

North Dakota Statewide Traffic Safety Survey, 2021: Traffic Safety Performance Measures for State and Federal Agencies



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Disclaimer

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ABSTRACT

The statewide driver traffic safety survey provides baseline metrics for the Safety Division and others to use in understanding perceptions and self-reported behaviors related to focus issues. A core set of questions addresses nationally agreed upon priorities, including seat belts, impaired driving, and speeding. In addition to the core issues, questions were included to better understand views on specific programs and attitudes pertinent to North Dakota drivers. Results show that more North Dakota drivers have adopted safe driving practices, but additional efforts are needed to improve safety on the state's roads.

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1. INTRODUCTION

The United States lags behind other developed countries in several transportation safety metrics. One metric, road traffic death rate, is higher than in other developed countries (World Health Organization 2021) (Figure 1.1). Progress has been made to reduce the number of traffic-related fatalities, but crashes resulting in death, injury, and property damage continue to occur due to preventable factors. These factors include driving under the influence of drugs or alcohol, distracted driving, speeding, and operating a vehicle without a seat belt, among others. The metric highlighted in Figure 1.1, which presents the most recently available data from the World Health Organization, suggests that more work is needed to improve driver behavior and overall safety on roadways in the United States. One critical asset in monitoring and communicating traffic safety priorities is a reliable and comprehensive means to set and measure goals (Government Accounting Office 2010). In a nationwide effort to improve transparency and quantify metrics for behavior-based investments designed to reduce motor vehicle crashes, the Governor’s Highway Safety Association (GHSA) and the National Highway Traffic Safety Administration (NHTSA) established a set of performance measures to support traffic safety priorities and demonstrate progress related to behavioral safety plans and programs (Hedlund 2008).

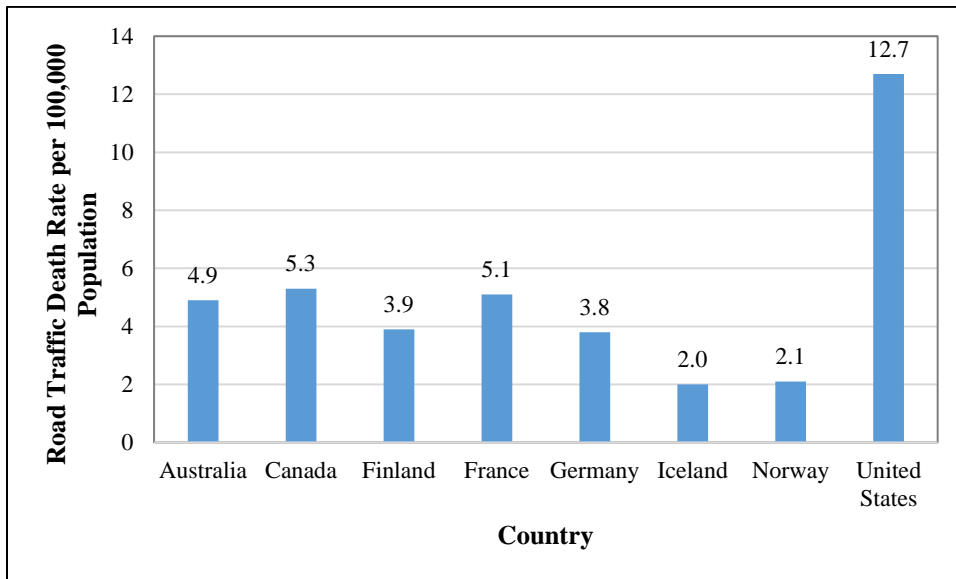


Figure 1.1 Road Traffic Death Rate of Selected Countries, 2019

Within the GHSA-NHTSA safety effort, 14 measures were agreed upon as Minimum Performance Measures. These include 10 outcome measure-types, one behavior measure-type, and three activity measure-types. The Minimum Performance Measures are designed to create a quantitative core for the development and implementation of highway safety plans and programs. Several uses include goal setting, goal-action linkages, resource allocation, program evaluation, and communication. Other benefits stem from improvements to organizational focus, feedback processes, and accountability (Herbel et al. 2009). The measures were defined to monitor overall traffic safety performance and progress related to the prioritized behavioral issues. These issues include occupant protection, alcohol use, and speeding. Additionally, the measures target high-risk population groups. The 10 outcome measures focus on the following:

- Overall traffic safety performance
- Seat belt use
- Child occupants
- Alcohol-impaired driving

- Speeding and aggressive driving
- Motorcyclists
- Young drivers
- Older drivers
- Pedestrians
- Bicyclists

These 10 core outcome measures combine current exposure data, such as population and vehicle miles traveled (VMT), with existing national Fatality Analysis Reporting System (FARS) data to generate performance measures in areas common to state safety strategies and data systems. Activity measures emphasize actions such as citations or arrests under grant-funded enforcement initiatives. Seat belt observation was chosen as the single initial core behavior measure (Hedlund 2008). The measures utilized in the outcome highlights are typically calculated as:

- Core outcome measures
 - C-1) Number of traffic fatalities (FARS). States are encouraged to report three-year or five-year moving averages when appropriate. (One example is when annual counts are small enough that random fluctuations may inaccurately reflect true trends. This applies to all fatality measures.)
 - C-2) Number of serious injuries in traffic crashes (state crash data files).
 - C-3) Fatalities per VMT (FARS, FHWA). States should set a goal for total fatalities per VMT. States should report both urban and rural fatalities per VMT in addition to total fatalities per VMT.
 - C-4) Number of unrestrained passenger vehicle occupant fatalities, all seat positions (FARS).
 - C-5) Number of fatalities in crashes involving a driver or motorcycle operator with a blood alcohol content (BAC) of at least 0.08 grams/deciliter (FARS).
 - C-6) Number of speeding-related fatalities (FARS).
 - C-7) Number of motorcyclist fatalities (FARS).
 - C-8) Number of motorcyclist fatalities not wearing a helmet (FARS).
 - C-9) Number of drivers aged 20 or younger involved in fatal crashes (FARS).
 - C-10) Number of pedestrian fatalities (FARS).
- Core behavior measure
 - B-1) Observed seat belt use for passenger vehicles, front seat outboard occupants (observational survey).
- Activity measures
 - A-1) Number of seat belt citations issued during grant-funded enforcement activities (grant activity reporting).
 - A-2) Number of impaired driving arrests made during grant-funded enforcement activities (grant activity reporting).
 - A-3) Number of speeding citations issued during grant-funded enforcement activities (grant activity reporting).

The Minimum Performance Measure publication also referenced four additional areas for measuring improvement and implementation: traffic injury outcome; driver attitudes, awareness, and behavior; traffic speed; and law enforcement activity. The following report fulfills the need for improved measurement of driver knowledge, attitudes, behaviors, and beliefs. A core question set was developed by a GHSA-NHTSA working group and presented to state departments of transportation following the preliminary recommendations in the Minimum Performance Measures (Hedlund, Casanova, and Chaudhary 2009).

A set of 10 core questions was created to quantify attitudes, awareness, and self-reported behavioral patterns through periodic statewide traffic safety surveys/questionnaires. This recommended list of core questions was intended to provide a standard for states to track performance as they pursue program goals and objectives to reduce crashes, injuries, and fatalities related to high-risk driver behaviors. Core questions remain consistent across all entities. Beyond the core questions, an option to supplement the survey with other additional questions provides latitude to address local interests and to obtain other useful information related to topics such as demographics and driving activity.

Commonly, federal initiatives relating to driving behavior focus on impaired driving, seat belt use, and speeding. Thus, the core questions emphasize these issues (Hedlund, Casanova, and Chaudhary 2009). The core questions of the focus areas are as follows:

- Impaired driving
 - ID-1: In the past 60 days, how many times have you driven a motor vehicle within two hours after drinking alcoholic beverages?
 - ID-2: In the past 30 days, have you read, seen or heard anything about alcohol impaired driving (or drunk driving) enforcement by police?
 - ID-3: What do you think the chances are of someone getting arrested if they drive after drinking?
- Safety belts
 - SB-1: How often do you use safety belts when you drive or ride in a car, van, sport utility vehicle or pickup?
 - SB-2: In the past 60 days, have you read, seen, or heard anything about seat belt law enforcement by police?
 - SB-3: What do you think the chances are of getting a ticket if you don't wear your safety belt?
- Speeding
 - SP-1a: On a local road with a speed limit of 30 miles per hour, how often do you drive faster than 35 miles per hour?
 - SP-1b: On a road with a speed limit of 65 miles per hour, how often do you drive faster than 70 miles per hour?
 - SP-2: In the past 30 days, have you read, seen or heard anything about speed enforcement by police?
 - SP-3: What do you think the chances are of getting a ticket if you drive over the speed limit?

Eight variations of these questions have been incorporated into the 2021 North Dakota Driver Survey developed in conjunction with the North Dakota Department of Transportation's Safety Division (see Appendix A for the complete survey). The Safety Division expanded the survey to gain additional information relevant to its goals and responsibilities. Ultimately, the core questions were slightly modified to better fit driving conditions in North Dakota, and some core questions from prior iterations of the survey were excluded on account of changing driving patterns during the COVID-19 global pandemic. The core questions, which were included, read as follows:

- Impaired driving
 - ID-1a) In the past 60 days, how many times have you driven a motor vehicle within two hours after drinking 1-2 alcoholic drinks?
 - ID-1b) In the past 60 days, how many times have you driven a motor vehicle within two hours after drinking 3 or more alcoholic drinks?
 - ID-2) Where have you read, seen, or heard traffic safety messages relating to drunk driving enforcement?

- ID-3) What do you think are the chances for someone’s arrest if they drive while under the influence of alcohol or drugs?
- Safety belts
 - SB-1) How often do you use a seat belt when you drive or ride in a motor vehicle?
 - SB-2) Where have you read, seen, or heard traffic safety messages relating to seat belt enforcement?
 - SB-3) What do you think the chance is of getting a ticket if you do not wear your seat belt?
- Speeding
 - SP-2) Where have you read, seen, or heard traffic safety messages relating to speed enforcement?
 - SP-3) What do you think the chance is of getting a ticket if you drive over the speed limit?

The 2018 North Dakota *Vision Zero Plan* provides insight for current priorities and activities (NDDOT 2018). The most recent Strategic Highway Safety Plan outlines goals related to the overall traffic safety mission of the NDDOT, in addition to specific issues to address in the next five years. The following traffic safety issues are prioritized as emphasis areas:

- Lane departure
- Intersections
- Impaired driving
- Unbelted vehicle occupants
- Speeding/aggressive drivers
- Young drivers
- Heavy vehicles
- Older drivers
- Pedestrians/bicyclists
- Local system roadways
- Oil impact counties

Metrics are included to indicate progress of the overall safety mission – in light of traffic fatalities and serious injuries. The single core behavior measure shows 2020 observed seat belt use at 83.7% (Vachal, Benson, and Andersen 2020). Results presented here will enhance the understanding of behavior by providing additional coverage, expanded insights into issues, and an increased number of measures.

2. METHOD

A mail survey was selected as the method for the driver traffic safety survey. A questionnaire was created by blending the core questions with other NDDOT-designated questions pertaining to education, policy, and enforcement. The questions were developed based on a literature review – which included previous surveys of this type – and guidance offered by the GHSA-NHTSA working group. The mailings to drivers included a Safety Division cover letter, which invited participation and explained the purpose of the survey. The questionnaire was mailed to North Dakota drivers on March 1, 2021, and requested responses to be returned by April 1, 2021.

NDDOT adult driver records formed the population used for sampling. The NDDOT mail list consisted of 10,731 driver addresses. Unlike other iterations of this survey, none of the preliminary list of addresses were deemed invalid prior to mailing. Only two surveys were returned to the NDDOT as undeliverable. This low number is likely due to the decision to use “or current resident” on each address label. Therefore, a total of 10,729 surveys were mailed to valid addresses. The sample had regional, geographic, age, and gender distributions that were a reasonable representation of the general North Dakota driver population. Ultimately, 1,557 surveys were completed and returned to the research team. However, not all of the surveys were from valid North Dakota counties. A total of 42 respondents did not provide an answer to the “In which North Dakota county do you live?” question and were removed from the sample. None of the responses were from individuals living in counties outside of North Dakota. Thus, of the usable survey responses provided, 1,515 were confirmed as valid and form the driver response sample used in the analysis.

The sample size was based on a 95% confidence interval with a 5% confidence level. Although mail survey response is usually low, with 10% typical, a slightly better response rate was expected due to the parameters used in the survey design and administration. These parameters included keeping the survey to a single page, including state agency cover letter, using state agency mail envelopes, and providing postage-paid return envelopes.

A disproportionate stratified random sample was used to select drivers. North Dakota drivers were stratified by region (east/west) and geography (urban/rural). County jurisdictional boundaries were used to define both region and geography (Figure 2.1). Additionally, oversampling was necessary for two target driver groups: 18-to-34-year-old male and female drivers. The disproportionate stratified sampling structure was used to elicit sufficient driver participation to allow robust analysis of responses by region, geography, and the target driver groups. However, using these simple average responses would provide skewed results in representing the statewide driver population. For example, drivers age 35 to 44 were 8.2% of the survey sample and account for 7.0% of the survey responses. However, this age cohort actually accounts for 16.6% of the licensed driver population in the state (FHWA 2020). Therefore, a post-stratification weighting process is used to give an appropriate weight to responses for statewide estimates. Results from post-stratification consider the age, gender, and location of North Dakota registered drivers when weighting to reflect the views, perceptions, and behaviors of the statewide driving population. Note that answers with fewer than 30 responses are not considered large enough to extrapolate to fit the entire North Dakota driver population. These instances are indicated with asterisks throughout the analysis.

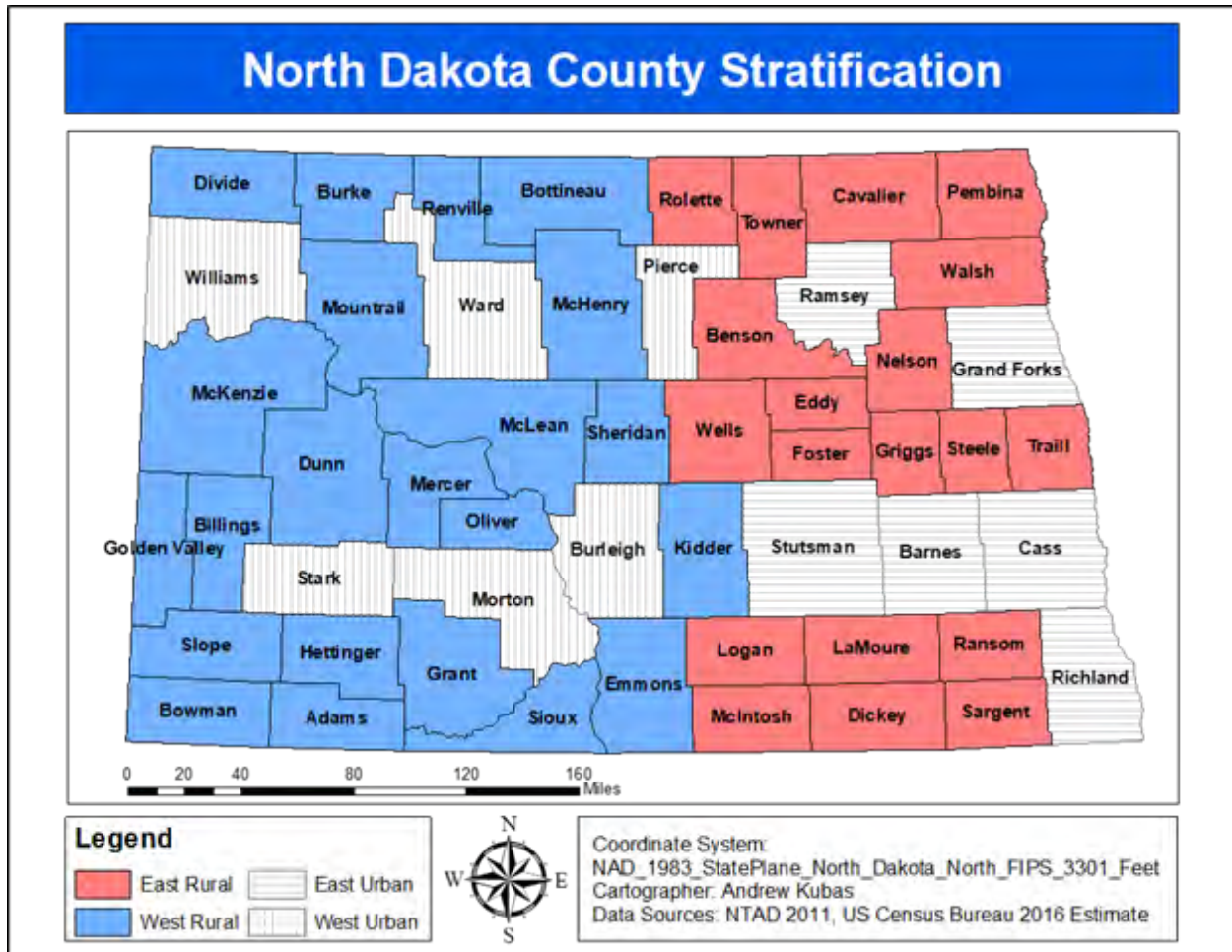


Figure 2.1 County Stratification

The regional definition was created by aggregating North Dakota health regions into two areas closely representing an east/west division of the state. The geography definition includes an urban/rural dichotomy. Urban drivers are those from counties with the largest urban population according to the most recently published data estimates from the U.S. Census Bureau. Six urban counties are located in the east and another six are located in the west based on the population density geographic definitions used in the study. These counties represent the clear majority of the urban population in the state. The sampling probabilities for the survey are displayed in Table 2.1.

Table 2.1 Sampling Probabilities

| Region | Geography | Driver Age | Sampling Probability |
|--------|-----------|------------|----------------------|
| East | Urban | 18-34 | 0.034 |
| East | Urban | 35+ | 0.006 |
| East | Rural | 18-34 | 0.072 |
| East | Rural | 35+ | 0.012 |
| West | Urban | 18-34 | 0.039 |
| West | Urban | 35+ | 0.007 |
| West | Rural | 18-34 | 0.104 |
| West | Rural | 35+ | 0.018 |

3. RESPONSE

The survey response rate was 14.1% with 1,515 valid responses obtained from a mailing to 10,729 drivers. The response rate was comparable to prior surveys (Vachal, Benson, and Kubas 2010-2020) but was 0.6% lower than the 2020 mailing (Vachal, Benson, and Kubas 2020). As expected, oversampling of the 18- to 34-year-old male and female driver target groups was needed to achieve a sample sufficient for statistical analysis. The target group response rate was 7.0% compared to 28.9% for other drivers. Sampling to elicit response by region and geography was successful (Table 3.1). Responses include an acceptable level of participation with comparable response rates from east, west, urban, and rural demographics.

Table 3.1 Survey Response by Region and Geography

| | | GEOGRAPHY | | |
|----------------------------|------|------------------------------|------------------------------|------------------------------|
| | | Urban | Rural | Total |
| R E G I O N | East | 430 (28.4%) | 353 (23.3%) | 783 (51.7%) |
| | West | 361 (23.8%) | 371 (24.5%) | 732 (48.3%) |
| Total | | 791 (52.2%) | 724 (47.8%) | 1,515 |

The sample design did not account for age or gender beyond the target male and female groups. Responses have an acceptable distribution among age cohorts, though the 35-to-44-year-old and 45-to-54-year-old age groups are under-represented compared with the actual proportion of the driver population in the state (Table 3.2). The highest share of responses is among drivers age 25 to 34. This age cohort makes up 26.1% of the survey responses and continues the trend from prior iterations of this survey in which this group has the largest share of responses. The 35-to-44-year-old age cohort makes up the lowest proportion of survey responses. Nonetheless, there were well over 30 responses from each age group, making statistical extrapolation possible and allowing for inferences to be drawn with regard to the entire North Dakota driver population.

Response rates were slightly skewed by gender; 59.7% of the sample identified as female. This deviates from the North Dakota driver population in which there is an approximately equal distribution of males and females. The number of responses based on gender also provides sufficient data to expand the responses to represent the entire statewide driver population. The comparison to the state population supports the post-weighting for improved driver population representation with the sample.

Table 3.2 Response by Age Group

| Age Group | Survey | | Driver Population | |
|--------------|-----------|-------|-------------------|--------------------|
| | Responses | Share | Drivers | Share ₁ |
| 18-24 | 109 | 7.2% | 60,128 | 11.1% |
| 25-34 | 395 | 26.1% | 111,899 | 20.6% |
| 35-44 | 106 | 7.0% | 92,195 | 17.0% |
| 45-54 | 118 | 7.8% | 78,028 | 14.4% |
| 55-64 | 311 | 20.5% | 93,242 | 17.2% |
| 65-74 | 296 | 19.5% | 65,234 | 12.0% |
| 75 and Older | 180 | 11.9% | 41,287 | 7.6% |

¹Represents share of drivers above age 18; percentages do not account for novice (under 18) drivers

Source: FHWA 2020

4. RESULTS

Responses to the survey questions provide valuable insight into driver perceptions, attitudes, and behaviors regarding traffic safety. Simple frequency analysis of ordinal and dichotomous survey responses provides a general characterization of driver views and behaviors. The strong response rate resulted in increased confidence. The 95% confidence interval is coupled with smaller margins of error at +/-1% when discussing statewide results, and a +/-2% error margin when addressing the population in regional, geographic, or target driver strata.

4.1 All Drivers

The core questions emphasize three specific issues: impaired driving, seat belt use, and speeding. Response frequencies for these questions are included in Table 4.1. The table includes 2010-2020 responses to establish metrics that may be used to identify driving trends in North Dakota. In addition, five-year averages shed further light into patterns during this time frame. Responses show drivers believe law enforcement is more likely to ticket for impaired driving violations than for speeding or seat belt violations. Frequencies indicate that 62.4% of drivers think the chances are higher than average that impaired drivers will be arrested (Figure 4.1). This is higher than the 60.3% and 29.1% of respondents who believe there is a greater-than-average likelihood that drivers will be ticketed either for speeding or seat belt violations, respectively.

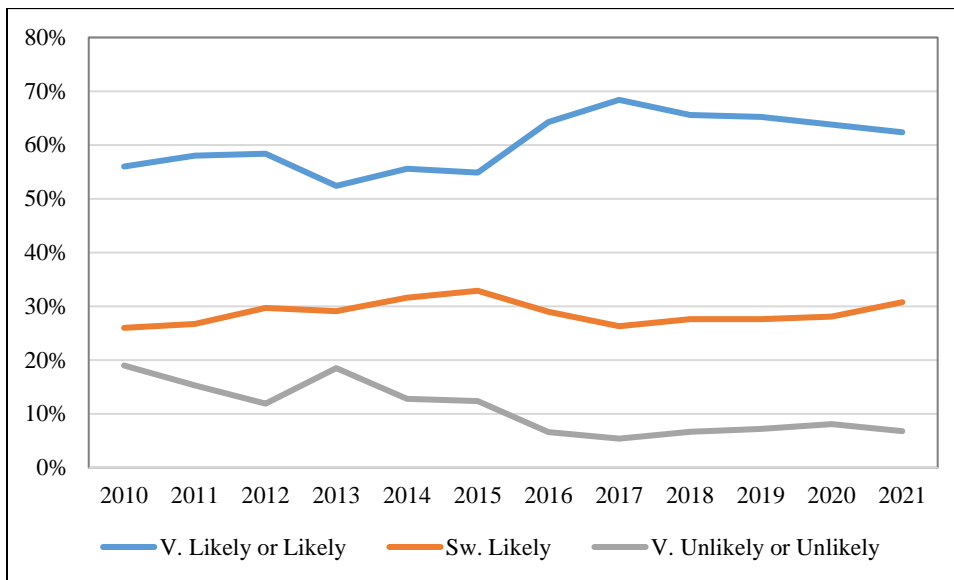


Figure 4.1 Perceived DUI Arrest Likelihood

Responses reveal that perceptions of getting a ticket for illegal driving behavior is related to whether one has driven within two hours of consuming alcohol in the last 60 days. For example, compared with drivers who never drove within two hours of consuming alcohol, those operating a vehicle at least once within two hours of consuming one or two alcoholic beverages were less likely to think that they would be ticketed for not wearing a seat belt ($F=25.122$, $df=1$, $p<0.001$) and were also less likely to believe that they would be ticketed for speeding ($F=6.769$, $df=1$, $p=0.009$). A similar pattern occurred among those who operated a vehicle within two hours of consuming three or more alcoholic drinks. In this survey, operating a vehicle after consuming three or more alcoholic beverages is associated with a lower perceived chance of getting a ticket for not wearing a seat belt ($F=15.147$, $df=1$, $p<0.001$) and for speeding ($F=7.143$, $df=1$, $p=0.008$). This suggests that a driver engaging in one dangerous activity

(driving after consuming alcohol) may also take part in another (driving unbelted, speeding) and therefore may exponentially increase danger on the roadway.

Responses from this questionnaire show 28.6% of respondents reported that they had driven a vehicle within two hours of drinking one or two drinks at least once during the past two months (Figure 4.2). This is an improvement compared with 2020 in which 32.6% of respondents reported this behavior. In contrast, just 4.4% noted that they had operated a vehicle within two hours of drinking three or more drinks at least once during the past two months. This once again represented an improvement compared with 2020 in which 6.5% of drivers admitted to driving a vehicle within two hours of consuming three or more alcoholic beverages. This represents the lowest proportion ever in the nine years that this question has been asked on the annual survey.

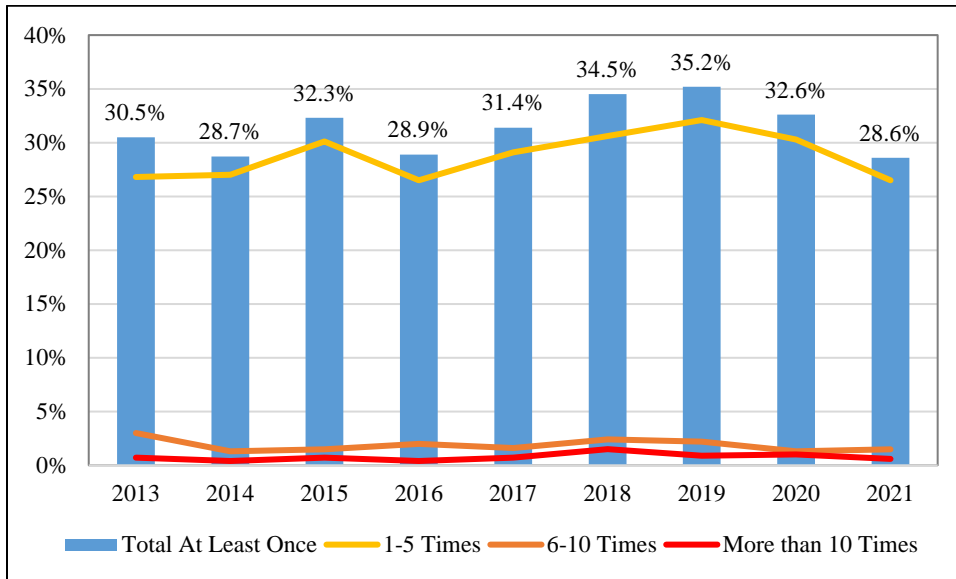


Figure 4.2 Self-Reported Driving-After-Drinking Activity within Two Hours of Consuming 1-2 Drinks

Table 4.1 Core Question Responses

| Core | Survey Question | Responses | | | | |
|-------|---|--------------|--------------|--------------|--------------------|-------------|
| ID-1a | In the past 60 days, how many times have you driven a vehicle within two hours after drinking 1-2 drinks? | None | 1-5 Times | 6-10 Times | More than 10 Times | |
| | 2021# | 71.3% | 26.5% | 1.5%* | 0.6%* | |
| | 2020# | 67.4% | 30.3% | 1.3% | 1.0%* | |
| | 2019# | 64.8% | 32.1% | 2.2% | 0.9% | |
| | 2018# | 65.5% | 30.6% | 2.4% | 1.6% | |
| | 2017# | 68.5% | 29.1% | 1.6% | 0.7%* | |
| | 2016# | 71.0% | 26.5% | 2.0% | 0.4%* | |
| | 2015# | 66.7% | 30.1% | 1.5% | 0.7%* | |
| | 2014# | 71.3% | 27.0% | 1.3% | 0.4%* | |
| | 2013# | 69.5% | 26.8% | 3.0% | 0.7%* | |
| | 2017-2021 Five-Year Avg. | 67.5% | 29.7% | 1.8% | 1.0% | |
| | 2016-2020 Five-Year Avg. | 67.4% | 29.7% | 1.9% | 0.9% | |
| | 2015-2019 Five-Year Avg. | 67.3% | 29.7% | 1.9% | 0.9% | |
| | 2014-2018 Five-Year Avg. | 68.6% | 28.7% | 1.8% | 0.8% | |
| | 2013-2017 Five-Year Avg. | 69.4% | 27.9% | 1.9% | 0.6% | |
| ID-1b | In the past 60 days, how many times have you driven a vehicle within two hours after drinking 3+ drinks? | None | 1-5 Times | 6-10 Times | More than 10 Times | |
| | 2021# | 95.5% | 4.1% | 0.2%* | 0.1%* | |
| | 2020# | 93.5% | 6.1% | 0.3%* | 0.1%* | |
| | 2019# | 93.0% | 6.4% | 0.4%* | 0.1%* | |
| | 2018# | 92.6% | 6.5% | 0.7%* | 0.2%* | |
| | 2017# | 93.0% | 6.7% | 0.3%* | 0.1%* | |
| | 2016# | 95.3% | 4.4% | 0.1%* | 0.2%* | |
| | 2015# | 93.4% | 6.1% | 0.5%* | 0.1%* | |
| | 2014# | 94.5% | 5.1% | 0.2%* | 0.2%* | |
| | 2013# | 92.4% | 6.6% | 0.8%* | 0.2%* | |
| | 2017-2021 Five-Year Avg. | 93.5% | 6.0% | 0.4% | 0.1% | |
| | 2016-2020 Five-Year Avg. | 93.5% | 6.0% | 0.4% | 0.1% | |
| | 2015-2019 Five-Year Avg. | 93.5% | 6.0% | 0.4% | 0.1% | |
| | 2014-2018 Five-Year Avg. | 93.8% | 5.8% | 0.4% | 0.2% | |
| | 2013-2017 Five-Year Avg. | 93.7% | 5.8% | 0.4% | 0.2% | |
| ID-3 | What are the chances of someone getting arrested if they drive after drinking alcohol? | Very Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | 2021 | 27.3% | 35.1% | 30.8% | 6.0% | 0.8%* |
| | 2020 | 32.6% | 31.2% | 28.1% | 6.7% | 1.4% |
| | 2019 | 32.0% | 33.2% | 27.6% | 5.6% | 1.6% |
| | 2018 | 31.9% | 33.7% | 27.6% | 5.2% | 1.5%* |
| | 2017 | 32.5% | 35.9% | 26.3% | 4.4% | 1.0% |
| | 2016 | 32.9% | 31.4% | 29.0% | 5.4% | 1.2% |
| | 2015 | 33.6% | 21.3% | 32.9% | 10.3% | 2.1% |
| | 2014 | 29.7% | 25.9% | 31.6% | 11.1% | 1.7% |
| | 2013 | 25.9% | 26.5% | 29.1% | 16.7% | 1.8% |
| | 2012 | 32.5% | 25.9% | 29.7% | 10.3% | 1.6% |
| | 2011 | 31.3% | 26.7% | 26.7% | 12.6% | 2.7% |
| | 2010 | 25.0% | 31.0% | 26.0% | 15.0% | 4.0% |
| | 2017-2021 Five-Year Avg. | 31.3% | 33.8% | 28.1% | 5.6% | 1.3% |
| | 2016-2020 Five-Year Avg. | 32.4% | 33.1% | 27.7% | 5.5% | 1.3% |
| | 2015-2019 Five-Year Avg. | 32.6% | 31.1% | 28.7% | 6.2% | 1.5% |
| | 2014-2018 Five-Year Avg. | 32.1% | 29.6% | 29.5% | 7.3% | 1.5% |
| | 2013-2017 Five-Year Avg. | 30.9% | 26.3% | 31.7% | 9.6% | 1.6% |
| | 2012-2016 Five-Year Avg. | 30.9% | 26.2% | 30.5% | 10.8% | 1.7% |
| | 2011-2015 Five-Year Avg. | 30.6% | 25.3% | 30.0% | 12.2% | 2.0% |
| | 2010-2014 Five-Year Avg. | 28.9% | 27.2% | 22.7% | 13.1% | 2.4% |

Table 4.1 Core Question Responses (Continued)

| Core | Survey Question | Responses | | | | |
|------|---|--------------|--------------|--------------|--------------|-------------|
| SB-1 | How often do you use seat belts when you drive or ride in a vehicle? | Always | N. Always | Sometimes | Rarely | Never |
| | 2021 | 77.9% | 16.1% | 4.1% | 1.5%* | 0.4%* |
| | 2020 | 77.1% | 17.1% | 4.1% | 1.4% | 0.3%* |
| | 2019 | 76.6% | 17.4% | 4.5% | 0.8%* | 0.6%* |
| | 2018 | 77.8% | 17.3% | 3.9% | 0.5%* | 0.4%* |
| | 2017 | 74.4% | 19.5% | 4.6% | 1.2%* | 0.3%* |
| | 2016 | 74.2% | 19.7% | 4.1% | 1.6% | 0.4%* |
| | 2015 | 71.9% | 20.4% | 5.6% | 1.6% | 0.6%* |
| | 2014 | 72.2% | 19.7% | 5.6% | 2.1% | 0.5%* |
| | 2013 | 70.5% | 21.3% | 6.0% | 1.8% | 0.4%* |
| | 2012 | 62.8% | 26.9% | 6.5% | 2.9% | 0.9% |
| | 2011 | 67.9% | 23.5% | 5.3% | 2.7% | 0.6%* |
| | 2010 | 58.0% | 27.0% | 10.0% | 3.0% | 1.0% |
| | 2017-2021 Five-Year Avg. | 76.8% | 17.5% | 4.2% | 1.1% | 0.4% |
| | 2016-2020 Five-Year Avg. | 76.0% | 18.2% | 4.2% | 1.1% | 0.4% |
| | 2015-2019 Five-Year Avg. | 75.0% | 18.9% | 4.5% | 1.1% | 0.5% |
| | 2014-2018 Five-Year Avg. | 74.1% | 19.3% | 4.8% | 1.4% | 0.4% |
| | 2013-2017 Five-Year Avg. | 72.6% | 20.1% | 5.2% | 1.7% | 0.4% |
| | 2012-2016 Five-Year Avg. | 70.3% | 21.6% | 5.6% | 2.0% | 0.6% |
| | 2011-2015 Five-Year Avg. | 69.1% | 22.4% | 5.8% | 2.2% | 0.6% |
| | 2010-2014 Five-Year Avg. | 66.3% | 23.7% | 6.7% | 2.5% | 0.7% |
| SB-3 | What do you think the chances are of getting a ticket if you don't wear your seat belt? | Very Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | 2021 | 9.7% | 19.4% | 39.3% | 25.4% | 6.2% |
| | 2020 | 10.2% | 23.0% | 39.0% | 21.0% | 6.7% |
| | 2019 | 11.9% | 22.7% | 38.0% | 23.0% | 4.5% |
| | 2018 | 13.9% | 22.0% | 36.7% | 22.4% | 5.1% |
| | 2017 | 11.4% | 23.6% | 39.5% | 19.2% | 6.3% |
| | 2016 | 15.1% | 24.5% | 39.2% | 16.7% | 4.5% |
| | 2015 | 16.9% | 21.6% | 30.6% | 26.5% | 4.4% |
| | 2014 | 16.5% | 26.8% | 24.9% | 26.3% | 5.6% |
| | 2013 | 15.5% | 21.8% | 28.8% | 31.3% | 2.7% |
| | 2012 | 17.1% | 26.6% | 28.1% | 23.7% | 4.5% |
| | 2011 | 16.0% | 25.3% | 22.6% | 25.0% | 11.2% |
| | 2010 | 14.0% | 23.0% | 26.0% | 26.0% | 10.0% |
| | 2017-2021 Five-Year Avg. | 11.4% | 22.1% | 38.5% | 22.2% | 5.8% |
| | 2016-2020 Five-Year Avg. | 12.5% | 23.2% | 38.5% | 20.5% | 5.4% |
| | 2015-2019 Five-Year Avg. | 13.8% | 22.9% | 36.8% | 21.6% | 5.0% |
| | 2014-2018 Five-Year Avg. | 14.8% | 34.2% | 23.7% | 22.2% | 5.2% |
| | 2013-2017 Five-Year Avg. | 15.1% | 29.4% | 26.8% | 24.0% | 4.7% |
| | 2012-2016 Five-Year Avg. | 16.2% | 30.3% | 24.3% | 24.9% | 4.3% |
| | 2011-2015 Five-Year Avg. | 16.4% | 27.0% | 24.4% | 26.6% | 5.7% |
| | 2010-2014 Five-Year Avg. | 15.8% | 26.1% | 24.7% | 26.5% | 6.8% |

Table 4.1 Core Question Responses (Continued)

| Core | Survey Question | Responses | | | | |
|------|--|--------------|--------------|--------------|-------------|-------------|
| SP-2 | What do you think the chances are of getting a ticket if you drive over the speed limit? | Very Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | 2021 | 14.7% | 45.6% | 33.9% | 4.1% | 1.7%* |
| | 2020 | 14.0% | 39.9% | 40.1% | 4.7% | 1.2%* |
| | 2019 | 19.1% | 42.8% | 32.6% | 4.7% | 0.8%* |
| | 2018 | 17.8% | 40.7% | 35.8% | 4.5% | 1.2%* |
| | 2017 | 15.4% | 45.3% | 33.5% | 4.4% | 1.3% |
| | 2016 | 20.5% | 42.4% | 32.8% | 3.8% | 0.5%* |
| | 2015 | 24.0% | 25.7% | 43.3% | 6.5% | 0.5%* |
| | 2014 | 23.9% | 32.7% | 34.3% | 8.1% | 1.0%* |
| | 2013 | 24.0% | 29.3% | 37.5% | 8.4% | 0.9%* |
| | 2012 | 28.7% | 28.8% | 33.6% | 7.4% | 1.5%* |
| | 2011 | 28.0% | 29.1% | 31.3% | 9.5% | 2.1% |
| | 2010 | 26.0% | 28.0% | 30.0% | 12.0% | 4.0% |
| | 2017-2021 Five-Year Avg. | 16.2% | 42.9% | 35.2% | 4.5% | 1.2% |
| | 2016-2020 Five-Year Avg. | 17.4% | 42.2% | 35.0% | 4.4% | 1.0% |
| | 2015-2019 Five-Year Avg. | 19.3% | 39.4% | 35.6% | 4.8% | 0.9% |
| | 2014-2018 Five-Year Avg. | 20.3% | 35.9% | 37.4% | 5.5% | 0.9% |
| | 2013-2017 Five-Year Avg. | 21.6% | 38.6% | 32.7% | 6.2% | 0.8% |
| | 2012-2016 Five-Year Avg. | 24.2% | 36.3% | 31.8% | 6.8% | 0.9% |
| | 2011-2015 Five-Year Avg. | 25.7% | 36.0% | 29.1% | 8.0% | 1.2% |
| | 2010-2014 Five-Year Avg. | 26.1% | 33.3% | 29.6% | 9.1% | 1.9% |

The share of drivers reporting that they always use their seat belts when driving or riding in a vehicle is lower than the information presented by the core behavior metric of 83.7%. Driver self-reported use collected here shows that 77.9% always wear a seat belt with another 16.1% reporting usage as nearly always (Figure 4.3). The 77.9% of drivers always wearing a seat belt represents an increase from 77.1% in 2020 and is the highest usage rate ever reported in the 12-year history of this survey. Only 1.9% of drivers report that they rarely or never use a seat belt which is a slight increase from the 1.7% who reported such use last year. Overall, these metrics indicate that drivers in North Dakota are generally safe with regard to seat belt use.

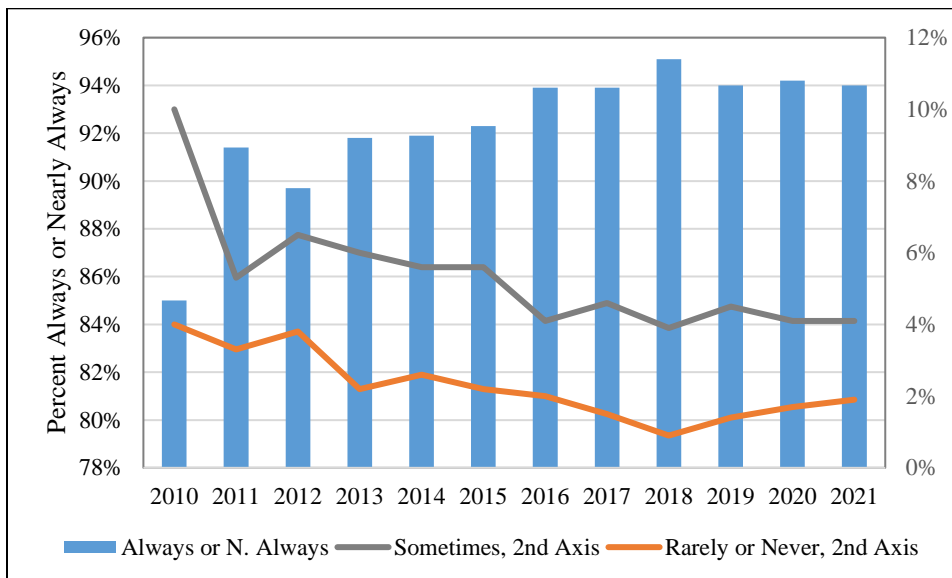


Figure 4.3 Self-Reported Seat Belt Use

Responses to awareness of public media or other educational messages about traffic safety related to drinking, speeding, and seat belt issues reveal speed enforcement was least often read, seen, or heard (“RSH”) as a traffic safety topic; just 60.9% of survey participants responded that they had exposure to this safety message in the last six months. This is expected as the NDDOT Safety Division does not disseminate safety messages for speeding. This low exposure rate represents a contrast to messages about impaired driving and seat belt use. Exposure rates to these topics were 92.0% and 83.1%, respectively. Comparisons to responses from 2020 drivers cannot be made as the questions measuring exposure to safety messages were worded differently in this iteration of the survey questionnaire.

An examination of the relationship between behavior and enforcement yields expected results. One would presume an inverse relationship between a negative behavior – such as driving after drinking alcohol – and a related enforcement or education influence, as measured by perceived likelihood for ticketing and read, seen, or heard exposure levels, respectively. As illustrated in Figure 4.4, driver responses are generally consistent with this expectation. The ticket North Dakota drivers most expect to receive – an impaired violation – is associated with the lowest reported level of negative behavior.

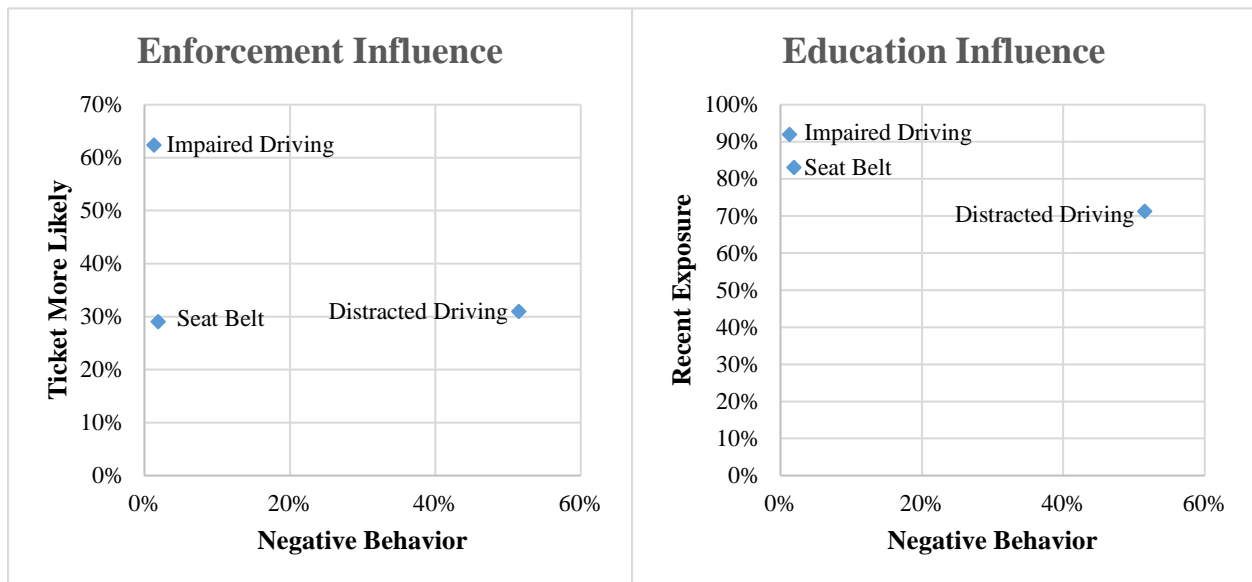


Figure 4.4 Driver Action Related to Enforcement and Education

The education influence also follows an expected pattern factoring for responses to read, seen, or heard questions. One would expect that as drivers have more exposure to traffic safety issues via educational messages, they will subsequently have lower levels of negative behavior. This is precisely what was reported by drivers. Respondents in this iteration of the survey were most often exposed to traffic safety messages about impaired driving (92.0%) and seat belt use (83.1%) and these have the lowest levels of self-reported negative behavior at 1.3% and 1.9%, respectively. Similarly, drivers reported that educational exposure to messages about distracted driving occurred least often. As a result, distracted driving had the highest rate of self-reported negative behavior among survey participants. This is a logical relationship: one would expect drivers to be more likely to behave negatively if they have not had educational exposure to the safety topic. It appears as though, in this sample of North Dakota drivers, both enforcement and education have positive impacts on drivers.

To further examine relationships among the core questions and issues that may be related, measures of association are calculated for responses. The Pearson coefficient measures the strength of association between two variables – in this case driver responses. Correlation coefficients range from -1 to +1, and values closer to these extremes are considered stronger relationships. Relationships between -0.5 and +0.5

are generally considered weak and inconsequential. For example, the “arrest for impaired driving” and “ticket for speeding” variables do have an expected positive relationship at Pearson Corr.=0.425, but the correlation measure shows that less than 19% of their variability is shared. The Pearson Correlation values suggest there are only two strong relationships between survey items (Table 4.2).

The first relationship occurred for the questions concerning driving after having one or two alcoholic beverages and driving within two hours of consuming three or more alcoholic drinks (Pearson Corr.=0.509, p<0.001, n=1,304). These two variables share roughly 26% of their variability. This relationship demonstrates that as one chooses to drive after consuming one or two alcoholic beverages, one is more likely to also drive after drinking three or more alcoholic drinks. The second substantive relationship pertained to exposure to traffic safety messages. Those who had recently read, seen, or heard messages related to impaired driving were more likely to have also recently read, seen, or heard messages about using seat belts while driving (Pearson Corr.=0.588, p<0.001, n=1,463). These two variables share roughly 35% of their variability. Although several other relationships between variables are found to be statistically significant at the 1% and 5% levels, the relationship measures are between the -0.5 and +0.5 thresholds and are not considered substantive.

Table 4.2 Correlations in Core Question Responses

| | ID1a | ID1b | ID2 | ID3 | SB1 | SB2 | SB3 | SP2 | SP3 |
|---------------------------------------|------|------------------------------|---------------|----------------|-----------------|------------------------------|-----------------|----------------|-----------------|
| ID1a: Drive After Drinking 1-2 Drinks | 1 | .509** .000 | .066* .013 | .022 .391 | -.133** .000 | .026 .327 | -.134** .000 | -.021 .428 | -.076** .003 |
| ID1b: Drive After Drinking 3+ Drinks | | 1 | .013 .628 | -.035 .200 | -.123** .000 | -.005 .843 | -.104** .000 | .002 .945 | -.055* .046 |
| ID2: Read/Seen/Hear Drunk Driving | | | 1 | .149** .000 | .006 .825 | .558** .000 | .025 .341 | .358** .000 | .012 .655 |
| ID3: Arrest for Drunk Driving | | | | 1 | -.006 .810 | .145** .000 | .408** .000 | .159** .000 | .425** .000 |
| SB1: How Often Use Seat Belts | | | | | 1 | -.026 .320 | .100** .000 | -.006 .821 | .055* .032 |
| SB2: Read/Seen/Hear Seat Belts | | | | | | 1 | .048 .068 | .490** .000 | .041 .120 |
| SB3: Ticket for No Seat Belt | | | | | | | 1 | .162** .000 | .487** .000 |
| SP2: Read/Seen/Hear Speeding | | | | | | | | 1 | .098** .000 |
| SP3: Ticket for Speeding | | | | | | | | | 1 |

**Correlation is significant at the 1% level
 *Correlation is significant at the 5% level
Bold: Correlation and p-value indicate a substantive relationship
 Note: Correlations between -0.5 and +0.5 indicate a weak relationship and are not addressed in this study

Driver responses to other questions are presented in Table 4.3. These responses offer additional insight for practitioners and policymakers with queries related to traffic safety enforcement and education programs, policy, and investments. One aspect of traffic safety is deterrence through enforcement. The enforcement aspect combines patrol efforts and penalties to discourage drivers from taking part in dangerous or risky behaviors. The critical driver risk behaviors here are driver preferences, distracted driving, driver beliefs, sober/designated drivers, and drugged driving.

Table 4.3 Other Question Responses

| Survey Question | Responses | | | | |
|---|-------------|-----------|------------|---------------|------------|
| Driver Preferences | | | | | |
| Do you favor or oppose... | St. Favor | Sw. Favor | Neutral | Sw. Oppose | St. Oppose |
| A primary seat belt law? | 29.7% | 26.8% | 19.8% | 9.5% | 14.2% |
| Banning handheld cell phone while driving? | 26.5% | 25.6% | 22.6% | 14.7% | 10.6% |
| Driver Distraction | | | | | |
| Make/answer phone call while driving | V. Unlikely | Unlikely | Sw. Likely | Likely | V. Likely |
| | 12.0% | 14.4% | 22.2% | 29.0% | 22.5% |
| Driver Beliefs | | | | | |
| Chances of Distracted Driving Ticket | V. Unlikely | Unlikely | Sw. Likely | Likely | V. Likely |
| | 5.9% | 24.4% | 38.7% | 22.6% | 8.4% |
| Belief that Crashes are Preventable | Never | Rarely | Sometimes | N. Always | Always |
| | 0.0% | 1.2% | 42.4% | 51.6% | 4.8% |
| Do highway safety corridors positively change your driving or driver behavior? ¹ | | | | Yes | No |
| | | | | 71.4% | 28.6% |
| Designated Driver | | | | | |
| Likelihood Designating a sober driver ^{2,3} | V. Unlikely | Unlikely | Sw. Likely | Likely | V. Likely |
| | 2.0% | 3.3% | 9.9% | 23.2% | 61.6% |
| Drugged Driving | | | | | |
| Drove after Ingesting Marijuana, Prescription, Over-the-Counter, or Other Drugs | | | | At Least Once | Never/None |
| | | | | 17.5% | 82.5% |

¹Frequency calculated based on removing those who responded “N/A”

²Frequency calculated based on those who do drink alcohol

³Question response scale changed from “Never to Always” to “Very Unlikely to Very Likely”

4.1.1 Driver Preferences

The question concerning driver preferences toward having a primary seat belt law has had more variability in the dispersion of responses between 2010 and 2021 (Figure 4.5). In 2010, nearly half (46%) of the North Dakota driver population strongly favored a primary seat belt law, but only about three-tenths (30%) hold the same viewpoint in 2021. One notable setback between the 2020 and 2021 iterations of the survey concerns opposition to such a law. Whereas approximately 9% of respondents in 2020 strongly opposed such legislation, 14% held this view in 2021. This was the highest percentage recorded since the 2015 iteration of the survey. Compared with prior years – in which responses for the five categories rarely varied by more than four percentage points – changes in viewpoints had more variability. This year, responses for those who “strongly favor” (-9%), “somewhat favor” (-5%), and “strongly oppose” (+5%) had the largest variability since 2014.

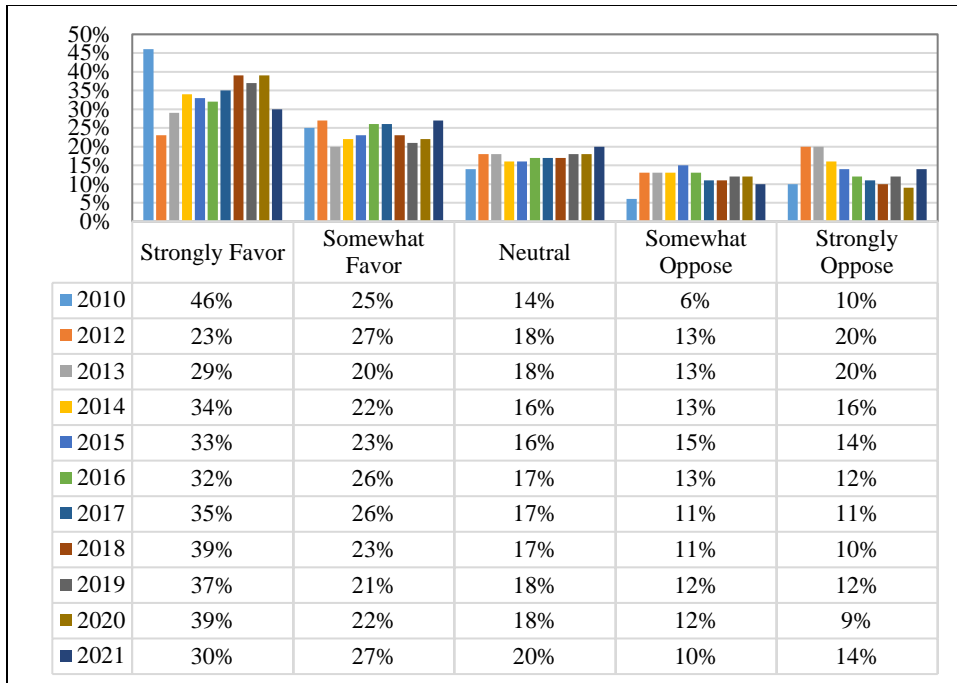


Figure 4.5 Driver Preferences for a Primary Seat Belt Law

For the third consecutive year, North Dakota drivers were asked to rate their support for banning hand-held cell phone use while driving. The majority (52.1%) indicated that they favored such a ban based on those who chose the “strongly favor” or “somewhat favor” options. This level of support represents a 0.2% improvement from the 2020 iteration of the survey (Figure 4.6).

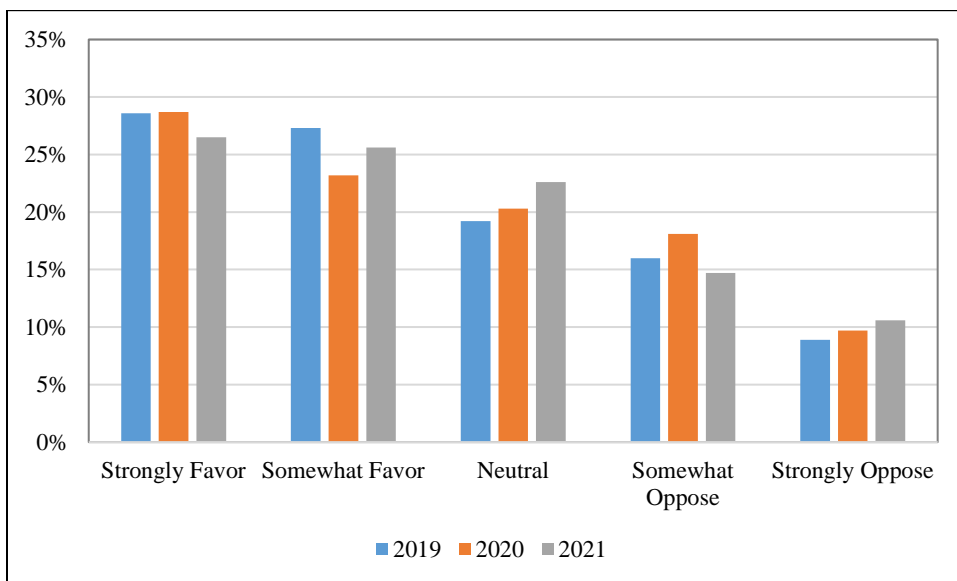


Figure 4.6 Driver Preferences for Banning Hand-Held Cell Phone Use while Driving

4.1.2 Driver Distraction

Two new questions specific to distracted driving were included in the survey. Although the term distracted driving can refer to a broad range of issues, the focus here is on cell phone use while driving.

The majority of North Dakotans (51.5%) self-reported that they would make or answer a phone call while driving based on those who answered “likely” or “very likely” to the prompt. Roughly one-quarter (26.4%) answered that the chances were “very unlikely” or “unlikely” that they would engage in this dangerous driving behavior. When asked for which purposes the respondents use cell phones while driving, several uses were reported (Figure 4.7). Most commonly, North Dakota drivers use cell phones for talking while driving as 28.2% reported this behavior. Just 20.5% of respondents indicated that they do not use cell phones while driving whatsoever.

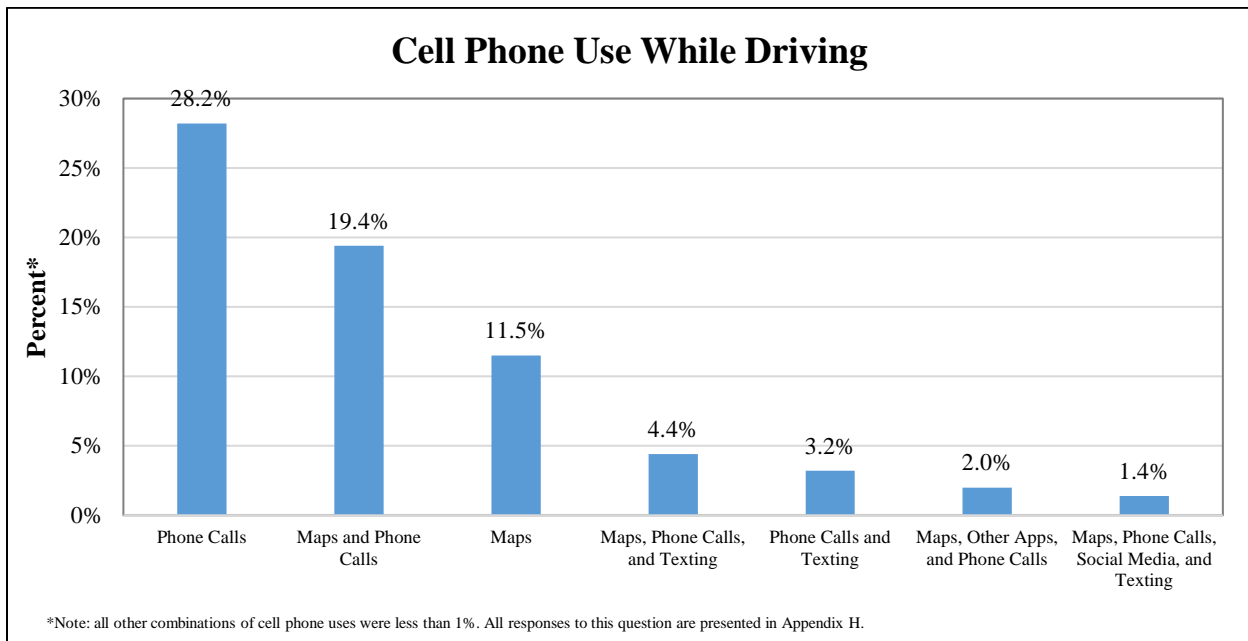


Figure 4.7 Driver Cell Phone Use while Driving

4.1.3 Driver Beliefs

Three new questions were included in the survey highlighting driver beliefs. These pertain to ticket likelihood for distracted driving, whether crashes are preventable, and self-reported beliefs about highway safety corridors changing driver behaviors.

The expectations North Dakota drivers have for receiving a ticket for distracted driving closely resemble a bell curve (Figure 4.8). Drivers tend to believe that a ticket for this dangerous behavior is just as unlikely as it is likely.

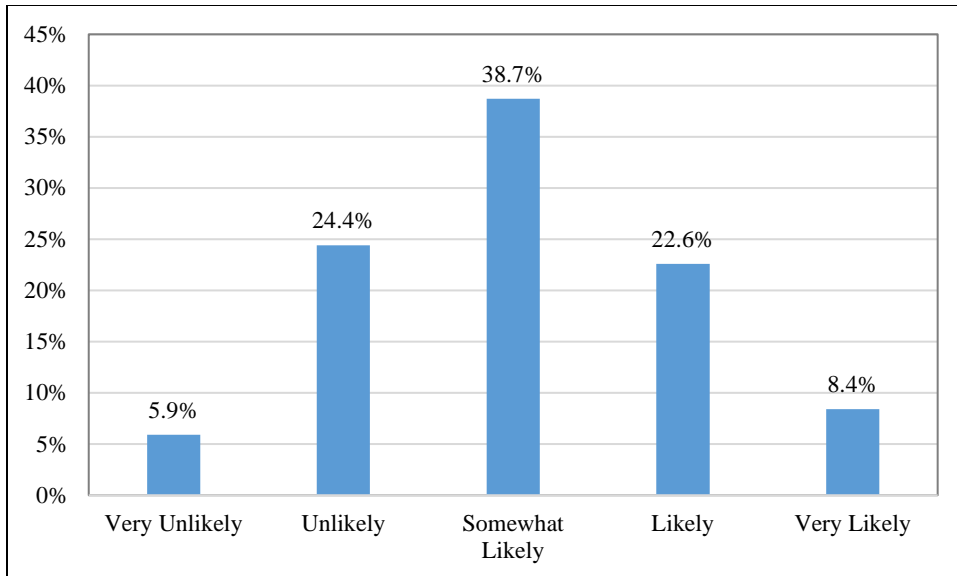


Figure 4.8 Perceived Likelihood of Receiving a Ticket for Distracted Driving

The majority of drivers (56.4%) think that traffic crashes are “nearly always” or “always” preventable. Less than 0.1% of drivers believed that traffic crashes are “never” preventable. Of those respondents who traveled on a highway safety corridor, 71.4% believed that it did positively change their attention to driving and one’s driving behavior. However, approximately four in nine respondents (44.5%) indicated that highway safety corridors were not applicable to their regular driving.

4.1.4 Sober/Designated Drivers

Among those respondents who do drink alcohol, over half (61.6%) reported that they are very likely to designate a sober driver when drinking or planning to drink. Only 2.0% of respondents reported being very unlikely to do so. Comparisons to 2020 are unable to be made as the wording of the question changed between annual iterations of the questionnaire.

4.1.5 Drugged Driving

In this iteration of the survey, the question related to drugged driving was reworded and now reads “In the past year, have you driven after ingesting any of the following?” instead. The new wording resulted in 17.5% of respondents affirming that they had driven after ingesting either marijuana, prescription drugs, over-the-counter (OTC) drugs, other drugs, or a combination thereof. A detailed explanation of drug type(s) is presented in Figure 4.9. There was a direct link between one’s decision to drive under the influence of drugs and whether or not one had driven within two hours of consuming alcoholic beverages. Those who had driven under the influence of drugs drove more often within two hours of consuming one or two alcoholic beverages ($F=16.588$, $df=1$, $p<0.001$) and within two hours of consuming three or more alcoholic beverages ($F=16.585$, $df=1$, $p<0.001$). This pattern follows other findings of drug and alcohol abuse in North Dakota. A 2012 study in the state determined that repeat DUI offenders were more likely to have used illicit drugs on the same day of their arrest (Huseth and Kubas 2012). Resources should be targeted to drivers who have issues with self-control as drugged driving and alcohol-impaired driving are sometimes linked with one another in North Dakota.

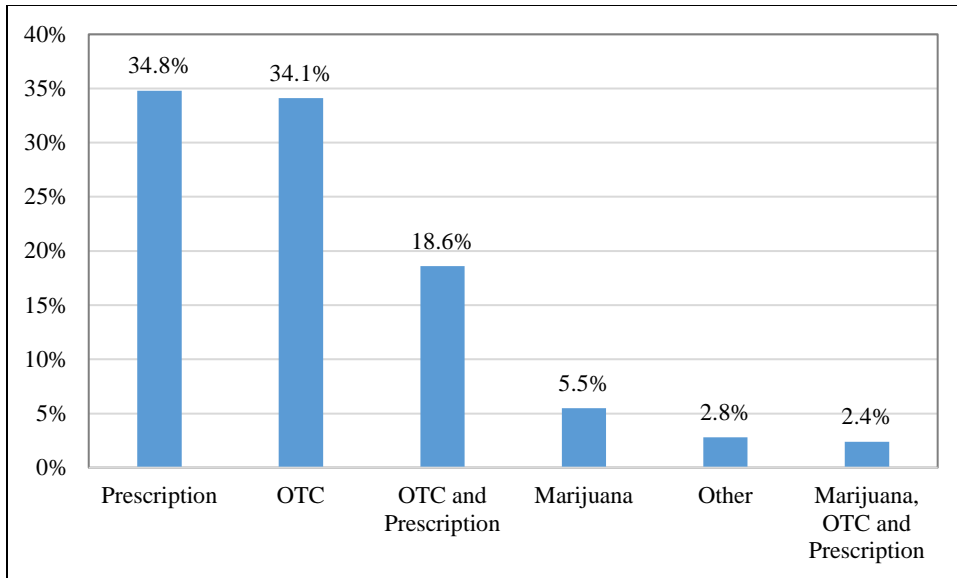


Figure 4.9 Self-Reported Drugged-Driving, by Drug Type

4.2 Driver Group Evaluations

It is reasonable to assume that driver perceptions and behaviors are influenced by local norms and the driving environment. Therefore, it is prudent to investigate differences within the driver population to determine if perceptions can be substantiated. This information may be valuable in more effectively allocating traffic safety resources, conducting program assessments, and focusing programs and strategies beyond typical statewide treatment. To more easily quantify and manage the discussion of driver responses in the strata, numeric values are assigned to the descriptive answers to create ordinal scales. These transformations also allow for expanded statistical analysis of responses. The quantitative scale definitions are provided in Table 4.4.

Stratification in sampling the driver population provides an opportunity to look at the drivers based on region and geography as defined in the methods section. In addition, the young male and female driver groups can be distinguished as high-risk populations. Insights regarding impaired driving, seat belts, and speed across these strata may benefit traffic safety advocates by enhancing their ability to focus efforts. The information may also be useful in assessing the value of including these types of stratification in future surveys.

Table 4.4 Quantitative Scale Definitions for Responses

| Q# | Question | Scale | Conversion Values |
|-----|---------------------------------|-------|---|
| 1 | Seat Belt Use | 1-5 | 1=Never to 5=Always |
| 2 | Ticket Likely Seat Belt | 1-5 | 1=Very Unlikely to 5=Very Likely |
| 3 | Primary Seat Belt Law | 1-5 | 1=Strongly Oppose to 5=Strongly Favor |
| 4 | Ticket Likely Speeding | 1-5 | 1=Very Unlikely to 5=Very Likely |
| 5 | Belief Crashes Are Preventable | 1-5 | 1=Never to 5=Always |
| 6 | Chances of DUI Arrest | 1-5 | 1=Very Unlikely to 5=Very Likely |
| 7 | Drugged Driving | 0-1 | 0=None, 1=At Least Once |
| 8 | Sober Driver | 1-5 | 1=Very Unlikely to 5=Very Likely |
| 9a | Drive After Drinking 1-2 Drinks | 0-1 | 0=None, 1=At Least Once |
| 9b | Drive After Drinking 3+ Drinks | 0-1 | 0=None, 1=At Least Once |
| 10 | Answer Phone While Driving | 1-5 | 1=Very Unlikely to 5=Very Likely |
| 12 | Hand-Held Cell Phone Ban | 1-5 | 1=Strongly Oppose to 5=Strongly Favor |
| 13 | Distracted Driving Ticket | 1-5 | 1=Very Unlikely to 5=Very Likely |
| 14a | RSH Seat Belt | 0-1 | 0=No Exposure, 1=Exposed by At Least One Source |
| 14b | RSH Speeding | 0-1 | 0=No Exposure, 1=Exposed by At Least One Source |
| 14c | RSH Impaired Driving | 0-1 | 0=No Exposure, 1=Exposed by At Least One Source |
| 14d | RSH Distracted Driving | 0-1 | 0=No Exposure, 1=Exposed by At Least One Source |
| 14e | RSH <i>Vision Zero</i> | 0-1 | 0=No Exposure, 1=Exposed by At Least One Source |
| 15 | Highway Safety Corridor | 0-1 | 0=No, 1=Yes |

4.2.1 Regional and Geographic Observations

Table 4.5 shows the mean values for drivers surveyed statewide, along with regional and geographic comparisons. Statewide survey averages indicate that drivers' views and behaviors associated with traffic safety goals have potential for improvement as discussed in the descriptive statistics. For example, seat belt use is at a mean of 4.69. This number is below the goal of 5.00, which is equivalent to always in the driver survey response. Table 4.6 shows the changes in mean values from 2010 to 2021. The primary reason to include the values here is to establish a statewide baseline for the discussion of respondent groups. The figures may also be useful measures in monitoring statewide progress over time.

The regional and geographic strata were tested for significant differences. In all, seven issues were statistically significant by region and 10 issues were statistically significant in geographic comparisons.

With regard to regional designations, there were two statistically significant differences related to support for traffic safety initiatives. Residents from the western half of the state were less likely to support a primary seat belt law ($F=16.247$, $df=1$, $p<0.001$) and a ban on hand-held cell phone use while driving ($F=19.496$, $df=1$, $p<0.001$). This group may be less likely to support a ban on cell phone use because they have a higher propensity to use phones while driving ($F=6.308$, $df=1$, $p=0.012$).

With regard to impaired driving behavior, eastern residents were more dangerous. Drivers from the eastern half of the state were more likely to have operated a vehicle within two hours of consuming one or two alcoholic beverages ($Chi-Sq.=4.041$, $df=1$, $p=0.044$) and, further, were less likely to use a sober driver when consuming alcohol ($F=6.476$, $df=1$, $p=0.011$).

Eastern residents perceived two initiatives more positively than western drivers. Those living in the eastern half of the state were more likely to believe one would be ticketed for not wearing a seat belt ($F=4.463$, $df=1$, $p=0.035$) and were more likely to positively change driving and behavior in a highway safety corridor ($Chi-Sq.=11.933$, $df=1$, $p=0.001$).

Table 4.5 Differences in Mean Driver Views and Behaviors, by Region and Geography

| Question | Scale ₁ | Statewide | | Region | | | Geography | | |
|---------------------------------|--------------------|-----------|------|--------|------|-------|-----------|------|--|
| | | All | East | West | Sig. | Urban | Rural | Sig. | |
| Seat Belt Use | 1-5 | 4.69 | 4.73 | 4.64 | | 4.75 | 4.50 | ## | |
| Ticket Likely Seat Belt | 1-5 | 3.01 | 3.10 | 2.88 | # | 3.00 | 3.04 | | |
| Primary Seat Belt Law | 1-5 | 3.48 | 3.57 | 3.36 | ## | 3.57 | 3.19 | ## | |
| Ticket Likely Speeding | 1-5 | 3.67 | 3.65 | 3.71 | | 3.64 | 3.79 | # | |
| Belief Crashes Are Preventable | 1-5 | 3.60 | 3.61 | 3.59 | | 3.63 | 3.51 | ## | |
| Chances of DUI Arrest | 1-5 | 3.82 | 3.85 | 3.77 | | 3.81 | 3.86 | | |
| Drugged Driving | 0-1 | 0.18 | 0.20 | 0.14 | | 0.19 | 0.13 | | |
| Sober Driver | 1-5 | 4.39 | 4.30 | 4.51 | # | 4.42 | 4.30 | | |
| Drive After Drinking 1-2 Drinks | 0-1 | 0.29 | 0.29 | 0.28 | * | 0.29 | 0.27 | * | |
| Drive After Drinking 3+ Drinks | 0-1 | 0.05 | 0.05 | 0.04 | | 0.04 | 0.06 | | |
| Answer Phone While Driving | 1-5 | 3.35 | 3.14 | 3.66 | # | 3.22 | 3.79 | # | |
| Hand-Held Cell Phone Ban | 1-5 | 3.43 | 3.59 | 3.19 | ## | 3.51 | 3.16 | ## | |
| Distracted Driving Ticket | 1-5 | 3.03 | 3.08 | 2.96 | | 3.04 | 3.02 | | |
| RSH Seat Belt | 0-1 | 0.83 | 0.83 | 0.83 | | 0.82 | 0.86 | ** | |
| RSH Speeding | 0-1 | 0.61 | 0.62 | 0.60 | | 0.60 | 0.64 | * | |
| RSH Impaired Driving | 0-1 | 0.92 | 0.93 | 0.90 | | 0.91 | 0.94 | | |
| RSH Distracted Driving | 0-1 | 0.71 | 0.75 | 0.66 | | 0.69 | 0.80 | ** | |
| RSH <i>Vision Zero</i> | 0-1 | 0.54 | 0.53 | 0.55 | | 0.52 | 0.60 | | |
| Highway Safety Corridor | 0-1 | 0.71 | 0.75 | 0.66 | ** | 0.73 | 0.67 | | |

₁Note: Nominal/Ordinal scales require different tests of significance
*Significant difference at the 5% level for Pearson Chi-Square test
**Significant difference at the 1% level for Pearson Chi-Square test
#Significant difference at 5% level for 1-way ANOVA
##Significant difference at 1% level for 1-way ANOVA

One ongoing trend is the substantial discrepancy in seat belt use between urban and rural drivers. North Dakota drivers living in the 12 urban counties are more likely to use a seat belt ($F=47.660$, $df=1$, $p<0.001$). Compared with rural drivers, the higher seat belt use among urban residents continues a trend that has been in place each year since 2010. Although both subcategories are well under the goal of a mean value of 5.00, rural residents are farther away from this target number.

Rural drivers were less likely to support initiatives such as a primary seat belt law ($F=14.108$, $df=1$, $p<0.001$) and a ban on using hand-held cellular devices while driving ($F=10.801$, $df=1$, $p=0.001$). Results for behind-the-wheel behaviors were mixed. Rural drivers were more likely to answer a phone call while driving ($F=4.557$, $df=1$, $p=0.033$). Urban drivers, however, were more likely to self-report driving within two hours of consuming one or two alcoholic beverages ($Chi-Sq.=6.476$, $df=1$, $p=0.011$).

Rural drivers reported greater exposure to three traffic safety messages: seat belt use ($Chi-Sq.=7.826$, $df=1$, $p=0.005$), speeding ($Chi-Sq.=5.052$, $df=1$, $p=0.025$), and distracted driving ($Chi-Sq.=8.349$, $df=1$, $p=0.004$). Messages about seat belt use and distracted driving may be ineffective as they are reaching rural drivers more often, but not changing self-reported behaviors for the better. Current messages about speeding seem to be effective as rural drivers believe there is a greater likelihood of receiving a ticket for this illegal behavior ($F=5.636$, $df=1$, $p=0.018$).

The five-year trends presented in Table 4.6 provide insight about patterns emerging from North Dakota drivers. With 12 years of data available, some conclusions can be made. For instance, the five-year average of seat belt use (4.69) is at an all-time high.

A negative trend becomes apparent when analyzing results from the previous 12 years. The five-year average measuring the perceived likelihood of receiving a ticket for not wearing seat belts is at an all-time low for both drivers from the western half of the state and those from rural North Dakota counties. This may explain why these groups are generally less likely to use safety belts when operating vehicles.

Table 4.6 Differences in Driver Views and Behaviors from 2010-2020, by Region and Geography

| Question | Year | Scale | Statewide | Region | | Sig. | Geography | | Sig. | Core Y/N |
|------------------------------------|------|-------|-------------|-------------|-------------|------|-------------|-------------|------|----------|
| | | | All | East | West | | Urban | Rural | | |
| Seat Belt Use | 2021 | 1-5 | 4.69 | 4.73 | 4.64 | | 4.75 | 4.50 | ** | Y |
| 1=Never to 5=Always | 2020 | | 4.69 | 4.74 | 4.62 | | 4.77 | 4.48 | ** | Y |
| | 2019 | | 4.69 | 4.69 | 4.68 | | 4.77 | 4.43 | ** | Y |
| | 2018 | | 4.72 | 4.72 | 4.71 | | 4.78 | 4.52 | ** | Y |
| | 2017 | | 4.66 | 4.69 | 4.63 | | 4.73 | 4.46 | ** | Y |
| | 2016 | | 4.66 | 4.70 | 4.61 | | 4.73 | 4.44 | ** | Y |
| | 2015 | | 4.61 | 4.64 | 4.59 | | 4.68 | 4.44 | ** | Y |
| | 2014 | | 4.61 | 4.63 | 4.58 | | 4.67 | 4.40 | ** | Y |
| | 2013 | | 4.47 | 4.44 | 4.50 | * | 4.54 | 4.36 | ** | Y |
| | 2012 | | 4.31 | 4.37 | 4.24 | * | 4.40 | 4.23 | ** | Y |
| | 2011 | | 4.42 | 4.44 | 4.36 | ** | 4.52 | 4.21 | ** | Y |
| | 2010 | | 4.36 | 4.38 | 4.36 | | 4.49 | 4.08 | ** | Y |
| 2017-2021 Five-Year Average | | | 4.69 | 4.71 | 4.66 | | 4.76 | 4.48 | | |
| 2016-2020 Five-Year Average | | | 4.68 | 4.71 | 4.65 | | 4.76 | 4.47 | | |
| 2015-2019 Five-Year Average | | | 4.67 | 4.69 | 4.64 | | 4.74 | 4.46 | | |
| 2014-2018 Five-Year Average | | | 4.65 | 4.68 | 4.62 | | 4.72 | 4.45 | | |
| 2013-2017 Five-Year Average | | | 4.60 | 4.62 | 4.58 | | 4.67 | 4.42 | | |
| 2012-2016 Five-Year Average | | | 4.53 | 4.56 | 4.50 | | 4.60 | 4.37 | | |
| 2011-2015 Five-Year Average | | | 4.48 | 4.50 | 4.45 | | 4.56 | 4.33 | | |
| 2010-2014 Five-Year Average | | | 4.43 | 4.45 | 4.41 | | 4.52 | 4.26 | | |
| Ticket Likely Seat Belt | 2021 | 1-5 | 3.01 | 3.10 | 2.88 | * | 3.00 | 3.04 | | Y |
| 1=Very Unlikely to 5=Very Likely | 2020 | | 3.09 | 3.12 | 3.04 | | 3.09 | 3.08 | ** | Y |
| | 2019 | | 3.15 | 3.18 | 3.09 | * | 3.13 | 3.19 | | Y |
| | 2018 | | 3.17 | 3.14 | 3.21 | | 3.16 | 3.21 | * | Y |
| | 2017 | | 3.15 | 3.17 | 3.12 | | 3.14 | 3.15 | * | Y |
| | 2016 | | 3.29 | 3.27 | 3.31 | | 3.26 | 3.37 | ** | Y |
| | 2015 | | 3.29 | 3.38 | 3.19 | | 3.27 | 3.35 | ** | Y |
| | 2014 | | 3.20 | 3.26 | 3.14 | | 3.19 | 3.25 | * | Y |
| | 2013 | | 3.17 | 3.18 | 3.15 | | 3.10 | 3.17 | ** | Y |
| | 2012 | | 3.16 | 3.24 | 3.06 | * | 3.10 | 3.22 | | Y |
| | 2011 | | 2.98 | 2.93 | 3.10 | | 2.94 | 3.06 | | Y |
| | 2010 | | 3.06 | 3.07 | 3.04 | | 3.03 | 3.13 | | Y |
| 2017-2021 Five-Year Average | | | 3.11 | 3.14 | 3.07 | | 3.10 | 3.13 | | |
| 2016-2020 Five-Year Average | | | 3.17 | 3.18 | 3.15 | | 3.16 | 3.20 | | |
| 2015-2019 Five-Year Average | | | 3.21 | 3.23 | 3.18 | | 3.19 | 3.25 | | |
| 2014-2018 Five-Year Average | | | 3.22 | 3.24 | 3.19 | | 3.20 | 3.27 | | |
| 2013-2017 Five-Year Average | | | 3.22 | 3.25 | 3.18 | | 3.19 | 3.26 | | |
| 2012-2016 Five-Year Average | | | 3.22 | 3.27 | 3.17 | | 3.18 | 3.27 | | |
| 2011-2015 Five-Year Average | | | 3.16 | 3.20 | 3.13 | | 3.12 | 3.21 | | |
| 2010-2014 Five-Year Average | | | 3.11 | 3.14 | 3.10 | | 3.07 | 3.17 | | |
| Ticket Likely Speed | 2021 | 1-5 | 3.67 | 3.65 | 3.71 | | 3.64 | 3.79 | * | Y |
| 1=Very Unlikely to 5=Very Likely | 2020 | | 3.61 | 3.56 | 3.68 | ** | 3.59 | 3.65 | ** | Y |
| | 2019 | | 3.75 | 3.75 | 3.74 | | 3.72 | 3.83 | ** | Y |
| | 2018 | | 3.69 | 3.64 | 3.76 | | 3.76 | 3.67 | ** | Y |
| | 2017 | | 3.69 | 3.67 | 3.72 | * | 3.67 | 3.75 | ** | Y |
| | 2016 | | 3.79 | 3.76 | 3.81 | | 3.76 | 3.87 | ** | Y |
| | 2015 | | 3.84 | 3.82 | 3.87 | * | 3.84 | 3.84 | | Y |
| | 2014 | | 3.72 | 3.71 | 3.73 | | 3.71 | 3.77 | ** | Y |
| | 2013 | | 3.67 | 3.66 | 3.68 | * | 3.63 | 3.67 | | Y |
| | 2012 | | 3.69 | 3.71 | 3.66 | | 3.62 | 3.76 | * | Y |
| | 2011 | | 3.62 | 3.61 | 3.66 | | 3.76 | 3.62 | * | Y |
| | 2010 | | 3.59 | 3.61 | 3.58 | | 3.60 | 3.58 | | Y |
| 2017-2021 Five-Year Average | | | 3.68 | 3.65 | 3.72 | | 3.68 | 3.74 | | |
| 2016-2020 Five-Year Average | | | 3.71 | 3.68 | 3.74 | | 3.70 | 3.75 | | |
| 2015-2019 Five-Year Average | | | 3.75 | 3.73 | 3.78 | | 3.75 | 3.79 | | |
| 2014-2018 Five-Year Average | | | 3.75 | 3.72 | 3.78 | | 3.75 | 3.78 | | |
| 2013-2017 Five-Year Average | | | 3.74 | 3.72 | 3.76 | | 3.72 | 3.78 | | |
| 2012-2016 Five-Year Average | | | 3.74 | 3.73 | 3.75 | | 3.71 | 3.78 | | |
| 2011-2015 Five-Year Average | | | 3.71 | 3.70 | 3.72 | | 3.71 | 3.73 | | |
| 2010-2014 Five-Year Average | | | 3.66 | 3.66 | 3.66 | | 3.66 | 3.68 | | |

| Question | Year | Scale | Statewide | Region | | Sig. | Geography | | Sig. | Core |
|---|------|-------|-------------|-------------|-------------|------|-------------|-------------|------|------|
| | | | All | East | West | | Urban | Rural | | Y/N |
| Arrest for DUI | 2021 | 1-5 | 3.82 | 3.85 | 3.77 | | 3.81 | 3.86 | | Y |
| 1=Very Unlikely to 5=Very Likely | 2020 | 1-5 | 3.87 | 3.84 | 3.91 | | 3.87 | 3.87 | | Y |
| | 2019 | | 3.88 | 3.90 | 3.86 | | 3.90 | 3.85 | | Y |
| | 2018 | | 3.89 | 3.83 | 3.97 | | 3.90 | 3.87 | | Y |
| | 2017 | | 3.94 | 3.90 | 4.00 | | 3.92 | 4.02 | | Y |
| | 2016 | | 3.89 | 3.86 | 3.93 | | 3.89 | 3.90 | | Y |
| | 2015 | | 3.86 | 3.90 | 3.80 | | 3.84 | 3.89 | | Y |
| | 2014 | | 3.76 | 3.71 | 3.83 | | 3.79 | 3.69 | | Y |
| | 2013 | | 3.53 | 3.54 | 3.52 | | 3.51 | 3.53 | | Y |
| | 2012 | | 3.64 | 3.67 | 3.60 | | 3.68 | 3.61 | | Y |
| | 2011 | | 3.62 | 3.61 | 3.69 | | 3.63 | 3.65 | | Y |
| | 2010 | | 3.53 | 3.59 | 3.47 | | 3.55 | 3.49 | | Y |
| 2017-2021 Five-Year Average | | | 3.88 | 3.86 | 3.90 | | 3.88 | 3.89 | | |
| 2016-2020 Five-Year Average | | | 3.89 | 3.87 | 3.93 | | 3.90 | 3.90 | | |
| 2015-2019 Five-Year Average | | | 3.89 | 3.88 | 3.91 | | 3.89 | 3.91 | | |
| 2014-2018 Five-Year Average | | | 3.87 | 3.84 | 3.91 | | 3.87 | 3.87 | | |
| 2013-2017 Five-Year Average | | | 3.80 | 3.78 | 3.82 | | 3.79 | 3.81 | | |
| 2012-2016 Five-Year Average | | | 3.74 | 3.74 | 3.74 | | 3.74 | 3.72 | | |
| 2011-2015 Five-Year Average | | | 3.68 | 3.69 | 3.69 | | 3.69 | 3.67 | | |
| 2010-2014 Five-Year Average | | | 3.62 | 3.62 | 3.62 | | 3.63 | 3.59 | | |
| RSH Seat Belt _t | 2021 | 0-1 | 0.83 | 0.83 | 0.83 | | 0.82 | 0.86 | ** | Y |
| 0=No, 1=Yes | | | | | | | | | | |
| RSH Speeding _t | 2021 | 0-1 | 0.61 | 0.62 | 0.60 | | 0.60 | 0.64 | * | Y |
| 0=No, 1=Yes | | | | | | | | | | |
| RSH DUI _t | 2021 | 0-1 | 0.92 | 0.93 | 0.90 | | 0.91 | 0.94 | | Y |
| 0=No, 1=Yes | | | | | | | | | | |
| *Statistically significant difference at the 5% level | | | | | | | | | | |
| **Statistically significant difference at the 1% level | | | | | | | | | | |
| _Response wording was changed and therefore longitudinal answers could not be collected | | | | | | | | | | |

4.2.2 Young Male Driver Group

As with the previous 11 surveys, the selected target group of 18-to-34-year-old high-risk males (HRM) shows significantly different behaviors, exposure levels, and views when compared with other drivers (Table 4.7). (Note that high-risk females were not included in the “other” group. See Section 4.2.3 for results for high-risk females.) In terms of behavior, high-risk male drivers in this survey are more likely to exhibit behaviors at odds with traffic safety goals such as driving within two hours of consuming one or two alcoholic beverages (Chi-Sq.=24.011, df=1, p<0.001), driving within two hours of consuming three or more alcoholic beverages (Chi-Sq.=19.996, df=1, p<0.001), and answering a phone call when driving (F=73.750, df=1, p<0.001).

In addition to having higher levels of risky behavior compared to the rest of the North Dakota driver population, young males are also less likely to engage in safe driving behaviors. The high-risk young male drivers surveyed are less likely to wear seat belts than other drivers (F=25.629, df=1, p<0.001). Only 59.5% of young male drivers always wear a seat belt while driving or riding in a vehicle, a number much smaller than the 84.1% of other drivers who always do so. The share of young males who report that they rarely or never use seat belts (5.9%) is nearly six times the rate of other drivers (1.0%). Lower levels of seat belt use likely go hand-in-hand with young male drivers having a lower expectancy for law enforcement to ticket drivers for seat belt violations when compared to the balance of the population (F=6.402, df=1, p=0.012).

The NDDOT Safety Division continues to explore opportunities to increase safe driving behavior overall in this driver group. Young male driver responses to read, seen, or heard education and exposure questions offer insight into this key demographic. Exposure to traffic safety messages that can be read, seen, or heard had mixed results depending on the topic at hand. These drivers were less likely to have

had exposure to messages about speeding (Chi-Sq.=7.812, df=1, p=0.005) and distracted driving (Chi-Sq.=4.461, df=1, p=0.035). However, this same group of drivers reported reading, seeing, or hearing messages about the *Vision Zero* campaign at rates that were higher than their 35-plus-year-old counterparts (Chi-Sq.=11.245, df=1, p=0.001). Given the dangerous attitudes, behaviors, and beliefs from this high-risk group, it appears as though there is an opportunity to revisit the messaging: these high-risk males are being exposed to this safety campaign at higher rates than their counterparts, but still do not appear to be having the positive desired outcome in improving this group's behaviors.

Table 4.7 Differences in Driver Views and Behaviors, Young Male Target Group

| Question | HRM (n=186) | Other Drivers (n=1,004) | Sig. ¹ |
|----------------------------|-------------|-------------------------|-------------------|
| Seat Belt Use | 4.40 | 4.79 | ## |
| Ticket Seat Belt | 2.78 | 3.14 | # |
| Primary Seat Belt Law | 2.76 | 3.58 | ## |
| Ticket Likely Speeding | 3.50 | 3.58 | |
| Crashes Preventable | 3.70 | 3.63 | |
| Safety Corridor | 0.49 | 0.76 | ** |
| Chance Arrest for DUI | 3.84 | 3.80 | |
| Drugged Driving | 0.17 | 0.23 | |
| Use Sober Driver | 4.25 | 4.32 | |
| Drive After 1-2 Drinks | 0.39 | 0.20 | ** |
| Drive After 3+ Drinks | 0.14 | 0.04 | ** |
| Answer Phone While Driving | 3.73 | 2.69 | ## |
| Ban Hand-Held Cell Use | 2.82 | 3.63 | ## |
| Ticket Distracted Driving | 2.85 | 3.04 | |
| RSH Seat Belt | 0.84 | 0.84 | ** |
| RSH Speeding | 0.61 | 0.68 | ** |
| RSH Drunk Driving | 0.89 | 0.91 | |
| RSH Distracted Driving | 0.68 | 0.75 | * |
| RSH <i>Vision Zero</i> | 0.70 | 0.52 | ** |

¹Note: Nominal/Ordinal scales require different tests of significance
**Significant difference at the 1% level for Pearson Chi-Square test
*Significant difference at the 5% level for Pearson Chi-Square test
##Significant difference at the 1% level for 1-way ANOVA
#Significant difference at the 5% level for 1-way ANOVA

With regard to safe driving initiatives, the target group of drivers indicated that they have less support for a primary seat belt law (F=23.308, df=1, p<0.001) and are less likely to change driving behavior for the better in a highway safety corridor (Chi-Sq.=24.964, df=1, p<0.001).

Table 4.8 compares the responses of high-risk young males to all other driver groups. It is clear that there are differences in views, behaviors, and attitudes toward various transportation safety topics. The complete list of survey questions is provided in Appendix A.

Table 4.8 Responses for High-Risk Male Drivers

| Question | | Responses, by Driver Group | | | | |
|--------------------------------------|---------|----------------------------|-----------|------------|------------|-------------|
| Seat Belt Use | n=1,190 | Always | N. Always | Sometimes | Rarely | Never |
| | Other | 84.1% | 12.5% | 2.5% | 0.7%** | 0.3%** |
| | HRM | 59.5% | 28.8% | 5.9%** | 4.5%** | 1.4%** |
| Seat Belt Ticket | n=1,182 | V. Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | Other | 12.2% | 22.4% | 38.0% | 21.5% | 5.8% |
| | HRM | 9.7%** | 13.1%** | 35.3% | 29.5% | 12.3%** |
| Primary Seat Belt Law | n=1,183 | St. Favor | Sw. Favor | Neutral | Sw. Oppose | St. Oppose |
| | Other | 34.1% | 24.8% | 18.6% | 10.2% | 12.3% |
| | HRM | 18.4% | 19.2% | 15.0%** | 14.5%** | 32.9% |
| Chance Speed Ticket | n=1,181 | V. Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | Other | 14.1% | 41.3% | 36.6% | 4.8% | 3.1%** |
| | HRM | 13.6%** | 39.1% | 34.2% | 10.0%** | 3.0%** |
| Crashes Preventable | n=1,185 | Always | N. Always | Sometimes | Rarely | Never |
| | Other | 5.0% | 53.7% | 40.4% | 0.9%** | 0.0%** |
| | HRM | 10.8%** | 48.5% | 40.3% | 0.4%** | 0.0%** |
| Highway Safety Corridor ₁ | n=731 | Yes | No | | | |
| | Other | 76.3% | 23.7% | | | |
| | HRM | 49.2% | 50.8% | | | |
| Chance DUI Arrest | n=1,178 | V. Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | Other | 26.9% | 33.4% | 32.8% | 6.3% | 0.7%** |
| | HRM | 28.1% | 39.6% | 21.6% | 9.7%** | 0.9%** |
| Drugged Driving | n=1,178 | None | 1+ Times | | | |
| | Other | 77.4% | 22.6% | | | |
| | HRM | 83.2% | 16.8% | | | |
| Sober Driver ₂ | n=842 | V. Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | Other | 58.1% | 25.6% | 10.0% | 2.9% | 3.3%** |
| | HRM | 56.0% | 25.0% | 10.4%** | 4.8%** | 3.8%** |
| Drive After 1-2 Drinks | n=1,151 | None | 1-5 Times | 6-10 Times | 10+ Times | |
| | Other | 80.3% | 17.9% | 1.4%** | 0.4%** | |
| | HRM | 61.3% | 32.3% | 3.2%** | 3.1%** | |
| Drive After 3+ Drinks | n=1,020 | None | 1-5 Times | 6-10 Times | 10+ Times | |
| | Other | 96.0% | 3.5% | 0.3%** | 0.1%** | |
| | HRM | 85.9% | 11.7%** | 2.3%** | 0.0%** | |
| Answer Phone Driving | n=1,187 | V. Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | Other | 9.0% | 21.3% | 22.0% | 24.8% | 22.9% |
| | HRM | 27.3% | 36.4% | 24.8% | 5.2%** | 6.3%** |
| Ban Handheld Cell Use | n=1,182 | St. Favor | Sw. Favor | Neutral | Sw. Oppose | St. Oppose |
| | Other | 39.2% | 19.9% | 17.5% | 11.4% | 12.1% |
| | HRM | 14.3%** | 20.0% | 20.9% | 22.7% | 22.1% |
| Ticket Distracted Driving | n=1,173 | V. Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | Other | 11.7% | 18.9% | 38.7% | 23.4% | 7.3% |
| | HRM | 7.5%** | 18.3% | 36.0% | 27.6% | 10.6%** |

Note: Please see Appendix A for exact question and response wording
₁Note: Percentages do not include those who responded "N/A"
₂Note: Percentages based only on those North Dakota drivers who report that they consume alcohol
 **Estimate uncertain due to limited sample size

4.2.3 Young Female Driver Group

Another driver group with noticeable differences in behaviors and attitudes is that of 18-to-34-year-old high-risk female (HRF) drivers. Like their high-risk male counterparts, young female drivers tend to exhibit behaviors that are more dangerous than all other drivers. Similarly, their attitudes toward safe driving habits and exposure to messages promoting safe driving lag behind the balance of the driver

population (Table 4.9). When this female driver group was compared to all other drivers, there were statistically significant differences for the majority of variables studied in this report.

Table 4.9 Differences in Driver Views and Behaviors, Young Female Target Group

| Question | HRF (n=318) | Other Drivers (n=1,004) | Sig. ¹ |
|----------------------------|-------------|-------------------------|-------------------|
| Seat Belt Use | 4.62 | 4.79 | |
| Ticket Seat Belt | 2.91 | 3.14 | |
| Primary Seat Belt Law | 3.45 | 3.58 | |
| Ticket Likely Speeding | 3.77 | 3.58 | ## |
| Crashes Preventable | 3.57 | 3.63 | |
| Safety Corridor | 0.67 | 0.76 | * |
| Chance Arrest for DUI | 3.84 | 3.80 | ## |
| Drugged Driving | 0.13 | 0.23 | ** |
| Use Sober Driver | 4.45 | 4.32 | # |
| Drive After 1-2 Drinks | 0.36 | 0.20 | ** |
| Drive After 3+ Drinks | 0.04 | 0.04 | |
| Answer Phone While Driving | 3.93 | 2.69 | ## |
| Ban Hand-Held Cell Use | 3.29 | 3.63 | # |
| Ticket Distracted Driving | 3.035 | 3.043 | # |
| RSH Seat Belt | 0.83 | 0.84 | |
| RSH Speeding | 0.54 | 0.68 | ** |
| RSH Drunk Driving | 0.93 | 0.91 | |
| RSH Distracted Driving | 0.68 | 0.75 | |
| RSH <i>Vision Zero</i> | 0.55 | 0.52 | |

¹Note: Nominal/Ordinal scales require different tests of significance
**Significant difference at the 1% level for Pearson Chi-Square test
*Significant difference at the 5% level for Pearson Chi-Square test
##Significant difference at the 1% level for 1-way ANOVA
#Significant difference at the 5% level for 1-way ANOVA

The 18-to-34-year-old female cohort is more likely to engage in dangerous driving behaviors. This target group has a higher likelihood of driving within two hours of consuming one or two alcoholic beverages (Chi-Sq.=18.794, df=1, p<0.001) and is more likely to answer a phone call when driving (F=180.246, df=1, p<0.001).

With regard to impaired driving, this target group of 18-to-34-year-old females thought that the chance of being arrested for driving under the influence of alcohol was more likely than did other North Dakota drivers (F=6.818, df=1, p=0.009). Perhaps that is why this group was more likely to use a designated sober driver than other North Dakotans (F=5.002, df=1, p=0.026) and less likely to drive impaired by drugs (Chi-Sq.=15.235, df=1, p<0.001). Table 4.10 provides a complete explanation of how this group compared to the balance of the North Dakota driving population.

Table 4.10 Responses for High-Risk Female Drivers

| Question | | Responses, by Driver Group | | | | |
|--------------------------------------|---------|----------------------------|-----------|------------|------------|-------------|
| Seat Belt Use | n=1,322 | Always | N. Always | Sometimes | Rarely | Never |
| | Other | 84.1% | 12.5% | 2.5% | 0.7%** | 0.3%** |
| | HRF | 73.5% | 18.5% | 5.4%** | 2.1%** | 0.5%** |
| Seat Belt Ticket | n=1,313 | V. Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | Other | 12.2% | 22.4% | 38.0% | 21.5% | 5.8% |
| | HRF | 7.5%** | 17.2% | 40.6% | 28.5% | 6.2%** |
| Primary Seat Belt Law | n=1,315 | St. Favor | Sw. Favor | Neutral | Sw. Oppose | St. Oppose |
| | Other | 34.1% | 24.8% | 18.6% | 10.2% | 12.3% |
| | HRF | 26.5% | 29.1% | 21.3% | 8.5%** | 14.6% |
| Chance Speed Ticket | n=1,315 | V. Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | Other | 14.1% | 41.3% | 36.6% | 4.8% | 3.1%** |
| | HRF | 15.3% | 49.9% | 31.3% | 3.1%** | 0.3%** |
| Crashes Preventable | n=1,317 | Always | N. Always | Sometimes | Rarely | Never |
| | Other | 5.0% | 53.7% | 40.4% | 0.9%** | 0.0%** |
| | HRF | 4.2%** | 50.0% | 44.3% | 1.5%** | 0.0%** |
| Highway Safety Corridor ₁ | n=766 | Yes | No | | | |
| | Other | 76.3% | 23.7% | | | |
| | HRF | 67.2% | 32.8% | | | |
| Chance DUI Arrest | n=1,309 | V. Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | Other | 26.9% | 33.4% | 32.8% | 6.3% | 0.7%** |
| | HRF | 27.5% | 36.4% | 29.7% | 5.5%** | 0.9%** |
| Drugged Driving | n=1,309 | None | 1+ Times | | | |
| | Other | 77.4% | 22.6% | | | |
| | HRF | 87.0% | 13.0% | | | |
| Sober Driver ₂ | n=965 | V. Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | Other | 58.1% | 25.6% | 10.0% | 2.9% | 3.3%** |
| | HRF | 64.3% | 21.5% | 9.8%** | 3.4%** | 1.0%** |
| Drive After 1-2 Drinks | n=1,287 | None | 1-5 Times | 6-10 Times | 10+ Times | |
| | Other | 80.3% | 17.9% | 1.4%** | 0.4%** | |
| | HRF | 64.1% | 33.7% | 1.5%** | 0.6%** | |
| Drive After 3+ Drinks | n=1,141 | None | 1-5 Times | 6-10 Times | 10+ Times | |
| | Other | 96.0% | 3.5% | 0.3%** | 0.1%** | |
| | HRF | 95.7% | 4.1%** | 0.0%** | 0.2%** | |
| Answer Phone Driving | n=1,319 | V. Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | Other | 9.0% | 21.3% | 22.0% | 24.8% | 22.9% |
| | HRF | 34.3% | 35.4% | 22.1% | 5.6%** | 2.6%** |
| Ban Handheld Cell Use | n=1,315 | St. Favor | Sw. Favor | Neutral | Sw. Oppose | St. Oppose |
| | Other | 39.2% | 19.9% | 17.5% | 11.4% | 12.1% |
| | HRF | 15.9% | 31.1% | 27.3% | 17.2% | 8.5%** |
| Ticket Distracted Driving | n=1,305 | V. Likely | Likely | Sw. Likely | Unlikely | V. Unlikely |
| | Other | 11.7% | 18.9% | 38.7% | 23.4% | 7.3% |
| | HRF | 5.6%** | 26.1% | 38.9% | 25.1% | 4.3%** |

Note: Please see Appendix A for exact question and response wording
₁Note: Percentages do not include those who responded "N/A"
₂Note: Percentages based only on those North Dakota drivers who report that they consume alcohol
**Estimate uncertain due to limited sample size

4.2.4 High-Risk Driver Comparisons

A detailed explanation of how high-risk 18-to-34-year-old drivers compare to all other North Dakota drivers – including longitudinal trends – is presented in Appendix B. In general, high-risk drivers exhibit more dangerous behaviors than do drivers over the age of 35.

5. CONCLUSIONS

The annual statewide driver traffic safety survey provides baseline metrics for the Safety Division and others in understanding perceptions and behaviors related to focus issues. A core set of questions was selected to address nationally agreed upon priorities. These include emphases on seat belt use, impaired driving, and speeding. In addition to the core issues, questions were included to better understand views on specific programs and activities. Results show that many North Dakota drivers have adopted safe driving practices, but it is apparent that additional efforts are needed to improve safety on the state's roads.

Two specific recommendations can be made when examining trends that have taken place over the last 12 years of administering this survey. First, there is a continued dichotomy between how urban and rural residents approach the use of a seat belt while operating a vehicle. Results clearly show that rural residents are less likely to use seat belts than their urban counterparts. Improvement in this area must be made to reduce rates of fatalities and serious injuries during crash events by rural North Dakotans. Second, there is a bifurcation in safe driving attitudes, behaviors, and beliefs factoring for whether one is a high-risk 18-to-34-year-old driver. Younger drivers generally engage in dangerous behavior behind the wheel more often and engage in safe practices less often than those over the age of 35. These dangerous practices happen despite the group having higher exposure rates to *Vision Zero* as a safety campaign. It is evident that the safety campaign is reaching these dangerous drivers, but the messaging may need to be revisited with an aim to more effectively resonate with these driver groups.

Further research involving North Dakota driving tendencies can be improved. For instance, future studies involving North Dakota driving habits will be more robust when the response sample more accurately reflects the North Dakota driver population. This particular study would have been improved by having a higher percentage of 35- to 54-year-old drivers included in the response sample. Nonetheless, the response rate for this survey was satisfactory and most of the desired performance metrics were able to be extrapolated to represent the entire North Dakota driver population.

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APPENDIX A. SURVEY INSTRUMENT

2021 North Dakota Driver Survey

**All Responses
Are Confidential**

1. How often do you use a seat belt when you drive or ride in a motor vehicle?
 Never Rarely Sometimes Nearly Always Always
2. What do you think the chance is of getting a ticket if you do not wear your seat belt?
 Very Unlikely Unlikely Somewhat Likely Likely Very Likely
3. Do you favor or oppose a primary seat belt law where law enforcement can stop a vehicle and issue a citation for failure to wear a seat belt?
 Strongly Oppose Somewhat Oppose Do Not Favor or Oppose Somewhat Favor Strongly Favor
4. What do you think the chance is of getting a ticket if you drive over the speed limit?
 Very Unlikely Unlikely Somewhat Likely Likely Very Likely
5. Do you believe that crashes are preventable?
 Never Rarely Sometimes Nearly Always Always
6. What do you think the chances for someone's arrest if they drive while under the influence of alcohol or drugs?
 Very Unlikely Unlikely Somewhat Likely Likely Very Likely
7. In the past year, have you driven after ingesting any of the following? Select all that apply:
 Marijuana Prescription Drugs Over-the Counter (i.e., cold medicine, sleeping pills, etc.) Other _____ No/ none
8. If drinking or planning to drink alcohol, how likely are you to designate a sober driver?
 Do Not Drink Very Unlikely Unlikely Somewhat Likely Likely Very Likely
9. In the past 60 days, how many times have you driven a motor vehicle within 2 hours after drinking?
 1–2 Alcoholic Drinks? none 1–5 times 6–10 times more than 10 times
 3 or More Alcoholic Drinks? none 1–5 times 6–10 times more than 10 times
10. How likely are you to make or answer a phone call while driving?
 Very Unlikely Unlikely Somewhat Likely Likely Very Likely
11. For which of the following purposes do you most frequently use your cell phone while driving?
 Select all that apply: Phone Calls Text Emails Social media Maps Other Apps I do not use
12. Do you favor or oppose a ban on hand-held cell phone use while driving?
 Strongly Oppose Somewhat Oppose Do Not Favor or Oppose Somewhat Favor Strongly Favor
13. What do you think the chance is of getting a ticket for distracted driving?
 Very Unlikely Unlikely Somewhat Likely Likely Very Likely
14. Where have you read, seen, or heard traffic safety messages relating to the following within the last 6 months:

| | | | | | | |
|---|-----------------------------|--------------------------------|------------------------------------|---------------------------------------|---|-------------------------------|
| Seat Belt Enforcement | <input type="checkbox"/> TV | <input type="checkbox"/> Radio | <input type="checkbox"/> Online Ad | <input type="checkbox"/> Social Media | <input type="checkbox"/> Hwy Message Boards | <input type="checkbox"/> None |
| Speed Enforcement | <input type="checkbox"/> TV | <input type="checkbox"/> Radio | <input type="checkbox"/> Online Ad | <input type="checkbox"/> Social Media | <input type="checkbox"/> Hwy Message Boards | <input type="checkbox"/> None |
| Drunk Driving Enforcement | <input type="checkbox"/> TV | <input type="checkbox"/> Radio | <input type="checkbox"/> Online Ad | <input type="checkbox"/> Social Media | <input type="checkbox"/> Hwy Message Boards | <input type="checkbox"/> None |
| Distracted Driving Enforcement | <input type="checkbox"/> TV | <input type="checkbox"/> Radio | <input type="checkbox"/> Online Ad | <input type="checkbox"/> Social Media | <input type="checkbox"/> Hwy Message Boards | <input type="checkbox"/> None |
| Vision Zero. Zero Fatalities. Zero Excuses. | <input type="checkbox"/> TV | <input type="checkbox"/> Radio | <input type="checkbox"/> Online Ad | <input type="checkbox"/> Social Media | <input type="checkbox"/> Hwy Message Boards | <input type="checkbox"/> None |
15. When driving in a highway safety corridor, does it positively change your attention to driving or driver behavior?
 Yes No N/A
16. Type of Vehicle You Most Often Drive: (select only one)
 Car Pickup SUV Van Motorcycle Semi/ Large Truck Other _____
17. Your age: 18–24 25–34 35–44 45–54 55–64 65–74 75 or Older
18. Your gender: Male Female
19. In which North Dakota county do you live? _____

Thank you for your time and participation

APPENDIX B. HIGH-RISK 18-TO-34-YEAR-OLD DRIVER BEHAVIORS/PERCEPTIONS

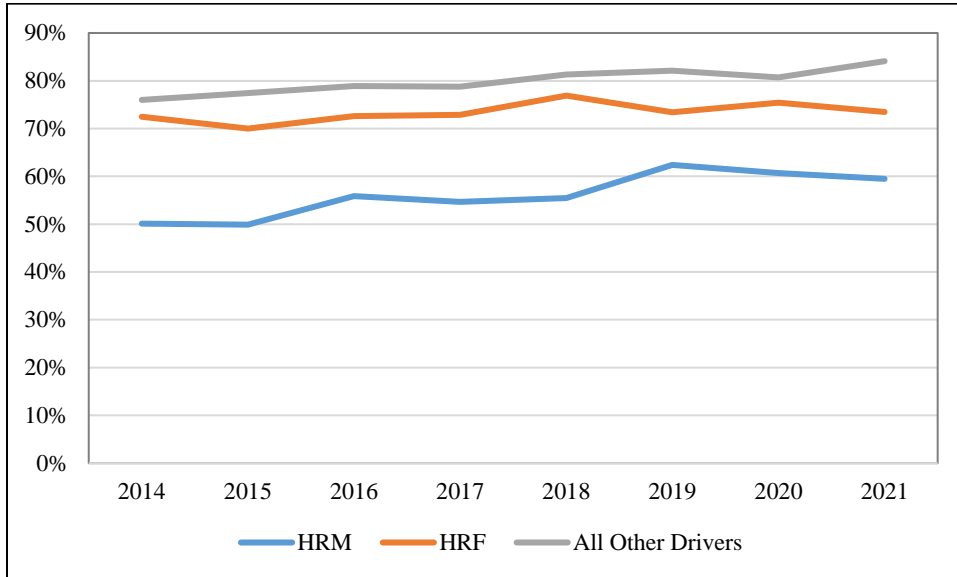


Figure B.1 Drivers Self-Reporting Seat Belt Use as Always

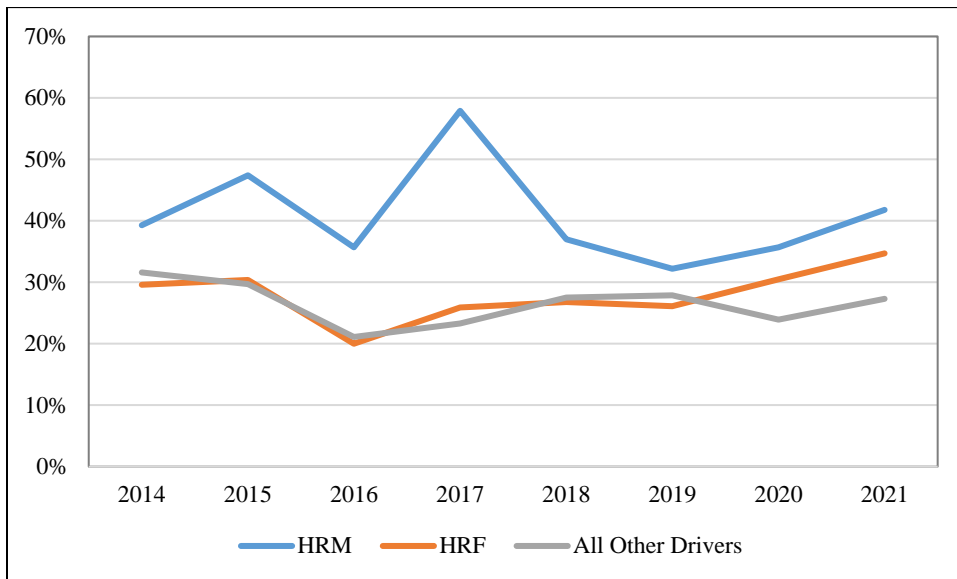


Figure B.2 Drivers Reporting the Perceived Likelihood of Receiving a Ticket for Not Wearing a Seat Belt as Very Unlikely or Unlikely

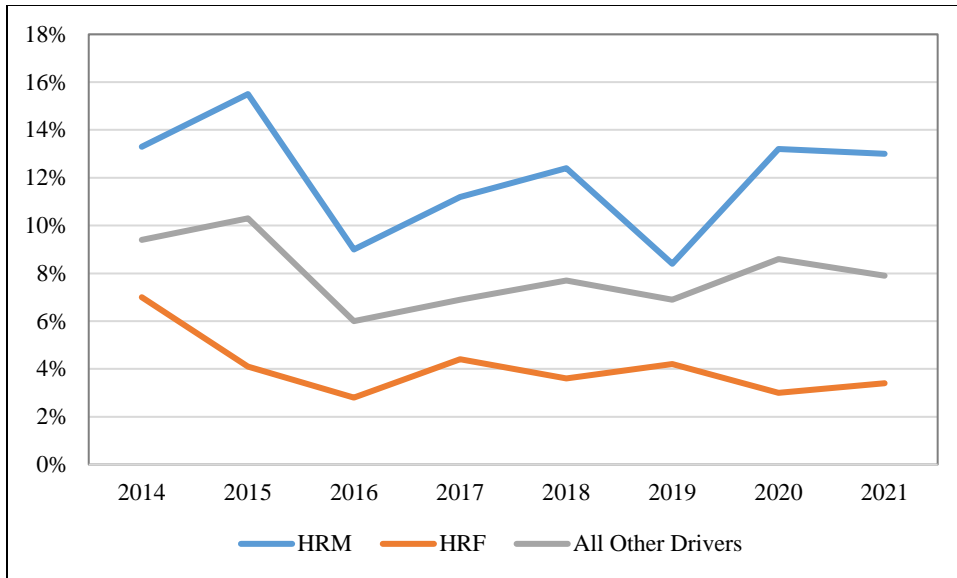


Figure B.3 Drivers Reporting the Perceived Likelihood of Receiving a Ticket for Speeding as Very Unlikely or Unlikely

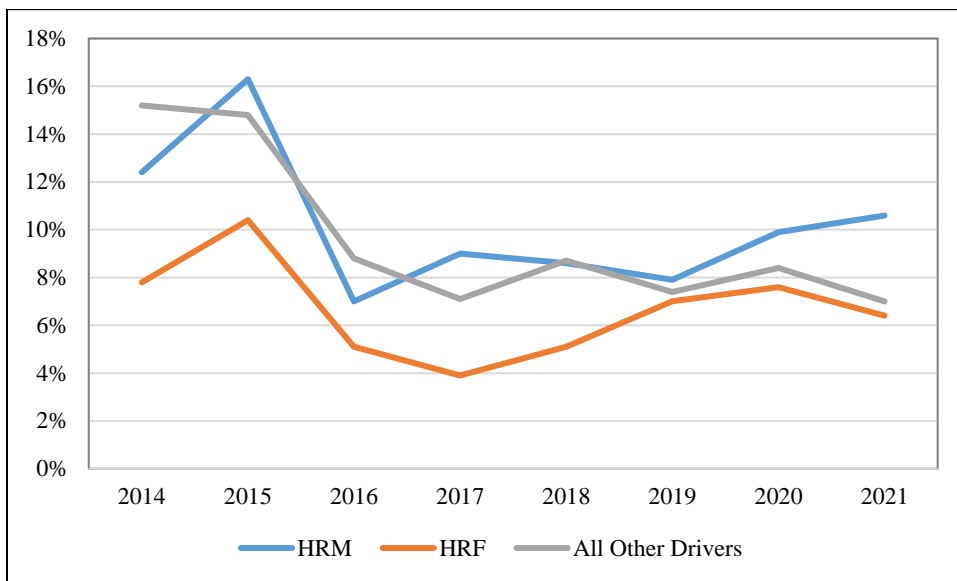


Figure B.4 Drivers Reporting the Perceived Likelihood of Being Arrested for Impaired Driving as Very Unlikely or Unlikely

| Table B.1 Longitudinal Response Averages from High-Risk Male Drivers | | | | | | |
|---|------------------------------------|-------------|-------------|-------------|-------------|--|
| Question | Year | Scale | HRM | Other | Sig. | |
| Seat Belt Use 1=Never to 5=Always | 2021 | 1-5 | 4.40 | 4.79 | ** | |
| | 2020 | | 4.41 | 4.73 | ** | |
| | 2019 | | 4.45 | 4.75 | ** | |
| | 2018 | | 4.31 | 4.75 | ** | |
| | 2017 | | 4.36 | 4.73 | ** | |
| | 2016 | | 4.33 | 4.71 | ** | |
| | 2015 | | 4.24 | 4.68 | ** | |
| | 2014 | | 4.26 | 4.65 | ** | |
| | 2013 | | 4.18 | 4.52 | ** | |
| | 2012 | | 3.98 | 4.41 | ** | |
| | 2011 | | 4.18 | 4.47 | ** | |
| | 2010 | | 4.04 | 4.43 | ** | |
| | 2017-2021 Five-Year Average | | | 4.39 | 4.75 | |
| | 2016-2020 Five-Year Average | | | 4.37 | 4.73 | |
| 2015-2019 Five-Year Average | | 4.34 | 4.72 | | | |
| 2014-2018 Five-Year Average | | 4.30 | 4.70 | | | |
| 2013-2017 Five-Year Average | | 4.27 | 4.66 | | | |
| 2012-2016 Five-Year Average | | 4.20 | 4.59 | | | |
| 2011-2015 Five-Year Average | | 4.17 | 4.55 | | | |
| 2010-2014 Five-Year Average | | 4.13 | 4.50 | | | |
| Question | Year | Scale | HRM | Other | Sig. | |
| Ticket Likely Seat Belt 1=Very Unlikely to 5=Very Likely | 2021 | 1-5 | 2.78 | 3.14 | * | |
| | 2020 | | 2.85 | 3.18 | ** | |
| | 2019 | | 2.82 | 3.13 | ** | |
| | 2018 | | 2.94 | 3.17 | ** | |
| | 2017 | | 2.85 | 3.19 | ** | |
| | 2016 | | 2.99 | 3.26 | * | |
| | 2015 | | 2.83 | 3.33 | ** | |
| | 2014 | | 2.98 | 3.23 | ** | |
| | 2013 | | 2.97 | 3.23 | ** | |
| | 2012 | | 3.06 | 3.20 | ** | |
| | 2011 | | 2.77 | 3.03 | ** | |
| | 2010 | | 2.74 | 3.12 | ** | |
| | 2017-2021 Five-Year Average | | | 2.85 | 3.16 | |
| | 2016-2020 Five-Year Average | | | 2.89 | 3.19 | |
| 2015-2019 Five-Year Average | | 2.89 | 3.22 | | | |
| 2014-2018 Five-Year Average | | 2.92 | 3.24 | | | |
| 2013-2017 Five-Year Average | | 2.92 | 3.25 | | | |
| 2012-2016 Five-Year Average | | 2.97 | 3.25 | | | |
| 2011-2015 Five-Year Average | | 2.92 | 3.20 | | | |
| 2010-2014 Five-Year Average | | 2.90 | 3.16 | | | |

| Question | Year | Scale | HRM | Other | Sig. | |
|---|------------------------------------|-------------|-------------|-------------|-------------|--|
| Ticket Likely Speed 1=Very Unlikely to 5=Very Likely | 2021 | 1-5 | 3.50 | 3.58 | | |
| | 2020 | | 3.41 | 3.58 | | |
| | 2019 | | 3.57 | 3.68 | | |
| | 2018 | | 3.48 | 3.61 | | |
| | 2017 | | 3.53 | 3.66 | | |
| | 2016 | | 3.59 | 3.68 | | |
| | 2015 | | 3.54 | 3.79 | * | |
| | 2014 | | 3.47 | 3.75 | ** | |
| | 2013 | | 3.52 | 3.71 | ** | |
| | 2012 | | 3.64 | 3.71 | | |
| | 2011 | | 3.50 | 3.65 | | |
| | 2010 | | 3.47 | 3.62 | ** | |
| | 2017-2021 Five-Year Average | | | 3.50 | 3.62 | |
| | 2016-2020 Five-Year Average | | | 3.52 | 3.64 | |
| 2015-2019 Five-Year Average | | 3.54 | 3.68 | | | |
| 2014-2018 Five-Year Average | | 3.52 | 3.70 | | | |
| 2013-2017 Five-Year Average | | 3.53 | 3.72 | | | |
| 2012-2016 Five-Year Average | | 3.55 | 3.73 | | | |
| 2011-2015 Five-Year Average | | 3.53 | 3.72 | | | |
| 2010-2014 Five-Year Average | | 3.52 | 3.69 | | | |
| Question | Year | Scale | HRM | Other | Sig. | |
| Arrest for DUI 1=Very Unlikely to 5=Very Likely | 2021 | 1-5 | 3.84 | 3.80 | | |
| | 2020 | | 3.80 | 3.74 | * | |
| | 2019 | | 3.79 | 3.76 | * | |
| | 2018 | | 3.91 | 3.69 | ** | |
| | 2017 | | 3.89 | 3.75 | ** | |
| | 2016 | | 3.80 | 3.66 | ** | |
| | 2015 | | 3.76 | 3.67 | * | |
| | 2014 | | 3.89 | 3.75 | ** | |
| | 2013 | | 3.67 | 3.49 | * | |
| | 2012 | | 3.72 | 3.61 | ** | |
| | 2011 | | 3.65 | 3.62 | | |
| | 2010 | | 3.61 | 3.52 | | |
| | 2017-2021 Five-Year Average | | | 3.85 | 3.75 | |
| | 2016-2020 Five-Year Average | | | 3.84 | 3.72 | |
| 2015-2019 Five-Year Average | | 3.83 | 3.71 | | | |
| 2014-2018 Five-Year Average | | 3.85 | 3.70 | | | |
| 2013-2017 Five-Year Average | | 3.80 | 3.66 | | | |
| 2012-2016 Five-Year Average | | 3.77 | 3.64 | | | |
| 2011-2015 Five-Year Average | | 3.74 | 3.63 | | | |
| 2010-2014 Five-Year Average | | 3.71 | 3.60 | | | |
| *Statistically significant difference at the 5% level | | | | | | |
| **Statistically significant difference at the 1% level | | | | | | |

| Table B.2 Longitudinal Response Averages from High-Risk Female Drivers | | | | | | |
|---|------------------------------------|-------------|-------------|-------------|-------------|--|
| Question | Year | Scale | HRF | Other | Sig. | |
| Seat Belt Use 1=Never to 5=Always | 2021 | 1-5 | 4.62 | 4.79 | | |
| | 2020 | | 4.69 | 4.73 | * | |
| | 2019 | | 4.66 | 4.75 | | |
| | 2018 | | 4.72 | 4.75 | ** | |
| | 2017 | | 4.65 | 4.73 | | |
| | 2016 | | 4.65 | 4.71 | | |
| | 2015 | | 4.60 | 4.68 | | |
| | 2014 | | 4.67 | 4.65 | | |
| | 2013 | | 4.58 | 4.51 | | |
| | 2017-2021 Five-Year Average | | | 4.67 | 4.75 | |
| | 2016-2020 Five-Year Average | | | 4.67 | 4.73 | |
| | 2015-2019 Five-Year Average | | | 4.66 | 4.72 | |
| | 2014-2018 Five-Year Average | | | 4.66 | 4.70 | |
| 2013-2017 Five-Year Average | | 4.63 | 4.66 | | | |
| Question | Year | Scale | HRF | Other | Sig. | |
| Ticket Likely Seat Belt 1=Very Unlikely to 5=Very Likely | 2021 | 1-5 | 2.91 | 3.14 | | |
| | 2020 | | 3.03 | 3.18 | | |
| | 2019 | | 3.18 | 3.13 | * | |
| | 2018 | | 3.19 | 3.17 | | |
| | 2017 | | 3.14 | 3.19 | | |
| | 2016 | | 3.33 | 3.26 | * | |
| | 2015 | | 3.30 | 3.33 | | |
| | 2014 | | 3.19 | 3.25 | | |
| | 2013 | | 3.15 | 3.25 | * | |
| | 2017-2021 Five-Year Average | | | 3.09 | 3.16 | |
| | 2016-2020 Five-Year Average | | | 3.17 | 3.19 | |
| | 2015-2019 Five-Year Average | | | 3.23 | 3.22 | |
| | 2014-2018 Five-Year Average | | | 3.23 | 3.24 | |
| 2013-2017 Five-Year Average | | 3.22 | 3.26 | | | |
| Question | Year | Scale | HRF | Other | Sig. | |
| Ticket Likely Speed 1=Very Unlikely to 5=Very Likely | 2021 | 1-5 | 3.77 | 3.58 | ** | |
| | 2020 | | 3.65 | 3.58 | * | |
| | 2019 | | 3.81 | 3.68 | ** | |
| | 2018 | | 3.78 | 3.61 | ** | |
| | 2017 | | 3.73 | 3.66 | * | |
| | 2016 | | 3.87 | 3.68 | ** | |
| | 2015 | | 3.89 | 3.79 | ** | |
| | 2014 | | 3.82 | 3.72 | | |
| | 2013 | | 3.76 | 3.70 | | |
| | 2017-2021 Five-Year Average | | | 3.75 | 3.62 | |
| | 2016-2020 Five-Year Average | | | 3.77 | 3.64 | |
| | 2015-2019 Five-Year Average | | | 3.82 | 3.68 | |
| | 2014-2018 Five-Year Average | | | 3.82 | 3.69 | |
| 2013-2017 Five-Year Average | | 3.81 | 3.71 | | | |

| Question | Year | Scale | HRF | Other | Sig. |
|--|------------------------------------|-------|-------------|-------------|-------------|
| Arrest for DUI 1=Very Unlikely to 5=Very Likely | 2021 | 1-5 | 3.84 | 3.80 | ** |
| | 2020 | | 3.99 | 3.74 | ** |
| | 2019 | | 3.99 | 3.76 | ** |
| | 2018 | | 4.04 | 3.69 | ** |
| | 2017 | | 4.09 | 3.75 | ** |
| | 2016 | | 4.06 | 3.66 | ** |
| | 2015 | | 3.98 | 3.67 | ** |
| | 2014 | | 3.95 | 3.65 | ** |
| | 2013 | | 3.67 | 3.44 | * |
| | 2017-2021 Five-Year Average | | | | 3.99 |
| 2016-2020 Five-Year Average | | | 4.03 | 3.72 | |
| 2015-2019 Five-Year Average | | | 4.03 | 3.71 | |
| 2014-2018 Five-Year Average | | | 4.02 | 3.68 | |
| 2013-2017 Five-Year Average | | | 3.95 | 3.63 | |
| *Statistically significant difference at the 5% level | | | | | |
| **Statistically significant difference at the 1% level | | | | | |

APPENDIX C. MISSING/REFUSE TO ANSWER RESPONSES

| Q# | Question | Total Responses | Missing Responses |
|---------------|----------------------------|-----------------|-------------------|
| | Seat Belt | | |
| Q1 | Seat Belt Use | 1,515 | 0 |
| Q2 | Chance Ticket Seat Belt | 1,506 | 9 |
| Q3 | Primary Seat Belt Law | 1,507 | 8 |
| | Speeding | | |
| Q4 | Chance Ticket Speeding | 1,506 | 9 |
| | Crashes | | |
| Q5 | Crashes Preventable | 1,510 | 5 |
| | Alcohol/Impairment | | |
| Q6 | Chance Arrest Drinking | 1,502 | 13 |
| Q7 | Drugged Driving | 1,515 | 0 |
| Q8 | Sober Driver | 1,501 | 14 |
| Q9a | Drive 1-2 Drinks | 1,476 | 39 |
| Q9b | Drive 3+ Drinks | 1,320 | 195 |
| | Distracted Driving | | |
| Q10 | Answer Phone | 1,512 | 3 |
| Q11 | Answer Phone Reason | 1,515 | 0 |
| Q12 | Band Hand-Held Cell Use | 1,507 | 8 |
| Q13 | Ticket, Distracted Driving | 1,496 | 19 |
| | Awareness/Exposure | | |
| Q14a | RSH Seat Belt | 1,480 | 35 |
| Q14b | RSH Speeding | 1,430 | 85 |
| Q14c | RSH Drunk Driving | 1,477 | 38 |
| Q14d | RSH Distracted Driving | 1,449 | 66 |
| Q14e | RSH <i>Vision Zero</i> | 1,425 | 90 |
| Q15 | Highway Safety Corridor | 1,436 | 79 |
| Total n=1,515 | | | |

APPENDIX D. DRIVER RESPONSES BY REGION AND GEOGRAPHY

| Question | Region or Geography, Response | | | | | |
|--|-------------------------------|-----------|----------------------------|-----------|------------------------------|-----------|
| What are the chances of getting a ticket if you... | Don't wear your seat belt | | Drive over the speed limit | | Drive after drinking alcohol | |
| | EAST | WEST | EAST | WEST | EAST | WEST |
| V. Likely | 11.2% | 7.5% | 14.0% | 15.7% | 27.5% | 26.9% |
| Likely | 20.7% | 17.6% | 46.0% | 44.9% | 37.1% | 32.3% |
| Sw. Likely | 40.9% | 36.9% | 32.9% | 35.2% | 29.3% | 32.9% |
| Unlikely | 21.1% | 31.5% | 4.9% | 3.0% | 5.6% | 6.6% |
| V. Unlikely | 6.1% | 6.5% | 2.1%** | 1.1%** | 0.5%** | 1.3%** |
| What are the chances of getting a ticket if you... | Don't wear your seat belt | | Drive over the speed limit | | Drive after drinking alcohol | |
| | URBAN | RURAL | URBAN | RURAL | URBAN | RURAL |
| V. Likely | 9.4% | 10.7% | 12.9% | 20.6% | 26.6% | 29.4% |
| Sw. Likely | 18.4% | 22.7% | 46.0% | 44.3% | 35.2% | 34.8% |
| Likely | 40.9% | 34.0% | 34.9% | 30.3% | 31.4% | 28.9% |
| Unlikely | 25.4% | 25.1% | 4.4% | 3.3% | 6.0% | 5.9% |
| V. Unlikely | 5.8% | 7.5% | 1.8%** | 1.5%** | 0.8%** | 0.9%** |
| Times driving after drinking 1-2 drinks in the past 60 days... | | | None | 1-5 Times | 6-10 Times | 10+ Times |
| East | | | 70.9% | 27.4% | 1.6%** | 0.2%** |
| West | | | 72.0% | 25.3% | 1.5%** | 1.3%** |
| Urban | | | 70.8% | 27.2% | 1.4%** | 0.5%** |
| Rural | | | 73.0% | 24.2% | 1.9%** | 0.8%** |
| Times driving after drinking 3+ drinks in the past 60 days... | | | None | 1-5 Times | 6-10 Times | 10+ Times |
| East | | | 95.4% | 4.4% | 0.1%** | 0.1%** |
| West | | | 95.6% | 3.7%** | 0.5%** | 0.2%** |
| Urban | | | 96.0% | 3.8% | 0.2%** | 0.0%** |
| Rural | | | 93.9% | 5.3% | 0.3%** | 0.4%** |
| Seat Belt Use | Always | N. Always | Sometimes | Rarely | Never | |
| East | 79.5% | 15.1% | 4.3% | 1.0%** | 0.1%** | |
| West | 75.5% | 17.5% | 3.8% | 2.3%** | 0.9%** | |
| Urban | 82.5% | 12.4% | 3.5%** | 1.2%** | 0.4%** | |
| Rural | 62.7% | 28.1% | 6.1% | 2.5%** | 0.5%** | |

**Fewer than 30 responses in this group

APPENDIX E. EXPOSURE TO TRAFFIC SAFETY MESSAGES

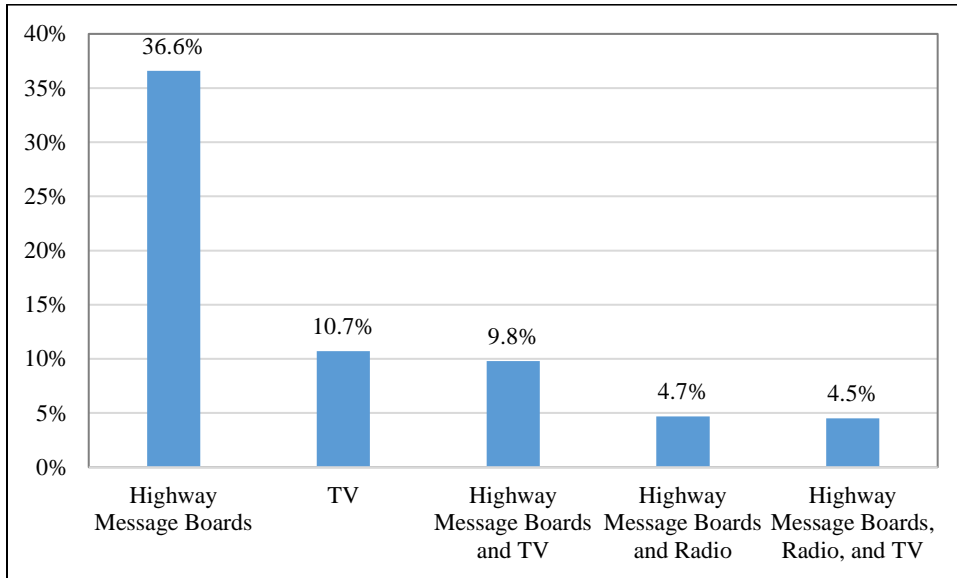


Figure E.1 Exposure to Messages about Seat Belt Use, by Source

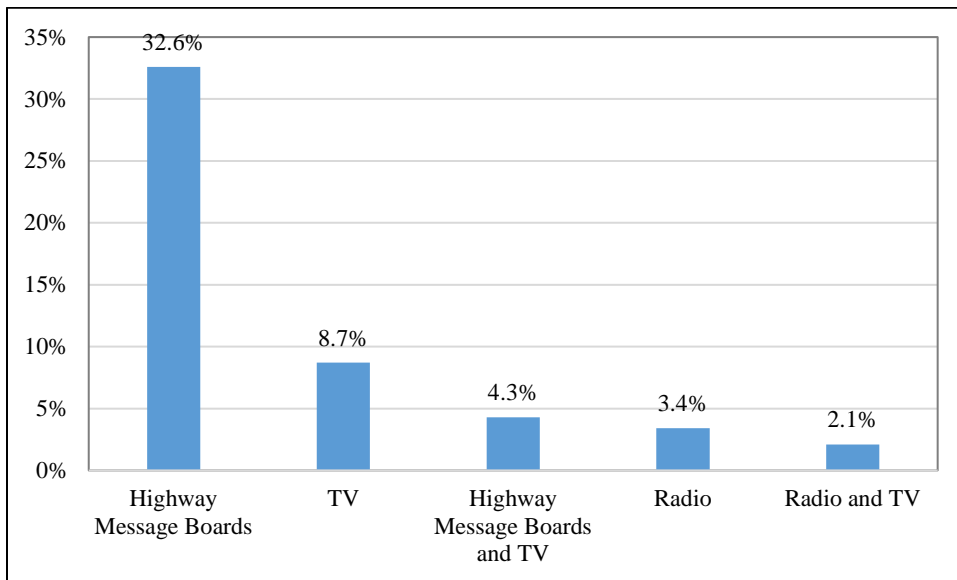


Figure E.2 Exposure to Messages about Speeding, by Source

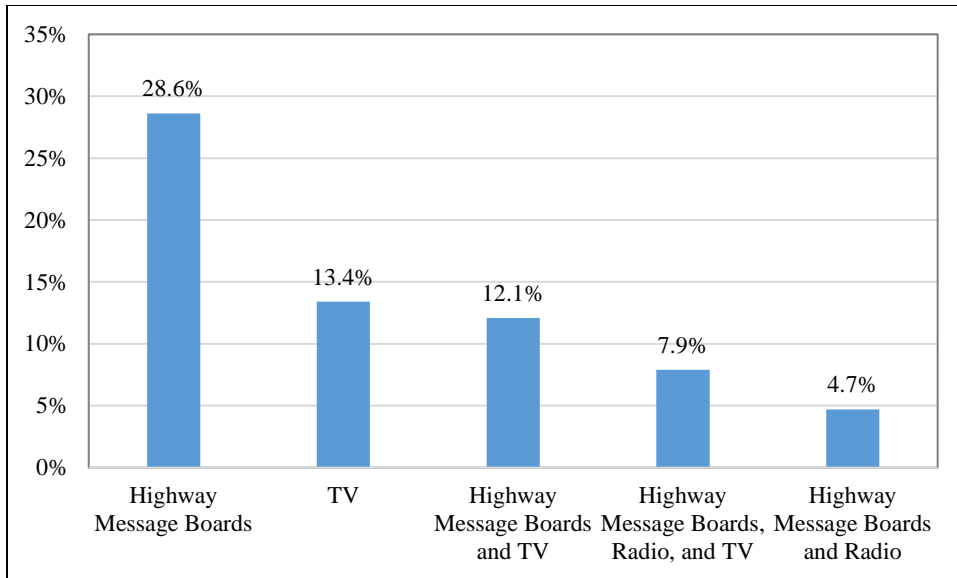


Figure E.3 Exposure to Messages about Impaired Driving, by Source

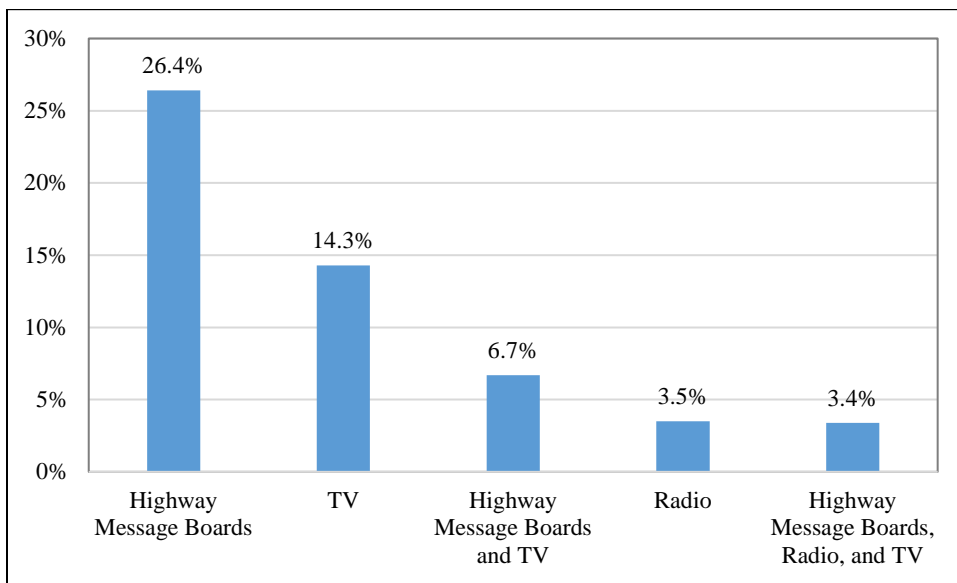


Figure E.4 Exposure to Messages about Distracted Driving, by Source

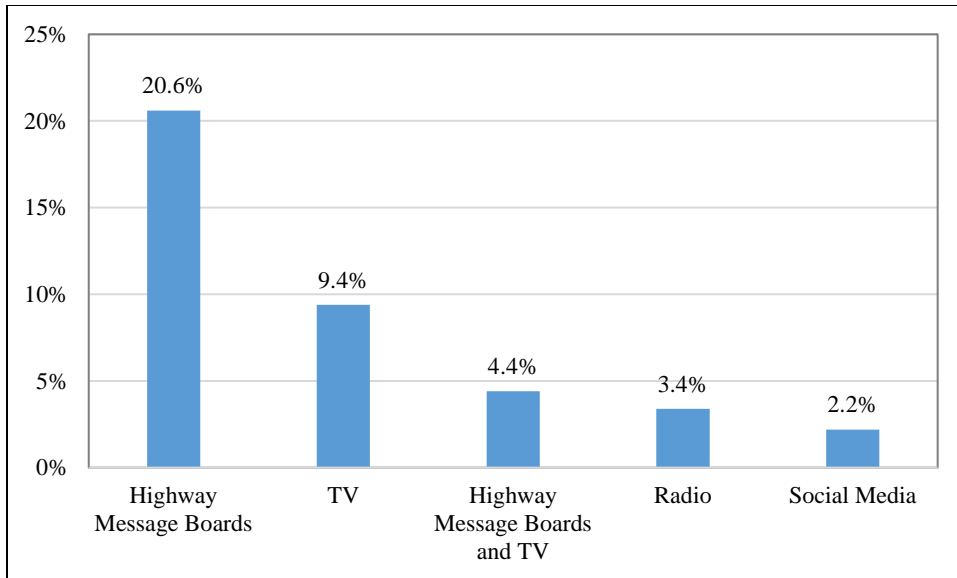


Figure E.5 Exposure to Messages about *Vision Zero*, by Source

APPENDIX F. DRIVER RESPONSES BY VEHICLE TYPE

Table F.1 Seat Belt Use, by Vehicle Type

| Vehicle Type | Never or Rarely | Sometimes | Nearly Always or Always |
|--------------|-----------------|-----------|-------------------------|
| Car | 0.5% ** | 4.8% ** | 94.7% |
| Pickup | 8.0% ** | 7.7% | 84.2% |
| SUV | 1.3% ** | 3.0% ** | 95.7% |
| Van | 0.0% ** | 0.0% ** | 100.0% |

**Fewer than 30 responses in this group

Table F.2 Times Driving After Consuming 1-to-2 Alcoholic Beverages, by Vehicle Type

| Vehicle Type | None | 1-5 Times | 6-10 Times | 10+ Times |
|--------------|-------|-----------|------------|-----------|
| Car | 74.7% | 23.3% | 1.7% ** | 0.3% ** |
| Pickup | 65.0% | 29.6% | 2.6% ** | 2.8% ** |
| SUV | 69.3% | 29.3% | 1.3% ** | 0.2% ** |
| Van | 86.1% | 13.9% ** | 0.0% ** | 0.0% ** |

**Fewer than 30 responses in this group

Table F.3 Times Driving After Consuming 3-Plus Alcoholic Beverages, by Vehicle Type

| Vehicle Type | None | 1-5 Times | 6-10 Times | 10+ Times |
|--------------|-------|-----------|------------|-----------|
| Car | 97.2% | 2.5% ** | 0.3% ** | 0.0% ** |
| Pickup | 90.3% | 9.2% | 0.4% ** | 0.2% ** |
| SUV | 95.4% | 4.1% ** | 0.2% ** | 0.2% ** |
| Van | 99.1% | 0.9% ** | 0.0% ** | 0.0% ** |

**Fewer than 30 responses in this group

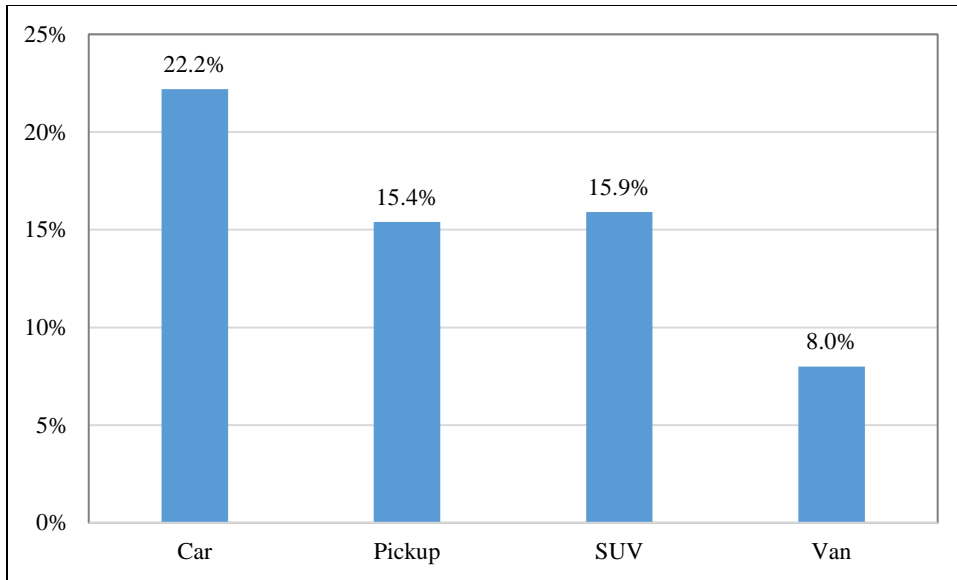


Figure F.1 Driving Impaired by Drugs, by Vehicle Type

APPENDIX G. COUNTY-LEVEL RESPONSES

Table G.1 Seat Belt Use

| County* | Never | Rarely | Sometimes | Nearly Always | Always |
|-------------|-------|--------|-----------|---------------|--------|
| Bottineau | 0.0% | 7.5% | 8.4% | 20.9% | 63.2% |
| Burleigh | 0.0% | 2.8% | 0.0% | 15.7% | 81.5% |
| Cass | 0.0% | 0.2% | 3.0% | 8.7% | 88.2% |
| Grand Forks | 0.0% | 0.0% | 3.0% | 9.0% | 88.0% |
| McHenry | 0.0% | 0.0% | 5.1% | 16.6% | 78.3% |
| McLean | 0.0% | 1.3% | 3.5% | 20.3% | 74.9% |
| Mercer | 1.2% | 0.0% | 0.0% | 19.6% | 79.2% |
| Morton | 0.0% | 5.4% | 5.4% | 4.0% | 85.2% |
| Pembina | 1.6% | 7.7% | 2.5% | 29.0% | 59.2% |
| Stark | 0.0% | 0.9% | 7.2% | 20.7% | 71.2% |
| Walsh | 0.8% | 0.9% | 11.2% | 36.9% | 50.1% |
| Ward | 4.0% | 0.9% | 4.0% | 7.8% | 83.3% |
| Williams | 1.0% | 0.0% | 8.7% | 35.6% | 54.8% |

*Only counties with 30 or more responses are included

Table G.2 Chances Ticket No Seat Belt

| County* | Very Unlikely | Unlikely | Somewhat Likely | Likely | Very Likely |
|-------------|---------------|----------|-----------------|--------|-------------|
| Bottineau | 10.5% | 2.0% | 32.9% | 27.5% | 27.2% |
| Burleigh | 3.2% | 37.9% | 41.1% | 11.3% | 6.5% |
| Cass | 6.4% | 21.6% | 47.4% | 13.7% | 10.9% |
| Grand Forks | 2.7% | 17.4% | 31.7% | 31.1% | 17.2% |
| McHenry | 11.4% | 15.4% | 36.8% | 21.0% | 15.4% |
| McLean | 12.6% | 36.8% | 39.5% | 8.7% | 2.4% |
| Mercer | 11.2% | 41.8% | 12.7% | 16.5% | 17.8% |
| Morton | 6.5% | 28.9% | 41.5% | 19.2% | 3.9% |
| Pembina | 8.0% | 25.9% | 28.4% | 11.1% | 26.6% |
| Stark | 15.3% | 19.5% | 42.9% | 18.3% | 4.0% |
| Walsh | 8.9% | 17.0% | 42.0% | 20.3% | 11.8% |
| Ward | 6.6% | 29.1% | 31.0% | 24.6% | 8.7% |
| Williams | 8.1% | 42.4% | 30.1% | 14.7% | 4.8% |

*Only counties with 30 or more responses are included

Table G.3 Support/Opposition for a Primary Seat Belt Law

| County* | Strongly Oppose | Somewhat Oppose | Neutral | Somewhat Favor | Strongly Favor |
|-------------|-----------------|-----------------|---------|----------------|----------------|
| Bottineau | 17.0% | 10.8% | 12.1% | 13.1% | 46.9% |
| Burleigh | 13.5% | 10.4% | 15.1% | 25.1% | 35.9% |
| Cass | 8.9% | 6.6% | 18.4% | 32.2% | 33.9% |
| Grand Forks | 13.1% | 11.6% | 22.3% | 25.6% | 27.3% |
| McHenry | 36.3% | 12.6% | 18.1% | 17.2% | 15.7% |
| McLean | 20.5% | 17.0% | 14.6% | 21.2% | 26.7% |
| Mercer | 11.5% | 23.3% | 11.8% | 27.0% | 26.4% |
| Morton | 10.4% | 14.2% | 18.8% | 22.4% | 34.2% |
| Pembina | 28.5% | 2.9% | 28.9% | 16.8% | 22.9% |
| Stark | 12.8% | 2.4% | 48.2% | 14.1% | 22.4% |
| Walsh | 20.0% | 17.5% | 21.6% | 21.8% | 19.2% |
| Ward | 16.6% | 4.4% | 21.3% | 27.7% | 30.0% |
| Williams | 44.4% | 10.4% | 12.8% | 7.4% | 25.1% |

*Only counties with 30 or more responses are included

Table G.4 Ticket Likelihood for Speeding

| County* | Very Unlikely | Unlikely | Somewhat Likely | Likely | Very Likely |
|-------------|---------------|----------|-----------------|--------|-------------|
| Bottineau | 7.5% | 0.8% | 13.5% | 62.9% | 15.2% |
| Burleigh | 0.7% | 2.4% | 38.6% | 49.3% | 9.0% |
| Cass | 0.2% | 6.1% | 40.1% | 45.3% | 8.3% |
| Grand Forks | 7.7% | 8.9% | 30.3% | 37.9% | 15.2% |
| McHenry | 0.0% | 11.4% | 29.0% | 33.9% | 25.7% |
| McLean | 2.3% | 9.3% | 38.3% | 38.0% | 12.1% |
| Mercer | 0.0% | 3.9% | 38.7% | 42.3% | 15.1% |
| Morton | 0.0% | 0.0% | 28.6% | 54.7% | 16.7% |
| Pembina | 0.9% | 0.0% | 29.7% | 48.7% | 20.8% |
| Stark | 0.0% | 10.9% | 19.4% | 44.8% | 24.8% |
| Walsh | 0.8% | 0.6% | 50.0% | 19.1% | 29.5% |
| Ward | 2.3% | 1.3% | 32.3% | 48.4% | 15.6% |
| Williams | 1.0% | 1.9% | 60.6% | 8.0% | 28.6% |

*Only counties with 30 or more responses are included

Table G.5 Crash Preventability

| County* | Never | Rarely | Sometimes | Nearly Always | Always |
|-------------|-------|--------|-----------|---------------|--------|
| Bottineau | 0.0% | 0.0% | 58.4% | 41.6% | 0.0% |
| Burleigh | 0.0% | 1.7% | 44.5% | 45.5% | 8.3% |
| Cass | 0.0% | 0.1% | 39.4% | 55.8% | 4.7% |
| Grand Forks | 0.0% | 6.0% | 30.7% | 59.7% | 3.5% |
| McHenry | 0.0% | 8.6% | 55.3% | 34.8% | 1.2% |
| McLean | 0.0% | 0.0% | 36.4% | 62.6% | 1.0% |
| Mercer | 0.0% | 0.0% | 31.9% | 68.1% | 0.0% |
| Morton | 0.0% | 0.0% | 33.7% | 64.4% | 1.9% |
| Pembina | 0.0% | 14.1% | 47.4% | 36.0% | 2.6% |
| Stark | 0.0% | 0.0% | 25.1% | 66.9% | 8.1% |
| Walsh | 0.0% | 0.0% | 32.2% | 64.0% | 3.8% |
| Ward | 0.0% | 0.0% | 55.4% | 42.2% | 2.4% |
| Williams | 0.0% | 0.0% | 56.2% | 31.8% | 12.0% |

*Only counties with 30 or more responses are included

Table G.6 Chances of Arrest for Driving Buzzed/Drunk

| County* | Very Unlikely | Unlikely | Somewhat Likely | Likely | Very Likely |
|-------------|---------------|----------|-----------------|--------|-------------|
| Bottineau | 0.0% | 0.8% | 21.6% | 43.8% | 33.8% |
| Burleigh | 0.9% | 10.3% | 43.4% | 26.5% | 18.8% |
| Cass | 0.6% | 5.2% | 31.3% | 39.0% | 23.9% |
| Grand Forks | 0.3% | 3.3% | 32.0% | 25.8% | 38.6% |
| McHenry | 1.6% | 1.9% | 25.4% | 37.7% | 33.5% |
| McLean | 0.0% | 10.6% | 26.3% | 52.5% | 10.6% |
| Mercer | 0.0% | 5.1% | 33.0% | 28.7% | 33.2% |
| Morton | 1.1% | 12.7% | 29.2% | 27.5% | 29.4% |
| Pembina | 0.0% | 8.7% | 31.5% | 30.0% | 29.8% |
| Stark | 7.2% | 2.9% | 17.0% | 35.8% | 37.1% |
| Walsh | 1.6% | 7.3% | 22.7% | 35.7% | 32.7% |
| Ward | 0.0% | 2.5% | 24.5% | 41.2% | 31.8% |
| Williams | 0.0% | 0.0% | 34.6% | 40.0% | 25.4% |

*Only counties with 30 or more responses are included

Table G.7 Likelihood of Answering Phone While Driving

| County* | Very Unlikely | Unlikely | Somewhat Likely | Likely | Very Likely |
|-------------|---------------|----------|-----------------|--------|-------------|
| Bottineau | 6.0% | 10.1% | 13.9% | 51.7% | 18.2% |
| Burleigh | 8.7% | 10.6% | 20.6% | 33.0% | 27.2% |
| Cass | 19.8% | 20.7% | 22.6% | 24.1% | 12.8% |
| Grand Forks | 16.0% | 20.0% | 27.1% | 21.1% | 15.8% |
| McHenry | 4.8% | 16.1% | 20.7% | 28.8% | 29.6% |
| McLean | 3.6% | 7.3% | 31.6% | 30.9% | 26.6% |
| Mercer | 7.4% | 5.4% | 17.0% | 32.8% | 37.5% |
| Morton | 5.5% | 21.3% | 14.8% | 50.4% | 7.9% |
| Pembina | 5.2% | 9.4% | 13.0% | 48.3% | 24.1% |
| Stark | 6.2% | 7.4% | 13.9% | 31.5% | 41.0% |
| Walsh | 5.9% | 8.5% | 14.1% | 36.9% | 34.6% |
| Ward | 3.2% | 10.0% | 29.8% | 26.6% | 30.4% |
| Williams | 8.9% | 4.2% | 28.1% | 27.7% | 31.1% |

*Only counties with 30 or more responses are included

Table G.8 Likelihood of Getting Ticketed for Distracted Driving

| County* | Very Unlikely | Unlikely | Somewhat Likely | Likely | Very Likely |
|-------------|---------------|----------|-----------------|--------|-------------|
| Bottineau | 2.0% | 23.0% | 29.5% | 37.1% | 8.4% |
| Burleigh | 3.8% | 26.7% | 37.1% | 25.9% | 6.5% |
| Cass | 6.4% | 22.4% | 40.1% | 20.9% | 10.1% |
| Grand Forks | 4.8% | 28.6% | 42.1% | 18.1% | 6.4% |
| McHenry | 2.7% | 17.2% | 36.9% | 28.1% | 15.1% |
| McLean | 10.5% | 29.7% | 44.8% | 11.7% | 3.3% |
| Mercer | 5.7% | 28.9% | 38.0% | 20.5% | 6.8% |
| Morton | 8.7% | 28.9% | 44.8% | 9.2% | 8.4% |
| Pembina | 4.5% | 40.1% | 26.2% | 12.8% | 16.4% |
| Stark | 16.9% | 14.1% | 25.4% | 40.5% | 3.1% |
| Walsh | 9.9% | 21.0% | 40.9% | 24.4% | 3.8% |
| Ward | 3.0% | 31.0% | 39.9% | 23.7% | 2.3% |
| Williams | 12.9% | 24.7% | 43.9% | 13.9% | 4.6% |

*Only counties with 30 or more responses are included

APPENDIX H. CELL PHONE USE WHILE DRIVING

Table H.1 Cell Phone Use Responses

| Type of Use | Percent |
|---|---------|
| Phone Calls | 28.2% |
| Maps and Phone Calls | 19.4% |
| Maps | 11.5% |
| Maps, Phone Calls, and Texting | 4.4% |
| Phone Calls and Texting | 3.2% |
| Maps, Other, and Phone Calls | 2.0% |
| Maps, Phone Calls, Social Media, and Texting | 1.4% |
| Maps and Texting | 0.9% |
| Maps, Other, Phone Calls, and Texting | 0.9% |
| Other and Phone Calls | 0.9% |
| Emails, Maps, Phone Calls, Social Media, and Texting | 0.9% |
| Maps and Other | 0.8% |
| Emails, Maps, Phone Calls, and Texting | 0.7% |
| Texting | 0.6% |
| Other | 0.6% |
| Emails, Maps, Other, Phone Calls, Social Media, and Texting | 0.5% |
| Phone and Social Media | 0.4% |
| Maps, Social Media, and Texting | 0.3% |
| Phone Calls, Social Media, and Texting | 0.3% |
| Other and Texting | 0.2% |
| Emails, Phone Calls, and Texting | 0.2% |
| Maps, Other, and Texting | 0.2% |
| Maps, Other, Phone Calls, Social Media, and Texting | 0.2% |
| Emails, Phone Calls, Social Media, and Texting | 0.2% |
| Do Not Use, Maps | 0.1% |
| Email, Maps, and Phone Calls | 0.1% |
| Other, Phone Calls, Social Media, and Texting | 0.1% |
| Other, Phone Calls, and Texting | 0.1% |
| Emails, Maps, Other, Phone Calls, and Texting | 0.1% |
| Emails and Phone | <0.1% |
| Emails, Maps, Social Media, and Texting | <0.1% |
| Maps and Social Media | <0.1% |
| Maps, Other, Social Media, and Texting | <0.1% |
| Social Media and Texting | <0.1% |
| Do Not Use | 20.5% |