2011 National Survey Of Speeding Attitudes And Behaviors

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16. Abstract

The 2011 National Survey of Speeding Attitudes and Behavior (NSSAB) is the third in a series of surveys on speeding that have provided data to help further the understanding of driving behavior and to contribute to the development of countermeasures and interventions to reduce speeding. Like the previous studies, this survey yields national estimates of behavior and attitudes toward speeding in the United States. The present study differs from the earlier studies in that it developed and used a driver typology based on the pattern of responses across six speeding behavior questions. Cluster analysis identified three distinct groups of drivers with similar overall behavioral tendencies and, among those categorized, 30% are nonspeeders, 40% are sometime speeders, and 30% are speeders. Driver type is a powerful predictor of norms and attitudes toward speeding behavior, speeding countermeasures, experience with sanctions and crash experience. This report details the findings from the 2011 NSSAB, examining the data using the above mentioned driver typology as well as standard demographics. In the final chapter, results from the current study are compared to those of the 2002 NSSAB and the 1997 NSSAB. Using data from over the last 14 years allows us to identify trends in speeding and driving behavior, especially as new technologies such as cell phones become more pervasive in the driving community.

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EXECUTIVE SUMMARY

The 2011 National Survey of Speeding Attitudes and Behavior (NSSAB) is the third in a series of surveys conducted by the National Highway Traffic Safety Administration that focus on speeding and yield national estimates of driver behavior and attitudes toward speeding in the United States. The previous surveys were conducted in 1997 and 2002. For the 2011 survey, data were collected via telephone interviews with 6,144 U.S. households. To account for the trend toward cell phones as a replacement for landline telephones, the survey employed an overlapping dual-frame sample design and contacted people living in households with landline telephones and households that relied only or mostly on cell phones. Because young drivers are a high-risk group of particular interest, the survey included an oversample of respondents 16 to 34 years old so that national estimates could be obtained. Interviews were conducted from March 31, 2011, to September 4, 2011.

This report presents the survey findings. Data are weighted to yield national estimates. Readers are cautioned that some subgroup analyses are based on a smaller number of cases. The survey questionnaire and a full description of the survey methodology are provided in the appendices to this report.

Driver Characteristics

Driver Type. A driver typology based on the pattern of responses across six speeding behavior questions was developed using cluster analysis. Three distinct groups of drivers with similar overall behavioral tendencies were identified. Because of the nature of these behavioral tendencies, the driver types are referred to as nonspeeders, sometime speeders, and speeders in this report. Of those respondents categorized, 30% are nonspeeders, 40% are sometime speeders, and 30% are speeders.

Drivers classified as speeders tended to be younger when compared to nonspeeders. One-half of the drivers 16 to 20 years old were classified as speeders, as compared to 15% of drivers 65 or older. Speeders were also more likely to have higher household incomes; 42% of drivers with annual household incomes exceeding $100,000 were classified as speeders, while only 25% of drivers with annual household incomes of $30,000 or less were in this driver type category.

Driving Frequency. More than 4 out of 5 drivers (82%) drive every day or almost every day. Thirteen percent report driving several days a week, while 5% say they drive once a week or less often.

Vehicle Type. The majority of drivers (57%) report they drive passenger cars most often. Close to a fifth (18%) of drivers drive SUVs and 13% report driving pickup trucks most often. Almost a tenth (9%) report driving vans or minivans most often.

Driving Behavior

Road Type. The majority of drivers drive on all types of roads. Nearly 4 out of 5 drivers (79%) report driving on neighborhood or residential streets frequently. Frequent use of two-lane highways and multi-lane divided highways is reported by 61% and 52% of drivers respectively.

Driving Speed. Overall, people drive at approximately the speed that they perceive to be safe for the type of road that they are on. There are no substantive differences in the driving speed and the perceived safe speed for all road types considered. Average driving speed on multi-lane divided highways is 63.6 miles per hour (mph), approximately the same as the average perceived safe speed limit (64 mph). The difference between these two measures on two-lane highways and residential roads is even smaller.

Drivers who had been stopped by police within the past year and received a warning rather than a speeding ticket, on average, report that one can travel 10.6 mph over the limit on multi-lane divided highways and 11.4 mph over the limit on two lane highways before receiving a speeding ticket. This is a larger margin than the average perceived "allowable" speed over the speed limit reported by drivers who had been ticketed for speeding.

Norms and Attitudes about Speeding

Normative Attitudes. An overwhelming majority (91%) of drivers agreed with the statement that "Everyone should obey the speed limits because it's the law." Two-thirds (67%) agreed strongly with this statement. There was also agreement with the statement, "It is unacceptable to exceed the speed limits by more than 20 mph." More than 17 out of 20 drivers agreed and 76% strongly agreed with this statement. Drivers also agreed that, "People should keep up with the flow of traffic," with 82% agreeing with this statement. Approximately one-half of drivers agreed that speeding tickets have more to do with raising money than they do with reducing speeding (51%) as well as with the statement, "There is no excuse to exceed the speed limits" (48%). Less than a fifth of drivers agreed with the statements, "If it is your time to die, you'll die, so it doesn't matter whether you speed," (17%) and "Driving over the speed limit is not dangerous for skilled drivers" (16%).

When we examine normative attitudes by driver type, we find that less than one-half (48%) of the drivers classified as speeders strongly agree that "Everyone should obey the speed limits because it's the law." However, more than 4 out of 5 drivers classified as nonspeeders (81%) strongly agree with this statement. Almost two-thirds (64%) of speeders strongly agree that "People should keep up with the flow of traffic," but only 42% of the nonspeeders strongly agree with this statement. While two-fifths (41%) of nonspeeders strongly agree that "There is no excuse to exceed the speed limit," only 1 in 6 speeders (16%) strongly agree with this statement. Speeders are twice as likely (11%) as sometime speeders (5%) or nonspeeders (5%) to agree that, "Driving over the speed limit is not dangerous for skilled drivers."

Personal Attitudes. Three in five (60%) drivers agreed that they often get impatient with slower drivers. Close to one-half of all drivers (47%) agreed with the statement "I worry a lot about

having a crash." There was considerably less agreement with the statements, "Speeding is something I do without thinking" (27%), "I enjoy the feeling of driving fast" (27%), and "I try to get where I am going as fast as I can" (20%). Only 9% of respondents agreed with the statement, "I consider myself a risk taker while driving."

When we examine personal attitudes by driver type, drivers classified as speeders were almost three times as likely as sometime speeders to strongly agree with the statements, "I often get impatient with slower drivers" (45% versus 18%), "I enjoy the feeling of driving fast" (19% versus 6%), and "I try to get where I am going as fast as I can" (11% versus 3%).

Driving the Speed Limit. Over 4 out of 5 (82%) drivers agreed with the statement, "Driving at or near the speed limit makes it easier to avoid dangerous situations." There was also agreement with the statement, "Driving at or near the speed limit reduces my chances of an accident" (79%) and the statement, "Driving at or near the speed limit uses less fuel" (73%). More than 2 out of 5 respondents (42%) agreed that driving at or near the speed limit makes it difficult to keep up with traffic, and less than a fifth (17%) agreed that driving at or near the speed limit makes them feel annoyed.

Attitudes Toward Speeding Countermeasures

Importance of Reducing Speeding. Close to half of the respondents (48%) said that it was very important that something be done to reduce speeding on the nation's roadways. Almost 2 out of 5 (39%) said that it is somewhat important, while 8% of drivers said that it was not too important and 3% said that it was not at all important.

When we examine attitudes toward speeding countermeasures by driver type, among drivers classified as speeders, 30% state that reducing speeding is very important, while 49% of those classified as sometime speeders and 61% of drivers classified as nonspeeders believe that it is very important.

Enforcement of Speed Limits. Close to half of all respondents (48%) said that the speed limit should be enforced all of the time. Almost a third (30%) said it should be enforced often and 18% said it should be enforced sometimes. One in seven drivers (13%) said they see motor vehicles pulled over on the roadway all the time. Three in ten said they see vehicles pulled over often and 40% said sometimes. Interestingly, 16% said they see vehicles pulled over rarely, which is higher than those who said they see vehicles pulled over all the time.

Use of Countermeasures in the Community. The two speeding countermeasures with the highest approval rating were electronic signs by the road that warn drivers that they are speeding and should slow down (89%), and increasing public awareness of the risks of speeding (88%). It should be noted that both of these items do not include any specific penalties to drivers. Four out of five drivers (80%) thought that increased use of speed cameras in dangerous or high-crash locations was a good idea, and two-thirds (66%) thought that more frequent ticketing for speeding was a good idea. The least popular idea was issuing higher fines for speeding tickets, which 2 out of 5 (41%) respondents thought was a good idea.

When we examine this by driver type, among drivers classified as speeders, just over one-half (54%) think that increasing ticketing for speeding is a good idea. Among drivers classified as sometime speeders and nonspeeders this percentage is 65% and 78%, respectively. Only 32% of speeders compared to 39% of sometime speeders and 51% of nonspeeders think that higher fines for speeding tickets is a good idea.

In-Vehicle Countermeasures. A device in the motor vehicle that notifies you if you are speeding was endorsed by 61% of drivers. A device that records speed data and reports it to the insurance company to lower premiums was endorsed by 62% of drivers. A device that slows down the vehicle when it senses another car or object is too close to the vehicle was endorsed by 60% of drivers. Roughly the same percentage who thought each item was a good idea also reported that the countermeasure would prevent them from speeding.

Female drivers were more likely than male drivers to agree that in-vehicle countermeasures were a good idea, and also to indicate that the countermeasures would prevent them from speeding. Increasing levels of formal education and household income were negatively associated with agreement that countermeasures were a good idea and that they would prevent speeding.

When we examine this by driver type, about 4 in 10 drivers classified as speeders (43%) reported that a speeding notification inside the car would prevent them from speeding, in contrast to 62% and 69% of drivers classified as sometime speeders and nonspeeders. Among speeders, 54% indicated that a device that records speeding information and reports it to the insurance company would prevent them from speeding. Among the other driver types, this percentage was 65% for sometime speeders, and 73% for nonspeeders. Only 45% of speeders say a device in their vehicle that slows the vehicle down if an object gets too close would prevent them from speeding, compared to 56% of sometime speeders and 60% of nonspeeders.

Use of Automated Photo Enforcement Devices

Heard of Speed Cameras. The overwhelming majority of drivers (85%) reported that they have heard of speed cameras being used to ticket drivers who speed.

Location of Speed Cameras. The majority of drivers thought that speed cameras would be useful in school zones (86%), places where there have been many accidents (84%), construction zones (74%), areas where it would be hazardous for a police officer to stop a driver (70%), and areas where stopping a vehicle could cause traffic congestion (63%). A little over one-third (35%) of drivers thought speed cameras would be useful on all roads.

Experience with Speed Cameras. More than one-third (37%) of drivers reported that there are speed cameras in use along the routes they usually drive. Interestingly, 10% of drivers did not know whether speed cameras were being used along the routes they normally drive. Less than 1 in 10 drivers (8%) has received a speeding ticket in the mail from a speed camera.

Purpose of Speed Cameras. Drivers are more likely to agree with the statement that "Speed cameras are used to generate revenue," (70%) than they are to agree that "Speed cameras are used to prevent accidents" (55%). This pattern holds true among those who strongly agree with each statement as well, (38% versus 29%, respectively).

Crash Experience

Speeding-Related Crash in Past 5 Years. The majority of respondents (96%) had not been in any speeding-related crashes in the past 5 years. Only 3% had been in one speeding-related crash in the past 5 years and even fewer (1%) had been in two or more speeding-related crashes in the past 5 years.

A greater percentage (11%) of drivers 16 to 20 had at least one speeding-related crash in the past 5 years than any other age group, even though drivers in this age group may not have been driving for all of the past 5 years. Of drivers 21 to 24, 9% had a speeding-related crash in the past 5 years, while only 1% of drivers 55 and older had at least one speeding-related crash in the past 5 years.

Injuries Resulting from Crash. Of the respondents that reported being in a speed-related crash, most (68%) reported they were not injured in their most recent speeding-related crash, while nearly 1 in 3 (29%) reported being injured. The remaining 3% of respondents in speed-related crashes either did not know if they were injured or refused to answer.

Personal Sanctions

Stopped for Speeding. Less than 1 driver in 10 (9%) reported being stopped for speeding in the past 12 months. The majority (84%) of drivers who were stopped for speeding were stopped only once in the past 12 months. One in seven (15%) drivers were stopped 2 to 4 times in the past 12 months, and 1% were stopped 5 times or more. Younger drivers and male drivers were more likely than older drivers and female drivers to have been stopped. Among the drivers classified as speeders, 1 in 5 (20%) were stopped for speeding in the past 12 months. Only 4% and 5% of drivers classified as nonspeeders and sometime speeders, respectively, were stopped.

Sanctions for Speeding. Most (68%) respondents received a ticket if they were stopped for speeding. More than a quarter (27%) received a warning, and 1 in 20 (5%) did not receive a ticket or a warning. The proportion of drivers receiving a ticket for speeding was highest (75%) for drivers 25 to 34 and lowest (61%) for drivers 16 to 20. More than one-third (34%) of drivers 35 to 44 or 65 and older were given a warning instead of a ticket, while 22% of drivers 25 to 34 received a warning.

Risky Behavior and Cell Phone Behavior

Seat Belt Usage. About 9 in 10 (89%) drivers report that they wear their seat belts all of the time while driving their primary vehicle. While there are 11% who still do not wear their seat belts all the time, only 1% of drivers report that they never wear their seat belts while driving.

Alcohol Use. Only a small proportion of drivers overall (2%) reported driving a vehicle after they thought they had drank too much alcohol to drive safely. The highest percentage of drivers who admit to this is among drivers 25 to 34 years old, where 4% reported that they have driven after they had consumed too much alcohol to drive safely. Among drivers 16 to 20 and 21 to 24, this percentage was 3%.

Use of Cell Phone While Driving. The majority of drivers (89%) drive with cell phones in their vehicle. Only about 1 in 10 (11%) reported not having a cell phone in their vehicles when driving. Talking on the phone while driving was reported more often than reading or sending text messages while driving. A total of 22% of drivers stated they talk on their phones while driving during half or more of their trips. Approximately 5% reported they text while driving during half or more of their trips. A small portion of drivers reported they talk (3%) or text (1%) while driving during all of their trips.

Among drivers 25 to 34, 16% report talking on the cell phone, and 6% report sending or reading text messages on most trips. Only 3% of drivers 65 or older talk on the phone on most trips and none report reading or sending text messages while driving. The youngest drivers are most likely to read and send text messages while driving While 4% of drivers 16 to 20 report talking on the cell phone on all or most of their trips, 8% of this age group state that they read or send text messages on all or most trips.

When we examine cell phone use by driver type, speeders (16%) are more likely than sometime speeders (8%), and nonspeeders (7%) to talk on their cell phones while driving.

Use of Hands-Free Devices in Vehicles. One-third (32%) of drivers hold the phones in their hands when they talk on them while driving. About 1 in 5 (19%) use the speakerphone feature built into their cellular devices. Very few (2%) drivers squeeze the phones between their ears and shoulders to talk on it while driving.

Trends from Previous Speeding Surveys

Respondents reported driving less frequently in 2011 than in either 2002 or 1997 and some attitudes toward speeding have changed. In the current survey, 81% of drivers report driving every day or almost every day, as compared to 83% in 2002 and 88% in 1997. Enjoyment of driving fast, driving as fast as possible, and the belief that speed increases driver alertness appear to have decreased over this time period. In 1997, 40% of drivers reported enjoying the feeling of driving fast, while this percentage dropped to 34% in 2002 and to 27% in 2011. In both 1997 and 2002, about 30% of drivers agreed with the statement that they try to go as fast as they can to get somewhere. In 2011, only 21% of drivers agreed with this statement. Similarly, agreement with

the statement “the faster I drive the more alert I feel” decreased from about 30% in both 1997 and 2002 to 15% in 2011.

On the other hand, some attitudes and behaviors have not changed since 1997. The percentage of drivers who reported worrying about having crashes in 2011 (48%) is about the same as it was in 1997 (47%) and 2002 (46%). The percentage of drivers who reported being impatient with slower drivers was 60% in 1997. This dropped to 53% in 2002 and was back up to 61% in 2011. The portion of drivers stopped by police for speeding, and the rate of receiving speeding tickets if stopped have remained relatively stable over the past 14 years. In 1997, 9% of drivers reported having been stopped by police for speeding in the past 12 months. This rose to 11% in 2002 and was back down to 9% in 2011. Of those stopped for speeding, 65% reported being ticketed in 1997, 70% in 2002, and 68% in 2011.

CHAPTER 1: INTRODUCTION

Background

The National Highway Traffic Safety Administration directs highway safety and vehicle consumer programs in the United States that promote the safety of automobiles, their occupants, and other road users. NHTSA's mission includes the reduction of traffic crashes, fatalities and injuries, together with their economic repercussions.

Speeding, defined as exceeding the speed limit or driving too fast for conditions, is one of the most common factors in traffic crashes. In the decade from 2002 through 2011, speeding was a contributing factor in nearly one-third of all fatal crashes, claiming a total of 123,804 lives and resulting in an annual economic cost to society of approximately 40 billion dollars per year (NHTSA, 2013). In 2011 alone, 9,944 lives were lost in speeding-related crashes.

Research has demonstrated a strong correlation between drivers' attitudes toward speeding and other driving behaviors and actual traffic outcomes (Elliot, Armitage, & Baughan, 2003; (De Pelsmacker & Janssens, 2007). Because attitudes toward speeding, other driving habits, and the interaction of driving habits with intentions have been found to be of particular importance in traffic outcomes, these self-reported driving measures of intention and attitude have often served as approximations of behavior in models used to design interventions to reduce speeding and other hazardous driving behaviors (Parker & Manstead, 1996; Conner, Lawton et al., 2005). Because knowledge of drivers' attitudes toward speeding is important to its mission of improving traffic safety, NHTSA periodically conducts a National Survey of Speeding Attitudes and Behaviors to collect this information.

To date, NHTSA has conducted three rounds of the National Survey of Speeding Attitudes and Behavior, in 1997, in 2002, and in 2011. This report presents findings from the 2011 National Survey on Speeding Attitudes and Behavior. Specifically, this self-report survey looks at speeding behavior of drivers, their norms and attitudes about speeding, their attitudes toward various speeding countermeasures, and their experience with speed-related crashes, as well personal sanctions for speeding.

Methodology

The 2011 National Survey of Speeding Attitudes and Behavior was conducted from March 31, 2011, until September 4, 2011. A total of 6,144 telephone interviews were conducted among a nationally representative sample of people 16 or older who drive motor vehicles. To account for the current trend toward cell phone use, 1,137 interviews were conducted with people from households that relied only or mostly on cell phones and 4,507 interviews were conducted with people from households with landline phones. In addition, 500 interviews were completed with an oversample of drivers who were 16 to 34 years old, an age group that is over represented in crashes and of particular interest for traffic safety. The samples were combined and weighted to

produce national estimates of the target population within specified limits of expected sampling variability, from which valid generalizations can be made to the general public.

For a complete description of the methodology and sample disposition, including the computation of weights, please refer to Appendix B and Appendix C.

The percentages presented in this report are weighted to accurately reflect the national population of those 16 or older. Unweighted sample sizes (Ns) are included to show the exact number of respondents answering a given question, and to allow interested readers to estimate sampling precision.

Percentages for some items may not add to 100% because of rounding, or because the question allowed for more than one response. In addition, the number of cases involved in some subgroup analyses may not sum to the grand total of those who responded to the primary question being analyzed. Reasons for this include nonresponse on the grouping variable (e.g., some respondents answer "Don't know" or refused to answer a question), or use of only selected subgroups in the analysis.

Please note that when categories of responses that appeared in a table or figure are combined for discussion in the text (e.g., combining "very likely" and "somewhat likely"), the total shown is based on the sum of the numbers in the tables or figures, and not on the results of an additional analysis that combined the two response categories. For rounding purposes, all variables are rounded based on two decimal places. Any value that had a decimal of .50 or greater was rounded up and any value that had a decimal below .50 was rounded down.

CHAPTER 2
DRIVER CHARACTERISTICS

This chapter describes the demographics of the sample of respondents, presents the typology of drivers developed from the patterns of responses to a set of speeding-behavior questions, and shows the distribution of these driver types by demographics.

Because of the shift to exclusive (or almost exclusive) cell phone use by an increasing portion of the U.S. population, some groups of people are often not accessible by landline telephones. To capture a sample of respondents representative of drivers 16 and older in the United States, this survey used both a cell phone sample and a landline based sample (see Table 2-1). Of the total 6,144 respondents, 1,137 were sampled via cell phone (18.51%) and 5,007 (81.49%) were sampled through landline phones. The respondents in the cell phone sample are younger than those in the landline sample. Drivers 16 to 20 make up 9% of the cell phone sample, and more than 20% of the cell phone sample is under 25, while less than 7% of the landline sample is under 25. By contrast, drivers in the sample 65 and older make up more than 25% of respondents in the landline sample, but only 5.9% of the cell sample. The cell phone sample also allowed better representation of lower household income, education level, and racial minority groups. While the cell phone sample was more urban, the overall sample was fairly evenly split between rural and urban respondents. There was little difference between the cell and landline sample in frequency of driving and type of vehicle.

Table 2-1: Demographics by Sample Type - Unweighted

	Cell Phone Sample (N=1,137)	Landline Sample (N=5,007)	Total Sample (N=6,144)
Gender* **			
Female	44.4%	58.8%	56.1%
Male	55.6%	41.2%	43.9%
Age* **			
Mean	38.43	52.18	49.61
16 to 20	9.4%	3.8%	4.9%
21 to 24	12.4%	2.9%	4.6%
25 to 34	26.2%	13.0%	15.5%
35 to 44	16.8%	13.1%	13.7%
45 to 54	17.8%	19.9%	19.5%
55 to 64	11.6%	21.9%	19.9%
65 or older	5.9%	25.5%	21.9%
2010 Household Income* **			
Less than $30,000	31.5%	22.4%	24.2%
$30,000 to $49,999	19.6%	19.3%	19.3%
$50,000 to $74,999	20.4%	21.0%	20.9%
$75,000 to $99,999	12.3%	14.9%	14.4%
$100,000 or More	16.2%	22.4%	21.2%

Table 2-1: Demographics by Sample Type - Unweighted (Continued)

	Cell Phone Sample (N=1,137)	Landline Sample (N=5,007)	Total Sample (N=6,144)
Education* **			
No HS Degree	11.1%	6.8%	7.6%
HS Graduate	58.4%	53.5%	54.4%
College Degree	20.0%	23.4%	22.8%
Graduate Degree	10.5%	16.3%	15.3%
Race/Ethnicity			
White	73.6%	82.9%	81.2%
Black	13.5%	7.6%	8.7%
Hispanic	9.1%	3.9%	4.9%
Asian	3.5%	2.3%	2.5%
Other	5.4%	3.5%	3.9%
Metro Status			
Urban	55.7%	50.0%	51.1%
Nonurban	44.3%	50.0%	48.9%
Frequency of Driving* **			
Everyday or Almost Everyday	85.1%	81.0%	81.8%
Several Days a Week	9.2%	13.8%	12.9%
Once a Week or Less	4.1%	4.3%	4.3%
Only Certain Times of Year	1.5%	0.9%	1.0%
Primary Type of Vehicle			
Car	55.6%	57.4%	57.1%
Van/Mini-Van	7.5%	9.5%	9.2%
SUV	17.0%	18.7%	18.4%
Pickup Truck	16.4%	12.6%	13.3%
Other Truck	2.3%	1.0%	1.2%
Motorcycle	0.7%	0.4%	0.4%
Other/Don’t Know	0.5%	0.3%	0.4%

*** p<.001

Driver Types

In examining drivers' attitudes and speeding behaviors, it is useful to group drivers by their driving tendencies. Rather than rely on any single indicator of general driving tendency or prior assumptions about appropriate categories of drivers, this study developed a typology of drivers using cluster analysis of responses to six questions about driving and speeding tendencies. Cluster analysis allowed the identification of discrete types of drivers based on the overall pattern of responses across all six speeding behavior questions.

Table 2-2 shows the response distributions to each of the six driving and speeding questions used in the cluster analysis. Two questions addressed general driving tendencies. Respondents were asked whether they tended to pass other cars or be passed by other cars more frequently and whether they tended to stay with slower moving traffic or keep up with faster traffic. Over one-half (59%) of drivers report a tendency for other cars to pass them more often than they pass other cars; however, nearly one-half (45%) say they tend to keep up with faster traffic rather than staying with slower moving traffic. Speeding appears less common when respondents are asked about their behavior in specific contexts. Three questions addressed speeding behaviors under particular driving conditions: respondents were asked how frequently they drive 15 mph over the speed limit on multi-lane, divided highways, how frequently they drive 15 mph over the speed limit on two-lane highways, and how frequently they drive 10 mph over the speed limit on neighborhood or residential streets. Even when asked about driving on multi-lane divided highways, nearly one-half (48%) reported never exceeding the speed limit by 15 mph. A final question asked respondents how many times in the previous 12 months they had been stopped by police for speeding. Only 9% of respondents had been stopped in the last year. Of those who were stopped, the vast majority (84%) had been pulled over only once.

Table 2-2. Questions Employed in Cluster Analysis (Weighted)

Q3. Which best describes your driving…	
I tend to pass other cars more often than other cars pass me.	26.6%
Other cars tend to pass me more often than I pass them	59.3%
Both about equally	14.1%
Unweighted N	5,995

Q4. When driving I tend to…	
Stay with slower moving traffic	34.9%
Keep up with the faster traffic	44.8%
Both about equally	20.3%
Unweighted N	5,952

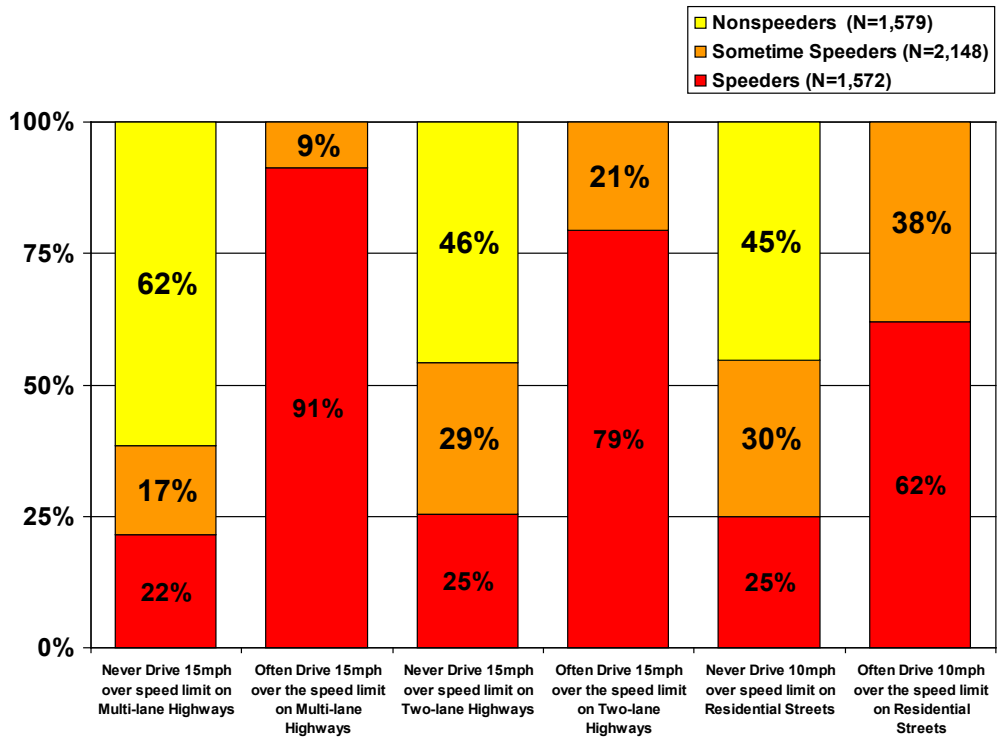
Table 2-2. Questions Employed in Cluster Analysis (Weighted)

How often would you say you…	N	Often	Sometimes	Rarely	Never
Q5e. Drive 15 miles an hour over the speed limit on **Multi-Lane, divided Highways**?	5,878	4.9%	14.2%	33.2%	47.7%
Q6e. Drive 15 miles an hour over the speed limit on **Two-Lane Highways**?	5,865	2.3%	7.5%	25.9%	64.2%
Q7e. Drive 10 miles an hour over the speed limit on **Neighborhood or Residential streets**?	6,032	2.8%	7.9%	24.8%	64.4%

How many times have you been stopped for speeding in the past twelve months?	
MEAN:	0.1174
None	90.8%
Once	7.7%
Twice	1.0%
3 or more times	0.5%
Unweighted N	6,144

Three distinct clusters of drivers with similar overall behavioral tendencies were identified and 86% of respondents were classified as one of three distinct types of driver. There were 845 respondents (14% of the sample) who could not be classified by driver type because some did not answer all six speeding behavior questions or because their responses to these questions did not fit well with any of the three clusters. These respondents are excluded from any analyses which use driver type; however, they are included in analyses within this report where driver type is not employed. The core characteristic of each of the three groups identified in the cluster analysis was determined by examining how each group scored on each speeding behavior variable. As can be seen in Figure 2-1 and 2-2, one group was composed of drivers who consistently reported speeding, one group was composed of drivers who rarely reported speeding, and a third group contains those drivers who sometimes speed. For the purposes of this report, these groups were named: nonspeeders, speeders, and sometime speeders, respectively. Of those respondents classified by this typology, 30% are nonspeeders, 40% are sometime speeders, and 30% are speeders.

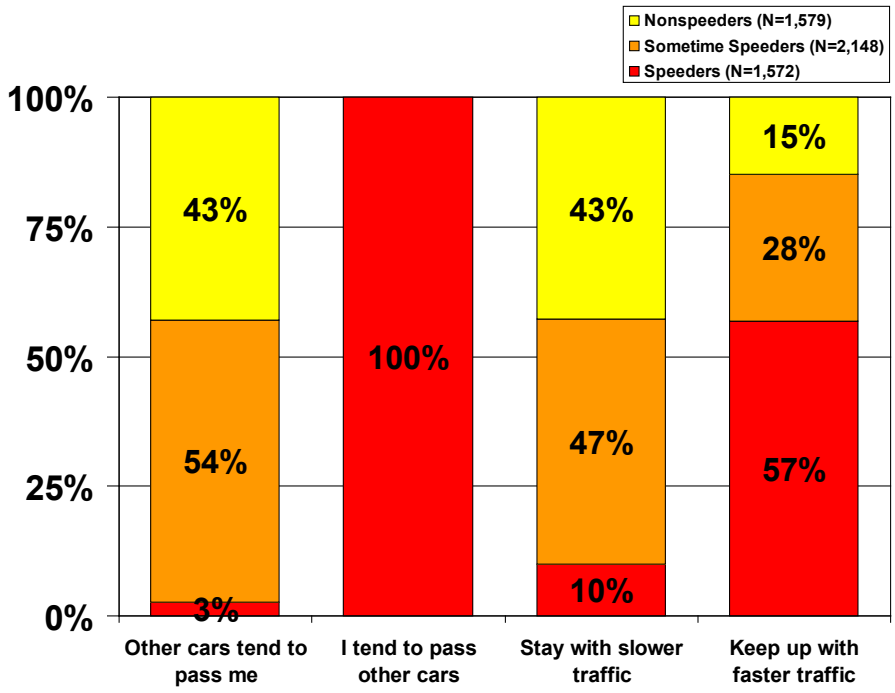
Figure 2-1: Speeding Behavior on Various Road Types by Driver Type



Q5e/Q6e. How often would you say you drive 15 miles an hour over the speed limit on Multi-Lane, Divided Highways/Two-lane Highways, one lane in each direction?
Q7e. How often would you say you drive 10 miles an hour over the speed limit on Neighborhood or Residential Streets?
Base: All Respondents Assigned a Driver Type
Unweighted N=See Chart

Two key questions that helped define driver type dealt with driver tendencies on the road. The first, whether the respondent tends to pass or be passed by other cars on the road, clearly separates speeders from sometime speeders and nonspeeders, with 100% of speeders saying they tend to pass other cars. The second question, whether the driver stays with slower traffic or keeps up with faster traffic, further helps to define the sometime speeder category, with 47% of sometime speeders saying they tend to stay with the slower traffic and 28% of sometime speeders keeping up with the faster traffic (see Figure 2-2).

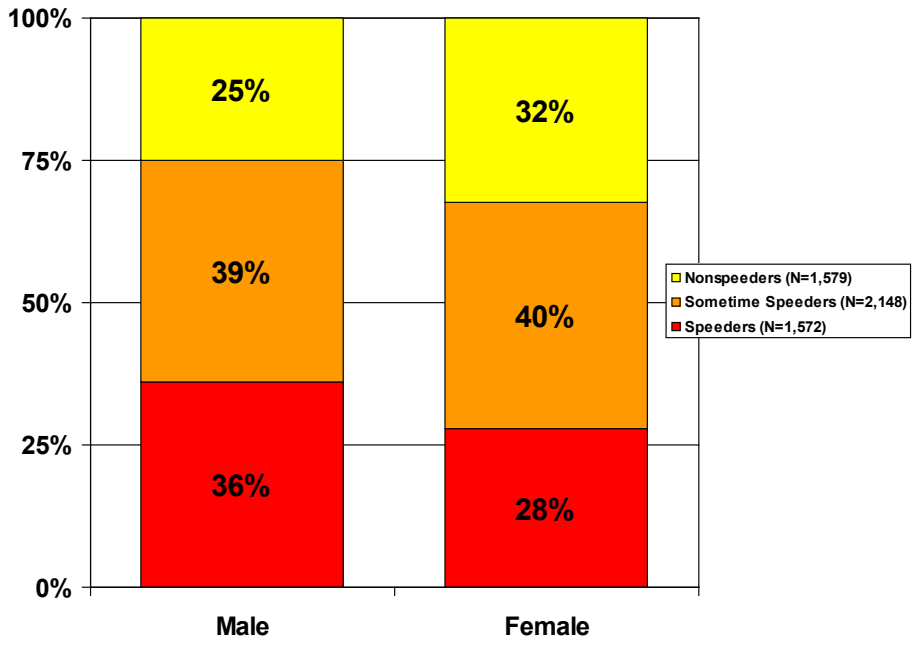
Figure 2-2: Driver Type by Driving Tendency***



Q3. Which of the following statements best describes your driving? I tend to pass other cars more often than other cars pass me OR Other cars tend to pass me more often then I pass them?
Q4. When driving I tend to stay with slower moving traffic OR keep up with the faster traffic.
Base: All Respondents Assigned a Driver Type
Unweighted N=See Chart *** p < .001

Figure 2-3 shows the distribution of driver types among male and female drivers. While the percentage of sometime speeders in both genders is about the same (39% and 40%), about one-third of women drivers (32%) are classified as nonspeeders, while only one-quarter of men (25%) fall into this category. Conversely, 36% of men, but only 28% of women are speeders.

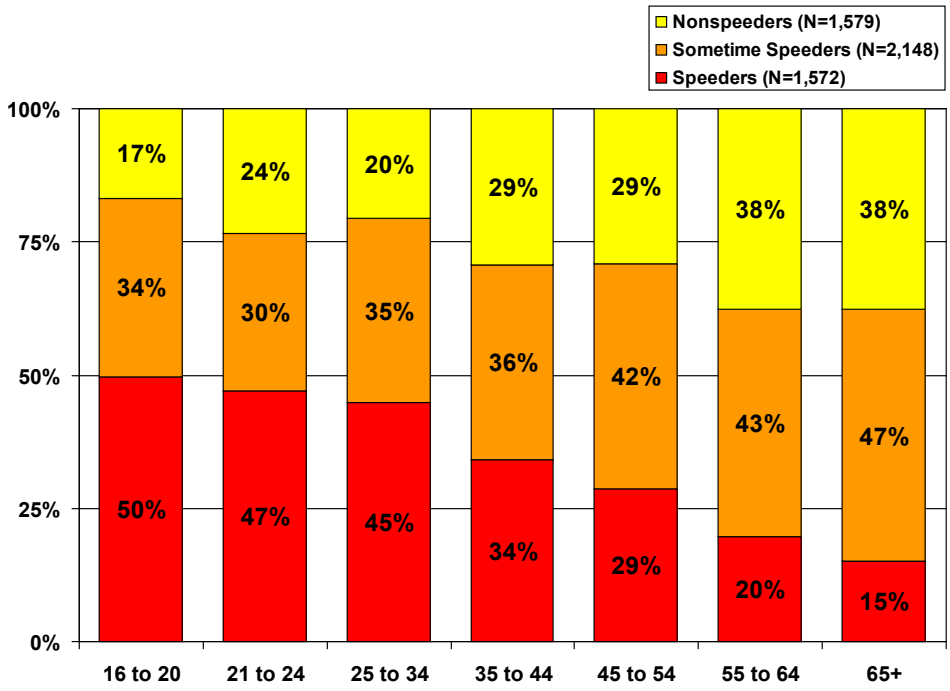
Figure 2-3: Driver Type by Respondent Gender***



SA3. Record Respondent's Gender by Observation.
Base: All Respondents Assigned a Driver Type
Unweighted N=See Chart *** p < .001

Figure 2-4 indicates that speeders tend to be younger when compared to nonspeeders and sometime speeders. Half of the drivers 16 to 20 are speeders as compared to only 15% of those 65 or older. The opposite relationship by age is seen among nonspeeders, with 38% of those older than 55 but only 17% of those 20 or younger in this category.

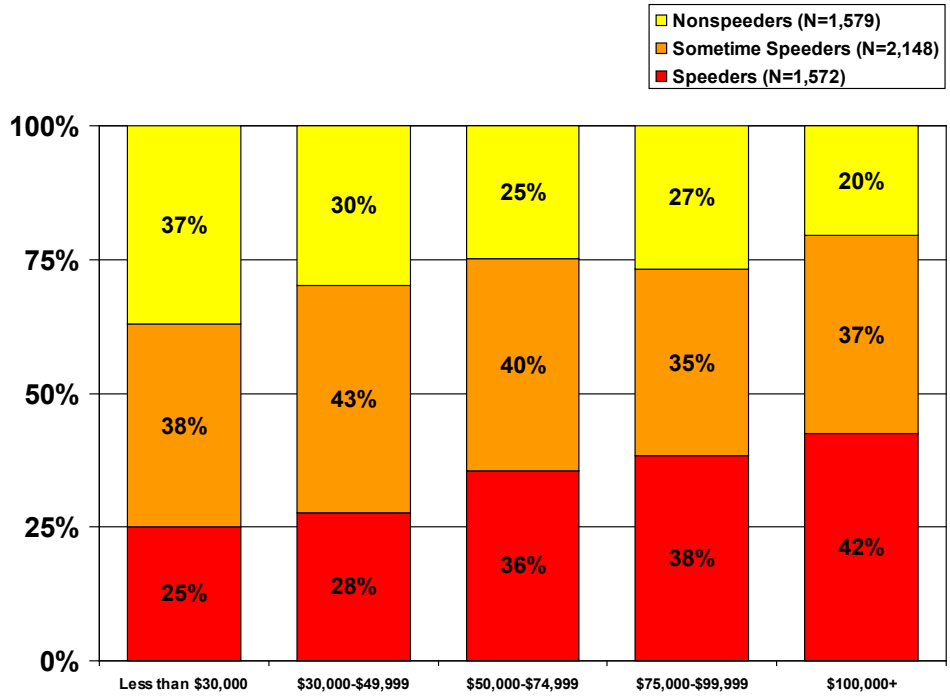
Figure 2-4: Driver Type by Respondent Age***



D1. How old are you?
Base: All Respondents Assigned a Driver Type
Unweighted N=See Chart *** p < .001

Figure 2-5 indicates that speeders tend to live in households with higher household incomes, compared to nonspeeders. In the highest household income group ($100,000+), 42% are categorized as speeders, while only 20% are categorized as nonspeeders. In contrast, of those in the lowest household income group (<$30,000), 37% are nonspeeders, while only 25% were categorized as speeders. While income tends to increase with age, very young respondents with high household incomes and older respondents with low household incomes are an exception to this trend. Respondents 20 and younger (11.4%) were more likely to report household incomes over $100,000 a year than respondents 21 to 24 (5.5%) and 25 to 34 (11.4%), probably because they still live at home with parents who are older and thus have higher incomes. In addition, respondents 65 and older (6.5%) were less likely to report household incomes over $100,000 a year than respondents in their thirties, forties and fifties. As a result, many respondents who live in households which have incomes of more than $100,000 a year may be younger than those who report household incomes less than $100,000, which could account for the increase in speeding drivers in this demographic group; and many of the older drivers (65+) have incomes under $50,000 per year (61%), which could account for the greater percentage of nonspeeders in the income groups below $50,000/year.

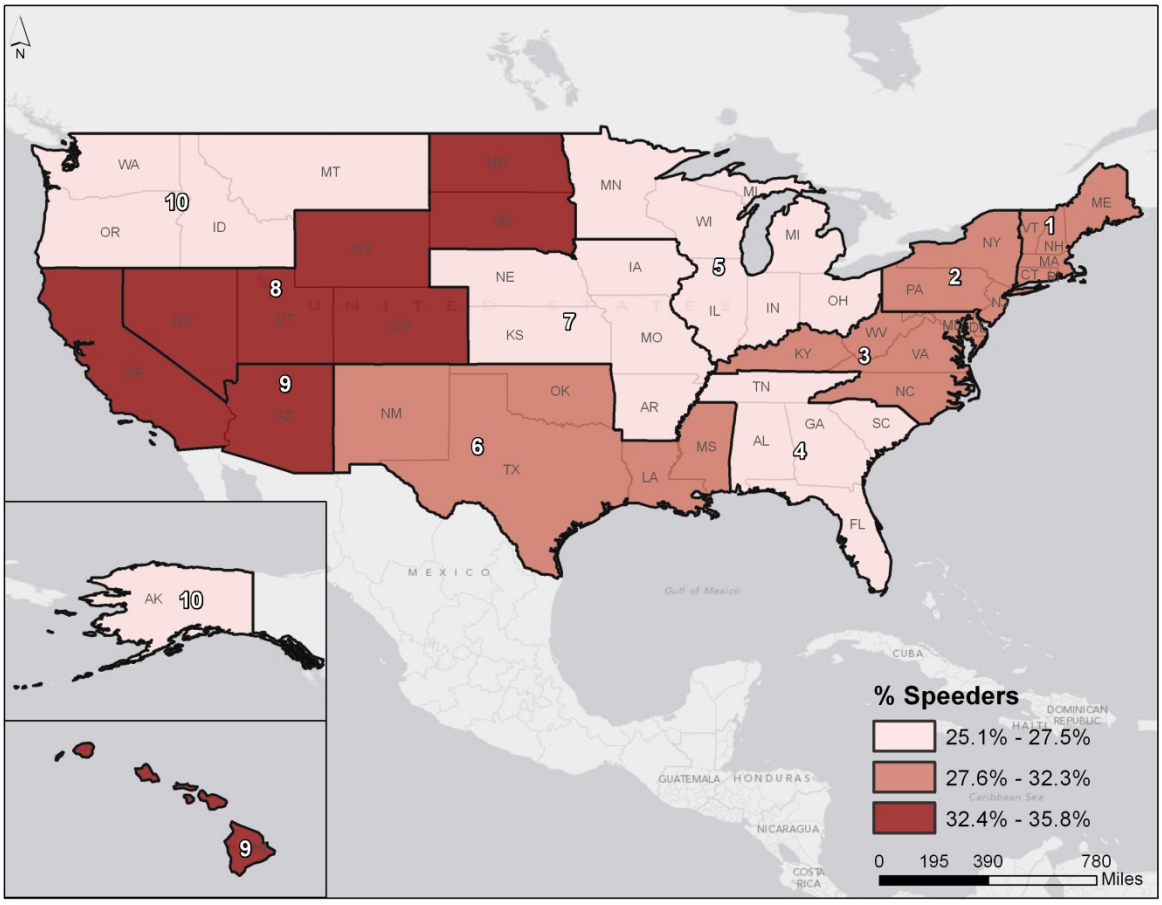
Figure 2-5: Driver Type by Household Income***



D9. Which of the following categories best describes your total household income before taxes in 2010? Your best estimate is fine.
Base: All Respondents Assigned a Driver Type
Unweighted N=See Chart *** p < .001

Figures 2-6 through 2-8 look at each driver type by geographic region; specifically, the 10 NHTSA Regions. The difference between regions is no more than 10 percentage points; however, speeders are more prevalent in the western part of the US, particularly Regions 8 and 9, while Regions 4, 5, 7, and 10 are the least likely to contain speeders.

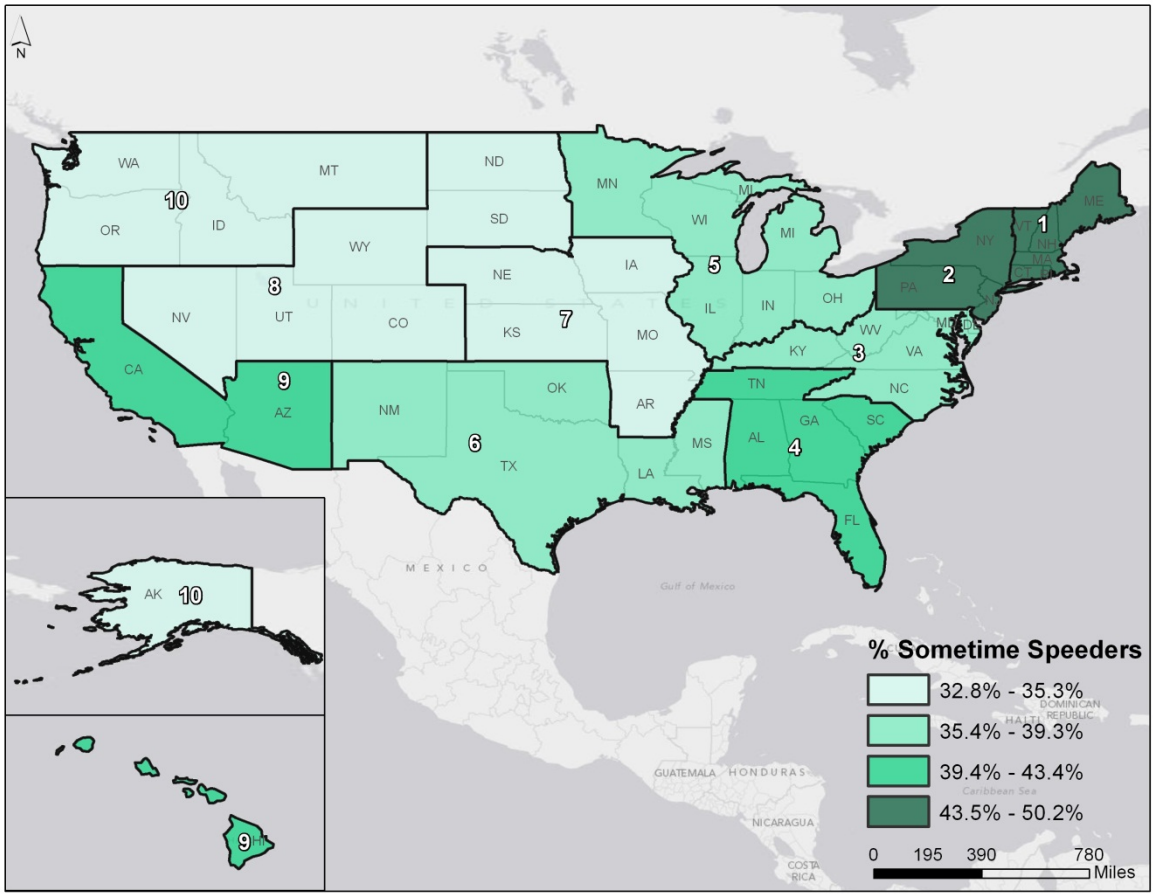
Figure 2-6: Percentage of Speeders by NHTSA Region***



Base: All Respondents Assigned a Driver Type
*** p < .001

Sometime speeders are most likely to be found in the northeastern states, Regions 1 and 2. The Midwest and Pacific Northwest, Regions 7, 8 and 10, are the least likely to have sometime speeders.

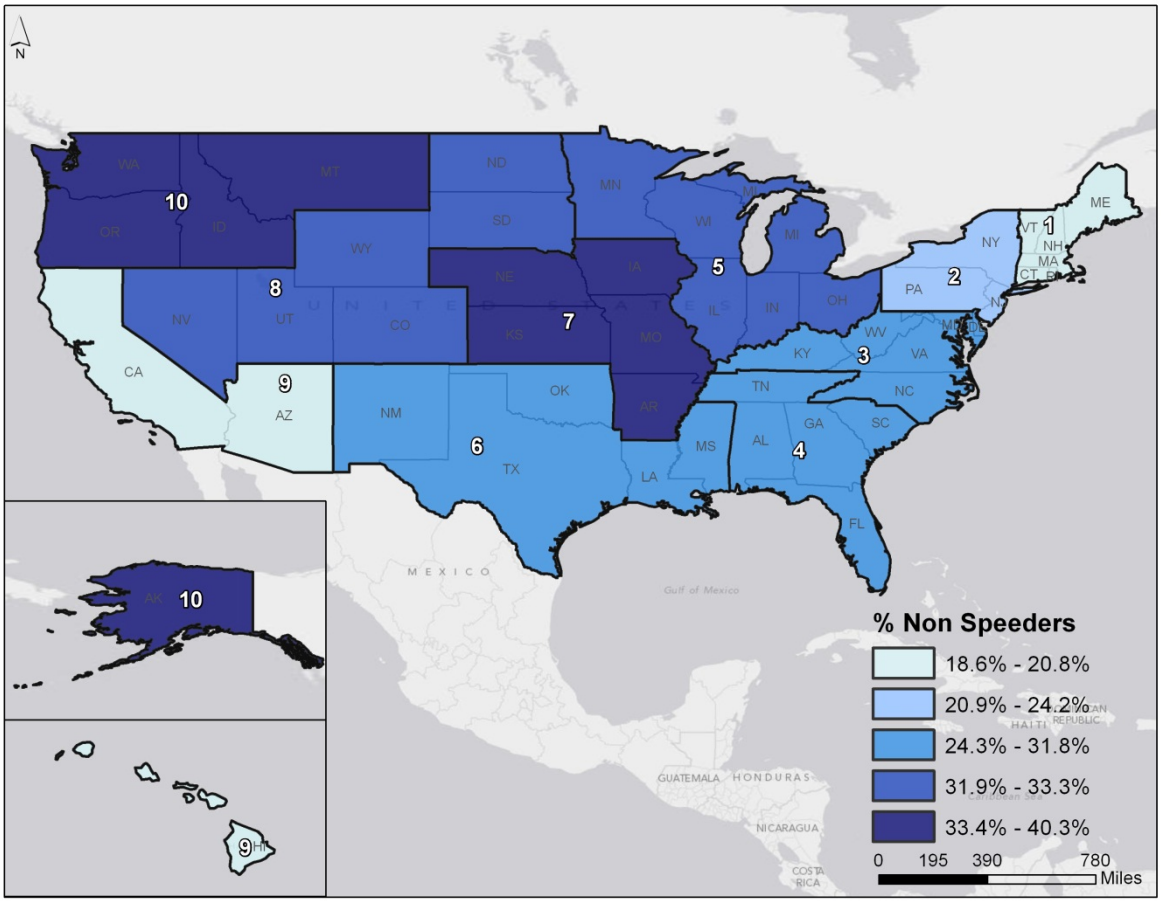
Figure 2-7: Percentage of Sometime Speeders by NHTSA Region***



Base: All Respondents Assigned a Driver Type
*** p < .001

Figure 2-8 shows the percentage of nonspeeders by NHTSA Region. The Pacific Northwest and the central Midwest have the highest proportion of nonspeeders. The western states and New England have the lowest proportion of nonspeeders in the United States. The range between the regions is more than 20 percentage points, the largest range for the three driver types.

Figure 2-8: Percentage of Nonspeeders by NHTSA Region***

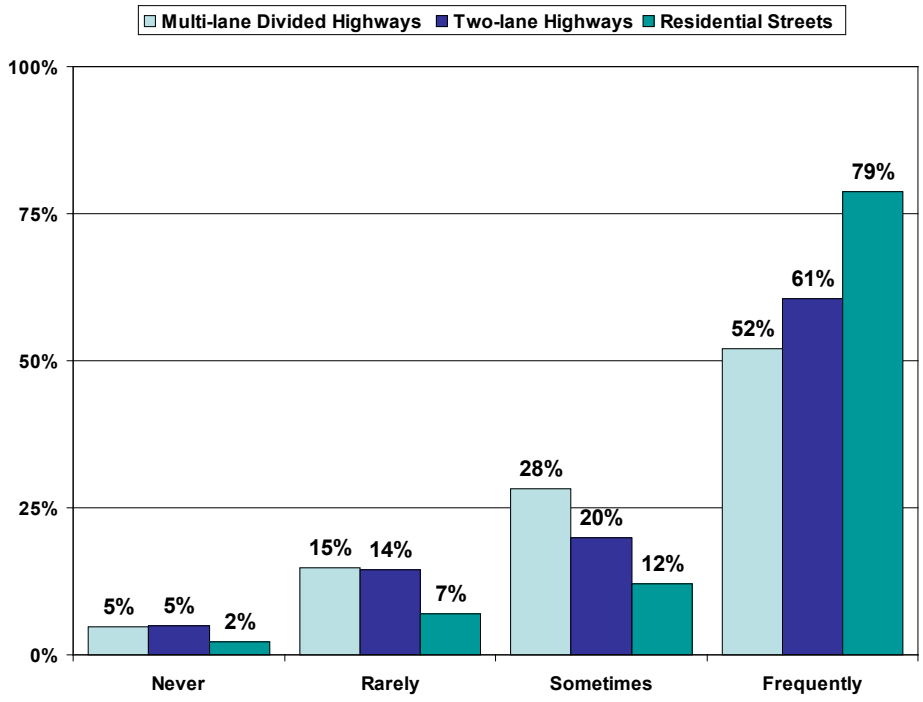


Base: All Respondents Assigned a Driver Type
*** p < .001

CHAPTER 3
DRIVING BEHAVIOR ON DIFFERENT TYPES OF ROADS

The network of roads and highways in the United States is made up of a variety of road types ranging from local residential and neighborhood streets to multi-lane divided highways, such as those in the Interstate system of roads. The road types differ in the level of access they provide to the surrounding land, by their geometric characteristics, as well as their design and speed limits. Most drivers frequently travel on different types of roads. Figure 3-1 shows drivers' frequency of use of different types of roads. Neighborhood or residential streets are the most regularly used road types, with nearly 80% of drivers (79%) reporting frequent use of these streets. Drivers also frequently travel on multi-lane, divided highways and two-lane highways. About 80% of drivers at least sometimes use multi-lane and two-lane highways.

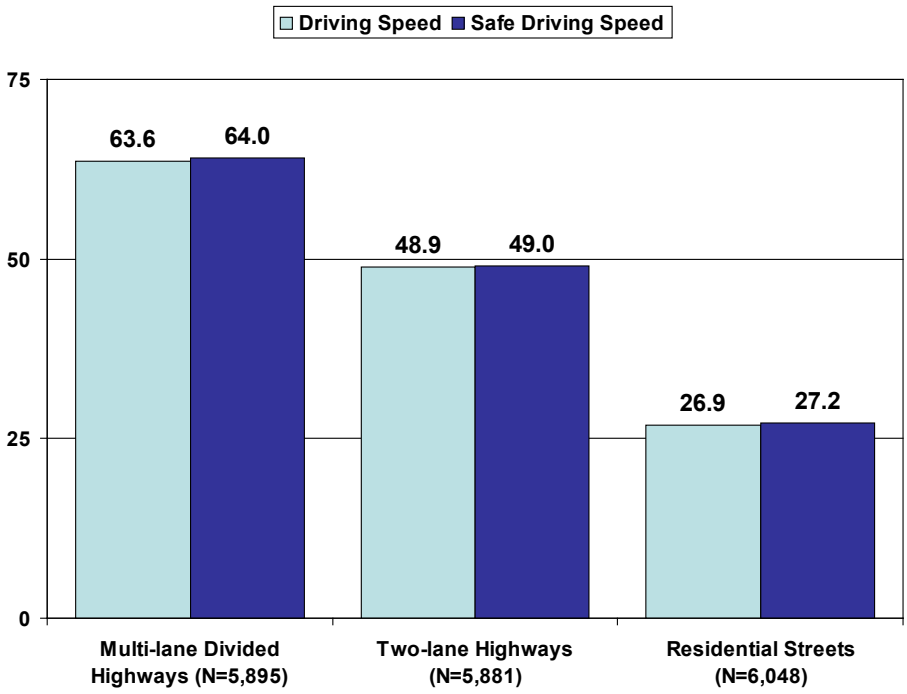
Figure 3-1: How Often Drive on Various Road Types



Q5a/Q6a/Q7a. How often do you drive on (Multi-lane Divided Highways/Two Lane Highways, one lane in each direction/Neighborhood or Residential streets)?
Base: All Respondents
Unweighted N=6,144

Comparing average driving speed and average perceived safe speed limits on various road types shows that, overall, people drive at approximately the same speed that they perceive to be safe. Figure 3-2 compares the average perceived safe limit to the average travel speed in mph at which people drive on multi-lane divided highways, two-lane highways and residential streets. There are no substantive differences between the average driving speed and average perceived safe speed limits on all three road types. Average driving speed on multi-lane divided highways is 63.6 mph, roughly the same as the average perceived safe limit (64 mph). The differences on two-lane highways and residential roads are similar in scale.

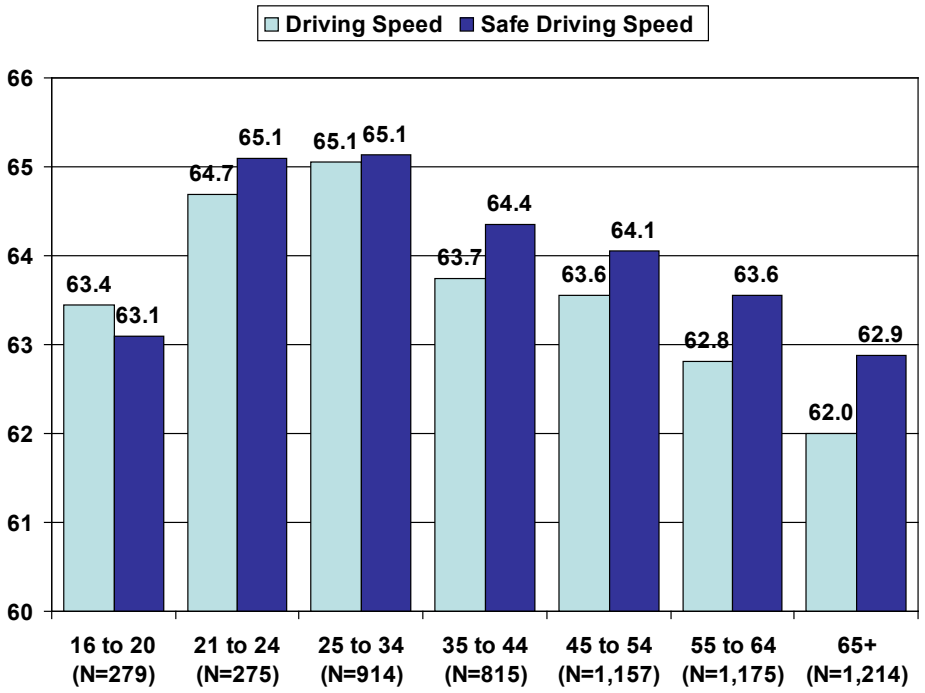
Figure 3-2: Reported Driving Speed and Perceived Safe Driving Speed by Road Type



Q5c/Q6c/Q7c. What do you consider to be a safe speed limit for (most) (ROAD TYPE)s in good weather during the day?
Q5d/Q6d/Q7d. When driving on (ROAD TYPE)s in good weather during the day, how fast do you normally drive?
Base: Respondents Who Drive on Road Type
Unweighted N=See Chart

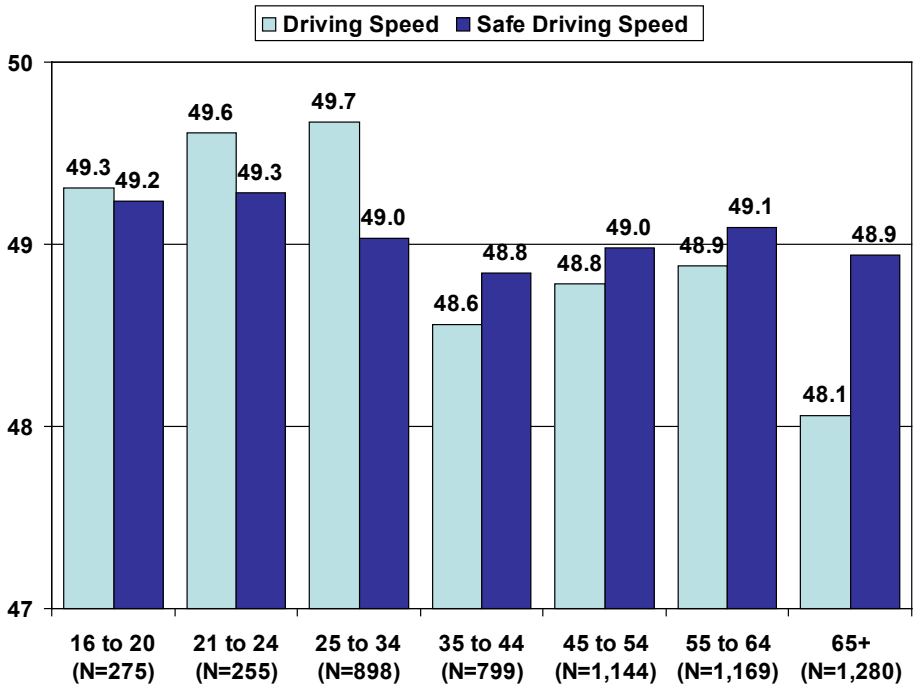
Average driving speed was compared to average perceived safe speed by driver type and across different demographic groups. Figures 3-3 through 3-5 show average driving speed and average perceived safe speed limit across age groups for the three different road types. On all road types the general trend is that young drivers' average driving speed is slightly faster than the speed they consider as safe, but as drivers age, their average driving speed drops below the speed they recognize as a safe limit.

Figure 3-3: Reported Driving Speed and Perceived Safe Driving Speed on Multi-Lane Divided Highways by Age***



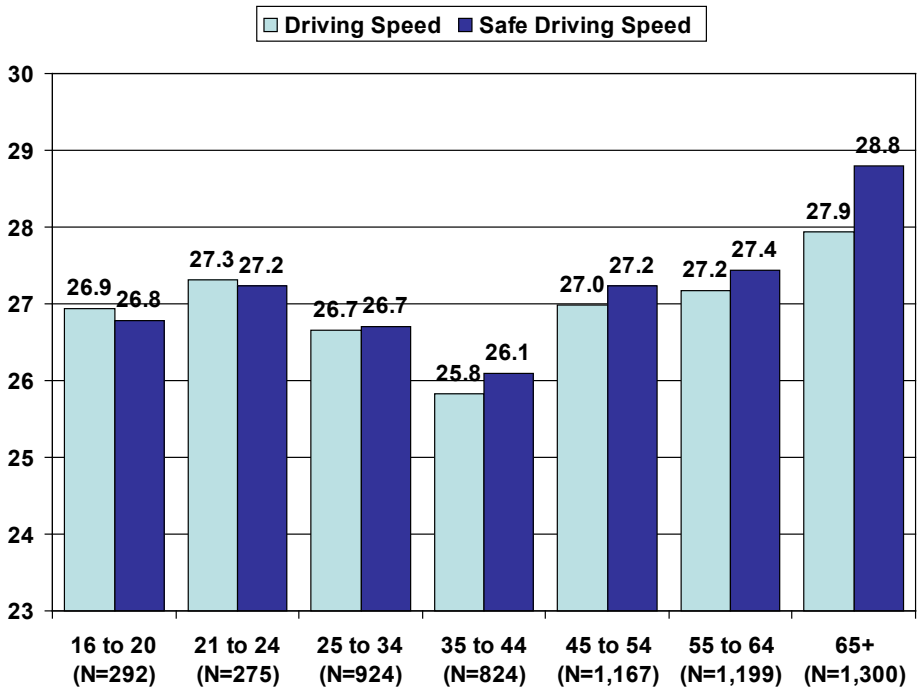
Q5c. What do you consider to be a safe speed limit for (most) Multi-Lane, Divided Highways in good weather during the day?
Q5d. When driving on Multi-Lane, Divided Highways in good weather during the day, how fast do you normally drive?
Base: Respondents Who Drive on Multi-Lane, Divided Highways
Unweighted N=See Chart *** $p < .001$

Figure 3-4: Reported Driving Speed and Perceived Safe Driving Speed on Two-Lane Highways by Age***



Q6c. What do you consider to be a safe speed limit for (most) Two-Lane Highways, one lane in each direction, in good weather during the day?
Q6d. When driving on Two-Lane Highways, one lane in each direction, in good weather during the day, how fast do you normally drive?
Base: Respondents Who Drive on Two-Lane Highways
Unweighted N=See Chart *** p < .001

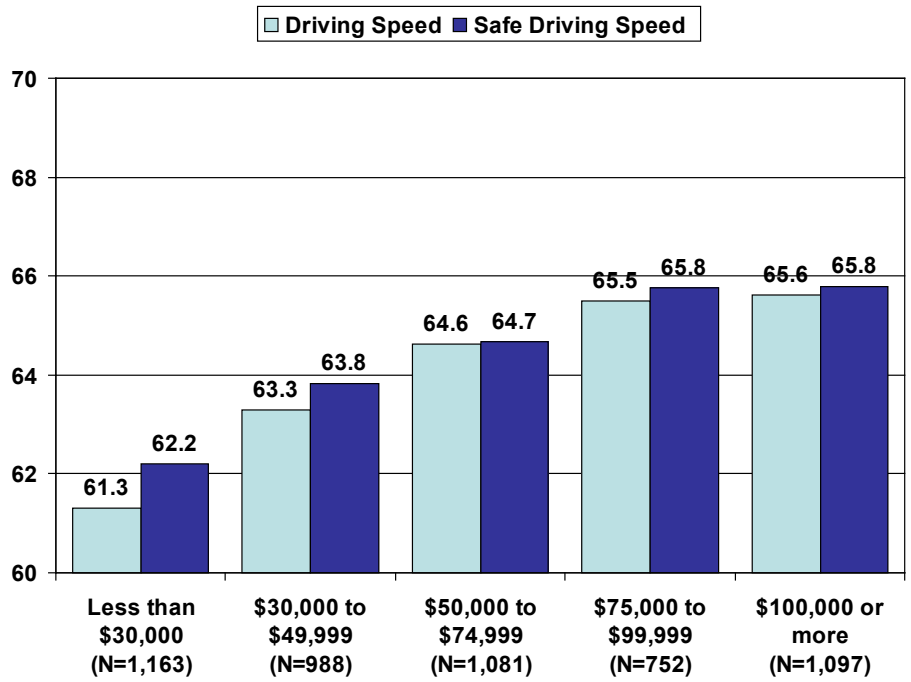
Figure 3-5: Reported Driving Speed and Perceived Safe Driving Speed on Residential Streets by Age***



Q7c. What do you consider to be a safe speed limit for (most) Neighborhood or Residential streets, one lane in each direction, in good weather during the day?
Q7d. When driving on Neighborhood or Residential streets in good weather during the day, how fast do you normally drive?
Base: Respondents Who Drive on Neighborhood or Residential streets
Unweighted N=See Chart *** p < .001

Low household income drivers believe the safe driving speed on highways is significantly lower than drivers with higher household incomes and they also report slower driving speeds than what they perceive to be safe (See Figures 3-6 through 3-8). On average, drivers with annual household incomes of $75,000 or more report 65.8 mph as a safe speed limit on multi-lane highways. The average estimated safe speed limit reported by drivers with annual household incomes less than $30,000 for multi-lane highways was 62.2 mph. Those in the lowest household income group, on average, drive 0.9 mph slower on multi-lane divided highways.

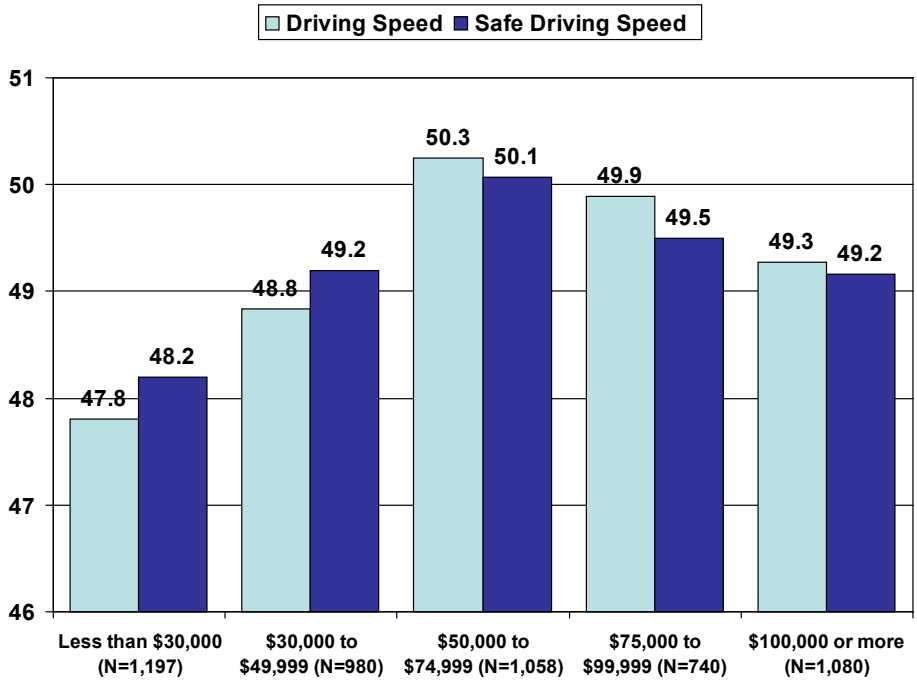
Figure 3-6: Reported Driving Speed and Perceived Safe Driving Speed on Multi-Lane Divided Highways by Household Income***



Q5c. What do you consider to be a safe speed limit for (most) Multi-Lane, Divided Highways in good weather during the day?
Q5d. When driving on Multi-Lane, Divided Highways in good weather during the day, how fast do you normally drive?
Base: Respondents Who Drive on Multi-Lane, Divided Highways
Unweighted N=See Chart *** $p < .001$

In Figure 3-7, a similar pattern emerges for two-lane highways, although the middle household income group ($50,000 to $74,999) reports the highest average safe driving speed on these roads (50.1 mph). The upper household income groups still report driving slightly faster than the speed they would consider safe, while the lower household income groups drive slightly slower than the speed they consider safe on two-lane highways.

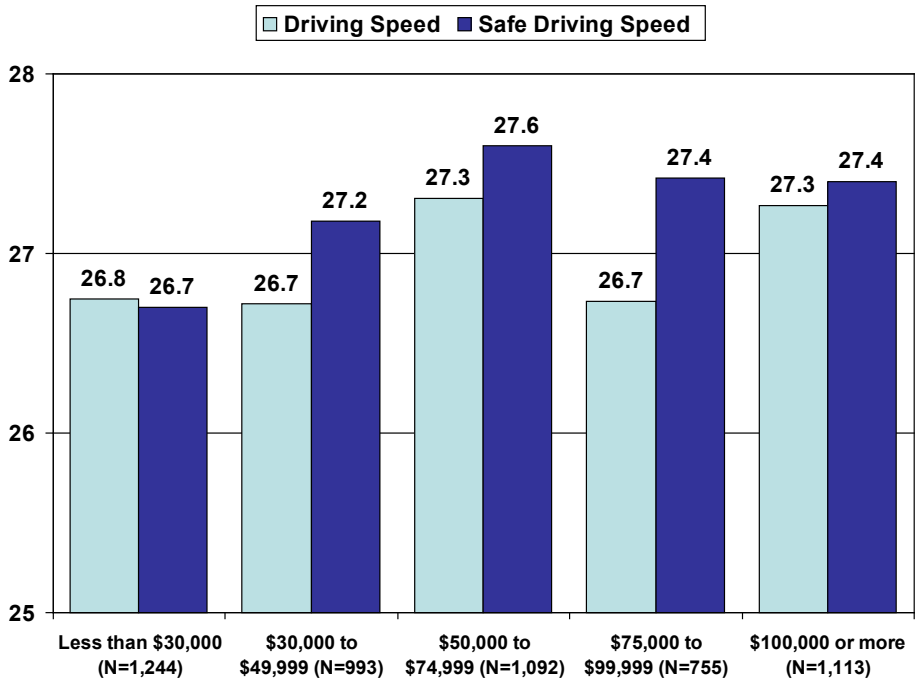
Figure 3-7: Reported Driving Speed and Perceived Safe Driving Speed on Two-Lane Highways by Household Income***



Q6c. What do you consider to be a safe speed limit for (most) Two-Lane Highways, one lane in each direction, in good weather during the day?
Q6d. When driving on Two-Lane Highways, one lane in each direction, in good weather during the day, how fast do you normally drive?
Base: Respondents Who Drive on Two-Lane Highways
Unweighted N=See Chart *** p < .001

Drivers are much more likely to report driving slower than what they consider to be a safe driving speed, regardless of household income, when it comes to residential streets. Four of the five household income categories reported driving slower than the safe driving speed on these streets, and the lowest household income category report driving an average of only 0.1 mph higher than the safe driving speed on residential streets.

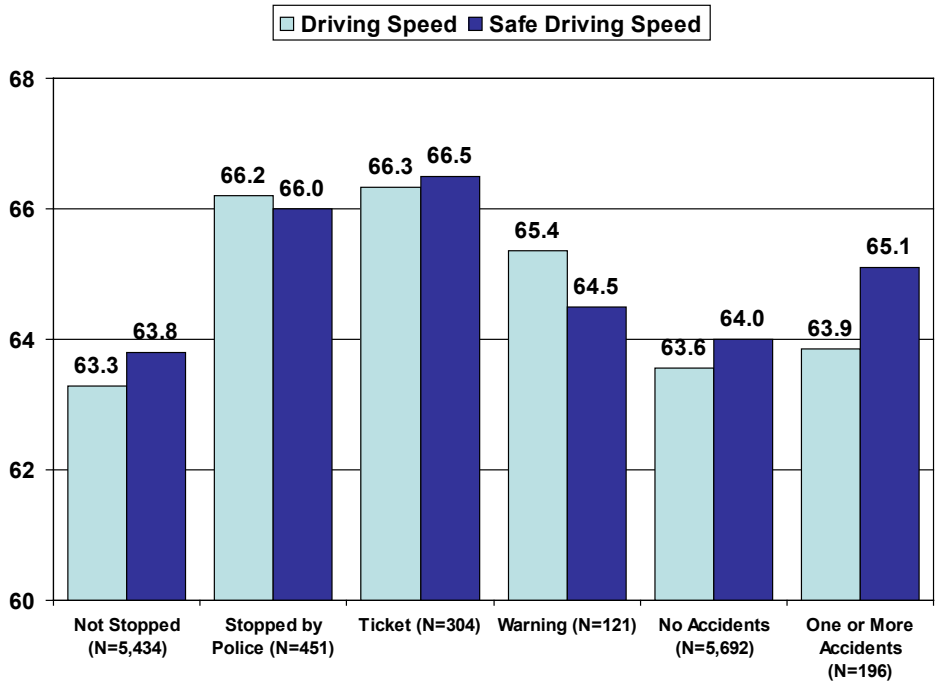
Figure 3-8: Reported Driving Speed and Perceived Safe Driving Speed on Residential Streets by Household Income***



Q7c. What do you consider to be a safe speed limit for (most) Neighborhood or Residential streets, one lane in each direction, in good weather during the day?
Q7d. When driving on Neighborhood or Residential streets in good weather during the day, how fast do you normally drive?
Base: Respondents Who Drive on Neighborhood or Residential streets
Unweighted N=See Chart *** p < .001

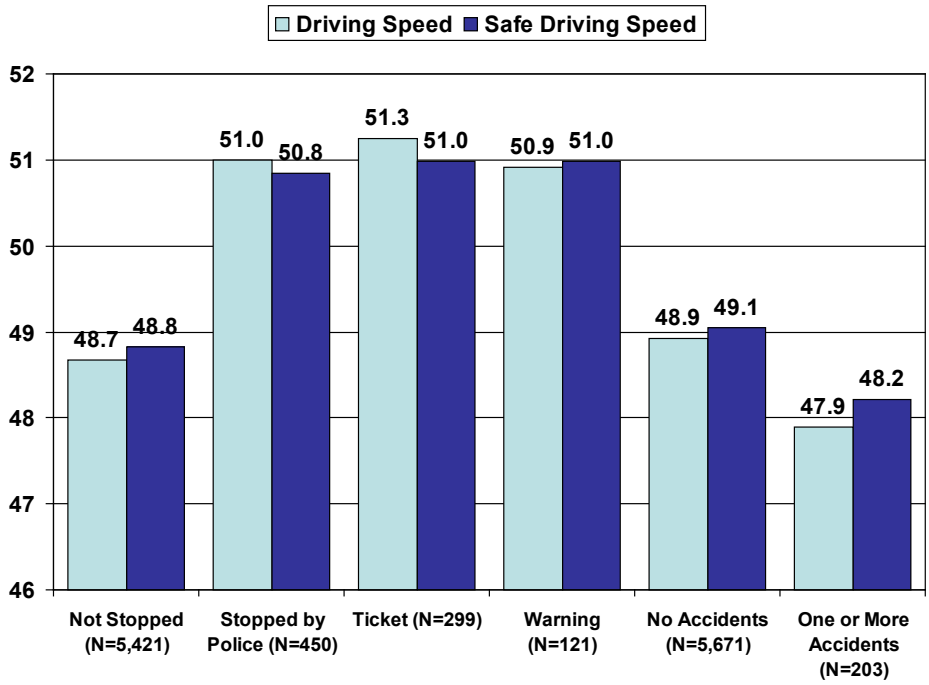
Driving speed and perceived safe limits on the three road types were further explored by the consequences of speeding-related episodes experienced by drivers (See Figures 3-9 through 3-11). Drivers who have not been stopped for speeding by police in the past year drive at speeds approximately equal to the perceived safe speed limit on multi-lane highways, two-lane highways, and residential streets. Those who have been stopped for speeding within the past year report normally traveling faster than their perceived safe speed limit would allow. Those who have been stopped and received a ticket for speeding drive an average of 66.3 mph on multi-lane highways, though, on average, they perceive the safe speed limit to be 65.1 mph on these roads. This relationship reverses on residential or neighborhood streets, where those who had received a ticket within the past year, on average, perceive the safe speed limit to be 28.2 mph, yet report traveling at an average speed of 27.2 mph on the streets.

Figure 3-9: Reported Driving Speed and Perceived Safe Driving Speed on Multi-Lane Divided Highways by Consequences***



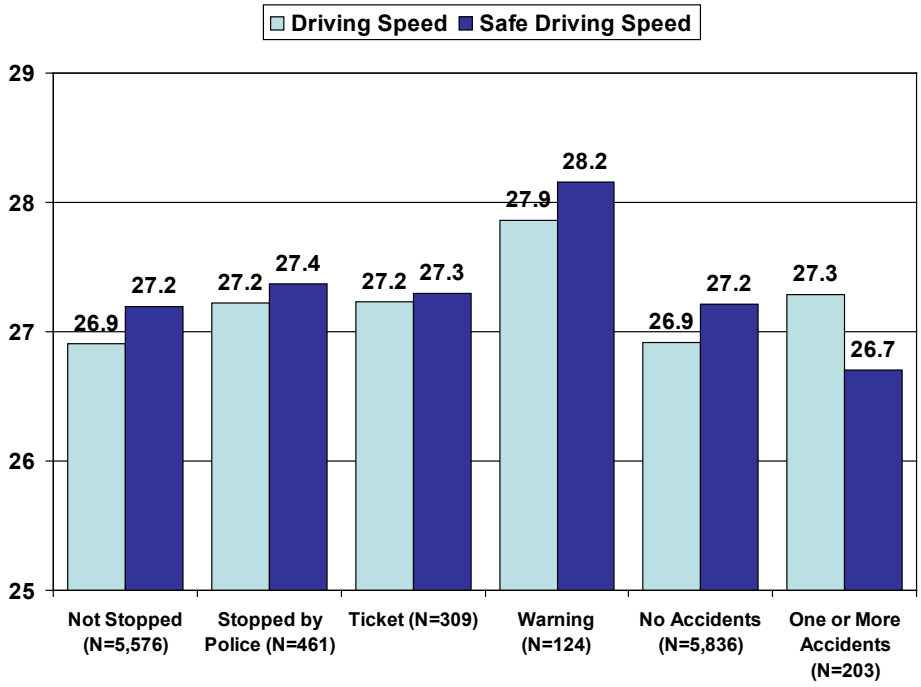
Q5c. What do you consider to be a safe speed limit for (most) Multi-Lane, Divided Highways in good weather during the day?
Q5d. When driving on Multi-Lane, Divided Highways in good weather during the day, how fast do you normally drive?
Base: Respondents Who Drive on Multi-Lane, Divided Highways
Unweighted N=See Chart *** $p < .001$

Figure 3-10: Reported Driving Speed and Perceived Safe Driving Speed on Two-Lane Highways by Consequences



Q6c. What do you consider to be a safe speed limit for (most) Two-Lane Highways, one lane in each direction, in good weather during the day?
Q6d. When driving on Two-Lane Highways, one lane in each direction, in good weather during the day, how fast do you normally drive?
Base: Respondents Who Drive on Two-Lane Highways
Unweighted N=See Chart

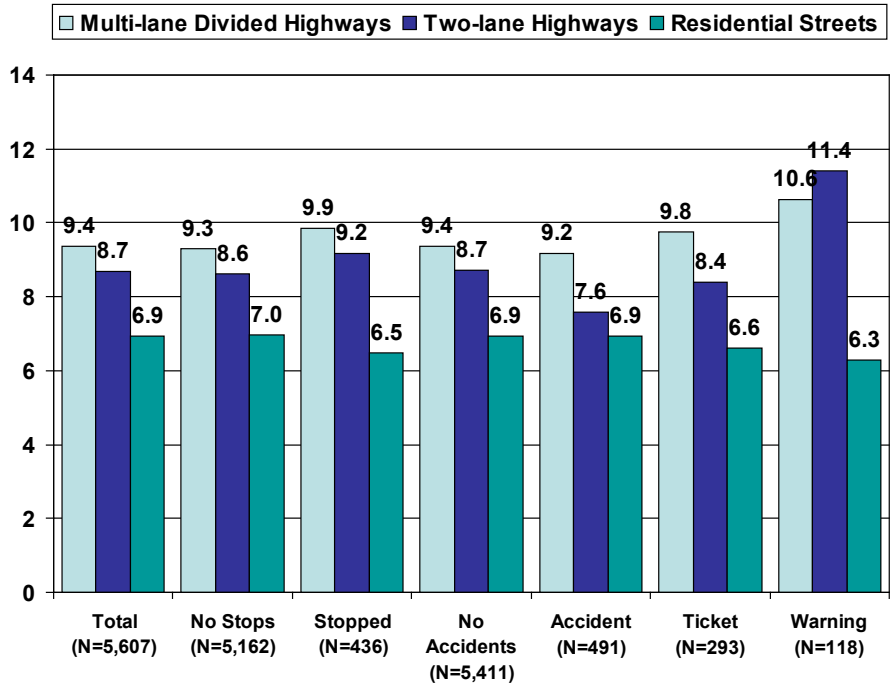
Figure 3-11: Reported Driving Speed and Perceived Safe Driving Speed on Residential Streets by Consequences***



Q7c. What do you consider to be a safe speed limit for (most) Neighborhood or Residential streets, one lane in each direction, in good weather during the day?
Q7d. When driving on Neighborhood or Residential streets in good weather during the day, how fast do you normally drive?
Base: Respondents Who Drive on Neighborhood or Residential streets
Unweighted N=See Chart *** $p < .001$

The perceived risk of a speeding ticket is considered a possible deterrent to speeding behavior. Respondents were asked how many mph over the speed limit one could drive before receiving a ticket. Figure 3-12 shows the mean mph drivers believe they can speed over the speed limit without being pulled over for speeding by the police and broken out by the consequences of their previous speed-related episodes (stops and crashes). Those who have been stopped by the police within the past year and received a warning rather than a speeding ticket, on average, believe that one can travel 10.6 mph over the limit on multi-lane highways and 11.4 mph over the limit on two lane highways before receiving a speeding ticket (See Figure 3-12). This is a larger margin than the average "allowable" speed over the speed limit reported by any other group.

Figure 3-12: Mean mph Over Limit Without Receiving a Ticket by Consequences***

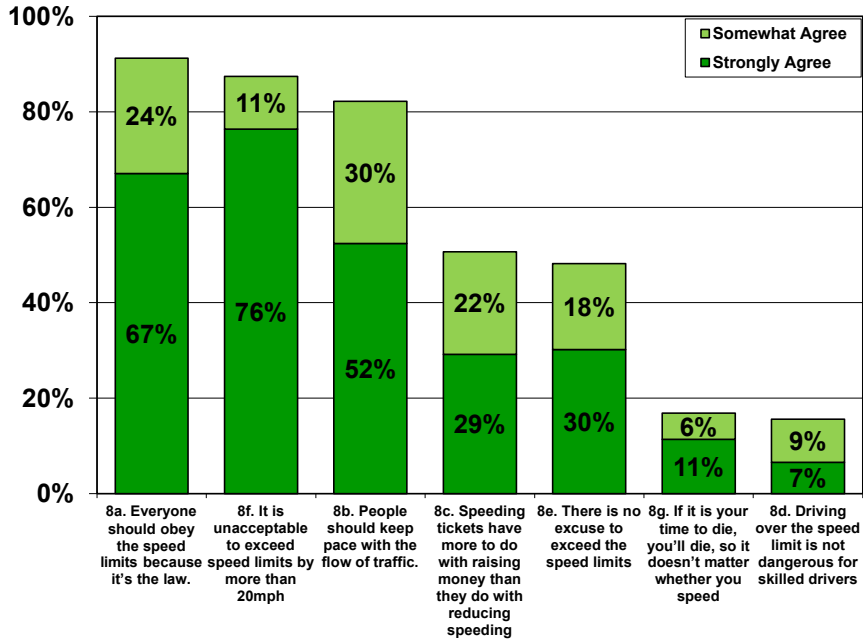


Q5f/Q6f/Q7f. How far above the speed limit do you think the average driver can go on (ROAD TYPE) before he or she will receive a ticket?
Base: Respondents Who Drive on ALL Road Types
Unweighted N=See Chart *** p < .001

CHAPTER 4
NORMS AND ATTITUDES ABOUT SPEEDING

Respondents were asked a series of questions pertaining to their attitudes toward speeding from both normative and personal perspectives (See Figure 4-1). When asked whether everyone should obey the speed limits because it's the law, an overwhelming majority of drivers (91%) agree either strongly or somewhat, with two thirds (67%) agreeing strongly with this statement. There was also strong agreement that "It is unacceptable to exceed speed limits by more than 20 mph." More than 17 out of 20 (87%) drivers agreed with this statement, with 76% agreeing strongly. Drivers agreed that people should keep up with the flow of traffic with 52% of drivers strongly agreeing and 30% somewhat agreeing with this statement. Approximately one-half of drivers agree that speeding tickets have more to do with raising money than they do with reducing speeding (51%) and that there is no excuse to exceed the speed limits (48%). Less than one-fifth of drivers agreed with the statements, "If it is your time to die, you'll die, so it doesn't matter whether you speed" (17%), and "Driving over the speed limit is not dangerous for skilled drivers" (16%).

Figure 4-1: Normative Attitudes Regarding Speeding



Q8. Now I'm going to read a few statements about driving and speed limits. After I read each one, please tell me whether you agree, disagree or neither. (READ ITEM). Would you say you strongly (AGREE/DISAGREE) or somewhat (AGREE/DISAGREE)?
Base: All Respondents
Unweighted N= 6,144

Table 4-1 shows the average rating of the normative attitude statements by driver age group, gender, education level, household income and metro status. The ratings for each statement range from 1 to 5 with 5=strongly agree and 1=strongly disagree, so that the higher the average value, the more agreement there is in the group of drivers with that particular statement. There are no large differences when these items are examined by demographics, although some nuances become apparent. For example, older drivers are more likely than younger drivers to agree with the statement "Everyone should obey the speed limits because it's the law," and less likely to agree that "People should keep pace with the flow of traffic." As household income level increases, agreement with the statement that "Everyone should obey the speed limits because it's the law," becomes less likely.

Table 4-1: Normative Attitudes Regarding Speeding by Demographics

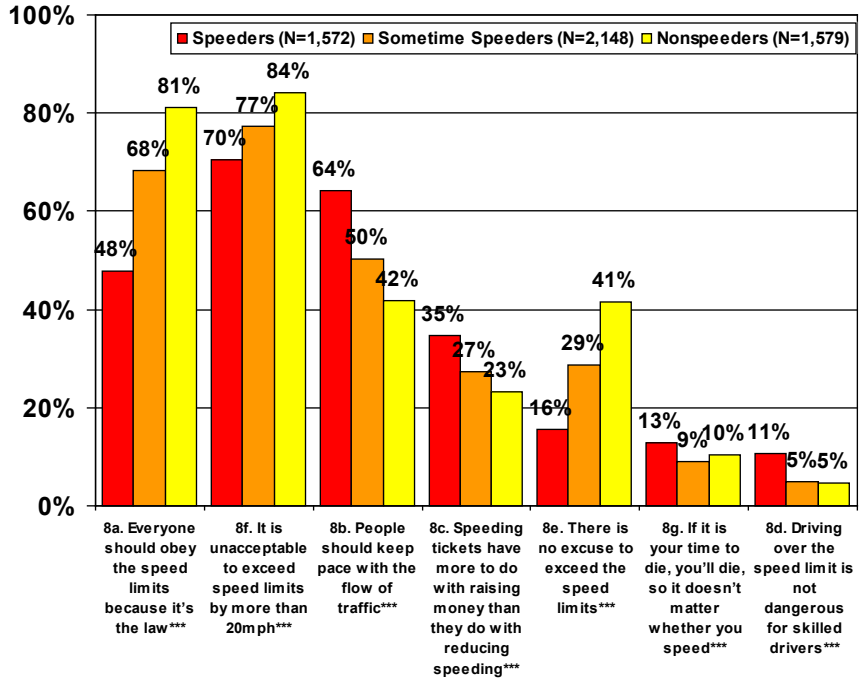
	N	8a Everyone should obey the speed limits because it's the law	8b People should keep pace with the flow of traffic	8c Speeding tickets have more to do with raising money than they do with reducing speeding	8d Driving over the speed limit is not dangerous for skilled drivers
Age					
16-20	295	4.31	4.36	3.14	1.88
21-24	281	4.41	4.23	3.14	1.81
25-34	939	4.45	4.26	3.36	1.83
35-44	835	4.53	4.25	3.22	1.91
45-54	1,185	4.51	4.06	3.33	1.86
55-64	1,211	4.61	4.12	3.20	1.82
65 or older	1,328	4.66	4.07	3.01	1.68
Gender					
Male	2,696	4.37	4.25	3.36	2.07
Female	3,448	4.66	4.11	3.09	1.59
Education					
Less than HS	464	4.61	4.10	3.32	1.92
HS diploma	3,327	4.57	4.16	3.20	1.75
College degree	1,392	4.39	4.26	3.18	1.90
Graduate degree	933	4.27	4.26	3.22	2.04
2010 Household Income					
< $30K	1,275	4.69	4.13	3.23	1.79
$30K - $50K	1,019	4.57	4.16	3.20	1.71
$50K - $75K	1,102	4.48	4.16	3.25	1.85
$75K - $100K	761	4.41	4.27	3.12	1.90
$100K or more	1,119	4.21	4.29	3.27	2.04
Metro Status					
Urban	3,030	4.46	4.25	3.25	1.85
Non-urban	2,903	4.52	4.07	3.04	1.74

Table 4-1: Normative Attitudes Regarding Speeding by Demographics (Continued)

	N	8e There is no excuse to exceed the speed limits	8f It is unacceptable to exceed speed limits by more than 20mph	8g If it is your time to die, you'll die, so it doesn't matter whether you speed
Age				
16-20	295	3.13	4.39	1.78
21-24	281	2.95	4.41	1.82
25-34	939	3.08	4.46	1.81
35-44	835	3.14	4.42	1.87
45-54	1,185	3.07	4.53	1.79
55-64	1,211	3.28	4.49	1.78
65 or older	1,328	3.44	4.46	1.73
Gender				
Male	2,696	3.01	4.41	1.96
Female	3,448	3.33	4.52	1.64
Education				
Less than HS	464	3.56	4.26	2.19
HS diploma	3,327	3.21	4.49	1.78
College degree	1,392	2.84	4.52	1.59
Graduate degree	933	2.76	4.56	1.53
2010 Household Income				
< $30K	1,275	3.56	4.28	2.02
$30K - $50K	1,019	3.32	4.55	1.77
$50K - $75K	1,102	3.00	4.54	1.76
$75K - $100K	761	2.89	4.57	1.70
$100K or more	1,119	2.67	4.52	1.60
Metro Status				
Urban	3,030	3.07	4.50	1.65
Non-urban	2,903	3.05	4.53	1.67

A different pattern emerges when normative attitudes are examined by driver type. While there is strong agreement across demographic groups, as a whole, on the three highest rated normative statements, there are significant differences between driver types regarding these same normative statements. To clearly show the pattern of response by driver type, the percentages in Figure 4-2 are limited to the percentages who strongly agree with each statement. Less than one-half (48%) of the people classified as speeders strongly agree that everyone should obey the speed limits because it's the law. Conversely, more than 4 out of 5 drivers classified as nonspeeders (81%) strongly agree with this statement. Almost two-thirds (64%) of speeders strongly agree that people should keep up with the flow of traffic; however, only 42% of the nonspeeders strongly agree with this statement. One in six speeders (16%) strongly agrees that there is no excuse to exceed the speed limit; however, more than two-fifths (41%) of nonspeeders strongly agree with this statement. Although the number of respondents who strongly agree is smaller, speeders are twice as likely (11%) as sometime speeders (5%) or nonspeeders (5%) to agree that driving over the speed limit is not dangerous for skilled drivers.

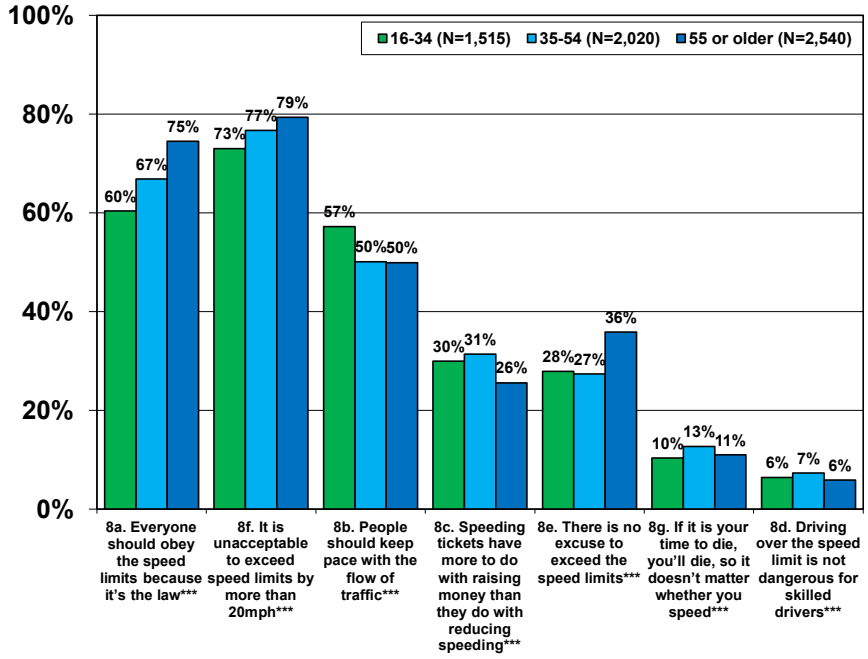
Figure 4-2: Normative Attitudes Regarding Speeding by Driver Type
% Strongly Agree



Q8. Now I'm going to read a few statements about driving and speed limits. After I read each one, please tell me whether you agree, disagree or neither. (READ ITEM). Would you say you strongly (AGREE/DISAGREE) or somewhat (AGREE/DISAGREE)?
Base: All Respondents Assigned a Driver Type
Unweighted N=See Chart *** p<.001

When the normative statements are compared across age groups, the differences are not nearly as pronounced as they were when compared across driver type. The percentages in Figure 4-3 are again limited to the percentages who strongly agree with each statement. The youngest group (16 to 34) is less likely to strongly agree with the statement that everyone should obey the speed limits because it's the law (60%) when compared to the 35 to 54 age group (67%) or the 55 and older age group (75%). The majority of those in the 16 to 34 age group (57%) strongly agree that people should keep pace with the flow of traffic, while a slightly lower proportion (50%) of those in the other two age groups strongly agree with this statement. Drivers older than 55 years are most likely to strongly agree with the statement, there is no excuse to exceed the speed limits, with more than one-third (36%) strongly agreeing. Among younger drivers, 28% of those 16 to 34 and 27% of those 35 to 54 strongly agree with this statement.

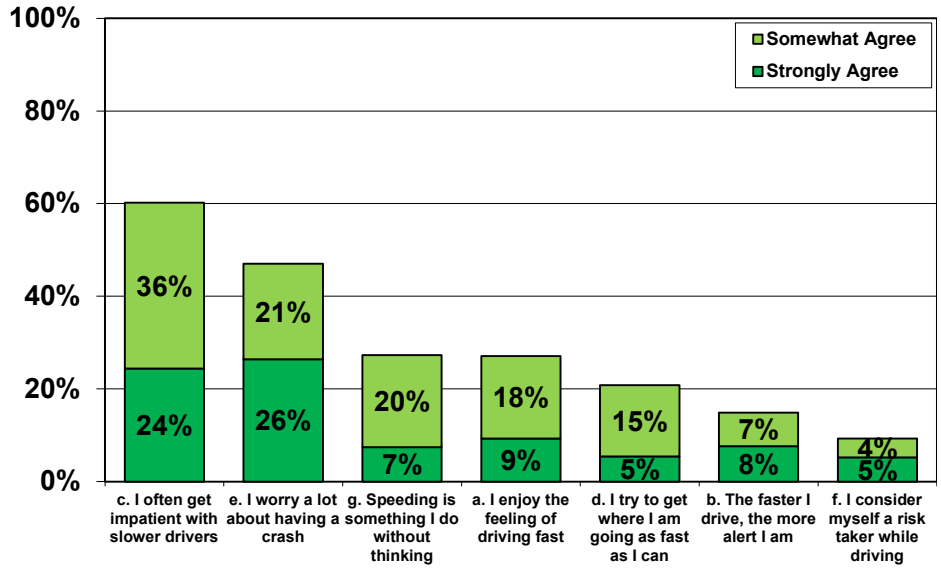
Figure 4-3: Normative Attitudes Regarding Speeding by Age Group
%Strongly Agree



Q8. Now I'm going to read a few statements about driving and speed limits. After I read each one, please tell me whether you agree, disagree or neither. (READ ITEM). Would you say you strongly (AGREE/DISAGREE) or somewhat (AGREE/DISAGREE)?
D1. How old are you?
Base: All Respondents
Unweighted N=See Chart *** p<.001

The respondents were also asked a series of questions that measured their personal feelings toward speeding and speeding behaviors. As shown in Figure 4-4, 3 in 5 (60%) drivers agree that they often get impatient with slower drivers. Close to half of all respondents (47%) agreed with the statement "I worry a lot about having a crash." There was considerably less agreement with the statements "Speeding is something I do without thinking" (27%), "I enjoy the feeling of driving fast" (27%), and "I try to get where I am going as fast as I can" (20%). Only 9% of drivers agree with the statement, "I consider myself a risk taker while driving."

Figure 4-4: Personal Attitudes Regarding Speeding



Q9. Now I'm going to read a few statements. After I read each one, please tell me whether you agree, disagree or neither. (READ ITEM). Would you say you strongly (AGREE/DISAGREE) or somewhat (AGREE/DISAGREE)?
Base: All Respondents
Unweighted N=6,144

Table 4-2 shows the mean rating of the personal attitude items by driver age group, gender, education level, household income, and metro status. The ratings for each item range from 1 to 5 with 5=strongly agree and 1=strongly disagree, so that the higher the mean value the more agreement there is with that particular statement. There were no large differences in these items when examined by driver demographics, although some nuances become apparent. For example, older drivers are much more likely than younger drivers and women are much more likely than men to disagree with the statement, "I enjoy the feeling of driving fast." Drivers with higher household incomes are less likely to disagree with this statement than those with lower household incomes.

Table 4-2: Personal Attitudes Regarding Speeding by Demographics

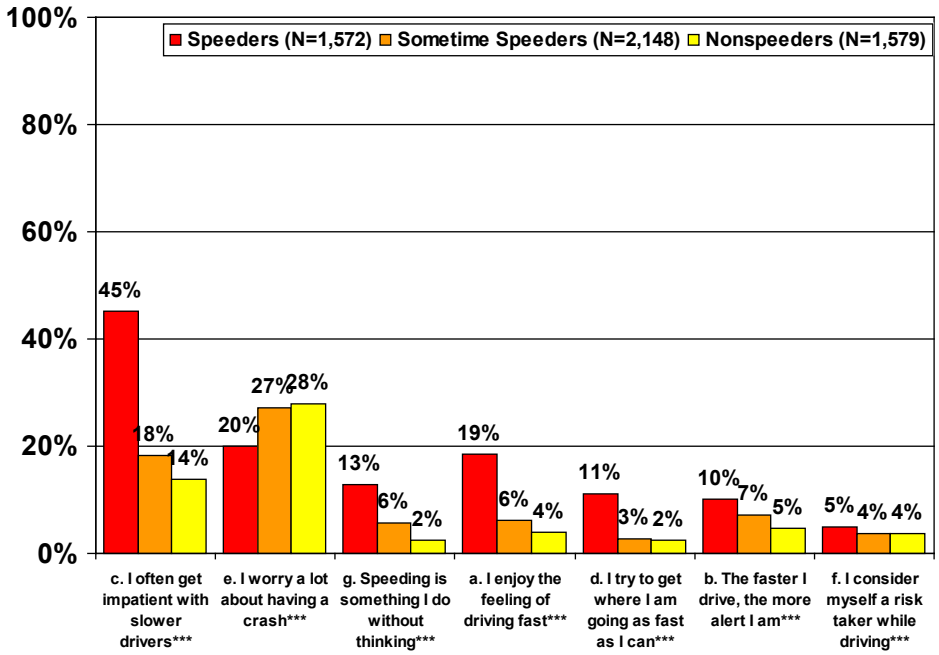
	N	9a I enjoy the feeling of driving fast	9b The faster I drive the more alert I am	9c I often get impatient with slower drivers	9d I try to get where I am going as fast as I can
Age					
16-20	295	2.98	2.20	3.64	2.47
21-24	281	2.73	2.11	3.60	2.43
25-34	939	2.41	1.82	3.53	2.41
35-44	835	2.25	1.79	3.33	2.07
45-54	1,185	2.16	1.62	3.28	1.97
55-64	1,211	1.99	1.61	3.13	1.82
65 or older	1,328	1.66	1.67	2.97	1.61
Gender					
Male	2,696	2.51	2.00	3.41	2.23
Female	3,448	1.94	1.56	3.22	1.89
Education					
Less than HS	464	2.15	1.91	3.13	1.97
HS diploma	3,327	2.17	1.73	3.33	2.00
College degree	1,392	2.33	1.78	3.36	2.19
Graduate degree	933	2.44	1.80	3.45	2.35
2010 Household Income					
< $30K	1,275	1.99	1.74	3.07	1.93
$30K - $50K	1,019	2.20	1.73	3.31	1.95
$50K - $75K	1,102	2.27	1.80	3.46	2.08
$75K - $100K	761	2.41	1.82	3.47	2.25
$100K or more	1,119	2.49	1.82	3.53	2.32
Metro Status					
Urban	3,030	2.23	1.74	3.31	2.10
Non-urban	2,903	2.11	1.69	3.28	1.96

Table 4-2: Personal Attitudes Regarding Speeding by Demographics (Continued)

	N	9e I worry a lot about having a crash	9f I consider myself a risk taker while driving	9g Speeding is something I do without thinking
Age				
16-20	295	3.40	1.85	2.60
21-24	281	3.40	1.81	2.46
25-34	939	3.13	1.59	2.44
35-44	835	3.25	1.71	2.21
45-54	1,185	2.89	1.41	2.08
55-64	1,211	2.72	1.34	1.85
65 or older	1,328	2.64	1.32	1.74
Gender				
Male	2,696	2.86	1.65	2.27
Female	3,448	3.13	1.42	2.03
Education				
Less than HS	464	3.36	1.98	2.32
HS diploma	3,327	3.00	1.44	2.08
College degree	1,392	2.80	1.44	2.16
Graduate degree	933	2.71	1.45	2.20
2010 Household Income				
< $30K	1,275	3.26	1.73	2.05
$30K - $50K	1,019	3.00	1.51	2.06
$50K - $75K	1,102	2.85	1.45	2.27
$75K - $100K	761	2.89	1.41	2.18
$100K or more	1,119	2.80	1.46	2.26
Metro Status				
Urban	3,030	2.87	1.44	2.06
Non-urban	2,903	2.88	1.40	2.15

Figure 4-5 shows the personal attitudes toward speeding by driver type. The percentages in Figure 4-5 are limited to the percent who strongly agree with each statement. Drivers classified as speeders are almost three times as likely to strongly agree with the statement, "I often get impatient with slower drivers," when compared to drivers classified as sometime speeders (45% versus 18%, respectively). The same pattern is apparent for other items as well. Although the percentages are lower, speeders are three times more likely to strongly agree with the statement, "I enjoy the feeling of driving fast" (19%), compared to sometime speeders (6%). Speeders are more than three times as likely to strongly agree with the statement "I try to get where I am going as fast as I can," compared to sometime speeders (11% and 3%, respectively). Conversely, speeders are less concerned about crashes.

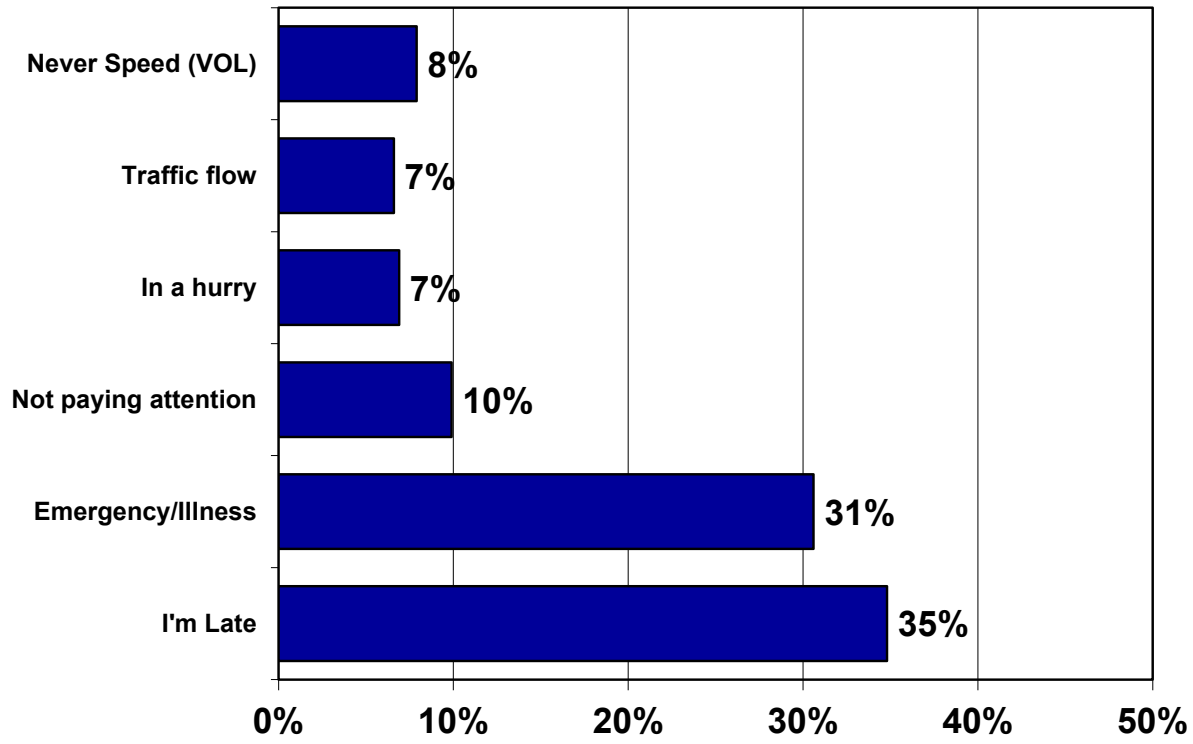
Figure 4-5: Personal Attitudes Regarding Speeding by Driver Type
% Strongly Agree



Q9. Now I'm going to read a few statements. After I read each one, please tell me whether you agree, disagree or neither. (READ ITEM). Would you say you strongly (AGREE/DISAGREE) or somewhat (AGREE/DISAGREE)?
Base: Respondents Assigned a Driver Type
Unweighted N=See Chart ***p<.001

Respondents were asked, on those occasions when you speed, what do you think are the main reasons you drive faster than the speed limit. This was an open-ended question, i.e., choices were not offered to the respondent, and each respondent gave his/her own reasons. More than one reason could be given by the respondent. As seen in Figure 4-6, the most frequent reasons are "I'm late" (35%) and emergency or illness (31%). One-tenth of drivers indicate that they were not paying attention to how fast they were driving, 7% said they were in a hurry (but did not elaborate further as to why), while another 7% said they were going with the flow of traffic and 8% of drivers indicated that they never drove faster than the speed limit.

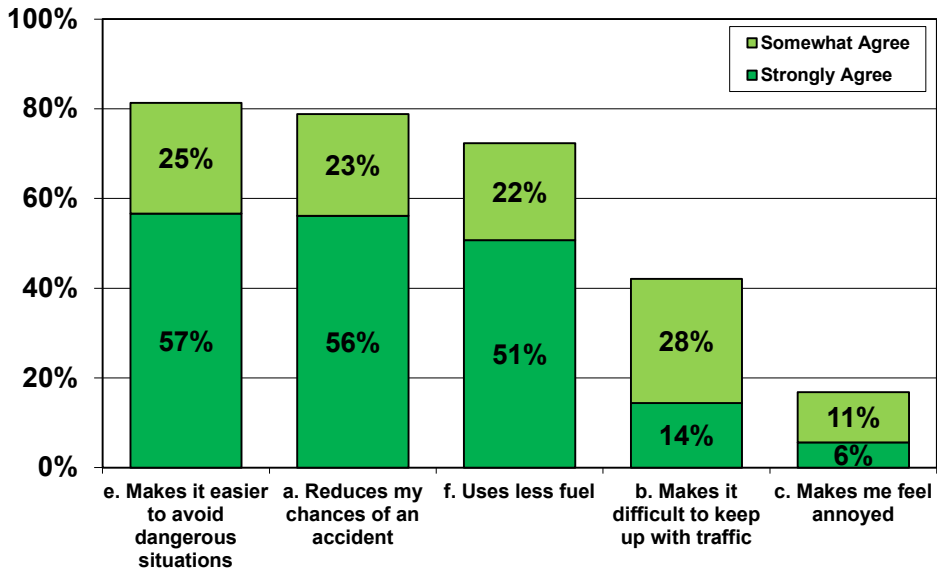
Figure 4-6: Reasons for Speeding



Q10. People sometimes go faster than the speed limit for different reasons. On those occasions when you do, what do you think are the main reasons you drive faster than the speed limit? Anything else? MULTIPLE RECORD. DO NOT READ.
Base: All Respondents
Unweighted N=6,144

Respondents were asked whether they agree or disagree with a series of statements regarding their attitudes about driving at or near the speed limit. Some items were negative and suggested problems with driving near the speed limit while other items were positive and suggested benefits for driving near the speed limit. Over 4 out of 5 (82%) drivers agree with the statement, "Driving at or near the speed limit makes it easier to avoid dangerous situations." There was also strong agreement with the statements, "Driving at or near the speed limit reduces my chances of an accident" (79%) and "Driving at or near the speed limit uses less fuel" (73%). A little over 2 out of 5 drivers (42%) agree that driving at or near the speed limit makes it difficult to keep up with traffic, and less than a fifth (17%) agree that driving at or near the speed limit makes them feel annoyed (See Figure 4-7).

Figure 4-7: Attitudes Toward Driving at or Near the Speed Limit



Q11. Now I'm going to read a few statements. After I read each one, please tell me whether you agree, disagree, or neither. (READ ITEM). Would you say you strongly (AGREE/DISAGREE) or somewhat (AGREE/DISAGREE)? Driving at or near the speed limit . . .
Base: All Respondents
Unweighted N=6,144

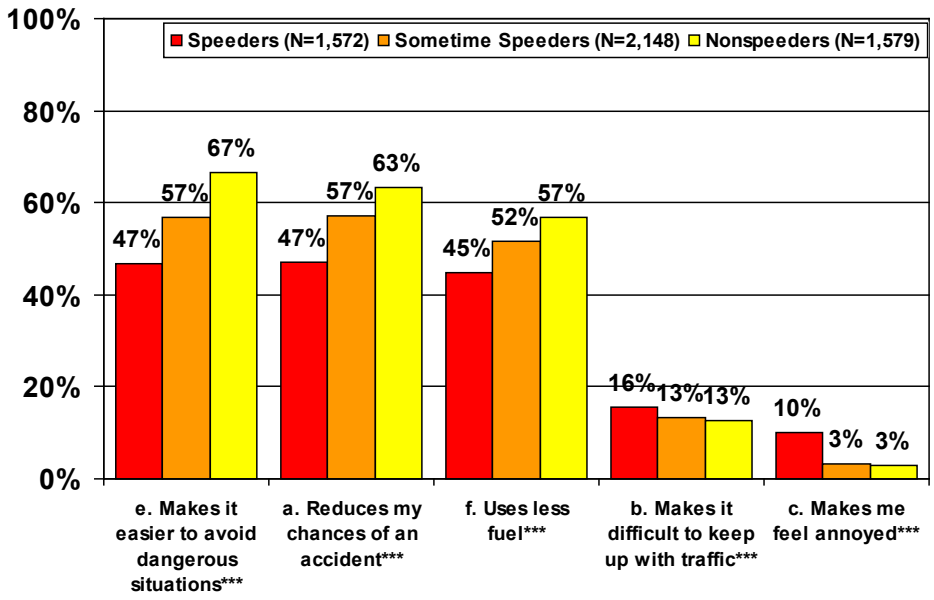
Table 4-3 shows attitudes toward driving at or near the speed limit by driver age group, gender, education level, household income and metro status. For each item, a score of 5=strongly agree and a score of 1=strongly disagree. The higher the mean value, the more agreement there is with that particular statement. The differences in the scores for these items across demographic subgroups are not large, although some nuances are apparent. Older drivers are less likely to feel annoyed about driving at or below the speed limit, and older drivers are more likely to believe driving at the speed limit uses less fuel. There is not a lot of difference across age groups in that most drivers feel that driving at or near the speed limit reduces their chance for an accident. The same holds true across gender, education, and household income level.

Table 4-3: Attitudes Regarding Driving at or Near the Speed Limit by Demographics

Driving at or near the speed limit . . .	N	11a Reduces my chances of an accident	11b Makes it difficult to keep up with traffic	11c Makes me feel annoyed	11e Makes it easier to avoid dangerous situations	11f Uses less fuel
Age						
16-20	295	4.14	2.69	2.40	4.21	3.68
21-24	281	4.14	2.77	2.24	4.17	3.68
25-34	939	4.11	2.67	2.04	4.18	3.87
35-44	835	4.06	2.86	2.00	4.16	4.00
45-54	1,185	4.09	2.93	1.80	4.17	4.13
55-64	1,211	4.14	2.87	1.71	4.21	4.27
65 or older	1,328	4.12	2.78	1.66	4.03	4.05
Gender						
Male	2,696	4.04	2.97	2.05	4.02	3.98
Female	3,448	4.17	2.66	1.80	4.28	4.03
Education						
Less than HS	464	4.10	2.78	2.05	4.20	3.84
HS diploma	3,327	4.11	2.78	1.86	4.18	4.02
College degree	1,392	4.14	2.91	1.95	4.09	4.09
Graduate degree	933	4.09	2.90	2.04	4.05	4.09
2010 Household Income						
< $30K	1,275	4.15	2.61	1.87	4.20	3.87
$30K - $50K	1,019	4.15	2.75	1.84	4.17	4.04
$50K - $75K	1,102	4.19	2.84	2.00	4.23	4.08
$75K - $100K	761	4.09	2.99	1.99	4.14	4.12
$100K or more	1,119	3.99	3.09	2.04	4.04	4.10
Metro Status						
Urban	3,030	4.09	2.90	1.92	4.13	4.04
Non-urban	2,903	4.15	2.79	1.83	4.17	4.15

A clear pattern emerges when the personal statements regarding driving at or near the speed limit are examined by driver type. The speeders are less likely to agree with the sometime speeders or nonspeeders on the positive aspects of driving at or near the speed limit and more likely to agree with the negative aspects (See Figure 4-8). Slightly less than one-half (47%) of the speeders strongly agree that driving at or near the speed limit makes it easier to avoid a dangerous situation while the majority of sometime speeders (57%) and nonspeeders (67%) strongly agree with this statement. Conversely, speeders are more likely to feel annoyed (10%) about driving at or near the speed limit when compared to sometime speeders (3%) or nonspeeders (3%).

Figure 4-8: Attitudes Toward Driving at or Near the Speed Limit by Driver Type
% Strongly Agree

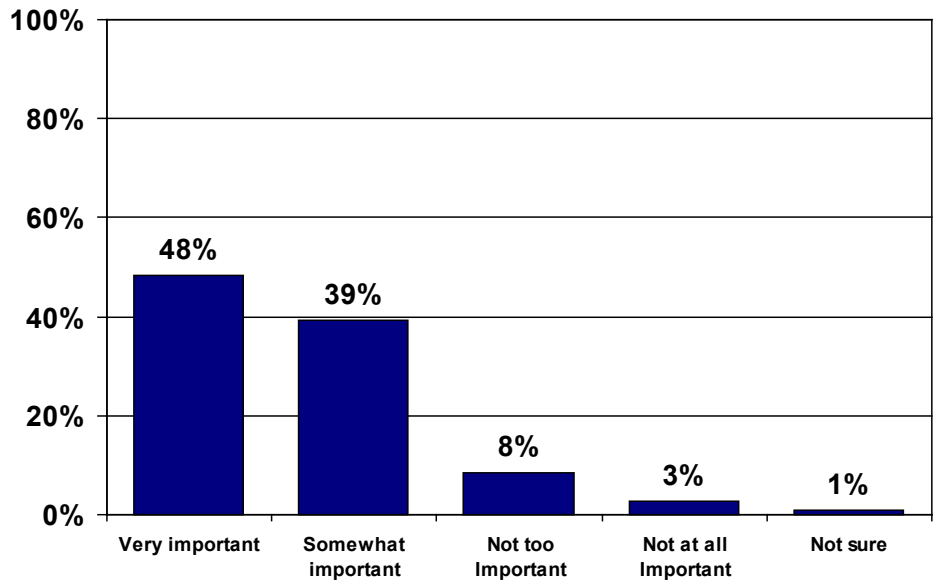


Q11. Now I'm going to read a few statements. After I read each one, please tell me whether you agree, disagree, or neither. (READ ITEM). Would you say you strongly (AGREE/DISAGREE) or somewhat (AGREE/DISAGREE)? Driving at or near the speed limit . . .
Base: Respondents Assigned a Driver Type
Unweighted N=See Chart ***p<.001

CHAPTER 5
ATTITUDES TOWARD ENFORCEMENT AND SPEEDING COUNTERMEASURES

Attitudes toward speeding enforcement and various countermeasures designed to discourage speeding are examined in this chapter. These countermeasures include such items as more frequent ticketing, photo enforcement (discussed in more detail in Chapter 6), new in-vehicle technologies that alert the driver when he or she is speeding as well as speed governors, in-vehicle devices that limit the speed at which a vehicle can travel. Respondents were first asked about the importance that something be done to reduce speeding by drivers. The results shown in Figure 5-1 indicate that close to one-half (48%) of drivers believe that this was very important, and 39% believe that it is somewhat important that something be done to reduce speeding. Only 8% of drivers say that it was not too important and 3% state that it was not at all important that something be done to reduce speeding.

Figure 5-1: Importance Something Be Done to Reduce Speeding



Q12. How important is it that something be done to reduce speeding by drivers? Is it . . .
Base: All Respondents
Unweighted N=6,144

Table 5-1 shows the distribution of the level of importance placed on something being done to reduce speeding by drivers' age group, gender, education level, and household income. There were no large differences when these items are examined by demographics, although some nuances do become apparent. For example, a majority of older drivers (55 and above) and women indicate that it is very important that something be done to reduce speeding, while the importance placed on reducing speeding decreases as formal education and household income increase.

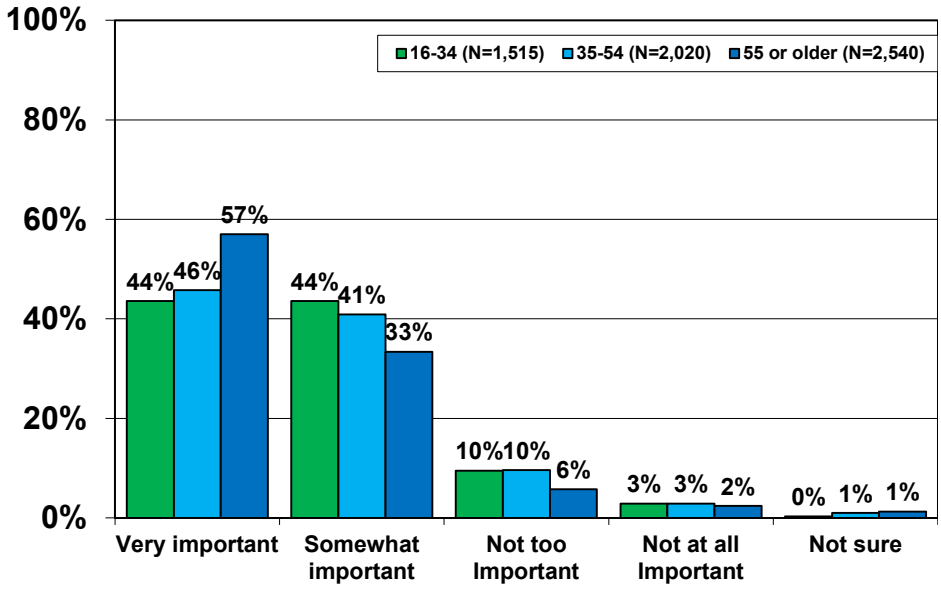
Table 5-1: Importance That Something Be Done to Reduce Speeding by Demographics

12. How important is it that something be done to reduce speeding by drivers?	**N**	Very important	Somewhat important	Not too important	Not at all important
Age* **					
16-20	295	41.7%	49.2%	5.4%	3.6%
21-24	281	44.3%	43.4%	10.7%	1.5%
25-34	939	44.2%	41.0%	11.1%	3.2%
35-44	835	45.8%	41.5%	9.1%	2.5%
45-54	1,185	45.7%	40.3%	9.9%	3.2%
55-64	1,211	55.9%	34.2%	6.4%	2.4%
65 or older	1,328	58.0%	32.8%	5.2%	2.4%
Gender* **					
Male	2,696	40.3%	42.5%	11.7%	4.3%
Female	3,448	56.1%	36.6%	5.4%	1.3%
Education* **					
Less than HS	464	61.3%	29.5%	4.3%	4.0%
HS diploma	3,327	50.0%	40.1%	7.3%	1.7%
College degree	1,392	36.3%	45.7%	13.4%	3.4%
Graduate degree	933	36.1%	44.2%	13.3%	5.7%
2010 Household Income* **					
< $30K	1,275	62.8%	30.8%	4.5%	1.5%
$30K - $50K	1,019	50.1%	40.3%	5.9%	2.3%
$50K - $75K	1,102	42.9%	43.3%	9.7%	3.5%
$75K - $100K	761	38.7%	45.5%	11.9%	3.4%
$100K or more	1,119	34.6%	45.4%	14.3%	4.8%
Metro Status					
Urban	3,030	48.2%	39.6%	8.4%	3.1%
Non-urban	2,903	48.6%	40.0%	8.4%	2.2%

*** p<.001

Figure 5-2 compares the importance placed on reducing speeding by driver age group. Older drivers (57%) are more likely than younger drivers to say that it is very important that something be done to reduce speeding. Only 44% of drivers in the 16 to 34 age group and 46% of those in the 35 to 54 age group indicated that reducing speeding is very important. Drivers in the 16 to 34 age group (44%) and the 35 to 54 age group (41%) are more likely to think reducing speeding is somewhat important when compared to the 55 and older group (33%).

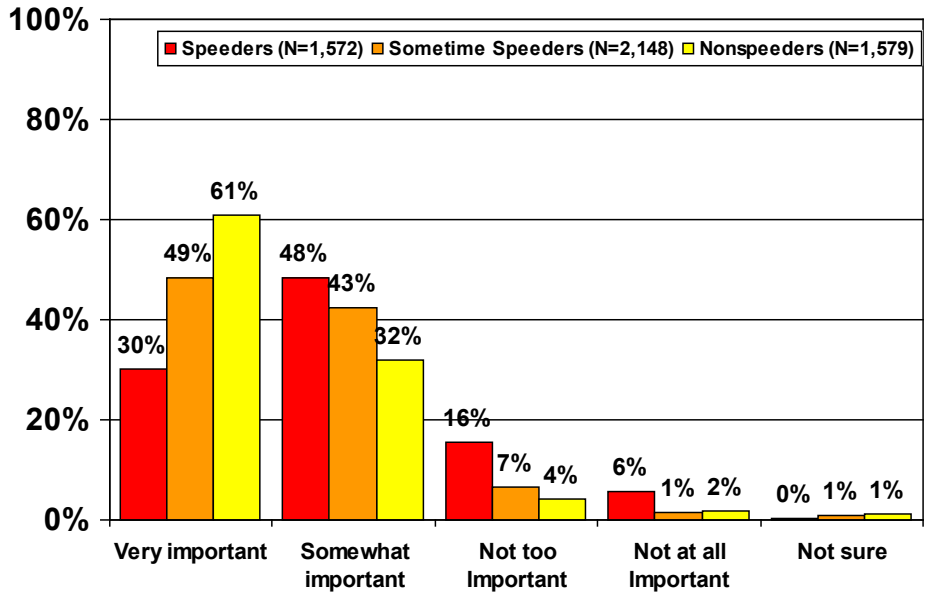
Figure 5-2: Importance Something Be Done to Reduce Speeding by Age Group***



Q12. How important is it that something be done to reduce speeding by drivers? Is it . . .
Base: All Respondents
Unweighted N=6,144 ***p<.001

The importance placed on whether something should be done to reduce speeding varies by driver type. Figure 5-3 shows that less than one-third of people classified as speeders (30%) think that reducing speeding is very important, while 49% of those classified as sometime speeders and 61% of drivers classified as nonspeeders believe that it is very important. Speeders are more likely to think that reducing speeding is somewhat important (48%) compared to sometime speeders (43%) or nonspeeders (32%). Speeders are also more likely to say that reducing speeding is not at all important (6%) compared to sometime speeders (1%) or nonspeeders (2%).

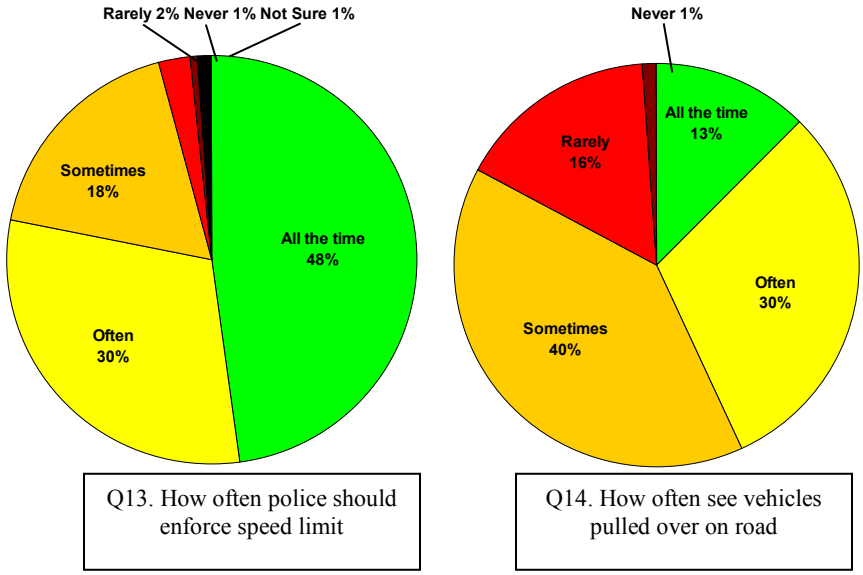
Figure 5-3: Importance Something Be Done to Reduce Speeding by Driver Type***



Q12. How important is it that something be done to reduce speeding by drivers? Is it . . .
Base: Respondents Assigned a Driver Type
Unweighted N=See Chart ***p<.001

Respondents were asked how often they thought police officers should enforce the speed limit. Figure 5-4 shows that close to one-half (48%) of drivers think that the speed limit should be enforced all of the time. Almost one-third (30%) say it should be enforced often and 18% say it should be enforced sometimes. Respondents were also asked how often they see motor vehicles pulled over by police on the streets and roads they normally drive. One in seven drivers (13%) indicate that they see motor vehicles pulled over all the time. Three in ten (30%) see vehicles pulled over often and 40% report that they sometimes see vehicles pulled over. Interestingly, 16% of drivers report that they rarely see vehicles pulled over, which is a higher percentage of drivers than those that say that they see vehicles pulled over all the time.

Figure 5-4: Preferred and Perceived Enforcement of Speed Limits



Q13. How often police should enforce speed limit

Q14. How often see vehicles pulled over on road

Q13. How often do you think police should enforce the speed limit? Should they enforce it . . .
Q14. How often do you see motor vehicles that have been pulled over by police on the streets and roads you normally drive? Do you see motor vehicles pulled over . . .
Base: All Respondents
Unweighted N=6,144

Table 5-2 shows the distribution of responses to the question of how often police should enforce the speed limit by demographics. In general, an attitude in support of a higher frequency of enforcement was associated with older age, female gender, decreased formal education, and lower household income.

Table 5-2: Frequency That Speed Limit Should Be Enforced by Demographics

13. How often do you think police should enforce the speed limit? Should they enforce it . . .	N	All the time	Often	Sometimes	Rarely	Never
Age* **						
16-20	295	33.5%	39.3%	20.0%	4.4%	2.4%
21-24	281	42.4%	31.8%	20.3%	3.2%	1.2%
25-34	939	48.3%	28.0%	19.3%	3.0%	0.7%
35-44	835	46.1%	30.5%	19.1%	3.3%	0.9%
45-54	1,185	46.7%	29.5%	19.5%	2.1%	0.3%
55-64	1,211	52.2%	29.6%	15.0%	1.7%	0.3%
65 or older	1,328	56.1%	28.1%	13.4%	1.0%	0.1%
Gender* **						
Male	2,696	41.9%	30.4%	22.3%	3.5%	1.1%
Female	3,448	53.1%	30.1%	13.8%	1.6%	0.3%
Education* **						
Less than HS	464	54.8%	26.3%	14.5%	2.7%	1.4%
HS diploma	3,327	49.9%	29.5%	16.6%	2.4%	0.4%
College degree	1,392	38.4%	36.3%	21.5%	2.4%	0.5%
Graduate degree	933	37.2%	32.2%	25.6%	3.1%	1.0%
2010 Household Income* **						
< $30K	1,275	57.3%	25.0%	14.1%	2.7%	0.3%
$30K - $50K	1,019	53.8%	28.8%	14.0%	2.0%	0.6%
$50K - $75K	1,102	42.3%	35.2%	18.5%	1.9%	1.2%
$75K - $100K	761	40.5%	36.2%	19.0%	3.1%	0.6%
$100K or more	1,119	36.9%	30.5%	26.7%	3.6%	0.8%
Metro Status						
Urban	3,030	46.1%	30.4%	18.6%	3.4%	0.6%
Non-urban	2,903	49.6%	30.6%	16.6%	1.6%	0.7%

*** p<.001

Table 5-3 shows the distribution by demographics of responses to the question of how often respondents see vehicles pulled over by police on the side of the road. No large differences in the frequency of seeing vehicles pulled over are apparent across the various demographic categories of drivers.

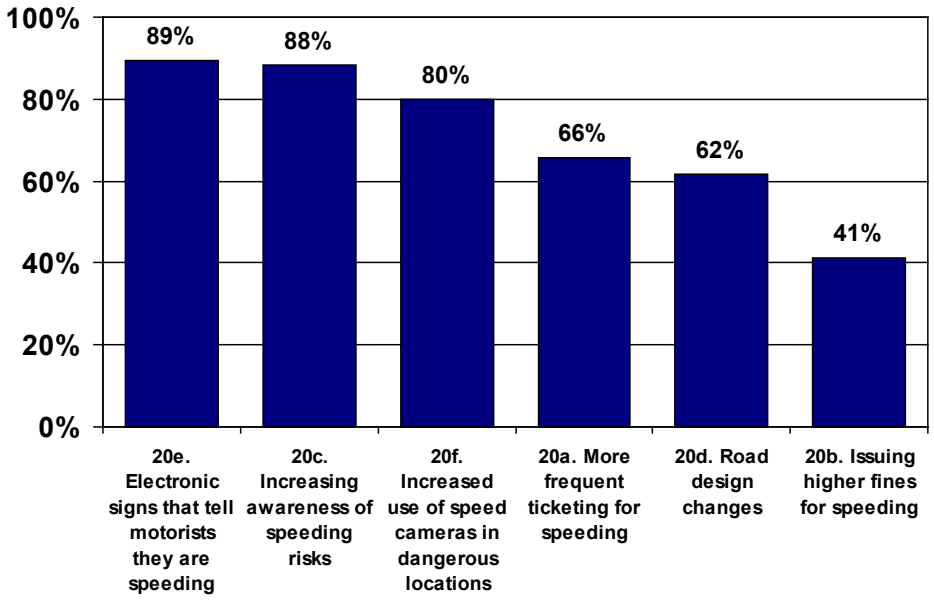
Table 5-3: Frequency of Seeing Vehicles Pulled Over on Side of Road by Demographics

14. How often do you see motor vehicles that have been pulled over by police on the streets and roads you normally drive?	N	All the time	Often	Sometimes	Rarely	Never
Age* **						
16-20	295	11.9%	33.1%	37.9%	14.5%	2.6%
21-24	281	14.5%	33.3%	39.2%	12.9%	0.1%
25-34	939	17.8%	31.5%	36.7%	13.0%	1.0%
35-44	835	16.4%	32.8%	35.8%	14.4%	0.6%
45-54	1,185	14.2%	29.0%	38.6%	16.7%	1.2%
55-64	1,211	7.9%	30.1%	44.1%	16.8%	0.7%
65 or older	1,329	5.0%	25.5%	45.0%	22.3%	1.8%
Gender* **						
Male	2,696	14.5%	31.9%	37.5%	15.2%	0.7%
Female	3,448	10.6%	28.9%	41.7%	17.0%	1.5%
Education* **						
Less than HS	464	12.7%	32.1%	37.4%	15.4%	2.4%
HS diploma	3,327	13.3%	30.1%	40.2%	15.2%	1.0%
College degree	1,392	11.8%	30.0%	38.9%	18.3%	0.7%
Graduate degree	933	9.5%	28.8%	41.7%	19.3%	0.6%
2010 Household Income* **						
< $30K	1,275	14.1%	29.7%	38.9%	15.0%	2.0%
$30K - $50K	1,019	10.6%	34.3%	39.2%	15.0%	0.5%
$50K - $75K	1,102	13.6%	27.4%	40.1%	18.1%	0.9%
$75K - $100K	761	12.9%	29.8%	41.1%	15.4%	0.7%
$100K or more	1,119	12.0%	31.8%	39.6%	15.4%	0.9%
Metro Status						
Urban	3,030	14.0%	30.7%	39.0%	15.0%	1.2%
Non-urban	2,903	10.8%	30.7%	40.2%	17.0%	1.1%

*** $p < .001$

Drivers' attitudes toward countermeasures intended to reduce speeding were explored next. Examples of speed reduction countermeasures were read to respondents, who were then asked whether implementing each countermeasure in their community was either a good idea or bad idea. Figure 5-5 shows the percentage of drivers who indicated that implementing a particular countermeasure in their community was a good idea. Of the countermeasures offered, the two with the highest rating were electronic signs by the road that warn drivers that they are speeding and should slow down (89%) and increasing public awareness of the risks of speeding (88%). It should be noted that both of these items did not include any specific penalties to drivers. Four out of five drivers (80%) think that increased use of speed cameras in dangerous or high-crash locations is a good idea, and two-thirds (66%) think that more frequent ticketing for speeding is a good idea. Two out of five (41%) respondents thought issuing higher fines for speeding tickets is a good idea.

Figure 5-5: Attitudes Toward Using Countermeasures in Community (% Good Idea)



Q20. How would you feel about using the following measures in your community to reduce speeding?
Base: All Respondents
Unweighted N=6,144

Table 5-4 shows the percentage of drivers in each demographic category who think that implementing a specific countermeasure in their community is a good idea. In general, a larger proportion of female drivers agree that countermeasures are a good idea when compared with male drivers. Education and household income tend to be negatively associated with the percentage of drivers who think that countermeasures are a good idea. No clear pattern emerges by age group, except that older drivers are more likely than younger drivers to indicate that more frequent ticketing for speeding is a good idea.

Table 5-4: Percentage of Drivers Indicating Countermeasures Are Good Idea by Demographics

Please tell me whether you think each of the following is a good idea or a bad idea.	N	20a More frequent ticketing for speeding***	20b Issuing higher fines for speeding***	20c Increasing public awareness of speeding risks***
Age				
16-20	295	54.4%	32.4%	94.3%
21-24	281	57.8%	37.7%	92.0%
25-34	939	62.5%	40.2%	88.5%
35-44	835	67.5%	46.0%	85.3%
45-54	1,185	66.7%	41.2%	87.2%
55-64	1,211	71.1%	42.0%	90.2%
65 or older	1,328	71.4%	44.9%	87.6%
Gender				
Male	2,696	62.8%	39.5%	86.5%
Female	3,448	68.4%	43.2%	90.3%
Education				
Less than HS	464	71.3%	51.4%	87.9%
HS diploma	3,327	66.0%	40.9%	89.8%
College degree	1,392	62.3%	36.9%	85.9%
Graduate degree	933	60.3%	35.0%	86.6%
2010 Household Income				
< $30K	1,275	71.2%	49.9%	89.4%
$30K - $50K	1,019	65.7%	39.4%	89.3%
$50K - $75K	1,102	66.6%	38.4%	89.3%
$75K - $100K	761	61.2%	37.1%	87.2%
$100K or more	1,119	60.7%	38.8%	86.0%
Metro Status				
Urban	3,030	64.3%	42.9%	88.7%
Non-urban	2,903	67.2%	39.7%	89.2%

*** $p < .001$

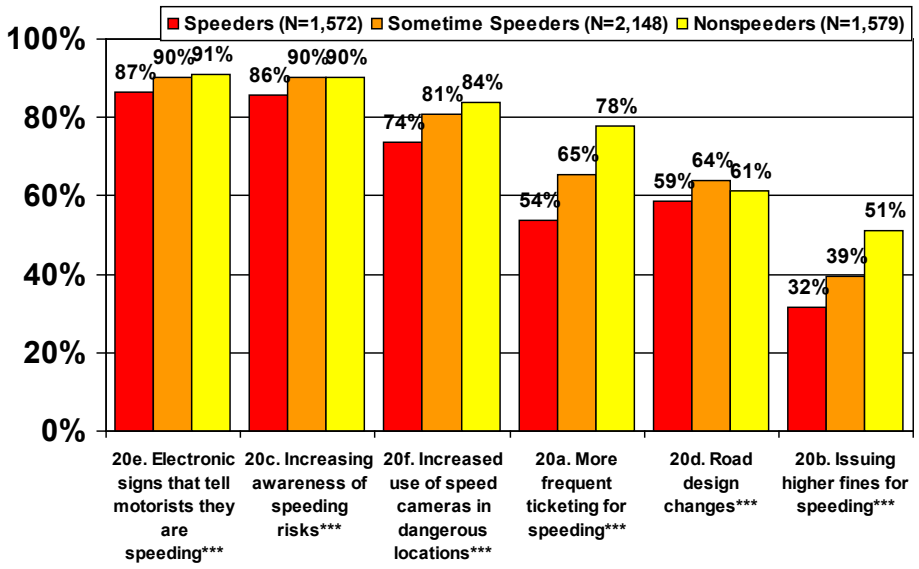
Table 5-4: Percentage of Respondents Who Indicated Countermeasures Are a Good Idea by Demographics (Continued)

Please tell me whether you think each of the following is a good idea or a bad idea.	N	20d Road design changes***	20e Electronic signs that tell motorists they are speeding***	20f Increased use of speed cameras in dangerous locations***
Age				
16-20	295	57.7%	86.0%	85.6%
21-24	281	61.7%	86.1%	78.9%
25-34	939	63.6%	85.1%	79.8%
35-44	835	67.5%	89.9%	78.7%
45-54	1,185	59.7%	89.7%	78.3%
55-64	1,211	61.9%	92.6%	78.7%
65 or older	1,328	58.9%	93.7%	82.8%
Gender				
Male	2,696	57.3%	87.9%	73.5%
Female	3,448	66.1%	90.8%	85.8%
Education				
Less than HS	464	62.7%	90.1%	87.0%
HS diploma	3,327	61.8%	90.1%	80.5%
College degree	1,392	62.0%	87.5%	75.1%
Graduate degree	933	61.2%	87.2%	72.8%
2010 Household Income				
< $30K	1,275	67.9%	92.7%	88.2%
$30K - $50K	1,019	64.8%	90.3%	80.9%
$50K - $75K	1,102	57.9%	90.0%	79.7%
$75K - $100K	761	57.0%	86.7%	76.7%
$100K or more	1,119	58.0%	87.3%	70.7%
Metro Status				
Urban	3,030	62.6%	89.6%	79.8%
Non-urban	2,903	60.6%	89.1%	80.3%

*** $p < .001$

There was high agreement among the three driver types that implementing electronic signs that warn drivers they are speeding and increasing public awareness of the risks of speeding are both good ideas. However, differences between the three driver types become apparent when the countermeasure includes increased penalties for speeding. Figure 5-6 presents the percentage of drivers in each driver type who indicated that a particular countermeasure is a good idea. Although over one-half of the drivers classified as speeders (54%) think it's a good idea to increase the frequency of ticketing for speeding, they are not as inclined as the drivers classified as sometime speeders (65%) or those classified as nonspeeders (78%) to indicate that this is a good idea. Similarly, speeders (32%) were less likely to think that higher fines for speeding tickets are a good idea compared to sometime speeders (39%) and nonspeeders (51%).

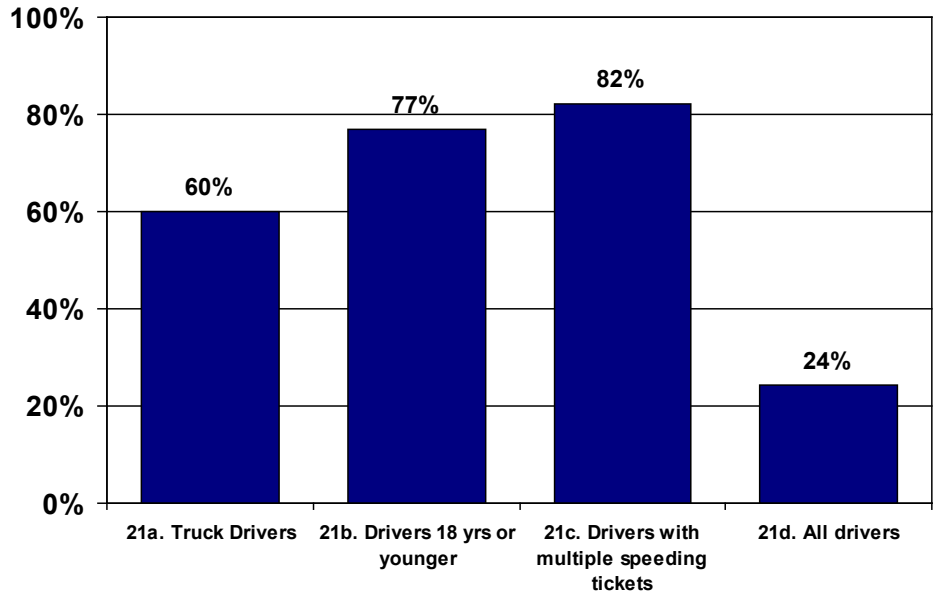
Figure 5-6: Attitudes Toward Using Countermeasures in Community (% Good Idea) by Driver Type



Q20. How would you feel about using the following measures in your community to reduce speeding?
Base: Respondents Assigned a Driver Type
Unweighted N=See Chart *** p < .001

Respondents were asked whether they thought the use of speed governors was a good or bad idea. The responses varied based on the type of driver that would be required to use this type of device. As shown in Figure 5-7, 3 out of 5 drivers (60%) think that mandating use of speed governors by truck drivers is a good idea. An even higher proportion of drivers support mandatory use of speed governors for drivers under 18 (77%) and drivers with multiple speeding tickets (82%). However, less than a quarter (24%) of drivers think that mandatory speed governors for all drivers is a good idea.

Figure 5-7: Use of Speed Governor (% Good Idea)



Q21. A speed governor is a device which does not allow the vehicle to go above a certain speed. Do you think the mandatory use of a speed governor is a good idea or a bad idea for . . . ?
Base: All Respondents
Unweighted N=6,144

Table 5-5 presents the percentage of respondents in each demographic group who think that speed governors are a good idea. Overall, women were more likely than men to agree that speed governors are a good idea. Agreement with the statement that speed governors are a good idea decreased with household income and formal education. Support for speed governors varied across the age groups, with a larger percentage of older drivers indicating that speed governors are a good idea for young drivers. However, older drivers are less likely than younger drivers to agree that speed governors are a good idea for truck drivers.

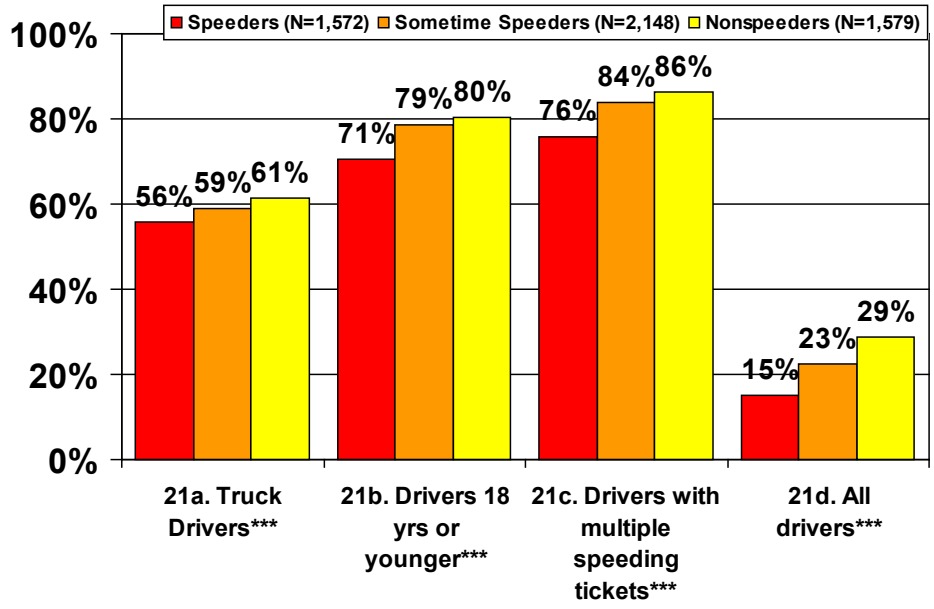
Table 5-5: Percentage of Drivers Indicating Speed Governors Are a Good Idea by Demographics

Do you think the mandatory use of a speed governor is a good idea or a bad idea for…	N	21a Truck drivers***	21b Drivers 18 years or younger***	21c Drivers with multiple speeding tickets***	21d All drivers***
Age					
16-20	295	66.6%	68.0%	82.6%	29.8%
21-24	281	69.6%	78.9%	81.5%	30.2%
25-34	939	68.3%	78.6%	80.9%	25.8%
35-44	835	63.8%	79.4%	81.9%	21.5%
45-54	1,185	54.7%	79.4%	82.4%	19.7%
55-64	1,211	54.2%	77.2%	83.7%	23.6%
65 or older	1,328	51.7%	73.6%	82.7%	27.4%
Gender					
Male	2,696	53.1%	70.4%	77.1%	19.0%
Female	3,448	66.3%	82.9%	86.7%	29.4%
Education					
Less than HS	464	68.2%	77.2%	87.0%	38.6%
HS diploma	3,327	60.8%	78.8%	83.4%	24.4%
College degree	1,392	53.1%	73.3%	77.3%	16.1%
Graduate degree	933	52.0%	72.1%	74.6%	12.6%
2010 Household Income					
< $30K	1,275	72.2%	82.1%	86.1%	38.4%
$30K - $50K	1,019	62.2%	79.1%	85.2%	23.5%
$50K - $75K	1,102	54.8%	76.3%	84.1%	17.1%
$75K - $100K	761	50.8%	76.9%	78.7%	16.6%
$100K or more	1,119	53.0%	70.1%	74.6%	15.1%
Metro Status					
Urban	3,030	62.1%	77.1%	81.0%	24.8%
Non-urban	2,903	58.0%	76.8%	83.5%	23.4%

*** $p < .001$

There were only slight differences across driver types regarding the mandatory use of speed governors for specific populations. Figure 5-8 shows that speeders were slightly less likely than sometime speeders or nonspeeders to think this was a good idea. However, when the use of speed governors is mandatory for all drivers, the differences become more apparent with 15% of speeders saying this is a good idea, compared to 23% of sometime speeders and 29% of nonspeeders.

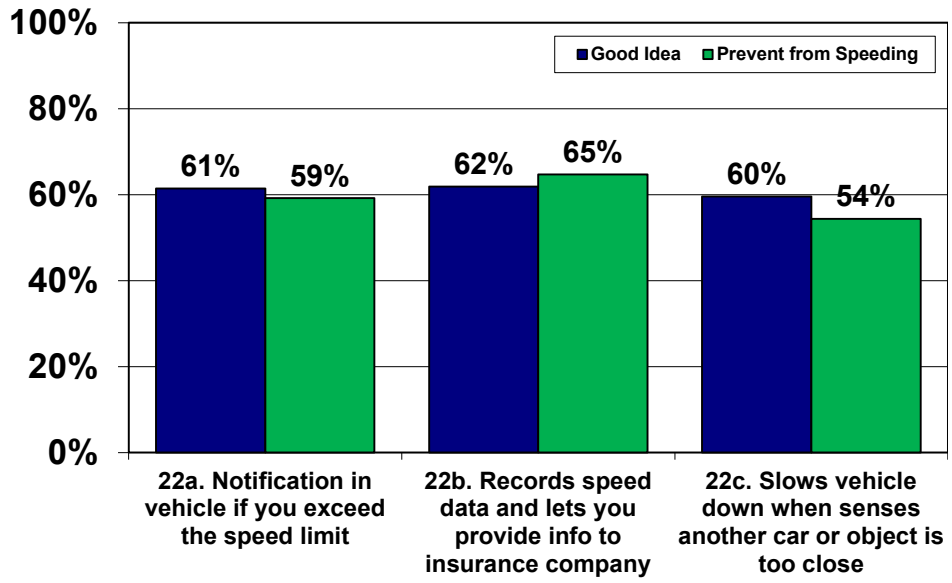
Figure 5-8: Use of Speed Governor by Driver Type (% Good Idea)



Q21. A speed governor is a device which does not allow the vehicle to go above a certain speed. Do you think the mandatory use of a speed governor is a good idea or a bad idea for . . . ?
Base: Respondents Assigned a Driver Type
Unweighted N=See Chart ***p < .001

Respondents were presented with three in-vehicle speeding countermeasures and asked whether placing each in their vehicle was a good or bad idea. Regardless of their response, they were then asked whether the countermeasure would prevent them from speeding. Figure 5-9 displays the percentage of drivers who think that a particular countermeasure is a good idea and whether it would prevent them from speeding. Approximately 3 out of 5 drivers think that each of the countermeasures is a good idea. A device in the motor vehicle that notifies you if you are speeding was endorsed by 61% of drivers, a device that records the speed data and reports it to the insurance company to lower premiums was endorsed by 62% of drivers, and a device that slows down the vehicle when it senses another car or object is too close to the vehicle was endorsed by 60% of drivers. For each in-vehicle countermeasure, approximately the same percentage who thought it was a good idea also stated that it would prevent them from speeding. The largest difference between the percentage of drivers who thought it was a good idea (60%) and those that indicated it would keep them from speeding (54%) was indicated for a device that slows down the vehicle if it senses an object is too close would prevent them from speeding.

Figure 5-9: Use of In-Vehicle Speeding Countermeasures



Q22. Please tell me whether you think each of the following is a good idea or a bad idea to help reduce speeding. A device in your motor vehicle that . . .
Q22a. Would it prevent you from speeding?
Base: All Respondents
Unweighted N=6,144

Table 5-6 presents the percentage of drivers in each demographic group who think that each in-vehicle speeding countermeasure is a good idea and also the percentage of drivers who say that this device would prevent them from speeding. Female drivers were more likely than male drivers to agree that countermeasures were a good idea, and also to indicate that the countermeasures would prevent them from speeding. Increasing education and household income were negatively associated with agreement that the countermeasures were a good idea and that they would prevent speeding. No clear patterns emerged across age groups.

Table 5-6: Percentage of Drivers Indicating Speeding Countermeasures Are a Good Idea And Would Prevent Them From Speeding by Demographics

Please tell me whether you think each of the following is a good idea or bad idea to help reduce speeding…	N	22a Notification in vehicle if you exceed the speed limit***	22a Prevent from speeding***	22b Records speed data and lets you provide info to insurance company***	22b Prevent from speeding***
Age					
16-20	295	66.5%	62.5%	74.1%	77.6%
21-24	281	62.6%	62.5%	72.4%	78.7%
25-34	939	56.3%	52.1%	66.3%	67.0%
35-44	835	55.7%	54.6%	58.9%	62.1%
45-54	1,185	57.7%	56.9%	57.1%	59.8%
55-64	1,211	66.4%	64.4%	57.3%	61.4%
65 or older	1,328	70.1%	67.1%	61.4%	63.0%
Gender					
Male	2,696	56.2%	52.6%	57.7%	58.9%
Female	3,448	66.3%	65.4%	65.8%	70.2%
Education					
Less than HS	464	76.2%	71.1%	74.8%	78.3%
HS diploma	3,327	61.7%	60.1%	62.6%	65.7%
College degree	1,392	50.1%	49.2%	53.0%	52.2%
Graduate degree	933	52.1%	49.6%	50.5%	56.0%
2010 Household Income					
< $30K	1,275	72.8%	70.2%	75.6%	77.1%
$30K - $50K	1,019	64.2%	60.9%	63.1%	64.4%
$50K - $75K	1,102	57.8%	55.4%	60.7%	64.0%
$75K - $100K	761	52.0%	48.8%	54.5%	56.8%
$100K or more	1,119	49.7%	47.8%	50.3%	55.6%
Metro Status					
Urban	3,030	62.1%	59.3%	61.3%	64.6%
Non-urban	2,903	61.1%	59.0%	63.3%	65.7%

*** $p < .001$

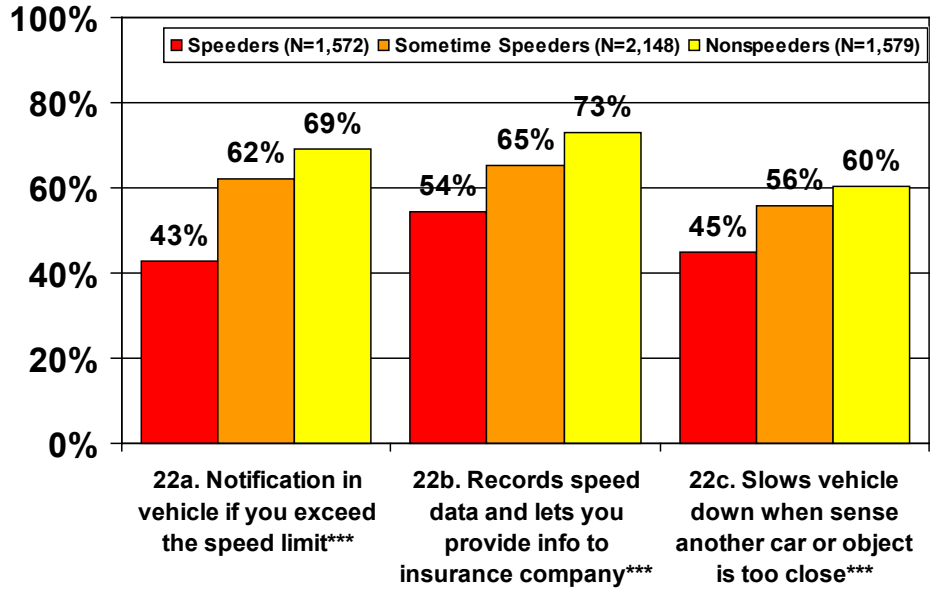
Table 5-6: Percentage of Respondents Who Indicated Speeding Countermeasures Are a Good Idea and Whether They Would Prevent Them From Speeding by Demographics (Continued)

Please tell me whether you think each of the following is a good idea or bad idea to help reduce speeding…	N	22c Slows vehicle down when senses another car or object too close***	22c Prevent from speeding***
Age			
16-20	295	68.0%	65.9%
21-24	281	54.8%	58.5%
25-34	939	57.3%	50.2%
35-44	835	56.3%	54.9%
45-54	1,185	56.1%	49.8%
55-64	1,211	58.7%	53.8%
65 or older	1,328	69.0%	58.2%
Gender			
Male	2,696	58.9%	49.0%
Female	3,448	60.4%	59.6%
Education			
Less than HS	464	70.0%	67.8%
HS diploma	3,327	58.6%	55.0%
College degree	1,392	54.6%	45.2%
Graduate degree	933	55.8%	44.0%
2010 Household Income			
< $30K	1,275	68.0%	67.2%
$30K - $50K	1,019	61.3%	56.5%
$50K - $75K	1,102	53.9%	51.1%
$75K - $100K	761	51.6%	43.4%
$100K or more	1,119	55.3%	44.5%
Metro Status			
Urban	3,030	60.5%	54.1%
Non-urban	2,903	58.0%	54.7%

*** $p < .001$

There was a distinct pattern of opinions by driver type about whether the countermeasures would prevent speeding. As shown in Figure 5-10, less than one-half of drivers classified as speeders (43%) reported that a speeding notification inside the car would prevent them from speeding, in contrast to 62% and 69% of drivers who were classified as sometime speeders and nonspeeders, respectively. The largest effect on speeding prevention came from the device that records speeding information and reports it to the insurance company to lower the premiums if speed limits are obeyed. Among speeders, 54% indicated that it would prevent them from speeding. Among the other driver types, this percentage was 65% for sometime speeders, and 73% for nonspeeders. Finally, only 45% of speeders say a device in their vehicle that slows the vehicle down if an object gets too close would prevent them from speeding, compared to 56% of sometime speeders and 60% of nonspeeders.

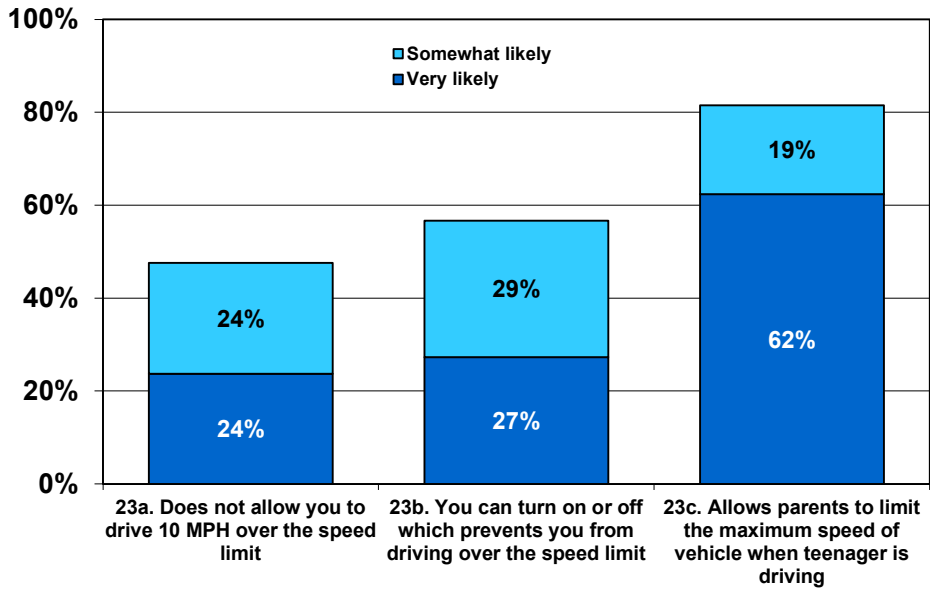
Figure 5-10: Percentage of Drivers Indicating Countermeasures Would Prevent Speeding by Driver Type



Q22a. Would it prevent you from speeding?
Base: Respondents Assigned a Driver Type
Unweighted N=See Chart *** p < .001

Respondents were asked about the likelihood that they would use specific speeding countermeasure devices in their own vehicle. As shown in Figure 5-11, close to one-half (48%) of drivers state that they would be very likely or somewhat likely to use a device that limited the speed of the vehicle to 10 mph over the posted speed limit. The majority of drivers (56%) say that they would be very or somewhat likely to use a device that can be turned on or off, and prevents the driver from driving faster than the speed limit. More than 4 out of 5 drivers (81%) indicate that they would be very or somewhat likely to use an in-vehicle device that allows parents to limit the maximum speed of the vehicle when a teenager drives the motor vehicle.

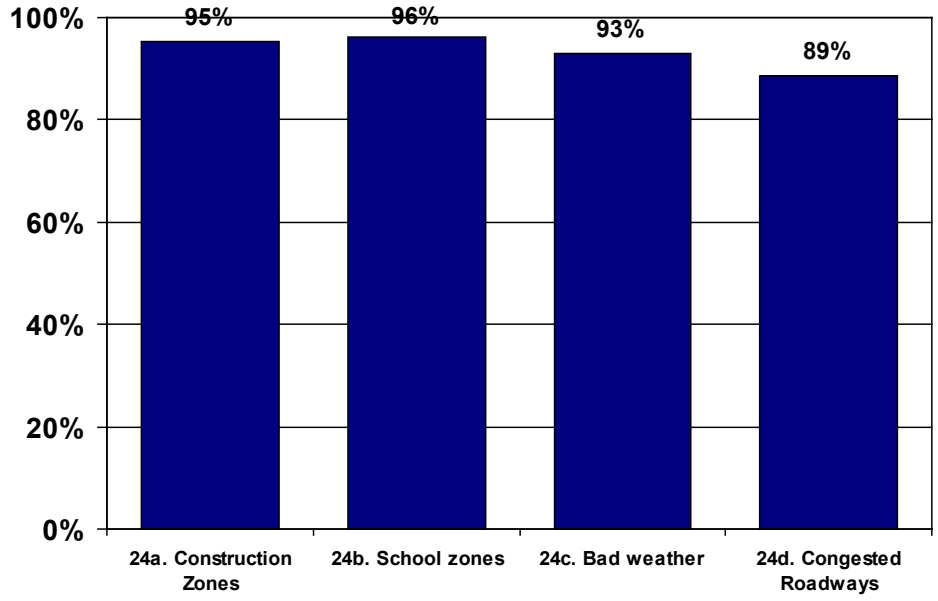
Figure 5-11: Likelihood of Using Countermeasure in Own Vehicle



Q23. Now I'm going to read a few statements. After I read each one, please tell me whether you would be likely, unlikely, or neither to use the following devices in your own vehicle(s). (READ ITEM). Would you say you would be very (LIKELY/UNLIKELY) or somewhat (LIKELY/UNLIKELY) to use this device?
Base: All Respondents
Unweighted N=6,144

Respondents were asked whether they thought that the use of signs that change the speed limit on a section of road based on traffic or weather conditions was a good idea or a bad idea. Figure 5-12 shows the percentage of drivers who believe that these signs are a good idea by situation. Overwhelmingly, drivers indicate that these signs are a good idea when used for construction zones (95%), school zones (96%), bad weather (93%), and congested roadways (89%).

Figure 5-12: Support Use of Digital Signs to Adjust Speed Limit (% Good Idea)



Q24. Some roadways use digital signs to change the speed limit on a section of road based on traffic or weather conditions. Do you think it is a good idea or a bad idea to use these signs in the following situations?
Base: All Respondents
Unweighted N=6,144

Table 5-7 presents the percentage of drivers in each demographic group who indicate that digital variable speed signs are a good idea in various conditions. In general, there is high agreement that these signs are a good idea. Women are more likely than men to indicate that signs are a good idea in various situations. No clear pattern emerges across age groups, except that older drivers are more likely to indicate that signs are a good idea on congested highways. The percentage of drivers indicating that signs are a good idea for bad weather and congested highways seems to be negatively correlated with education and household income.

Table 5-7: Percentage of Drivers Indicating Digital Variable Speed Signs Are a Good Idea In Various Situations by Demographics

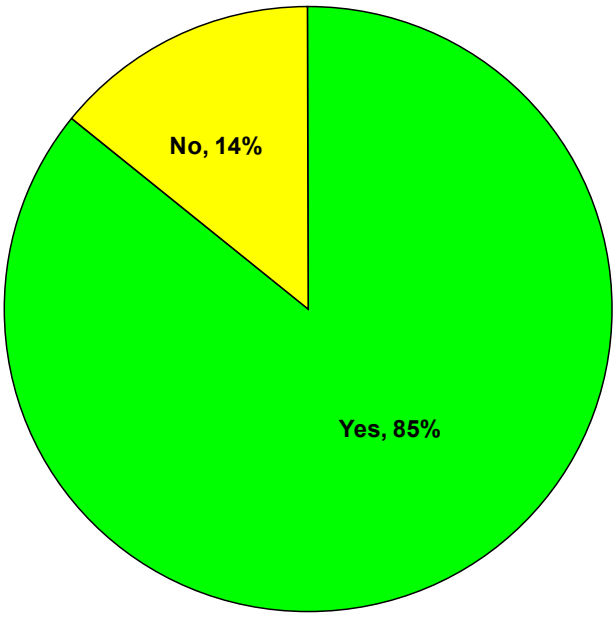
Do you think it is a good idea or a bad idea to use these signs in the following situations?	N	24a Construction zones***	24b School zones***	24c Bad weather***	24d Congested roadways***
Age					
16-20	295	95.3%	94.6%	90.9%	82.3%
21-24	281	95.7%	94.8%	93.3%	87.4%
25-34	939	95.2%	97.3%	92.7%	86.7%
35-44	835	93.4%	94.4%	90.1%	87.3%
45-54	1,185	95.3%	96.3%	93.0%	89.8%
55-64	1,211	96.8%	97.7%	96.0%	92.5%
65 or older	1,328	95.8%	97.0%	94.2%	92.3%
Gender					
Male	2,696	94.8%	95.5%	90.6%	86.1%
Female	3,448	95.7%	96.7%	95.1%	91.1%
Education					
Less than HS	464	93.9%	96.1%	93.7%	90.9%
HS diploma	3,327	95.2%	96.0%	93.3%	89.2%
College degree	1,392	96.5%	96.5%	92.4%	86.2%
Graduate degree	933	96.1%	97.3%	90.6%	87.1%
2010 Household Income					
< $30K	1,275	94.7%	97.3%	94.9%	92.8%
$30K - $50K	1,019	96.7%	97.5%	94.8%	90.6%
$50K - $75K	1,102	96.7%	95.2%	93.5%	89.4%
$75K - $100K	761	95.8%	96.4%	90.4%	85.3%
$100K or more	1,119	94.1%	95.8%	90.8%	84.4%
Metro Status					
Urban	3,030	95.7%	96.7%	93.0%	89.1%
Non-urban	2,903	95.0%	95.6%	93.0%	88.5%

*** $p < .001$

CHAPTER 6
AUTOMATED PHOTO ENFORCEMENT DEVICES

Drivers' awareness, beliefs, and perceptions of the usefulness of automated speed enforcement cameras as well as their experiences with these devices are presented in this chapter. Respondents were first asked if they have ever heard of speed cameras being used to ticket drivers who exceed the speed limit. Figure 6-1 shows that the overwhelming majority of drivers (85%) have heard of the use of speed cameras.

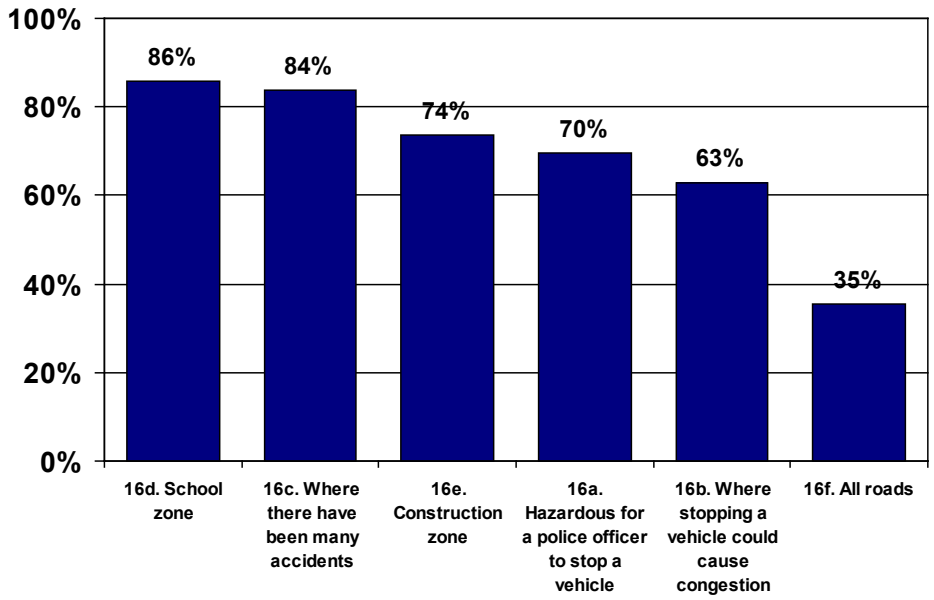
Figure 6-1: Ever Heard of Speed Cameras Being Used to Ticket Drivers



Q15. Before today, have you ever heard of speed cameras being used to ticket drivers that speed?
Base: All Respondents
Unweighted N=6,144

Respondents were asked if specific locations would be acceptable for speed camera implementation. Figure 6-2 shows that the majority of drivers think that speed cameras would be useful in school zones (86%), places where there have been many accidents (84%), construction zones (74%), areas where it would be hazardous for a police officer to stop a driver (70%), and areas where stopping a vehicle could cause traffic congestion (63%). A little over one-third (35%) of drivers think that speed cameras would be useful on all roads.

Figure 6-2: Locations Where Speed Cameras May Be Useful



Q16. Thinking about locations where speed cameras might be useful, would you find it acceptable to use them . . .
Base: All Respondents
Unweighted N=6,144

Table 6-1 shows the percentage of drivers in each demographic category who think the use of speed cameras in specific locations is acceptable. There were no large differences when these items are examined by demographics, although the acceptance of speed camera use appears to decrease with household income and education.

Table 6-1: Location of Speed Cameras by Demographics

Thinking about locations where speed cameras might be useful, would you find it acceptable to use them	N	16a Where it could be hazardous for a police officer to stop a driver***	16b Where stopping a vehicle could cause traffic congestion***	16c Where there have been many accidents***
Age				
16-20	295	72.6%	70.1%	87.9%
21-24	281	76.9%	68.7%	83.5%
25-34	939	74.4%	65.4%	84.0%
35-44	835	66.1%	62.8%	80.4%
45-54	1,185	67.8%	60.9%	82.1%
55-64	1,211	69.1%	61.9%	83.0%
65 or older	1,328	67.8%	57.6%	88.1%
Gender				
Male	2,696	66.6%	59.1%	77.7%
Female	3,448	72.5%	66.1%	89.3%
Education				
Less than HS	464	73.3%	70.9%	89.6%
HS diploma	3,327	70.2%	63.2%	84.9%
College degree	1,392	67.8%	56.2%	78.0%
Graduate degree	933	64.8%	57.5%	77.3%
2010 Household Income				
< $30K	1,275	75.7%	72.4%	90.4%
$30K - $50K	1,019	73.8%	61.8%	86.0%
$50K - $75K	1,102	67.4%	60.1%	83.3%
$75K - $100K	761	67.1%	59.8%	78.3%
$100K or more	1,119	64.7%	57.4%	77.1%
Metro Status				
Urban	3,030	69.8%	63.2%	83.6%
Non-urban	2,903	70.4%	62.9%	84.5%

*** $p < .001$

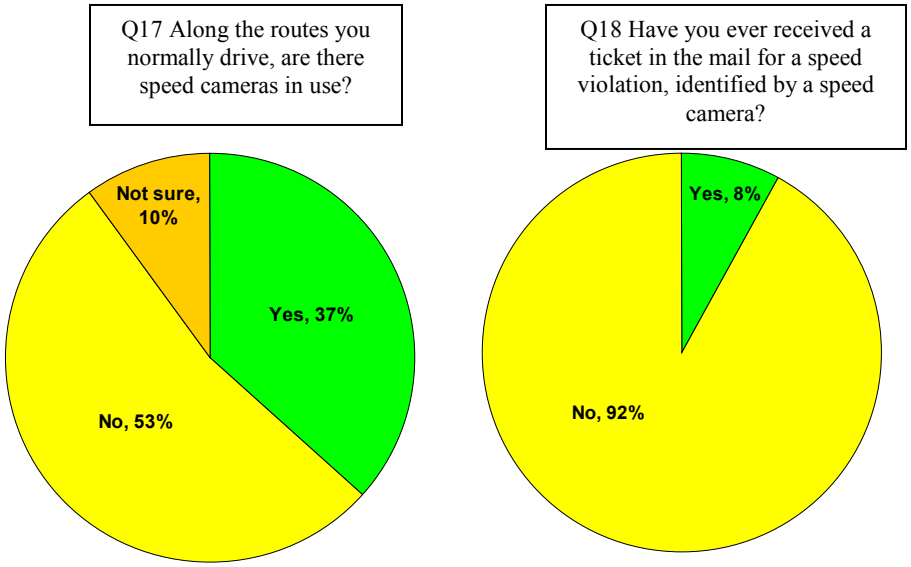
Table 6-1: Location of Speed Cameras by Demographics (Continued)

Thinking about locations where speed cameras might be useful, would you find it acceptable to use them	N	16d In a school zone***	16e In a construction zone***	16f On all roads***
Age				
16-20	295	85.1%	78.3%	32.6%
21-24	281	85.6%	75.0%	39.2%
25-34	939	87.4%	73.9%	36.3%
35-44	835	84.9%	71.8%	33.9%
45-54	1,185	83.9%	70.4%	32.3%
55-64	1,211	85.1%	74.4%	34.9%
65 or older	1,328	89.0%	77.3%	41.0%
Gender				
Male	2,696	81.9%	70.8%	31.2%
Female	3,448	89.5%	76.6%	39.5%
Education				
Less than HS	464	90.3%	80.6%	49.3%
HS diploma	3,327	87.4%	74.3%	35.4%
College degree	1,392	79.8%	69.5%	26.4%
Graduate degree	933	79.9%	67.5%	26.9%
2010 Household Income				
< $30K	1,275	90.9%	79.1%	47.7%
$30K - $50K	1,019	88.3%	75.9%	37.7%
$50K - $75K	1,102	85.4%	73.3%	29.3%
$75K - $100K	761	83.4%	70.3%	29.1%
$100K or more	1,119	78.8%	68.3%	26.1%
Metro Status				
Urban	3,030	85.0%	72.1%	34.9%
Non-urban	2,903	87.2%	75.9%	36.2%

*** $p < .001$

Figure 6-3 displays the percentage of drivers who report speed cameras along the routes they usually drive and also the percentage of drivers who have received a ticket for a speed violation identified by a speed camera. Slightly more than a third of drivers report that there are speed cameras along the routes they usually drive. Interestingly, 10% of drivers did not know whether speed cameras are used along the routes they normally drive. Less than 1 in 10 drivers (8%) report having received a speeding ticket in the mail from a speed camera.

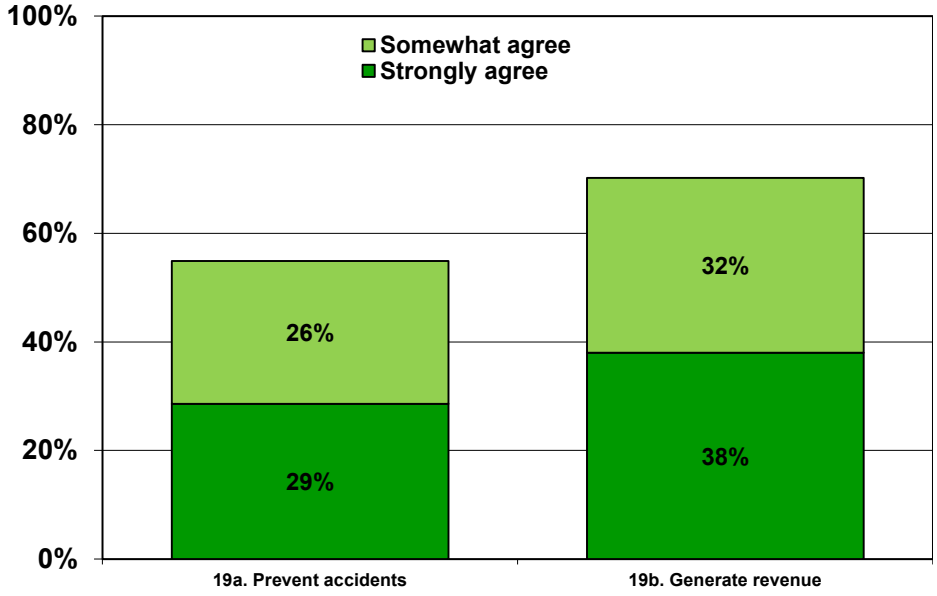
Figure 6-3: Speed Cameras on Normal Routes and Received Ticket From Speed Camera



Base: Heard of speed cameras previously
Unweighted N=5,271

Respondents were asked if they agree or disagree with the statements that speed cameras are used to prevent accidents and/or generate revenue. Figure 6-4 shows the percentage of drivers who agree (strongly and somewhat) with each of the two statements. Drivers are more likely to agree with the statement that speed cameras are used to generate revenue (70%) than with the statement that speed cameras are used to prevent accidents (55%). This pattern holds true among those who strongly agree with each statement as well, (38% versus 29%, respectively).

Figure 6-4: Attitudes Regarding the Purpose of Speed Cameras



Q19. Now I'm going to read a few statements. After I read each one, please tell me whether you agree, disagree, or neither. (READ ITEM). Would you say you strongly (AGREE/DISAGREE) or somewhat (AGREE/DISAGREE)? Speed cameras are used to . . .
Base: All Respondents
Unweighted N=6,144

The amount of agreement with the statements about the purpose of speed cameras was calculated on a scale of 1 to 5 for each respondent, where 5=strongly agree and a 1=strongly disagree. Table 6-2 shows the average agreement scores for both statements for each age group, gender, education level, and household income. The higher the mean value, the more agreement there is with a particular statement. Drivers 65 and older expressed the most agreement with the statement that speed cameras are used to prevent accidents, while respondents 25 to 34 expressed the least amount of agreement. Drivers with the lowest household incomes (<$30,000) expressed the most agreement with the statement that speed cameras are used to prevent accidents, while drivers in the highest household income range ($100,000 or more) expressed the least amount of agreement. The differences in agreement with the statement that speed cameras are used to generate revenues were not large, but agreement with this statement increased with education and household income.

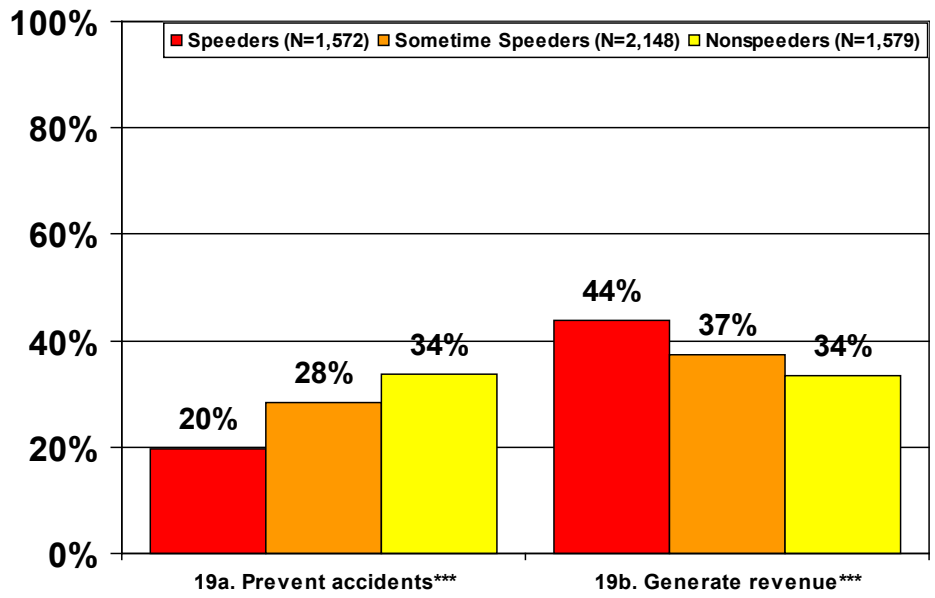
Table 6-2: Attitudes Regarding Purpose of Speed Cameras by Demographics

Q19. Now I'm going to read a few statements. After I read each one, please tell me whether you agree, disagree, or neither.	N	19a Speed cameras are used to prevent accidents***	19b Speed cameras are used to generate revenue***
Age			
16-20	295	3.28	3.57
21-24	281	3.50	3.62
25-34	939	2.99	3.88
35-44	835	3.24	3.83
45-54	1,185	3.14	3.99
55-64	1,211	3.25	3.82
65 or older	1,328	3.67	3.55
Gender			
Male	2,696	3.04	3.89
Female	3,448	3.47	3.69
Education			
Less than HS	464	3.60	3.67
HS diploma	3,327	3.23	3.77
College degree	1,392	3.09	3.86
Graduate degree	933	3.19	3.99
2010 Household Income			
< $30K	1,275	3.57	3.62
$30K - $50K	1,019	3.34	3.76
$50K - $75K	1,102	3.15	3.85
$75K - $100K	761	3.12	3.91
$100K or more	1,119	2.92	4.01
Metro Status			
Urban	3,030	3.25	3.85
Non-urban	2,903	3.28	3.70

*** $p < .001$

Figure 6-5 compares agreement with the statements about the purpose of speed cameras by driver type, and is limited to the percentages who strongly agree with each statement. Drivers who are classified as speeders are more than twice as likely to strongly agree with the statement that speed cameras are used to generate revenue (44%) than with the statement that speed cameras are used to prevent accidents (20%). The same proportion of drivers classified as nonspeeders strongly agree with each of these two statements (34%).

Figure 6-5: Attitude Toward Purpose of Speed Cameras by Driver Type
% Strongly Agree

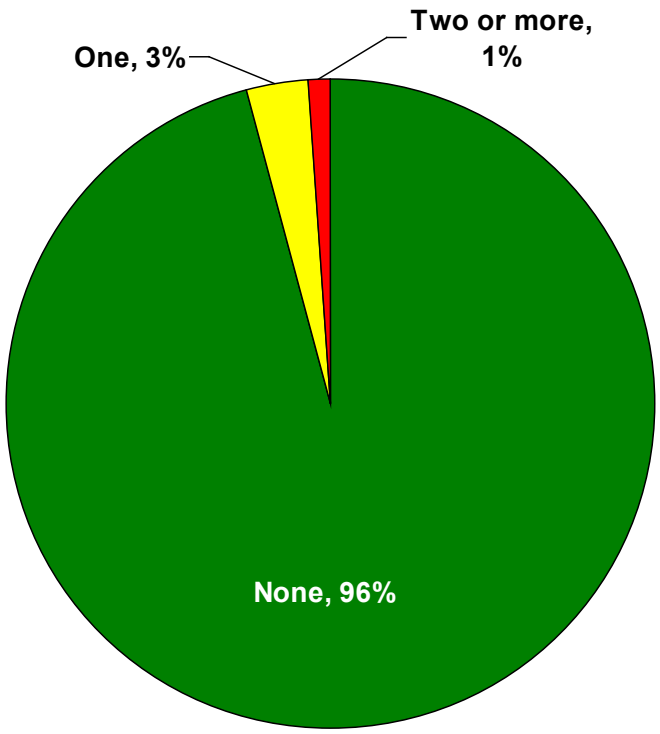


Q19. Now I'm going to read a few statements. After I read each one, please tell me whether you agree, disagree, or neither. (READ ITEM). Would you say you strongly (AGREE/DISAGREE) or somewhat (AGREE/DISAGREE)? Speed cameras are used to . . .
Base: Respondents Assigned a Driver Type
Unweighted N=See Chart *** p < .001

CHAPTER 7
CRASH EXPERIENCE

Drivers' involvement in speeding-related crashes and experience with crash injuries requiring hospitalization are examined in this chapter. Respondents were first asked how many times they have been in speeding-related crashes in the past 5 years. Figure 7-1 shows that the majority of drivers (96%) have not experienced any speeding-related crashes in the past 5 years. Only 3% were involved in one speeding-related crash and even fewer (1%) had been involved in two or more speeding-related crashes in that time period.

Figure 7-1 Speeding-Related Crashes in the Past Five Years



Q25. How many times have you been in a speeding related accident in the past five years?
Base: All Respondents
Unweighted N=6,144

Table 7-1 breaks down information on speeding-related crash involvement by demographics. The mean number of speeding-related crashes per driver, the percentage of drivers with at least one speeding-related crash, and the average number of these crashes given at least one crash are shown. The mean number of crashes per driver and the percentage of crashes decrease with driver age, are similar across gender, and decrease with higher education and with greater household income. The relationship between age group and speeding-related crashes is further examined in the following section.

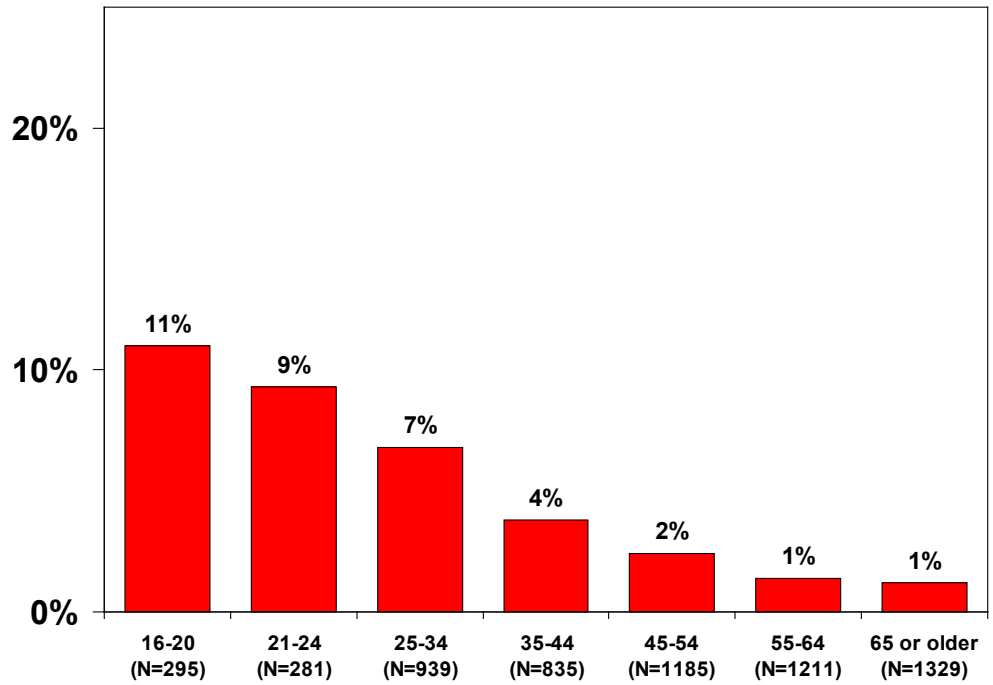
Table 7-1: Speeding-Related Crash Involvement in the Past Five Years by Demographics

How many times have you been in a speeding-related accident in the past five years?	N	Mean number of accidents***	Percent reporting at least one accident***	Mean number of accidents for respondents reporting at least one accident
Age				
16-20	295	0.16	11.0%	1.46 (n=28)
21-24	281	0.12	9.3%	1.30 (n=30)
25-34	939	0.41	6.7%	1.54 (n=53)
35-44	835	0.46	3.7%	1.32 (n=31)
45-54	1,185	0.05	2.5%	1.11 (n=31)
55-64	1,211	0.10	1.5%	1.06 (n=17)
65 or older	1,328	0.01	1.2%	1.05 (n=19)
Gender				
Male	2,696	0.28	3.5%	1.33 (n=75)
Female	3,448	0.26	4.9%	1.37 (n=134)
Education				
Less than HS	464	0.47	4.4%	1.65 (n=21)
HS diploma	3,327	0.17	4.6%	1.28 (n=132)
College degree	1,392	0.08	4.2%	1.19 (n=42)
Graduate degree	933	0.03	1.5%	1.88 (n=14)
2010 Household Income				
< $30K	1,275	0.53	5.7%	1.37 (n=64)
$30K - $50K	1,019	0.12	3.8%	1.32 (n=34)
$50K - $75K	1,102	0.08	2.7%	1.80 (n=24)
$75K - $100K	761	0.05	3.7%	1.22 (n=22)
$100K or more	1,119	0.04	3.3%	1.23 (n=34)
Metro Status				
Urban	3,030	.06	4.1%	1.39 (n=94)
Non-urban	2,903	.06	4.4%	1.33 (n=109)

*** $p < .001$

Figure 7-2 shows the percentage of each age group of drivers that had been involved in at least one speeding-related crash in the past 5 years. Among drivers 16 to 20, 11% had at least one speeding-related crash in the past 5 years. This is the highest percentage among all the age groups, even though these young drivers had not been driving for each of the past 5 years. Of drivers 21 to 24, 9% had a speeding-related crash in the past 5 years, while only 1% of drivers 65 and older had at least one speeding-related crash in the past 5 years.

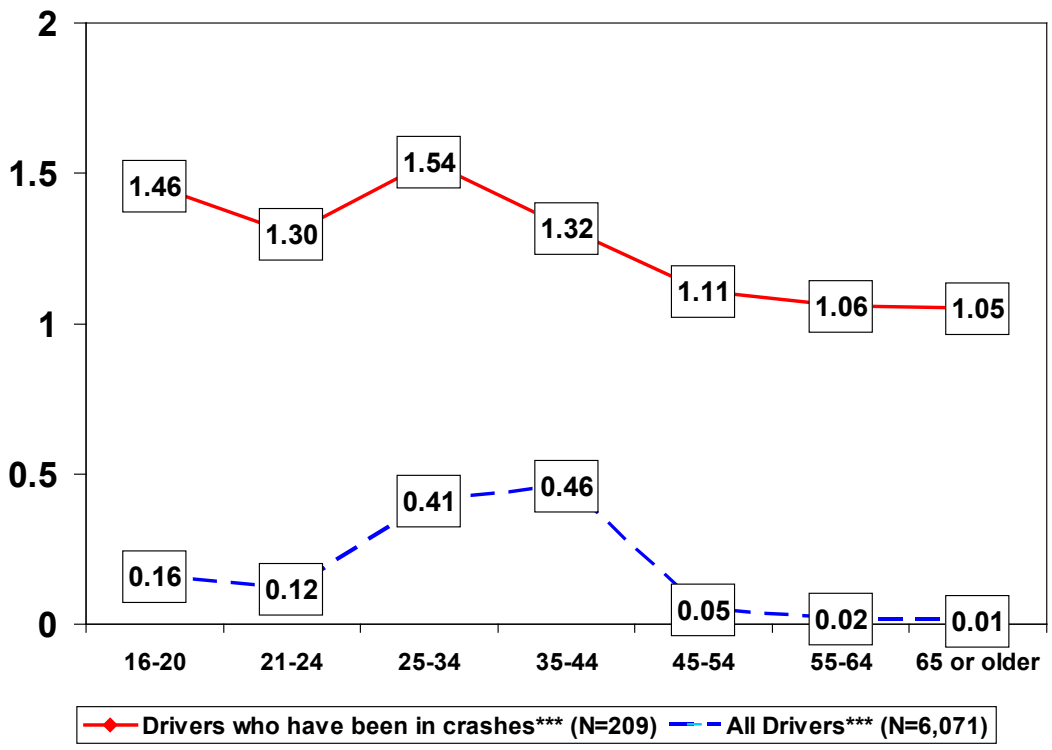
Figure 7-2 Percentage of Drivers Reporting at Least One Speeding-Related Crash in Past Five Years by Age Group***



Q25. How many times have you been in a speeding related accident in the past five years?
Base: All Respondents
Unweighted N=See Chart *** p < .001

Overall, the average number of speeding-related crashes in the last 5 years also decreases with age. Figure 7-3 shows the average per driver number of speeding-related crashes in the past 5 years ranges from 0.01 accidents for drivers 65 or older, up to 0.16 accidents for drivers 16 to 20. When only drivers who had at least one speeding-related crash in the past 5 years are considered, the average number of speeding-related crashes in the past 5 years peaks at a value of 1.54 for the 25 to 34 year old age group. Again, the oldest age group (65 and older) was the lowest value on this measure, with an average of just over one speeding-related crash in the past 5 years.

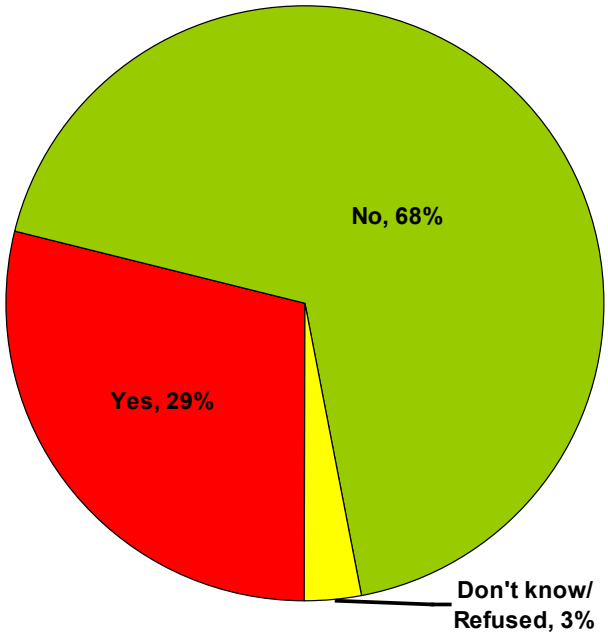
Figure 7-3 Mean Number of Speeding-Related Crashes in Past Five Years by Age Group



Q25. How many times have you been in a speeding related accident in the past five years?
Base: Respondents who have been in a speeding related accident in the past five years
Base: All Respondents
Unweighted N=See Chart *** p < .001

Approximately two-thirds (68%) of drivers were not injured in their most recent speeding-related crash, but nearly 1 in three (29%) crash-involved drivers reported being injured. An additional 3% of crash-involved drivers did not know or refused to say if they had been injured in their most recent speeding-related crash.

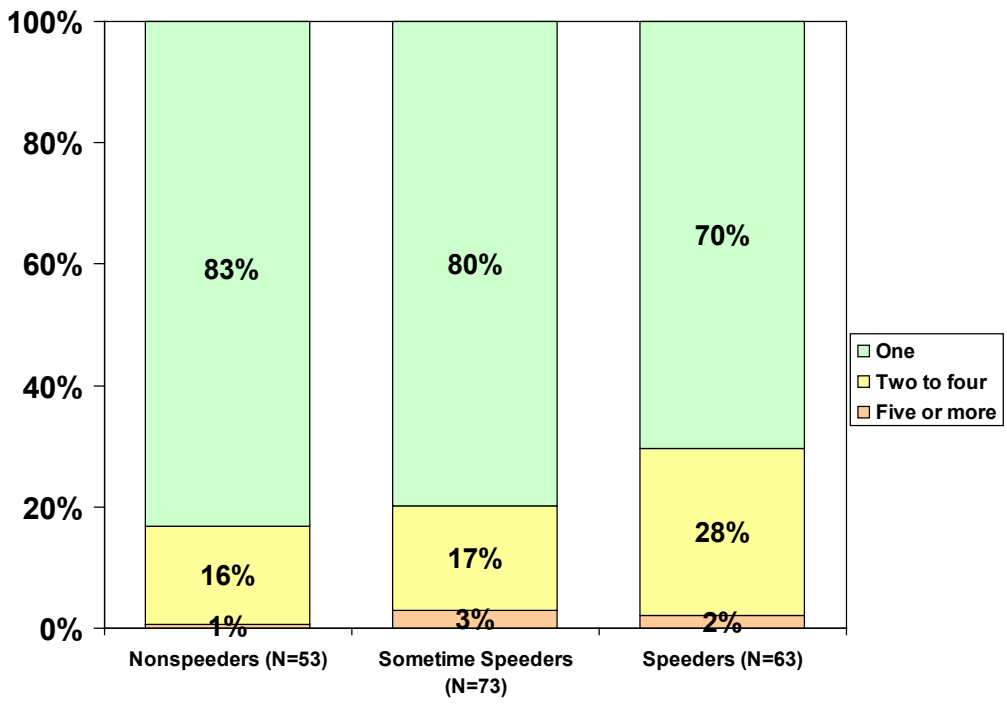
Figure 7-4 Percentage of Drivers Reporting Injuries In Most Recent Crash



Q27. Did you receive any injuries as a result of the most recent speeding related accident?
Base: Respondents who were in a speeding related accident
Unweighted N=219

Figure 7-5 shows that there is a correlation between driver type and the number of speeding-related crashes for those drivers who had been in at least one speeding-related crash in the past 5 years. As driver type classification goes from nonspeeder to sometime speeder to speeder, the percentage of drivers who had multiple speeding-related crashes in the past 5 years increases. Among nonspeeders with more than one crash in the past 5 years, 1 in 6 (17%) had two or more such crashes in the past 5 years. One-fifth of sometime speeders (20%), and 3 in 10 speeders (30%) with more than one speeding-related crash had two or more such crashes in the past 5 years.

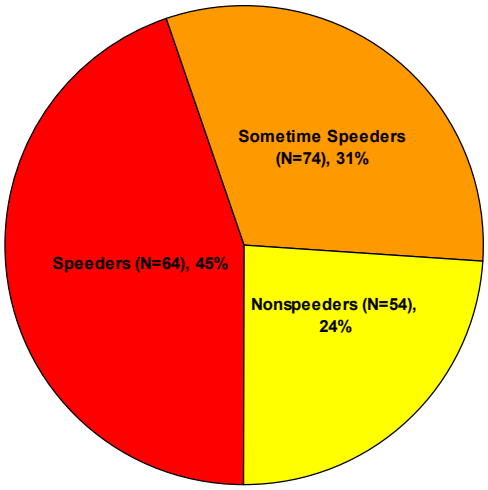
Figure 7-5 Percentage of Drivers with More Than One Speeding-Related Crash In Past Five Years by Driver Type***



Q25. How many times have you been in a speeding related accident in the past five years?
Base: Respondents Assigned a Driver Type who have been in at least one speeding related accident in the past five years
Unweighted N=See Chart *** p < .001

The results presented in Figure 7-6 suggest that drivers with patterns of speeding behavior are more likely to suffer injuries in speeding-related crashes. Of all drivers reporting injuries resulting from speeding-related crashes (n=192), 45% are speeders, 31% are sometime speeders, and 24% are nonspeeders.

Figure 7-6 Drivers Reporting Injuries From Most Recent Speeding-Related Crash by Driver Type***

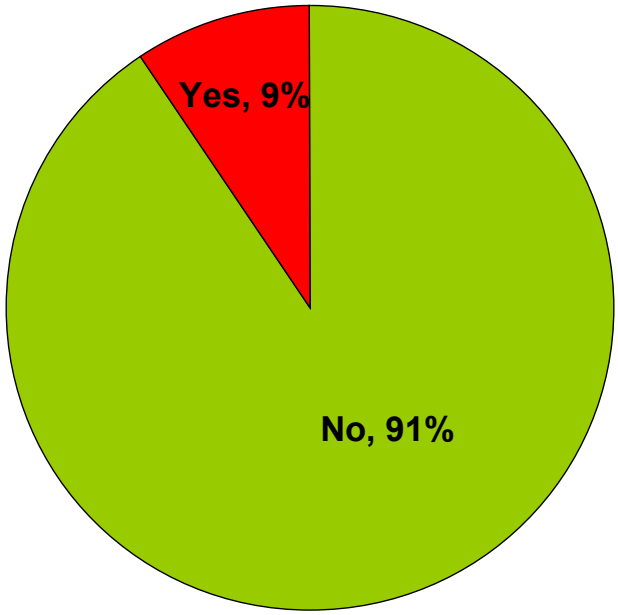


Q27. Did you receive any injuries as a result of the most recent speeding related accident?
Base: Respondents Assigned a Driver Type who were in a speeding related accident
Unweighted N=See Chart *** p < .001

CHAPTER 8
PERSONAL SANCTIONS

Sanctions experienced by people who were stopped by police for speeding are examined in this chapter. Figure 8-1 shows that most drivers have not been stopped for speeding by the police in the past 12 months, with less than 1 in 10 (9%) having been stopped for speeding.

Figure 8-1 Percentage of Drivers Stopped for Speeding in the Past 12 Months



Q30. In the past TWELVE MONTHS have you been STOPPED for speeding by the police?
Base: All Respondents
Unweighted N=6,144

Table 8-1 shows the percentage of drivers in each demographic group that had been stopped for speeding in the past 12 months. Younger drivers and male drivers were more likely than older drivers and female drivers to have been stopped the past 12 months. The driver's level of education or household income does not appear to be associated with the likelihood of being stopped for speeding.

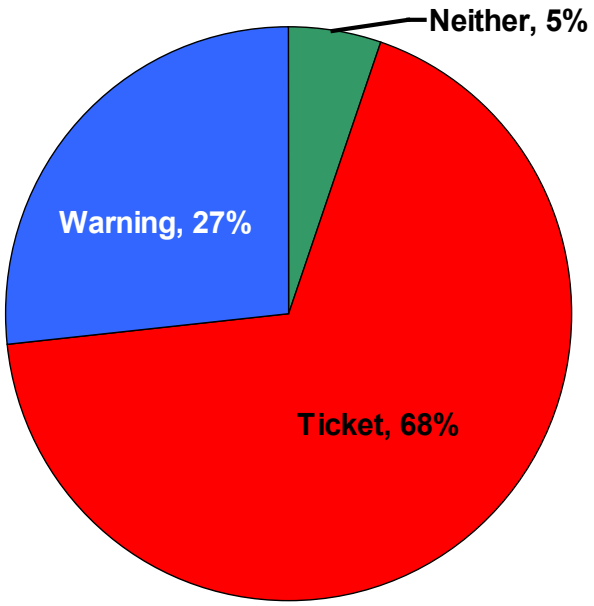
Table 8-1: Drivers Stopped for Speeding in the Past 12 Months by Demographics

In the past TWELVE MONTHS have you been STOPPED for speeding by the police?	N	Percent stopped for speeding in past 12 months
Age* **		
16-20	295	17.5%
21-24	281	15.6%
25-34	939	17.8%
35-44	835	8.1%
45-54	1,185	5.8%
55-64	1,211	5.6%
65 or older	1,328	2.5%
Gender* **		
Male	2,696	11.2%
Female	3,448	7.5%
Education* **		
Less than HS	464	9.7%
HS diploma	3,327	9.1%
College degree	1,392	8.9%
Graduate degree	933	10.6%
2010 Household Income* **		
< $30K	1,275	10.3%
$30K - $50K	1,019	9.4%
$50K - $75K	1,102	10.1%
$75K - $100K	761	9.6%
$100K or more	1,119	8.7%
Metro Status		
Urban	3,030	8.2%
Non-urban	2,903	10.8%

*** $p < .001$

Figure 8-2 shows the type of sanctions experienced by drivers who had been stopped for speeding in the past 12 months. Most of these drivers (68%) were issued a ticket. More than a quarter (27%) received a warning, and 1 in 20 (5%) did not receive a ticket or a warning.

Figure 8-2 Sanctions Experienced by Drivers Stopped for Speeding



Q32a. Did you receive a ticket during the last time you were stopped for speeding?
Q32b. Did you receive a warning the last time you were stopped for speeding?
Base: Respondent who were stopped for speeding in the past twelve months
Unweighted N=465

Table 8-2 presents the distribution of the type of sanctions experienced by drivers who had been stopped by police for speeding in the past 12 months by demographics. More formal education appears to be positively associated with the likelihood of receiving a ticket rather than a warning. No large differences by gender, age or other demographic categories were noted.

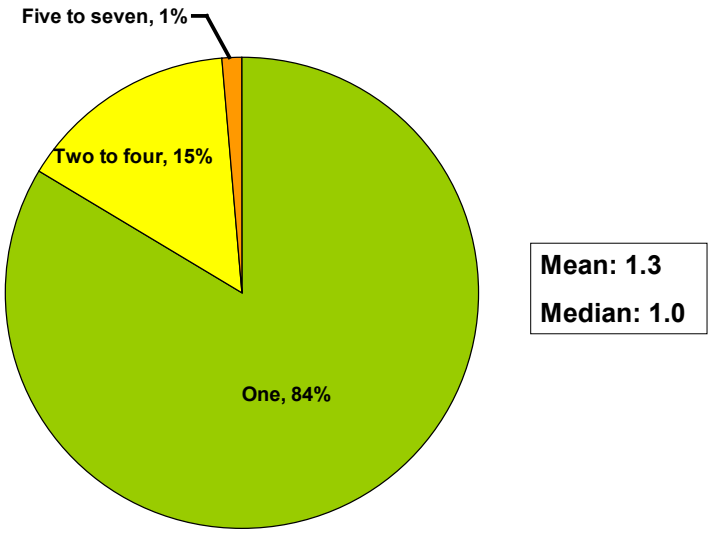
Table 8-2: Distribution of Sanctions by Demographics

Q32a. Did you receive a ticket during the last time you were stopped for speeding? Q32b. Did you receive a warning the last time you were stopped for speeding?	N	Ticket	Warning	Neither
Age* **				
16-20	46	60.9%	31.8%	7.3%
21-24	36	68.0%	29.7%	2.2%
25-34	137	75.2%	21.9%	2.9%
35-44	78	64.1%	34.2%	1.7%
45-54	71	70.2%	23.1%	6.7%
55-64	62	64.4%	24.1%	11.5%
65 or older	33	62.5%	34.3%	3.2%
Gender* **				
Male	255	68.1%	28.0%	4.0%
Female	210	69.2%	25.5%	5.3%
Education* **				
Less than HS	41	64.1%	31.9%	4.0%
HS diploma	229	67.7%	27.6%	4.7%
College degree	115	71.5%	26.0%	2.5%
Graduate degree	80	75.8%	17.2%	7.0%
2010 Household Income* **				
< $30K	94	68.5%	29.1%	2.4%
$30K - $50K	68	74.0%	21.3%	4.7%
$50K - $75K	95	61.2%	36.2%	2.6%
$75K - $100K	59	68.2%	22,4%	9.5%
$100K or more	99	68.2%	25.0%	6.8%
Metro Status				
Urban	204	75.1%	19.8%	5.0%
Non-urban	249	63.3%	32.6%	4.1%

*** $p < .001$

Figure 8-3 shows the distribution of the frequency of speeding stops for drivers who had been stopped at least once by police for speeding in the past 12 months. The majority (84%) of these drivers had been stopped for speeding only once. One in seven (15%) had been stopped two to four times in the past 12 months, and 1% were stopped five times or more.

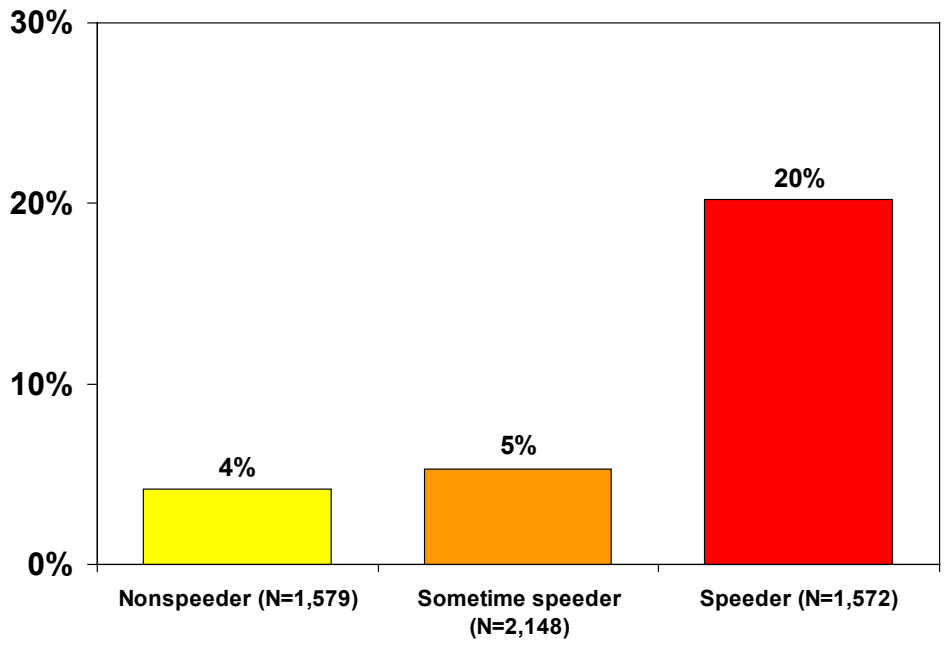
Figure 8-3 Number of Times Stopped for Speeding in the Past 12 Months



Q31. How many times have you been stopped for speeding in the past twelve months?
Base: Respondents who were stopped for speeding in the past twelve months
Unweighted N=465

Figure 8-4 shows a clear pattern of who was stopped for speeding by police in the past 12 months by driver type. While 9% of all drivers reported being stopped for speeding in the previous 12 months (see Figure 8-1), only 4% and 5% of drivers classified as nonspeeders and sometime speeders, respectively, were stopped. Among the drivers classified as speeders, 1 in 5 (20%) was stopped for speeding by police in the past 12 months.

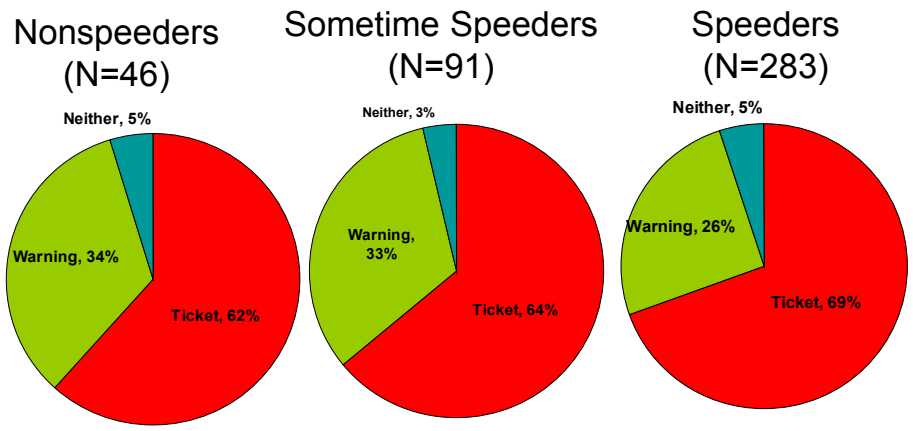
Figure 8-4 Stopped for Speeding in the Past 12 Months by Driver Type



Q30. In the past TWELVE MONTHS have you been STOPPED for speeding by the police?
Base: Respondents Assigned a Driver Type
Unweighted N=See Chart *** p < .001

As noted earlier and shown in Figure 8-5, the majority of drivers stopped for speeding regardless of driver type category received a ticket. However, the likelihood of receiving a ticket increased with driver classification from nonspeeders, to sometime speeders, to speeders with 62% of nonspeeders, 64% of sometime speeders, and 69% of speeders stopped for speeding receiving a ticket.

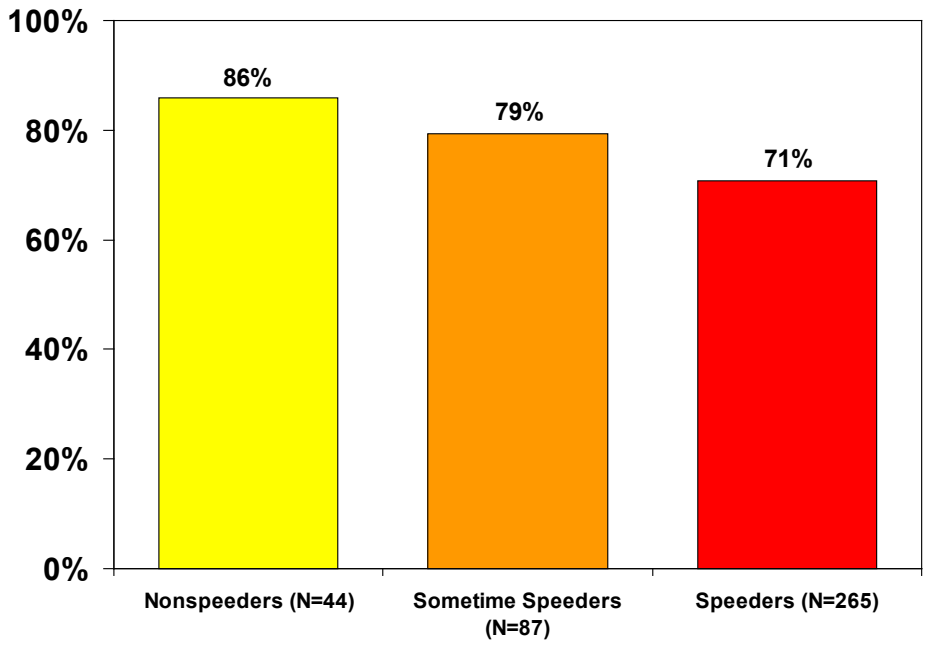
Figure 8-5 Frequency of Receiving Ticket or Warning by Driver Type***



Q32a. Did you receive a ticket during the last time you were stopped for speeding?
Base: Respondents Assigned a Driver Type who were stopped for speeding in the past twelve months
Unweighted N=See Chart *** p < .001

Drivers classified as speeders were the most likely drivers to get pulled over and ticketed and were also the least likely to change their driving behavior as a result of their ticket or warning. Figure 8-6 shows the percentage of drivers by driver type who had experienced a speed-related stop and indicated that they changed their driving behavior because of that stop. Among nonspeeders, 86% reported that they changed their driving behavior as a result of their ticket or warning. About 4 in 5 (79%) of sometime speeders stated they changed their driving behavior. Among speeders, the percentage reporting a changed driving behavior was 71%.

Figure 8-6 Percentage of Drivers Reporting Changing Their Driving Behavior by Driver Type***

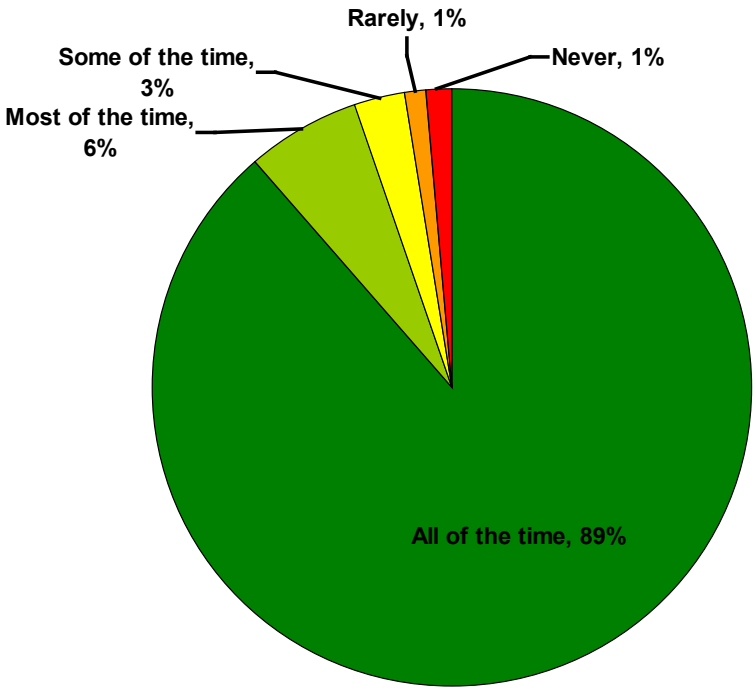


Q33. Did you change your driving behavior as a result of receiving the (TICKET/WARNING) for speeding?
Base: Respondents Assigned a Driver Type who received a ticket or warning for speeding in the past twelve months
Unweighted N=See Chart *** p < .001

CHAPTER 9
OTHER RISKY BEHAVIOR

Incidence of risky behaviors such as not wearing seat belts while driving, driving after drinking alcohol, and talking and texting while driving are examined in this chapter. Approximately 9 in 10 (89%) drivers reported that they wear their seat belts all of the time while driving their primary vehicle (see Figure 9-1). One in 10 (10%) drivers stated that they do not wear their seat belts all the time, and 1% reported that they never wear their seat belts.

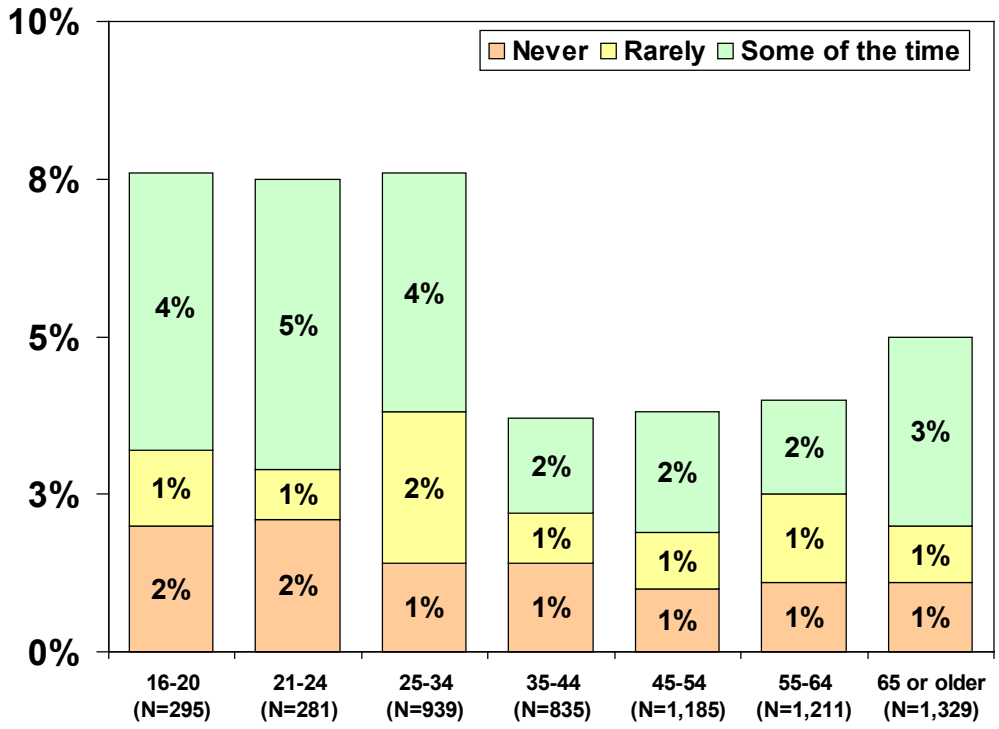
Figure 9-1 Seat Belt Usage



Q34. When driving your primary vehicle how often do you wear your seat belt?
Base: All Respondents
Unweighted N = 6,144

Examining seat belt use by age group shows that drivers under 35 are more likely than older drivers to indicate that they wear their seat belts only some of the time, rarely or never. One in twelve (8%) drivers 21 to 24 years old, and 7% of drivers 16 to 20 and 25 to 34, report that they wear their seat belts less than most of the time while driving their primary vehicles (see Figure 9-2).

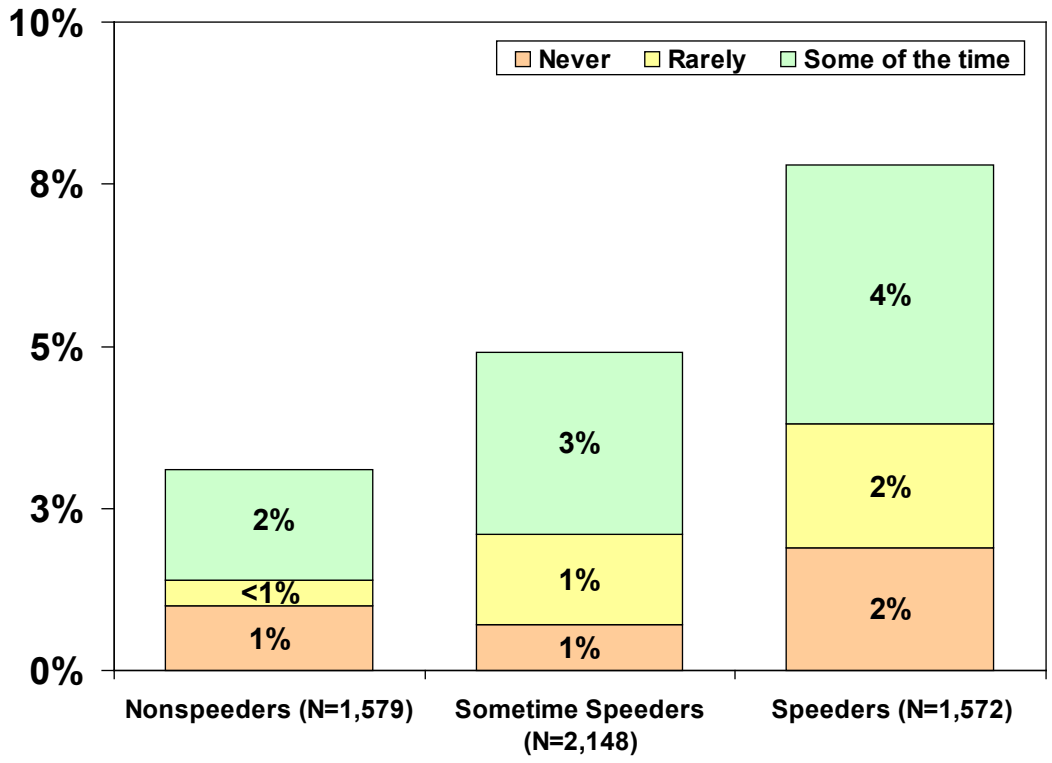
Figure 9-2 Seat Belt Use by Age Group***



Q34. When driving your primary vehicle how often do you wear your seat belt?
Base: All Respondents
Unweighted N=See Chart *** p < .001

Drivers classified as speeders are less likely than other drivers to wear their seat belts most of the time. Figure 9-3 shows the percentage of drivers by driver type who wear their seat belts some of the time, rarely and never. One in twelve (8%) speeders wear their seat belts only some of the time or less while driving. Among the drivers classified as sometime speeders and nonspeeders, only 5% and 3%, respectively, report wearing their seat belts only some of the time or less frequently.

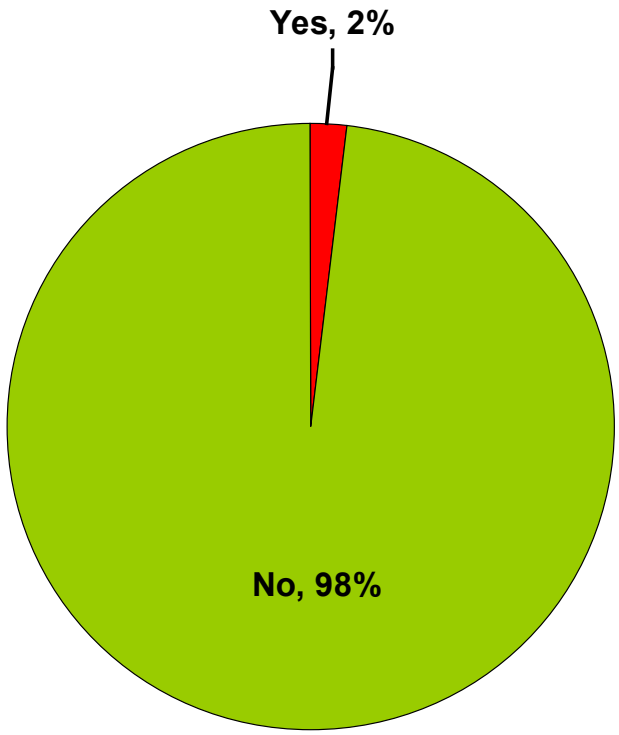
Figure 9-3 Seat Belt Use by Driver Type***



Q34. When driving your primary vehicle how often do you wear your seat belt?
Base: Respondents Assigned a Driver Type
Unweighted N=See Chart ***p<.001

When asked about drinking and driving in the past 30 days, only a small proportion of drivers (2%) reported driving a vehicle after they thought they had drank too much alcohol to drive safely (see Figure 9-4).

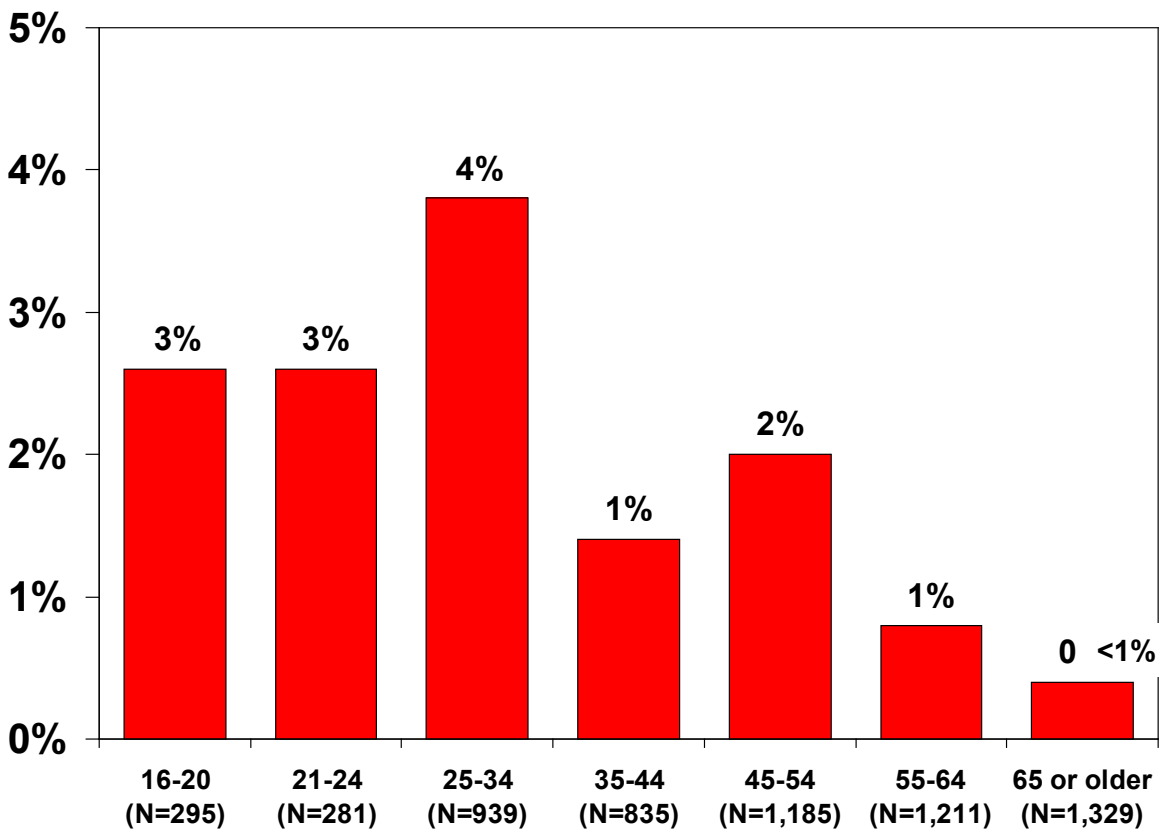
Figure 9-4 Alcohol Consumption and Driving



Q35. In the past 30 days, have you driven a vehicle when you thought you might have consumed too much alcohol to drive safely?
Base: All respondents
Unweighted N=6,144

Most (98%) drivers stated that they have not driven a vehicle when they thought they had too much to drink in the past 30 days. The highest percentage (4%) of drivers who admit that they have driven after they had consumed too much to drive safely is among drivers 25 to 34. Of drivers 16 to 20 and 21 to 24, 3% reported driving after having too much to drink (see figure 9-5).

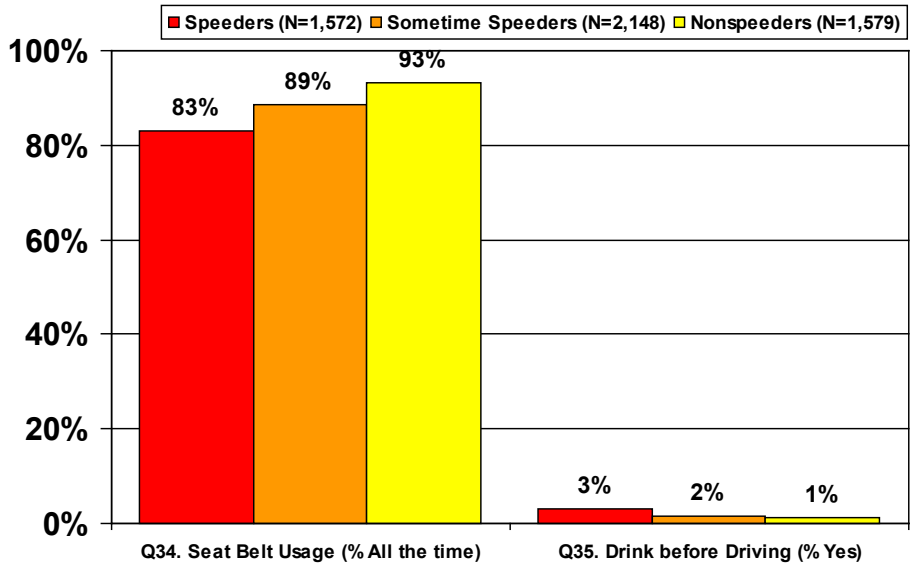
Figure 9-5 Alcohol Impaired Driving by Age Group***



Q35. In the past 30 days, have you driven a vehicle when you thought you might have consumed too much alcohol to drive safely?
Base: All respondents
Unweighted N=See Chart *** p < .001

As shown in Figure 9-6, Speeders are more likely to drive their car when not wearing their seat belts, although the vast majority (83%) still claim to buckle up all of the time. They are also more likely to drive after drinking too much alcohol compared to nonspeeders (3% versus 1%, respectively).

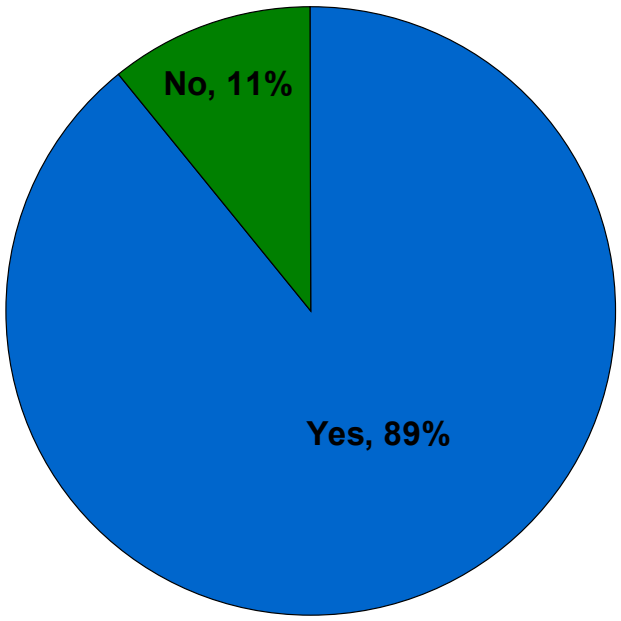
Figure 9-6 Seat Belt Usage and Alcohol Impaired Driving by Driver Type*



Q34. When driving your primary vehicle how often do you wear your seat belt?
Q35. In the past 30 days, have you driven a vehicle when you thought you might have consumed too much alcohol to drive safely?
Base: All respondents
Unweighted N=See Chart *** p < .001

Respondents were asked a series of questions about their use of cell phones while driving. The majority of drivers have a cell phone in their vehicle when they drive; only about 1 in 10 (11%) report not having cell phones in their vehicles (see Figure 9-7).

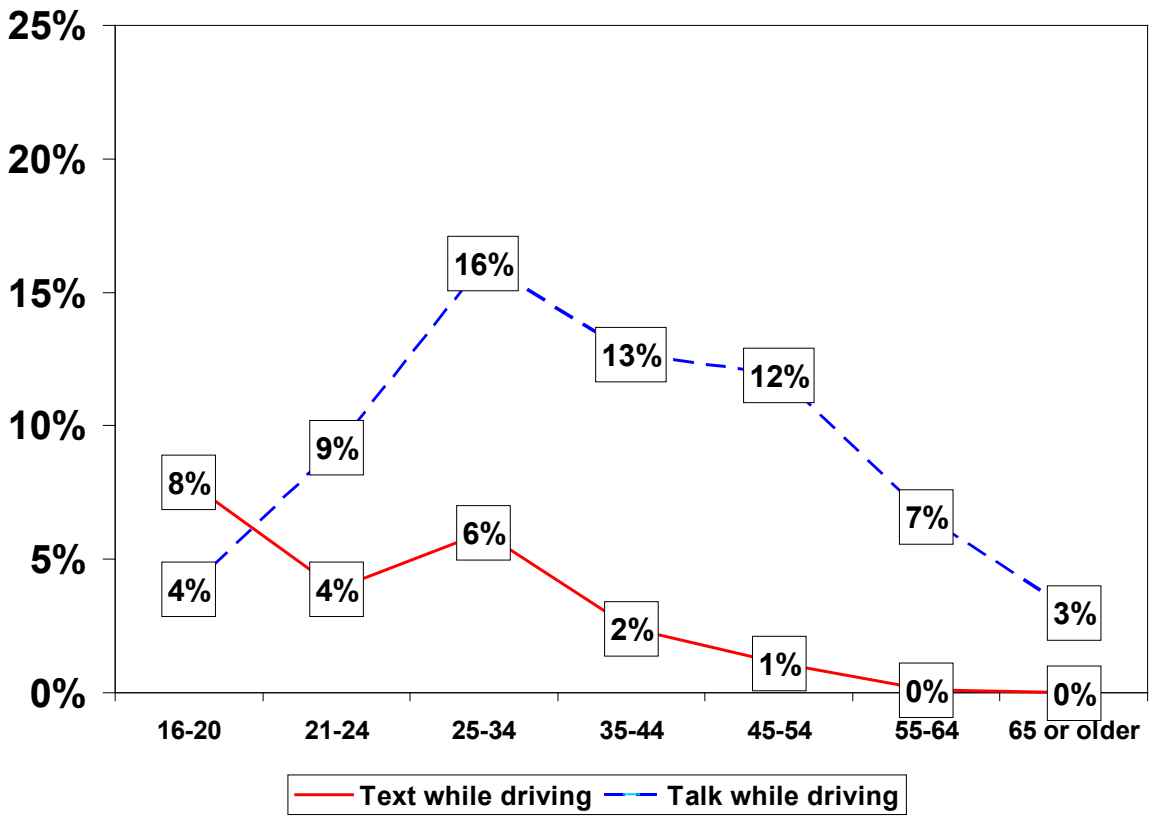
Figure 9-7 Cell Phone in Vehicle While Driving



Q36. When you drive a motor vehicle, do you usually have a cell phone or wireless phone of some type in the vehicle with you?
Base: All Respondents
Unweighted N=6,144

Examining cell phone use while driving by age shows a relationship that peaks at 25 to 34, with 16% of drivers stating that they talk on the cell phone on all or most trips, and 6% reporting that they send or read text messages while driving on all or most trips (see Figure 9-8). After age 35, the proportion of drivers who talk and send or read text messages while driving on all or most of their trips decreases as age increases. Among drivers 65 or older, only 3% report talking on the phone while driving on all or most trips, and none report reading or sending text messages at any time while driving. The youngest drivers are most likely to read and send text messages.

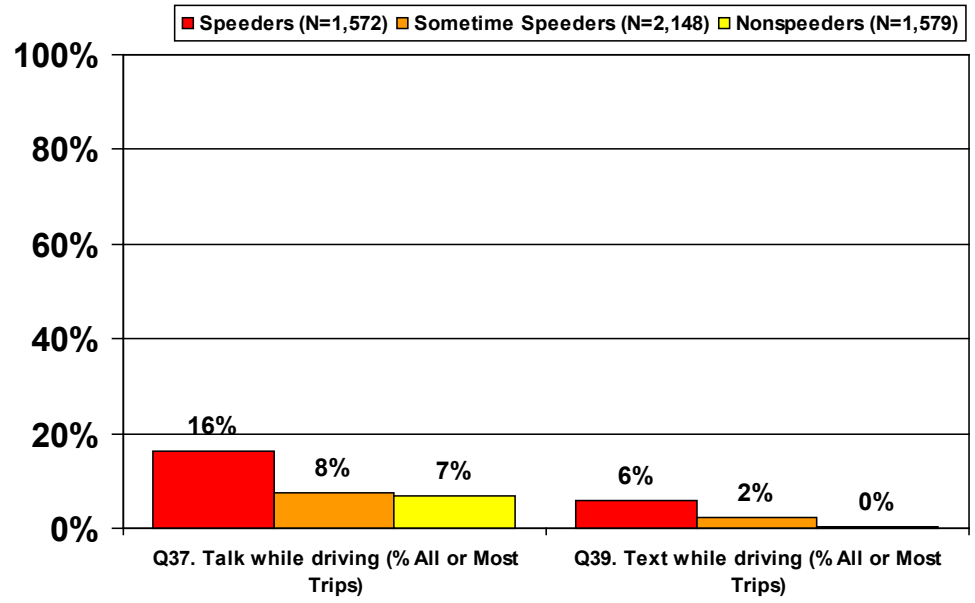
Figure 9-8 Percentage of Drivers Who Use Cellular Phone While Driving on All or Most Trips



Q37. How often do you talk on the phone while you are driving? Would you say you talk on the phone while driving during…?
Q39. How often do you read OR send text messages while you are driving and the vehicle is moving? Would you say you read OR send text messages while driving during…?
Base: Respondents who have a cell phone in their vehicle while driving,
Unweighted N=5,340

As shown in Figure 9-9, speeders are more likely to engage in distracted driving behavior while behind the wheel, when compared to nonspeeders and sometime speeders. Close to 1 in 6 speeders (16%) say they talk on the phone while driving during all or most of their trips, compared to 8% of sometime speeders and 7% of nonspeeders. Similarly more speeders text while driving (6%) when compared to sometime speeders (2%) and nonspeeders (<1%).

Figure 9-9 Talk and Text While Driving by Driver Type*



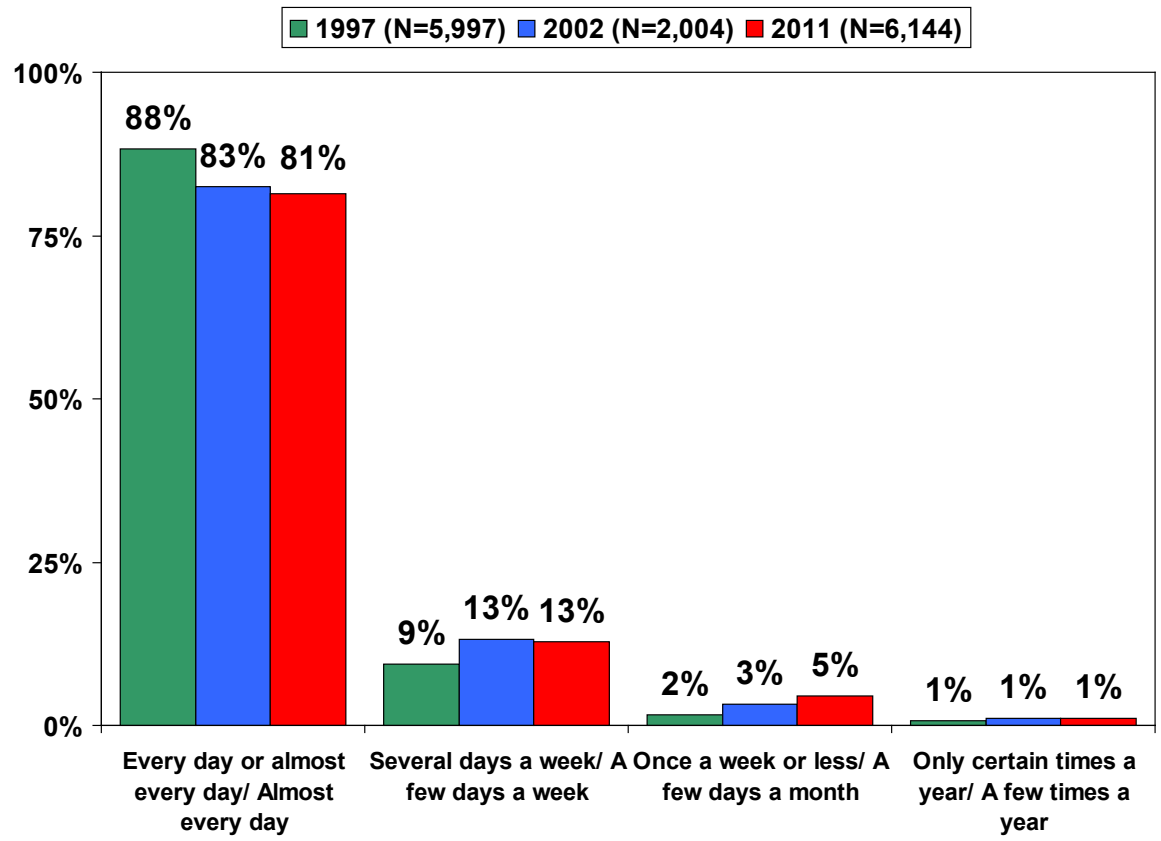
Q37. How often do you talk on the phone while you are driving? Would you say you talk on the phone while driving during…?
Q39. How often do you read OR send text messages while you are driving and the vehicle is moving? Would you say your read OR send text messages while driving during…?
Base: Respondents Assigned a Driver Type
Unweighted N=See Chart

CHAPTER 10
TREND ANALYSIS

The 2011 National Survey of Speeding Attitudes and Behavior is the third in a series of surveys on speeding conducted by NHTSA. The previous speeding surveys were conducted in 1997 and 2002. Questions that appeared in all three surveys and some questions that are similar are compared across the three surveys. These comparisons offer insight into how driving habits and behaviors have changed, or not changed, in the past 14 years.

At the beginning of each study, respondents were asked how often they drive. In the present study, respondents report driving less than they did in 1997 or 2002. In 1997, 88% of drivers stated that they drive every day or almost every day; in 2002, 83% reported that they drive every day or almost every day; and in 2011, 81% reported driving daily or almost every day (See Figure 10-1). In all three studies, 1% of drivers report driving only a few times a year or only at certain times of the year.

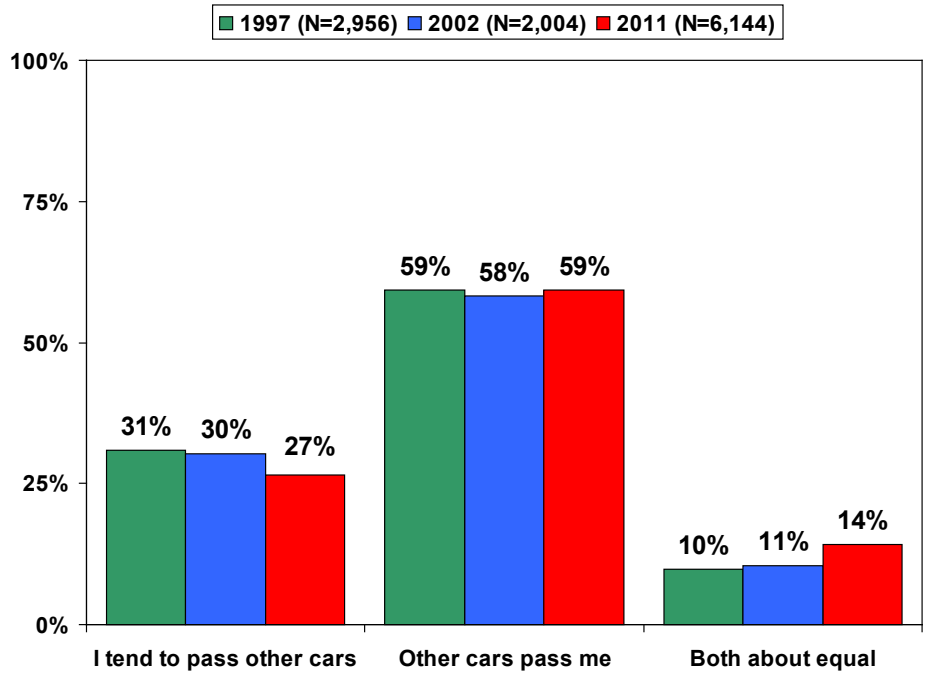
Figure 10-1: How Frequently Do You Drive by Year



1997 – Q1. How often do you usually drive a car or other motor vehicle? Would you say that you usually drive…?
2002 – Q1. How often do you usually drive a car or other motor vehicle? Would you say that you usually drive…?
2011 – Q1. How often do you usually drive a car or other motor vehicle? Would you say that you usually drive…?
Base: All Respondents
Unweighted N=See Chart

Respondents in each study were asked if they tended to pass other cars more often than other cars passed them. There has not been substantial change in these behaviors across the three studies. Around 3 in 10 drivers state that they tend to pass other cars (31% in 1997, 30% in 2002, 27% in 2011). Nearly 3 in 5 report that other cars tended to pass them (59% in 1997, 58% in 2002, and 59% in 2011). In 2011, 1 in 7 (14%) drivers selected reported that the number of cars that pass them and the number of cars that they pass are about equal, compared to about 1 in 10 in 1997 (10%) and 2002 (11%) (See Figure 10-2).

Figure 10-2: Passing Behavior by Year

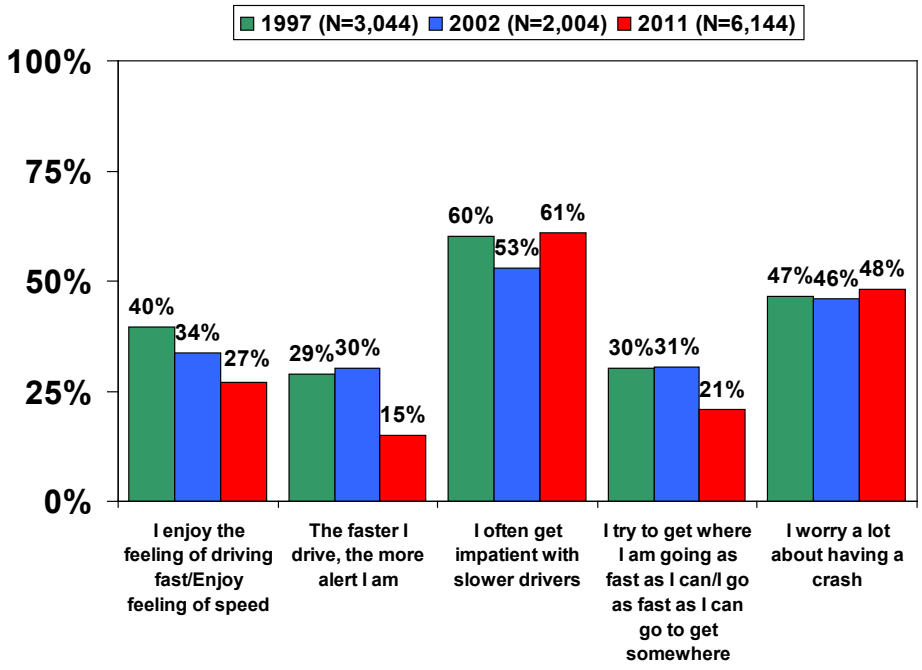


1997 – Q8a. Which of the following statements best describes your driving? READ STATEMENTS
Base: Respondents in version A of the 1997 survey
2002 – Q4a. Which of the following statements best describes your driving?
2011 – Q3. Which of the following statements best describes your driving?
Unweighted N=See Chart

A series of questions about attitudes and beliefs associated with driving were comparable across all three surveys. Enjoyment of driving fast appears to have decreased over time, as did agreement with the statement, "the faster I drive, the more alert I am." In 1997, two-fifths (40%) of drivers strongly agreed or somewhat agreed that they enjoyed driving fast. About one-third (34%) of drivers agreed with this statement in 2002, and about a one-quarter (27%) of drivers agreed with it in 2011. The percentage of drivers who strongly agreed or somewhat agreed that the faster they drive, the more alert they feel did not change much from 1997 (29%) to 2002 (30%), but dropped by one-half to 15% in 2011. In 1997 and 2002, approximately 3 in 10 (30% in 1997, and 31% in 2002) drivers, strongly agreed or somewhat agreed that they go as fast as possible so they can get to their destination quicker. However, in 2011, only 1 in 5 (21%) strongly or somewhat agreed with this statement.

The feelings of impatience with slow drivers and worrying about having a crash remained relatively constant over the time of the three surveys. More than one-half of drivers in all three surveys (60% in 1997, 53% in 2002, 60% in 2011) strongly or somewhat agreed that they often get impatient with slower drivers. In each year, nearly one-half of drivers (47% in 1997, 46% in 2002, and 48% in 2011) strongly or somewhat agree that they worry a lot about having a crash (See Figure 10-3).

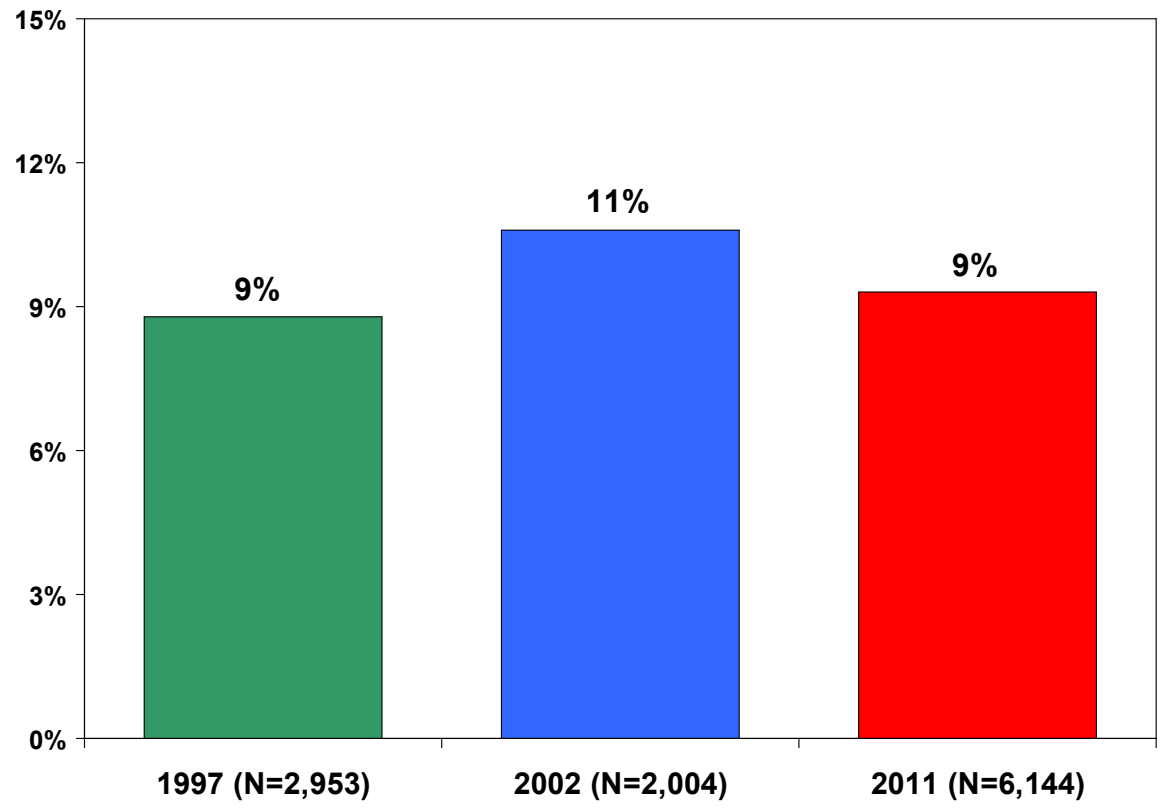
Figure 10-3 Driver Attitude Trends – Strongly or Somewhat Agree



1997 – Q10. People have different feelings about driving. I'd like you to tell me whether you agree or disagree with the following statement about driving.
2002 – Q5. People have different feelings about driving. I'd like you to tell me whether you agree or disagree with the following statements about driving. For each of the statements, please tell me whether you strongly agree, somewhat agree, somewhat disagree or strongly disagree. (Read and rotate A-E)
2011 – Q9. Now I'm going to read a few statements. After I read each one, please tell me whether you agree, disagree, or neither. (READ ITEM). Would you say you strongly (AGREE/DISAGREE) or somewhat (AGREE/DISAGREE)?
Base: All Respondents
Unweighted N=See Chart

There seems to be almost no change in the percentage of drivers being pulled over for speeding by the police. It should be noted that, in the previous studies, respondents were asked if they had been pulled over in the prior 12 months for any reason. Respondents were then asked for what reason or reasons they were pulled over. In the current survey, respondents were asked specifically about being pulled over for speeding. To enable comparison of responses from the previous studies to the current study, a new variable was created for both the 1997 data and the 2002 data that combined the first question about being stopped with the follow-up question about the reason of the stop, which identified respondents who were stopped only for speeding. As shown in Figure 10-4, approximately 1 in 10 drivers were stopped for speeding across all three studies. In 1997, 9% of drivers reported they were stopped for speeding in the prior 12 months by a police officer. In 2002, this percentage was 11% and in 2011, it was 9%.

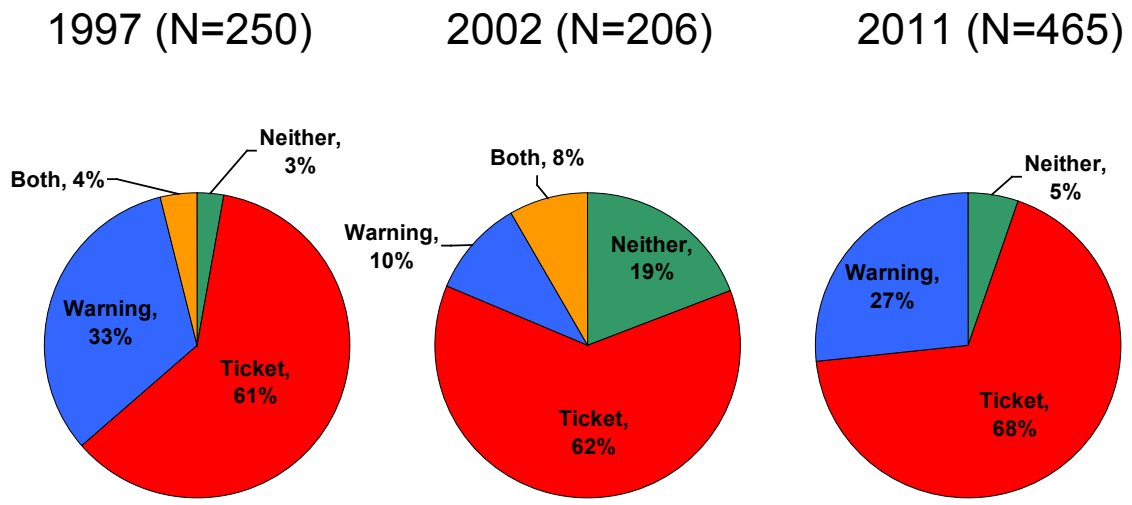
Figure 10-4 Stopped for Speeding in the Past 12 Months



1997 – Q97a. In the past twelve months, have you been STOPPED by the police for any traffic-related reason?
Q97c. What were you stopped for?
2002 – Q79. In the past twelve months have you been STOPPED by the police for any traffic related reason?
Q81. What type of traffic related violation have you been stopped for?
2011 – Q30. In the past TWELVE MONTHS have you been STOPPED for speeding by the police?
Base: All Respondents
Unweighted N=See Chart

The proportion of drivers who received tickets when stopped by police for speeding appears to be relatively constant over the three surveys, with approximately two-thirds of those stopped, receiving tickets. In the 1997 and the 2002 surveys, respondents were asked if they had received a ticket, a warning or both during their traffic stop. In the 2011 survey respondents were first asked if they'd received a ticket; if they reported that they had not received a ticket they were asked if they received a warning. Respondents who reported receiving a ticket for speeding were not asked if they also received a warning. The percentages of drivers stopped for speeding who reported receiving tickets are: 65% in 1997, 70% in 2002, and 68% in 2011. (See Figure 10-5). In 1997, 4% of drivers reported receiving both a warning and a ticket for speeding, while, in 2002 8% reported receiving both a warning and a ticket for speeding.

Figure 10-5 Tickets and Warnings by Year



1997 – Q97d. Did you receive a ticket or warning (on any of those occasions)?
2002 – Q82. Did you receive (A. a ticket/B. a written warning) on any of these occasions?
2011 – Q32a. Did you receive a ticket during the last time you were stopped for speeding?
Q32b. Did you receive a warning the last time you were stopped for speeding?
Base: Respondents pulled over (for speeding) in the past twelve months
Unweighted N=See Chart

Conclusion

For over a decade, NSSAB studies have provided data that have helped further the understanding of driving behavior and contributed to the development of countermeasures and interventions to reduce speeding. The present study is the third in this series, and, like the previous studies, yields national estimates of behavior and attitudes toward speeding in the United States. The present study differs from the earlier studies in that it developed and used a driver typology based on the pattern of responses across six speeding behavior questions. Cluster analysis identified three distinct groups of drivers with similar overall behavioral tendencies and accounted for 86% of respondents. Because of the nature of these behavioral tendencies, the driver types are referred to as nonspeeders, sometime speeders, and speeders in this report. Among those categorized, 30% are nonspeeders, 40% are sometime speeders, and 30% are speeders.

In terms of demographics, drivers classified as speeders tend to be younger and male, and to have higher household incomes when compared to sometime speeders and nonspeeders. Interestingly, 36% of all male drivers, one-half of drivers 16 to 20, and 42% of drivers with annual household incomes of $100,000 or more were classified as speeders. The typology was particularly useful in distinguishing self-reported behaviors and attitudes toward speeding and toward interventions aimed at speeding among drivers.

As in the two previous NSSAB studies, approximately 10 % of drivers report being stopped by police for speeding in the past year, and about two-thirds of these report receiving a ticket. Overall, most drivers report driving at approximately the speeds they perceive to be safe for the type of roads on which they are travelling. However, drivers who have been stopped for speeding within the past year report traveling faster than their perceived safe speed limit would allow, reflecting a willingness to accept the risks associated with speeding. Not surprisingly, drivers classified as speeders were 4 to 5 times as likely to be stopped for speeding as sometime speeders or nonspeeders. They were also more likely than other drivers to receive a ticket instead of a warning if stopped for speeding. Drivers who had been stopped by police within the past year and received a warning rather than a speeding ticket, on average, believe that driving about 11 mph over the speed limit on multi-lane divided highways and two-lane roads will not result in a speeding ticket. Their average perceived “allowable” over-speed-limit margin was greater than that identified by drivers who received tickets. While this suggests that tickets may be a better deterrent to speeding than warnings, speeders who received speeding tickets in the past year were more likely than others to report that this experience did not change their driving behavior. Clearly, there still is much to learn about the effects of police enforcement strategies on speeding behaviors of various types of drivers.

Only a very small portion of drivers report experiencing a speeding-related crash in the past 5 years and even fewer (about 1%) reported being in two or more speeding-related crashes in that time period. However, 11% of drivers 16 to 20 reported at least one speeding-related crash in the past 5 years. The percentage of drivers in speeding-related crashes in this age group is greater than in any other age group, even though these young drivers may not have been driving for all of the past 5 years. This age effect is not surprising, considering the high overall crash rates of young drivers. This result continues to support further traffic safety interventions and efforts aimed specifically at young drivers.

About 90% of drivers in the present study report having cell phones in their cars compared to about 60% in 2002. Cell phone use while driving differs by driver type. Speeders are more likely than sometime speeders, who in turn are more likely than nonspeeders, to have cell phones in their vehicles, to talk on their cell phone while driving and to send or read text messages while driving. Most drivers use their seat belts on all trips. Overall, 11% of drivers report that they do not use seat belts on all of their trips. Only 1% of drivers reports never wearing seat belts while driving. Drivers classified as speeders are less likely than other drivers to wear their seat belts most of the time, further exhibiting their tendency to take risks.

When normative attitudes toward speeding are explored, the majority of drivers at least somewhat agree with the statements that "Everyone should obey the speed limits because it's the law," and "People should keep up with the flow of traffic." Approximately one-half of drivers at least somewhat agree that, "There is no excuse to exceed the speed limits." There is general agreement across all driver types that exceeding the speed limit by 20 mph is unacceptable. Even among speeders, 70% agree that, "It is unacceptable to exceed the speed limits by more than 20 mph." Among sometime speeders and nonspeeders, strong agreement with this statement is reported by 77 % and 84 %, respectively.

In other regards, attitudes of speeders and nonspeeders are again quite different. Less than half of speeders strongly agree that "Everyone should obey the speed limits because it's the law," compared to 70% of sometime speeders and 80% of nonspeeders. Almost two-thirds of speeders strongly agree that "People should keep up with the flow of traffic," but only 42% of the nonspeeders strongly agree with this statement. Nonspeeders are more than twice as likely as speeders to strongly agree with the statement that, "There is no excuse to exceed the speed limit" (41% versus 16%). Speeders are almost three times as likely as sometime speeders to strongly agree with the statements, "I often get impatient with slower drivers," (45% versus 18%,), "I enjoy the feeling of driving fast" (19% versus 6%), and "I try to get where I am going as fast as I can" (11% versus 3%,).

The acceptability of proposed speeding countermeasures varies among driver types, but overall, drivers are more receptive to countermeasures if they do not include specific penalties. Electronic signs by the road that warn drivers that they are speeding and should slow down and increasing public awareness of the risks of speeding are considered to be good ideas for their community by a large majority of drivers. Two-thirds of drivers indicate that more frequent ticketing for speeding in their community is a good idea and 40% indicate that higher fines for speeding tickets is a good idea.

When asked about automated speeding countermeasures such as speed cameras, an overwhelming majority of drivers report that they have heard of speed cameras being used to ticket drivers who speed. However, only about one-third of drivers report the existence of speed cameras on their normal driving routes. The majority of drivers think that speed cameras would be useful in school zones, places where there have been many accidents, construction zones, areas where it would be hazardous for a police officer to stop a driver, and areas where stopping a vehicle could cause traffic congestion. Increased use speed cameras in dangerous or high crash locations is also considered to be a good idea by a large majority. However, drivers are more

likely agree with the statement that "Speed cameras are used to generate revenue" than they are to agree that "Speed cameras are used to prevent accidents."

Countermeasures associated with speeding tickets were less acceptable to speeders than to other drivers. While two-thirds of sometime speeders and more than three-quarters of nonspeeders approved of increased ticketing for speeding, only about half of speeders approved of this idea. Higher fines for speeding were considered a good idea by about half of nonspeeders, 40% of sometime speeders, and approximately one-third of speeders.

There was a difference by driver type in the acceptability and perceived effectiveness of in-vehicle speeding countermeasures. Overall, approximately 60% of all drivers indicated that in-vehicle countermeasures, such as a device in the motor vehicle that notifies you if you are speeding, a device that records the speed data and reports it to the insurance company to lower premiums, and a device that slows down the vehicle when it senses another car or object is too close to the vehicle was a good idea and would prevent them from speeding. However, speeders were less likely to state that a specific countermeasure would keep them from speeding. The most promising in-vehicle countermeasure for speeders appears to be the device that records speeding information and reports it to the insurance company. Slightly more than half of speeders, two-thirds of sometimes speeders and almost three-quarters of nonspeeders stated that this device would keep them from speeding.

The driver typology developed in this study appears to be useful in discriminating some driver attitudes and behaviors. Drivers classified as speeders report more risky behaviors than other drivers and appear to be the most resistant to conventional countermeasures and interventions aimed at speeding. On the other hand, drivers classified as nonspeeders exhibit compliance with traffic laws and, in general, do not speed. Finding interventions that will work on the first group is challenging and requires continued efforts to identify effective measures. Extraordinary interventions for the nonspeeder group are not needed, as normal public information programs and enforcement appear to work well.

The third group identified in this study appears to hold much promise for speeding reduction efforts. The drivers classified as sometime speeders accounts for close to 40% of drivers, forming a group larger than either that of speeders or nonspeeders. Their self-reported speeding behavior is not as consistent as that of speeders or nonspeeders, nor are their attitudes as extreme. They also appear to be more amenable than speeders to countermeasures and interventions to reduce speeding, thus offering opportunities to reduce the overall prevalence of speeding on the nation's roadways. While the present study did not subdivide this group further, it is highly likely that this group is not homogenous with respect to speeding behaviors, and that further groupings of drivers based on their behaviors can be identified. For example, some drivers from this group may exceed the speed limit by a small amount most of the time, while others may exceed the speed limit by a large margin, but only occasionally or on specific types of trips or roads, or under other circumstances. Some of these questions can be explored through further analysis of the data collected in this study, and through additional research efforts specifically aimed at these drivers' behavior and their acceptance and responses to various conventional and innovative countermeasures and interventions.

One of the limitations of the approach used in the NSSAB studies is that all the behaviors are self-reported and lack confirmation with more objective measures. State driver history files contain information on licensing, citations, convictions, crashes, license revocation, and reinstatements of all drivers in a state. Matching up driver records with their attitudes, beliefs and self-reported behavior would be extremely informative both in understanding driving behavior and for developing interventions. However, not all driving behavior is captured in driver history records. As noted earlier in this report, about 10% of drivers are stopped for speeding by police every year, and only 3% were involved in a speed-related crash in a 5-year period. Thus, some speeding driving behavior might not be evident from the driver history file. A study that matches a driver's real world behavior with attitudes and beliefs about speeding, perhaps also with the individual's driving records, might address these shortcomings. Current technology has made it possible to observe and record driving behaviors in naturalistic driving studies. Thus, research that combines all three aspects: surveys of driver's attitudes and beliefs, driver history records, and observations of real world driving could be invaluable in advancing our knowledge of driving behavior and in turn advancing the development of effective countermeasures to speeding.

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APPENDIX A
QUESTIONNAIRE

CELL SAMPLE

SC1 Hello, I am _____ calling on behalf of the U.S. Department of Transportation. We are conducting a national study on traffic safety. I know I'm calling you on your cell phone, but we are conducting a brief survey and we would like to send you $10 if you are eligible and willing to answer some questions.

[IF NEEDED: Any answers you give are kept strictly private. It will only take about 20 minutes. The OMB number for this solicitation is 2127-0613]

QLAN WHICH LANGUAGE INTERVIEW CONDUCTED IN

1 English
2 Spanish

Are you currently driving?

1	Yes	**THANK AND END, CALLBACK**
2	No	
9	Refused	**THANK AND END, SOFT REFUSAL**

SC1a Are you in a safe place to talk right now?

1	Yes	
2	No, call me later	**SCHEDULE CALLBACK**
3	No, CB on land-line	**RECORD NUMBER, schedule call back**
4	Cell phone for business only	**THANK AND END - BUSINESS#**
9	Refused	**THANK AND END – Soft Refusal**

SC2 Are you 16 years old or older?

1	Yes	
2	Yes, no time	**SCHEDULE CALLBACK**
3	No	**SCREEN OUT**
9	Refused	**THANK AND END - SOFT REFUSAL**

Qualified Level 1

SC2a How many people age 16 and older, live in your household?

_____[ENTER NUMBER 1-10]

98	NONE	**SCREEN OUT SKIP TO SCR1**
99	Don't know/Refused	**THANK AND END, SOFT REFUSAL**

SC3 Do any other people age 16 or older regularly ANSWER your cell phone, or just you?

[INTERVIEWER: THIS QUESTION REFERS TO THE PHYSICAL PHONE AND NOT TO THEIR CALLING PLAN]

1 Yes, others
2 No, just respondent **SKIP TO SC4**
9 Don't know/Refused **SKIP TO SC4**

SC3b How many other people age 16 or older regularly answer your cell phone?

_____[ENTER NUMBER 1-10]

99 Don't know/Refused

SC4 Not counting any that are used strictly for business purposes, are there other cell phones that you use regularly, or is it just the one?

1 Yes, use other cell phones
2 No **SKIP TO SC5**
9 Don't know/Refused **SKIP TO SC5**

SC4b How many other cell phones do you use regularly, excluding those used only for business purposes?

_____[ENTER NUMBER 1-10]

99 Don't know/Refused

SC5 Not counting (this/these) cell phone(s), do you also have a regular land-line phone at home?

1 Cell is only phone **SKIP TO SA3**
2 Has regular phone at home **SKIP TO D13**
9 Don't know/Refused **THANK AND END, soft refusal**

LAND LINE SAMPLE

SL1 Hello, I am _____ calling on behalf of the U.S. Department of Transportation. We are conducting a national study on traffic safety.

[IF NEEDED: If you would like to learn more about the survey, you can call our toll-free number at 1-888-772-4269 or visit the DOT website at www.nhtsa.dot.gov. Any answers you give are kept strictly private. It will only take about 20 minutes. The OMB number for this solicitation is 2127-0613]

How many people age 16 and older, live in this household?

_____[ENTER NUMBER 1-10]

98	NONE	**SCREEN OUT**
99	Don't know/Refused	**THANK AND END, SOFT REFUSAL**

Qualified Level 1

ASK IF SL1=1.

SL1b May I speak with that person?

1	Rspn on line	**SKIP TO SA3**
2	Rspn called to phone	**GO TO SL1d**
3	Rspn unavailable	**SCHEDULE CALLBACK**
9	Refused	**THANK AND END – Soft Refusal**

ASK IF SL1>1

SL1c In order to select just one person to interview, may I please speak to the person in your household, age 16 or older, who (has had the most recent/will have the next) birthday?

1	Rspn on line	**GO TO SA3**
2	Rspn called to phone	
3	Rspn unavailable	**SCHEDULE CALLBACK**
9	Refused	**THANK AND END – Soft Refusal**

SL1d Hello, I am _____ calling on behalf of the U.S. Department of Transportation We are conducting a national study on traffic safety. Could I please confirm that you are a household member age 16 or older?

1	Yes	
2	No	**SCHEDULE CALLBACK**
9	Refused	**THANK AND END – Soft Refusal**

SKIP TO SA3

LANDLINE OVERSAMPLE

SO1 Hello, I am _____ calling on behalf of the U.S. Department of Transportation. We are conducting a national study on traffic safety.

[IF NEEDED: If you would like to learn more about the survey, you can call our toll-free number at 1-888-772-4269 or visit the DOT Web site at www.nhtsa.dot.gov. Any answers you give are kept strictly private. It will only take about 20 minutes. The OMB number for this solicitation is 2127-0613.

How many people age 16 to 34 live in this household?

_____[ENTER NUMBER 1-10]

98	NONE	**SCREEN OUT**
99	Don't know/Refused	**THANK AND END, SOFT REFUSAL**

Qualified Level 1

ASK IF SO1=1.

SO1b May I speak with that person?

1	Rspn on line	**SKIP TO SA3**
2	Rspn called to phone	**GO TO SO1d**
3	Rspn unavailable	**SCHEDULE CALLBACK**
9	Refused	**THANK AND END – Soft Refusal**

ASK IF SO1>1

SO1c In order to select just one person to interview, may I please speak to the person in your household, age 16 to 34 who (has had the most recent/will have the next) birthday?

1	Rspn on line	**GO TO SA3**
2	Rspn called to phone	
3	Rspn unavailable	**SCHEDULE CALLBACK**
9	Refused	**THANK AND END – Soft Refusal**

SO1d Hello, I am _____ calling on behalf of the U.S. Department of Transportation. We are conducting a national study on traffic safety. Could I please confirm that you are a household member age 16 to 34?

1	Yes	
2	No	**SCHEDULE CALLBACK**
9	Refused	**THANK AND END – Soft Refusal**

SA3 Record gender from observation. (Ask only if necessary)

1 Male
2 Female

Qualified Level 2

General Driving Information

1. How often do you usually drive a car or other motor vehicle? Would you say that you usually drive . . .

   (NOTE: Motorcycle counts as a motor vehicle)

   1 Every day, or almost every day
   2 Several days a week
   3 Once a week or less
   4 Only certain times a year, OR
   5 Never **SKIP TO D1**
   6 (VOL) Don't know **SKIP TO D1**
   7 (VOL) Refused **SKIP TO D1**

2. What kind of vehicle do you drive most often? Is it a car, van or minivan, motorcycle, SUV, pickup truck or something else?

   (**NOTE: IF RESPONDENT DRIVES MORE THAN ONE VEHICLE OFTEN, ASK** "What kind of vehicle did you LAST drive?")

   1 Car
   2 Van or minivan
   3 SUV
   4 Pickup truck
   5 Other truck
   6 Motorcycle
   7 Other (SPECIFY)
   8 (VOL) Don't know
   9 (VOL) Refused

Speed Behavior

3. Which of the following statements best describes your driving? **READ AND ROTATE 1&2**

   1 I tend to pass other cars more often than other cars pass me OR
   2 Other cars tend to pass me more often then I pass them
   3 (VOL) Both/About equally
   4 (VOL) Don't know
   5 (VOL) Refused

4. When driving I tend to . . . **READ AND ROTATE 1&2**

   1 Stay with slower moving traffic, or
   2 Keep up with the faster traffic
   3 (VOL) Both/About equally
   4 (VOL) Don't know
   5 (VOL) Refused

Speed Behavior on Various Road Types

We want to find out how people may change the way they drive on different types of roads, such as multi-lane highways, rural routes, or residential streets. These next questions are about how you drive on some of these different kinds of roads.

First, I am going to ask about your driving on Multi-Lane, Divided Highways. These are roads which include interstates, freeways and other highways and have a barrier or a median separating traffic in opposite directions.

Multi-Lane, Divided Interstate-type Highways

5a. How often do you drive on Multi-Lane, Divided Highways? Do you drive on this type of road . . .

1 Frequently
2 Sometimes
3 Rarely
4 Never **SKIP TO Q6a**
5 (VOL) Don't know **SKIP TO Q6a**
6 (VOL) Refused **SKIP TO Q6a**

5b. During the past seven days, approximately how many miles did you drive on Multi-Lane Divided Highways? [IF NEEDED: Your best guess is fine.]

_____ Miles
(RANGE: 0-997, 9998, 9999)

997 997 miles or more
9998 Don't know
9999 Refused

5c. What do you consider to be a safe speed limit for (most) Multi-Lane, Divided Highways in good weather on roads with no congestion during the day?

____MPH
(RANGE: 0-97, 998, 999)

97 97 or more
998 (VOL) Don't know
999 (VOL) Refused

5d. When driving on Multi-Lane, Divided Highways in good weather during the day, how fast do you normally drive?

____MPH
(RANGE: 0-97, 998, 999)

97 97 or more
998 (VOL) Don't know
999 (VOL) Refused

5e. How often would you say you drive 15 miles an hour over the speed limit on Multi-Lane, Divided Highways?

1 Often
2 Sometimes
3 Rarely
4 Never
5 (VOL) Don't know
6 (VOL) Refused

5f. How many miles per hour over the speed limit do you think the average driver can go on Multi-Lane, Divided Highways, before he or she will receive a ticket?

____mph over the speed limit
(RANGE: 0-97, 998, 999)

97 97 or more
998 (VOL) Don't know
999 (VOL) Refused

For this next set of questions I am going to ask you about your driving behavior on Two-Lane Highways which are not divided. This means there is only one lane traveling in each direction and no median or barrier separating traffic traveling in opposite directions.

Two-lane highways, one lane in each direction

6a. How often do you drive on two lane highways, one lane in each direction? Do you drive on this type of road . . . ?

1 Frequently
2 Sometimes
3 Rarely, or
4 Never **SKIP TO Q7a**
5 (VOL) Don't know **SKIP TO Q7a**
6 (VOL) Refused **SKIP TO Q7a**

6b. During the past seven days, approximately how many miles did you drive on two-lane Highways, one lane in each direction? [IF NEEDED: Your best guess is fine.]

_____ Miles
(RANGE: 0-997, 9998, 9999)

997 997 miles or more
9998 Don't know
9999 Refused

6c. What do you consider to be a safe speed limit for (most) Two-Lane Highways, one lane in each direction in good weather during the day?

____MPH
(RANGE: 0-97, 998, 999)

97 97 or more
998 (VOL) Don't know
999 (VOL) Refused

6d. When driving on Two-Lane Highways, one lane in each direction in good weather during the day, how fast do you normally drive?

____MPH
RANGE: 0-97, 998, 999

97 97 or more
998 (VOL) Don't know
999 (VOL) Refused

6e. How often would you say you drive 15 miles an hour over the speed limit on Two-Lane Highways, one lane in each direction?

1 Often
2 Sometimes
3 Rarely
4 Never
5 (VOL) Don't know
6 (VOL) Refused

6f. How far above the speed limit do you think the average driver can go on Two-Lane Highways, one lane in each direction, before he or she will receive a ticket?

____MPH over the speed limit
(RANGE: 0-97, 998, 999)

97 97 or more
998 (VOL) Don't know
999 (VOL) Refused

Now I am going to ask you about your driving behavior on streets in neighborhoods and residential areas.

Neighborhood or Residential Streets

7a. How often do you drive on Neighborhood or Residential streets? Do you drive on this type of road . . .

1	Frequently	
2	Sometimes	
3	Rarely, or	
4	Never	**SKIP TO Q8a**
5	(VOL) Don't know	**SKIP TO Q8a**
6	(VOL) Refused	**SKIP TO Q8a**

7b. During the past seven days, approximately how many miles did you drive on Neighborhood or Residential streets? [IF NEEDED: Your best guess is fine.]

_____ Miles
(RANGE: 0-997, 9998, 9999)

997	997 miles or more
9998	Don't know
9999	Refused

7c. What do you consider to be a safe speed limit for (most) Neighborhood or Residential streets in good weather during the day?

____MPH
(RANGE: 0-97, 998, 999)

97	97 or more
998	(VOL) Don't know
999	(VOL) Refused

7d. When driving on Neighborhood or Residential streets in good weather during the day, how fast do you normally drive?

____MPH
(RANGE: 0-97, 998, 999)

97	97 or more
998	(VOL) Don't know
999	(VOL) Refused

7e. How often would you say you drive 10 miles an hour over the speed limit on Neighborhood or Residential streets?

1 Often
2 Sometimes
3 Rarely
4 Never
5 (VOL) Don't know
6 (VOL) Refused

7f. How far above the speed limit do you think the average driver can go on Neighborhood or Residential streets, before he or she will receive a ticket?

____MPH over the speed limit
(RANGE: 0-97, 998, 999)

97 97 or more
998 (VOL) Don't know
999 (VOL) Refused

Norms/Factors on Speeding

8. Now I'm going to read a few statements about driving and speed limits. After I read each one, please tell me whether you agree, disagree, or neither. (READ ITEM). Would you say you strongly (AGREE/DISAGREE) or somewhat (AGREE/DISAGREE)?

a. Everyone should obey the speed limits because it's the law.
b. People should keep pace with the flow of traffic.
c. Speeding tickets have more to do with raising money than they do with reducing speeding.
d. Driving over the speed limit is not dangerous for skilled drivers.
e. There is no excuse to exceed the speed limits.
f. It is unacceptable to exceed speed limits by more than 20 mph.
g. If it is your time to die, you'll die, so it doesn't matter whether you speed.

1 Strongly agree
2 Somewhat agree
3 Neither
4 Somewhat disagree
5 Strongly disagree
6 (VOL) Don't know
7 (VOL) Refused

9. Now I'm going to read a few statements. After I read each one, please tell me whether you agree, disagree, or neither. (READ ITEM). Would you say you strongly (AGREE/DISAGREE) or somewhat (AGREE/DISAGREE)?

   a. I enjoy the feeling of driving fast.
   b. The faster I drive, the more alert I am.
   c. I often get impatient with slower drivers.
   d. I try to get where I am going as fast as I can.
   e. I worry a lot about having a crash.
   f. I consider myself a risk taker while driving.
   g. Speeding is something I do without thinking.

   1 Strongly agree
   2 Somewhat agree
   3 Neither
   4 Somewhat disagree
   5 Strongly disagree
   6 (VOL) Don't know
   7 (VOL) Refused

10. People sometimes go faster than the speed limit for different reasons. On those occasions when you do, what do you think are the main reasons you drive faster than the speed limit? Anything else?

   MULTIPLE RECORD. DO NOT READ.

   1 I'm late
   2 I am unlikely to have a crash
   3 It's a habit
   4 I'm alone in the car
   5 I'm unlikely to get a ticket
   6 People I am with encourage it
   7 I'm comfortable driving fast
   8 Other, Specify
   9 (VOL) I never speed
   10 (VOL) Don't know
   11 (VOL) Refused

11. Now I'm going to read a few statements. After I read each one, please tell me whether you agree, disagree, or neither. (READ ITEM). Would you say you strongly (AGREE/DISAGREE) or somewhat (AGREE/DISAGREE)?

    Driving at or near the speed limit . . .

    a. Reduces my chances of an accident
    b. Makes it difficult to keep up with traffic
    c. Makes me feel annoyed
    e. Makes it easier to avoid dangerous situations
    f. Uses less fuel

    1 Strongly agree
    2 Somewhat agree
    3 Neither
    4 Somewhat disagree
    5 Strongly disagree
    6 (VOL) Don't know
    7 (VOL) Refused

Attitudes Toward Enforcement

12. How important is it that something be done to reduce speeding by drivers? Is it . . .

    1 Very important
    2 Somewhat important
    3 Not too important
    4 Not at all important
    5 (VOL) Don't know
    6 (VOL) Refused

13. How often do you think police should enforce the speed limit? Should they enforce it . . .

    1 All the time
    2 Often
    3 Sometimes
    4 Rarely, or
    5 Never
    6 (VOL) Don't know
    7 (VOL) Refused

14. How often do you see motor vehicles that have been pulled over by police on the streets and roads you normally drive? Do you see motor vehicles pulled over . . . **READ LIST**

1 All the time
2 Often
3 Sometimes
4 Rarely
5 Never
6 (VOL) Don't know
7 (VOL) Refused

Automated Photo Enforcement Devices

The next questions are about speed cameras. These are cameras set up at intersections or other locations to take pictures of speeding vehicles. A traffic ticket is mailed to the owner of the vehicle along with a photograph and information about the location and time.

15. Before today, have you ever heard of speed cameras being used to ticket drivers who speed?

1 Yes
2 No
3 (VOL) Don't know
4 (VOL) Refused

16. Thinking about locations where speed cameras might be useful, would you find it acceptable to use them . . . ? **READ AND ROTATE A-F**

A. Where it could be hazardous for a police officer to stop a driver
B. Where stopping a vehicle could cause traffic congestion
C. Where there have been many crashes
D. In a school zone
E. In a construction zone
F. On all roads

1 Yes
2 No
3 (VOL) Don't know
4 (VOL) Refused

IF Q15 DOES NOT EQ 1, SKIP TO Q19

17. Along the routes you normally drive, are there speed cameras in use?

1 Yes, they are being used
2 No, there are no speed cameras along these routes
3 (VOL) Don't know
4 (VOL) Refused

18. Have you ever received a ticket in the mail for a speed violation, identified by a speed camera?

    1 Yes
    2 No
    3 (VOL) Don't know
    4 (VOL) Refused

19. Now I'm going to read a few statements. After I read each one, please tell me whether you agree, disagree, or neither. (READ ITEM). Would you say you strongly (AGREE/DISAGREE) or somewhat (AGREE/DISAGREE)?

    a. Speed cameras are used to prevent accidents
    b. Speed cameras are used to generate revenue

    1 Strongly agree
    2 Somewhat agree
    3 Neither
    4 Somewhat disagree
    5 Strongly disagree
    6 (VOL) Don't know
    7 (VOL) Refused

Attitudes Toward Speeding Countermeasures

20. How would you feel about using the following measures in your community to reduce speeding? Please tell me whether you think each of the following is a good idea or a bad idea.

    a. More frequent ticketing for speeding
    b. Issuing higher fines for speeding tickets
    c. Increasing public awareness of the risks of speeding
    d. Road design changes, like speed humps and traffic circles, to slow down traffic
    e. Electronic signs by the road that warn drivers that they are speeding and should slow down
    f. Increased use of speed cameras in dangerous or high crash locations

    1 Good idea
    2 Neither a good or bad idea
    3 Bad idea
    4 (VOL) Don't know
    5 (VOL) Refused

There are a number of new technologies in use to reduce the amount of speeding on our nation's roads. These next questions ask what you think about the use of these technologies to reduce speeding.

21. A speed governor is a device which does not allow the vehicle to go above a certain speed. Do you think the mandatory use of a speed governor is a good idea or a bad idea for . . . . ?

    a. Truck drivers
    b. Drivers 18 years or younger
    c. Drivers with multiple speeding tickets in one year
    d. All drivers

    1 Good idea
    2 Neither a good or bad idea
    3 Bad idea
    4 (VOL) Don't know
    5 (VOL) Refused

22. Please tell me whether you think each of the following is a good idea or a bad idea to help reduce speeding?

    a. A device in your motor vehicle that notifies you with a buzzer or a flashing light when you drive faster than the speed limit
    b. A device in your motor vehicle which records your speed data and gives you the option to provide the information to your insurance company to lower your premiums, if you obey the speed limits
    c. A device in your motor vehicle, which slows the motor vehicle down when it senses another car or object is too close to your motor vehicle

    1 Good idea
    2 Neither a good or bad idea
    3 Bad idea
    4 (VOL) Don't know
    5 (VOL) Refused

22a. Would it prevent you from speeding?

    1 Yes
    2 No
    3 Not sure
    4 (VOL) Refused

23. Now I'm going to read a few statements. After I read each one, please tell me whether you would be likely, unlikely, or neither to use the following devices in your own vehicle(s). (READ ITEM). Would you say you would be very (LIKELY/UNLIKELY) or somewhat (LIKELY/UNLIKELY) to use this device?

    A. A device in your motor vehicle that does not allow you to drive faster than 10 miles over the posted speed limit.
    B. A device in your motor vehicle that you can switch on or off, that prevents you from driving faster than the speed limit
    C. A device in your motor vehicle which allows parents to limit the maximum speed of the motor vehicle, when the teenager drives the motor vehicle

    1 Very likely
    2 Somewhat likely
    3 Neither
    4 Somewhat unlikely
    5 Very unlikely
    6 (VOL) Don't know
    7 (VOL) Refused

24. Some roadways use digital signs to change the speed limit on a section of road based on traffic or weather conditions. Do you think it is a good idea or a bad idea to use these signs in the following situations:

    A. Construction zones
    B. School zones
    C. Bad weather
    D. Congested Roadways

    1 Good idea
    2 Neither a good or bad idea
    3 Bad idea
    4 (VOL) Don't know
    5 (VOL) Refused

Crash Experience

25. How many times have you been in a speeding related accident in the past five years?

    _____ TIMES
    (RANGE: 0-30)

    98 (VOL) Don't know
    99 (VOL) Refused

IF Q25=0, SKIP TO Q30

26. How long ago was the most recent accident?

_____

98 (VOL) Don't know
99 (VOL) Refused

1 ENTER RESPONSE IN DAYS
2 ENTER RESPONSE IN WEEKS
3 ENTER RESPONSE IN MONTHS
4 ENTER RESPONSE IN YEARS

27. Did you receive any injuries as a result of the most recent speeding related accident?

1 Yes
2 No **SKIP TO Q30**
3 (VOL) Don't know **SKIP TO Q30**
4 (VOL) Refused **SKIP TO Q30**

28. Did your injuries require you to go to the hospital?

1 Yes
2 No **SKIP TO Q30**
3 (VOL) Don't know **SKIP TO Q30**
4 (VOL) Refused **SKIP TO Q30**

29. How long did you stay in the hospital?

_____ DAYS
(RANGE 0-97)

0 Less than 1 day
98 (VOL) Don't know
99 (VOL) Refused

Personal Sanctions

30. In the past TWELVE MONTHS have you been STOPPED for speeding by the police?

1 Yes
2 No **SKIP TO Q34**
3 (VOL) Don't know **SKIP TO Q34**
4 (VOL) Refused **SKIP TO Q34**

31. How many times have you been stopped for speeding in the past twelve months?

_____ TIMES STOPPED
(Range = 0 to 7)

8 (VOL) Don't know
9 (VOL) Refused

32a. Did you receive a ticket during the last time you were stopped for speeding?

1 Yes **SKIP TO Q33**
2 No
3 (VOL) Don't know
4 (VOL) Refused)

32b. Did you receive a warning the last time you were stopped for speeding?

1 Yes
2 No **SKIP TO Q34**
3 (VOL) Don't know **SKIP TO Q34**
4 (VOL) Refused) **SKIP TO Q34**

33. Did you change your driving behavior as a result of receiving the (TICKET/WARNING) for speeding?

1 Yes
2 No
3 (VOL) Don't know
4 (VOL) Refused

Other Risky Behaviors

34. When driving your primary vehicle how often do you wear your seatbelt?

1 All of the time
2 Most of the time
3 Some of the time
4 Rarely
5 Never
6 (VOL) Don't know
7 (VOL) Refused

35. In the past 30 days, have you driven a vehicle when you thought you might have consumed too much alcohol to drive safely?

1 Yes
2 No
3 (VOL) Don't know
4 (VOL) Refused

Use of Cell Phone Behaviors

36. When you drive a motor vehicle, do you usually have a cell phone or wireless phone of some type in the vehicle with you?

    1 Yes
    2 No **SKIP TO D1**
    8 (VOL) Don't know
    9 (VOL) Refused

37. How often do you talk on the phone while you are driving? Would you say you talk on the phone while driving during . . . ?

    1 All trips
    2 Most trips
    3 About half your trips
    4 Fewer than half your trips, or
    5 None of your trips **SKIP TO Q39**
    8 (VOL) Don't know
    9 (VOL) Refused

38. When you are talking on the phone while driving, do you tend to …?

    1 Hold the phone in your hand
    2 Squeeze the phone between your ear and shoulder
    3 Use a hands–free earpiece
    4 Use a built-in-car system (OnStar, Sync, or built-in Bluetooth)
    5 Use the cellular phone's speakerphone feature
    6 Varies
    8 (VOL) Don't know
    9 (VOL) Refused

39. How often do you read OR send text messages while you are driving and the vehicle is moving? Would you say you read OR send text messages while driving during ...?

    1 All trips
    2 Most trips
    3 About half your trips
    4 Fewer than half your trips, or
    5 None of your trips
    8 (VOL) Don't know
    9 (VOL) Refused

Demographics

Now, a few last questions for statistical purposes . . .

D1. How old are you?

AGE IN YEARS: _____

99 Refused (VOL)

D2. Are you currently employed full time, part time, unemployed and looking for work, retired, going to school, a homemaker, or something else? **SINGLE RECORD**

1 Employed full time
2 Employed part time
3 Unemployed and looking for work
4 Retired
5 Going to school
6 Homemaker
7 (VOL) Disabled
8 Other (SPECIFY)
9 (VOL) Not sure
10 (VOL) Refused

D3. What is highest grade or year of regular school you have completed? **DO NOT READ**

1 No formal schooling
2 First through 7th grade
3 8th grade
4 Some high school
5 High school graduate
6 Some college
7 Four-year college graduate
8 Some graduate school
9 Graduate degree
10 (VOL) Refused

D4. Are you currently married, divorced, separated, widowed, or single?

1 Married
2 Divorced
3 Separated
4 Widowed
5 Single
6 (VOL) Don't know
7 (VOL) Refused

D5. Do you consider yourself to be Hispanic or Latino?

1 Yes
2 No
3 (VOL) Don't know
4 (VOL) Refused

D6. Which of the following racial categories describes you? You may select more than one.

READ LIST AND MULTIPLE RECORD

1 American Indian or Alaska Native
2 Asian
3 Black or African-American
4 Native Hawaiian or Other Pacific Islander
5 White
6 (VOL) Hispanic/Latino
11 (VOL) Other (SPECIFY)
12 (VOL) Refused

ASK IF D5=2 AND D6=6

D6a. Just to confirm, do you consider yourself to be Hispanic or Latino?

1 Yes
2 No
3 (VOL) Don't know
4 (VOL) Refused

D7a. How many persons live in your household?

(NOTE: This includes children under the age of 16.)

_____ persons

98 (VOL) Don't know
99 (VOL) Refused

IF D7a=1, SKIP TO D8

D7b. How many persons live in your household who are under 16 years old?

_____ persons under 16

00 None
98 (VOL) Don't know
99 (VOL) Refused

D8. Do you own or rent your home?

1 Own
2 Rent
3 Some other arrangement
4 (VOL) Don't know
5 (VOL) Refused

D9. Which of the following categories best describes your total household income before taxes in 2010? Your best estimate is fine. **READ LIST**

1 Less than $5,000
2 $5,000 to $14,999
3 $15,000 to $29,999
4 $30,000 to $49,999
5 $50,000 to $74,999
6 $75,000 to $99,999
7 $100,000 or more
8 (VOL) Not sure
9 (VOL) Refused

D10. Let me just confirm that the number I reached you at was: [qphone] **READ PHONE NUMBER**

1 Yes
2 No
3 (VOL) Refused

D10a.May I please have your zip code?

ENTER ZIP CODE: _____

98 (VOL) Don't know
99 (VOL) Refused

IF DK OR REF IN D10a, ASK D10b

D10b. Do you live in a rural, suburban, or urban area?

1 Rural
2 Suburban
3 Urban
4 (VOL) Other (Specify)
5 (VOL) Don't know
6 (VOL) Refused

ASK ONLY FOR LANDLINE SAMPLE

D11.Is this the only telephone number for this household?

1 Yes, this is the only number
2 No, there is more than one number
9 (Don't know/Refused)

ASK ONLY FOR LANDLINE SAMPLE

D12.Do you have a cell phone in addition to the line we are speaking on right now?

1 This is only phone
2 Also has cell phone
9 (Don't know/Refused)

CELL SAMPLE ONLY: SKIP TO C1

ASK ONLY IF (SC5=2) OR (D12=2)

D13. Of all the telephone calls that you or your family receives, are . . . (Read List)

1 All or almost all calls received on cell phones
2 Some received on cell phones and some on regular phones
(IF CELL: SCRN OUT: NOT CELL MOSTLY) SKIP TO SCR1
3 Very few or none on cell phones
(IF CELL: SCRN OUT: NOT CELL MOSTLY) SKIP TO SCR1
8 (VOL) Don't know
(IF CELL: SCRN OUT: NOT CELL MOSTLY) SKIP TO SCR1
9 (VOL) Refused
IF CELL: SCRN OUT: NOT CELL MOSTLY) SKIP TO SCR1

ASK ONLY IF (SC5=2) OR (D12=2)

D14.Thinking about just your LAND LINE home phone, NOT your cell phone, if that telephone rang when someone was home, under normal circumstances, how likely is it that the phone would be answered? Would you say it is … (Read List)

1 Very likely the land line phone would be answered,
2 Somewhat likely,
3 Somewhat unlikely,
4 Very Unlikely, or
5 Not at all likely the land line phone would be answered
8 (VOL) Don't know
9 (VOL) Refused

CELL SAMPLE ONLY: GO TO SA3

FOR LANDLINE AND LANDLINE OVERSAMPLE ONLY

Those are all the questions I have for you. Thank you for your participation.

FOR CELL SAMPLE ONLY

C1. May I please have your name, street address, city, and state and zipcode so I can send you your $10 incentive check?

ENTER NAME:
ENTER ADDRESS:
ENTER CITY:
ENTER STATE:
ENTER ZIP:

Those are all the questions I have for you. Thank you for your participation.

SCR1. I am sorry but you are not eligible to participate in the survey today. Thank you for your cooperation and I hope you have a pleasant evening.

APPENDIX B
SURVEY METHODOLOGY

Methodology for the 2011 National Survey of Speeding Attitudes and Behavior

The goal of the 2011 National Survey of Speeding Attitudes and Behavior was to obtain a "snapshot" of the attitudes and behaviors regarding speeding of the population of drivers in the United States using a telephone survey of U.S. drivers 16 years and older. Only surveys based on probability samples can be used to create mathematically sound statistical inferences about a larger target population. Most statistical formulas for specifying the sampling precision (estimates of sampling variance), given particular sample sizes, are premised on simple random sampling. However, random sampling requires an enumeration of all of the elements in the population. Since no enumeration of the total population of the United States (or its subdivisions) is available, all surveys of the general public are based upon complex sample designs that may employ stratification and two or more stages of sampling.

A sampling design using geographic stratification, an oversample of young drivers, sampling frames of households with landlines and cell phones, together with an overall sample size of 6,000 was developed and implemented for this survey. The final sample consisted of 6,144 respondents, which included an independent cell phone sample of cellphone only and cell phone mostly households as well as an oversample of 500 drivers 16 to 34. Weights were developed to yield national estimates of the target population within specified limits of expected sampling variability. This appendix describes the methods of sample construction and survey administration, and shows the sample disposition and computation of weights.

Sample Construction

Strata - The initial stage in the construction of this sample required the development of a national probability sample of the non-institutionalized population of the United States 16 and older. Stratification (i.e., division of the population into collectively exhaustive and mutually exclusive homogenous groups), an efficient way of achieving high statistical precision with a smaller overall sample size, was employed. NHTSA has 10 regional offices with each regional office providing services to the States within its Region. Therefore, for the sample, the country was stratified into 10 strata, each consisting of the States in NHTSA's 10 Regions.

The estimated distribution of the target population by stratum was calculated on the basis of the U.S. Census Bureau, Population Estimates by State by Single Year of Age, Sex, Race, and Hispanic Origin: 2008. The population estimates were taken for the population 16 and older. Based on these Census estimates of the geographic distribution of the target population, the total sample was proportionately allocated by stratum.

Oversample of respondents 16 to 34 - Given the overrepresentation of young drivers in traffic crashes, it was very important that the subsample of drivers 16 to 34 years old in this survey be large enough for meaningful statistical analysis. However, the population prevalence of this age group was not large enough to generate the desired sub-sample size, given a total sample of 6,000 for the survey, so an oversample was included. Based on year 2008 Census Bureau estimates of the civilian non-institutionalized population, we estimated that in a population-based sample, about 33% of drivers should be 16 to 34. Our experience with recent telephone surveys using only conventional random digit dialing (RDD) of landline households indicates that the subsample of respondents 16 to 34 obtained by this method would fall short of the desired 33

percent of the total sample. For example, in the 2007 Motor Vehicle Occupant Safety Survey (MVOSS) that relied on RDD of landline phones, respondents 16 to 34 made up only 18 % of the entire sample.

Table B.1 shows the national population figures and projected sample distribution by age for the total sample of 6,000 respondents. The fourth column shows the desired sample from a population-based sample, and the last two columns show what could be expected from a conventional RDD landline approach, such as that used in the MVOSS 2007 study.

Table B.1.

EXPECTED POPULATION AND SAMPLE DISTRIBUTION BY AGE BASED ON June 1, 2008 CENSUS BUREAU ESTIMATES**

	Target Population		**Sample Distribution**		
			Population based	Expected Based on 2007 MVOSS response	
	(N in 1000s)	%	n	n	%
Total (16+)	233,627	100%	6,000	6,000	100%
16-24	37,476	16.0%	962	366	6.1%
25-34	39,960	17.1%	1,026	732	12.2%
35-44	41,735	17.9%	1,072	1,086	18.1%
45-64	77,397	33.1%	1,988	2,406	40.1%
65+	37,060	15.9%	952	1,410	23.5%

U.S. Bureau of the Census, Population Estimates, Age Category Estimates, 6/01/08

Source: www.census.gov/popest/national/asrh/files/NC-EST2007-ALLDATA-N-File19.csv

** Sample distribution from MVOSS 2007 with RDD landline survey

The reasons for this discrepancy include a lower response rate among younger adults, a higher proportion of persons 16 to 34 living in group quarters (e.g., dormitories), and a higher proportion of this age group living in cell phone only households. Hence, a simple proportionate sample of the adult driver population based on RDD landline methodology would not meet the needs of this study design. Consequently, an oversample of 500 respondents 16 to 34 was included in the sample design at the start of the study.

Landline and Cell Phone RDD samples - As noted above, RDD landline telephone sampling has been the conventional approach for conducting surveys of the U.S. household population for the past few decades. However, households are increasingly turning to cell phones, and many households have abandoned landline phones altogether. For example, in the second half of 2010, the percentage of cell phone only households (households with no landline, but accessible by cell

phone) was 29.7 percent, according to the National Health Interview Survey (Blumberg & Luke, 2012). Current RDD landline sampling procedures exclude telephone exchanges and banks of telephone numbers used exclusively for cell phones. This makes it difficult to reach people in subpopulations with high cell phone only usage. For example, almost 7 out of 10 (69.4%) adults living with unrelated roommates and over half (53.5%) of adults 25 to 29 years old live in cell-phone-only households. These are some of the same groups that are increasingly under-represented in conventional RDD landline telephone surveys. As the percentage of cell-phone-only households continues to grow, the conventional RDD landline sampling model can no longer reliably provide adequate population coverage required for sampling the U.S. household population. To overcome this challenge and to account for drivers that rely solely or mostly on cell phones, this survey used both a RDD sample of landline phones and a RDD sample of cell phones.

Cell Phone Households - A stratified random sample of cellular phone numbers was drawn and used to contact potential respondents. This was feasible because the 10 strata used in this study are defined in terms of states and cellular phone codes are also defined by states. However, cell phones are portable and some respondents could be living in states other than that indicated by their cell phone area code. To address this possible scenario, all cell phone respondents were asked their address so they could be classified into one of the NHTSA regions.

Two types of cell phone households were identified through screening: cell phone only households and cell phone mostly households. Cell phone only households do not have a landline phone. Cell phone mostly households have both landline and cellular telephone service (dual service), but the landline is not often used for receiving calls and, therefore, the probability of reaching such a household through the landline sample is greatly diminished. Because cell phone mostly households are also included in the sample frame of land line households, the estimation procedures that account for the overlapping dual service sample are more complicated than those that use non overlapping (mutually exclusive) samples of cell phone only households and landline households (with or without cell phone). Indeed, most surveys conducted to date with cell phone samples used strictly cell phone only households. However, it was important to include the cell phone mostly households in the study sample for the representativeness of the population and to capture respondents in the critical group of 16 to 34-year-olds.

Cell phones were treated as personal devices and only the person with the cell phone was screened for eligibility. A $10 incentive was offered to respondents to complete an interview via their cell phone A total of 783 interviews were conducted with respondents from cell phone only households and 354 interviews with respondents from cell phone mostly households. The number of interviews to be achieved for these groups was derived using a formula (Cochran, 1977) for the optimal allocation to strata when unit costs differ between the strata. A check was mailed to the respondents who accepted the incentive and provided a complete mailing address within 10 business days after the interview was completed.

Landline Households - A stratified sample of landline telephone numbers was drawn and potential respondents were contacted using conventional RDD methods. The households were screened for eligibility, and an eligible driver was selected for the interview. Landline respondents were not offered any incentives. A total of 5,007 interviews were conducted with respondents from the landline sample. This includes the oversample of 500 respondents 16 to 34.

Table B.2 shows the number of interviews from each sample type by age. Age quotas were not used during data collection except for the 500 person land line oversample for the 16 to 34-year-old group.

Table B.2. Sample Size by Type and Age

Age	Landline	Landline Oversample	Cell Phone Only	Cell Phone Mostly	TOTAL
16-34	472	500	424	119	1,515
35+	3,970	0	355	235	4,560
Not Reported	65	0	4	0	69
TOTAL	**4,507**	**500**	**783**	**354**	**6,144**

Survey Administration

The objective of survey administration is to conduct the data collection portion of the survey in a systematic, uniform and consistent manner. Survey administration includes the pretest of the instrument and survey procedures, monitoring of the interviews, and tracking of the sample disposition.

Cognitive Testing

On December 10, 2009, two interviewers conducted nine cognitive interviews at Abt Associates' Bethesda Cognitive Testing Laboratory (CTL) with licensed drivers from the Washington, DC, area. There was a mix of respondents by age, education, and gender. Each respondent signed an informed consent form and was paid $75 in appreciation for participation in the pretest.

The cognitive interview protocol consisted of a description of the cognitive interviews' general objective to identify question flaws that may affect the validity or reliability of answers, instructions to the respondent, and guidelines for the cognitive interviewer. Respondents were asked to think aloud during the interview, saying what they were thinking as they answered the survey questions and to also volunteer any additional comments about the clarity or other aspects of the questions. In addition, the interviewers asked follow-ups to some of the survey questions to determine details about the response process, and to check on the presence of potential problems noted when reviewing the draft instrument.

Pretest of CATI Instrument

Once the questions for the survey instrument were developed, the Computer Assisted Telephone Interview (CATI) instrument was programmed. Interviewers were briefed about the survey, the questionnaire and trained on the interviewing procedures. A survey pretest was conducted using the CATI programs and interviewed 34 respondents from the target population. The pretest was conducted over two evenings, and was monitored by NHTSA staff and the project director. The purpose of the pretest was to ensure all of the interviewing systems were working properly and to

also test the survey instrument to ensure that the respondents did not have any trouble understanding the questions or the language.

Calling Protocol

The calling protocol used in this study consisted of a maximum of 15 attempts for the land line sample, including the oversample of drivers 16 to 34. If someone in the household was contacted on one of these attempts, then the overall maximum attempts for that household was 25. For the cell phone sample, the maximum number of attempts to reach someone was 10. If contact was made during one of those 10 attempts with someone in that household, then the maximum number of attempts was set at 20.

If a person selected for the sample refused to participate in the survey and was classified as a Soft Refusal, he or she was re-contacted approximately one to two weeks after the initial refusal, giving them a "cooling off" period before the re-contact.

Spanish Language Interviewing

A Spanish language version of the survey instrument was developed in order to eliminate language barriers for a small proportion of the U.S. adult population. The questionnaire was translated into Spanish by a professional translation firm. The Spanish questionnaire was then reviewed next to the English questionnaire by a different translator and checked for errors. Any translations that were not comparable were revised to be in line with the intent of the English questionnaire.

If the interviewer encountered a language barrier during the initial contact, either with the person answering the phone or with the designated respondent, the interviewer thanked the person and terminated the call. If the case was designated as Spanish language, it was turned over to the next available Spanish-speaking interviewer.

All households which were designated as "Foreign Language-Spanish" were assigned to a Spanish-speaking interviewer. These bilingual interviewers re-contacted each Spanish-speaking household to screen for eligibility and conducted the interview with the target respondent.

Monitoring of Telephone Interviewers

For quality control, the telephone interviews were monitored by field supervisory staff using a silent line and screen monitoring.

Answering Machines

The strategy for handling answering machines with a 20- or 25-call protocol has to balance the objectives of reaching the household and avoiding annoyance of the household. Thus, messages were left on the answering machine or voice mail on the fifth, seventh and ninth calls, if an answering machine or voice mail was encountered on those attempts. The first answering machine message explained that the household had been selected as part of a USDOT study of

American driving habits and attitudes, and asked the respondent to call a toll-free number to schedule an interview. The subsequent answering messages also included this information.

Follow-Up Letter for Refusals, Non-Contacts and Callbacks

A quasi experiment was performed to test the effectiveness of a follow-up letter in obtaining a response. Follow-up letters were sent to 1,000 people who did not respond to the telephone interview by the tenth contact attempt, regardless of whether it is a non-contact, callback or refusal. The telephone numbers of these non-respondents were matched to an address database (with a 60% match rate), and letters were sent asking them to call the toll-free survey number and complete the survey. The follow-up letter did not have an effect on the refusal conversion or completion rate when we compared those who were sent a letter to those who were not sent a letter. Figure B1 shows the follow up letter.

Figure B.1. Follow up Letter

DATE PIN #: PINNUM

NAME

ADDRESS 1

ADDRESS 2

CITY, ST ZIP

Dear FNAME LNAME:

I am contacting you on behalf of the National Highway Traffic Safety Administration of the U.S. Department of Transportation. We are currently conducting a national study on traffic safety and you were selected to participate in our survey. The information you provide will be a big help to us in improving the safety of America's highways.

Unfortunately, we have not been able to reach you at the following number: PHONE. Please call us at your earliest convenience to schedule your phone interview. Our toll-free number is [redacted]. You can contact us any day of the week between the hours of 9 a.m. and 9 p.m., Eastern Time. Ask for extension 4548. When you contact us, you will need to provide your personal identification number (PIN) to complete the survey. Your PIN is: [redacted].

The interview only takes 20 minutes to complete. It is voluntary and you don't have to answer any questions that you don't want to answer. This study has been reviewed and approved by the U.S. Office of Management and Budget under OMB control number 2127-0613.

Your opinions about highway safety are very important to us. The information you provide will help the National Highway Traffic Safety Administration continue to improve motor vehicle safety for everyone on America's highways. Thank you in advance for your participation.

Sincerely,

Paul Schroeder

Project Director

Sample Dispositions

The final dispositions for each of the three independent samples are given in the following tables: Table B-3: Landline Cross-Section, Table B-4: Cell Sample, and Table B-5: Landline Oversample.

Table B-3: Final Disposition for Landline Cross-Section

		Original Count	Estimated Qualified Household*	Estimated Response Eligible
T1	**TOTAL**	**64,154**		
A	**NON-Usable Numbers**	**47,946**		
A1	Not in service/Disconnected//DIS/Change#/Intercepts	39,951		
A2	Non-residential #	4,502		
A3	Computer/Fax tone	2,570		
A4	Line problem	923		
T2	**Total Usable Numbers**	**16,208**		
B	**UNKNOWN ELIGIBLE HOUSEHOLD*^**	**3,294**	**832**	**678**
B1	No answer/Busy	1,307		
B2	Answering machine	1,987		
C	**NOT ELIGIBLE RESPONDENT^**	**2,773**	**2,773**	**2,258**
C1	Language barrier	547		
C2	Health/Deaf	1,952		
C3	Respondent away for duration	274		
D	**UNKNOWN ELIGIBLE RESPONDENT^**	**3,724**		**3,032**
D1	Callback	2,807		
D2	Spanish Callback not screened	0		
D3	Refusals not screened	917		
E	**CONTACTS SCREENED**	**1,910**		
E1	Qualified callback	376		376
E2	Refusals – Qualified	342		342
E3	Terminates	0		0
E4	Screen-outs	1,192		
F	**COMPLETE**	**4,507**		**4,507**
A'	**ESTIMATED ELIGIBLE HH RATE =T2/T1**	**25.26%**		
B'	**ELIGIBLE RESPONSE RATE = E+F-E4/(E+F)**	**81.42%**		
C'	**SUM RESPONSE ELIGIBLE COUNT**			**11,193**
D'	**RESPONSE RATE = F/C'**	**40.27%**		

*Estimated Qualified HH=Original Count * A'

^Response Eligible=Qualified Household Count * B'

Table B-4. Final Disposition for the Cell Phone Sample

	Cell Phone Sample, 2011	Original Count	Estimated Qualified Household*	Estimated Response Eligible
T1	**TOTAL**	**19000**		
A	**NON-Usable Numbers**	**7616**		
A1	Not in Service/Disconnected /Change#/Intercepts	6101		
A2	Non-residential #	1315		
A3	Computer/Fax tone	41		
A4	Line problem	159		
T2	**Total Usable Numbers**	**11384**		
B	**UNKNOWN ELIGIBLE HOUSEHOLD*^**	**765**	**458**	**253**
B1	No answer/Busy	692		
B2	Answering machine	73		
C	**NOT ELIGIBLE RESPONDENT^**	**1621**	**1621**	**896**
C1	Language barrier	825		
C2	Health/Deaf	660		
C3	Respondent away for duration	136		
D	**UNKNOWN ELIGIBLE RESPONDENT^**	**6526**		**3609**
D1	Callback	5982		
D2	Spanish Callback not screened			
D3	Refusals not screened	544		
E	**CONTACTS SCREENED**	**1336**		
E1	Qualified callback	186		186
E2	Refusals – Qualified	45		45
E3	Terminates	0		
E4	Screen-outs	1104		
F	**COMPLETE**	**1137**		**1137**
A'	**ESTIMATED ELIGIBLE HH RATE =T2/T1**	**59.92%**		
B'	**ELIGIBLE RESPONSE RATE = E+F-E4/(E+F)**	**55.30%**		
C'	**SUM RESPONSE ELIGIBLE COUNT**			**6127**
D'	**RESPONSE RATE = F/C'**	**18.55%**		

*Estimated Qualified HH=Original Count * A'
^Response Eligible = Qualified Household Count * B'

Table B-5. Final Disposition for the Landline Oversample (Age 16 to 34)

		Original Count	Estimated Qualified Household*	Estimated Response Eligible
T1	**TOTAL**	**55,588**		
A	**NON-Usable Numbers**	**40,343**		
A1	Not in Service/Disconnected/ Change#/Intercepts	34,038		
A2	Non-residential #	3,331		
A3	Computer/Fax tone	2,183		
A4	Line problem	791		
T2	**Total Usable Numbers**	**15,245**		
B	**UNKNOWN ELIGIBLE HOUSEHOLD*^**	**1,950**	**535**	**51**
B1	No answer/Busy	1,565		
B2	Answering machine	385		
C	**NOT ELIGIBLE RESPONDENT^**	**916**	**916**	**87**
C1	Language barrier	275		
C2	Health/Deaf	548		
C3	Respondent away for duration	93		
D	**UNKNOWN ELIGIBLE RESPONDENT^**	**3,332**		**315**
D1	Callback	2,862		
D2	Spanish Callback not screened	21		
D3	Refusals not screened	449		
E	**CONTACTS SCREENED**	**8,464**		
E1	Qualified callback	188		188
E2	Refusals – Qualified	85		85
E3	Terminates	0		
E4	Screen-outs	8,191		
F	**COMPLETE****	**583**		**583**
A'	**ESTIMATED ELIGIBLE HH RATE =T2/T1**	**27.42%**		
B'	**ELIGIBLE RESPONSE RATE = E+F-E4/(E+F)**	**9.46%**		
C'	**SUM RESPONSE ELIGIBLE COUNT**			**1,309**
D'	**RESPONSE RATE = F/C'**	**44.55%**		

*Estimated Qualified HH=Original Count * A'

^Response Eligible = Qualified Household Count * B'

** 83 Respondents were excluded from the final sample due to the fact that they screened as eligible but reported that their age was outside the 16 to 34 range in the demographics section.

Precision of Sample Estimates

The confidence interval for an estimate derived from the survey sample is:

$$\hat{y} \pm z_{1-\alpha/2}\sqrt{Var(\hat{y})}$$

where:

$\hat{y}$ = an estimate of the population proportion;
$Var(\hat{y})$ = is the simple random sampling variance[1] of $\hat{y}$; and
$z_{1-\alpha/2}$ = $(1-\alpha/2)$th percentile of the standard normal distribution (95%: α = 5%, z = 1.96; 90%: α = 10%, z = 1.645).

For best results, data users should use statistical software such as SAS, SPSS, STATA or SUDAAN to calculate the confidence intervals for a complex sampling design. However, data users can use the tables that follow to approximate the confidence interval based on a simple formula.

Sampling Error

The sampling variance for an estimate is a measure of uncertainty that reflects the fact that the estimate is derived from a sample drawn from the population. If one were to draw a second sample in the exact same manner, the estimate would be different from the first simply due to the fact that our sample contains different members of the population. A third sample would be different from the first two, and so on. The sampling variance measures how different the estimates would be had we drawn different samples.

The sampling error for a complex survey depends on three things:

1. σ_y^2 =the population variance for the characteristic: the sampling variance is higher when there is a lot of variability in the population (large σ_y^2) and lower when there is little variability in the population.
2. n = The sample size: the sampling variance is higher when the sample size is small and lower when the sample size is large. The sampling variance for estimates of subgroups is based on the sample size for those subgroups.
3. *DEFF* = design effect:[2] Sampling design features such as stratification, clustering, dual-frame sampling, and survey weighting all contribute to the sampling variability. The design effect is a measure of inefficiency (or efficiency) of the complex sample relative to a simple random sample, calculated as $DEFF = Var(\hat{y})/Var_{srs}(\hat{y})$.

Using this relationship, we can write the sampling variance of the complex design as: $Var(\hat{y}) = Var_{srs}(\hat{y}) \times DEFF = \sigma_y^2/n \times DEFF$. Therefore, one can calculate the sampling variance with the population variance (or an estimate of the population variance); the sample size; and the design effect.

[1] A simple random sample is a sample on *n* units drawn directly from a population of N units.
[2] Kish, L. (1965). *Survey Sampling*. New York: John Wiley & Sons.

Estimating the population variance

The population variance is often estimated from the survey data, $s^2 = \sum_n (y_i - \bar{y})^2 / n$. In the case of percentages, the population variance σ_y^2 = P×(1-P) and can be estimated from the survey estimate $s^2 = \hat{p} \times (1 - \hat{p})$. An alternative is to use the variance estimates based on the percentages presented in Table B.6. Rounding the estimated percentage up to the nearest 5 percentage points (e.g., 17% to 20%, 34% to 35%) is a conservative estimate of the population variance. The variance for a percentage is low when a small percentage of the population has the characteristic (or a large percentage of the population has the characteristic) and high when the percentage of the population with the characteristic is equal (50/50).

Estimating Design effects

The sampling design impacts the variance for each data item differently. Therefore the design effect for one survey estimate might be higher or lower than the design effect of another survey estimate. The design effect will also vary for different subpopulations represented in the sample, such as males and females. To simplify the calculations of the sampling error, design effect approximations are presented in Table B.6 below. These approximations are based on the average design effect for over 100 data items.

Table B.6. Estimated 95% Error Margins Overall and Various Population Subgroups

	DEFF	n	P =	50, 50	45, 55	40, 60	35, 65	30, 70	25, 75	20, 80	15, 85	10, 90	5, 95
			σ^2 =	0.2500	0.2475	0.2400	0.2275	0.2100	0.1875	0.1600	0.1275	0.0900	0.0475
Total	1.76	6144		1.7%	1.7%	1.6%	1.6%	1.5%	1.4%	1.3%	1.2%	1.0%	0.7%
NHTSA Region													
1	1.72	361		6.8%	6.7%	6.6%	6.5%	6.2%	5.9%	5.4%	4.8%	4.1%	3.0%
2	1.77	868		4.4%	4.4%	4.3%	4.2%	4.1%	3.8%	3.5%	3.2%	2.7%	1.9%
3	1.65	682		4.8%	4.8%	4.7%	4.6%	4.4%	4.2%	3.9%	3.4%	2.9%	2.1%
4	1.74	856		4.4%	4.4%	4.3%	4.2%	4.1%	3.8%	3.5%	3.2%	2.7%	1.9%
5	1.64	1175		3.7%	3.6%	3.6%	3.5%	3.4%	3.2%	2.9%	2.6%	2.2%	1.6%
6	1.67	581		5.3%	5.2%	5.2%	5.0%	4.8%	4.6%	4.2%	3.8%	3.2%	2.3%
7	1.90	404		6.7%	6.7%	6.6%	6.4%	6.2%	5.8%	5.4%	4.8%	4.0%	2.9%
8	1.63	245		8.0%	7.9%	7.8%	7.6%	7.3%	6.9%	6.4%	5.7%	4.8%	3.5%
9	1.74	668		5.0%	5.0%	4.9%	4.8%	4.6%	4.3%	4.0%	3.6%	3.0%	2.2%
10	1.64	304		7.2%	7.2%	7.0%	6.9%	6.6%	6.2%	5.8%	5.1%	4.3%	3.1%
Age group													
16-20	1.54	295		7.1%	7.0%	6.9%	6.7%	6.5%	6.1%	5.7%	5.1%	4.2%	3.1%
21-24	1.57	281		7.3%	7.3%	7.2%	7.0%	6.7%	6.3%	5.9%	5.2%	4.4%	3.2%
25-34	1.85	939		4.3%	4.3%	4.3%	4.1%	4.0%	3.8%	3.5%	3.1%	2.6%	1.9%
35-44	1.65	835		4.4%	4.3%	4.3%	4.2%	4.0%	3.8%	3.5%	3.1%	2.6%	1.9%
45-54	1.53	1,185		3.5%	3.5%	3.4%	3.4%	3.2%	3.0%	2.8%	2.5%	2.1%	1.5%
55-64	1.42	1,211		3.4%	3.3%	3.3%	3.2%	3.1%	2.9%	2.7%	2.4%	2.0%	1.5%
65+	1.47	1,329		3.3%	3.2%	3.2%	3.1%	3.0%	2.8%	2.6%	2.3%	2.0%	1.4%

Table B.6. Estimated 95% Error Margins Overall and Various Population Subgroups

	DEFF	n	P =	50, 50	45, 55	40, 60	35, 65	30, 70	25, 75	20, 80	15, 85	10, 90	5, 95
			σ^2 =	0.2500	0.2475	0.2400	0.2275	0.2100	0.1875	0.1600	0.1275	0.0900	0.0475
Gender													
Male	1.72	2,696		2.5%	2.5%	2.4%	2.4%	2.3%	2.1%	2.0%	1.8%	1.5%	1.1%
Female	1.77	3,448		2.2%	2.2%	2.2%	2.1%	2.0%	1.9%	1.8%	1.6%	1.3%	1.0%
Race/Ethnicity													
Hispanic	1.57	440		5.9%	5.8%	5.7%	5.6%	5.4%	5.1%	4.7%	4.2%	3.5%	2.6%
NH white	1.60	4,750		1.8%	1.8%	1.8%	1.7%	1.6%	1.6%	1.4%	1.3%	1.1%	0.8%
NH black	1.50	483		5.5%	5.4%	5.3%	5.2%	5.0%	4.7%	4.4%	3.9%	3.3%	2.4%
NH Asian	1.46	134		10.2%	10.2%	10.0%	9.7%	9.4%	8.8%	8.2%	7.3%	6.1%	4.5%
NH AIAN	1.59	75		14.3%	14.2%	14.0%	13.6%	13.1%	12.4%	11.4%	10.2%	8.6%	6.2%
NH other	1.87	164		10.5%	10.4%	10.3%	10.0%	9.6%	9.1%	8.4%	7.5%	6.3%	4.6%
Educational attainment													
LT HS	1.44	464		5.5%	5.4%	5.4%	5.2%	5.0%	4.7%	4.4%	3.9%	3.3%	2.4%
HS grad	1.51	1,666		2.9%	2.9%	2.9%	2.8%	2.7%	2.6%	2.4%	2.1%	1.8%	1.3%
Some coll	1.54	1,661		3.0%	3.0%	2.9%	2.8%	2.7%	2.6%	2.4%	2.1%	1.8%	1.3%
Coll grad	1.51	1,231		3.4%	3.4%	3.4%	3.3%	3.1%	3.0%	2.7%	2.5%	2.1%	1.5%
Grad school	1.54	1,094		3.7%	3.7%	3.6%	3.5%	3.4%	3.2%	2.9%	2.6%	2.2%	1.6%
Driver type cluster													
Speeder	1.77	1,572		3.3%	3.3%	3.2%	3.1%	3.0%	2.8%	2.6%	2.3%	2.0%	1.4%
Sometime Speeder	1.68	2,148		2.7%	2.7%	2.7%	2.6%	2.5%	2.4%	2.2%	2.0%	1.6%	1.2%
Nonspeeder	1.64	1,579		3.2%	3.1%	3.1%	3.0%	2.9%	2.7%	2.5%	2.3%	1.9%	1.4%

Table B.6. Estimated 95% Error Margins Overall and Various Population Subgroups

	DEFF	n	P =	50, 50	45, 55	40, 60	35, 65	30, 70	25, 75	20, 80	15, 85	10, 90	5, 95
			σ^2 =	0.2500	0.2475	0.2400	0.2275	0.2100	0.1875	0.1600	0.1275	0.0900	0.0475
Urban													
No	1.73	2,903		2.4%	2.4%	2.3%	2.3%	2.2%	2.1%	1.9%	1.7%	1.4%	1.0%
Yes	1.77	3,030		2.4%	2.4%	2.3%	2.3%	2.2%	2.0%	1.9%	1.7%	1.4%	1.0%
Frequent driver (q1=1,2)													
No	1.77	323		7.3%	7.2%	7.1%	6.9%	6.7%	6.3%	5.8%	5.2%	4.4%	3.2%
Yes	1.76	5,821		1.7%	1.7%	1.7%	1.6%	1.6%	1.5%	1.4%	1.2%	1.0%	0.7%
Type of vehicle													
Car	1.78	3,507		2.2%	2.2%	2.2%	2.1%	2.0%	1.9%	1.8%	1.6%	1.3%	1.0%
Van or minivan	1.69	563		5.4%	5.3%	5.3%	5.1%	4.9%	4.7%	4.3%	3.8%	3.2%	2.3%
Pickup truck	1.65	816		4.4%	4.4%	4.3%	4.2%	4.0%	3.8%	3.5%	3.1%	2.6%	1.9%
SUV	1.77	1,131		3.9%	3.9%	3.8%	3.7%	3.6%	3.4%	3.1%	2.8%	2.3%	1.7%

Table B.7. Estimated 95% Error Margins Overall and Various Sample Sizes

DEFF	n	P σ^2	50, 50 0.2500	45, 55 0.247	40, 60 0.240	35, 65 0.227	30, 70 0.210	25, 75 0.187	20, 80 0.160	15, 85 0.127	10, 90 0.0900	5, 95 0.047
1.76	6,000		1.7%	1.7%	1.6%	1.6%	1.5%	1.5%	1.3%	1.2%	1.0%	0.7%
	5,500		1.8%	1.7%	1.7%	1.7%	1.6%	1.5%	1.4%	1.3%	1.1%	0.8%
	5,000		1.8%	1.8%	1.8%	1.8%	1.7%	1.6%	1.5%	1.3%	1.1%	0.8%
	4,500		1.9%	1.9%	1.9%	1.8%	1.8%	1.7%	1.6%	1.4%	1.2%	0.8%
	4,000		2.1%	2.0%	2.0%	2.0%	1.9%	1.8%	1.6%	1.5%	1.2%	0.9%
	3,500		2.2%	2.2%	2.2%	2.1%	2.0%	1.9%	1.8%	1.6%	1.3%	1.0%
	3,000		2.4%	2.4%	2.3%	2.3%	2.2%	2.1%	1.9%	1.7%	1.4%	1.0%
	2,500		2.6%	2.6%	2.5%	2.5%	2.4%	2.3%	2.1%	1.9%	1.6%	1.1%
	2,250		2.7%	2.7%	2.7%	2.6%	2.5%	2.4%	2.2%	2.0%	1.6%	1.2%
	2,000		2.9%	2.9%	2.8%	2.8%	2.7%	2.5%	2.3%	2.1%	1.7%	1.3%
	1,750		3.1%	3.1%	3.0%	3.0%	2.8%	2.7%	2.5%	2.2%	1.9%	1.4%
	1,500		3.4%	3.3%	3.3%	3.2%	3.1%	2.9%	2.7%	2.4%	2.0%	1.5%
	1,250		3.7%	3.7%	3.6%	3.5%	3.4%	3.2%	2.9%	2.6%	2.2%	1.6%
	1,000		4.1%	4.1%	4.0%	3.9%	3.8%	3.6%	3.3%	2.9%	2.5%	1.8%
	750		4.7%	4.7%	4.7%	4.5%	4.4%	4.1%	3.8%	3.4%	2.8%	2.1%
	500		5.8%	5.8%	5.7%	5.5%	5.3%	5.0%	4.7%	4.2%	3.5%	2.5%
	400		6.5%	6.5%	6.4%	6.2%	6.0%	5.6%	5.2%	4.6%	3.9%	2.8%
	300		7.5%	7.5%	7.4%	7.2%	6.9%	6.5%	6.0%	5.4%	4.5%	3.3%
	200		9.2%	9.1%	9.0%	8.8%	8.4%	8.0%	7.4%	6.6%	5.5%	4.0%
	150		10.6%	10.6%	10.4%	10.1%	9.7%	9.2%	8.5%	7.6%	6.4%	4.6%
	100		13.0%	12.9%	12.7%	12.4%	11.9%	11.3%	10.4%	9.3%	7.8%	5.7%
	50		18.4%	18.3%	18.0%	17.5%	16.9%	15.9%	14.7%	13.1%	11.0%	8.0%

Testing for Statistical Differences

Sampling error is also used to determine whether two population subgroups (or domains) are significantly different with respect to a certain statistic, that is, the difference in the sampled subgroup estimates is large enough that it would be unlikely to randomly occur if the statistics were the same for the subgroups. Consider the hypothesis test for comparing two domains:

H_0: $Y_1 = Y_2$ or $Y_1 - Y_2 = 0$
H_1: $Y_1 \neq Y_2$ or $Y_1 - Y_2 \neq 0$

One method to test whether Y_1 is different from Y_2 is to calculate a confidence interval around the difference in the sample estimates,[3] $(\hat{y}_1 - \hat{y}_2) \pm z_{1-\alpha/2}\sqrt{Var(\hat{y}_1 - \hat{y}_2)}$. If the interval does not contain 0, we conclude that Y_1 is different from Y_2 –the observed difference in the sample estimates is not likely to randomly occur if Y_1 was equal to Y_2, therefore there is evidence to indicate a difference in the population statistics. If the interval does contain 0, we cannot conclude that Y_1 is different from Y_2 – there is insufficient evidence to indicate a difference in the population statistics.

$Var(\hat{y}_1 - \hat{y}_2) = Var(\hat{y}_1) + Var(\hat{y}_2)$, the sum of the variances for two population subgroups. The subgroup variances are estimated as described above. Table B.8 includes the estimated 95% error margins for the differences between subgroups of various size. If the observed difference is less than or equal to the error margin, the difference is not statistically significant at the $\alpha = 0.05$ significance level. If it is greater than the error margin, the difference is statistically significant at the $\alpha = 0.05$ significance level.

[3] This method should only be used for large sample sizes. One rule of thumb is n_1 and n_2 both greater than 30.

Table B.8. Estimated 95% Error Margins for the Difference Between Two Subgroups

DEFF	n_1	P	n_2 = 6000	5000	4000	3000	2000	1500	1000	500	400	300	200	100	50
1.76	6,000	50,50	2.4%	2.5%	2.7%	2.9%	3.4%	3.8%	4.4%	6.1%	6.7%	7.7%	9.3%	13.1%	18.5%
		40,60	2.3%	2.4%	2.6%	2.8%	3.3%	3.7%	4.4%	5.9%	6.6%	7.5%	9.2%	12.8%	18.1%
		30,70	2.2%	2.3%	2.4%	2.7%	3.1%	3.4%	4.1%	5.5%	6.2%	7.0%	8.6%	12.0%	16.9%
		20,80	1.9%	2.0%	2.1%	2.3%	2.7%	3.0%	3.6%	4.8%	5.4%	6.2%	7.5%	10.5%	14.8%
		10,90	1.4%	1.5%	1.6%	1.7%	2.0%	2.3%	2.7%	3.6%	4.0%	4.6%	5.6%	7.9%	11.1%
	5,000	50,50	2.5%	2.6%	2.8%	3.0%	3.4%	3.8%	4.5%	6.1%	6.8%	7.7%	9.4%	13.1%	18.5%
		40,60	2.4%	2.5%	2.7%	2.9%	3.4%	3.8%	4.4%	6.0%	6.6%	7.6%	9.2%	12.9%	18.1%
		30,70	2.3%	2.4%	2.5%	2.8%	3.2%	3.5%	4.1%	5.6%	6.2%	7.1%	8.6%	12.0%	16.9%
		20,80	2.0%	2.1%	2.2%	2.4%	2.8%	3.1%	3.6%	4.9%	5.4%	6.2%	7.5%	10.5%	14.8%
		10,90	1.5%	1.6%	1.7%	1.8%	2.1%	2.3%	2.7%	3.7%	4.1%	4.6%	5.6%	7.9%	11.1%
	4,000	50,50	2.7%	2.8%	2.9%	3.1%	3.6%	3.9%	4.6%	6.2%	6.8%	7.8%	9.4%	13.2%	18.5%
		40,60	2.6%	2.7%	2.8%	3.1%	3.5%	3.9%	4.5%	6.0%	6.7%	7.6%	9.2%	12.9%	18.1%
		30,70	2.4%	2.5%	2.7%	2.9%	3.3%	3.6%	4.2%	5.7%	6.2%	7.1%	8.6%	12.1%	17.0%
		20,80	2.1%	2.2%	2.3%	2.5%	2.8%	3.1%	3.7%	4.9%	5.5%	6.2%	7.5%	10.5%	14.8%
		10,90	1.6%	1.7%	1.7%	1.9%	2.1%	2.4%	2.8%	3.7%	4.1%	4.7%	5.7%	7.9%	11.1%
	3,000	50,50	2.9%	3.0%	3.1%	3.4%	3.8%	4.1%	4.7%	6.3%	6.9%	7.9%	9.5%	13.2%	18.5%
		40,60	2.8%	2.9%	3.1%	3.3%	3.7%	4.0%	4.7%	6.2%	6.8%	7.7%	9.3%	12.9%	18.2%
		30,70	2.7%	2.8%	2.9%	3.1%	3.4%	3.8%	4.4%	5.8%	6.3%	7.2%	8.7%	12.1%	17.0%
		20,80	2.3%	2.4%	2.5%	2.7%	3.0%	3.3%	3.8%	5.0%	5.5%	6.3%	7.6%	10.6%	14.8%
		10,90	1.7%	1.8%	1.9%	2.0%	2.3%	2.5%	2.8%	3.8%	4.2%	4.7%	5.7%	7.9%	11.1%
	2,000	50,50	3.4%	3.4%	3.6%	3.8%	4.1%	4.4%	5.0%	6.5%	7.1%	8.0%	9.6%	13.3%	18.6%
		40,60	3.3%	3.4%	3.5%	3.7%	4.0%	4.4%	4.9%	6.4%	7.0%	7.9%	9.4%	13.1%	18.2%
		30,70	3.1%	3.2%	3.3%	3.4%	3.8%	4.1%	4.6%	6.0%	6.5%	7.4%	8.8%	12.2%	17.1%
		20,80	2.7%	2.8%	2.8%	3.0%	3.3%	3.6%	4.0%	5.2%	5.7%	6.4%	7.7%	10.7%	14.9%
		10,90	2.0%	2.1%	2.1%	2.3%	2.5%	2.7%	3.0%	3.9%	4.3%	4.8%	5.8%	8.0%	11.2%

Table B.8. Estimated 95% Error Margins for the Difference Between Two Subgroups (Continued)

DEFF	n_1	P	n_2 = 6000	5000	4000	3000	2000	1500	1000	500	400	300	200	100	50
1.76	1,500	50,50	3.8%	3.8%	3.9%	4.1%	4.4%	4.7%	5.3%	6.7%	7.3%	8.2%	9.8%	13.4%	18.7%
		40,60	3.7%	3.8%	3.9%	4.0%	4.4%	4.7%	5.2%	6.6%	7.2%	8.1%	9.6%	13.2%	18.3%
		30,70	3.4%	3.5%	3.6%	3.8%	4.1%	4.4%	4.9%	6.2%	6.7%	7.5%	9.0%	12.3%	17.1%
		20,80	3.0%	3.1%	3.1%	3.3%	3.6%	3.8%	4.2%	5.4%	5.9%	6.6%	7.8%	10.7%	15.0%
		10,90	2.3%	2.3%	2.4%	2.5%	2.7%	2.8%	3.2%	4.0%	4.4%	4.9%	5.9%	8.1%	11.2%
	1,000	50,50	4.4%	4.5%	4.6%	4.7%	5.0%	5.3%	5.8%	7.1%	7.7%	8.6%	10.1%	13.6%	18.8%
		40,60	4.4%	4.4%	4.5%	4.7%	4.9%	5.2%	5.7%	7.0%	7.5%	8.4%	9.9%	13.4%	18.5%
		30,70	4.1%	4.1%	4.2%	4.4%	4.6%	4.9%	5.3%	6.5%	7.0%	7.8%	9.2%	12.5%	17.3%
		20,80	3.6%	3.6%	3.7%	3.8%	4.0%	4.2%	4.7%	5.7%	6.2%	6.8%	8.1%	10.9%	15.1%
		10,90	2.7%	2.7%	2.8%	2.8%	3.0%	3.2%	3.5%	4.3%	4.6%	5.1%	6.0%	8.2%	11.3%
	500	50,50	6.1%	6.1%	6.2%	6.3%	6.5%	6.7%	7.1%	8.2%	8.7%	9.5%	10.9%	14.2%	19.3%
		40,60	5.9%	6.0%	6.0%	6.2%	6.4%	6.6%	7.0%	8.1%	8.5%	9.3%	10.7%	14.0%	18.9%
		30,70	5.5%	5.6%	5.7%	5.8%	6.0%	6.2%	6.5%	7.5%	8.0%	8.7%	10.0%	13.1%	17.7%
		20,80	4.8%	4.9%	4.9%	5.0%	5.2%	5.4%	5.7%	6.6%	7.0%	7.6%	8.7%	11.4%	15.4%
		10,90	3.6%	3.7%	3.7%	3.8%	3.9%	4.0%	4.3%	4.9%	5.2%	5.7%	6.5%	8.5%	11.6%
	400	50,50	6.7%	6.8%	6.8%	6.9%	7.1%	7.3%	7.7%	8.7%	9.2%	9.9%	11.3%	14.5%	19.5%
		40,60	6.6%	6.6%	6.7%	6.8%	7.0%	7.2%	7.5%	8.5%	9.0%	9.7%	11.0%	14.2%	19.1%
		30,70	6.2%	6.2%	6.2%	6.3%	6.5%	6.7%	7.0%	8.0%	8.4%	9.1%	10.3%	13.3%	17.9%
		20,80	5.4%	5.4%	5.5%	5.5%	5.7%	5.9%	6.2%	7.0%	7.4%	7.9%	9.0%	11.6%	15.6%
		10,90	4.0%	4.1%	4.1%	4.2%	4.3%	4.4%	4.6%	5.2%	5.5%	6.0%	6.8%	8.7%	11.7%
	300	50,50	7.7%	7.7%	7.8%	7.9%	8.0%	8.2%	8.6%	9.5%	9.9%	10.6%	11.9%	15.0%	19.9%
		40,60	7.5%	7.6%	7.6%	7.7%	7.9%	8.1%	8.4%	9.3%	9.7%	10.4%	11.6%	14.7%	19.5%
		30,70	7.0%	7.1%	7.1%	7.2%	7.4%	7.5%	7.8%	8.7%	9.1%	9.7%	10.9%	13.8%	18.2%
		20,80	6.2%	6.2%	6.2%	6.3%	6.4%	6.6%	6.8%	7.6%	7.9%	8.5%	9.5%	12.0%	15.9%
		10,90	4.6%	4.6%	4.7%	4.7%	4.8%	4.9%	5.1%	5.7%	6.0%	6.4%	7.1%	9.0%	11.9%

Table B.8. Estimated 95% Error Margins for the Difference Between Two Subgroups (Continued)

DEFF	n_1	P	n_2 = 6000	5000	4000	3000	2000	1500	1000	500	400	300	200	100	50
1.76	200	50,50	9.3%	9.4%	9.4%	9.5%	9.6%	9.8%	10.1%	10.9%	11.3%	11.9%	13.0%	15.9%	20.6%
		40,60	9.2%	9.2%	9.2%	9.3%	9.4%	9.6%	9.9%	10.7%	11.0%	11.6%	12.7%	15.6%	20.1%
		30,70	8.6%	8.6%	8.6%	8.7%	8.8%	9.0%	9.2%	10.0%	10.3%	10.9%	11.9%	14.6%	18.8%
		20,80	7.5%	7.5%	7.5%	7.6%	7.7%	7.8%	8.1%	8.7%	9.0%	9.5%	10.4%	12.7%	16.4%
		10,90	5.6%	5.6%	5.7%	5.7%	5.8%	5.9%	6.0%	6.5%	6.8%	7.1%	7.8%	9.6%	12.3%
	100	50,50	13.1%	13.1%	13.2%	13.2%	13.3%	13.4%	13.6%	14.2%	14.5%	15.0%	15.9%	18.4%	22.5%
		40,60	12.8%	12.9%	12.9%	12.9%	13.1%	13.2%	13.4%	14.0%	14.2%	14.7%	15.6%	18.0%	22.1%
		30,70	12.0%	12.0%	12.1%	12.1%	12.2%	12.3%	12.5%	13.1%	13.3%	13.8%	14.6%	16.9%	20.6%
		20,80	10.5%	10.5%	10.5%	10.6%	10.7%	10.7%	10.9%	11.4%	11.6%	12.0%	12.7%	14.7%	18.0%
		10,90	7.9%	7.9%	7.9%	7.9%	8.0%	8.1%	8.2%	8.5%	8.7%	9.0%	9.6%	11.0%	13.5%
	50	50,50	18.5%	18.5%	18.5%	18.5%	18.6%	18.7%	18.8%	19.3%	19.5%	19.9%	20.6%	22.5%	26.0%
		40,60	18.1%	18.1%	18.1%	18.2%	18.2%	18.3%	18.5%	18.9%	19.1%	19.5%	20.1%	22.1%	25.5%
		30,70	16.9%	16.9%	17.0%	17.0%	17.1%	17.1%	17.3%	17.7%	17.9%	18.2%	18.8%	20.6%	23.8%
		20,80	14.8%	14.8%	14.8%	14.8%	14.9%	15.0%	15.1%	15.4%	15.6%	15.9%	16.4%	18.0%	20.8%
		10,90	11.1%	11.1%	11.1%	11.1%	11.2%	11.2%	11.3%	11.6%	11.7%	11.9%	12.3%	13.5%	15.6%

Weighting Methodology

Base sampling Weights

For the cross-sectional landline sample, the base sampling weight equals the population count of land line telephone numbers in the list-assisted sampling frame, divided by the total count of sample telephone numbers for the replicates that were released:

- If STATUS = 1 and FPROJ = 4548, then BSW = 4414.828.

For the cell phone sample, the base sampling weight equals the population count of telephone numbers in the cellular sampling frame, divided by the total count of sample telephone numbers for the replicates that were released:

- If STATUS = 1 and FPROJ = 4548c, then BSW = 21779.137.

A separate landline sample was used to screen for households containing one or more persons 16 to 34 years old. This oversample leads to an overrepresentation of persons 16 to 34 years old in the combined landline sample. Therefore, for the cross-sectional landline interviews, we calculated the sum of the base sampling weights for respondents 16 to 34 years old. Call this SUM16-34. We then obtained the unweighted count of respondents with (STATUS = 1 and FPROJ = 4548 and (D1) = 16 to 34) or (STAUS = 1 and FPROJ = 4548o and D1 = 16 to 34). Call this count N16-34. For the respondents 16 to 34 years old, the base sampling weight equals SUM16-34 / N16-34.

The base sampling weights were assigned to the 6,144 completed interviews

Design Weights
For the cross-sectional landline sample one person 16 or older was randomly selected from the household. The base sampling weight was multiplied by the number of age-eligible people in the household, with the maximum value capped at five:

- If FPROJ = 4548, BSW_NUMADULT = BSW x SL1o_R.

- Recodes: SL1o_R = SL1o values of 1 to 5. If SL1o = missing, SL1o_R = 2. If SL1o = 6 to 10, SL1o_R = 5.

For the cell phone sample, the cell phone was treated as a personal device and no respondent selection took place:

- If FPROJ = 4548c, BSW_NUMADULT = BSW.

For the oversample of households containing one or more persons 16 to 34 years old, one person in this age range was randomly selected. The base sampling weight was multiplied by the number of age-eligible persons in the household, with the maximum value capped at five:

- If FPROJ = 4548o, BSW_NUMADULT = BSW x SO1o_R.

- Recodes: SO1o_R = SL1 values of 1 to 5. If SO1o = missing, SO1o_R = 2. If SO1o = 6 to 10, SO1o_R = 5.

If the cell phone respondent reported that they had two or more personal-use cell phones, the weight from the prior step was divided by two:

- If FPROJ = 4548c and SC4 = 1, then BSW_NUMPHONE = BSW_NUMADULT / 2.
- Otherwise, BSW_NUMPHONE = BSW_NUMADULT.

If the landline respondent reported that they had two or more voice-use landline telephone numbers in the household, the weight from the prior step were divided by two:

- If FPROJ = 4548 or 4548oandD11 = 2, then BSW_NUMPHONE = BSW_NUMADULT / 2.
- Otherwise, BSW_NUMPHONE = BSW_NUMADULT.

Compositing Weights
The 6,144 completed interviews were first divided into four telephone status categories:

- FPROJ = 4548c.
- IF SC5 = 1, TELEPHONE_STATUS = 1 (cell only).
- IF SC5 ≠ 1, TELEPHONE_STATUS = 3 (cell sample, dual user).

- FPROJ = 4548 or 4548o.
- IF D12 = 2, TELEPHONE_STATUS = 4 (landline sample, dual user).
- IF D12 ≠ 2, TELEPHONE_STATUS = 2 (landline only).

From telephone status, we created a second telephone status variable:

- If TELEPHONE_STATUS = 1, TELEPHONE_STATUS2 = 1 (cell only).

- If TELEPHONE_STATUS = 2, TELEPHONE_STATUS2 = 2 (landline only).

- If TELEPHONE_STATUS = 3 and D13 = 1, TELEPHONE_STATUS2 = 3 (*cell sample, dual users, cell mostly*).

- If TELEPHONE_STATUS = 4 and D13 = 1, TELEPHONE_STATUS2 = 4 (*landline sample, dual users, cell mostly*).

- If TELEPHONE_STATUS = 4 and D13 ≠ 1, TELEPHONE_STATUS2 = 6 (landline sample dual users, *not* cell mostly).

For each of telephonestatus2 = 3 and 4, we calculated the mean and standard deviation of BSW_NUMPHONE. For each of telephonestatus2 = 3 and 4, we then calculated:

- $1+ [SD_3/Mean_3]^2 = DEFF_3$ and $1+ [SD_4/Mean_4]^2 = DEFF_4$.

Next, we divided the unweighted number of interviews in each telephonestatus2 = 3by $Deff_3$ to obtain $neffective_3$, and the unweighted number of interviews in each telephonestatus2 = 4 by $Deff_4$ to obtain $neffective_4$.

The dual frame compositing factors for dual users who are cell mostly equal:

$Lambda_3 = neffective_3/(n\ effective_3 + neffective_4)$.
$Lambda_4 = neffective_4/(neffective_3 + neffective_4)$.

- If telephonestatus2 = 1, BSW_COMPOSITED = BSW_NUMPHONE.
- If telephone_status2 = 2, BSW_COMPOSITED = BSW_NUMPHONE.
- *If telephone_status2 = 3, BSW_COMPOSITED = BSW_NUMPHONE * Lambda3.*
- *If telephone_status2 = 4, BSW_COMPOSITED = BSW_NUMPHONE * Lambda4.*
- If telephone_status2 = 6, BSW_COMPOSITED = BSW_NUMPHONE.

Raking to Population Control Totals
A survey sample may cover segments of the target population in proportions that do not match the proportions of those segments in the population itself. The differences may arise, for example, from sampling fluctuations, from nonresponse, or because the sample design was not able to cover the entire target population. In such situations, one can often improve the relation between the sample and the population by adjusting the sampling weights of the cases in the sample, so that the marginal totals of the adjusted weights on specified characteristics, referred to as control variables, agree with the corresponding totals for the population. This operation is known as raking ratio estimation, raking, or sample-balancing, and the population totals are usually referred to as control totals. Raking is most often used to reduce biases from nonresponse and noncoverage in sample surveys. The term "raking" suggests an analogy with the process of smoothing the soil in a garden plot, by alternately working it back and forth with a rake in two perpendicular directions.

Raking usually proceeds, one variable at a time, applying a proportional adjustment to the weights of the cases that belong to the same category of the control variable. The initial design weights in the raking process are often equal to the inverse of the selection probabilities and may have undergone some adjustments for unit nonresponse and noncoverage. The weights from the raking process are used in estimation and analysis.

The adjustment to control totals is sometimes achieved by creating a cross-classification of the categorical control variables (e.g., age categories × gender × race × household-income categories) and then matching the total of the weights in each cell to the control total. This approach, however, can spread the sample thinly over a large number of adjustment cells. It also requires control totals for all cells of the cross-classification. Often, this is not feasible (e.g., control totals may be available for age × gender × race, but not when those cells are subdivided

by household income). The use of raking with marginal control totals for single variables (i.e., each margin involves only one control variable) often avoids many of these difficulties.

The procedure known as raking adjusts a set of data so that its marginal totals match control totals on a specified set of variables. In a simple 2-variable example, the marginal totals in various categories for the two control variables are known from the entire population, but the joint distribution of the two variables is known only from a sample. In the cross-classification of the sample, arranged in rows and columns, one might begin with the rows, taking each row in turn, and multiplying each entry in the row by the ratio of the population total to the weighted sample total for that category, so that the row totals of the adjusted data agree with the population totals for that variable. The weighted column totals of the adjusted data, however, may not yet agree with the population totals for the column variable. Thus, the next step, taking each column in turn, multiplies each entry in the column by the ratio of the population total to the current total for that category. Now the weighted column totals of the adjusted data agree with the population totals for that variable, but the new weighted row totals may no longer match the corresponding population totals.

This process continues, alternating between the rows and the columns, and close agreement on both rows and columns is usually achieved after a small number of iterations. The result is a tabulation for the population that reflects the relation of the two control variables in the sample. Raking can also adjust a set of data to control totals on three or more variables. In such situations, the control totals often involve single variables, but they may involve two or more variables.

Ideally, one should rake on variables that exhibit an association with the key survey outcome variables and that are related to nonresponse and/or noncoverage. This strategy will reduce bias in the key outcome variables. In practice, other considerations may enter. A variable such as gender may not be strongly related to key outcome variables or to nonresponse, but raking on it may be desirable to preserve the "face validity" of the sample.

For this survey, nine raking control variables were used:

1. Telephone status
2. Census Region
3. Number of children under 16 in the household
4. Number of persons in the household
5. Marital status
6. Education
7. Tenure status (Rent or Own Home)
8. Race/ethnicity
9. Age group by gender

The population control totals were obtained from the 2009 American Community Survey Public Use Microdata Sample (PUMS), except for telephone status which was obtained from the National Health Interview Survey. The population control totals are for people living in households 16 and older. Population control totals do not exist for drivers. The survey, therefore,

included non-drivers in the landline sample, but for cost reasons, they were not interviewed in the cell phone sample.

An SAS raking macro (Izrael et al., 2009) was used to develop the raked weights for the 6,144 completed interviews. BSW_COMPOSITED was used as the input weight for the raking. During the raking process, a weight trimming procedure was implemented. A reduction in the variability of the weights, as measured by the coefficient of variation of the weights, can be achieved by reducing a few large weight values and increasing a few low weight values. A weight-trimming procedure (Izrael et al., 2009) was, therefore, implemented during the raking iterative process, in order to ensure that: (1) a limit was placed on high and low weight values in the final weights; (2) the convergence criteria were satisfied and (3) the weights summed to the correct population total (243,680,923). The raking output is presented in Appendix C. The raked weight is FINAL_WEIGHT. The interviews with drivers represent a domain of the population and, therefore, the estimated population of drivers is referred to as a domain estimate.

Non-response Bias Analysis

Comparison of Characteristics of Completed Landline Sample Interview Telephone Numbers With Nonrespondent Landline Sample Telephone Numbers

Unit Nonresponse in a probability sample encompasses sampling units that do not complete the survey. For a random-digit-dialing sample, not all telephone numbers in the sample are residential numbers and, among the residential sample numbers, not all will yield a completed interview. For list samples, the sampling frame may contain considerable information on all population elements allowing for the comparison of the characteristics of respondents and nonrespondents. For RDD samples, the sampling frame contains very little information on the characteristics of the residential telephone numbers in the sample. We can determine the residential directory-listed status of each sample telephone number in the landline sample. We can also assign each landline telephone number to a NHTSA region and to Nielsen county size categories.[4] Socio-demographic characteristics of ZIP Codes can be mapped into landline telephone exchanges to create exchange-level socio-demographic characteristics. These are not socio-demographic characteristics of telephone numbers; they are ecological variables. Exchange-level variables were obtained from Survey Sampling Inc. for the percent of the population in the exchange that is African-American, Hispanic, and Asian. Mean household income for the telephone exchange was also obtained from SSI. These variables do not exist for the cellular sample. The nonresponse analysis presented below is therefore limited to the cross-sectional landline telephone sample.

The cross-sectional landline telephone numbers were divided into five categories: (1) completed interviews, (2) known residential numbers that did not yield a completed interview, (3) likely residential telephone numbers, (4) undetermined residential numbers (i.e., residential status not determined), and (5) nonresidential numbers. We removed the nonresidential numbers from the analysis. Appendix A provides a mapping of the final disposition codes into the first three categories.

We created three dichotomous dependent variables: (1) completed interviews versus known residential numbers that did not yield a completed interview (n = 5,907), (2) completed interviews versus known residential numbers that did not yield a completed interview and likely residential numbers (n = 12,953), and (3) completed interviews versus known residential numbers that did not yield a completed interview, likely residential numbers and undetermined residential numbers (n = 19,509). We then fit three unweighted logistic regression models using

4

Nielsen Code	Description
A	All counties belonging to the largest metropolitan areas which account for 40% of all U.S. households
B	All counties in the next largest set of metropolitan areas that account for 30% of all U.S. households
C	All counties in the next largest set of metropolitan areas that account for 15% of all U.S. households
D	All remaining counties

the variables discussed above as the predictors in the model. The first model compares respondents and known nonrespondents. The second model expands the nonrespondent definition to include likely residential telephone numbers. The third model takes the broadest view of nonresponse in that it includes the undetermined residential numbers as nonrespondents.

Table B.9 contains a column for each dependent variable. The rows list the categorical and continuous predictors in the model. For each categorical predictor we indicate the reference category. The cell entries in the table give the statistical significance of each predictor. For the comparison of completed interviews with known residential numbers that are nonrespondents, the logistic regression coefficients for Nielsen county size category B, C and D are statistically significant at the 0.05 level. The logistic regression coefficients for NHTSA Regions 6 and 10 are significant at the 0.05 level. For the continuous exchange-level predictor variables we find significant coefficients for the percent African-American population, the percent Hispanic population, and mean household income.

Table B.10 shows the adjusted odds ratios from the logistic regression models. For the comparison of completed interviews with known residential numbers that are nonrespondents we find that for the statistically significant predictors:

- known residential numbers from Nielsen county category B, C and D are more likely to be respondents than known residential numbers from category A.
- Known residential numbers from NHTSA Regions 6 and 10 are more likely to be respondents than known residential numbers from Region 1. Judging by the adjusted odds ratios this is the strongest effect.
- The lower the percent African-American population in the telephone exchange the more likely a known residential number will yield a response.
- The lower the percent Hispanic population in the telephone exchange the more likely a known residential number will yield a response.
- Although the mean household income variable is statistically significant, the relationship with nonresponse is negligible (i.e., odds ratio = 1.0).

Table B.9. Analysis of Maximum Likelihood Estimates: Statistical Significance

Predictor	Completed Interviews Compared With Nonresponse Group: (1) Completed interview versus known residential landline telephone numbers, not completed	(2) Completed interview versus known residential landline telephone numbers, not completed, and likely residential landline numbers	(3) Completed interview versus known residential landline telephone numbers, not completed, likely residential landline numbers, and undetermined residential status landline numbers
DIRECTORY LISTED NUMBER (Reference category = Not Directory listed)	0.2209	0.0225	<.0001
NIELSEN COUNTY SIZE B (Reference category = A)	0.0058	<.0001	<.0001
NIELSEN COUNTY SIZE C (Reference category = A)	0.0485	<.0001	<.0001
NIELSEN COUNTY SIZE D (Reference category = A)	0.0028	<.0001	<.0001
NHTSA REGION 2 (Reference category = 1)	0.9979	0.4748	0.8805
NHTSA REGION 3 (Reference category = 1)	0.2573	0.5644	0.6839
NHTSA REGION 4 (Reference category = 1)	0.084	0.7647	0.4388
NHTSA REGION 5 (Reference category = 1)	0.816	0.4651	0.546
NHTSA REGION 6 (Reference category = 1)	0.0184	0.6776	0.3078
NHTSA REGION 7 (Reference category = 1)	0.0712	0.2246	0.0656
NHTSA REGION 8 (Reference category = 1)	0.6318	0.7465	0.6491
NHTSA REGION 9 (Reference category = 1)	0.1288	0.7801	0.6945
NHTSA REGION 10 (Reference category = 1)	0.0316	0.1469	0.1005
PERCENT BLACK POPULATION IN TELEPHONE EXCHNAGE	<.0001	<.0001	<.0001
PERCENT HISPANIC POPULTION IN TELEPHONE EXCHNAGE	<.0001	<.0001	<.0001
PERCENT ASIAN POPULATION IN TELEPHONE EXCHNAGE	0.079	<.0001	<.0001
AVERAGE HOUSEHOLD INCOME IN TELEPHONE EXCHANGE	0.0049	0.3861	0.3155

When we expand the definition of residential telephone numbers to include likely residential numbers, we examine the results in Tables B.9 and B.10 for the dependent variable defined by completed interviews versus known residential numbers that did not yield a completed interview and likely residential numbers. The residential directory-listed status of the telephone number is statistically significant, along with the three Nielsen county size categories. None of the NHTSA Regions are significant, while all three race/ethnicity exchange variables are significant. Examining the adjusted odds ratios we find that:

- Known and likely residential numbers that are directory listed are more likely to be respondents than numbers that are not directory listed.
- Known and likely residential numbers from Nielsen county category B, C and D are more likely to be respondents than numbers from category A. Judging by the adjusted odds ratios this is the strongest effect.
- The lower the percent African-American population in the telephone exchange the more likely a known or likely residential number will yield a response.
- The lower the percent Hispanic population in the telephone exchange the more likely a known or likely residential number will yield a response.
- The lower the percent Asian population in the telephone exchange the more likely a known or likely residential number will yield a response.

A further expansion of the nonrespondent group to include undetermined residential numbers yields essentially the same findings as for the expansion from known residential numbers to likely residential numbers. The nonresponse bias analysis across all three dependent variables finds consistent Nielsen county size effects, and black and Hispanic race/ethnicity exchange effects. The weighting methodology for the NHTSA Speeding Survey included poststratification by race/ethnicity of the respondent. Future surveys should give consideration to determining county of residence in order to form an urban/rural continuum variable, consistent with Census Bureau population data sources such as the American Community Survey, that can be used in poststratification.

Table B.10: Adjusted Odds Ratio Estimates for Modeling Completed Interviews

Predictor	Completed Interviews Compared With Nonresponse Group: (1) Completed interview versus known residential landline telephone numbers, not completed	(2) Completed interview versus known residential landline telephone numbers, not completed, and likely residential landline numbers	(3) Completed interview versus known residential landline telephone numbers, not completed, likely residential landline numbers, and undetermined residential status landline numbers
DIRECTORY LISTED NUMBER (Reference category = Not Directory listed)	0.921	0.911	0.500
	1.258	1.253	1.212
NIELSEN COUNTY SIZE B (Reference category = A)			
NIELSEN COUNTY SIZE C (Reference category = A)	1.228	1.395	1.292
NIELSEN COUNTY SIZE D (Reference category = A)	1.410	1.522	1.291
NHTSA_REGION 2 (Reference category = 1)	1.000	0.938	0.988
NHTSA_REGION 3 (Reference category = 1)	1.196	0.946	0.965
NHTSA_REGION 4 (Reference category = 1)	1.307	0.972	0.935
NHTSA_REGION 5 (Reference category = 1)	1.034	1.067	1.050
NHTSA_REGION 6 (Reference category = 1)	1.502	1.044	0.908
NHTSA_REGION 7 (Reference category = 1)	1.407	1.144	1.206
NHTSA_REGION 8 (Reference category = 1)	1.105	0.960	1.054
NHTSA_REGION 9 (Reference category = 1)	1.288	0.972	0.964
NHTSA_REGION 10 (Reference category = 1)	1.553	1.185	1.192
PERCENT BLACK POPULATION IN TELEPHONE EXCHNAGE	0.986	0.992	0.992
PERCENT HISPANIC POPULTION IN TELEPHONE EXCHNAGE	0.985	0.988	0.986
PERCENT ASIAN POPULATION IN TELEPHONE EXCHNAGE	0.989	0.984	0.980
AVERAGE HOUSEHOLD INCOME IN TELEPHONE EXCHANGE	1.000	1.000	1.000

Comparison of Early Versus Late Responders

One limitation of the analysis presented above is that it does not use any substantive variables included in the survey because this information is not obtained for nonrespondents. For the cross-sectional landline interviews we can however divide the completed interviews into two groups: early versus late responders. The two groups are formed by examining the distribution of the number of call attempts required to complete the interview. Examining the distribution we find that 90% of the interviews were completed within the first 13 call attempts and 10% of the interviews were completed at attempt 14 to 35. We will use the interviews completed at 14 to 35 call attempts as the late responder group. The concept behind this approach is that late responders may be more similar to nonrespondents than the early responders.

We identified eight key substantive survey questions to include in the nonresponse bias analysis:

1. How often do you usually drive a car or other motor vehicle? Would you say that you usually drive . . . (NOTE: Motorcycle counts as a motor vehicle)

1 Every day, or almost every day
2 Several days a week
3 Once a week or less
4 Only certain times a year, OR
5 Never SKIP TO D1
6 (VOL) Don't know SKIP TO D1
7 (VOL) Refused SKIP TO D1

3. Which of the following statements best describes your driving? READ AND ROTATE 1&2

1 I tend to pass other cars more often than other cars pass me OR
2 Other cars tend to pass me more often then I pass them
3 (VOL) Both/About equally
4 (VOL) Don't know
5 (VOL) Refused

4. When driving I tend to . . . READ AND ROTATE 1&2

1 Stay with slower moving traffic, or
2 Keep up with the faster traffic
3 (VOL) Both/About Equally
4 (VOL) Don't know
5 (VOL) Refused

5e. How often would you say you drive 15 mph over the speed limit on <u>Multi-Lane, Divided Highways</u>?

1 Often
2 Sometimes
3 Rarely
4 Never
5 (VOL) Don't know
6 (VOL) Refused

6e. How often would you say you drive 15 miles an hour over the speed limit on Two-Lane Highways, one lane in each direction?

1 Often
2 Sometimes
3 Rarely
4 Never
5 (VOL) Don't know
6 (VOL) Refused

7e. How often would you say you drive 10 miles an hour over the speed limit on Neighborhood or Residential streets?

1 Often
2 Sometimes
3 Rarely
4 Never
5 (VOL) Don't know
6 (VOL) Refused

30. In the past TWELVE MONTHS have you been STOPPED for speeding by the police?

1 Yes
2 No SKIP TO Q34
3 (VOL) Don't know SKIP TO Q34
4 (VOL) Refused SKIP TO Q34

31. How many times have you been stopped for speeding in the past twelve months?

_____ TIMES STOPPED
Range = 0 to 7
8 (VOL) Don't know
9 (VOL) Refused

We produced an unweighted tabulation of the early versus late responder variable by each of the eight substantive survey variables. There is a statistically significant difference between early and late responders only for questions 1 and 4.[5] For question 1, 86% of late responders drive every day while 81% of early responders drive every day. For question 4, 47% of late responders reported that they keep up with faster traffic while among early responders 42% keep up with faster traffic.

Our analysis of nonresponse has focused on the cross-sectional landline sample. The analysis of early versus late responders was also implemented for the cell phone sample. We conducted a similar analysis for the cell phone sample completed interviews but for the cell phone sample we defined late responders as those interviews completed at attempt 9 to 16. We find that none of the eight variables are statistically significant. Our variable-specific analysis of nonresponse bias

[5] For a two-variable contingency table the null hypothesis for the Chi Square test is that the two variables are independent. If the Chi Square statistic is significant at the 0.05 level we reject the null hypothesis that early versus late responders is independent of the substantive survey question.

finds evidence of modest bias only for frequency of driving and driving pattern while in traffic, but only for the landline sample.

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APPENDIX C
Output for Raking with Trimming Weight by Individual and Global Cap Value Method

Raking with Trimming Weight by Individual and Global Cap Value Method

Sample size of completed interviews: **6144**
Raking input weight adjusted to population total: **BSW_COMPOSITED_ATPT**
Mean value of raking input weight adjusted to population total: **39661.61**
Minimum value of raking input weight: **3063.71**
Maximum value of raking input weight: **97303.55**
Coefficient of variation of raking input weight: **0.64**
Global low weight cap value (GLCV): **4957.70**
Global low weight cap value factor: Mean input weight times **0.125**
Global high weight cap value (GHCV): **317292.87**
Global high weight cap value factor: Mean input weight times **8.0**
Individual low weight cap value (ILCV) factor: Respondent's weight times **0.25**
Individual high weight cap value (IHCV) factor: Respondent's weight times **4**
Number of respondents who have an individual high weight cap value less than the global low weight cap value (GLCV used in weight trimming): **0**
Number of respondents who have an individual low weight cap value greater than the global high weight cap value (GHCV used in weight trimming): **0**

Weighted Distribution Prior to Raking. Iteration 0

TELEPHONE_STATUS2_R	Input Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Input Weights	Target % of Weights	Difference in %
1 cell only	71714362.47	69205382	2508980.34	29.430	28.400	1.030
2 landline only	31024855.43	26561221	4463634.82	12.732	10.900	1.832
3 cell/landline sample dual users cell mostly	29877314.96	43375204	-13497889.3	12.261	17.800	-5.539
6 landline sample dual users not cell mostly	111064390.1	104539116	6525274.18	45.578	42.900	2.678

Census Region	Input Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Input Weights	Target % of Weights	Difference in %
1 Northeast	46899337.74	44625674	2273663.32	19.246	18.313	0.933
2 Midwest	62673746.57	53188804	9484942.66	25.720	21.827	3.892
3 South	86662498.14	89418582	-2756084.30	35.564	36.695	-1.131
4 West	47445340.55	56447862	-9002521.67	19.470	23.165	-3.694

Imputed value I_D7B_R4 : Number of persons in HH under 16 years	Input Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Input Weights	Target % of Weights	Difference in %
1 0 Children under 16 in HH	166176782.0	158543587	7633194.82	68.194	65.062	3.132
2 1 Child under 16 in HH	36192967.91	39249100	-3056132.48	14.853	16.107	-1.254
3 2 Children under 16 in HH	25835431.51	29331619	-3496187.51	10.602	12.037	-1.435
4 3+ Children under 16 in HH	15475741.63	16556616	-1080874.82	6.351	6.794	-0.444

Imputed value I_D7A_R5 : Number of persons in HH	Input Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Input Weights	Target % of Weights	Difference in %
1 Person in HH	32563801.31	32697180	-133379.05	13.363	13.418	-0.055
2 Persons in HH	87285446.38	79192398	8093048.11	35.820	32.498	3.321
3 Persons in HH	45776939.31	47772503	-1995563.36	18.786	19.605	-0.819
4 Persons in HH	43333609.26	43201945	131664.39	17.783	17.729	0.054
5+ Persons in HH	34721126.74	40816897	-6095770.10	14.249	16.750	-2.502

Imputed value I_D4_R4 : Marital Status	Input Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Input Weights	Target % of Weights	Difference in %
1 Married	146512959.8	125507011	21005948.71	60.125	51.505	8.620
2 Divorced/Separated	25848963.71	31851392	-6002428.20	10.608	13.071	-2.463
3 Widowed	14452161.05	14535520	-83358.62	5.931	5.965	-0.034
4 Never married	56866838.44	71787000	-14920161.9	23.337	29.459	-6.123

Imputed value I_D3_R4 : Education	Input Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Input Weights	Target % of Weights	Difference in %
1 Less than HS	19324485.73	42604849	-23280363.0	7.930	17.484	-9.554
2 HS/GED	68581526.23	67538321	1043205.11	28.144	27.716	0.428
3 Some college	66833247.75	72138583	-5305335.01	27.427	29.604	-2.177
4 College graduate	88941663.29	61399170	27542492.88	36.499	25.197	11.303

Imputed value I_D8_R2 : Tenure	Input Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Input Weights	Target % of Weights	Difference in %
1 Own	176238592.3	169105527	7133065.43	72.324	69.396	2.927
2 Rent	67442330.68	74575396	-7133065.43	27.676	30.604	-2.927

Imputed value I_RACEETHNICITY_R7 : Race Ethnicity	Input Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Input Weights	Target % of Weights	Difference in %
1 Hispanic	20498693.19	33864671	-13365977.3	8.412	13.897	-5.485
2 AIAN NonHispanic	3433270.00	1491907	1941363.24	1.409	0.612	0.797
3 Asian/NHOPI NonHispanic	6234290.21	11445418	-5211127.46	2.558	4.697	-2.139
4 Black NonHispanic	20315910.48	27738307	-7422396.80	8.337	11.383	-3.046
6 White NonHispanic	185705689.8	165570080	20135609.95	76.209	67.945	8.263
7 Other NonHispanic	7493069.32	3570541	3922528.40	3.075	1.465	1.610

Imputed value I_D1_R7_SA3 : Agegroup by Sex	Input Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Input Weights	Target % of Weights	Difference in %
11 16-24, Male	14034891.56	19083440	-5048548.79	5.760	7.831	-2.072
12 16-24, Female	11830961.38	18285697	-6454735.14	4.855	7.504	-2.649
21 25-29, Male	8719871.52	11001548	-2281676.82	3.578	4.515	-0.936
22 25-29, Female	8682039.43	10883200	-2201160.36	3.563	4.466	-0.903
31 30-39, Male	15477585.68	20568127	-5090540.87	6.352	8.441	-2.089
32 30-39, Female	18221883.64	20774954	-2553070.81	7.478	8.525	-1.048
41 40-49, Male	20413972.52	22285092	-1871119.59	8.377	9.145	-0.768
42 40-49, Female	25057499.91	23065503	1991996.88	10.283	9.465	0.817
51 50-64, Male	34293426.62	28119033	6174394.07	14.073	11.539	2.534
52 50-64, Female	42332765.51	30228822	12103943.32	17.372	12.405	4.967
61 65-74, Male	13016619.24	9866415	3150204.06	5.342	4.049	1.293
62 65-74, Female	15678959.48	11543400	4135559.24	6.434	4.737	1.697
71 75 PLUS, Male	7281649.26	7095624	186024.82	2.988	2.912	0.076
72 75 PLUS, Female	8638797.26	10880067	-2241270.03	3.545	4.465	-0.920

****** Program terminated at iteration 7 because all current percentages differ from target percentages by less than 0.10 ******

Weighted Distribution After Raking

TELEPHONE_STATUS2_R	Output Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Output Weights	Target % of Weights	Difference in %
1 cell only	69201177.11	69205382	-4205.02	28.398	28.400	-0.002
2 landline only	26556126.67	26561221	-5093.93	10.898	10.900	-0.002
3 cell/landline sample dual users cell mostly	43375691.13	43375204	486.83	17.800	17.800	0.000
6 landline sample dual users not cell mostly	104547928.1	104539116	8812.12	42.904	42.900	0.004

Census Region	Output Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Output Weights	Target % of Weights	Difference in %
1 Northeast	44594987.86	44625674	-30686.56	18.301	18.313	-0.013
2 Midwest	53219358.66	53188804	30554.75	21.840	21.827	0.013
3 South	89439431.42	89418582	20848.97	36.704	36.695	0.009
4 West	56427145.07	56447862	-20717.16	23.156	23.165	-0.009

Imputed value I_D7B_R4 : Number of persons in HH under 16 years	Output Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Output Weights	Target % of Weights	Difference in %
1 0 Children under 16 in HH	158695796.4	158543587	152209.26	65.124	65.062	0.062
2 1 Child under 16 in HH	39212123.27	39249100	-36977.12	16.092	16.107	-0.015
3 2 Children under 16 in HH	29268727.91	29331619	-62891.11	12.011	12.037	-0.026
4 3+ Children under 16 in HH	16504275.43	16556616	-52341.02	6.773	6.794	-0.021

Imputed value I_D7A_R5 : Number of persons in HH	Output Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Output Weights	Target % of Weights	Difference in %
1 Person in HH	32650819.85	32697180	-46360.51	13.399	13.418	-0.019
2 Persons in HH	79154296.61	79192398	-38101.66	32.483	32.498	-0.016
3 Persons in HH	47790478.91	47772503	17976.24	19.612	19.605	0.007
4 Persons in HH	43238921.24	43201945	36976.37	17.744	17.729	0.015
5+ Persons in HH	40846406.39	40816897	29509.55	16.762	16.750	0.012

Imputed value I_D4_R4 : Marital Status	Output Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Output Weights	Target % of Weights	Difference in %
1 Married	125440317.0	125507011	-66694.06	51.477	51.505	-0.027
2 Divorced/Separated	31801674.75	31851392	-49717.16	13.051	13.071	-0.020
3 Widowed	14484089.30	14535520	-51430.37	5.944	5.965	-0.021
4 Never married	71954841.93	71787000	167841.59	29.528	29.459	0.069

Imputed value I_D3_R4 : Education	Output Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Output Weights	Target % of Weights	Difference in %
1 Less than HS	42624175.95	42604849	19327.24	17.492	17.484	0.008
2 HS/GED	67533345.22	67538321	-4975.90	27.714	27.716	-0.002
3 Some college	72140634.36	72138583	2051.60	29.605	29.604	0.001
4 College graduate	61382767.47	61399170	-16402.94	25.190	25.197	-0.007

Imputed value I_D8_R2 : Tenure	Output Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Output Weights	Target % of Weights	Difference in %
1 Own	168977785.2	169105527	-127741.74	69.344	69.396	-0.052
2 Rent	74703137.85	74575396	127741.74	30.656	30.604	0.052

Imputed value I_RACEETHNICITY_R7 : Race Ethnicity	Output Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Output Weights	Target % of Weights	Difference in %
1 Hispanic	33920284.58	33864671	55614.06	13.920	13.897	0.023
2 AIAN NonHispanic	1490477.28	1491907	-1429.48	0.612	0.612	-0.001
3 Asian/NHOPI NonHispanic	11456722.17	11445418	11304.50	4.702	4.697	0.005
4 Black NonHispanic	27748187.81	27738307	9880.53	11.387	11.383	0.004
6 White NonHispanic	165492646.3	165570080	-77433.52	67.914	67.945	-0.032
7 Other NonHispanic	3572604.83	3570541	2063.90	1.466	1.465	0.001

Imputed value I_D1_R7_SA3 : Agegroup by Sex	Output Weight Sum of Weights	Target Total	Sum of Weights Difference	% of Output Weights	Target % of Weights	Difference in %
11 16-24, Male	19083440.34	19083440	0.00	7.831	7.831	0.000
12 16-24, Female	18285696.52	18285697	0.00	7.504	7.504	-0.000
21 25-29, Male	11001548.34	11001548	0.00	4.515	4.515	-0.000
22 25-29, Female	10883199.79	10883200	0.00	4.466	4.466	0.000
31 30-39, Male	20568126.55	20568127	0.00	8.441	8.441	-0.000
32 30-39, Female	20774954.44	20774954	-0.00	8.525	8.525	-0.000
41 40-49, Male	22285092.11	22285092	-0.00	9.145	9.145	-0.000
42 40-49, Female	23065503.02	23065503	0.00	9.465	9.465	0.000
51 50-64, Male	28119032.55	28119033	-0.00	11.539	11.539	-0.000
52 50-64, Female	30228822.18	30228822	0.00	12.405	12.405	0.000
61 65-74, Male	9866415.18	9866415	-0.00	4.049	4.049	-0.000
62 65-74, Female	11543400.24	11543400	0.00	4.737	4.737	0.000
71 75 PLUS, Male	7095624.43	7095624	0.00	2.912	2.912	0.000
72 75 PLUS, Female	10880067.29	10880067	0.00	4.465	4.465	0.000

Iteration Number	Maximum Absolute Value of Difference in Sum of Weights	Maximum Absolute Value of Difference in %	Coefficient of Variation of Weights at the Completion of the Iteration
1	13852461.44	5.6847	0.96179
2	4215616.04	1.7300	0.91393
3	2704257.36	1.1098	0.89457
4	1515962.64	0.6221	0.88412
5	775853.60	0.3184	0.87880
6	371418.76	0.1524	0.87635
7	167841.59	0.0689	0.87524

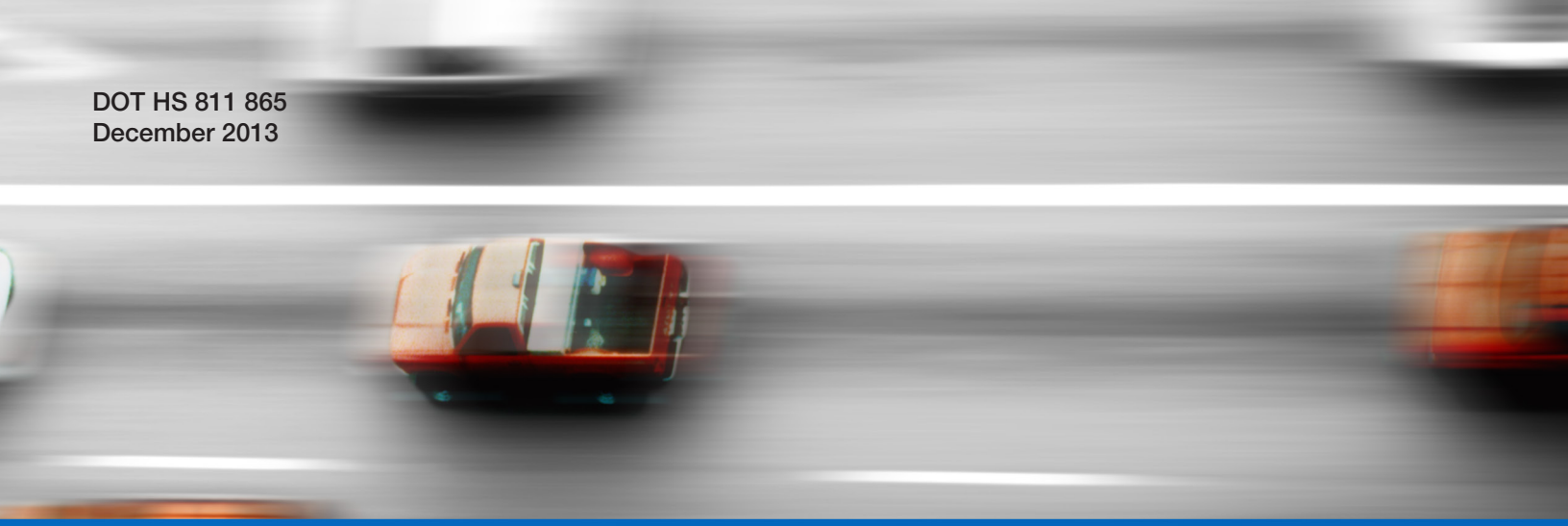
Weight	Mean	Min	Max	CV
BSW_COMPOSITED_ATPT	39661.61	3063.71	97303.55	0.645
FINAL_WEIGHT	39661.61	4957.70	314634.25	0.875

Number of Respondents Who Had Their Weights Decreased by the Trimming: **101.**
Number of Respondents Who Had Their Weights Increased by the Trimming: **123.**

Raking output weight: **RAKED_WT2**

NHTSA Region: ACS and Weighted Sample Comparison

NHTSA Region	ACS (16+)	WGT Sample	ACS %	WGT Sample %	Difference in %
1	11703417	12521600	4.8%	5.1%	0.30%
2	32876263	32073388	13.5%	13.2%	-0.30%
3	24695552	25603780	10.1%	10.5%	0.40%
4	35308383	35904871	14.5%	14.7%	0.20%
5	40822356	39991792	16.7%	16.4%	-0.30%
6	29504175	26985086	12.1%	11.1%	-1.00%
7	13089479	14992540	5.4%	6.2%	0.80%
8	9682344	10738238	4.0%	4.4%	0.40%
9	35220310	32424118	14.4%	13.3%	-1.10%
10	10943895	12445510	4.5%	5.1%	0.60%
Total	243846174	243680923	100.0%	100.0%	0.00%



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