

Driver Surveys: Information and Options for State Highway Safety Offices

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States have agreed to conduct and report information from driver surveys every year (NHTSA, 2008, p. ii). The National Highway Traffic Safety Administration (NHTSA) and the Governors Highway Safety Association (GHSA) have agreed on a core set of nine survey questions (NHTSA, 2009, p. 16). They also have agreed that States will begin to conduct surveys in 2010 and will begin to report the results in 2011. States are encouraged to report the 2010 results in 2010 to establish baselines.

This short paper outlines basic information each State should consider in designing and conducting its survey.

Why conduct a survey?

Surveys can provide valuable information from drivers or the general public that can't be obtained any other way. This information can include views on the priorities of various traffic safety issues and on potential law or policy changes, knowledge of laws and penalties, perceptions of enforcement, awareness of recent enforcement and media campaigns, and self-reported behavior. See NHTSA (2009), Appendix A, for summary information on State surveys conducted in 2004-2008.

What information should you collect?

This depends of course on why you're conducting the survey. The nine core NHTSA-GHSA questions address self-reported behavior, media awareness, and enforcement awareness for each of the three major highway safety areas: impaired driving, seat belt use, and speeding (see NHTSA, 2009). The survey also should include basic demographic information for the respondents: at least age (in categories) and sex, perhaps ethnicity, residential Zip Code, annual driving mileage, or type of vehicle driven most frequently. See NHTSA (2009), Appendix B, for demographic questions used in recent State surveys. In addition, States may wish to add questions to address their specific traffic safety laws, enforcement, programs, or other topics.

Who should you survey?

Most State surveys want to learn the knowledge, views, and behavior of all drivers, and the core questions are directed to all drivers. Some surveys are restricted to licensed drivers; since most drivers are licensed, there's not much difference. Specific driver groups can be oversampled if information is needed from them. For example, a survey with questions on Graduated Licensing likely will oversample teenagers and their parents.

When to conduct a survey?

Surveys often are conducted shortly after a media and enforcement campaign to measure the public's awareness of the campaign, their perceptions of enforcement, and their self-reported behavior. Currently many States conduct media and enforcement campaigns for belt use in May, for impaired driving around Labor Day and in December, and for speeding in the summer. So a survey schedule that's best for one campaign may not be best for the others. States that conduct only one survey each year should consider their relative priorities for information on belt use, impaired driving, and speeding and should schedule the survey accordingly. One possibility is July, close enough to the May seat belt campaign for reasonable recall and during a summer speed campaign. If States include impaired driving messages and enforcement in their seat belt or speeding campaigns, a July survey would provide useful impaired driving information as well.

To measure long-term changes in self-reported behavior, surveys should be conducted at the same time or times each year.

How to do it, part 1: survey methods.

Four basic survey methods can be used. Each has strengths and weaknesses in its ability to obtain a representative sample, the amount and type of information that can be obtained from each participant, its response rate, and its costs. For more information, see NHTSA (2009) p. 13-15 for DMV and telephone surveys and Williams (2009) for web, mail, and mixed-mode surveys. Most State surveys from 2004 to 2008 were conducted at DMVs or by telephone. A few were conducted in person through interviews or on paper. See NHTSA (2009), Appendix A.

1) DMV (Department of Motor Vehicles). Short survey forms are handed out to and collected from persons standing in line in a DMV office for a driver license action. The surveys must be delivered and collected by hand, not "left in a pile." Surveys can be distributed and collected by Highway Safety Office staff, researchers, grad students, or other non-DMV staff. DMV staff should not hand out and collect the surveys because this would interfere with their regular duties.

DMV surveys reach all licensed drivers. Some drivers must visit the DMV more frequently than others. In particular, young drivers usually obtain their intermediate license and then return within a year or two for their full license while older drivers may have many years between DMV visits. So surveys distributed to all drivers at DMV license windows probably over-represent young drivers. The data then must be weighted to accurately represent all licensed drivers. The locations and times for DMV surveys must be chosen carefully so no important driver group is missed. For example, DMV offices in both rural and urban locations should be included.

DMV surveys typically have low refusal rates of 10-30% or even less. States generally spend \$5,000 - \$10,000 for a DMV survey of 500-1,000 persons. Most DMV surveys use only one page, with about 15 questions, most of which are answered by checking a box. So they only can provide limited information beyond the nine core questions and basic demographic data. Some DMVs currently do not allow surveys to be conducted in their offices.

2) Telephone. Telephone surveys are conducted using random-digit dialing methods from a list of telephone exchanges in the survey area. They must be conducted by an experienced telephone survey firm.

Most telephone surveys do not include cell phones for various reasons. These include: cell phone numbers identify the location where the number was issued, not where the subscriber currently lives; cell phone subscribers must pay for incoming calls; surveys including both cell and land-line phones cost considerably more than land-line-only surveys. Surveys that exclude cell phones usually under-represent young drivers who do not have land-line phones.

Telephone surveys typically have relatively high refusal rates of 50-70%. States generally spend \$8,000 - \$20,000 for a 10 to 12 minute telephone survey of 500-800 persons. Costs can be much greater for longer surveys or surveys with specific target populations that require many calls to find eligible respondents. Telephone surveys can be longer and more flexible than DMV surveys. They can ask open-ended questions and can “branch” to ask different questions of different respondents: for example, ask drinking and driving questions only of respondents who drink.

3) Web. Participants log onto an internet website and enter their responses to a survey. There’s no way to contact all drivers through the internet because there’s no complete list of email addresses and no web equivalent of random-digit dialing. So web survey participants must be recruited somehow, perhaps through general publicity, and then must take the initiative to access and complete the survey. This means that web surveys may not accurately represent all drivers. Web surveys may provide a reasonable sample of public opinion on current hot topics, when people with differing views are motivated to respond. The main advantage of web surveys is cost, because no survey personnel are needed to administer the survey or record the results.

4) Mail. Surveys are mailed to participants, who are asked to complete and mail back the survey. Mail surveys require a list of mailing addresses from which to select participants, such as the DMV’s licensed driver database. Costs will include printing and postage. Response rates are difficult to estimate. Some mail surveys include small incentives to encourage participation.

5) Mixed modes and other methods. Other survey methods include in-person interviews; intercept surveys, where participants are recruited and surveyed in person in locations other than DMVs; and panel surveys, in which a group of participants is recruited and then surveyed periodically. Each method has advantages and disadvantages. Some surveys contact participants in one way and collect their responses in another. For example, participants can be contacted by mail and then complete and submit their responses over the internet. See Williams (2009) for a brief discussion and references.

Summary: DMV surveys probably provide the best coverage of licensed drivers for the least cost. If a DMV survey won’t provide enough information, or if your State won’t allow DMV surveys, then consider a telephone survey, but be careful to examine whether important groups will be adequately represented. Web surveys don’t appear useful for the core questions. They might be useful to assess views on hot topics. Mail, intercept, or mixed-mode surveys should be considered only with the help of an experienced survey statistician.

How to do it, part 2: survey design, operations, and analysis.

Survey design and analysis is a specialized branch of statistics and definitely isn't for amateurs. So unless you have a survey statistician on your staff, get help from a contractor or university that has substantial experience. In particular, a survey statistician will make sure that your survey results reflect the views of all drivers as well as possible and will measure potential error, for example by giving 95% confidence intervals.

In general, a sample size of 500 completed surveys provides an accuracy of about +/- 5 percentage points for a single question for all drivers. So if 48% of 500 drivers in a survey answer "yes" to a question, then the true proportion of all drivers who would answer "yes" probably (with 95% confidence) lies between 43% and 53%. The accuracy is lower for subgroups of the population: for example, this survey likely would have about 250 female drivers, so the accuracy for female drivers only would be less. In general, to double the accuracy you must at least quadruple the sample size: a sample of 2,000 would be needed for an accuracy of about +/- 2.5 percentage points. For most purposes a survey should have a sample size of at least 500. National surveys with a single key question, for example voting intentions in an upcoming Presidential election, typically have sample sizes of 1,000-1,200.

Once your survey data are collected and entered into a database, your survey statisticians will set up the database so that they or others can produce tabulations, analyses, and reports.

Where to go for more information: references.

All are available at the GHSA website <http://www.ghsa.org/html/projects/index.html>, under Traffic Safety Performance Measures.

NHTSA (2008). J. Hedlund, Traffic Safety Performance Measures for States and Federal Agencies. DOT HS 811 025. A report that explains the role of surveys in assessing traffic safety performance.

NHTSA (2009). J. Hedlund, T. Casanova, and N. Chaudhary, Survey Recommendations for the NHTSA-GHSA Working Group. A working paper that documents recent surveys conducted by NHTSA, States, and others; discusses survey methods and costs; and recommends the nine core survey questions.

Williams (2009). Web-based Surveys: an Assessment. A working paper that provides an overview of surveys conducted on the Internet.