



## Background to the National Travel Survey

The 2016 National Travel Survey (NTS) is the latest in a series of household surveys designed to provide a rich source of data on personal travel. It is part of a continuous survey that began in July 1988, following ad hoc surveys since the mid-1960s. The survey is primarily designed to track long-term development of trends; therefore care should be taken when drawing conclusions from short-term changes.

NTS data is collected via two main methods. Firstly, face to face interviews are carried out with all members of the household to collect personal and household characteristics, along with information on all of the vehicles to which they have access. Each household member is then asked to record details of all their trips over a seven-day period in a travel diary, allowing travel patterns to be linked with individual characteristics. The NTS covers travel by people in all age groups, including children.

After an open competition in 2012, the National Centre for Social Research (NatCen) was confirmed as the contractor to conduct the NTS from 2013 to 2017. They were the incumbent contractor having ran the NTS since 2002. From January 2013, the survey has covered England residents only. Therefore, from 2013 onwards, results presented do not provide information about Scotland and Wales residents. It should be noted that the trips recorded by English residents are still within Great Britain as a whole.

## National Statistics

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics. Designation can be broadly interpreted to mean that the statistics:

- ▶ meet identified user needs;
- ▶ are well explained and readily accessible;
- ▶ are produced according to sound methods, and
- ▶ are managed impartially and objectively in the public interest.

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

### Response Rates

Only households classed as 'fully co-operating' are included in the response calculations. A national response rate of 58% was achieved in 2016. This is equivalent to an achieved sample rate (ASR) of 52%. The ASR includes those households classified as ineligible in the denominator.

### Sample size

In 2002, the drawn sample size was nearly trebled compared with previous years following recommendations in a National Statistics Review of the NTS. This enables key results to be presented on a single year basis from 2002. Previously data from the continuous survey was shown for three year time periods because of the smaller sample size, e.g. 1995/97. Details of sample sizes are given in "Main sample numbers: 1995 to 2016" at: <https://www.gov.uk/government/collections/national-travel-survey-statistics>

**2016 sample size:** During 2016, 6,656 households in England participated fully in the survey by providing information via interview and completing a seven-day travel diary. An additional 672 households participated in the interviews but did not all complete a diary. Although these cases cannot be used for trip-level analysis, their data is included in all analysis at household, individual and vehicle level.

**Diary sample:** Analysis of travel data is based on the diary sample. This comprises all 'fully co-operating households', defined as households for which the following information is available: a household interview, an individual interview for each household member, a seven day travel diary for each individual and, where applicable, at least one completed vehicle section. Weights were produced to adjust for non-response, and also for drop-off in recording observed during the seven day travel week.

**Interview sample:** Analyses at household, individual and vehicle level presented in this publication are based on the interview sample. This sample comprises all fully co-operating households included in the diary sample, together with some additional 'partially co-operating households'. Generally these partially co-operating households had co-operated fully with the various interviews but not all household members had completed the travel diary. Prior to the introduction of the weighting methodology, data from partially co-operating households was not included in NTS analyses but the weighting strategy offers the opportunity to use this expanded data set for analyses which do not require data from the seven day travel record.

All published tables show the unweighted sample size on which the weighted results are based. For trip data these are based on the unweighted diary with short walks grossed up, unless otherwise stated.

### Standard errors

As estimates made from a sample survey depend upon the particular sample chosen, they generally differ from the true values for the population. This is not usually a problem when considering large samples but may give misleading information when considering data from small samples, such as cyclists in a particular age group.

**Small samples:** In general, it should be remembered that for estimates of households, individuals and vehicles, unweighted samples of under 100 should not be used, while samples of under 300 should be used cautiously. For trip and stage estimates, even more caution should be exercised: samples of under 300 should not be used, whilst samples of under 1,000 should be used cautiously.

**Combined years:** As the sample size for some types of analysis can be small for one year, some tables show a number of years of combined data to ensure the results are robust. The title of the table will show the years which are combined, for example 2011/15.

A note explaining the methodology used to calculate the 2009 NTS standard errors and tables of standard errors for selected key statistics are published at: <https://www.gov.uk/government/publications/nts-standard-error-guide>



### Recording of short walks

Historically, in the NTS, short walks are only recorded on the seventh day of the travel diary, and weights are generated to account for this. The 2016 data (published in 2017) includes the results of an experiment to collect short walks (those walks of less than a mile in length) on day 1 for half of the sample, and day 7 for the other half of the sample. This is a significant methodological improvement, as previous research has concluded that collecting short walks on day 7 results in an under-reporting of these types of trips.

The figures for 2016 have been weighted using the information from both samples to produce NTS results as if all the respondents for 2016 had reported short walks on day 1. More information on the weighting of short walks is available in the Technical Report.

**Short walks consultation and response:** The Department ran a consultation on the collection of short walk data in the NTS in 2014, and experiments during 2013 and 2015, which concluded that there is under-reporting of short walks in the NTS. A response to the consultation with details of future work planned was published at: <https://www.gov.uk/government/consultations/national-travel-survey-walking-data>

Cognitive work to understand how respondents record details of walks in the travel diary was also

carried out. The results of this further work was published at: <https://www.gov.uk/government/statistics/collection-of-short-walk-data-in-the-national-travel-survey>

In 2016, the NTS sample was split and this data has been used to develop weights to uplift the day 7 sample so that NTS results for 2016 will be published as if all short walks were collected on day 1. In 2017, short walks for all respondents will be collected on day 1 of the travel diary.

**Impact of the change:** A full description of the impact of this change in methodology is described in Annex T of the Technical Report. In terms of the headline findings for adults, the effect was substantial. Collecting details of short walks on day 1 of the travel weeks increased the reporting of the prevalence of short walks and the number of short walks reported. Some 25.9% of adult respondents reported taking at least one short walk when reporting on day 1 compared with 21.3% when reporting on day 7. The average number of walks reported by all adults was 0.71 on day 1 compared with 0.57 for day 7.

**Comparability of data between 2016 and earlier years:** The impact of this improvement in the methodology for capturing short walks has meant a break in the time series between 2015 and 2016 for total trips, total distance and total time and for walking trips, distance and time.

We will be reweighting data back to 2002 and will present revised data in a publication later in the year. Until this time, **users should exercise caution when comparing 2016 with previous years** for certain types of analyses.

We have made the decision to publish 2016 data for three reasons. Firstly, it represents the best data available at the present time for 2016; secondly, for time series excluding short walks, the individual, household and vehicle analyses and analysis solely for 2016 will be unaffected; and thirdly, we wanted users to have access to the data as soon as possible to conduct their own analysis.

**Impact on trip lengths:** NTS tables which show a distribution by trip length (e.g. NTS0308 and NTS0309) are based on the accumulated distance over all stages in the trip. For trips on days 1 to 6, total trip distance may be understated because short walks were not recorded. This will particularly affect public transport trips as a short walk would often be necessary to get to a bus stop or rail station.

### Attitudinal questions

In 2016 a split-sample experiment was conducted to explore the feasibility of moving attitudinal questions from the household level questionnaire to the individual level questionnaire. In one half of the sample, the attitudinal questions were asked as part of the household questionnaire (as has been in the case in previous surveys) and in the other half one randomly selected adult per household was asked the attitudinal questions.

On some occasions, NTS individual questionnaires are answered by proxy if the household member is not available. However, this would not be appropriate for the attitudinal questions which, unlike behavioural questions, cannot be answered by proxy. To overcome the problem that the randomly selected adult may not be present during the interview, a paper self-completion was chosen for administering the attitudinal questions.

Although using a paper self-completion approach was the optimal solution in this experiment, it was felt that this may not be the best approach in the longer term and that including these questions within the Computer Assisted Personal Interviewing (CAPI) would offer greater flexibility to ask broader modules of attitudinal questions.

Following the recommendations from a feasibility study that NatCen carried out in 2016, from 2017 a Computer Assisted Self Interviewing (CASI) module for transport satisfaction questions will be added, where one adult from those present during the household interview is randomly selected to complete the satisfaction questions.

### **Access to local services (tables NTS0801 and NTS0803)**

Up to 2012, NTS respondents were asked questions about the time taken to reach a number of types of service (e.g. grocery shops, schools and hospitals). From 2013, these questions were no longer asked as the intention was to use journey planning software to look up the information.

From 2014, as part of the NTS statistics, some of the tables in the [section on accessibility](#) (tables NTS0801 and NTS0803) now contain figures based on using journey planning software called Tracc to estimate travel times from the postcodes of addresses in the NTS sample to local services. These figures are shown separately from those previously published as they are calculated in a different way. In particular, the figures obtained from Tracc are derived from public transport timetables, road network information and destination datasets as used in the Department's accessibility statistics. It is likely that, on the whole, the calculation of times is likely to result in more accurate figures than those estimated by respondents, though the calculation relies on the accuracy of the timetable data and destination data used which are known to have some limitations.

DfT are grateful to [Basemap Ltd](#) for use of their Tracc software in producing these figures.

### **Earlier methodological changes**

There have been various methodological changes to the NTS since the first survey in 1965. These changes are outlined in detail in the 2008 NTS Technical Report. Methodological changes mean that there are some inconsistencies and discontinuities in the time series. Key recent changes include:

**1995 onwards:** Weights have been applied to adjust for non-response and for the drop-off in

recording of trips known to occur during the travel diary week. Discontinuity with earlier surveys is less pronounced for measures at an individual, household and vehicle level as at these levels the weighting only adjusts for non-response, which is less of a problem for earlier years. Details of the weighting methodology and a comparison of weighted and unweighted trend data for 1995 to 2004 are available from DfT.

**2002 onwards:** The National Centre for Social Research was appointed as the contractor for the survey from 2002. There were certain changes to the way the survey was managed at this point; these are outlined in the 2002 NTS Technical Report. There are a number of apparent discontinuities between pre and post-2002 in the categorisation of purposes. The definitions have not changed but central coding may have improved the quality. Categories particularly affected are other escort, sport: participate, and entertainment/public activity.

**2013 onwards:** During 2011, DfT undertook a consultation exercise to review the methodology and content of the NTS for 2013; the start of the new 2013-2017 fieldwork contract. The review covered sample coverage, data collection methodology, interview question content and items recorded as part of the travel diary. Full details of the review can be found at: <https://www.gov.uk/government/publications/future-developments-for-the-nts>

As a result of the review, a number of items were removed from the interview questionnaire, as well as from the travel diary. In addition, the sample was restricted to cover England only with Scotland and Wales no longer included. The sample size for England remained at its previous level, meaning that the overall sample size for the survey was reduced.

### Known issues affecting NTS results in previous years

**Note on 2007 and 2008 trip data:** The travel diary was redesigned for the 2007 survey to make it more appealing to respondents and easier for them to use. However, this change to the diary seems to have caused a fall in short, incidental trips reported in 2007. The main modes affected were walks under 1 mile and short car trips under 5 miles. The main purpose affected was shopping, although there was also a fall in short trips, particularly for other 'incidental' purposes, such as personal business and visiting friends. There has been a downward trend in these trip purposes and in short trips over the last ten years so it is likely that part of the fall in 2007 is genuine. As the apparent under-recording of trips in 2007 mainly affects short trips, it has little impact on the average distance travelled overall, which remained fairly constant in 2007. Under-recording of short trips continued in 2008, although the difference compared with earlier years was less pronounced than in 2007.

**GPS pilot (subsample):** In 2011 an experiment was conducted to test the possibility of replacing travel diaries with GPS devices. This pilot was conducted with a randomly selected sub-sample of the main NTS sample for February and March 2011. Across the two months 902 addresses, were selected to take part in the pilot. These households were not incorporated into the main NTS results



for 2011 and therefore the overall sample size in that year was slightly less than in other years.

**Short walks experiment (subsample):** In 2013, an experiment was conducted to measure the impact of recording short walks (those under one mile) on day 1 of the travel diary rather than day 7. A split sample design was used - half of the quarter 2 (April to June) sample was asked to provide information on short walks on day 1 and the remaining half were asked to provide the information on day 7 as usual. Diary data from the short walks experiment group was not included in published annual 2013 NTS results; it has been analysed separately to assess any under-reporting. However, interview data from those households and individuals who were part of the short walks experiment were included.

In 2015 the experiment was repeated using the same methodology. Diary data from the short walks experiment was again not included in the published 2015 NTS results.



### Technical report

The National Travel Survey 2016 Technical Report includes details on sampling, fieldwork, data processing, weighting and a full set of the questionnaires. It also contains information about the findings from the NTS split sample short walks experiment carried out in 2016. The report can be found at: <https://www.gov.uk/government/publications/national-travel-survey-2016>

### Publications and unpublished data

The most recent editions of all NTS publications are available on the National Travel Survey web page at: <https://www.gov.uk/government/collections/national-travel-survey-statistics>

Key results are normally published annually. Personal travel factsheets covering specific topics are published periodically. The most recent factsheets published cover the following topics:

- ▶ Shopping travel (based on 2015 data)
- ▶ Mode use: a view into a travel week (based on 2015 data)
- ▶ Disability and travel (based on 2014 data)
- ▶ Trip Chaining (based on 2014 data)
- ▶ Multi-stage trips (based on 2014 data)
- ▶ Travel to school (based on 2014 data)
- ▶ 50 years of the National Travel Survey (based on 2014 data)
- ▶ Commuting and business travel (based on 2009 data)
- ▶ Health-related travel difficulties (based on 2008 data)
- ▶ Use of public buses (based on 2008 data)
- ▶ Travel in urban and rural areas (based on 2008 data)
- ▶ Vehicles (based on 2008 data)

Raw data from the NTS is available from the UK Data Service for users to produce their own analysis. An updated dataset covering survey years 2002-2016 will be available as soon as possible at: <http://ukdataservice.ac.uk/>. Users needing help with analyses can call the National Travel Survey team on 020 7944 3097 or [national.travelsurvey@dft.gov.uk](mailto:national.travelsurvey@dft.gov.uk).

### Symbols and conventions in NTS data tables


**Symbols:** The following symbols have been used throughout:

- .. = not available
- = negligible (less than half the final digit shown)
- \* = sample size too small for reliable estimates
- . = not applicable
- 0 = nil
- r = revision
- | = break in series

**Units:** Figures are shown in italics when they represent percentages.

**Rounding:** 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.

**Weeks:** It is assumed that there are 52.14 weeks in a year.



The 2016 survey was carried out by the National Centre for Social Research. Special thanks are due to the past and present team in London, the coders in Brentwood and to all the interviewers. The help of all those members of the public who gave their time and co-operation is gratefully acknowledged.



### Appendix: NTS definitions

#### Coverage

**Personal travel** The subject of the National Travel Survey is personal travel. This is travel for private purposes or for work or education, provided the main reason for the trip is for the traveller himself or herself to reach the destination.

**Geographical coverage** The NTS covers private households within England. Therefore, it excludes people not living in households, such as students in halls of residence and tourists. Since 2013 residents of Scotland and Wales are not sampled.

Only travel within Great Britain is included. Trips to other places are included only up to the ticket control point at which the boat, plane or train using the Channel Tunnel, is boarded. Travel by road vehicle away from the public highway is excluded, but travel on public roads in parks and on cycleways is included.

**Trips in course of work** Trips made in the course of work are included provided that the purpose of the trip is for the traveller to reach a destination. Travel to deliver goods, or to convey a vehicle or passengers (e.g. as a bus driver or taxi driver), is not covered. Nor is travel as a conductor, guard or other member of a crew of public transport vehicles. Also excluded is travel as a driver or a member of a crew of public vehicles such as fire engines or ambulances; travel in industrial or agricultural equipment (cranes, bulldozers, tractors, etc.); travel in specially equipped vehicles used in the course of a person's work (police patrol cars, AA/RAC repair vehicles, Royal Mail vans, etc.); and trips in course of work by people paid to walk or cycle, such as policemen on the beat, traffic wardens, leaflet distributors, messengers, postmen, or roundsmen.

**Leisure travel** Travel for a leisure purpose is normally included. However, trips which are themselves a form of recreation are not. Examples are yachting or gliding, which are done for the pleasure of going in a boat or plane rather than to get somewhere. Travel by foot away from the public highway is excluded unless both the surface is paved or tarred and there is unrestricted access. Thus, walks across open countryside on unsurfaced paths are excluded; and so are walks in pedestrian precincts or parks that are closed at night. Children's play on the street is not included as travel.

#### Trips, stages and distance

**Definition of a trip** The basic unit of travel, a trip, is defined as a one-way course of travel with a single main purpose. Outward and return halves of a return trip are treated as two separate trips. A trip cannot have two separate purposes, and if a single course of travel involves a mid-way change of purpose then it, too, is split into two trips. However, trivial subsidiary purposes (e.g. a stop to buy a newspaper) are disregarded.

**Stages** A trip consists of one or more stages. A new stage is defined when there is a change in the form of transport or when there is a change of vehicle requiring a separate ticket.

**Distance travelled** The length of any trip stage is the distance actually covered, as reported by the traveller, and not the distance 'as the crow flies'.

**Series of calls trips** In order to reduce the burden on respondents, travel involving a number of stops for the same main purpose and using the same form of transport are treated as one continuous series of calls trip from the first such call to the last one. Only shopping and 'in course of work' travel can be treated in this way. A doctor's round would therefore consist of one trip to the first patient, one series of calls trip to the other patients and one trip from the last call back to the surgery or home. In general, series of calls trips are excluded from published tables.

### Modes of travel

**Main mode of travel** The main mode of a trip is that used for the longest stage of the trip by distance. With stages of equal length the mode of the latest stage is used.

**Walks** of less than 50 yards are excluded.

**Car** and car/van both include 4-wheeled and 3-wheeled cars, 4x4 vehicles, light vans and lorries.

**Rail** includes both surface rail (National Rail) and London Underground, but not any other rail service. In some tables surface rail and London Underground have been presented separately.

**Light Rail** includes the Tyne & Wear Metro, Docklands Light Railway, Manchester Metrolink, Glasgow Subway, Sheffield Supertram, Blackpool Tramway, Croydon Tramlink, Nottingham Express Transit (NET) and Midland Metro. It has been possible to distinguish these modes since 1998, but the number of cases is small and they are included in tables under 'other public' transport.

**Local bus** includes all 'local' services, and in some tables this is split into London and non-London bus services, but excludes express services, excursions and tours (non-local bus).

A **bicycle** is any pedal cycle capable of use on the public road, but not children's bicycles or tricycles that are intended as toys.

**'Other'** modes depend on the context, but may include other types of bus (works or school bus, private hire, express bus and tours and excursions), two-wheeled motor vehicles, minibuses, motorcaravans, dormobiles, taxis/minicabs, domestic air travel and other private and public transport.

### Trip purpose

The purpose of a trip is normally taken to be the activity at the destination, unless that destination is 'home' in which case the purpose is defined by the origin of the trip. The classification of trips to 'work' is also dependent on the origin of the trip. Purposes include:

**Commuting** - trips to a usual place of work from home, or from work to home.

**Business** - personal trips in course of work, including a trip in course of work back to work. This includes all work trips by people with no usual place of work (e.g. site workers) and those who work at or from home.

**Other work** - trips to work from a place other than home or in course of work, e.g. coming back to work from going to the shops during a lunch break. In most tables this is included with 'personal business'.

**Education** - trips to school or college, etc. by full time students, students on day-release and part time students following vocational courses.

**Shopping** - all trips to shops or from shops to home, even if there was no intention to buy.

**Personal business** - visits to services, e.g. hairdressers, launderettes, dry-cleaners, betting shops, solicitors, banks, estate agents, libraries, churches; or for medical consultations or treatment; or for eating and drinking, unless the main purpose was entertainment or social.

**Social or entertainment** - visits to meet friends, relatives, or acquaintances, both at someone's home or at a pub, restaurant, etc.; all types of entertainment or sport, clubs, and voluntary work, non-vocational evening classes, political meetings, etc.

**Holidays or day trips** - trips (within GB) to or from any holiday (including stays of 4 or more nights with friends or relatives), or trips for pleasure (not otherwise classified as social or entertainment) within a single day.

**Just walk** - walking trips for pleasure or exercise along public highways, including taking the dog for a walk and jogging.

**Escort trips** - used when the traveller has no purpose of his or her own, other than to escort or accompany another person; for example, taking a child to school. 'Escort commuting' is escorting or accompanying someone from home to work or from work to home. Similarly, other escort purposes are related to the purpose of the person being escorted. Note that the purpose of a trip for a small child accompanying older children to school would be 'escort education'.

### Households and individuals

A household consists of one or more people who have the sampled address as their only or main residence and who either share at least one main meal a day or share the living accommodation.

**Work status** A person is described as working if in paid employment, or self-employed, during the previous week. Persons absent on holiday, on strike, temporarily sick, on study leave, maternity leave, or absent for similar reasons, are included. Sandwich students and students working during vacation are excluded. The distinction between full-time and part-time work is determined by the respondent.

**Household income** Household income is the total gross income of all members of the household, from whatever source, before deduction of income tax, National Insurance or pension contributions. Household income is captured by asking the household reference person to identify which band the household's total income falls into. Using the median income from each band, this is then both adjusted to reflect the household's size and composition using the McClements Scale, and adjusted for inflation using the RPI value from the month the interview was carried out. This allows analysis of trip behaviour by income on a comparable basis for different household types and different time periods.

### Household vehicles

The term 'car' and 'car/van' is used for all three or four wheeled vehicles with a car body type, and also light vans, 4x4 vehicles, minibuses, dormobiles and motorcaravans. Such vehicles are regarded as **household cars** if they are either owned by a member of the household, or available for the private use of household members. Vehicles used only for the carriage of goods, as public service passenger vehicles, or solely for hire by other people are excluded. Hired or borrowed vehicles are included only if they were available to the household over the whole of the sample travel week. Company cars provided by an employer for the use of a particular employee (or director) are included, but cars borrowed temporarily from a company pool are not.

The term 4-wheeled car excludes light vans, 4x4 vehicles, minibuses, dormobiles and motorcaravans.

**Access to cars** The '**main driver**' of a household car is the household member that drives the furthest in that car in the course of a year. Households with two or more cars are likely to have two or more main drivers, one for each car. '**Other drivers**' are people in car-owning households, who have a full driving licence to drive a car, but are not main drivers of a household car. No account is taken of whether or not they actually drive a household car. **Non-drivers** are all other people in car-owning households. They include children below driving age and adults with provisional driving licences.

### Area type – Rural/Urban Classification

A new Rural-Urban Classification is used to distinguish residents of rural and urban areas from the 2013 publication onwards. The Classification defines areas as rural if they fall outside of settlements with more than 10,000 resident population. At its most detailed the Rural-Urban Classification assigns areas to one of six rural or four urban settlement types.

**Urban** areas are the connected built up areas identified by Ordnance Survey mapping that have resident populations above 10,000 people (2011 Census).

**Rural** areas are those areas that are not urban, i.e. consisting of settlements below 10,000 people or are open countryside.

More information can be found at: <https://www.gov.uk/government/publications/rural-urban-classification-leaflet>