cards in 2005.

Table 3-5 Proportion of productive households where a reminder was conducted

2005	Fully co-operating	Partially co-operating	Total
	%	%	%
Reminder phone call	39	25	37
Reminder card sent	10	10	10
No reminder card or phone call	51	65	52
<i>Base (households)</i>	8,424	1,057	9,481

Reminder phone calls were generally short, lasting 3.4 minutes on average in 2005. Interviewers were instructed to make the call when they were particularly concerned about the household's commitment to filling in their Travel Diaries, or when there was a gap of several days between the placement call and the Travel Week.

3.9 The mid-week check call

Interviewers also had the option of conducting a call half-way through the Travel Week, in order to encourage and help respondents with any difficulties they might be having filling out their Travel Diaries. This could be either a phone call or a personal visit, and was at the interviewer's discretion, although they were strongly encouraged to conduct a face-to-face check for elderly participants. The proportion and type of mid-week checking calls conducted are shown in Table 3-6 below.

Table 3-6 Proportion of productive households where a mid-week check conducted

2005	Fully co-operating	Partially co-operating	Total
	%	%	%
Mid week check conducted by phone	39	27	37
Mid week check conducted in person	23	12	22
No mid week check	39	60	41
<i>Base (households)</i>	8,423	1,057	9,480

As shown above, in 2005, the majority of fully productive households received a mid-week check, either by phone or face-to-face. Partially co-operating households were less likely to receive one; this is likely to be because interviewers would not conduct a check for those who refused the travel record directly after the placement interview. On average, the mid-week check call lasted 4.8 minutes in 2005.

3.10 The Pick-up call

At the end of the Travel Week, the interviewer called at the household (generally within a few days) to pick up and check the Travel Diaries and to carry out another much shorter interview, known as the **pick-up interview**. The topics covered by this interview are shown below:

Figure 3-7 Pick-up interview topics

HOUSEHOLD	INDIVIDUAL	VEHICLE
New vehicles acquired since placement	New driving licences acquired since placement	Fuel gauge details
Disposal of vehicles recorded at placement	New season tickets acquired since placement	Mileage details
Alternative modes of diary collection and whether they would be willing to take part in a follow-up study.	Long distance journeys between placement and the start of the Travel Week	

At pick-up, both the Fuel and Mileage chart and the Long Distance Journey records were collected, checked, and the details transferred into the CAPI questionnaire either during the interview or later on by the interviewer at home.

If all household members had completed a travel record and the placement questionnaire was complete, the household was also issued with a **promissory note** which informed them of the number of **£5 gift vouchers** they would receive. These vouchers would then be sent to them by the Operations Department.

The pick-up interview could be done either on the laptop, or using a paper questionnaire which was transferred into the Blaise questionnaire by the interviewer afterwards or by the operations team when paperwork was returned to the office.⁶

On average, the pick-up call (including the interview and checking the travel records) lasted 23.1 minutes in 2005. This call was made within six days of the end of the Travel Week.

3.11 Outcome coding

Interviewers were required to assign an outcome code to every address in their assignment. The range of possible outcomes is shown in Figure 3.8.

The fully and partially co-operating codes (11-13 and 21-23) were automatically computed by the CAPI questionnaire. For a household to be classed as fully co-operating, the placement interview had to be fully completed and filled in Travel Diaries had to be collected for all household members. To be classed as fully completed, the placement interview needed the household section, all individual interviews (whether in person or by proxy), and at least one vehicle section (if applicable) to be completed.

The household was coded as partially co-operating if any of the following applied:

- The household section of the placement questionnaire was not completed
- Anyone was coded as 'not available' for the individual section
- No vehicle questionnaire sections were complete (if applicable)
- Travel records were not collected for all household members at pick-up
- Any of the travel records were incomplete (e.g. missing days)

⁶ The paper version of the pick-up questionnaire was introduced in 2002 to enable interviewers do the pick-up interview on the doorstep where respondents were unwilling to let them into the property again.

Figure 3-8 NTS outcome codes

Outcome	Code
FULLY CO-OPERATING	
Fully productive: All desired respondent(s) in person	11
Fully productive: Partly by desired respondent(s), partly by proxy	12
Fully productive: By proxy	13
PARTIALLY CO-OPERATING	
Partial productive: Desired respondent(s)	21
Partial productive: Partly by desired respondent(s), partly by proxy	22
Partial productive: By proxy	23
NON-CONTACT	
No contact with anyone at address	31
MULTI-HOUSEHOLDS ONLY: Contact made at address, but not with member of selected household	32
Contact made at selected household but not with any responsible member	33
REFUSAL	
Office refusal	41
MULTI-HOUSEHOLDS ONLY: information refused before selection of households complete (i.e. no of h'holds)	42
Refusal at introduction/before interview	43
Refusal during interview	44
Broken appointment – no recontact	45
OTHER UNPRODUCTIVE	
Illness at home during survey period	51
Absence from home/in hospital all survey period	52
Physical or mental incapacity	53
Language difficulties	54
OFFICE APPROVAL ONLY - Lost productive	55
OFFICE APPROVAL ONLY - Other unproductive	56
UNKOWN ELIGIBILITY	
OFFICE APPROVAL ONLY - Not attempted	61
OFFICE APPROVAL ONLY – Inaccessible	62
OFFICE APPROVAL ONLY - Unable to locate address	63
Unknown whether address contains residential housing	64
Residential address – unknown whether occupied by eligible household	65
Other unknown eligibility	67
INELIGIBLE/DEADWOOD	
OFFICE APPROVAL ONLY - Unable to locate/address doesn't exist	70
Not yet built/under construction	71
Demolished/derelict	72
Vacant/empty	73
Non-residential address e.g. business, school, office factory etc.	74
Address occupied, no resident household e.g. holiday or weekend home	75
Communal Establishment/Institution (no private dwellings)	76
Residential, but no eligible respondent (e.g. no-one aged 16 and over)	77
OFFICE USE ONLY - Address out of sample	78
Other ineligible	79

3.12 The £5 gift voucher incentive

In 2002 an experiment to test the effect of offering incentives to NTS sample members was conducted from the beginning of the July 2002 quota until the end of the December 2002 quota (see section 3.12 in the 2002 NTS Technical report, and Stratford et al. 2003). This experiment found that offering an incentive did significantly increase the likelihood of gaining full household co-operation. At the end of 2002, it was decided that the incentive payment would be offered as a part of the NTS survey for 2003 onwards

Interviewers gave each household a signed **promissory note (see Appendix J)** if all household members had completed the placement interview and completed a travel record. These notes promised the delivery (by post) of £5 vouchers by the Operations Department. Interviewers then sent their copy of the promissory note to the Operations Department. On receipt of the signed promissory notes, the Travel Diaries were inspected, and high street vouchers were sent to the household if the documents met the specified criteria of completeness.

3.13 Response rates

The tables below show the national response rates for 2005, as well as the Inner and Outer London and National (excluding London) response rates for the same periods. The overall response rate in 2005 was 62% but this was lower in Inner London (41%) and Outer London (49%), and higher in the rest of the country (64%).

Table 3-7 NTS National response rates in 2005

	Achieved Sample Rate		Standard Response Rate
	Number	%	%
Set sample	15,048		
Additional households	36		
Total dealt with	15,084	100	
Ineligible/deadwood	1,472	10	
Unknown eligibility	327	2	
Eligible households ⁷	13,582		100
Fully co-operating	8,431	56	62
Partially co-operating	1,059	7	8
Refusal to co-operate and other unproductive	3,468	23	28
Non-contact	327	2	3

⁷ The number of eligible households is estimated by assuming that the proportion eligible among those of 'unknown eligibility' is the same as the proportion known to be eligible among the rest of the sample.

Table 3-8 NTS Inner London response rates in 2005

	Achieved Sample Rate		Standard Response Rate
	Number	%	%
Set sample	968		
Additional households	62		
Total dealt with	1,030	100	
Ineligible/deadwood	188	18	
Unknown eligibility	47	5	
Eligible households	838		100
Fully co-operating	345	33	41
Partially co-operating	106	10	13
Refusal to co-operate and other unproductive	261	25	35
Non-contact	83	8	11

Table 3-9 NTS Outer London response rates in 2005

	Achieved Sample Rate		Standard Response Rate
	Number	%	%
Set sample	1,232		
Additional households	32		
Total dealt with	1,264	100	
Ineligible/deadwood	139	11	
Unknown eligibility	38	3	
Eligible households	1,122		100
Fully co-operating	555	44	49
Partially co-operating	149	12	13
Refusal to co-operate and other unproductive	320	25	31
Non-contact	63	5	6

Table 3-10 NTS National excluding London response rates in 2005

	Achieved Sample Rate		Standard Response Rate
	Number	%	%
Set sample	12,848		
Additional households	42		
Total dealt with	12,890	100	
Ineligible/deadwood	1,145	9	
Unknown eligibility	242	2	
Eligible households	11,723		100
Fully co-operating	7,531	58	64
Partially co-operating	804	6	7
Refusal to co-operate and other unproductive	2,887	22	26
Non-contact	281	2	3

As mentioned in section 2.4, the NTS oversamples Inner and Outer London with the aim of achieving responding sample sizes that reflect the regional distribution without the need for corrective weighting. The degree of oversampling in 2005, was based on estimates of differences in response rates between Inner London, Outer London and the rest of Great Britain and on mid-1998 population estimates.

Despite oversampling, Inner and Outer London are still slightly under-represented (see Table 3-11). A weighting strategy for the NTS has been developed (Pickering et al, 2005). This has been used to weight NTS data back to 1995; results from the 2005 NTS and all future surveys will be published on a weighted basis. This will correct for the lower response rates in London.

Table 3-11 Regional distribution of the 2005 NTS compared with mid 2004 population estimates

	Inner London (%)	Outer London (%)	Rest of GB (%)	Whole of GB (%)
2005 Achieved sample	4.8	7.4	87.8	100
Mid 2004 population estimates	5.0	7.7	87.2	100

3.14 The non-response survey

Non-response may bias the results of the NTS. For example, if those who do not respond to the survey are busier and do considerably more travel than those who do respond, then the amount of personal travel may be under-represented in the NTS results.

To investigate this possibility, non-response information was collected using a non-response form to provide data on whether the characteristics of non-respondents differed to those of participants. This form gathered information about the demographic characteristics and travel behaviour of household members.

Interviewers were instructed to ask Non-Response Form (NRF) questions once it became apparent that an interview was not going to be achieved at that visit to the address. These questions were located at the back of the Address Record Form. This meant that non-response data was available for broken appointments and for households that refused to participate. In 2005 a NRF was completed on the doorstep at 34 percent of refusing households.

In 2003 and for the majority of 2004, self-completion postal NRFs were left at non-contact addresses, and respondents posted these back to NatCen. In late 2004, the procedure for dealing with these postal NRFs changed, with interviewers informing the Operations Department about a non-contact address on the Address record form, who subsequently sent out a form to the address. Response to the postal NRFs was low in 2005 and despite postal reminders only 22 percent of non-contacts returned an NRF.

In addition, translations of the postal NRF were made into the four most common Asian languages (Gujarati, Punjabi, Urdu, and Bengali) and these were posted to households

which had been unable to take part in the main survey due to inadequate English or the lack of availability of a household member able to translate or aid the interviewer.

Further data were collected on non-responding households via an interviewer-completed observation form which also formed part of the ARF. This was completed at 97 percent of non-productive addresses in 2005.

The weighting strategy, introduced from 2006, will reduce the effects of non-response bias.

3.15 Back-checking and quality control

Like all NatCen projects in the field, the NTS was backchecked to ensure that interviewers were working to the standards to which they were trained and in accordance with the specific project requirements on which they were briefed.

A minimum of 10% of the total productive interviews were backchecked, the majority (90%) by telephone but where this was not possible (10%) by letter. If the responses received indicated significant deviations from the standards set, a supervisor was asked to revisit the address/addresses concerned personally. Backchecking was carried out usually within 2 weeks, and always within 4 weeks, of the interview date.

A percentage of ineligible (out of scope) addresses were also checked by letter to check the residential status of the sampled address. Of the 11 interviewers selected per month, a maximum of 4 deadwood addresses per interviewer were checked.

All interviewers working on the NTS are also subject to twice yearly supervisions (one of which is a review supervision) to confirm that they are working to the highest standards.

4 DATA PROCESSING

4.1 Diary coding and entry

After collection and brief checking by interviewers, the 7 day Travel Diaries were returned to NatCen's Operations Department where, after initial checking, they were entered into the Diary Entry System (DES) by a team of editors. The coding of data items such as journey purpose, origin and destination, method of travel, ticket type etc. took place as the data were entered into the system.

The NTS Diary system is a supplementary system to the National Travel Survey. It is used for the entry and validation of data entered by respondents into their Travel Diaries. The data entered are stored in a SQL server database 'NTS_Diary'. The software was developed using Visual Basic version 5. Basic details of diaries entered into the office are recorded using the Diary Receipt program, which is also used to record a batch number.

Once recorded as received into the office, travel record data were entered using the Diary Entry program. This also has a number of subsidiary screens for displaying relevant information to assist data entry, and to enter further data specific to day 7 only. A screen to create journey details as a repeat or a duplicate of another journey is also provided.

An export facility then transforms all the travel record data entered for a wave into text files. This is called the "Quantum Export" as the data is fed into software developed using Quantum. Following the export of the data, the text files were processed outside the NTS Diary system. An edit checking program was run on the files to do a comprehensive set of consistency checks, with a report being produced. The NTS diary system was used to rectify any validation errors reported, and the data re-exported. When the data were clean they were delivered to the survey's sponsors, the DfT.

4.2 Editing the travel record data

Two extensive sets of checks were run on the travel record data. First, certain checks were applied in the DES as the travel record data were entered. These checks were put in place in order to catch keying errors and implausible or impossible data combinations. The editor either dealt with these errors immediately, or if they could not resolve them, they referred them to an experienced supervisor.

Once the data were entered and coded, a second set of checks was run on the data. These checks looked for inconsistencies with the CAPI data (for example a household with no car saying they used their own car for a journey). The CAPI data were checked and, if appropriate, either these or the travel record data were altered.

4.3 Geocoding of address data

Up to 2001, the only information recorded on Travel Diaries about the origin and destination of journeys was the name of the town, village or local area. However, in

2002 and for subsequent survey years, respondents were required to provide more details. For day 7 only, respondents were asked the full address (including the postcode if they knew it) for the origin and destination of their journeys. This assignment of a postcode to the origin and destination of journeys enables further analysis of the NTS data.

An external company - Gatepost Systems – is used to supply and validate postcodes from the locations recorded, using approximations as needed. The table below give details of the level of accuracy at which Gatepost coded the destination and origin details provided in the Travel Diaries on day 7 in 2005.

Table 4-1 Accuracy of postcode validation in 2005

	Origin (%)	Destinations (%)
Accurate postcode - exactly matches that location	90.0	91.0
Very close proximity - accurate to street level	3.8	3.8
Accurate to locality	5.2	5.1
Uncodeable (e.g. shops with no locality or town information)	0.01	0.01

4.4 Coding and editing the CAPI questionnaire data

4.4.1 Examining notes

If a query or problem arose during the interview, interviewers could use a function within the Blaise CAPI programme to open a ‘memo’ to record it. At the Operations Department, these notes were printed on paper factsheets for each household, and one of the tasks of the CAPI coders was to examine them and see whether any action needed to be taken as a result of the message.

4.4.2 Back-coding other answers

The next task of the CAPI coders was to examine cases where a respondent had given an ‘other answer’ to some of the pre-coded questions. During an interview, if none of the pre-codes was felt to apply to a particular question, the response would be recorded verbatim by the interviewer. All such answers were examined by coders and back-coded to one of the existing codes if applicable.

4.4.3 SOC & SIC coding

In 2005, the occupation and industry of respondents aged 16 and over was coded using the Standard Occupational Classification (SOC2000) and Standard Industrial Classifications (SIC 1992). The National Statistics Socio-economic Classification (NS-SEC) was derived from SOC2000 and employment status, and was used as a social class measure. Details of the classifications are set out in Figures 4.1- 4.3.

Figure 4-1 Standard Occupational Classification 2000 (SOC 2000)

Description	Code
Corporate managers	11
Managers and proprietors in agriculture and services	12
Science & technology professionals	21
Health professionals	22
Teaching & research professionals	23
Business & public service professionals	24
Science & technology associate professionals	31
Health & social welfare associate professionals	32
Protective service occupations	33
Culture, media & sports occupations	34
Administrative occupations	41
Secretarial & related occupations	42
Skilled agricultural trades	51
Skilled metal & electric trades	52
Skilled construction & building trades	53
Textiles, printing & other skilled trades	54
Caring personal service occupations	61
Leisure & other personal service occupations	62
Sales occupations	71
Customer service occupations	72
Process, plant & machine operatives	81
Transport & mobile machine drivers & operatives	82
Elementary trades, plant & storage related occupations	91
Elementary administration & service occupations	92

Figure 4-2 Standard Industrial Classification 1992 (SIC92)

Description	Code
Agriculture, hunting & forestry	A
Fishing	B
Mining & quarrying	C
Manufacturing	D
Electricity, gas & water supply	E
Construction	F
Wholesale & retail trade; repair of motor vehicles, motorcycles & personal & household goods	G
Hotels & restaurants	H
Transport, storage & communication	I
Financial intermediation	J
Real estate, renting & business activities	K
Public administration & defence; compulsory social security	L
Education	M
Health & social work	N
Other community, social & personal service activities	O
Private households with employed persons	P
Extra-territorial organisations & bodies	Q

Figure 4-3 National Statistics Socio-economic Classification (NS-SEC) Analytic Classes

Description	Code
Large employers and higher managerial occupations	1.1
Higher professional occupations	1.2
Lower managerial & professional occupations	2
Intermediate occupations	3
Small employer & own account workers	4
Lower supervisory & technical occupations	5
Semi-routine occupations	6
Routine occupations	7

4.4.4 Registration number checking

Since 2002 respondents to the NTS have been asked to give the registration number of all household vehicles. The reason for this is that the more technical information about a vehicle (for example, type of fuel used, and taxation class) can be gained through the DVLA database of vehicles, rather than having to ask respondents directly. It was felt that information gained in this way would be more accurate and would mean a shorter interview. If the respondent refused to give the registration number, then questions about engine size etc. were asked directly in the interview.

On the whole, respondents were willing to give their registration number – they were collected for 91 percent of vehicles in 2005. However, checking by DfT showed that around 10 percent of these were invalid numbers. Either they did not match any number on the DVLA database, or if there was a match, the vehicle make and model details on the database for that registration number were different from the details that the respondent had provided.

The reason for this was investigated by re-contacting the respondents and confirming the registration number with them. Errors by interviewers accounted for at least some of the inaccuracy, for example transposition of digits and confusion of similar-sounding letters. In other cases, the respondent had not remembered the registration number accurately. In 2005, in 25 percent of cases, the respondent confirmed that the registration number was actually correct. Often these were new vehicles and it seems likely that the DVLA database extract used by DfT did not yet include their details (since the DVLA database extract is updated quarterly). The registration numbers were rerun at the end of the survey year to collect details for those vehicles which weren't included on the earlier DVLA data extracts. In addition, each month, members of the operations team attempted to re-contact all those respondents where the registration number appeared inaccurate. They succeeded in getting a new registration number in 56% percent of cases in 2005.

4.4.5 Vehicle coding

Each year, for each vehicle, the length of the vehicle and the size of the fuel tank needed coding. Unfortunately, neither of these details are available from the vehicle logbook or the information held by DVLA. Instead within the vehicle section of the Blaise questionnaire a database containing information obtained from car manufacturers or motoring magazines about the vehicle length and fuel tank size for different makes and models was used to code this information. This is referred to as the car-coding frame. And because car manufacturers sometimes vary the size of fuel tank fitted to a particular model depending on the year it was manufactured, the coding frame was broken down by year of manufacture.

The fuel tank size was automatically assigned for most vehicles where the registration number was not given using the car-coding frame. However, if the vehicle's make and model was not listed in this database and the respondent could not provide information on the fuel tank size, editors were required to look up the information if possible.

Those respondents that gave the registration number of the vehicle were not routed through this part of the vehicle questionnaire, and therefore the fuel tank size and length were not coded at this point. For these vehicles, once the DVLA data had been extracted, a set of lookup tables were used to link the make and model code assigned to the vehicle by DVLA to the list of make and models on the car-coding frame. This was not a one to one relationship as DVLA sometimes issue several different model codes for some vehicle models.

4.4.6 Distance checks and area coding

From 2002, inter-county distance checks, which had been developed by DfT, were applied during editing by NatCen. If a distance between two places seemed implausible, coders were instructed to check the distance by using an atlas or web-based distance estimator (such as the RAC site). If they were able to estimate a more plausible distance (and there were no notes from interviewers explaining that, for example, the respondent took a detour), then they altered the distance.

Sometimes, it was not the distance that was incorrect but the origin or destination that had been incorrectly coded, for example when two or more towns share the same name in different counties. In these instances, editors referred to the long distance journey record or checked with interviewers.

Where the interviewer had been unable to allocate a code for county, unitary authority or area type for the journey origin or destination, editors were required to allocate the correct code. Where the place visited was not listed on the gazetteer used in the CAPI questionnaire, they were instructed to code it to the nearest place listed that was within the same local authority.

4.4.7 Data conversion

The data were organised into nine record types households, individuals (two records), vehicles, long distance journeys made in the three weeks before the Travel Week (two records), days within the Travel Week, journeys made during the Travel Week, and the stages of these journeys (see Figure 4-4). Individual data variables occupied fixed column positions within these records. For 'continuing' variables, present in both past and present data sets, the columns occupied were the same as in previous years for compatibility with the existing DfT programmes. Column positions that were used by variables that were dropped were not re-used. New variables occupied new column positions on the same record, or if necessary, they were continued on a further record.

The missing value scheme is uniform throughout and employs two minus values:

- -9 signifies 'not applicable', i.e. when data are expected to be absent because filter conditions that apply are not met. ('Off route' in Blaise). This is 'DNA' in the database.
- -8 signifies 'non response' for whatever reason when filter conditions are met. The distinct values in Blaise for 'don't know' and 'refused' are thus combined into a single missing value. This is 'NA' in the database.

The records and variables required by DfT were a sub-set of all the data available. NatCen mapped the additional data to separate data records and assembled all the data, including data for unproductives, in a single Quantum level data set, from which different data sets were exported and supplied to DfT:

- The required fixed format records
- SPSS data sets at each level including all available variables

Figure 4-4 NTS record types, 2005

Record type	Data	Level
Record 1	Households	Household
Record 2	Vehicles	Vehicle
Record 3	Individuals (continued on record 9)	Individual
Record 4	Long Distance Journeys 1 (these data occur once per individual)	Individual
Record 5	Long Distance Journeys (these data occur once per journey)	Journey
Record 6	Days	Day
Record 7	Journeys	Journey
Record 8	Stages	Stage
Record 9	Individuals2 (continuation of record 3)	Individual

