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16. Abstract <p>This research study examined driver perceptions of the reasons for and the risks associated with certain aggressive or negligent driving behaviors, including illegal turns, disregard of stoplights or stop signs, and improper lane usage. A literature search, interviews with DPS officers and “defensive driving” instructors, driver focus groups, and driver surveys in two Texas cities were employed to determine drivers’ perceptions of the risks of selected traffic violations, factors that encourage or discourage unsafe driving behaviors, and how a change in perceived risk may affect future driver behavior.</p>					
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**Driver Perceptions of Risk:
Potential Approaches to Improving Driver Safety**

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Executive Summary

Automobile accidents in the United States killed 42,642 people in 2003, and caused over 2.8 million injuries. Previous studies indicate that a majority of accidents involving vehicles are caused by driver error. While some errors are unavoidable, many others result from deliberate or negligent driving behaviors such as speeding, running stoplights, or otherwise disregarding traffic controls. This study explored drivers' perceptions of the risks associated with particular driving behaviors, how those perceptions contribute to safe or unsafe driving, and the potential for increasing driver safety by increasing their awareness of potentially high-risk behaviors.

Interviews were conducted with law enforcement officers and driving instructors in College Station, Dallas, and Houston, Texas. The interviews focused on the experiences and opinions of these "field experts" concerning the most common driving violations, the riskiest driving behaviors, the roles and effectiveness of law enforcement and driver education in promoting driver safety, and recommendations for further encouraging safe driving. Focus groups were then conducted in College Station—two groups consisting of drivers between 19 and 23 years of age and two groups of drivers aged 24 to 54. The focus groups, like the police officer/driving instructor interviewees, addressed questions about risky driving behaviors and ways to improve driver safety, including changes to driver education, laws, and licensing requirements. They also discussed the factors behind drivers' risk-taking behaviors. Finally, a telephone survey of 517 drivers in Dallas and Houston addressed respondents' perceptions of the risks associated with various driving behaviors and their opinions about particular safety measures.

The driving behaviors identified as "riskiest" by participants in the interviews, focus groups, and telephone survey included actions that distract the driver from the road (cell phone use and other "multi-tasking" while driving) and aggressive driving behaviors such as speeding, running red lights, and failing to yield right-of-way to other vehicles. However, results also indicated that many drivers (including study participants) tend to underestimate the risks associated with their own driving behaviors. Traffic law enforcement was viewed by all participant groups as a primary factor in influencing safe driving behaviors. Driver education was also considered an important influence, though many respondents in the interviews and focus groups recommended tougher standards and more thorough emphasis on risk and safety in driver education courses. Recommendations for addressing driver safety via education and law enforcement include the following:

- Require defensive driving classes for traffic violators in addition to fines or other penalties (not as a substitute).
- Increase the use of red-light cameras and other forms of automated enforcement, particularly at high-risk locations.
- Require or encourage a defensive driving "refresher course" for drivers renewing licenses.
- Require a defensive driving course for all new state residents before they can obtain a driver's license in the state.
- Increase public outreach efforts to communicate information about new traffic laws and high-risk driving behaviors.

Chapter 1. Introduction and Background

Drivers in the United States are involved in approximately 6.5 million traffic accidents per year. The consequences of these accidents can be severe: in 2003, traffic accidents in the U.S. caused 42,643 deaths and 2,889,000 injuries. (1) Within Texas alone, traffic accidents caused 3675 deaths during 2003.

Previous studies estimate that 95 percent of vehicles involved in collisions are passenger cars and light trucks (2), and that the vast majority of traffic accidents are a direct result of driver error. Some driver error is unintentional and likely unavoidable, but other errors result from deliberate or negligent risk-taking. Speeding contributed to 31 percent of fatal accidents in 2003 (3), and a 2000 study attributes 106,000 crashes and 1,036 deaths nationwide to drivers running red lights. (4)

Risk Factors

Research has indicated specific demographics to be more prone to risky behavior behind the wheel than others. Younger and older drivers tend to be a much more dangerous demographic behind the wheel than those in between these age groups. Drivers under 21 (with two or more passengers in the vehicle) are nearly twice as likely to be killed in an accident than drivers aged 21 to 64. Drivers aged 65 and older are increasingly prone to age-related difficulties including diminished vision and slower reaction time. (5) Younger drivers are more prone to accidents not only because of inexperience (and inability to accurately predict risk) but also because they are more willing to accept risk. (6) While the elderly and the very young both stand out as more “dangerous” driving demographics, previous studies indicate that young people are more of a danger because of skewed risk perception rather than a lack of skill.

Perception of Risk

Research indicates that while drivers are generally aware of risks and the likelihood of crash involvement, they are prone to overestimate their own driving skill. Many drivers have the misperception that they are less likely than average to be involved in an accident. This is a dangerous perception because this arrogance can lead to dangerous driving tendencies. (7) While young drivers are more prone to this tendency, studies show no demographic to be exempt from its effects.

Risk compensation refers to the tendency of drivers to exhibit more risky behavior than they otherwise would in response to safety-oriented measures. Examples of risk compensation include driver distraction when driving on familiar roads (8), following more closely or speeding in vehicles equipped with anti-lock brakes (9), and even in seatbelt legislation. (10) Research suggests that people adopt an acceptable risk level, or “target risk” that they try to maintain. During dangerous driving situations, they will be more attentive and take less risk, to maintain this target risk level. During long straight familiar drives, or with safety-related technology, drivers are prone to take more risk to raise their perceived risk to their target. (10) Research suggests that the “target risk” paradigm cannot be escaped, so a possible way to decrease traffic violations is to lower the target risk that drivers wish to maintain. (11)

Influencing Perceived Risk and Driver Behavior

In order to influence the way drivers perceive risk or act on it, we must know what their perceived risks are. More specifically, we must know how accurately drivers are perceiving risk: that is, how perceived risk compares to actual risk. Driver surveys conducted in North Carolina regarding train crossings indicated that significant percentages of drivers underestimated factors including the time between a closing track barrier and the arrival of the train, the speed of a slow-moving train, the distance needed by a train to stop, and the likelihood of fatality in a train-automobile collision. (12)

Several studies have examined the influence of driver education on driver behavior. A 1995 study conducted for the Ontario Government's Safety Policy Branch examined several different types of education and their scope of influence. For example, public campaigns to broaden awareness and instill a sense of social responsibility were found to be more effective than specialized driver training, which can give drivers a greater confidence in their skills than is warranted. The report provides guidelines in education policy highlighting the importance of broad-based community education programs and the promotion of a general awareness of transportation as a factor in public health. (11) While specific classroom-style training can temporarily make a handful of drivers safer, community awareness makes everyone more cautious for the sake of everyone around them. A Norwegian campaign aimed at changing the behavior of young drivers was successful in altering the perceived risks and even succeeded in lowering the number of speeding-related crashes. (13)

Enforcement is another way of influencing driver behavior. Often the fear of fines and annoyance of being pulled over is enough to make drivers slow down or come to a complete stop at signals. If a driver goes a long time without being reminded of the presence of enforcement, the effect can be lost. When an officer is positioned at one place over the course of several days, a halo effect is created in each direction, where drivers will slow down and be more likely to observe laws. (11) A study by Emilio Diaz, on the other hand, shows that pedestrians generally exhibit very few reservations about breaking jaywalking laws. Due to the low chance of apprehension and the minute consequence if caught, people resolve that the risk of jaywalking is worth the advantages. (14) This suggests that when an unacceptable threshold of (1)likelihood of apprehension and (2)severity of penalty is achieved, enforcement becomes effective and inappropriate actions will be deterred.

Positive reinforcement may also be an important tool in shaping driver behavior. While some methods, such as alerting drivers to their BAC level, can be counterproductive, a system of driver feedback can be beneficial. Reinforcement programs have proven effective in promoting seat belt use. (11)

Chapter 2. Interviews with Law Enforcement Officers and Driving Instructors

Interviews were conducted with seven law enforcement officers and six driving instructors in January and February of 2005. The interviewees work in College Station, Dallas, and Houston, Texas. Interviews were conducted in person or by telephone. The purpose of the interviews was to gather information concerning driver behavior in these Texas cities from the “field expert” perspective. Questions were similar for both groups, focusing on their perception of the most common and the most risky driving behaviors, the effects of driver education, and suggestions for improving education, enforcement, or the traffic environment to encourage safer driving behavior in Texas.

Most Common Traffic Violations

Law enforcement officers were asked which traffic violations motorists seem to commit most often, besides speeding. Driving instructors were asked what reasons (traffic violations or other) bring most drivers into defensive driving classes. Several of the interviewees gave more than one answer to the question.

Running a red light was the violation mentioned most often (five times) by the law enforcement officers. Unsafe lane changes and “following too closely” were each mentioned by four officers. Four officers also listed “failure to control speed” and one also included “speed unsafe for conditions.” One officer mentioned “failure to use seatbelt.”

The driving instructors indicated that the vast majority of defensive driving class participants attended because of a traffic citation – most often speeding, running red lights or stop signs, improper lane changes, or right-of-way violations. One instructor mentioned that when he began teaching defensive driving classes in the early 1990s, non-speeding violations only accounted for about two percent of his class attendees; now about one-quarter of the people in his classes have been ticketed for a traffic violation other than speeding.

Most Risky Driving Behaviors

Opinions from the law enforcement officers and the driving instructors concerning the riskiest driving behaviors were remarkably similar. Speeding, whether an actual violation of a posted speed limit or driving at speeds unsafe for roadway conditions, topped the list of risky behaviors mentioned. Driver inattention, due to cell phone use, eating, drinking, reading, or other distractions, was next, followed by running red lights, aggressive driving, following too close to the vehicle ahead, driving under the influence of alcohol or drugs, and failure to yield the right of way.

Driver Awareness of Violations

The law enforcement officers interviewed estimated that the majority of drivers they cite for traffic violations were aware of committing those violations. Three of the driving instructors agreed, one estimated that the ratio of knowingly-committed traffic violations was about half-

and-half, and one estimated that the majority of drivers in his class were unaware of having committed a violation of traffic laws until they were ticketed. One instructor commented that drivers committing traffic violations on major highways, where the primary violations involve speeding or improper lane usage, are usually aware that they are breaking traffic laws. Of those ticketed on other roadways (such as city streets), this instructor believes that most are unaware of the traffic violations they commit – which, he states, can be even more dangerous. A similar comment was made by one of the law enforcement officers, who estimated that about 40 percent of the drivers he pulls over are unaware of the violation(s) they are committing, which he says makes them “just as dangerous if not more” than those who are knowingly breaking traffic laws.

Risk-Taking and Demographics

Most of those interviewed identified young drivers as the ones most likely to engage in risky behaviors, though the age ranges given varied slightly (16 to 20 years old, 17 to 21, 18 to 24 or 25). The presence of friends in the car as passengers was identified as an added risk factor by one interviewee; another specified that very young drivers tend to make errors based on inexperience with handling a vehicle, while 18-22 year olds tend to be the “risk takers.”

However, in the opinion of three of the respondents, risk-taking is fairly evenly represented across most age groups. One of those respondents specified that while male drivers under the age of 25 are more likely to deliberately take risks, older drivers may engage in certain risky behaviors (eating, talking on cell phones, etc.) because they have an inflated sense of their own ability to multi-task while driving.

Role of Enforcement

The law enforcement officers were asked about their role in influencing traffic safety. While all mentioned the role of enforcement as a deterrent to traffic violations, several also view driver education as one of their most important roles. Specific comments included the following:

- “There needs to be a closer relationship with the engineering community, working with physical attributes of the roadway that will help reduce driver error. Law enforcement agencies need to have a broader role in education, with schools, media, and the community. Then finally address traffic safety from the enforcement standpoint. All three elements go hand in hand, and police need to have a role in all three.”
- “I talk to city engineers, educate the public by explaining why we enforce laws, and enforce laws and explain accident rates to violators.”
- “Our physical presence is a deterrent. Written warnings are an education. Even the citation process can educate violators as well as being a deterrent.”

State of Driver Education

Reasons for attending defensive driving

As mentioned previously, the driving instructors interviewed indicated that most of the attendees in their defensive driving classes were there as a result of a traffic citation (taking the class as an

alternative to paying a fine). The instructors' estimates of the percentage of "voluntary" defensive driving class attendees (those who are taking the class for reasons not involving a traffic citation) varied – one instructor estimated that two percent of his class participants were there voluntarily, another simply said "very few," and another estimated ten percent. However, one instructor reported that one-third of the students in his most recent Saturday class were there voluntarily to reduce insurance premiums (though that ration is not typical for his classes), and another indicated that his classes are increasingly attended by civic groups and clubs.

Effectiveness of defensive driving

When asked how effective defensive driving classes are in preventing future traffic violations, opinions from the driving instructors were varied. One of the instructors commented that some drivers "are one-time offenders, a few...repeat over and over with no intention of changing [their behavior]." Another estimated that many who complete the class are safer drivers for about six months, but then fall back into old habits. One instructor for a "humor/comedy" styled course estimates that 70 percent of his students have taken the course more than once (indicating repeat violations), while another claims far greater success from his humor-based but in-depth course. Driver motivation was mentioned by several of the instructors as a key factor – drivers that are primarily interested in avoiding a fine are less likely to improve their driving behaviors as a result of a defensive driving course.

The law enforcement officers almost uniformly considered most defensive driving courses (in their current format) ineffective for changing driver behavior. One officer thought that the courses have the potential to be effective, depending on the student. Again, driver motivation for the taking the course was considered to be a major factor; two of the officers expressed the belief that many drivers view defensive driving classes as a "way out" of paying a fine, not as an opportunity to improve their driving skills.

Course content -- addressing issues of risk

Driving instructors were asked whether issues of risk were addressed in their defensive driving courses, and if so, in what ways. One of the instructors responded that risk is not a major focus of the course, other than addressing seatbelt use and the dangers of driving under the influence; the course is generally "reiterating what they should know" about risks associated with driving. The other five instructors said that risk—of injury, death, financial cost, jail time for certain offenses—is thoroughly addressed in their courses. Specific risk-related topics mentioned included the following:

- alcohol impairment,
- following too close to the vehicle ahead,
- not checking before proceeding on a green light,
- crossing the railroad tracks against warning lights/gates,
- speeding,
- inappropriate speed (much faster or slower than surrounding traffic),
- changing lanes, and
- misuse/over-use of brakes (versus controlling the accelerator).

Improving Driver Education

Suggestions for improving driver education encompassed course content, education and licensing requirements, and public outreach recommendations.

Suggested improvements to driving instruction course content included the following:

- Update course handbooks or other materials to include current situations such as driving in cities with light rail or other non-automobile modes.
- Make driver training – both beginning and “refresher” courses such as Defensive Driving – longer and more in-depth, covering both laws and safety/risk issues in greater detail.
- Put more emphasis on causes of accidents, vehicle dynamics, and the specific risks of driving behaviors, and things that can be done to mitigate accidents before they happen.
- Teach “driving etiquette” and the need for patience and respect for others who share the road.
- Approach driver education with a focus on communication, psychology and sociology. Influence attitudes and beliefs.
- Increase the use of driving simulators and supervised driving time with an instructor.
- Include training for dealing with various situations such as off-road recovery.

Suggestions pertaining to the requirements for obtaining and keeping a driver’s license included the following:

- Require every driver to take a defensive driving course each time his or her license is renewed, to refresh knowledge and to learn about any new traffic laws that have been implemented.
- Require drivers who have moved from another state or another country to take a defensive driving course; some traffic laws will differ from place to place.
- Require all drivers who have been cited for a traffic violation to take and pass a defensive driving course in addition to paying a fine (not as a substitute).
- Abolish the “parent-taught” driver education option, as it is difficult to ensure that students will have received correct and thorough instruction before taking a driving test.
- Make driver’s license requirements more stringent. Licenses shouldn’t be overly easy to obtain.
- Raise the minimum age for a driver’s license to 18, with provisional licenses at 17.

One interviewee suggested expanding the public outreach aspect of driver education:

- Develop and air brief public service announcement for television, explaining and “promoting” traffic rules. When the legislature passes new driving laws, new PSAs should be developed and aired to inform the public about those laws.

Chapter 3. Focus Groups

Focus Group Characteristics

A total of 9 males and 21 females, all residing in Bryan or College Station, Texas participated in the focus groups. Groups One and Two were composed of college undergraduate students, ranging in age from 19 to 23 years of age. Groups Three and Four were adults ranging in age from 24 to 54. The non-student participants represented a range of professions, including administrative assistants, city and county employees, and university research assistants. The only requirement for participation was possession of a driver's license; three participants had held a driver's license for just one year, most of the students had held licenses for three to seven years, and most of the non-student adults had held driver's licenses for eight years or more (median was 19 years). Table 1 summarizes the demographics of the four groups.

Table 1. Focus Group Characteristics

Group	Participants		Age Range	Years Holding a Driver's License	Number of Traffic Tickets (Previous 5 Years)	Number of Traffic Accidents (Previous 5 Years)
	Male	Female				
1. Students*	2	5	19-22	3-6	1-3	0-3
2. Students*	4	5	19-23	1-7	1-5	0-3
3. Adults**	0	7	24-54	1-30	0-2	0-1
4. Adults**	3	4	33-53	17-37	0-3	0-1

*college undergraduates

**primarily employed adults, some graduate students

Summary of Focus Group Discussions

The moderator used the following five questions to direct the group discussion:

1. What are some of the riskiest behaviors that drivers engage in?
2. What do you think is the most important influence on drivers for safe driving?
3. Which traffic rules do you think are the most important for safe roads?
4. Which traffic rules do you think are not very important for safety?
5. What is the best way to encourage others to drive safely? (Sample categories: education, enforcement, roadway design)
6. How could driver's education be improved?

Group responses to each of the questions are summarized in this section.

Riskiest Driver Behaviors

Participant answers to this question included specific traffic violations as well as more general driver behaviors. Driver distraction was mentioned most frequently by all four groups. Driving under the influence of drugs or alcohol, or driving while tired/drowsy, was also a concern expressed by all four groups, as was poor driver attitude leading to aggressive or careless driving. The complete list of participant responses is as follows:

- Driver distraction
 - Using cell phones
 - Putting on makeup
 - Not paying attention to the road
 - Inattentive behavior
 - Casual, careless attitude while driving
 - Reading while driving
 - Listening to music
 - Taking things for granted when driving
 - Eating/drinking while driving
- Driving while impaired
 - Drinking and driving/DUI
 - Driving while tired or drowsy
- Poor attitude
 - Aggressive, competitive or reckless driving
 - Distracted, uncaring, emotional driving
 - Lack of consideration for other drivers
 - Road rage
- Specific traffic violations
 - Speeding
 - Not obeying traffic signals and stop signs/running red lights
 - Illegally switching lanes
 - Passing in a non-passing zone
 - Tailgating
 - The Texas habit of driving on the right shoulder to allow another vehicle to pass
 - Driving too slowly
 - Failure to yield to oncoming traffic
 - Not wearing seat belt
 - Failing to use turn signal

Influences on Safe Driving

Concern about possible injury (one's own and that of others) and traffic law enforcement were mentioned by all the groups as having the most influence on drivers. These and other responses to this discussion question are listed below.

- Well-being of self, passengers and others
 - Personal safety

- Concern for others, especially those riding with you
- Personal responsibility for others, having children to take care of
- Conscience
- Enforcement; fear of consequences for breaking laws
 - Fear of tickets
 - Cost of accidents, insurance, fines, repairs
 - Fear of increased insurance premiums
- Experiencing an accident
- Witnessing an accident
- Education
- Traffic signs

Most Important Traffic Rules

The traffic rules identified by participants as being the most important for safe roads are listed below.

- Speed limits
- Stoplights/traffic lights/intersection controls
- Laws against driving under the influence (DUI)
- Lane markings, passing laws
- Seatbelt laws
- Right of way rules
- Yielding to emergency vehicles
- Traffic signs/warning signs
- Sidewalks for pedestrians
- Speed zones for construction, schools, populated areas
- Obeying railroad crossing controls

Least Important Traffic/Vehicle Rules

When asked if there was a traffic or vehicle-related rule that they believed was not important for safe driving, several participants answered that they knew of none; some of these clarified that while they might not know or understand the significance of all traffic rules, they assumed that all of the rules were intended to keep roads and drivers safe.

Other participants identified laws and traffic controls that, in their opinion, were unimportant to traffic safety. These are listed below.

- License plate laws
 - Requiring a second license plate on the front of the car
 - Prohibition on license plate frames
- Vehicle equipment requirements

- Safety inspection stickers
- Requiring a turn signal in a turn-only lane
- Different night-time speed limits
- Jaywalking laws
- Blinking yellow “caution” lights
- Speed limits on dirt country roads
- Speed limits in unpopulated areas
- “Passing-only” left lanes on divided highways
- Traffic lights that stay red for a long time when no vehicles are coming [on the intersecting road]
- Traffic that tell drivers the obvious

Best Ways to Encourage Safe Driving

Increased education and enforcement were mentioned by participants in all four groups as the best ways to encourage safer driving. Three of the groups also suggested positive incentives for good driving, such as automatic lowering of insurance premiums for those with clean driving records. Additional responses are listed below.

- Measures to increase public awareness
 - Media attention
 - Visual illustrations of negative consequences of risky driving
 - High visibility of enforcement and penalties
 - Emphasis on a driver’s responsibility toward others
- Increased penalties for traffic law violations
- Higher standards for obtaining a driver’s license
- Continuing education for drivers
- Better design of roads, including bike/bus lanes, cloverleaf highway access instead of frontage roads, adequate entrance/exit lanes on highways

Improving Driver Education

Participant responses on improving driver education centered around increased instruction time, more comprehensive education, and tougher requirements for passing courses and obtaining a driver’s license. The responses are listed below.

- Course content and format
 - More comprehensive and thorough
 - More examples of the costs and consequences of careless driving
 - Increased use of simulations: “if this situation happened, what would you do?”
 - Education on major car systems and how they work
 - More behind-the-wheel instruction
 - More interactive, less boring

- More hands-on driving instruction to make sure drivers recognize and follow rules and signs
- Increased classroom instruction
- Course and testing requirements
 - Tougher tests to pass course
 - Increased testing
 - More difficult requirements
 - Required refresher courses every few years/upon renewal of license
 - Involved, certified instructors
 - Eliminate “parent-taught” option; require in-school instruction by qualified instructors
 - Guidelines on what needs to be taught and learned
 - Require written field test addressing multiple hazards and road rules
 - Require an actual driving test, not just a written test
 - Incentive for taking the class
- Licensing requirements
 - Raise minimum driving age
 - Restrict passengers for new drivers
 - Limit the amount of unsupervised driving for young drivers
 - Keep the graduated licensing for new drivers

Chapter 4. Telephone Survey

A telephone survey was developed to assess perceptions about risky driving behaviors among Texas drivers. Some of the survey questions were taken from prior studies conducted in the United States and in other countries, while others were original to this study. The survey was conducted by Texas A&M's Public Policy Research Institute (PPRI) in July and August of 2005. Survey participants were selected randomly from the cities of Dallas and Houston; these cities were selected due to their large populations and complex traffic systems, including the presence of light rail systems. Potential participants were screened to limit respondents to men and women 18 years of age and older that drive at least once a week.

Survey Participants

A total of 517 respondents—190 men, 326 women, and one participant that declined to specify gender—completed the survey. The age of respondents ranged from 18 to 89 years, with an average age of 45 years.

Survey Responses

Survey questions addressed the respondents' likely responses to hypothetical driving situations, perceptions of the level of risk of selected driving behaviors, the respondents' assessments of their own driving knowledge and ability, and some personal driving history. Not all respondents answered every question. The complete telephone survey script is provided in the Appendix.

Perceived Risks of Driving Behaviors

Respondents were asked to rank each of several driving behaviors according to their level of risk, as follows:

- 1= The behavior is not at all risky.
- 2= The behavior is not very risky.
- 3= The behavior is somewhat risky.
- 4= The behavior is very risky.
- 5= The behavior is extremely risky.

Talking on a cell phone while driving, with a hands-free device.

Thirty-seven respondents (seven percent) rated this behavior “not at all risky” and 79 respondents (15 percent) rated it “not very risky.” Hands-free cell phone use was rated “somewhat risky” by 171 respondents (33 percent), “very risky” by 133 respondents (26 percent) and “extremely risky” by 95 respondents (18 percent). (Figure 1.)

Talking on a cell phone while driving, without a hands-free device.

Using a cell phone without a hands-free device increased the perceived level of risk for many respondents. Only two respondents (0.3 percent) rated this behavior “not at all risky” and 20 respondents (3 percent) rated it “not very risky.” One hundred thirty-four respondents (26 percent) rated hand-held cell phone use as “somewhat risky,” 183 (35 percent) rated it “very risky” and 177 (34 percent) rated it “extremely risky.” (Figure 1.)

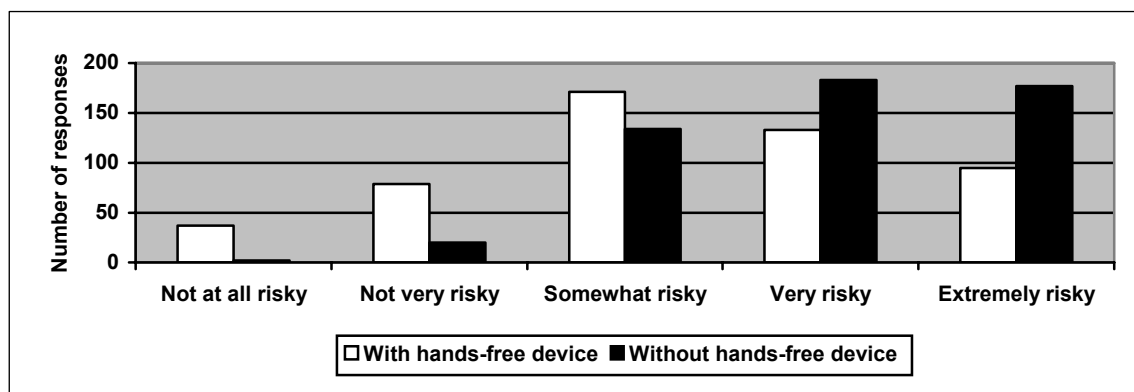


Figure 1. Perceived risk of cell phone use while driving.

Text-messaging while driving.

One respondent (0.2 percent) rated this activity “not at all risky,” and two (0.4 percent) rated it “not very risky.” Nineteen respondents (4 percent) rated text-messaging while driving “somewhat risky,” 147 (29 percent) rated it “very risky,” and 344 (67 percent) rated it “extremely risky.” (Figure 2.)

Reading while driving.

Reading while driving was perceived by many respondents to be more risky even than text-messaging, with one respondent rating it “not at all risky” and no respondents rating it “not very risky.” Six respondents (one percent) rated reading while driving “somewhat risky,” 118 (23 percent) rated it “very risky,” and 392 (76 percent) rated it “extremely risky.” (Figure 2.)

Adjusting the stereo while driving.

Thirty-five respondents (seven percent) felt that adjusting the vehicle’s stereo/radio while driving was “not at all risky” and 126 (24 percent) rated this behavior “not very risky.” This behavior was rated “somewhat risky” by 207 respondents (40 percent), “very risky” by 103 respondents (20 percent), and “extremely risky” by 44 respondents (nine percent). (Figure 2.)

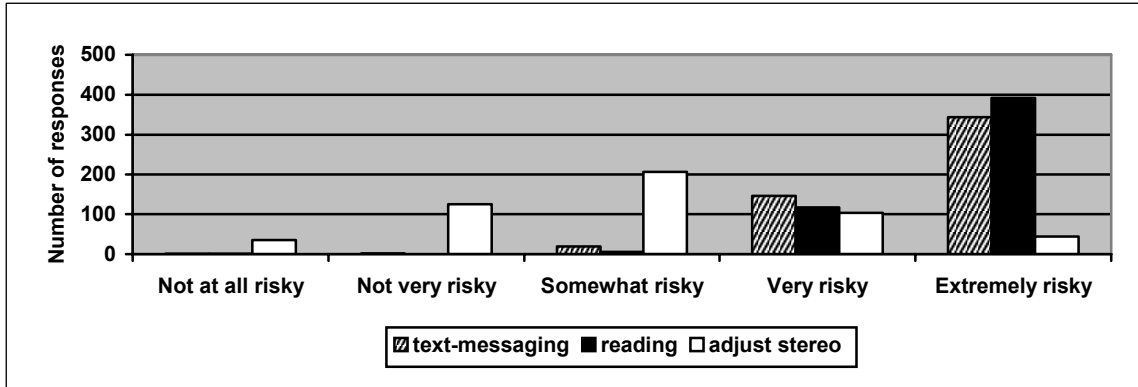


Figure 2. Perceived risks of text-messaging, reading, adjusting stereo while driving.

Eating while driving.

Five respondents (0.1 percent) rated eating while driving “not at all risky” and 40 (8 percent) rated it “not very risky.” Eating while driving was rated “somewhat risky” by 189 respondents (37 percent), “very risky” by 155 respondents (30 percent), and “extremely risky” by 126 respondents (24 percent). (Figure 3.)

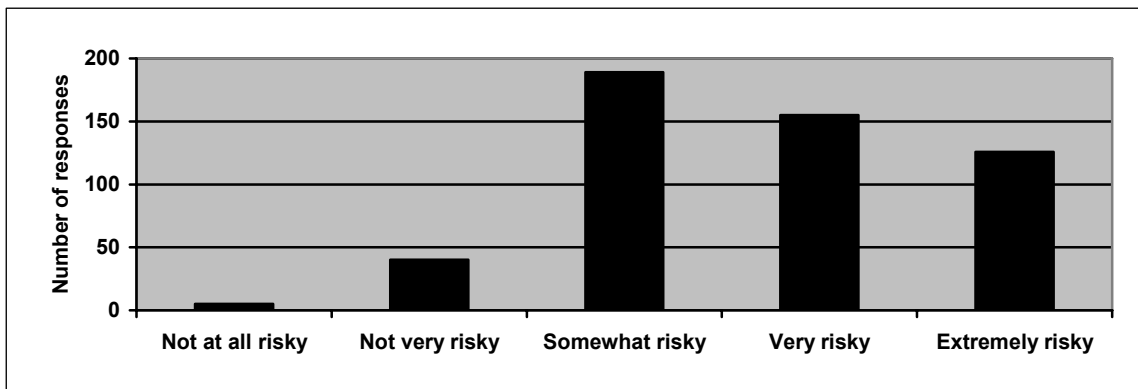


Figure 3. Perceived risks of eating while driving.

Driving after drinking one or two drinks.

Driving after drinking one or two drinks was rated “not at all risky” by 10 respondents (2 percent) and “not very risky” by 33 respondents (6 percent). This action was rated “somewhat risky” by 129 respondents (25 percent), “very risky” by 141 respondents (27 percent), and “extremely risky” by 202 respondents (39 percent).

Driving after drinking three or more drinks.

Perception of risk increased for most respondents when the hypothetical number of alcoholic drinks was raised to three or more. No respondents found drinking three or more drinks before driving to be “not at all risky,” five (0.9 percent) rated this “not very risky,” and 23 (four percent) rated it “somewhat risky.” One hundred twenty-five (24 percent) rated this behavior “very risky” and 361 (70 percent) rated it “extremely risky.” (Figure 4.)

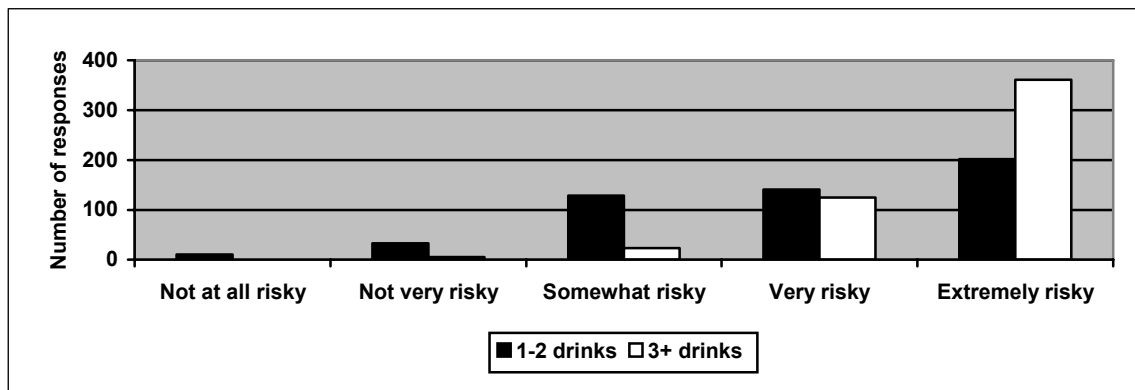


Figure 4. Perceived risk of driving after drinking alcohol.

Exceeding the speed limit by 10 mph:

- On a 70-mph freeway
- On a 45-mph city street
- On a 30-mph city street

Respondent ratings of the risk associated with speeding 10 miles per hour over the posted speed limit varied only slightly depending on the speed limit itself. Speeding by 10 mph over the speed limit was rated as follows by respondents for the specified road types (Figure 5):

- 70 mph freeway
 - “Not at all risky” – 10 respondents (2 percent)
 - “Not very risky” – 36 respondents (7 percent)
 - “Somewhat risky” – 129 respondents (25 percent)
 - “Very risky” – 173 respondents (33 percent)
 - “Extremely risky” – 169 respondents (33 percent)
- 45 mph city street
 - “Not at all risky” – 7 respondents (1 percent)

- “Not very risky” – 21 respondents (4 percent)
- “Somewhat risky” – 126 respondents (24 percent)
- “Very risky” – 176 respondents (34 percent)
- “Extremely risky” – 187 respondents (36 percent)
- 30 mph city street
 - “Not at all risky” – 6 respondents (1 percent)
 - “Not very risky” – 23 respondents (4 percent)
 - “Somewhat risky” – 118 respondents (23 percent)
 - “Very risky” – 180 respondents (35 percent)
 - “Extremely risky” – 188 respondents (37 percent)

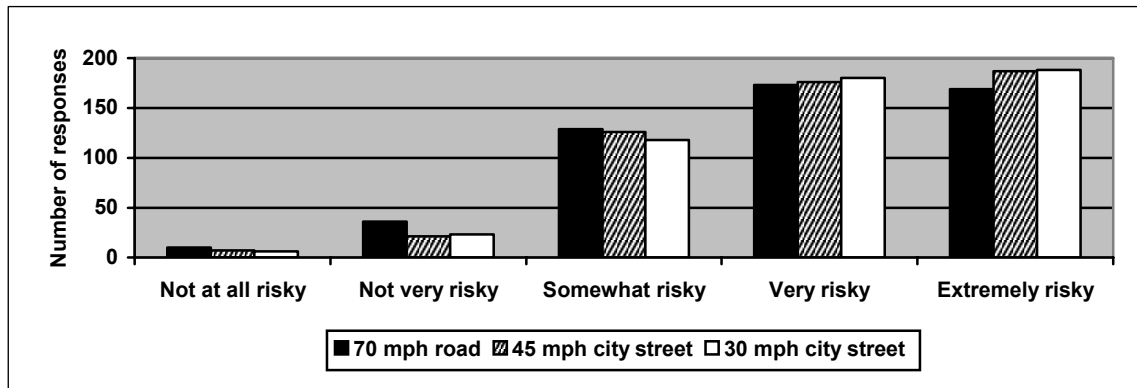


Figure 5. Perceived risk of exceeding speed limit by 10 miles per hour.

Driving significantly below the speed limit.

Seventeen respondents (three percent) rated driving significantly slower than the posted speed limit “not at all risky,” and 35 respondents (seven percent) rated it “not very risky.” This driving behavior was rated “somewhat risky” by 135 respondents (26 percent), “very risky” by 198 respondents (39 percent), and “extremely risky” by 129 respondents (25 percent). (Figure 6.)

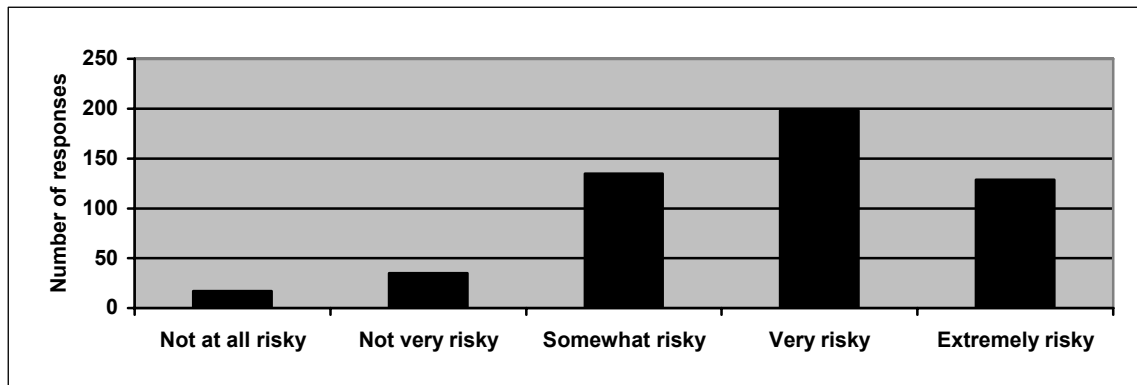


Figure 6. Perceived risk of driving significantly below the speed limit.

Driving aggressively.

One respondent rated driving aggressively “not at all risky” and 10 respondents (two percent) rated it “not very risky.” Aggressive driving was rated “somewhat risky” by 64 respondents (13 percent), “very risky” by 173 respondents (34 percent), and “extremely risky” by 263 respondents (51 percent). (Figure 7.)

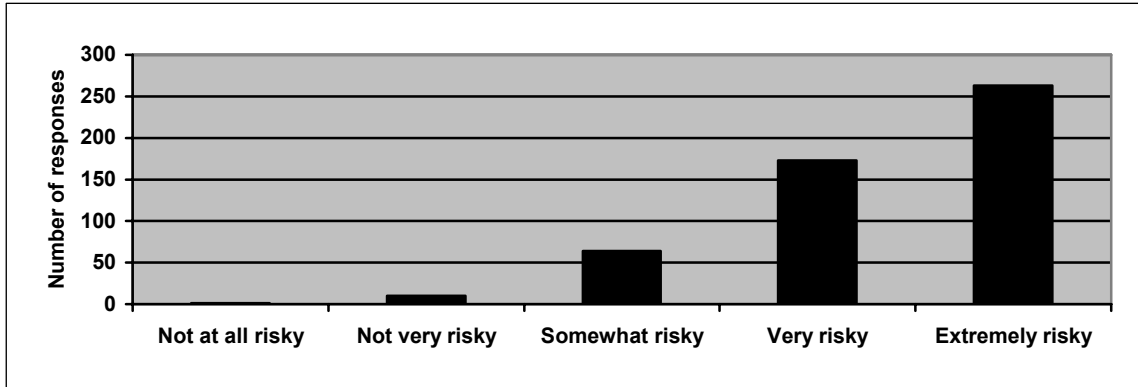


Figure 7. Perceived risk of driving aggressively.

Crossing railroad tracks after the “train approaching” lights start to flash.

No respondents considered crossing railroad tracks against warning lights “not at all risky.” Three respondents (0.6 percent) rated this “not very risky,” 26 (5 percent) rated it “somewhat risky,” 119 (23 percent) rated it “very risky,” and 369 (71 percent) rated this behavior “extremely risky.” (Figure 8.)

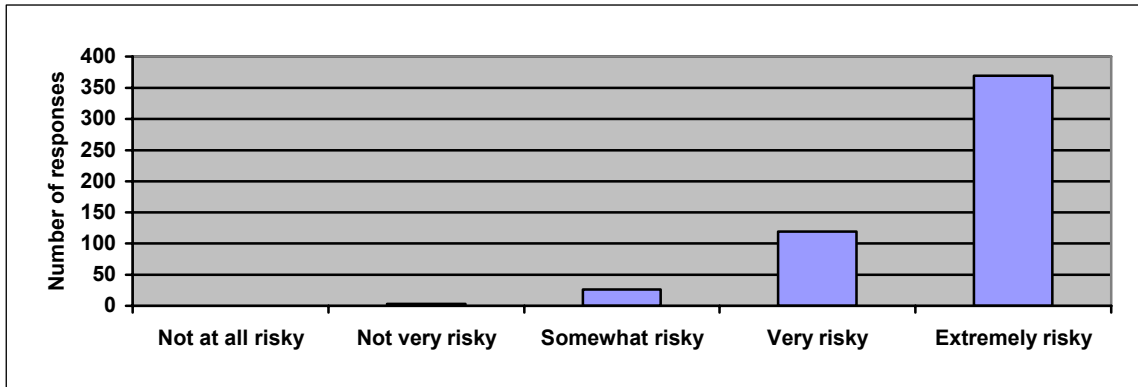


Figure 8. Perceived risk of crossing railroad tracks against warning lights.

Respondent ratings for the perceived risk associated with all behaviors described are shown in Table 2, in ascending of the average risk “score” for each behavior.

Table 2. Respondent Ratings of Perceived Risk for Selected Actions.

Action	Not at all Risky (1)	Not Very Risky (2)	Somewhat Risky (3)	Very Risky (4)	Extremely Risky (5)	Total Responses	Average Score
Adjusting stereo	35	126	207	103	44	515	3.0
Using cell phone, with hands-free device	37	79	171	133	95	515	3.3
Eating	5	40	189	155	126	515	3.7
Driving below speed limit	17	35	135	198	129	514	3.8
Speeding by 10 mph on 70-mph freeway	10	36	129	173	169	517	3.9
Driving after 1 or 2 drinks	10	33	129	141	202	515	4.0
Using cell phone, without hands-free device	2	20	134	183	177	516	4.0
Speeding by 10 mph on 45-mph street	7	21	126	176	187	517	4.0
Speeding by 10 mph on 30-mph street	6	23	118	180	188	515	4.0
Driving aggressively	1	10	64	173	263	511	4.3
Text-messaging	1	2	19	147	344	513	4.6
Driving after 3 or more drinks	0	5	23	125	361	514	4.6
Crossing railroad tracks against warning lights	0	3	26	119	369	517	4.7
Reading	1	0	6	118	392	517	4.7

Hypothetical Driving Scenarios

Several hypothetical driving scenarios were presented to the survey participants, who were asked how likely they would be to engage in a specified driving behavior. These questions were intended to provide additional information on drivers' willingness (or unwillingness) to take certain types of risks, as well as on some of the factors that might influence their decisions. For each of these questions, respondent answers were scaled as follows:

- 1= very unlikely to take the specified action
- 2= fairly unlikely to take the specified action
- 3= maybe; not sure
- 4= fairly likely to take the specified action
- 5= very likely to take the specified action

Situation: You approach a Stop sign on a familiar road where there is very little traffic and no sign of a police vehicle. How likely would you be to drive through the intersection without stopping at the sign, under each of the following conditions?

- You are in a hurry to get somewhere.
- You are not in a hurry.

Of the 514 respondents who answered this question, 471 (92 percent) indicated that they would be “fairly unlikely” or “very unlikely” to ignore a stop sign, even if they were in a hurry at the time. The responses were nearly identical for both “in a hurry” and “not in a hurry” scenarios. (Figure 9.)

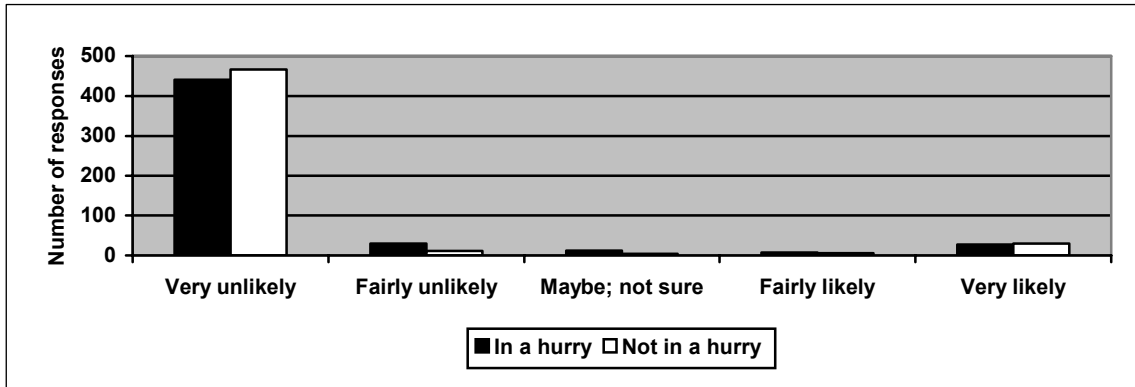


Figure 9. Likelihood of ignoring a stop sign.

Situation: *You are approaching an intersection with a stoplight.* When you are far enough away that you could stop safely if you needed to, the light turns from green to yellow. How likely are you to try to stop at the light under each of the following conditions?

- There is no police car present.
- You see a police car close to the intersection.

In a scenario without a police presence, 394 respondents (76 percent) nevertheless said they would be fairly likely or very likely to try to stop when a traffic light turned yellow. For the scenario in which a police car is present at the intersection, this number increased to 487 (94 percent). (Figure 10.)

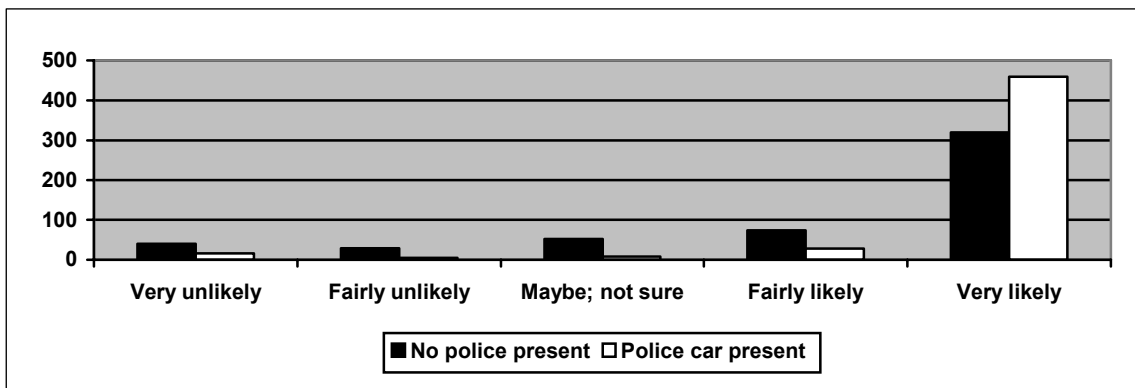


Figure 10. Likelihood of stopping for a yellow (turning red) light.

Situation: *You are driving on a city freeway where the posted speed limit is 60 mph.* How likely are you to drive faster than the posted speed limit under each of the following conditions?

- There is a lot of surrounding traffic moving at 5 to 10 mph above the speed limit.
- There is not much traffic (lanes are relatively clear) and no police vehicle visible.
- There is a police vehicle visible.

A majority of respondents (333 out of 516 responses, or 65 percent) stated that they would be fairly or very likely to drive 5 to 10 miles per hour higher than a posted 60 mph speed limit, if surrounding traffic was traveling at a similar speed. This percentage dropped somewhat to 57 percent if surrounding traffic was not a factor, but the presence of a police vehicle dropped the number that said they were fairly or very likely to speed to 90 (17 percent). The percentage of respondents saying that they would be “very unlikely” to speed by 5 or 10 mph rose from 17 percent (if surrounding traffic was also speeding) to 26 percent (little surrounding traffic and no police) to 57 percent (police presence). (Figure 11.)

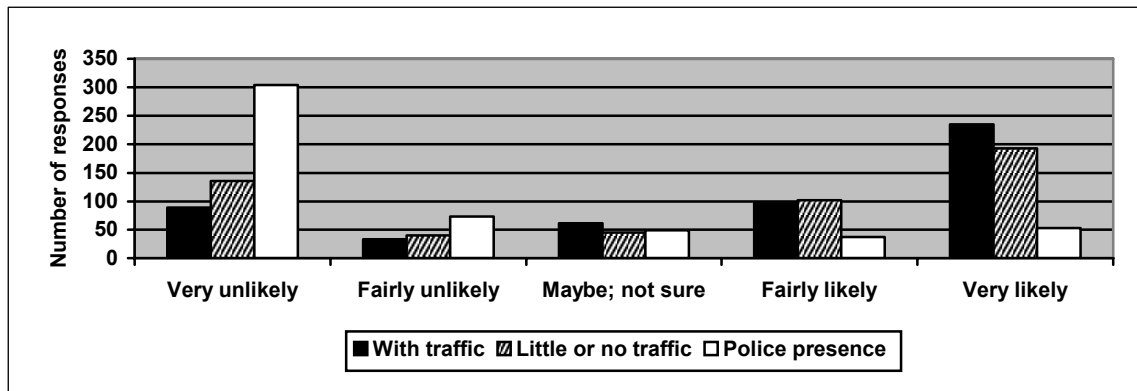


Figure 11. Likelihood of exceeding speed limit by 5-10 mph.

Situation: *You are driving on a rural 2-lane highway behind a car that is driving more slowly than you want to go.* The lane markings indicate a “no-passing” zone, but you haven’t seen any oncoming traffic for a while. How likely are you to move into the oncoming lane to pass?

Eighty-three percent of respondents stated that they were “fairly unlikely” or “very unlikely” to violate a no-passing zone. (Figure 12.)

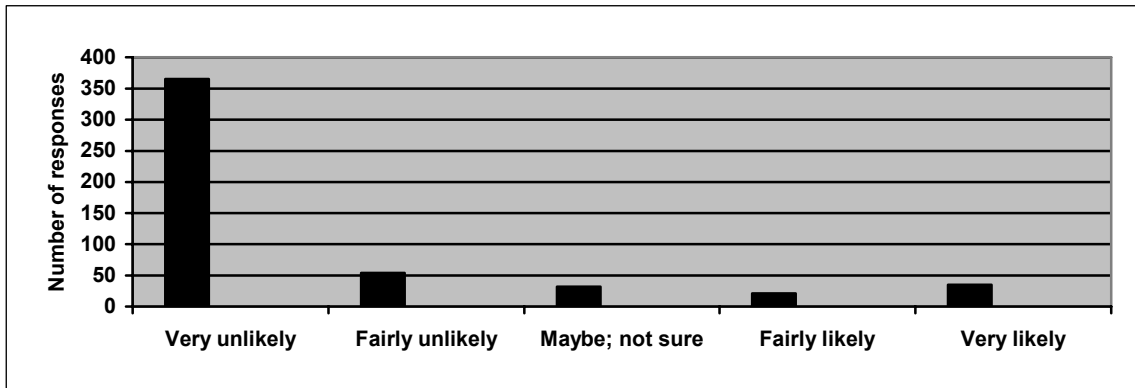


Figure 12. Likelihood of violating a no-passing zone.

The possible answers to the next two questions were “never,” “sometimes,” “often,” “usually,” and “always.”

How often do you drive slower than the speed limit in bad weather?

Fifty-five percent of respondents stated that they “usually” or “always” drive slower than the speed limit if weather is bad. Nineteen percent said that they “often” slow down in bad weather, and another nineteen percent said they “sometimes” will slow down. (Figure 13.)

How often do you reduce your driving speed when you see a sign indicating dangerous conditions?

A larger number of respondents indicated that warning signs will cause them to slow down, with 71 percent stating that they “usually” or “always” slow down upon seeing a sign warning of dangerous conditions, and 19 percent saying that they “often” slow down. (Figure 13.)

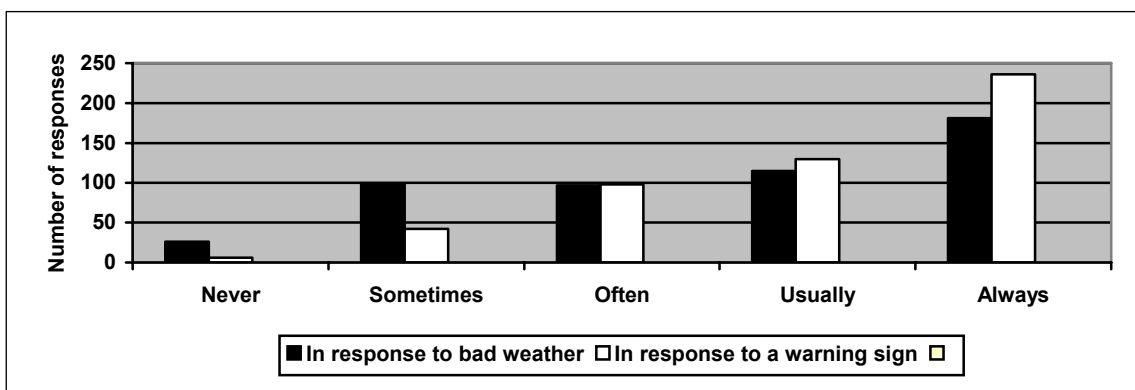


Figure 13. Responses to the question “How often do you reduce your driving speed?” in response to weather or warning signs.

Opinions on Safety Issues and Safety Measures

Respondents were asked to indicate how much they agreed with the following statements concerning safety issues and measures. The following response scale was used:

- 1 = Strongly disagree with the statement
- 2 = Somewhat disagree with the statement
- 3 = Neutral or don't know
- 4 = Somewhat agree with the statement
- 5 = Strongly agree with the statement

Sometimes it is necessary to take chances in traffic.

One hundred eighty-four respondents (36 percent) strongly disagreed with this statement. Eighty-five (16 percent) somewhat disagreed, and 96 (19 percent) were neutral or did not know. One hundred ten respondents (21 percent) somewhat agreed with the statement, and 41 (eight percent) strongly agreed. (Figure 14.)

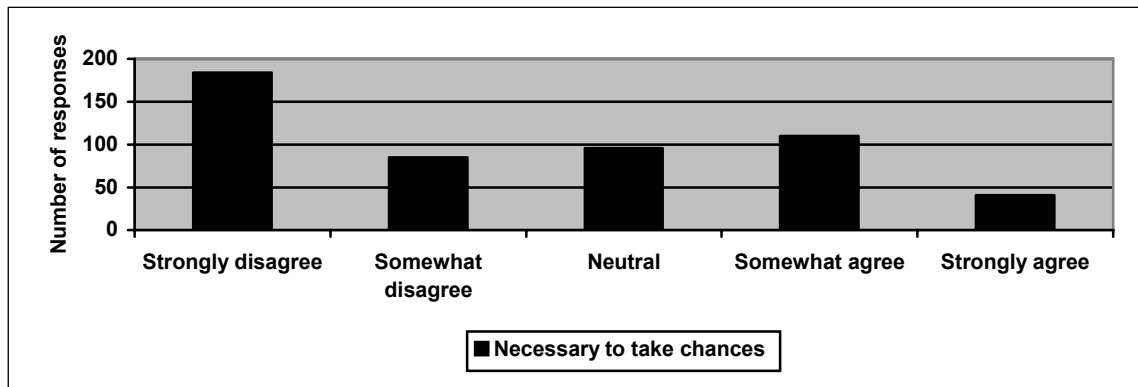


Figure 14. Responses to the statement “Sometimes it is necessary to take chances in traffic.”

If you have good driving skills, speeding by five or ten miles per hour is okay.

One hundred twenty-eight respondents (25 percent) strongly disagreed with this statement, and 106 (21 percent) somewhat disagreed. Ninety-three (18 percent) were neutral or did not know. One hundred twenty-six respondents (25 percent) somewhat agreed, and 61 (12 percent) strongly agreed with the statement. (Figure 15.)

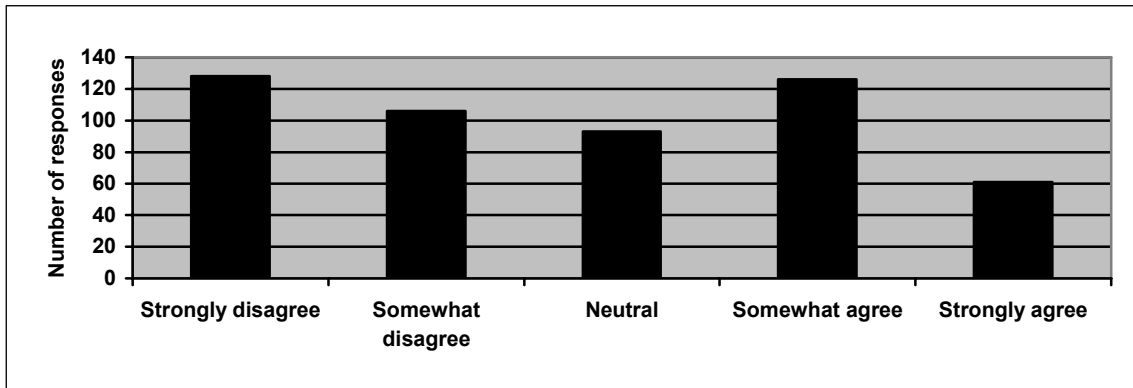


Figure 15. Responses to the statement “If you have good driving skills, speeding by five or ten miles per hour is okay.”

“Red-light” cameras are an effective way to stop drivers from running red lights.

Seventy-seven respondents (15 percent) strongly disagreed that “red-light” cameras are effective, and 50 respondents (10 percent) somewhat disagreed. Fifty-four respondents (11 percent) were neutral or did not know. One hundred respondents (20 percent) somewhat agreed that “red-light” cameras are effective, and 230 respondents (45 percent) strongly agreed. (Figure 16.)

“Red-light” cameras are a fair way to stop drivers from running red lights.

Seventy-five respondents (15 percent) strongly disagreed that “red-light” cameras are a fair way to stop drivers from running red lights, and 41 (eight percent) somewhat disagreed. Forty-seven (nine percent) were neutral or did not know. One hundred fifteen respondents (23 percent) somewhat agreed that “red-light” cameras were a fair way to deter red light running, and 231 (45 percent) strongly agreed. (Figure 16.)

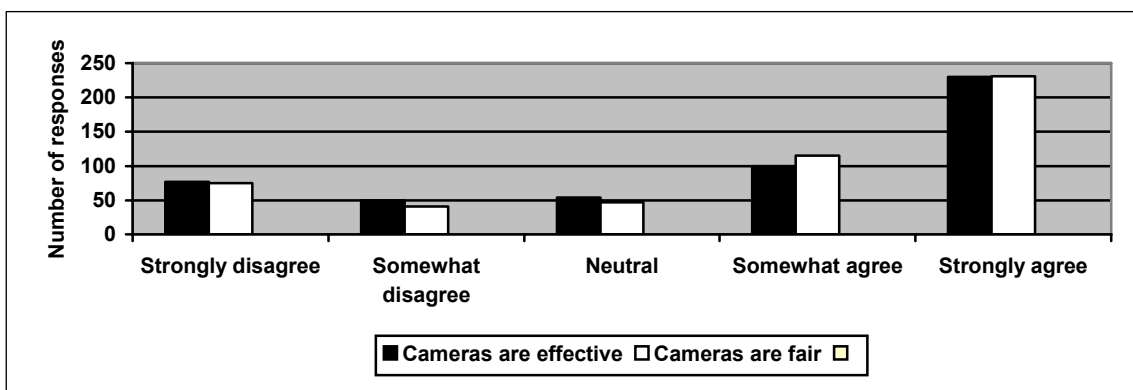


Figure 16. Responses to the statements “‘Red-light’ cameras are a fair/effective way to stop drivers from running red lights.”

Drivers and Light Rail

A recent traffic safety concern in Houston, Texas has been the interaction of drivers and the city's new light rail system. Survey participants were asked if they ever drive in areas of their cities where there also a light rail track. Just over half of the participants responded "yes" to this question (290 respondents, or 56 percent). Those respondents were then asked the following two questions about how they interact with the light rail tracks and vehicles.

When you are in an area with light rail tracks, how often do you look for approaching trains before turning or changing lanes?

Nine respondents (three percent of those responding to this question) said that they "never" look for approaching trains before crossing tracks. Twelve respondents (four percent) "sometimes" look for trains, 16 (six percent) "often" look, 29 (10 percent) "usually" look, and 224 (77 percent) "always" look for trains before turning or changing lanes.

When you are in an area with light rail tracks, how are you most likely to notice approaching trains?

Respondents gave a variety of responses to this question, listed below. More than one response could be given to this question.

- Seeing the "train approaching" sign lit (195 respondents/67 percent)
- Watching for trains on the track like I watch for cars in other lanes (149 respondents/51 percent)
- Hearing the train whistle (96 respondents/33 percent)
- Hearing the train's movement (30 respondents/10 percent)
- Other:
 - Flashing lights and gates at train crossing (nine respondents/three percent)
 - Safety arm/gate that drops (22 respondents/eight percent)
 - Other signs on the road (4 respondents)
 - Seeing train (one respondent)
 - Smell (one respondent)
 - Observing traffic slowing down (one respondent)

Respondents' Driving History and Self-Assessment

Respondents were asked some questions about their own driving history and about their own perception of their driving knowledge and their own and others' driving skills.

How confident are you that you could pass a written test today on the rules of the road in Texas?

Seven respondents (one percent) answered that they were “not at all confident” they could pass a written “rules of the road” test today. Thirty-five (seven percent) were “a little confident” that they could pass such a test, 104 (20 percent) were “reasonably confident,” and 268 (52 percent) were “very confident.”

When was the last time you looked at the Texas Driver Handbook?

One hundred seventy-three respondents (33 percent) stated that they had looked at the Texas Driver Handbook within the last two years. Another 69 (13 percent) had looked at the handbook within the last five years, and 259 (50 percent) had not looked at the handbook in more than five years. Sixteen respondents (three percent) did not know when they had last looked at the handbook.

How do you rate other drivers in your city?

Participants were asked to rate other drivers in their city according to the following scale:

- 1 = Terrible
- 2 = Poor
- 3 = Only fair
- 4 = Good
- 5 = Excellent

Ninety-nine respondents (19 percent) rated other drivers in their city as “terrible.” Ninety-two (18 percent) rated other drivers as “poor” and 244 (47 percent) rated them as “only fair.” Other drivers were rated “good” by 77 respondents (15 percent) and “excellent” by 2 respondents (0.3 percent). (Figure 17.)

How would you rate yourself as a driver?

On the same rating scale, one respondent rated him/herself a “terrible” driver. Five respondents (0.9 percent) rated themselves “poor” and 111 (21 percent) rated themselves “only fair.” Three hundred fifteen respondents (61 percent) rated their driving skills “good” and 85 respondents (16 percent) rated themselves “excellent” drivers.

The average rating given to “other drivers” by the respondents was 2.6, while the average rating given to one’s own driving was 3.9. (Figure 17.)

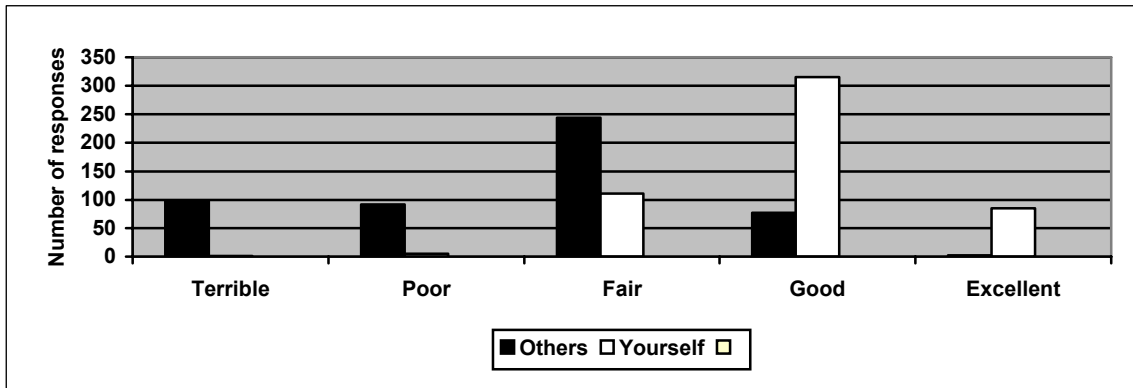


Figure 17. Respondent ratings of the driving abilities of “others” and “yourself.”

How long have you been driving?

Four respondents (0.7 percent) have been driving less than one year. Forty-five respondents (nine percent) have been driving between one and five years, 162 (31 percent) between six and 20 years, and 304 respondents (59 percent) have been driving more than 20 years.

How many traffic tickets have you received in the last five years?

Three hundred eighteen respondents (62 percent) have received no traffic tickets within the last five years. One hundred fifty-nine (31 percent) have received one or two tickets, 30 (6 percent) have received three to five tickets, and nine respondents (2 percent) have received six or more traffic tickets within the last five years.

How many traffic accidents have you been involved in during the last five years?

Three hundred seventy-one respondents (72 percent) have not been involved in a traffic accident within the last five years. One hundred four (20 percent) have been involved in one traffic accident, 28 (5 percent) have been involved in two accidents, and 12 (2 percent) have been involved in three or more traffic accidents in the past five years.

Chapter 5. Conclusions and Recommendations

Riskiest Driving Behaviors and Causes

The police and driving instructors interviewed and the drivers participating in the focus groups gave many of the same answers regarding risky driving behaviors. Most of the driving behaviors identified as “riskiest” involve driver distraction: cell phone use and other “multi-tasking” that pull a driver’s attention away from the road. Driver aggression and deliberate risk-taking were also mentioned frequently by interviewees and focus group members, as causes of other high-risk driving behaviors such as speeding, following other vehicles too closely, and right-of-way violations. Lack of driver knowledge, either of traffic laws or of potential risks, was also cited by these participant groups as a contributor to many traffic violations.

While telephone survey respondents also ranked attention-splitting behaviors such as cell phone use, text-messaging, and reading highest for risk, other similar behaviors such hands-free cell phone use and adjusting the car stereo were ranked (on average) much lower in perceived risk. Over a third of survey respondents considered driving faster than the speed limit acceptable if the driver has “good driving skills,” and a majority (76 percent) of respondents perceived their own driving skills to be good or excellent. These survey responses reinforce the observations made by police and driving instructors in the interviews, as well as in previous research studies: many drivers perceive their own risk level to be lower than average, and may therefore be more likely to become complacent, distracted, or overly aggressive while driving.

Roles of Enforcement and Education

The police officers interviewed emphasized the importance of linking education and enforcement in order to improve driver safety. Both police and driving instructors mentioned the importance of drivers’ motivation in driver education; police officers in particular expressed concern that defensive driving classes are too often viewed by drivers as a means to avoid a traffic-violation fine, not as a way to improve their driving skills or knowledge.

Focus group participants also emphasized the importance of enforcement and driver education. The focus groups recommended higher visibility of law enforcement on the roadway, tougher educational requirements and licensing criteria, higher penalties for traffic violations, increased public outreach, and positive reinforcement for safe driving.

The visibility of law enforcement as a positive influence on driving behavior was reinforced by responses to the telephone survey. The presence of a police vehicle influenced answers to both of the hypothetical driving scenarios in which it was a factor – the respondents’ likelihood of stopping at an intersection in anticipation of a red light rose and their likelihood of driving faster than the speed limit dropped. A majority of respondents considered “red-light” cameras a fair and effective deterrent to drivers running red lights.

Suggestions for Improving Driver Safety

The following suggestions are based on the interview, focus group, and telephone survey responses.

Enforcement:

- Require defensive driving classes for traffic violators *in addition* to fines or other penalties (not as a substitute).
- Increase the use of red-light cameras and other forms of automated enforcement, particularly at high-risk locations.

Education/Licensing Requirements:

- Require or encourage (through discounted fees or other incentive) a defensive driving “refresher course” for drivers renewing licenses.
- Require a defensive driving course for all new state residents before they can obtain a driver’s license in the state.
- Increase public outreach efforts to communicate information about new traffic laws and high-risk driving behaviors.

Recommendations for Further Research

Further research is recommended on the following topics:

- Ways to maximize the perceived “presence” of law enforcement by drivers.
- Educational methods for communicating concepts of risk and risk avoidance for drivers.
- Results of raising minimum age for driver’s licenses.
- Results of “parent-taught” driver education for teenagers.
- The effect of ITS technologies in reducing accidents; e.g., lane change warning systems, automated braking, and others. What has been the European and Japanese experience with this technology in reducing accidents? Other than red light enforcement technology, what other technologies exist to assist with accident reduction strategies?
- What regional traffic enforcement models exist to focus consistent attention on traffic safety and how are they staffed, funded and coordinated?
- What information systems exist to track accident data to support regional traffic safety initiatives to include engineering, education and enforcement?
- Role of the media in regional traffic safety educational initiatives.

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Appendix: Telephone Survey Script

Hello, my name is _____ and I am calling from Texas A&M University. You have been randomly selected to participate in a research survey about driver safety. The purpose of this survey is to collect information about driver's perceptions of risk and safety. This survey will only take about 15 minutes to complete. Your answers to the survey questions will be anonymous. You are free to refuse to answer any questions that may make you uncomfortable.

This research study has been reviewed by the Institutional Review Board- Human Subjects in Research, Texas A&M University. I can provide you with phone numbers to contact the researcher with any questions about this study, or to contact the Institutional Review Board if you have any concerns about your participation in this survey.

Are you over 18 and do you drive at least once a week? **[If yes, continue. If no, ask if there is another person in the household who is over 18 and drives at least once a week, then re-read introduction.]**

- 1 Yes
- 2 No

1. How confident are you that you could pass a written test today on the rules of the road in Texas?
 1. Not at all confident
 2. A little confident
 3. Reasonably confident
 4. Very confident

2. When was the last time you looked at the Texas Driver Handbook? (interviewer: elaborate if necessary to explain that this is the book of driving laws for Texas; if interviewee is unsure, prompt that it may have been when he/she first got a driver's license, moved to Texas, took a defensive driving course, taught a son/daughter to drive)
 1. Within the last two years
 2. Within the last five years
 3. More than five years ago

For the next several questions, I'm going to describe some situations you might encounter while driving.

3. Situation: You approach a Stop sign on a familiar road where there is very little traffic and no sign of a police vehicle. You are in a hurry to get somewhere. On a scale where 1 means very unlikely and 5 means very likely, how likely would you be to drive through the intersection without stopping at the sign?
 1. 1= very unlikely
 2. 2= fairly unlikely
 3. 3= maybe; not sure
 4. 4= fairly likely
 5. 5= very likely

4. Situation: The same as before, but you are not in a hurry. How likely would you be to proceed without stopping at the sign? *(same scale or descriptors)*
5. Situation: You are approaching an intersection with a stoplight. When you are far enough away that you could stop safely if you needed to, the light turns from green to yellow. How likely are you to try to stop at the light? *(same scale or descriptors)*
6. Situation: The same as the last question, except now you see a police car close to the intersection. How likely are you to try to stop at the light? *(same scale or descriptors)*
7. Situation: You are driving on a city freeway where the posted speed limit is 60 mph. There is a lot of surrounding traffic moving at 5 to 10 mph above the speed limit. How likely are you to drive faster than the posted speed limit to keep up with traffic? *(same scale or descriptors)*
8. Situation: You are driving on the 60-mph freeway, and there is not much traffic, so lanes are relatively clear. How likely are you to drive 5 to 10 mph above the posted speed limit, if there is no police vehicle visible? *(same scale or descriptors)*
9. How likely are you to drive 5 or 10 mph above the speed limit on the freeway if there is a police car visible? *(same scale or descriptors)*
10. Situation: You are driving on a rural 2-lane highway behind a car that is driving more slowly than you want to go. The lane markings indicate a “no-passing” zone, but you haven’t seen any oncoming traffic for a while. How likely are you to move into the oncoming lane to pass? *(same scale or descriptors)*
11. How often do you drive slower than the speed limit in bad weather? (On a scale of 1 to 5 and/or use the following descriptors)
 1. 1=Never
 2. 2=Sometimes
 3. 3=Often
 4. 4=Usually
 5. 5=Always
12. How often do you reduce your driving speed when you see a sign indicating dangerous conditions?
 1. 1=Never
 2. 2=Sometimes
 3. 3=Often
 4. 4=Usually
 5. 5=Always

Now we would like to ask you to Rank the following activities in terms of how risky you think they are. 1 is not at all risky, 2 is not very risky, 3 is somewhat risky, 4 is very risky, and 5 is Extremely Risky. (Or... where 1 is not at all risky and 5 is extremely risky)

13. Talk on a cell phone while driving, with a hands-free device:

1. 1=Not at all risky
2. 2=Not very risky
3. 3=Somewhat risky
4. 4=Very risky
5. 5=Extremely risky

14. Text-message while driving

1. 1=Not at all risky
2. 2=Not very risky
3. 3=Somewhat risky
4. 4=Very risky
5. 5=Extremely risky

15. Talk on a cell-phone while driving, without a hands-free device):

1. 1=Not at all risky
2. 2=Not very risky
3. 3=Somewhat risky
4. 4=Very risky
5. 5=Extremely risky

16. Eat while driving:

1. 1=Not at all risky
2. 2=Not very risky
3. 3=Somewhat risky
4. 4=Very risky
5. 5=Extremely risky

17. Read while driving:

1. 1=Not at all risky
2. 2=Not very risky
3. 3=Somewhat risky
4. 4=Very risky
5. 5=Extremely risky

18. Drive aggressively.

1. 1=Not at all risky
2. 2=Not very risky
3. 3=Somewhat risky
4. 4=Very risky
5. 5=Extremely risky

19. Drive significantly below the speed limit.
 1. 1=Not at all risky
 2. 2=Not very risky
 3. 3=Somewhat risky
 4. 4=Very risky
 5. 5=Extremely risky

20. Adjust the stereo while driving:
 1. 1=Not at all risky
 2. 2=Not very risky
 3. 3=Somewhat risky
 4. 4=Very risky
 5. 5=Extremely risky

21. Drive after drinking 1 or 2 drinks:
 1. 1=Not at all risky
 2. 2=Not very risky
 3. 3=Somewhat risky
 4. 4=Very risky
 5. 5=Extremely risky

22. Drive after drinking 3 or more drinks:
 1. 1=Not at all risky
 2. 2=Not very risky
 3. 3=Somewhat risky
 4. 4=Very risky
 5. 5=Extremely risky

23. Exceed the speed limit on a 70-mph freeway by 10 mph
 1. 1=Not at all risky
 2. 2=Not very risky
 3. 3=Somewhat risky
 4. 4=Very risky
 5. 5=Extremely risky

24. Exceed the speed limit on a 45 mph city street by 10 mph:
 1. 1=Not at all risky
 2. 2=Not very risky
 3. 3=Somewhat risky
 4. 4=Very risky
 5. 5=Extremely risky

25. Exceed the speed limit on a 30 mph city street by 10 mph:
 1. 1=Not at all risky
 2. 2=Not very risky
 3. 3=Somewhat risky

4. 4=Very risky
5. 5=Extremely risky

26. Cross railroad tracks after “train coming” lights start to flash.

1. 1=Not at all risky
2. 2=Not very risky
3. 3=Somewhat risky
4. 4=Very risky
5. 5=Extremely risky

How much do you agree with the following statements: (1 is strongly disagree and 5 is strongly agree)

27. Sometimes it is necessary to take chances in traffic.

1. 1= Strongly disagree
2. 2= Somewhat disagree
3. 3= Neutral; don't know
4. 4= Somewhat agree
5. 5= Strongly agree

28. If you have good driving skills, speeding by 5 or 10 mph is OK.

1. 1= Strongly disagree
2. 2= Somewhat disagree
3. 3= Neutral; don't know
4. 4= Somewhat agree
5. 5= Strongly agree

29. “Red-light” cameras are an effective way to stop drivers from running red lights.

1. 1= Strongly disagree
2. 2= Somewhat disagree
3. 3= Neutral; don't know
4. 4= Somewhat agree
5. 5= Strongly agree

30. “Red-light” cameras are a fair way to stop drivers from running red lights.

1. 1= Strongly disagree
2. 2= Somewhat disagree
3. 3= Neutral; don't know
4. 4= Somewhat agree
5. 5= Strongly agree

31. Do you ever drive in areas where there is also a light rail track? (if no, skip to question 34)

- 1 Yes
- 2 No

32. When you are in an area with light rail tracks, how often do you look for approaching trains before turning or changing lanes? 1= Never

1. 1= Never
2. 2= Sometimes
3. 3= Often
4. 4= Usually
5. 5= Always

33. When you are in an area with light rail tracks, how are you most likely to notice approaching trains? (prompt with responses only if needed)

1. Watching for trains on the track like I watch for cars in other lanes
2. Seeing the “train approaching” sign lit
3. Hearing the train whistle
4. Hearing the train’s movement
5. Other?

34. How do you rate other drivers in your city? (1= Terrible, 5= Excellent or use the following descriptors)

1. Terrible
2. Poor
3. Only fair
4. Good
5. Excellent

35. How would you rate yourself as a driver?

1. Terrible
2. Poor
3. Only fair
4. Good
5. Excellent

36. How long have you been driving?

1. Less than a year
2. 1 to 5 years
3. 6 to 20 years
4. More than 20 years

37. How many traffic tickets have you received in the last five years?

1. None
2. One or two
3. Three to five
4. Six or more

38. How many traffic accidents have you been involved in during the last five years?
1. None
 2. One
 3. Two
 4. Three or more

The final questions are for demographic purposes only.

39. What is your age?
40. What is your ethnicity?
1. White (non-Hispanic)
 2. Hispanic
 3. African American
 4. Asian
 5. Other
41. What is your occupation?
42. Are you married?
- 1 Yes
 - 2 No
43. Do you have children?
- 1 Yes
 - 2 No
44. Are you male or female?
- 1 Female
 - 2 Male