

(2003-2014) Detailed Travel Survey Information

NOTE: This information refers to the 2003-2014 historical survey.

Purpose

The New Zealand Travel Survey provides data to assist in the development of policy and evaluation of programmes relating to transport and road safety.

When combined with existing crash data, crash risks for different groups of road users (including drivers, passengers, pedestrians and pedal cyclists) can be estimated.

To enable valid estimation of changes in travel over time, comparable survey methods were used to the previous national travel surveys of 1989/90 and 1997/98.

As travel behaviour has been shown to be strongly related to people's availability and willingness to be surveyed, personal interviews were used to gather travel data. This survey method generates the highest rate of co-operation and the most complete recording of complex travel behaviour.

Procedure

An initial letter is sent from the Ministry of Transport to the households selected for interview. Included with this is a pamphlet about the survey (PDF, v7.0, 1,903kb)
([assets/Import/Documents/Travel20survey20brochure202008.pdf](#)) briefly describing the aims and content of the survey.

During the week prior to the survey days, the interviewer calls at the address to gather household information, explain the purpose of the survey, tell the household which were their 'travel days' (two consecutive days for which the household was to record all travel), and leave a Memory Jogger (PDF, v7.0, 143kb)
([assets/Import/Documents/memoryjogger.pdf](#)) for each respondent to use for recording travel. From 2008, people who drove for a job (eg bus, truck or taxi driven) were provided with a separate professional driver memory jogger (PDF, v7.0, 148kb) ([assets/Import/Documents/Professional20driver20memory20jogger.pdf](#)) in which they recorded their personal travel (including travel to and from work) only.

Finally, as soon as possible after the travel days, the interviewer returns to conduct a personal interview with each member of the household.

Questionnaire

To enable comparison with the results of the earlier travel surveys, the household and personal questionnaires used are essentially the same as in the 1997/98 and 1989/90 surveys. There is the further advantage of using a survey instrument that has performed well in the field previously. Minor changes were made to update wording and response categories.

Laptop computers are used by interviewers to improve data quality and reduce the time required for the interviews.

Data gathered

Two questionnaires are used: one to gather information about the household (Household questionnaire (PDFv7.0, 44Kb) (assets/Import/Documents/Household-form-versionF-April2008.pdf)) and a Personal interview questionnaire (PDF v7.0, 168 kb) (assets/Import/Documents/Person-form-Version-F-April-08.pdf) to record individual travel, demographics, and alcohol usage .

In addition, the interviewers have Show cards (PDF, v7.0, 64kb) (assets/Import/Documents/showcards8booklet-April2008-.pdf) for coding occupation, driving experience, ethnicity, income, drinking venue and types and quantities of alcohol consumed.

The following data are gathered (or are derived from responses):

Household: Local government region of respondent's residence, urbanisation of respondent's residence, household structure, relationship of people in the household, number of people, number and type of household vehicles (car, motorcycle, van etc.), vehicle make and model, vehicle age, engine capacity and ownership, and response status of household.

Person: For each person in the sampled household - gender, age, employment, income, driving experience, number of road crashes, number of trips, ethnicity, marital status, whether they drank alcohol on travel days, and location of workplace/school.

Trip: For each trip made by sampled people on the travel days - trip purpose, mode (as driver/passenger/pedestrian/cyclist etc), date, time, origin and destination, age and gender of people in the vehicle, and which household vehicle was used (linked to information on vehicle make and model, vehicle age, engine capacity, ownership).

Alcohol drinking sessions: For each person - times, locations and types and amounts of alcohol consumed.

Traffic crashes (2003-2008 only): For each person - crash involvement over the last two years, location of crashes, and type of crash. The accident module in the questionnaire was discontinued from 1 July 2008.

Interviewers' training and supervision

All interviewers undergo a two-day training session and their work is closely supervised and audited.

Sample design

Stratification

The sample strata and substrata are geographically based using Statistics NZ definitions for the 2001 Census of Population and Dwellings: the strata were the 14 Local Government Regions, further stratified into Main Urban Areas (at least 30,000 population), Secondary Urban Areas (population between 10,000 and 30,000) and rural (including Minor Urban Areas with population less than 10,000 and all other rural areas).

The sample sizes per Local Government Region are proportional to 2001Census populations except for the following:

- ▶ Less than proportional: Auckland, Canterbury, Wellington
- ▶ More than proportional: Hawkes Bay, Nelson-Marlborough, Northland, Southland, Taranaki, Gisborne and the West Coast Regions.

Sample frame and sampling method

Survey costs are minimised (while maximising the utility of the data collected) by constructing the survey so that interviewers did not need to travel long distances between households. Meshblocks (geographical units varying in size from a city block in urban areas to extensive tracts of land in rural areas) are used as the first stage sampling units and are sampled independently within the strata.

The sampling frame for meshblocks consisted of the 1996 Census list of meshblocks. The meshblocks were sampled with probability proportional to size without replacement where size was defined as 1996 Census population.

To compile an up-to-date sampling frame of households within the sampled meshblocks, the selected meshblocks are visited and all dwellings are listed together with street addresses.

Meshblocks are surveyed in random order within Regions. One in seven households from sampled meshblocks are sampled. A systematic sample of households is taken by randomising a list of all households within sampled meshblocks and sampling every seventh household from this list. Introductory letters are sent to households prior to the interviews of household members. Sampled households and household members from whom responses could not be obtained are not replaced by other respondents, but are imputed for using data obtained from other similar respondents (see below).

Allocation of travel days

The households selected according to the sampling scheme are each allocated two consecutive travel days (i.e. days about which the household members should report their travel). The travel days are allocated to the sample of households in a fashion that maintains a wide geographical spread (of areas being surveyed) at any given time of the year. An even spread by day-of-week is maintained by systematic allocation of travel days.

Coverage

The sampling frame consists of all New Zealand households, excluding some sparsely populated remote areas in Westland, East Coast of the North Island, Southland and Northland.

Guests at hotels and motels are not surveyed as it is assumed that this group of people have a chance of being sampled at their home residence. There are also likely to be difficulties in gaining access to these people for interviews, particularly as the survey method requires more than one visit (see above) and was not compatible with short stays at motels/hotels. Inmates of prisons and patients of hospitals were also not surveyed.

Bias due to non-response is minimised by requiring a minimum of four attempts (made at different times of the day) to contact people who were not at home.

Nevertheless, the failure to make contact with respondents who are not at home together with the exclusion of visitors and people staying at hotels/ motels (some research indicates that these people tend to travel more than the average), means that the estimates of distance travelled derived from this household survey may slightly underestimate the total travel in New Zealand. However, this can be estimated from other sources.

There will also be some underestimation of travel by professional drivers (and hence by vehicles such as taxis and trucks). This is due to a combination of the household-based sampling that excluded accommodation used by long-distance drivers, and the under-representation of people who travel a lot as they are not at home when surveyed.

Estimation of distance

For all their recorded trips, respondents are asked to provide addresses of the origin and destination of each leg of the trip in a format that could be used in the automated calculation of trip distances.

Critchlow Limited (<http://www.critchlow.co.nz/>) are contracted to generate automated map co-ordinates for each address and then to calculate distance based on the shortest (in terms of travelling time) route between the origin and destination addresses.

Approximations are used in cases when a street number was not valid (the closest valid address is used). Where a route is used that deviates from the shortest route (e.g. a scenic drive), the interviewer records an intermediate address along the route taken to show that a longer route was taken.

A number of addresses that cannot be automatically digitised (i.e. encoded as map co-ordinates) were digitised manually by referring to street maps. In a small number of cases where there is insufficient detail in the recording of the address, the respondent's own estimate of the trip distance (which is recorded for all non-pedestrian trips) is used as the best distance measure.

For pedestrians, time spent walking and number of roads crossed are recorded. Currently it is not possible to use the same algorithm as for driving or cycling to calculate distance walked. A project is under way to develop an accurate pedestrian network.

Estimation of means and totals

Since the sample is not a simple random sample of the population, a simple mean or total of the sample observations is not appropriate for estimating population means and totals.

Weighted means and totals are used, where the weights are approximately equal to the reciprocals of the probability of selection of the respondents. Weights are also used to reduce the inevitable bias due to non-response.

Estimation of sampling errors

Sampling errors are calculated using SAS, accounting for two-stage stratified sampling.

Crash and injury data

Information about motor vehicle crashes is extracted from the Ministry of Transport's database of coded information derived from Traffic Crash Reports.

When an injury crash is reported, it is usually attended by a police officer. The reporting officer's primary duties are to prevent further injury and to help those injured.

The next duty is a legal one, to ascertain whether anyone involved in the crash has committed an offence. After dealing with these other duties, the officer completes a Traffic Crash Report.

The Traffic Crash Report is examined and coded by traffic engineers and by administrative staff of the NZ Transport Agency. This coded information is loaded on to a computer, edited and checked. Further details can be found in the annual summary of crash statistics, *Motor vehicle crashes in New Zealand*.

Hospitalisation data are used for tables of cyclist injuries in non-motor vehicle crashes and of risks for different ethnic groups. These refer to the number of people admitted to hospital as a result of a crash and are supplied by the New Zealand Health Information Service.

1. 2001 Census data were not available at the time that the sample was selected, although these data were able to be used during the weighting of the survey data.
2. The probability proportional to size sampling method used, due to Sunter (1977), is described in Sarndal et al (1992: p94).

(2003-2014) Information for people in the Travel Survey

NOTE: This information refers to the 2003-2014 historical survey.

What is the survey about?

This survey is about collecting information regarding day-to-day travel in New Zealand - how we travel, where we go, when, and so on. The results will give us a picture of the actual travel patterns of all types of people - information which is vital for developing road safety, roading, public transport, pedestrian and cycling policies.

What information is collected?

We ask for information about the travel made by each person in your household on two chosen days. We call these your Travel Days. The questions we ask each of you are in three parts:

Before your Travel Days

You will have been sent a letter from the Ministry of Transport introducing the survey and inviting you to participate.

The letter tells you that an interviewer will visit you to explain the survey and invite you to take part by recording your travel. The letter will give you the name of that person. Your interviewer will ask brief questions about how many people make up the household and the vehicles you all have. They will provide each of you with a travel memory jogger and will make an appointment to return after your Travel Days.

During your Travel Days

We will ask you to record your travel on the Memory Jogger provided.

After your Travel Days

Your interviewer will return at an agreed time and ask you to describe your travel. He or she will also ask you about what you drank and some general background questions. Most people find this interesting and enjoyable.

This interview is all you will be required to do for the survey. Even though the Travel Survey is an ongoing process, your address should not be selected again.

What happens to my information?

The information you give us is added to other people's responses and used to make up a national or regional picture of travel in New Zealand. It is never linked back to you personally.

The information you provide about where, when and how you travel will be used to guide decisions which influence the way New Zealand's roads, cycleways and walkways are developed. It will help in developing our public transport networks, and will be used in developing road safety policy.

Read about the survey (</mot-resources/household-travel-survey/>)
(research/Pages/TravelSurvey.aspx)

What difference will this make to me?

Because you and the other members of your household have given us information about the various ways you use our road network, we will be able to improve our planning and design work to help reduce traffic congestion and prevent road accidents. This includes developing safe cycling and pedestrian networks and developing road safety policy. **This will benefit everyone.**

What if I drive for a living?

If you are a professional driver, that is someone who is employed to transport goods or people (like a courier, bus or taxi driver, or a truck driver), then you don't need to record the travel done as part of this job. **Please do** record your personal travel, including travel to and from work, and any travel you do as part of another job (such as going to meetings).

If you are not a 'professional driver', please record any travel you do as part of your work, including travelling between work sites, going to meetings and picking up equipment you use for your work.

I don't go anywhere much - are you still interested?

Some people think that, if all they did on a Travel Day was to walk across the road to buy a newspaper, this would not be important. In fact, this type of travel is just as important as a trip from one end of the country to the other.

So, whether:

- ▶ you make a lot of trips
- ▶ you only leave the house once or twice
- ▶ or even if you don't go anywhere at all... just record what actually happened on those days.

Every single respondent is important - old, young, car owner, non-car owner, those who walk, those who travel a lot, and those who never go anywhere at all.

But today is an unusual day for me

It's not only what you usually do that's important. It's what actually happens. If you are a courier driver and usually drive all over the place, but on your Travel Day you have the day off, just write down what you actually did. Or, if you hardly ever go out, but your Travel Day is a special outing day, write that down. Every day in New Zealand lots of people are having 'unusual' days, and we need to include this in our survey.

Who is conducting the survey?

The Ministry of Transport has commissioned Research International to carry out the survey on its behalf. This information gathered by the Research International interviewers will be used by the Ministry of Transport.

How was I selected?

You personally were not selected. Rather, your address came out of a random sample of households selected from across New Zealand. People in both urban and rural areas are being surveyed.

What about privacy?

The information we collect is used for statistical purposes only. Names are only used to help the interviewer make appointments and talk to you. No information from which any individual or household can be identified will be published as a result of this survey.

Who can I contact about the survey?

You can ask your interviewer any questions you have, or you can phone TNS on 0800 473 732.

(2003-2014) Travel Survey - information for researchers

NOTE: This information refers to the 2003-2014 historical survey.

Participating households are chosen from a number of randomly selected Census meshblocks. Each selected household is allocated two consecutive travel days to be surveyed. Surveying takes place on every day of the year.

Over a five to seven year cycle, every household in the selected meshblock will be invited to participate in the survey. Once this happens, new meshblocks will be selected for sampling.

Some time before the designated travel days, the household is sent an introductory letter outlining the survey and advising that a surveyor will call. During the week prior to the travel days, an interviewer visits the home, and with the agreement of residents explains the survey and a pamphlet about the survey (PDF, v 7.0 3.14MB) (assets/Import/Documents/Travel20survey20brochure202008.pdf). and leaves a Memory jogger (PDF, v 7.0 143KB (assets/Import/Documents/memoryjogger.pdf)) for each member of the household member in which respondents can note their travel on the selected days. People who drive a truck, bus or taxi for a living complete a Professional Driver memory jogger (PDF v7.0, 148KB) (assets/Import/Documents/Professional20driver20memory20jogger.pdf). Basic household information is also collected at this interview.

As soon as possible after the travel days, the interviewer returns and conducts a personal interview with each household member, during which his/ her travel details, accident history, alcohol consumption and other personal data are recorded.

Sample size

Between 2003/04 and 2007/08 (inclusive), 2,200 households were invited to participate each year. From 2008/09 onwards, approximately 4,600 households are invited to take part in the survey each year. In addition, Environment Canterbury has contributed funding for an expanded sample in that areas over the 2008/09 to 2013/14 years.

Data Entry and validation

Survey data are entered into an access database using a laptop computer, at the time of interview. Paper questionnaires are provided for situations where use of the computerised form is not practicable, and the results are entered into the database later by the interviewer.

Data validation checks (including on the spot verification of street names) are incorporated into the database, giving rapid feedback and enabling early correction of errors.

Calculating trip distances

Trip distances for cycle and motor vehicle trips are calculated from the origin and destination addresses provided by the respondents. Critchlow Ltd (<http://www.critchlow.co.nz/>) were contracted to generate automated map coordinates for each address and then to calculate distance based on the fastest route between the origin and destination addresses, or via a specified intermediate address if one was provided.

Further Information

For further technical detail see Detailed survey information (/mot-resources/household-travel-survey/detailedtravelsurveyminformation/).

(2003-2014) How is the Travel Survey carried out

NOTE: This information refers to the 2003-2014 historical survey.

The Ministry of Transport has commissioned TNS to carry out the Travel Survey. All interviewers carry official identification cards.

Interviews and completing diaries

A trained interviewer visits each selected household and invites the members to complete a memory jogger (PDF, v 7.0 162KB) ([assets/Import/Documents/memoryjogger.pdf](#)) to record all their travel over two days. People who drive a truck, bus or taxi for a living complete a special professional driver memory jogger (PDF, v7.0, 148KB) ([assets/Import/Documents/Professional20driver20memory20jogger.pdf](#)).

The interviewer returns after the travel days to conduct a personal interview with each person in the household.

The interview includes questions about the travel in the memory jogger, crash history and alcohol consumption.

Selecting households

Blocks of houses used for the Census (called meshblocks) are picked at random. Selected houses in the meshblock are sent a letter describing the survey and advising that a surveyor will call.

An interviewer visits the houses and invites people to take part. The people in the house note down their travel on two particular days.

As soon as possible after the travel days the interviewer comes back and interviews each household member.

Over seven to eight years every household in the meshblock will be invited to take part in the survey. Then the survey will move to different meshblocks and the process will start over again.

Privacy considerations

The information we collect is used for statistical purposes only. Full names are not recorded and no information will be published that identifies an individual or a household.

(2003-2014) Data and Spreadsheets - Household Travel Survey

NOTE: Currently this information refers to the 2003-2014 historical survey.

Data from the current survey will be linked to when it becomes available.

NZdotstats

Household Travel Survey Tables are available on Statistics New Zealand's NZ.stat:

- ▶ All travel by region (<http://nzdotstat.stats.govt.nz/wbos/Index.aspx?DataSetCode=TABLECODE7431>)
- ▶ Travel to work by main urban areas (<http://nzdotstat.stats.govt.nz/wbos/Index.aspx?DataSetCode=TABLECODE7432>)

Regional spreadsheets

[Main Urban Areas spreadsheet](#): [XLSX, 112 KB] (/assets/Uploads/Research/Documents/a47244fe8d/Main-Urban-Areas-website-02DEC14.xlsx) This spreadsheet contains mode share results from the New Zealand Household Travel Survey 2003-14 for five main metropolitan areas (Auckland, Wellington, Christchurch, Hamilton, Dunedin). Results include distance travelled, time spent travelling and number of trip legs by mode.

Transport Dashboard and Indicators

Travel Survey data is used in a number of the Ministry's transport dashboard and indicators. (/mot-resources/transport-dashboard/)

These include:

- ▶ Household Travel (/mot-resources/transport-dashboard/1-household-travel/)

And some of the indicators in:

- ▶ Road Transport (/mot-resources/transport-dashboard/2-road-transport/)

- ▶ Public Transport (</mot-resources/transport-dashboard/3-public-transport/>)
- ▶ Walking and Cycling (</mot-resources/transport-dashboard/4-walking-and-cycling/>)

1997/98 Travel Survey

The 1997/98 Travel Survey (</mot-resources/household-travel-survey/1997-98travelsurveylhighlights-contents/>) was a one-off survey conducted with comparable methodology as the current ongoing survey. This page displays detailed results from that survey and tracks changes compared to the 1989/90 Travel Survey also conducted with a comparable methodology.