

**Information Collection Supporting Statement B
Nationally-Representative Public Opinion Survey on
Advanced Alcohol Detection Technology**

Submitted by

National Highway Traffic Safety Administration

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**Information Collection
Supporting Statement**

**Nationally-Representative Public Opinion Survey on
Advanced Alcohol Detection Technology**

B. Statistical Methods

Approval is requested to revise the information collection previously approved by OMB under 2127-0669. Approval had been received to conduct focus groups with drivers to gauge public perceptions regarding advanced, in-vehicle alcohol detection technology. The focus groups have been completed. NHTSA is requesting to add a nationally representative telephone survey to provide a more complete understanding of driver preferences.

The national telephone survey will include statistical analyses. This survey of attitudes and opinions about advanced, in-vehicle alcohol detection technology will use a national randomly drawn probability sample of drivers aged 21 and older living in households with a land-based (hardwired) telephone or cell phone only. The eligible target population will be all active licensed drivers aged 21 and older residing in households in the 50 States and the District of Columbia. The total sample size of 1,000 persons will be sufficient to allow the study findings to be broadly generalized to the U.S. population of active licensed drivers aged 21 and older, and will also allow for various analyses to be performed on key characteristics including gender, age, and alcohol use. The following sections describe sampling, questionnaire administration, and data analysis:

B.1. Describe (including numerical estimate) the potential respondent universe and any sampling method.

a. Respondent universe

The respondent universe for the national telephone survey consists of all active licensed drivers age 21 or older in the United States who currently drive and live in non-institutionalized dwellings. The total number of licensed drivers age 21 and older as of January 2011 is estimated at 199,232,744 (<http://www.fhwa.dot.gov/policyinformation/statistics/2011/dl22.cfm>). The telephone survey will randomly sample 1,000 licensed drivers from all telephone households in the United States, including Alaska, Hawaii, and the District of Columbia.

b. Statistical sampling methods/sample construction

The telephone survey will employ a non-overlapping dual frame design with national probability samples drawn from independent sampling frames for landline phones and for cell phones. The cell phone sample will be screened so that it is composed solely of people who are cell phone only and do not have a landline phone in their household. Both the landline and cell phone samples will be geographically stratified by Census Region. The sample will be allocated across the four Census Regions (West, Midwest, Northeast and South) based on proportional

allocation (i.e. the sample size allocated to each Region will be roughly proportional to the licensed driver population 21 years of age and older within that Region).

The initial stage in the construction of this sample requires the development of a national probability sample of the non-institutionalized adult population of licensed drivers aged 21 and older in the United States. The estimated distribution of the population by stratum is calculated on the basis of the U.S. Department of Transportation Federal Highway Administration's Office of Highway Policy Information Highway Statistics Series of licensed drivers by age January 1, 2011. Based on these data of the geographic distribution of the target population, the total sample is proportionately allocated by Census Region. The same proportion will apply to the cell phone subsample.

Landline sampling method

Sampling of telephone numbers will use a Random Digit Dial (RDD) methodology. The RDD sampling methodology that will be used is built upon a series of databases from which to generate probable working residential phone numbers in proportion to the households present. The sampling vendor starts with a database of all directory-listed households in the U.S. Using area code and exchange data regularly obtained from Telcordia and additional databases, this file of directory-listed telephone numbers is subjected to an extensive cleaning and validation process to ensure that all exchanges are currently valid, assigned to the correct area code, and fall within an appropriate set of ZIP Codes. Most samples are generated using a database of "working blocks." A block (also known as a 100-bank or a bank) is a set of 100 contiguous numbers identified by the first two digits of the last four digits of a telephone number. For example, in the telephone number 203-567-7200, "72" is the block. A block is termed to be working if one or more listed telephone numbers are found in that block. Each exchange is assigned to a single county. Nationally, about 72% of all exchanges appear to fall totally within single county boundaries. For those overlapping county and/or State lines, the exchanges are assigned to the county of plurality or the county with the highest number of listed residents within the exchange. This assignment ensures known probabilities of selection for all telephone numbers. After a sample of working blocks have been drawn, a two-digit number will then be randomly generated for each selected working block to complete the phone number to be called. By randomly generating these numbers, a process known as random digit dialing (RDD), every number in the sampling frame of working blocks has an equal probability of selection regardless of whether it is listed or unlisted. Once a number is called and contact is made with a household member, the interviewer will ask to speak with the licensed driver in the household 21 and older who will have the next birthday.

The sample data will be weighted to generate unbiased estimates. Weighting will use post-stratification weighting procedures so that the weighted distributions of the sample match the known demographic characteristics of the U.S. population of licensed drivers aged 21 and older nationally. The demographic characteristics used in the weighting will be age, race/ethnicity, gender, and Region.

Cell phone only sampling method

Because the prevalence and use of wireless telephones has changed substantially over the past decade, we will be conducting interviews with users of both landline and cell phones. The cell phone sample will be conducted among respondents who use a cell phone to make all of their personal calls.

The *U.S. Department of Health and Human Services Centers for Disease Control and Prevention National Center For Health Statistics – National Health Statistics Reports* provide State-level estimates of the percentage of adults and children living in households that did not have a landline telephone but did have at least one wireless telephone. Preliminary results from the January-June 2012 National Health Interview Survey (NHIS) indicate that more than one-third of every ten American homes (35.8%) had only wireless telephones (also known as cellular telephones, cell phones, or mobile phones) during the first half of 2012. Based on this data, 350 of the 1000 interviews will be with cell phone only respondents.

The methods that the Contractor will use to contact cell phone users and conduct interviews with them shall be designed to assure the safety of respondents (e.g., interviewing will not be conducted if the respondent is driving or otherwise unable to complete the interview). The Contractor shall obtain a frame of cell phone numbers that is separate from the frame that will be used to interview respondents on landline telephones. Potential respondents will be contacted on their cell phones, and asked a series of questions to ascertain whether they are cell phone only. If the respondent also has a landline at home that is used for making personal phone calls, then the person will be screened out as ineligible for the survey. But if the respondent only uses it for business, internet, or fax, then the respondent will be eligible for the survey. If the person has no landline, then s/he will be asked to participate in the survey. Respondents will first be asked if they are currently driving or doing anything that would make it unsafe for them to be on the phone. If the response is “Yes,” then the interviewer will immediately thank the respondent and terminate the call. The cell phone will be treated as a single user device and therefore the cell phone sample will not require the procedures used with the landline sample to select from multiple eligible household members. The interview will include specific questions about State of residence and other demographic characteristics to weight the data at the end.

Precision of Sample Estimates

If simple random sampling was being used to conduct the survey, the confidence interval for sample estimates of population proportions would be calculated by the following formula:

$$z * \left[se(x) = \sqrt{\frac{(p * q)}{(n - 1)}} \right]$$

Where:

- se (x)* = the standard error of the sample estimate for a proportion
- p* = some proportion of the sample displaying a certain characteristic or attribute
- q* = (1 - *p*)
- n* = the size of the sample

z = *the standardized normal variable, given a specified confidence level (1.96 for 95% confidence interval)*

Using this formula, the confidence interval for the proposed sample size of 1000 respondents would be ± 3.1 percentage points. However, the proposed survey will not be a simple random sample but instead will involve a dual frame design with stratification by Census Region. This means that tests of statistical significance will need to take into account design effects. Computations conducted for 9 key items in a 2008 non-overlapping dual frame national alcohol telephone survey showed confidence intervals that increased from 1.47 to 1.82 times what they would have been if the survey was a simple random sample.¹ Using the more conservative 1.82 figure, this translates into a confidence interval for the proposed survey of ± 5.6 percentage points. Given that the DADSS survey is intended to assess general leanings of the population with respect to new alcohol technology, this level of precision is sufficient to meet the objectives of the study.

B.2. Describe the procedures for the collection of information

a. Data collection

Telephone interviews with 1,000 active licensed drivers aged 21 and older living in the United States is proposed to occur over a three week period in 2013.

All sample management, interview scheduling, survey administration, and progress reporting of data collection will be handled by the Computer Assisted Telephone Interviewing (CATI) system. A comprehensive data collection plan is proposed to ensure that high response rates, high data quality, and low respondent burden are achieved. The plan is structured to optimize telephone coverage and contact with respondents, and to minimize no contacts and refusals. Interviewer recruitment, training, and monitoring procedures are designed to support these aims.

The CATI programming process includes specification of data locations, question text, responses and corresponding codes, acceptable response ranges, consistency checks, interviewer instructions, skip patterns, and help screens. Two kinds of range and consistency checks are programmed: hard and soft checks. Responses outside the hard range will not be accepted by CATI. Soft range checks prompt the interviewer to verify the response. The questionnaire design and layout must pass a strict internal hard copy “proofing review” before it can be sent to the programming stage. After the questionnaire is programmed, it passes through two additional separate proofing stages with extensive testing before interviewing can begin.

b. Interviewing plan

Once a telephone number is selected for inclusion, an interviewer will make an initial call to reach the household. If there is no answer or an answering machine/voicemail is reached, or if a person aged 21 and older is unavailable at the time of the first call, up to six additional calls (over different days and time periods as presented below) will be made to reach the selected

¹ Drew, Lisa et al. *National Survey of Drinking and Driving Attitudes and Behaviors: 2008. Volume 3 Methodology Report*. DOT HS 811 344. Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration. August 2010. Page 17.

household and to randomly select a respondent for landlines, and up to four additional calls for cell phone. After reaching a respondent, if necessary, unlimited attempts will be made to complete the interview depending on the callback request by respondent within the field dates of the survey. This call design is used to attain a high response rate.

Because the number of contacts attempted and the not-at-home patterns of households are key factors in determining response rates, a temporally varied call design is important. The following call schedule will be used for the initial contacts for selection of a designated respondent for completion of the interview:

	Calling Period	Respondent's Local Time	Number of Attempts Landline/Cell
Weeknights	5:00 p.m. to 7:59 p.m.	2/1	
Weeknights	8:00 p.m. to 9:59 p.m.	2/2	
Weekends	Saturday 1:00 p.m. to 7:59 p.m.		3/2
	Sunday 1:00p.m. to 7:59 p.m.		

For the RDD landline sample, after selection of a household, one household member (21 years of age or older who is a licensed driver) will be selected at random at the second stage of sampling. The interviewer will ask to speak with the person aged 21 and older with the most recent birthday.

Once a person has been selected for inclusion in the study, that person cannot be replaced by another person in the household. If the selected person refuses to participate, refusal conversion attempts will be employed.

All interviewers assigned to the project are experienced interviewers. These interviewers will receive training specific to this project.

B.3. Describe methods to maximize response rates and to deal with issues of non-response

Response rates are one measure of the extent to which a data set accurately reflects the characteristics and responses of a given population. In the market research industry there are two associations which have established the industry standards and codes of ethics, The Council of American Survey Research Organizations (CASRO) and The American Association for Public Opinion Research (AAPOR). In 2004, CASRO completed a study which showed the average response rate for national RDD samples was roughly 30%. Today, both CASRO and AAPOR agree this figure is much lower. Neither association has completed a response rate study since 2004, but both agree in using a standard methodology for calculating response rates. This can be found at the following website link: http://www.aapor.org/For_Researchers/5498.htm and then click on response rate calculator V3.1. The Contractor will use response rate 3 listed on line 148/149 of this calculator. Using this methodology for calculating response rates, on average the response rate range tends to fall between 15%-25%. We expect to achieve a similar response rate

to the industry standard for these types of samples by using the standard calculation as noted above.

As detailed earlier, we will incorporate a comprehensive data collection plan to help ensure high response rates. The plan is structured to optimize telephone coverage and contact with respondents, and to minimize no contacts and refusals. Our strategies are the following:

- Non-Response - If there is no answer or an answering machine/voicemail is reached, or if a person aged 21 or older is unavailable at the time of the first call, up to six additional calls will be made to reach the selected household to randomly select a respondent for landlines and up to four additional calls for cell phone.
- Response But No Survey Completion Achieved - If a respondent is reached and they qualify as meeting the criteria of the target audience but are not able to complete the survey at that time and would like to be called back, unlimited attempts will be made to complete the interview depending on the callback request by the respondent within the field dates of the survey.
- Refusal Conversions - Refusal conversions are an integral part of high response rate dialing. Soft (also referred to as uninformed) refusals are set for conversion attempts five days after the initial call. This allows a grace period for the respondent while also ensuring that subsequent attempts are made on a different day of the week from the first attempt. The grace period can be adjusted on a project by project basis. These numbers are turned directly over to a select group of interviewers who have a proven track record for achieving high cooperation rates.

In addition to the above callback, non-response, and refusal conversion methods, we will also limit the introduction of new sample records to ensure we are making the best use of the sample. This would mean the sample would be released and dialed in national replicates and we would only release a new replicate of sample once the previously released sample has been resolved.

A comparison of the characteristics of the achieved sample will be compared to known demographic characteristics from the U.S. Department of Transportation Federal Highway Administration's Office of Highway Policy Information Highway Statistics Series of licensed drivers to determine whether or not there is significant non-response bias in the completed sample. For example, the mean age or distribution of the ages of the respondents can be compared with that of the licensed driver population statistics by Census Region. Differences between the achieved sample and the licensed driver population will be identified, and weighting procedures will be employed to adjust the sample to match the population characteristics.

B.4. Describe any tests of procedures or methods to be undertaken

Prior to the initiation of the national survey, the questionnaire will be tested with a sample of 25 randomly selected licensed drivers aged 21 or older. The goal of the pretest test is to assess the workability of questions, and to check the flow and general understandability of survey

questions. Adjustments will be made to the survey as necessary based on the results of the pilot test. None of the data collected in the pilot test will be used in the final analysis.

B.5. Provide the name and telephone number of individuals consulted on statistical aspects of the design and the name of the contractors who will actually collect and analyze the information.

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