

# EXPERT PANEL REVIEW OF THE 2016 NATIONAL HOUSEHOLD TRAVEL SURVEY – APRIL 28, 2015



## Background & Objectives

In the spring of 2014, the National Household Travel Survey (NHTS) program convened a team of survey experts to discuss potential changes to the methodological approaches of the upcoming 2016 survey. As modes of communication continually evolve, research has shown that more American households are embracing technology, increasing their dependence on mobile phones and decreasing their usage of landline telephones. These changes have forced the Federal Highway Administration's (FHWA) NHTS to reevaluate previous survey designs and explore new survey methods. For the 2016 NHTS a new contract was awarded to the survey research firm Westat in October 2014. New plans on conducting the survey were designed and provided to the panel session for discussion.

### PANELISTS:

**Mick P. Couper**, PhD, Research Professor, Institute of Social Research, University of Michigan;

**Don A. Dillman**, PhD, Regents Professor, Department of Sociology, Washington State University;

**Laura P. Erhard**, Senior Economist, Bureau of Labor Statistics;

**Paul J. Lavrakas**, PhD, Research Psychologist and Senior Methodologist, and Fellow, NORC at U-Chicago, Office of Survey Research at Michigan State University, and Senior Research Advisor at the Social Research Centre (Melbourne);

**Steven Polzin**, PhD, Director of Mobility Policy Research at the Center of Urban Transportation Research, University of South Florida;

**Guy Rousseau**, Models & Surveys Manager, Atlanta Regional Commission, MPO, Atlanta, Georgia;

**Clyde Tucker**, PhD, Principal Survey Methodologist, American Institutes for Research (AIR)

The *main objective* of this reconvened Expert Panel session was to review the survey plan as submitted to the Office of Management and Budget. The first Panel session was held at DOT Headquarters on March 25, 2014. The second panel session was charged with the task of:

- (1) reviewing of the limitations and strengths of the NHTS 2016 data collection plan
- (2) providing suggestions on how to improve the survey plan and redesign, and
- (3) discussing of objectives for the next 2020 NHTS undertaking.

## Introductions of Expert Panel Members and Attendees

Led by NHTS Program Manager Adella Santos, the Expert Panel meeting began with introductory remarks. The Federal Highway Administration's Office of Policy and Governmental Affairs Associate Administrator, David Kim, provided welcoming remarks and noted that the FHWA's chief concern with regard to the NHTS was: *How can we do it faster and at*

*lower costs, while still maintaining rigorous academic standards?* Ms. Santos followed Mr. Kim's welcoming remarks by introducing panelists and discussing their major achievements. There were other distinguished attendees that Ms. Santos recognized. They were *Patricia Hu,*

Director of BTS and *Joy Sharp*, Deputy Director of the Bureau of Transportation Statistics. BTS had provided NHTS guidance on how to comply with the Office of Management and Business (OMB) requirements to obtain approval to conduct the survey. A full list of attendees is provided in the final section of this report.

### **Information and Resources Provided to Panel Members to Facilitate Review**

Ms. Santos provided a brief overview of the proposed *timeline* for the 2016 NHTS:

- (1) Contract awarded to Westat in October 2014
- (2) Phase I: The Study Plan & Design completed for OMB submission on May 1, 2015
- (3) Phase II: The pretest to be scheduled upon completion of OMB review
- (4) Phase III: Data collection for the main survey to begin between December 2015 and February 2016
- (5) Phase IV: The full dataset to be available for user use in the fall of 2017.

**Resources/Documents Provided:** Panel members were provided with draft NHTS 2016 materials for their review. These resources included a *2016 NHTS Online Trip Reporting Tool Mockup*, a *2016 Draft Web Retrieval Script*, the *2016 Survey Plan* and a *Draft 2016 Survey Travel Log*. PowerPoint presentations at the meeting geographically described the state, MPO, and local Add-On Partners to the national 2016 NHTS and explained how they will complement each other. The Sampling plan was described as a probability household sample from an address-based-sampling (ABS) frame. The design included a two stage approach with a recruitment phase followed by a retrieval phase. Specific details of the two-staged 2016 NHTS survey plan included multi-mode response options, data collection of 100% of household members over 5 years old, travel day assignments evenly distributed across the days of the week for one year, and the option for Add-ons to reduce weekend data collection to 1/14. At the time of this panel session a GPS component to the data collection was under consideration. However, due to the cost of conducting a GPS sample those plans were removed from the plan. There were two Add-on partners who planned to conduct a GPS component, but as of August 2015 they also cancelled their interest.

**Survey Protocols:** A description of the survey methods was provided. The initial contact to recruit the household will be via mail. The *recruitment mailing package* will contain a letter, two \$1 bills, and a questionnaire that consisted of 16 questions. The letter addressed the purpose and importance of the study, it provided a website link where the respondent could find more information about the NHTS study, and it informed the respondent that the survey was voluntary and that their responses would be kept confidential. The letter was designed with an official government logo that visually provides the reader with a perception of “government importance.” This recruitment package will be mailed in a USPS First Class white envelope that again was designed to visually provide a respondent with a perception that the contents are important.

The primary objective of this recruitment package was to highly encourage the respondent to open the recruitment envelope. The schedule for recruit mail outs was explained: Day 1—initial mailing with an incentive; Day 7 a reminder card; Day 21—resend survey packet without

an incentive; Day 44 a second letter that offered web or phone. Day 44 mailing is scheduled to allow time for the second mailing to be adequately considered. The *mail response mode* had been chosen because recent research has shown evidence of higher response rates with mail.

The travel day is assigned *after* the recruit response is received. The primary method of collecting the travel inventory retrievals for all household members ages 5+ will be by web. A phone retrieval will be offered as an alternative. The average retrieval interview time for the initial person is 20 minutes; 13 minutes for other members. To encourage continued participation a \$5 bill will be mailed with each retrieval packet to a household. To further encourage the household to complete the survey, \$20 will be offered and mailed to the household when all household members have completed their travel inventories. A travel packet will be sent to each recruited household. It will include instructions on how and when to record their personalized one-day travel log. Each household member will be provided an exemplar log that uses an infographic to demonstrate to the respondent how and what to record. This one page *travel diary* is used as a memory jogger of their trips for later reporting by web or phone. There will be phone/web notification of recruitment completion as well as a timely reminder of the assigned travel day. The *web retrieval* script allows the respondent to review their final roster of all places reported, and it has the capability to add a trip if the respondent recalls a missed trip. It also has a route map that serves as guidance of how the respondent traveled on the assigned date. The web survey also includes all pertinent questions of the added trip in the right time sequence. It is also designed to record trips made by a household passenger so that household members can avoid being asked duplicate questions. This design will reduce the burden of other household members who traveled with the initial household member who recorded the information. A verification scheme is also set up where interviewers are trained to re-contact the household to retrieve missing information or verify responses that appear to be outside the range of responses.

## **Panel Discussion and Recommendations**

Panel discussions were wide-ranging and continued for the remainder of the session day. Primary topics were the recruitment process/materials, travel inventory retrieval methods/instructions, and response rates. Throughout the session, Panel members frequently acknowledged the fact that the NHTS is a very unique and complex survey, especially its data collection requirements. Present-day surveys of all kinds have experienced lower response rates than the past, especially with the changes in landline phone ownership. To better understand best practices in survey methods and develop trend lines, it is important to follow-up and see what portion of the recruit packet is actually delivered as well as identify landline households. Both of these metrics are present in the current survey plan, and together with various best practice efforts, the 2016 NHTS will aim to effectively reach a representative sample of American households and produce a strong data set.

## **RECRUITMENT PHASE**

The recruitment plan for the 2016 NHTS is a multi-step process of considerable complexity. The Panel evaluated the presentation, language and message of the field materials. They also discussed their tone and critiqued the instructions. The effectiveness of the recruitment will

dictate response rates and so refining the approach will involve considering mode choice, selecting engaging questions that pique the interest of households, and utilizing special efforts to draw hard-to-reach groups, like Hispanics.

**Official Approach:** The Panel agreed that the proposed 2016 NHTS recruitment materials, while emphasizing an official approach, also combined it with a marketing approach. *An official approach was recommended as most effective.* The panel recommended removing the colorful NHTS logo from the recruit letter and using only the official DOT logo, specifically the circular one with the lettering around it. The original letter had a blue box that highlighted instructions on how to fill out the recruitment questionnaire and next steps after they complete the recruitment questionnaire. It was recommended to remove this box from the letter since color reduces the impact of the official nature. The consensus was to “stop working to make the letter visually appealing, and make it official.” Also recommended was for the letter to include the logos of local agencies in the add-on areas. Finally, panel members agreed that the “HELP US” appeal in the recruit letter detracts from the appearance of an official government correspondence and any accompanying brochure would appear too marketing-oriented. As one panel member stated: “This is a Government survey with a serious purpose. If one has a choice in doing surveys, the government one with legitimacy and purpose is the one that will be completed.”

In reviewing the introduction of the recruit letter, the Panel stressed that the letter should sound important. Members recommended deleting ‘your community’ as the lead - and adding that the data will be used by national, state and local officials. As stated by a panel member: *“The letter should emphasize the importance of federal and state governments working together to improve transportation in your community.”* Also recommended was to put forth a clear reason why respondents should participate—for example, ‘the survey provides information needed for planning transportation improvements in your area.’ The NHTS Team was reminded to be extra-polite by utilizing ‘please’ and ‘thank you’ frequently. Finally, the Panel suggested that the NHTS survey website address should consider having a “.gov” URL, rather than a \*.com. Having a web address with dot.gov will better correspond with the “official business” nature of the communications.

**Language and Communication Style:** More discussion continued surrounding the language used in the recruitment phase. The Panel felt the first letter should omit fine details about the survey. *The recommendation was to talk more about what the NHTS effort is about – understanding where people travel in the US every day. Everything must say and look like “this is important”.* The Panel suggested that since the NHTS is a multi-step process it would be beneficial to the study to describe the step-by-step process sooner rather than later. They emphasized the importance of communicating requirements of the respondents upfront. Finally, it was stressed that a stronger message should be added to assure confidentiality of responses.

Overall the panel stressed that the goal is to use good writing in plain English. When respondents are asked for their last name in the recruitment, it was suggested that NHTS

acknowledge that last names are needed to mail participants the next set of materials. They agreed that *the instructions for next steps in the recruit letter required more clarification*. For example, “complete the final stage of the survey” must better convey that official completion calls for all household members (over 5 years old) to complete the web retrieval questionnaire before they can receive \$20. It was also pointed out that the word “you” in the recruit letter needed to be defined clearly. The letter needs to specify who should fill out the recruit and what will be required for the retrieval. The Panel also suggested rewording some questions to better meet current cultural realities. For instance, “How many persons in your household” might be replaced with, “How many people live with you?” Finally, the Panel emphasized the need to assist the respondent with definitions. They pointed out that the use of the term ‘travel’ evokes out-of-town trips. It was suggested using ‘a national snapshot of places people go on a specific day’ as the survey description. Similarly, *there is a problem in defining what a ‘trip’ is. Understanding the NHTS definition of ‘trip’ and ‘travel’ may be a major obstacle*. These terms mean something very different to the general public than to transportation analysts. An instructional video on the NHTS website could be a good tool to teach the desired definition.

**Recruit Mode:** Not only do field materials need to evoke an official tone and include clearly outlined steps, communication mode and efforts to engage households will also play a significant role in determining response rates. *The Panel members agreed that providing multiple questionnaire mode options tends to depress response rates. Also, current research recommends mail as the best way to recruit*. As planned by NHTS, mail will be utilized to initially reach out to households. Per research standards, phone or web options will only be offered to non-responders after allowing considerable time for reply by mail. It was noted that higher response rates may result in minority groups on call-in lines since phone is offered as an option. Though it was agreed that it would be helpful for the recruitment survey to be compatible with cell phones, it was acknowledged that a mobile recruit option is not yet available for the 2016 NHTS.

**Hispanics:** Achieving response rates that equitably represent all demographic groups can be a very difficult task. Hard-to-reach populations, like Hispanics, can be recruited more effectively by utilizing certain techniques. Oversampling this subgroup was one suggestion of the Panel, but this was not proposed in the 2016 NHTS sample design. The NHTS Team explained that surnames will be requested from the sampling vendor so that significantly isolated Hispanic populations can be geographically identified. Households in these areas will be sent full Spanish versions of the survey. The Panel stated that *for targeted Hispanic areas, the “official” government ‘look and feel’ of the previously recommended approach should not be used, or should be deemphasized*. The translated text in Spanish should be visually prominent when mailed to these Hispanic areas. Panel members suggested the use of back-to-back Spanish-English questionnaires and materials.

**Engaging Questions:** To encourage more households to participate in the NHTS, the recruit questionnaire includes *engaging questions, which are designed to get the respondent interested in the topic and identify with the relevant transportation issues*. He/She will then be more likely to answer the needed factual questions about household composition. The Panel proposed

some examples, noting that there are a lot of possibilities. The current draft recruitment questionnaire included a question with response categories of “agree or disagree.” Panel members discussed whether the agree/disagree scale was the appropriate tool to use for this question. They also noted the difficulty of using responses from engaging questions as ‘data,’ due to unequal probability of sample selection. They did agree, however that these questions can be used to analyze response patterns later. Another point the panel noted was that only a small percentage of the population uses new services like Uber, Lyft, Car2Go, etc. and so respondents might experience some confusion when seeing these terms. Finally, the Panel suggested ordering the recruit questions: engaging questions, household roster questions, miscellaneous questions, and finally contact preference at the end. This would allow more of the important data to be collected early in the survey should the respondent discontinue.

### **RETRIEVAL PHASE**

After a household returns its recruitment survey, the NHTS will follow up with instructions for how to complete the retrieval survey online. It is important to provide very clear instructions as to who needs to respond and what information to provide. Households may experience some concerns surrounding privacy in their trip reporting and may also need guidance in how best to use the travel log.

**Travel Reporting:** In an effort to ensure quality travel data, *the Panel recommended that the travel reporting instructions in the mailed retrieval packet clearly outline who in the household is responsible to begin inputting the travel information in the survey website.* This will significantly minimize the burden of other household members. The panel suggested that the initial household member should be someone over age 18. Another suggestion focused in on the cover letter- eliminate “track where you go for one day” and replace this with “record all the places where you go on a typical day.” The word “track” may be misinterpreted by the respondent. Also, the panel suggested that the web script should be expanded to allow for more trips to be recorded since 12 trips seemed limiting.

**Household Members:** One major point that the Panel emphasized was the need for clear and direct language to inform all household members of the tasks to be completed. They *emphasized the need for the NHTS to clarify that the travel logs are to be completed by each household member ages five and older, and that the travel logs in the retrieval packet are to help respondents remember where they went, not act as the full survey. “WHO” is to report and “WHAT” is to be reported are key.* There is a great need to explain the “What” is needed from each household member, especially since there might be confusion surrounding the one login code per household that is provided. Providing only one pass code to the Household, might lead respondents to think that only one household member needs to record his/her travel information in the web survey. The Panel suggested that the NHTS provide clear step-by-step instructions for households to follow for completing the survey. Another area where the Panel pointed out that there might be confusion was the trips that a ‘commercial driver’ has to record. NHTS needs to explain how ‘commercial drivers’ who visit lots of places during the day should record their travel. More guidance should be provided as to which trips are to be recorded as work trips and which are considered household trips. They suggested that it might

be more useful to have the commercial driver record “all” their trips and for trips with an unclear purpose (work vs household), the NHTS can have the verification team identify the trip type.

**Privacy:** The Panel noted that the NHTS retrieval website should be designed to close out each household member’s travel day record after he/she completes recording his/her travel to allow for privacy. Westat set up the login code for whole household use and that when the completed survey is registered, the data is automatically transferred to the data processing field. Westat explained that it is possible for a household member who has not completed the survey to have access to others who have already completed their parts. *The Panel members also questioned the privacy a household member with a partially completed survey would have if only one login number is assigned to the entire household.* The NHTS team described the program system set up and showed how each listed household member would have the opportunity to select his/her name or initials and record his/her trips independent of other household members.

**Travel Log:** The travel log has been a very important tool used to guide respondents on how to record their trips and used as a memory jogging reference when the respondent reports his/her trips. After the Panel reviewed this one page document, several suggestions were made to improve its format. First, the Panel suggested enlarging it from 8”x10” to 11”x14”. This would give respondents more room to write down their information. Second, *instructions should clearly indicate that each participating household member receives his/her own log to record individual trips. Instructions should encourage the respondent to carry the log on them at all times as a constant reminder to record every trip.* The log could include a message like, “The travel log might help you keep track of all the places you go.” The form should also avoid “wasted space.” The panel suggested that instead of using two pages, one for recording and one as exemplar, the NHTS may want to consider a two-sided document where the back includes the exemplar, FAQs, and extra space to record additional trips. It was also suggested to enlarge the FAQ section and place the exemplar visual icon example close to the FAQs on the back of the form. Instructions for turning over the page may be useful on the front as well as a note to record additional trips on a blank sheet of paper and on the web.

## **RESPONSE RATES**

The effectiveness of both the recruit and recruitment questionnaires will dictate the overall survey response rates. The Panel discussed this major topic at length due to the complexity of the survey and the need for the NHTS team to be aware of possible points where the survey may experience dropouts: (1) asking respondents to keep track of where they go for an entire day, and (2) asking non-respondents whether they want to complete the questionnaire online or by phone. *The Panel was very interested and expressed concern as to whether the NHTS designated phone room would be able to handle real-time call-in recruit requests?* From their experience, the Panel agreed that the projected 30% response rate on the recruitment may be attainable, but achieving a 65% response rate on the travel inventory retrieval for 100% of household members might prove difficult.

The Panel recognized that insufficient time was available at the session to comprehensively cover all the issues surrounding recruit sampling. They did note that coverage issues needed to be reviewed. One particular question was *how the NHTS was going to handle college students that live in group quarters during the academic year but return home for holidays and summer months*. Since this is a year-long data collection effort, students are excluded during the holidays but, in the latter, they are captured. The Panel wanted the NHTS team and Westat to further discuss this overall coverage issue because it could impact the representativeness of the sample and thus have an effect on the NHTS data quality. *The Panel also stressed that monitoring the sample and adaptive design was crucial especially for Hard-to-Reach (H2R) households, particularly 3+ and 4+ person households and other important population segments like low-income households*. These H2R households are central to Add-on Partner modeling needs.

The Panel acknowledged that little known research has recently been conducted with two stage survey designs that include a multi-mode data collection effort like that employed in the 2016 NHTS redesign. Non-response effects from changing the primary mode from mail in the recruit to web in the retrieval could be very interesting topics for future research. *Panel members suspected that retrieval response rates could be low if proxies within households are not permitted for travel day reporting*. The NHTS team reassured the Panel that proxy reporting will be admissible. It was also *recommended that the availability of phone responses be made explicit and that consideration be taken to make another option for the 2<sup>nd</sup> stage of the survey to be mail mode*. The Panel cautioned the NHTS team that in today's environment follow-up phone calls have not increased response rates due to the high prevalence of cell phone only households and – “people just don't answer the phone if they do not know the person calling.” Also, if the household does not provide a phone number in the recruit and the household was not a matched household in the ABS sample, it will be very difficult to contact or follow-up by phone. The Panel stressed the need to include this in the Non-response analysis report as well as to collect all partial completes for further analysis.

## **Summary of Recommendations**

After a very thorough discussion of the 2016 National Household Travel Survey redesign, the Panel provided very thoughtful feedback on the Recruitment Questionnaire, Retrieval Questionnaire, and Issues surrounding Response Rates. Due to the complexity of the NHTS, it will be challenging to draw respondents into a two-stage questionnaire with a 100% household member completion requirement. Panel members have never reviewed or participated in a survey of this nature.

To capture initial interest from households, the Panel suggested developing the field materials with a more official look by utilizing the circular USDOT logo, employing less color and rewording some of the text to tone down the marketing feel. To make the message sound more important, it was also suggested to omit fine details of the survey in the introductory letter, generously use 'please' and 'thank you' and change the website domain to ".gov" if possible. In general it was recommended to provide very clear instructions for WHAT is required of WHOM and step-by-step details on how to effectively fill out the questionnaire. It may be necessary to reword some questions and define some survey terminology to assist households to better understand how best to answer the questions.

Research in the field of Survey methods confirms that the 2016 NHTS is employing a best practice approach to questionnaire distribution. ABS will most effectively reach a representative sample of households and embracing supplemental strategies like communications in Spanish for Hispanic surname households and oversampling of other Hard-to-Reach groups can also effectively raise response rates. The recruitment survey will also utilize engaging questions to pique household interest in participation. Reordering some of the questions in this initial mailing may result in more information capture should a respondent later discontinue the survey.

Reporting the travel day information on the website in the second phase of the survey requires very clear step-by-step instructions. There is a significant need to more thoroughly explain that each household member over age 5 will receive an individual travel log and must participate by completing their questionnaire on the website in order to earn the household incentive. The Panel also recommended a restructuring of the travel log to effectively communicate its purpose and what information to record. Privacy concerns might surface when household members enter their information online, and the NHTS team will need to better program and communicate assurances of confidentiality in questionnaire responses.

The challenge of retaining households to participate in the NHTS can be addressed by responding to the concerns expressed by the Panel. Many of the Panel's suggested strategies are present in the current survey design while the NHTS team will put forth efforts in the planning and pretesting of the survey to implement the others. The most important detail that requires attention is communication. Due to the decreased interviewer feedback as the NHTS moves away from Computer Assisted Telephone Interviewing (CATI) towards mail and web, it is imperative that all written communication, both in print and online provide very clear instructions. When a household respondent knows exactly WHO is responsible for recording WHAT, more households will participate and the resulting data will be of higher quality.

### **Potential Research Topics for NHTS**

As American households move away from landline telephones toward higher cell phone usage, conducting successful surveys is becoming a more daunting task. Travel surveys like other surveys have experienced lower response rates. As the NHTS changes modes in 2016, many research opportunities present themselves. To improve research in transportation survey methods, the NHTS can identify and track differences in the quality of collected travel data among the various response modes: mail-in, phone and web. In general most trend analysis over time will be difficult and fraught with complications due to the steep decline in households with landline phones. The Panel suggested using that information on changes in the demographics of landline households in a model to try to project/simulate what data results would have been in 2016 from a telephone RDD frame. If known landline demographics have shifted, perhaps like demographics can be compared for 2009 and 2016.

As the field of survey methodology changes, new survey approaches will need to be embraced over time. The Panel suggested that FHWA spread the NHTS survey over multiple years, transitioning to a continuous sample. This would allow time to adjust elements of the redesign that are not working. It will be very important to offer a mobile response option by 2020. This is an area of crucial research development for both the traditional NHTS survey and for GPS options. By 2020, the mobile response mode will probably be a standard offering for surveys in general.

## **List of Attendees**

Adella Santos – NHTS Program Manager  
Shelley Brock –Westat  
Cinzia Cirillo- University of Maryland  
Janice Machado – Westat  
George Carter – HUD  
Mark Freedman – Westat  
Paul Schroeder – Abt SRBI  
Bob Lordo – Battelle  
Jeremy Raw – FHWA/HEPP  
Elaine Murakami – FHWA/HEPP  
Jill Montaquila – Westat  
Mike Brick – Westat  
Joy Sharp – DOT/BTS  
Margaret Petrella – VOLPE  
Jason Broehm – CDC  
Pat Hu – BTS  
Ed Christopher – FHWA  
Maggie Schilling – FTA  
Karen White – BTS  
Maggie Duncan-August – FHWA  
Gwo-wei Torng – FTA  
Brad Gudzinis - NHTS Team  
Jasmy Methipara– NHTS Team  
Stacey Bricka – NHTS Team  
Susan Liss – NHTS Team  
Laurie Wargelin – NHTS Team

### Phone attendees:

Tim Reuscher – Oakridge National Laboratory  
Rick Goeltz – Oakridge National Laboratory  
Diane Davidson – Oakridge National Laboratory