North Dakota Statewide Traffic Safety Survey, 2024:

Traffic Safety Performance Measures for State and Federal Agencies

Prepared for:

North Dakota Department of Transportation Highway Safety Division

Prepared by:

Kimberly Vachal, Program Director
Andrew Kubas, Consulting Scientist
Jaclyn Andersen, Research Support Specialist

Upper Great Plains Transportation Institute
North Dakota State University, Fargo

Acknowledgements

Disclaimer

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

The United States trails other developed countries in several transportation safety metrics. One metric, road traffic death rate, is higher than in other developed countries (World Health Organization 2024) (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 recent 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).
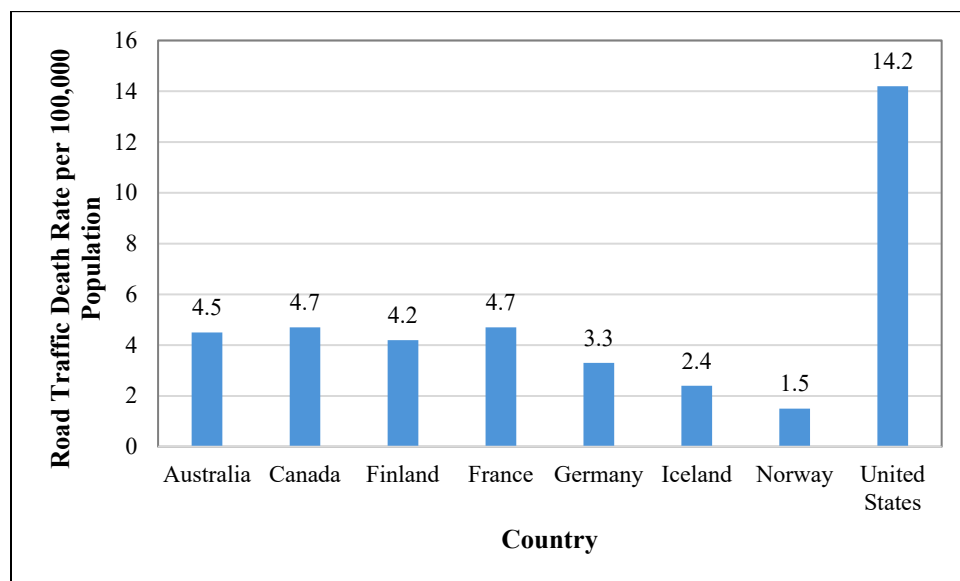
Figure 1.1 Road Traffic Death Rate of Selected Countries, 2024

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 follows:

- 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. States should report these fatalities for 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 measures 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 related 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?
- Seat belts
    - SB-1: How often do you use seat 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 seat 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?

Seven variations of these questions have been incorporated into the 2024 North Dakota Driver Survey developed in conjunction with the North Dakota Department of Transportation's Highway Safety Division (see Appendix A for the complete survey). The Highway 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. 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) What are the chances of someone getting arrested if they drive under the influence of alcohol or drugs?

- Seat belts
  - SB-1) How often do you use a seat belt when you drive or ride in a motor vehicle?
  - SB-2) What do you think the chance is of getting a ticket if you do not wear your seat belt?
- Speeding
  - SP-1) On a road with a speed limit of 75 mph, how often do you drive faster than 80 mph?
  - SP-2) What do you think the chance is of getting a ticket if you drive over the speed limit?

The 2024 North Dakota *Vision Zero Plan* provides insight into current priorities and activities (NDDOT 2024). The current plan outlines goals related to NDDOT's overall traffic safety mission, in addition to specific issues to address in the next five years. The following traffic safety issues are prioritized as emphasis areas:
- Impaired driving
- Occupant protection
- Young driver
- Older driver
- Distracted driving
- Intersections
- Lane departures
- Local system roadways
- Speed management
- Commercial/heavy vehicle involved
- Emergency response and medical services and TRCC

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 2023 observed seat belt use at 78.5% (Vachal and Andersen 2023). 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 Highway 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, 2024, with responses to be returned by April 1, 2024.

NDDOT adult driver records formed the population used for sampling. The original NDDOT mail list consisted of 11,520 addresses. Unlike prior iterations of this survey, no drivers lived outside of North Dakota. Thus, none were removed from mailing. In addition, none of the preliminary list of North Dakota addresses were deemed invalid prior to mailing and no surveys were returned to NDDOT as undeliverable. This is likely due to the decision to use "or current resident" on each address label. The sample had regional, geographic, age, and gender distributions that were a reasonable representation of the general North Dakota driver population. Ultimately, 1,163 surveys were completed and returned to the research team. However, not every survey was from a self-reported North Dakota county. A total of 17 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 other responses were from individuals living in counties outside of North Dakota. Thus, of the usable survey responses provided, 1,146 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 the state agency cover letter and 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: 18–34-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 aged 35 to 44 were 10.4% of the survey sample and account for 11.4% of the survey responses. However, this age cohort actually accounts for 18.4% of the licensed driver population in the state (FHWA 2024). 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 knowledge, attitudes, behaviors, and beliefs 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. Two urban counties are located in the east and another two are located in the west based on the population density geographic definitions used in the study (U.S. Census Bureau 2020). 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[1]	Driver Age	Sampling Probability[2]
East	Urban	18-34	0.023
East	Urban	35+	0.008
East	Rural	18-34	0.065
East	Rural	35+	0.011
West	Urban	18-34	0.064
West	Urban	35+	0.014
West	Rural	18-34	0.033
West	Rural	35+	0.008

[1]Source: U.S. Census Bureau 2020
[2]Source: U.S. Census Bureau 2021

3.   RESPONSE

The survey response rate was 9.9% with 1,146 valid responses obtained from a mailing to 11,520 drivers. This was lower than the 12.2% rate during the 2023 mailing (Vachal, Kubas, and Andersen 2023) and was the lowest rate in the 15-year history of administering the survey. Response rates have generally declined by a few percentage points each year; this trend mirrors findings from other studies which identified declining response rates to mail surveys over time (Stedman et al. 2019). As expected, oversampling of the 18–34-year-old male and female driver target groups was needed to achieve a sample sufficient for statistical analysis. The target group response rate was 4.1% compared with 21.4% 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	341 (29.8%)	279 (24.3%)	**620** **(54.1%)**
	West	341 (29.8%)	185 (16.1%)	**526** **(45.9%)**
	Total	**682** **(59.5%)**	**464** **(40.5%)**	**1,146**

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, although the 18–24-year-old age group is underrepresented and the 65–74-year-old age group is overrepresented compared with the actual proportion of the driver population in the state (Table 3.2). The highest share of responses is among drivers aged 25 to 34. This age cohort makes up 21.6% of the survey responses and follows the trend of prior iterations of this survey in which the 25–34-year-old group has historically had the largest share of responses. The 18–24-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 regarding the entire North Dakota driver population.

Response rates were skewed by sex: 57.9% of respondents were female. This deviates from the North Dakota driver population in which there is an approximately equal distribution of males and females. The number of respondents for both males and females provides sufficient data to expand the responses to represent the entire statewide driver population for these two groups. 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[1]	Survey		Driver Population	
	Responses	Share	Drivers[2]	Share[3]
18–24	72	6.3%	63,126	11.5%
25–34	246	21.6%	120,103	22.0%
35–44	130	11.4%	100,679	18.4%
45–54	147	12.9%	71,783	13.1%
55–64	180	15.8%	78,833	14.4%
65–74	214	18.8%	68,143	12.5%
75 and Older	152	13.3%	44,440	8.1%

[1]Frequency missing: 5
[2]Source:
[3]Represents share of drivers above age 18; percentages do not account for novice (under 18) drivers

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 2010–2024 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 65.2% of drivers think the chances are higher than average that impaired drivers will be arrested (Figure 4.1). This is higher than the 46.1% and 38.5% of respondents who believe there is a greater-than-average likelihood that drivers will be ticketed either for speeding or seat belt violations, respectively.
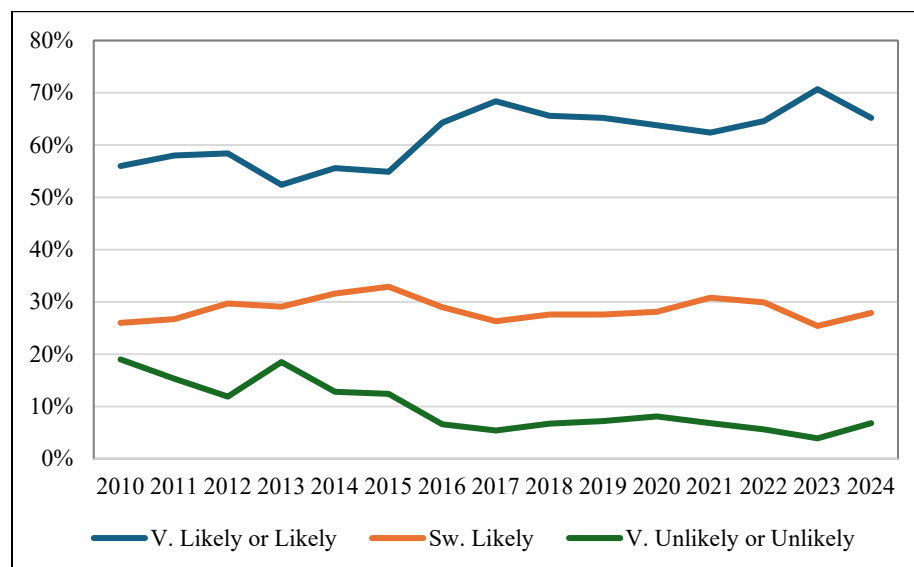
Figure 4.1 Perceived DUI Arrest Likelihood

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=30.973, df=1, p<0.001) and were also less likely to believe that they would be ticketed for speeding (F=27.054, df=1, p<0.001). With regard to speeding, 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 speeding (F=6.686, df=1, p=0.010). This suggests that a driver engaging in one dangerous activity (driving after consuming alcohol) may also take part in

another – driving unbelted and/or speeding – and therefore may exponentially increase danger on the roadway.

Responses from this questionnaire show 40.0% 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 improving trend compared with the 2023 iteration of the survey in which 42.9% of respondents reported this behavior. Only 6.1% of respondents 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 improving behavior compared with 2023; last year, 6.5% admitted to driving after consuming that many alcoholic beverages. Patterns from 2013–2024 are generally consistent, but the 2023–2024 two-year interval marks an uptick in self-reported instances of driving after consuming alcoholic beverages. It would be prudent to continue monitoring these self-reported behaviors in the future and further investigate what caused an increase beginning in 2023.
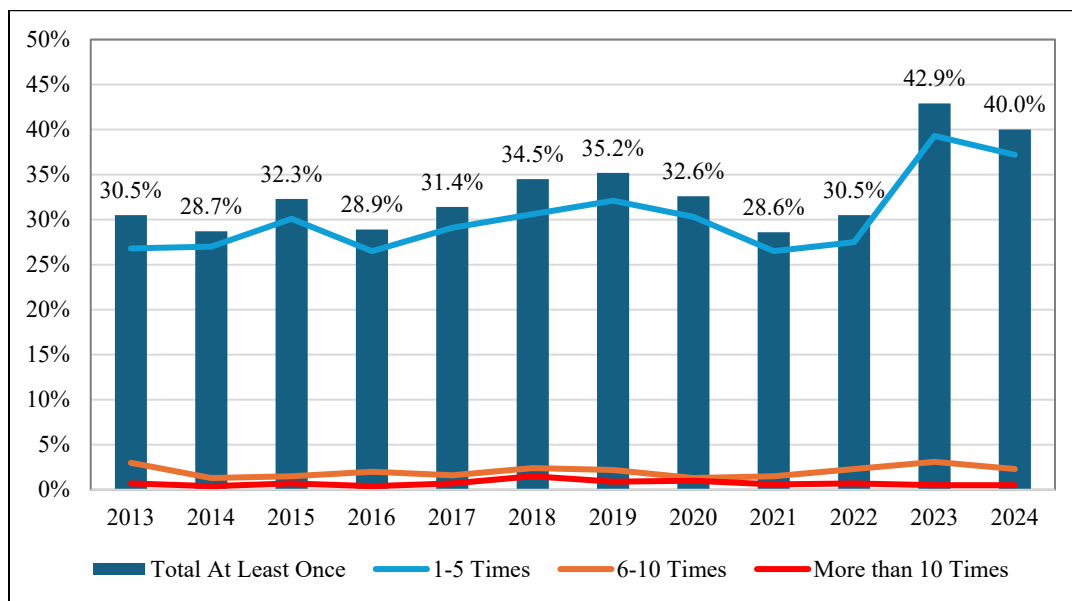
Figure 4.2 Self-Reported Driving-After-Drinking Activity within Two Hours of Consuming 1–2 Drinks

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
	2024#	60.0%	37.2%	2.3%	0.5%*
	2023#	57.1%	39.3%	3.1%	0.5%*
	2022#	69.5%	27.5%	2.3%	0.7%*
	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%*
2020–2024 Five-Year Avg.		**65.1%**	**32.2%**	**2.1%**	**0.7%**
2019–2023 Five-Year Avg.		**66.0%**	**31.1%**	**2.1%**	**0.7%**
2018–2022 Five-Year Avg.		**67.7%**	**29.4%**	**1.9%**	**1.0%**
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%**

Table 4.1 Core Question Responses (Continued)

Core	Survey Question		Responses		
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
	2024[#]	93.9%	5.1%	0.6%*	0.4%*
	2023[#]	93.5%	5.8%	0.2%*	0.5%*
	2022[#]	95.1%	4.1%	0.7%*	0.1%*
	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%*
2020–2024 Five-Year Avg.		**94.3%**	**5.0%**	**0.4%**	**0.2%**
2019–2023 Five-Year Avg.		**94.1%**	**5.3%**	**0.4%**	**0.2%**
2018–2022 Five-Year Avg.		**93.9%**	**5.4%**	**0.5%**	**0.1%**
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%**

Table 4.1 Core Question Responses (Continued)

Core	Survey Question		Responses			
ID-2	What are the chances of someone getting arrested if they drive under the influence of alcohol or drugs?					
		Very Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	2024	34.1%	31.1%	27.9%	6.2%	0.6%*
	2023	37.9%	32.8%	25.4%	2.2%	1.7%
	2022	34.8%	29.8%	29.9%	4.8%	0.8%*
	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%
2020–2024 Five-Year Avg.		**33.3%**	**32.0%**	**28.4%**	**5.2%**	**1.1%**
2019–2023 Five-Year Avg.		**32.9%**	**32.4%**	**28.4%**	**5.1%**	**1.3%**
2018–2022 Five-Year Avg.		**31.7%**	**32.6%**	**28.8%**	**5.7%**	**1.2%**
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%**
2011–2016 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
	2024	85.8%	9.8%	3.1%	0.9%*	0.5%*
	2023	82.6%	12.2%	4.1%	0.7%*	0.5%*
	2022	81.8%	13.1%	3.5%	1.1%*	0.5%*
	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%
2020–2024 Five-Year Avg.		**81.0%**	**13.7%**	**3.8%**	**1.1%**	**0.4%**
2019–2023 Five-Year Avg.		**79.2%**	**15.2%**	**4.1%**	**1.1%**	**0.5%**
2018–2022 Five-Year Avg.		**78.2%**	**16.2%**	**4.0%**	**1.1%**	**0.4%**
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%**
2011–2016 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%**

Table 4.1 Core Question Responses (Continued)

Core	Survey Question		Responses			
SB-2	What do you think the chance is of getting a ticket if you do not wear your seat belt?					
		Very Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	2024	15.1%	23.4%	35.3%	22.0%	4.2%
	2023	10.3%	23.1%	35.7%	23.4%	7.4%
	2022	10.3%	21.7%	36.5%	23.8%	7.6%
	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%
2020–2024 Five-Year Avg.		**11.1%**	**22.1%**	**37.2%**	**23.1%**	**6.4%**
2019–2023 Five-Year Avg.		**10.5%**	**22.0%**	**37.7%**	**23.3%**	**6.5%**
2018–2022 Five-Year Avg.		**11.2%**	**21.8%**	**37.9%**	**23.1%**	**6.0%**
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%**
2011–2016 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 chance is of getting a ticket if you drive over the speed limit?					
		Very Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	2024	14.0%	32.1%	43.8%	8.8%	1.3%*
	2023	12.8%	37.0%	40.1%	8.3%	1.8%
	2022	14.3%	37.5%	39.3%	7.4%	1.5%
	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%
	2020–2024 Five-Year Avg.	**14.0%**	**38.4%**	**39.4%**	**6.7%**	**1.5%**
	2019–2023 Five-Year Avg.	**15.0%**	**40.6%**	**37.2%**	**5.8%**	**1.4%**
	2018–2022 Five-Year Avg.	**16.0%**	**41.3%**	**36.3%**	**5.1%**	**1.3%**
	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%**
	2011–2016 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%**
*Estimate uncertain due to limited sample size						
#Due to wording changes in ID-1a and ID-1b, trends from 2010-2012 could not be studied						

The share of drivers reporting that they always use their seat belts when driving or riding in a vehicle is slightly higher than the information presented by the core behavior metric of 78.5%. Driver self-reported use collected here shows 85.8% with another 9.8% reporting usage as nearly always (Figure 4.3). The 85.8% of drivers always wearing seat belts represents an increase from 82.6% in 2023 and is the highest usage rate ever reported in the 15-year history of this survey. Only 1.4% of drivers report that they rarely or never use a seat belt, which is a slight increase from the 1.2% who reported such use last year. Overall, these metrics indicate that drivers in North Dakota are generally safe with regard to seat belt use.
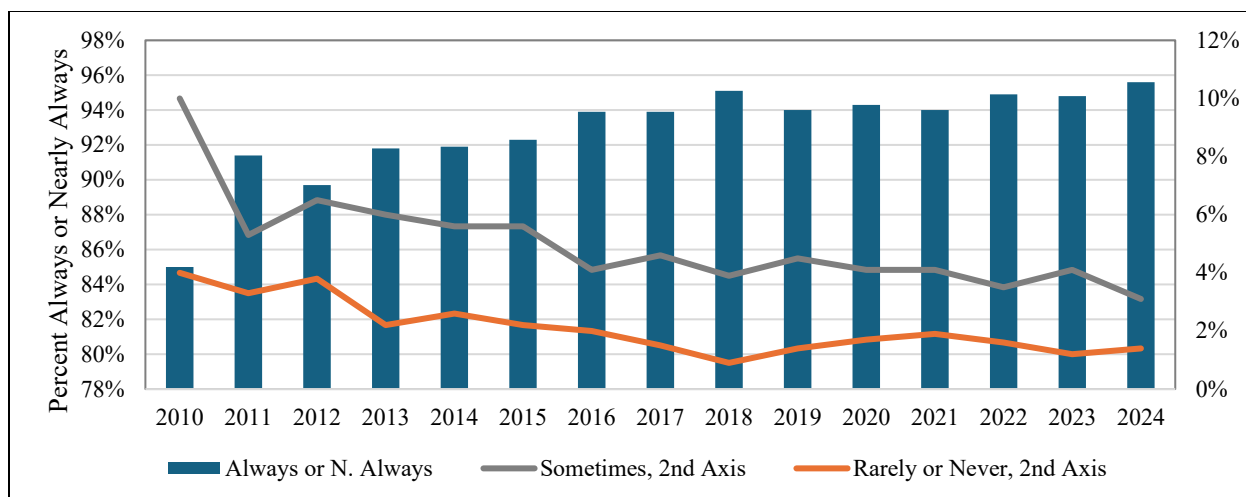
Figure 4.3 Self-Reported Seat Belt Use

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 "drive after drinking 1–2 drinks" and "drive after drinking 3+ drinks" variables do have an expected positive relationship at Pearson Corr.=0.465, but the correlation measure shows that less than 22% of their variability is shared. The Pearson correlation values suggest there is only one strong relationship between survey items (Table 4.2).

Table 4.2 Correlations in Core Question Responses

	ID1a	ID1b	ID2	SB1	SB2	SP1	SP2
1D1a: Drive After Drinking 1–2 Drinks	1	.465**	-.101**	-.100**	-.197**	.218**	-.178**
		.000	.003	.003	.000	.000	.000
ID1b: Drive After Drinking 3+ Drinks		1	-.047	-.142**	-.066	.135**	-.094**
			.189	.000	.066	.000	.009
ID2: Arrest for Drunk Driving			1	.009	.420**	.055	.424**
				.763	.000	.066	.000
SB1: How Often Use Seat Belts				1	.031	-.064*	-.004
					.304	.031	.889
SB2: Ticket for No Seat Belt					1	-.084**	**.508****
						.005	**.000**
SP1: Speed in 75 MPH Zone						1	-.109**
							.000
SP2: 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							

The substantive relationship occurred for the questions concerning one's perceived chance of getting a ticket for not wearing a seat belt and one's perceived chance of getting a ticket for speeding (Pearson Corr.=0.508, p<0.001, n=1,137). These two variables share roughly 26% of their variability. This relationship demonstrates that as one believes a ticket is likely for not wearing a seat belt, one is also more likely to think a ticket is likely for speeding. 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.

Driver responses to other questions are presented in Table 4.3. These responses offer additional insights for practitioners and policymakers with queries related to traffic safety enforcement, 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, sober/designated drivers, legislative changes, and exposure to enforcement messages.

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
Higher fines for speeding?	18.8%	21.7%	32.3%	15.0%	12.2%
Banning handheld phone use while driving?	34.3%	25.5%	17.6%	14.5%	8.1%
Driver Distraction					
	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
Chances of distracted driving ticket	9.3%	23.8%	31.2%	27.6%	8.1%
How likely to use phone when driving?[1]	9.7%	21.9%	39.0%	11.6%	17.8%
Phone use purpose[1,2]	Calls	Emails	Maps	Social Media	Texts
	87.6%	5.1%	59.6%	4.2%	29.6%
My use is Bluetooth/hands-free[1]	Yes	No			
	77.3%	22.7%			
	Daily	Few/Week	Few/Month	<1/Month	Never
How often do others use cell when driving?	72.4%	21.6%	5.6%	0.2%	0.2%
Designated Driver					
	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
Likelihood designating alternate driver[4]	61.1%	22.6%	8.1%	4.3%	3.8%
	Friend	Taxi	Sober Driver	Ride Share	
Alternate service used[2,4]	40.7%	4.7%	64.5%	32.5%	
Legislative Change[5]					
		More Often	No Change	Less Often	
How often do you use a seat belt since primary seat belt law was enacted?		12.2%	87.4%	0.4%	
Exposure to Messaging					
Within last six months, have you read, seen, or heard traffic safety messages related to…[6]		Yes	No		
Seat belt enforcement?		73.5%	26.5%		
Speed enforcement?		59.9%	40.1%		
Impaired driving enforcement?		79.3%	20.7%		
Distracted driving enforcement?		67.5%	32.5%		
Vision Zero?		49.5%	50.5%		

[1]Frequency does not include those who answered "I Do Not Use"
[2]Frequency based on each individual box checked; it is possible for respondents to check more than one box
[3]Frequency does not include those who answered "Do Not Know"
[4]Frequency calculated based on those who do drink alcohol
[5]Frequency excludes those who answered "Not Sure"
[6]Frequency calculated based on any read, seen, or heard exposure

4.1.1 Driver Preferences

For the sixth consecutive year, North Dakota drivers were asked to rate their support for banning handheld cell phone use while driving. The majority (59.8%) 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 4.6-percentage-point increase from the 2023 iteration of the survey and is the highest level of support in the six years the question has been asked (Figure 4.4). The percentage of respondents who answered "strongly oppose" to this question (8.1%) declined for the third consecutive year and is the lowest in the six years the question has been asked.
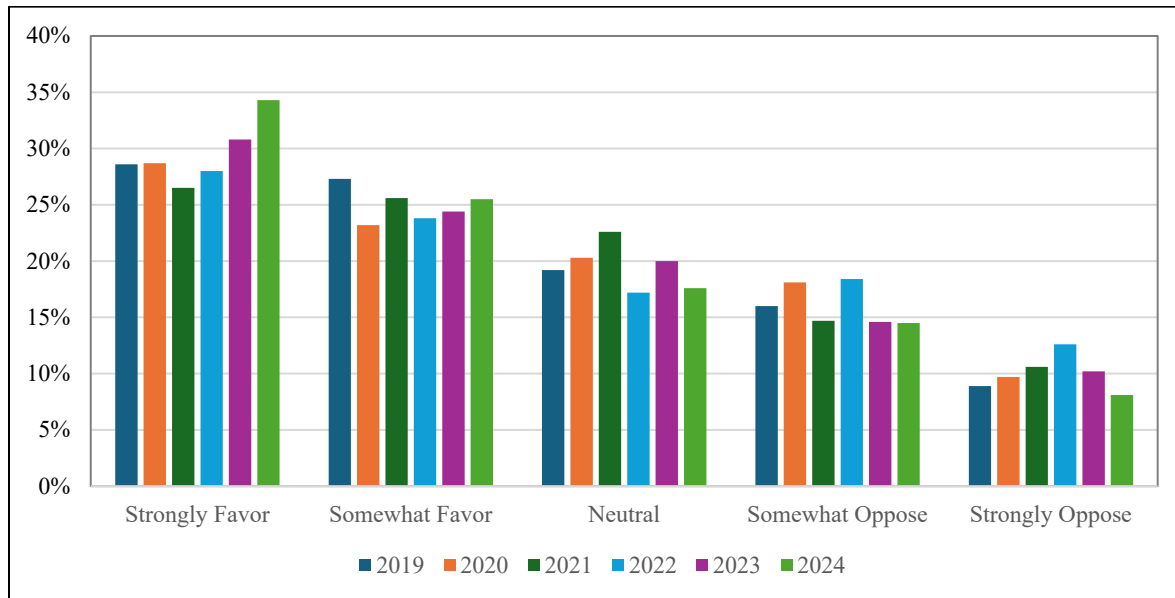
Figure 4.4 Driver Preferences for Banning Handheld Cell Phone Use while Driving

For the first time since 2022, drivers were asked to rate their level of support for higher fines for speeding violations (Figure 4.5). The level of those who either strongly favor or somewhat favor these harsher penalties, 40.5%, is the highest recorded in the 11 years the question has been asked.
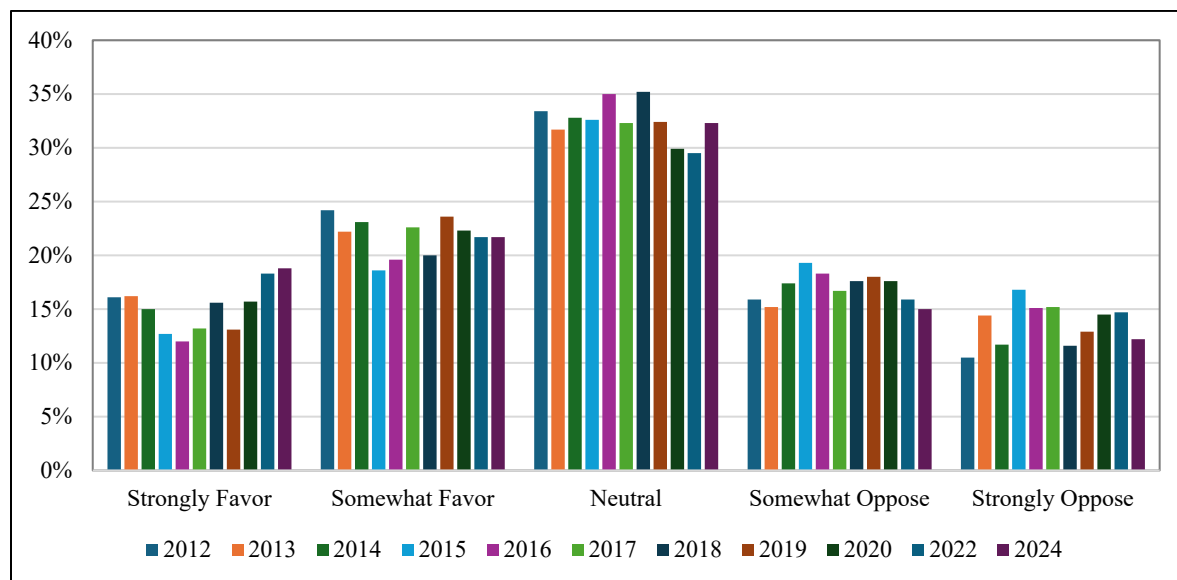
Figure 4.5 Driver Preferences for Higher Fines for Speeding

4.1.2 Driver Distraction

Five 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. Just 10.7% of drivers self-reported that they do not use a phone while driving. Of those who do use their phone, there was an even distribution of responses when asked to rate the likelihood of using it while driving: roughly one-third of respondents (31.6%) self-reported that they were "likely" or "very likely" to use a phone, roughly one-third (39.0%) indicated usage as "somewhat likely," and roughly one-third (29.4%) answered that the chances were "very unlikely" or "unlikely" that they would engage in this dangerous behavior.

Among those who do use cell phones while driving, when asked specifically for which purposes the respondents use cell phones, phone calls were cited as the most common use with 87.6% self-reporting this behavior. A lower proportion, 29.6%, indicated that they use phones to text while driving. This is a notable decline from the 40.6% of drivers who self-reported this behavior in 2023.

For the third year in a row, drivers were asked whether their cell phone use while driving occurs via hands-free/Bluetooth technology. Of those using a phone while driving, roughly seven in nine (77.3%) do so by leveraging hands-free technology. This represents a 7.3-percentage-point increase from 2023.

The expectations North Dakota drivers have for receiving a ticket for distracted driving closely resemble a bell curve (Figure 4.6). Drivers tend to believe that a ticket for this dangerous behavior is just as unlikely as it is likely.
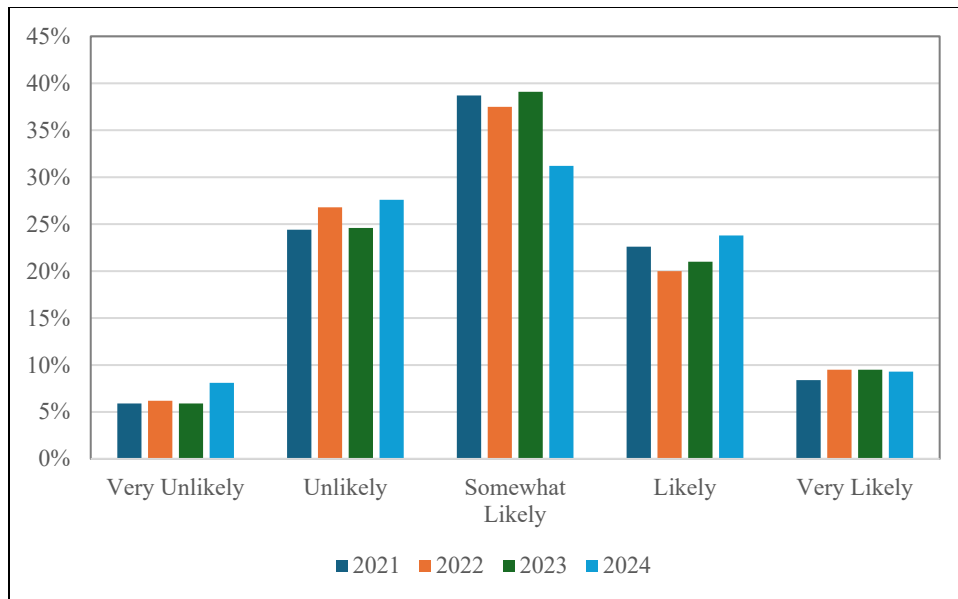
Figure 4.6 Perceived Likelihood of Receiving a Ticket for Distracted Driving

For the first time in two years, drivers were asked how often they think other drivers use cell phones while operating a motor vehicle. About three-quarters (72.4%) believe other drivers use phones daily while driving. This is comparable to prior iterations of this survey in which the question was asked. There is a sense of otherness on the road: the self-reported rate at which drivers do not use phones while driving (10.7%) is over 50 times higher than the rate at which they perceived other drivers (0.2%) to never talk on the phone while driving.

4.1.3 Sober/Designated Drivers

Among those respondents who do drink alcohol, 61.1% reported that they are very likely to designate an alternate driver when drinking or planning to drink. This was a 1.7-percentage-point increase from the 59.4% who reported this last year. The share of respondents self-reporting that they were very unlikely to designate an alternate driver was 3.8%. This was a decline from the 4.3% who held this viewpoint in 2023.

For the third year a question was asked to understand which type of alternate driver is used by those who do not drive when drinking alcohol. Among those individuals who designate an alternate driver, they most commonly designate a sober driver in the group (64.5%). A smaller share, 40.7%, call a friend or family member for a ride. Ride sharing services (32.5%) and taxis (4.7%) were least commonly used among respondents. Note that respondents could choose more than one option to this question, and each individual category reported here is inclusive of any combination of options on the survey.

4.1.4 Legislative Changes

A new question asked survey participants to self-report their seat belt use now that a new primary seat belt law has been enacted. About seven-eighths (87.4%) indicated that their seat belt use is the same as it was before legislation was passed. However, 12.2% self-reported that their seat belt use increased after the new law took effect. Increases were largest among the following driver groups: 24.5% of drivers over the age of 75 wore a seat belt more often, 22.1% of male drivers wore a seat belt more often, and 16.9% of drivers from rural counties self-reported wearing seat belts more often.

4.1.5 Exposure to Messaging

Responses to educational messaging reveal that drivers most often read, see, or hear messages pertaining to impaired driving. Nearly four in five drivers (79.3%) reported some capacity of exposure to messages about drunk driving in the last six months. Messages pertaining to seat belt use were recently read, seen, or heard by roughly three in four (73.5%) North Dakota drivers, and educational content regarding distracted driving was self-reported by approximate two in three (67.5%) drivers. These percentages are in line with prior iterations of this survey in which these three topics – impaired driving, seat belt use, and distracted driving – were most read, seen, or heard, respectively.

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 driving 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.

Table 4.4 Quantitative Scale Definitions for Responses

Q#	Question	Scale	Conversion Values
SB1	Seat Belt Use	1-5	1=Never to 5=Always
SB3	Seat Belt Use, Others	1-5	1=Never to 5=Always
SB2	Ticket Likely Seat Belt	1-5	1=Very Unlikely to 5=Very Likely
SP1	Speed in 75 MPH Zone	1-5	1=Never to 5=Always
SP2	Chance of Speeding Ticket	1-5	1=Very Unlikely to 5=Very Likely
SP3	Support Higher Speed Fines	1-5	1=Strongly Oppose to 5=Strongly Favor
ID1	Chance Arrest Impaired Driving	1-5	1=Very Unlikely to 5=Very Likely
ID4	Drive After Prescription/Drugs	0-1	0=None, 1=At Least Once
ID2a	Alternate Driver	0-5	0=Very Unlikely to 5=Very Likely
ID3a	Drive After Drinking 1–2 Drinks	0-1	0=None, 1=At Least Once
ID3b	Drive After Drinking 3+ Drinks	0-1	0=None, 1=At Least Once
DD1	Handheld Cell Phone Ban	1-5	1=Strongly Oppose to 5=Strongly Favor
DD2	Distracted Driving Ticket	1-5	1=Very Unlikely to 5=Very Likely
DD3	Use Phone Driving	1-5	1=Very Unlikely to 5=Very Likely
DD4	Use Phone Driving, Others	1-5	1=Never to 5=Daily
VZ1a	RSH Seat Belt	0-1	0=No Exposure, 1=Exposed by Source(s)
VZ1b	RSH Speed	0-1	0=No Exposure, 1=Exposed by Source(s)
VZ1c	RSH Drunk Driving	0-1	0=No Exposure, 1=Exposed by Source(s)
VZ1d	RSH Distracted Driving	0-1	0=No Exposure, 1=Exposed by Source(s)
VZ1e	RSH *Vision Zero*	0-1	0=No Exposure, 1=Exposed by Source(s)

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.

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 4.79. This number is below the goal of 5.00, which is equivalent to always in the driver survey response. Table 4.6 shows the change in mean values from 2010 to 2024. 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.

Regional and geographic strata were tested for significant differences. In all, four issues were statistically significant by region and seven issues were statistically significant by geographic comparisons.

Results were mixed when factoring for regional designation. Drivers from the eastern half of the state were more likely to believe that they would be ticketed for distracted driving ($F=5.285$, df=1, $p=0.022$). This likely goes hand-in-hand with their higher exposure to safety messages about distracted driving (Chi-Sq.=3.864, df=1, $p=0.049$).

Drivers from the western half of the state self-reported higher rates of using alternate drivers when drinking or planning to drink alcohol ($F=5.268$, df=1, $p=0.022$). This may be associated with this group's higher exposure to *Vision Zero* traffic safety messaging campaigns; messages about impaired driving prevention and intervention are part of the safety effort (Chi-Sq.=19.386, df=1, $p<0.001$). No other survey items had statistically significant differences when factoring for one's regional location in the state.

With regard to geographic classifications, one ongoing trend is the substantial discrepancy in seat belt use between urban and rural drivers. North Dakota drivers living in the four urban counties are more likely to use a seat belt ($F=25.343$, 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 under the goal of a mean value of 5.00, rural residents are farther away from this target number. In addition to self-reported seat belt use, residents from urban counties are more likely to believe that other drivers wear seat belts more often ($F=14.406$, df=1, $p<0.001$). It is evident that there is a greater perception of "seat belt culture" for both oneself and others in the four urban counties than in the remainder of the state.

Rural drivers also continue to have noticeable differences when compared with urban drivers for speeding and distracted driving. Rural respondents self-reported speeding on a 75-mph roadway more often than urban drivers did ($F=5.279$, df=1, $p=0.022$). This occurred despite these drivers thinking there was a higher chance of being ticketed for speeding ($F=3.957$, df=1, $p=0.047$). A similar pattern occurred for distracted driving. Rural respondents were less supportive of a ban on handheld devices while driving ($F=4.774$, df=1, $p=0.029$) even though they were more likely to think one would be cited for distracted driving ($F=4.975$, df=1, $p=0.026$). For these rural drivers, enforcement efforts and educational messaging do not appear to have strong deterrent effects for negative behavior related to speeding and distracted driving.

One metric by which urban residents performed worse than rural drivers pertained to driving within two hours of drinking one or two alcoholic beverages. Urban residents were more likely to operate a vehicle within this time frame (Chi-Sq.=7.422, df=1, $p=0.006$). The two groups were on par with one another, however, when operating a vehicle within two hours of consuming three or more alcoholic beverages (Chi-Sq.=0.071, df=1, $p=0.789$).

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	4.79	4.82	4.75		4.83	4.65	##
Seat Belt Use, Others	1-5	3.81	3.85	3.74		3.85	3.64	##
Ticket Likely Seat Belt	1-5	3.23	3.32	3.09		3.23	3.23	
Speed in 75 MPH Zone	1-5	2.21	2.13	2.32		2.18	2.33	#
Chance of Speeding Ticket	1-5	3.49	3.49	3.48		3.46	3.59	#
Support Higher Speeding Fines	1-5	3.20	3.30	3.05		3.29	2.86	
Chance Arrest Impaired Driving	1-5	3.92	3.90	3.95		3.90	3.98	
Drive After Prescription/Drugs	0-1	0.24	0.26	0.19		0.23	0.25	
Alternate Driver	1-5	4.33	4.23	4.48	#	4.31	4.41	
Drive After Drinking 1–2 Drinks	0-1	0.40	0.40	0.41		0.41	0.36	**
Drive After Drinking 3+ Drinks	0-1	0.06	0.06	0.07		0.06	0.07	
Handheld Cell Phone Ban	1-5	3.63	3.68	3.56		3.70	3.38	#
Distracted Driving Ticket	1-5	2.99	3.06	2.88	#	2.93	3.17	#
Use Phone Driving	1-5	2.94	2.90	2.99		2.94	2.96	
Use Phone Driving, Others	1-5	4.66	4.67	4.64		4.67	4.60	
RSH Seat Belt	0-1	0.73	0.76	0.70		0.72	0.80	
RSH Speed	0-1	0.60	0.62	0.56		0.59	0.64	
RSH Drunk Driving	0-1	0.79	0.80	0.79		0.79	0.81	
RSH Distracted Driving	0-1	0.68	0.69	0.66	*	0.67	0.69	
RSH *Vision Zero*	0-1	0.49	0.41	0.62	**	0.48	0.54	

$_1$Note: 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

The five-year trends presented in Table 4.6 provide insight regarding patterns emerging from North Dakota drivers. With 15 years of data available, some conclusions can be made. For instance, the five-year seat belt use average (4.74) is at an all-time high. Similarly, the five-year averages for perceptions of being arrested for drunk driving are at all-time highs for all driver groups. Conversely, a negative trend becomes apparent when analyzing results from the previous 15 years. The five-year average measuring the perceived likelihood of receiving a ticket for speeding is at an all-time low for all driver groups. There is room for education and/or enforcement to change this perception.

Table 4.6 Differences in Driver Views and Behaviors from 2010–2024, by Region and Geography

Question	Year	Scale	Statewide All	Region East	Region West	Sig.	Geography Urban	Geography Rural	Sig.	Core Y/N
Seat Belt Use	2024	1-5	4.79	4.82	4.75		4.83	4.65	**	Y
1=Never to 5=Always	2023		4.76	4.76	4.76		4.83	4.56	**	Y
	2022		4.75	4.74	4.76		4.82	4.51	**	Y
	2021		4.69	4.73	4.64		4.75	4.50	**	Y
	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
2020−2024 Five-Year Average			**4.74**	**4.76**	**4.71**		**4.80**	**4.54**		
2019−2023 Five-Year Average			**4.72**	**4.73**	**4.69**		**4.79**	**4.50**		
2018−2022 Five-Year Average			**4.71**	**4.72**	**4.68**		**4.78**	**4.49**		
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	2024	1-5	3.23	3.32	3.09		3.23	3.23		Y
1=Very Unlikely to 5=Very Likely	2023		3.05	3.08	3.02		3.03	3.11		Y
	2022		3.03	3.04	3.02		3.04	3.02		Y
	2021		3.01	3.10	2.88	*	3.00	3.04		Y
	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
2020−2024 Five-Year Average			**3.08**	**3.13**	**3.01**		**3.08**	**3.10**		
2019−2023 Five-Year Average			**3.07**	**3.10**	**3.01**		**3.06**	**3.09**		
2018−2022 Five-Year Average			**3.09**	**3.12**	**3.05**		**3.08**	**3.11**		
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**		

Table 4.6 (continued)

	Year	Scale	Statewide All	Region East	Region West	Sig.	Geography Urban	Geography Rural	Sig.	Core Y/N
Speed 75 MPH Zone 1=Never to 5=Always	2024	1-5	2.21	2.13	2.32		2.18	2.33	*	Y
	2023		2.29	2.25	2.36		2.26	2.37	**	Y
	2022		2.28	2.19	2.41		2.27	2.31	**	Y
	2020		2.19	2.13	2.27		2.20	2.16	**	Y
	2019		2.11	2.05	2.19		2.12	2.07	**	Y
	2018		2.14	2.04	2.26		2.15	2.09	**	Y
	2017		2.17	2.08	2.28		2.22	2.02	**	Y
2019–2024 Five-Year Average			**2.22**	**2.15**	**2.31**		**2.21**	**2.25**		
2018–2023 Five-Year Average			**2.20**	**2.13**	**2.30**		**2.20**	**2.20**		
2017–2022 Five-Year Average			**2.18**	**2.10**	**2.28**		**2.19**	**2.13**		
Ticket Likely Speed 1=Very Unlikely to 5=Very Likely	2024	1-5	3.49	3.49	3.48		3.46	3.59	*	Y
	2023		3.51	3.47	3.57		3.47	3.60	*	Y
	2022		3.56	3.56	3.56		3.54	3.61		Y
	2021		3.67	3.65	3.71		3.64	3.79	*	Y
	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
2020–2024 Five-Year Average			**3.57**	**3.55**	**3.60**		**3.54**	**3.65**		
2019–2023 Five-Year Average			**3.62**	**3.60**	**3.65**		**3.59**	**3.70**		
2018–2022 Five-Year Average			**3.66**	**3.63**	**3.69**		**3.65**	**3.71**		
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**		

Table 4.6 (continued)

| | Year | Scale | Statewide | Region | | | Geography | | | Core |
			All	East	West	Sig.	Urban	Rural	Sig.	Y/N
Arrest for DUI	2024	1-5	3.92	3.90	3.95		3.90	3.98		Y
1=Very Unlikely to 5=Very Likely	2023		4.03	3.99	4.09		4.00	4.09		Y
	2022		3.93	3.89	3.98		3.90	4.03		Y
	2021		3.82	3.85	3.77		3.81	3.86		Y
	2020		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
2020–2024 Five-Year Average			**3.91**	**3.89**	**3.94**		**3.90**	**3.97**		
2019–2023 Five-Year Average			**3.91**	**3.89**	**3.92**		**3.90**	**3.94**		
2018–2022 Five-Year Average			**3.88**	**3.86**	**3.90**		**3.88**	**3.90**		
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**		

*Statistically significant difference at the 5% level
**Statistically significant difference at the 1% level

4.2.2 Young Male Driver Group

As with the previous surveys, the selected target group of 18–34-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 speeding on a 75-mph roadway ($F=33.618$, df=1, $p<0.001$), driving within two hours of consuming one or two alcoholic beverages (Chi-Sq.=11.718, df=1, $p<0.001$), and using a phone when driving ($F=9.328$, df=1, $p=0.002$).

In addition to having higher levels of risky behavior compared with the rest of the North Dakota driver population, young males also hold different viewpoints regarding the likelihood they will be punished for engaging in dangerous driving habits. This group believes the chance of being ticketed for not wearing a seat belt is lower compared with their counterparts who are over the age of 35 ($F=7.848$, df=1, $p=0.005$). However, this group believes the chance of being arrested for operating a vehicle while impaired ($F=4.191$, df=1, $p=0.041$) is higher than other North Dakota drivers. It is clear that there is a stronger deterrent effect for impaired driving even though messages that reach the target group are read, seen, or heard at rates that are on par with the 35+ population (Chi-Sq.=0.561, df=1, $p=0.454$).

The high-risk driver group is less likely to support policies and/or legislation that encourage safe operating behaviors. Young male drivers are significantly less likely to support higher fines for speeding (F=51.404, df=1, p<0.001) and banning handheld phones while driving (F=25.647, df=1, p<0.001).

Interestingly, these dangerous behaviors and beliefs occur despite the target group seeing safety messages about *Vision Zero* at a higher rate than the balance of the population (Chi-Sq.=5.181, df=1, p=0.023). This suggests that while messages are reaching the target group, they may be ineffective.

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

Question	HRM (n=115)	Other Drivers (n=816)	Sig.[1]
Seat Belt Use	4.64	4.83	
Seat Belt Use, Others	3.70	3.88	
Ticket Seat Belt	2.93	3.29	##
Speed in 75 MPH Zone	2.75	2.02	##
Ticket Likely Speeding	3.30	3.45	
Support Speeding Fines	2.51	3.54	##
Chance Arrest for DUI	3.99	3.81	#
Drive After Prescription/Drugs	0.19	0.24	
Use Alternate Sober Driver	4.24	4.12	
Drive After 1–2 Drinks	0.61	0.39	**
Drive After 3+ Drinks	0.15	0.07	
Ban Handheld Cell Use	3.09	3.79	##
Ticket Distracted Driving	2.78	2.87	
Use Phone While Driving	3.18	2.75	##
Use Phone While Driving, Others	4.53	4.73	#
RSH Seat Belt	0.70	0.75	
RSH Speeding	0.62	0.59	
RSH Drunk Driving	0.81	0.77	
RSH Distracted Driving	0.64	0.66	
RSH *Vision Zero*	0.62	0.42	*

[1]Note: 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

Table 4.8 compares the responses of high-risk young males to all other driver groups. It is clear 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=925	Always	N. Always	Sometimes	Rarely	Never
	Other	88.6%	7.9%	1.9%**	0.6%**	0.9%**
	HRM	75.8%	14.2%**	8.6%**	1.0%**	0.4%**
Seat Belt Use, Others	n=920	Always	N. Always	Sometimes	Rarely	Never
	Other	13.5%	63.5%	21.4%	0.8%**	0.8%**
	HRM	13.2%**	49.2%	33.2%	3.4%**	1.0%**
Ticket Seat Belt	n=925	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	Other	16.9%	23.8%	35.6%	18.8%	4.9%
	HRM	10.6%**	12.9%**	42.3%	27.0%	7.2%**
Speed 75 MPH Zone	n=928	Always	N. Always	Sometimes	Rarely	Never
	Other	2.0%**	8.6%	15.1%	38.5%	35.8%
	HRM	2.2%**	21.4%**	40.9%	20.0%**	15.5%**
Ticket Speeding	n=926	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	Other	13.7%	30.8%	44.1%	9.1%	2.2%**
	HRM	10.0%**	25.9%**	50.6%	11.2%**	2.3%**
Higher Fines Speeding	n=926	St. Favor	Sw. Favor	Neutral	Sw. Oppose	St. Oppose
	Other	27.5%	26.0%	27.9%	10.0%	8.6%
	HRM	8.6%**	11.4%**	25.5%**	31.1%	23.4%**
Chance Arrest Impaired	n=924	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	Other	29.7%	30.4%	32.3%	7.0%	0.7%**
	HRM	40.6%	31.0%	18.9%**	6.4%**	3.1%**
Drive After Rx/Drugs	n=923	None	1+ Times			
	Other	75.5%	24.5%			
	HRM	81.2%	18.8%**			
Alternate Driver$_1$	n=664	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	Other	54.6%	21.7%	10.1%	7.9%	5.7%**
	HRM	54.1%	24.7%**	12.9%**	7.0%**	1.2%**
Drive After 1–2 Drinks	n=696	None	1-5 Times	6-10 Times	11+ Times	
	Other	60.8%	36.5%	2.3%**	0.4%**	
	HRM	38.6%	52.7%	8.0%**	0.7%**	
Drive After 3+ Drinks	n=609	None	1-5 Times	6-10 Times	11+ Times	
	Other	93.1%	5.6%	1.0%**	0.2%**	
	HRM	85.3%	12.7%**	1.3%**	0.8%**	
Ban Handheld Phone	n=923	St. Favor	Sw. Favor	Neutral	Sw. Oppose	St. Oppose
	Other	41.7%	24.2%	14.3%	11.6%	8.3%
	HRM	23.9%**	17.4%**	20.9%**	19.1%**	18.6%**
Distracted Driving Ticket	n=925	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	Other	10.4%	18.9%	29.6%	29.6%	11.6%
	HRM	4.5%**	26.2%**	22.8%**	35.3%	11.1%**
RSH Seat Belt	n=894	Yes	No			
	Other	74.5%	25.5%			
	HRM	70.1%	29.9%			
RSH Speeding	n=860	Yes	No			
	Other	58.6%	41.4%			
	HRM	62.4%	37.6%			
RSH Drunk	n=894	Yes	No			
	Other	76.9%	23.1%			
	HRM	81.1%	18.9%**			
RSH Distracted	n=880	Yes	No			
	Other	65.5%	34.5%			
	HRM	64.3%	35.7%			
RSH *Vision Zero*	n=839	Yes	No			
	Other	42.1%	57.9%			
	HRM	61.5%	38.5%			

Note: Please see Appendix A for exact question and response wording

$_1$Note: 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 18–34-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 lag behind the balance of the driver population (Table 4.9). When this female driver group was compared with all other drivers, there were statistically significant differences for several variables studied in this report.

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

Question	HRF (n=201)	Other Drivers (n=816)	Sig.[1]
Seat Belt Use	4.76	4.83	
Seat Belt Use, Others	3.72	3.88	
Ticket Seat Belt	3.18	3.29	
Speed in 75 MPH Zone	2.40	2.02	##
Ticket Likely Speeding	3.55	3.45	##
Support Speeding Fines	2.81	3.54	##
Chance Arrest for DUI	4.05	3.81	##
Drive After Prescription/Drugs	0.23	0.25	
Use Alternate Sober Driver	4.58	4.12	##
Drive After 1–2 Drinks	0.39	0.39	
Drive After 3+ Drinks	0.05	0.07	
Ban Handheld Cell Use	3.47	3.79	##
Ticket Distracted Driving	3.15	2.87	##
Use Phone While Driving	3.13	2.75	##
Use Phone While Driving, Others	4.57	4.73	
RSH Seat Belt	0.72	0.75	
RSH Speeding	0.61	0.59	
RSH Drunk Driving	0.82	0.77	
RSH Distracted Driving	0.70	0.66	
RSH *Vision Zero*	0.57	0.42	

[1]Note: Nominal/Ordinal scales require different tests of significance
##Significant difference at the 1% level for 1-way ANOVA

The 18–34-year-old female cohort is more likely to engage in dangerous driving behaviors. This target group has a higher likelihood of speeding in a 75-mph zone (F=16.352, df=1, p<0.001) even though the group thought the chances of a ticket for speeding were greater than other drivers (F=7.562, df=1, p=0.006). In addition, high-risk females were more likely to use a phone when driving (F=11.894, df=1, p<0.001) even though the group thought the chances of being ticketed for distracted driving were higher than other drivers (F=13.815, df=1, p<0.001). This may explain why the group had lower levels of support for banning handheld phone use while driving (F=7.728, df=1, p=0.006).

With regard to impaired driving, this target group of 18–34-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=14.328, df=1, p<0.001). Perhaps that is why this group was more likely than other North Dakotans to use an alternate driver (F=18.650, df=1, p<0.001). Table 4.10 provides a complete explanation of how this group compared with 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=1,011	Always	N. Always	Sometimes	Rarely	Never
	Other	88.6%	7.9%	1.9%**	0.6%**	0.9%**
	HRF	82.9%	11.9%**	4.1%**	1.2%**	0.0%**
Seat Belt Use, Others	n=1,007	Always	N. Always	Sometimes	Rarely	Never
	Other	13.5%	63.5%	21.4%	0.8%**	0.8%**
	HRF	7.9%**	59.1%	30.7%	1.3%**	1.0%**
Ticket Seat Belt	n=1,013	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	Other	16.9%	23.8%	35.6%	18.8%	4.9%
	HRF	13.2%**	23.5%	34.4%	25.7%	3.2%**
Speed 75 MPH Zone	n=1,014	Always	N. Always	Sometimes	Rarely	Never
	Other	2.0%**	8.6%	15.1%	38.5%	35.8%
	HRF	2.1%**	12.8%**	27.7%	38.1%	19.3%
Ticket Speeding	n=1,012	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	Other	13.7%	30.8%	44.1%	9.1%	2.2%**
	HRF	14.6%	34.1%	42.9%	8.3%**	0.0%**
Higher Fines Speeding	n=1,012	St. Favor	Sw. Favor	Neutral	Sw. Oppose	St. Oppose
	Other	27.5%	26.0%	27.9%	10.0%	8.6%
	HRF	8.3%**	17.1%	38.5%	20.2%	16.1%
Chance Arrest Impaired	n=1,010	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	Other	29.7%	30.4%	32.3%	7.0%	0.7%**
	HRF	39.4%	32.1%	22.9%	5.3%**	0.4%**
Drive After Rx/Drugs	n=1,009	None	1+ Times			
	Other	75.5%	24.5%			
	HRF	77.1%	22.9%			
Alternate Driver[1]	n=731	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	Other	54.6%	21.7%	10.1%	7.9%	5.7%**
	HRF	69.1%	23.5%	5.6%**	0.0%**	1.9%**
Drive After 1–2 Drinks	n=765	None	1-5 Times	6-10 Times	11+ Times	
	Other	60.8%	36.5%	2.3%**	0.4%**	
	HRF	60.8%	36.8%	1.8%**	0.6%**	
Drive After 3+ Drinks	n=677	None	1-5 Times	6-10 Times	11+ Times	
	Other	93.1%	5.6%	1.0%**	0.2%**	
	HRF	95.4%	4.0%**	0.0%**	0.6%**	
Ban Handheld Phone	n=1,008	St. Favor	Sw. Favor	Neutral	Sw. Oppose	St. Oppose
	Other	41.7%	24.2%	14.3%	11.6%	8.3%
	HRF	25.6%	27.8%	21.6%	18.0%	7.1%**
Distracted Driving Ticket	n=1,012	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	Other	10.4%	18.9%	29.6%	29.6%	11.6%
	HRF	8.2%**	29.9%	33.9%	24.6%	3.4%**
RSH Seat Belt	n=982	Yes	No			
	Other	74.5%	25.5%			
	HRF	72.5%	27.5%			
RSH Speeding	n=944	Yes	No			
	Other	58.6%	41.4%			
	HRF	61.1%	38.9%			
RSH Drunk	n=978	Yes	No			
	Other	76.9%	23.1%			
	HRF	82.0%	18.0%			
RSH Distracted	n=965	Yes	No			
	Other	65.5%	34.5%			
	HRF	70.3%	29.7%			
RSH *Vision Zero*	n=926	Yes	No			
	Other	42.1%	57.9%			
	HRF	57.2%	42.8%			

Note: Please see Appendix A for exact question and response wording

[1]Note: 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

The extreme views held by high-risk drivers differ when high-risk males are compared directly with high-risk females (Table 4.11). These differences are related to perceptions of traffic enforcement and dangerous behind-the-wheel behavior.

Table 4.11 Differences in Driver Views and Behaviors, High-Risk Drivers

Question	HRM (n=115)	HRF (n=201)	Sig.[1]
Seat Belt Use	4.64	4.76	
Seat Belt Use, Others	3.70	3.72	
Ticket Seat Belt	2.93	3.18	#
Speed in 75 MPH Zone	2.75	2.40	#
Ticket Likely Speeding	3.30	3.55	##
Support Speeding Fines	2.51	2.81	#
Chance Arrest for DUI	3.99	4.05	
Drive After Prescription/Drugs	0.19	0.23	
Use Alternate Sober Driver	4.24	4.58	##
Drive After 1–2 Drinks	0.61	0.39	**
Drive After 3+ Drinks	0.15	0.05	**
Ban Handheld Cell Use	3.09	3.47	#
Ticket Distracted Driving	2.78	3.15	##
Use Phone While Driving	3.18	3.13	
Use Phone While Driving, Others	4.53	4.57	
RSH Seat Belt	0.70	0.72	
RSH Speeding	0.62	0.61	
RSH Drunk Driving	0.81	0.82	
RSH Distracted Driving	0.64	0.70	
RSH *Vision Zero*	0.62	0.57	

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

With regard to perceptions of traffic enforcement, high-risk females believe tickets are more likely for not wearing a seat belt (F=6.110, df=1, p=0.014), speeding (F=10.918, df=1, p=0.001), and driving while distracted (F=12.089, df=1, p<0.001). This may explain why these same drivers are less likely to speed in a 75-mph zone (F=4.998, df=1, p=0.026), more likely to support higher fines for speeding (F=4.607, df=1, p=0.033), more likely to use an alternate driver when consuming alcohol (F=9.695, df=1, p=0.002), less often to self-report driving within two hours of consuming one or two alcoholic beverages (Chi-Sq.=12.111, df=1, p<0.001), less often to self-report driving within two hours of consuming three or more alcoholic beverages (Chi-Sq.=7.892, df=1, p=0.005), and more likely to support banning handheld cell phone use while driving (F=6.397, df=1, p=0.012).

On average, high-risk males are more dangerous on the roadway than high-risk females (Table 4.12). A detailed explanation of how high-risk 18–34-year-old drivers compare with all other North Dakota drivers – including longitudinal trends – is presented in Appendix B. In general, when high-risk drivers are studied collectively, this group exhibits more dangerous behaviors than drivers over age 35.

Table 4.12 Responses for High-Risk Drivers

Question		Responses, by Driver Group				
Seat Belt Use	n=316	Always	N. Always	Sometimes	Rarely	Never
	HRM	75.8%	14.2%**	8.6%**	1.0%**	0.4%**
	HRF	82.9%	11.9%**	4.1%**	1.2%**	0.0%**
Seat Belt Use, Others	n=315	Always	N. Always	Sometimes	Rarely	Never
	HRM	13.2%**	49.2%	33.2%	3.4%**	1.0%**
	HRF	7.9%**	59.1%	30.7%	1.3%**	1.0%**
Ticket Seat Belt	n=314	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	HRM	10.6%**	12.9%**	42.3%	27.0%	7.2%**
	HRF	13.2%**	23.5%	34.4%	25.7%	3.2%**
Speed 75 MPH Zone	n=316	Always	N. Always	Sometimes	Rarely	Never
	HRM	2.2%**	21.4%**	40.9%	20.0%**	15.5%**
	HRF	2.1%**	12.8%**	27.7%	38.1%	19.3%
Ticket Speeding	n=316	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	HRM	10.0%**	25.9%**	50.6%	11.2%**	2.3%**
	HRF	14.6%	34.1%	42.9%	8.3%**	0.0%**
Higher Fines Speeding	n=314	St. Favor	Sw. Favor	Neutral	Sw. Oppose	St. Oppose
	HRM	8.6%**	11.4%**	25.5%**	31.1%	23.4%**
	HRF	8.3%**	17.1%	38.5%	20.2%	16.1%
Chance Arrest Impaired	n=316	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	HRM	40.6%	31.0%	18.9%**	6.4%**	3.1%**
	HRF	39.4%	32.1%	22.9%	5.3%**	0.4%**
Drive After Rx/Drugs	n=314	None	1+ Times			
	HRM	81.2%	18.8%**			
	HRF	77.1%	22.9%			
Alternate Driver₁	n=251	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	HRM	54.1%	24.7%**	12.9%**	7.0%**	1.2%**
	HRF	69.1%	23.5%	5.6%**	0.0%**	1.9%**
Drive After 1–2 Drinks	n=255	None	1-5 Times	6-10 Times	11+ Times	
	HRM	38.6%	52.7%	8.0%**	0.7%**	
	HRF	60.8%	36.8%	1.8%**	0.6%**	
Drive After 3+ Drinks	n=244	None	1-5 Times	6-10 Times	11+ Times	
	HRM	85.3%	12.7%**	1.3%**	0.8%**	
	HRF	95.4%	4.0%**	0.0%**	0.6%**	
Ban Handheld Phone	n=313	St. Favor	Sw. Favor	Neutral	Sw. Oppose	St. Oppose
	HRM	23.9%**	17.4%**	20.9%**	19.1%**	18.6%**
	HRF	25.6%	27.8%	21.6%	18.0%	7.1%**
Distracted Driving Ticket	n=315	V. Likely	Likely	Sw. Likely	Unlikely	V. Unlikely
	HRM	4.5%**	26.2%**	22.8%**	35.3%	11.1%**
	HRF	8.2%**	29.9%	33.9%	24.6%	3.4%**
RSH Seat Belt	n=312	Yes	No			
	HRM	70.1%	29.9%			
	HRF	72.5%	27.5%			
RSH Speeding	n=308	Yes	No			
	HRM	62.4%	37.6%			
	HRF	61.1%	38.9%			
RSH Drunk	n=312	Yes	No			
	HRM	81.1%	18.9%**			
	HRF	82.0%	18.0%			
RSH Distracted	n=309	Yes	No			
	HRM	64.3%	35.7%			
	HRF	70.3%	29.7%			
RSH *Vision Zero*	n=309	Yes	No			
	HRM	61.5%	38.5%			
	HRF	57.2%	42.8%			

Note: Please see Appendix A for exact question and response wording

₁Note: Percentages based only on those North Dakota drivers who report that they consume alcohol

**Estimate uncertain due to limited sample size

5. CONCLUSIONS

The annual statewide driver traffic safety survey provides baseline metrics for the Highway 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 15 years of administering this survey. First, there is a continued dichotomy between how urban and rural residents approach seat belt use 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 involving rural North Dakotans. Second, there is a bifurcation in safe driving attitudes, behaviors, and beliefs factoring for whether one is a high-risk 18–34-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 age 35.

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 18–24-year-old and 35–44-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.

6. REFERENCES

Federal Highway Administration. 2024. "Highway Statistics 2022." Washington, DC: Policy and Governmental Affairs, Office of Highway Policy Information, Table DL-22. Retrieved July 5, 2024, (https://www.fhwa.dot.gov/policyinformation/statistics/2022/dl22.cfm).

Government Accounting Office. 2010. "Traffic Safety Data: State Data System Quality Varies and Limited Resources and Coordination Can Inhibit Further Progress." Washington, DC: Government Printing Office, Technical Report to Congressional Committee No. GAO-10-454.

Hedlund, J. 2008. "Traffic Safety Performance Measures for States and Federal Agencies." Washington, DC: U.S. Department of Transportation, National Highway Traffic Safety Administration, Technical Report No. DOT-HS-811-025.

Hedlund, J., T. Casanova, and N. Chaudhary. 2009. "Survey Recommendations for the NHTSA-GHSA Working Group." Trumbull, CT: Preusser Research Group, Inc., on behalf of the Governor's Highway Safety Association. Retrieved August 18, 2011, (http://www.ghsa.org/html/resources/files/pdf/planning/survey_recs.pdf).

Herbel, S., M.D. Meyer, B. Kleiner, and D. Gaines. 2009. "A Primer on Safety Performance Measures for the Transportation Planning Process." Washington, DC: U.S. Department of Transportation, Federal Highway Administration, Technical Report No. FHWA-HEP-09-043.

North Dakota Department of Transportation. 2024. "North Dakota *Vision Zero Plan:* 2024." Bismarck, ND: North Dakota Department of Transportation. Retrieved July 1, 2024, (https://visionzero.nd.gov/uploads/114/NDDOT_SHSP_withVRU_FinalWeb.pdf).

Stedman, R.C., N.A. Connelly, T.A. Heberlein, D.J. Decker, and S.B. Allred. 2019. "The End of the (Research) World As We Know It? Understanding and Coping with Declining Response Rates to Mail Surveys." *Society and Natural Resources* 32(10): 1139-1154. DOI: https://doi.org/10.1080/08941920.2019.1587127.

United States Census Bureau. 2020. American Community Survey Table DP05. ACS Demographic and Housing Estimates 2020: ACS 5-Year Estimates Data Profiles. Retrieved June 24, 2022, (https://data.census.gov/cedsci/table?t=Age%20and%20Sex&g=0400000US38%240500000&tid=ACSDP5Y2020.DP05).

United States Census Bureau. 2021. American Community Survey Table S0101. ACS Age and Sex 2021: ACS 5-Year Estimates Subject Tables. Retrieved June 29, 2023, (https://data.census.gov/table?t=Age+and+Sex&g=040XX00US38$0500000&tid=ACSST5Y2021.S0101).

Vachal, K., A. Kubas, and J. Andersen. 2023. "North Dakota Statewide Traffic Safety Survey, 2023: Traffic Safety Performance Measures for State and Federal Agencies." Fargo, ND: Upper Great Plains Transportation Institute, North Dakota State University, DP-322: 1-51.

Vachal, K., and J. Andersen. 2023. "Seat Belt Use in North Dakota." Fargo, ND: Upper Great Plains Transportation Institute, North Dakota State University: 1-28. Retrieved July 25, 2024, (https://visionzero.nd.gov/uploads/114/2023_ND_NOPUS_Report_Public.pdf).
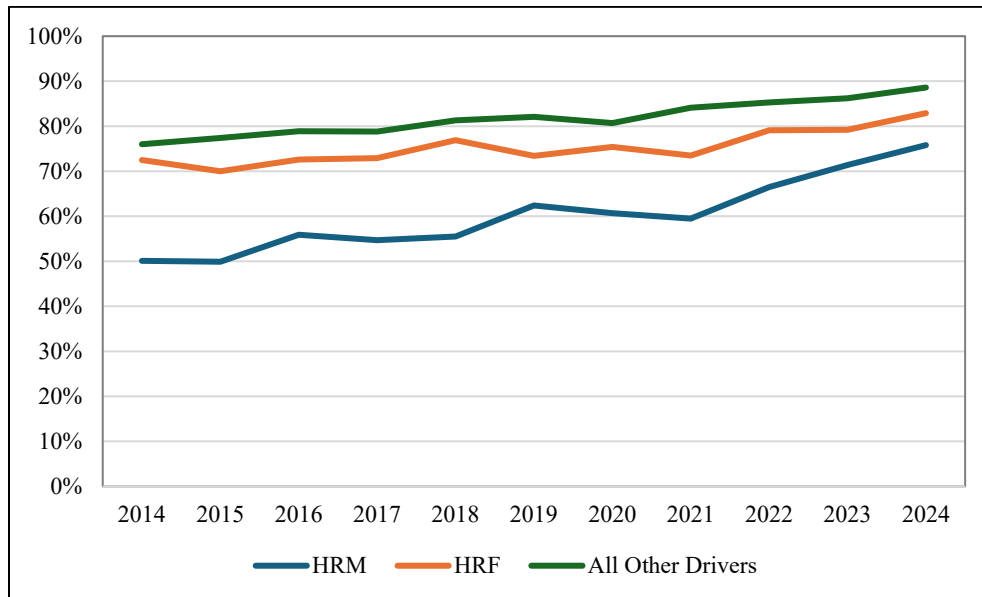
World Health Organization. 2024. "Estimated Road Traffic Death Rate (per 100,000 Population)" [dataset]. Retrieved July 2, 2024, (https://www.who.int/data/gho/data/indicators/indicator-details/GHO/estimated-road-traffic-death-rate-(per-100-000-population)).

APPENDIX A. SURVEY INSTRUMENT

2024 North Dakota Driver Survey

All Responses Are Confidential

SB1- How often do you use a seat belt when you drive or ride in a motor vehicle?
□ Never   □ Rarely   □ Sometimes   □ Nearly Always   □ Always

SB3- How often do you think others use a seat belt when driving or riding in a motor vehicle?
□ Never   □ Rarely   □ Sometimes   □ Nearly Always   □ Always

SB2- 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

SP1- On a road with a speed limit of 75 mph, how often do you drive faster than 80 mph?
□ Never   □ Rarely   □ Sometimes   □ Nearly Always   □ Always

SP2- 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

SP3- Do you favor or oppose higher fees/fines for speeding violations?
□ Strongly Oppose   □ Somewhat Oppose   □ Do Not Favor or Oppose   □ Somewhat Favor   □ Strongly Favor

ID1- What are the chances of someone getting arrested if they drive under the influence of alcohol or drugs?
□ Very Unlikely   □ Unlikely   □ Somewhat Likely   □ Likely   □ Very Likely

ID4- In the past year, have you driven after ingesting any of the following? Select all that apply:
□ Marijuana   □ Prescription Drugs   □ Over-the-Counter (cold medicine, sleeping pills, etc.)   □ Other_____   □ No/None

ID2a- If drinking or planning to drink alcohol, how likely are you to designate an alternate driver?
□ Do Not Drink (*skip to DD1*)   □ Very Unlikely   □ Unlikely   □ Somewhat Likely   □ Likely   □ Very Likely

ID2b- If you designate an alternative, which do you typically use? (select all that apply):
□ Designated sober driver in group   □ Calling friend or family   □ Ride share (Uber/Lyft)   □ Taxi

ID3- 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

DD1- Do you favor or oppose a ban on hand-held phone use while driving?
□ Strongly Oppose   □ Somewhat Oppose   □ Do Not Favor or Oppose   □ Somewhat Favor   □ Strongly Favor

DD2- What do you think the chance is of getting a ticket for distracted driving?
□ Very Unlikely   □ Unlikely   □ Somewhat Likely   □ Likely   □ Very Likely

DD3- How likely are you to use a phone while driving?
□ I do not use   □ Very Unlikely   □ Unlikely   □ Somewhat Likely   □ Likely   □ Very Likely
→ Purpose (select all that apply)   □ Calls   □ View/Send Text   □ Emails   □ Social Media   □ Maps   □ Other Apps
    → Is it hands-free/Bluetooth technology?   □ Yes   □ No

DD4- How often do you think others talk on their cell phone while driving?
□ Never   □ Less than Once per Month   □ Few Times per Month   □ Few Times per Week   □ Daily

SB4- Since becoming state law for all vehicle occupants to use seat belts on August 1, 2023…
□ I use it more often   □ I use it less often   □ No change   □ Not sure

VZ1- Within the last 6 months have you read, seen, or heard traffic safety messages relating to:

Seat Belt Enforcement	□ TV	□ Radio	□ Online Ad	□ Social Media	□ Hwy Message Boards □ None
Speed Enforcement	□ TV	□ Radio	□ Online Ad	□ Social Media	□ Hwy Message Boards □ None
Impaired Driving Enforcement	□ TV	□ Radio	□ Online Ad	□ Social Media	□ Hwy Message Boards □ None
Distracted Driving Enforcement	□ TV	□ Radio	□ Online Ad	□ Social Media	□ Hwy Message Boards □ None
Vision Zero	□ TV	□ Radio	□ Online Ad	□ Social Media	□ Hwy Message Boards □ None

DM1- Type of Vehicle You Most Often Drive: (select only one)
□ Car   □ Pickup   □ SUV   □ Van   □ Motorcycle   □ Semi/Large Truck   □ Other_____

DM2- Your age: □ 18 – 24   □ 25 – 34   □ 35 – 44   □ 45 – 54   □ 55 – 64   □ 65 – 74   □ 75 or Older

DM3- Your gender: □ Male   □ Female

DM4- In which North Dakota county do you live? _____

Please include any traffic safety comments and suggestions for future surveys.
_____
_____
_____

Thank you for your time and participation

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

Figure B.1 Drivers Self-Reporting Seat Belt Use as Always
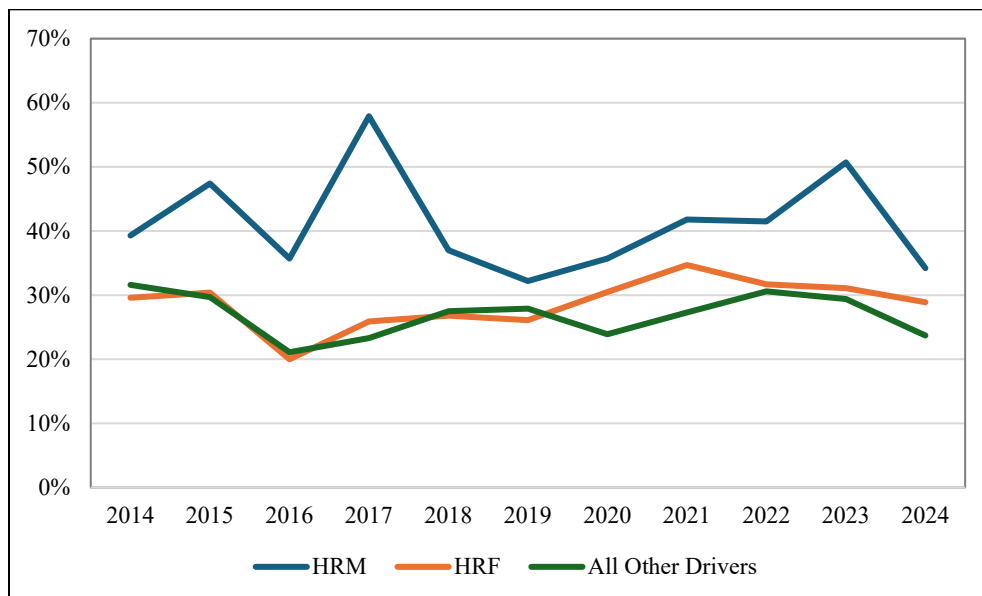
Figure B.2 Drivers Reporting the Perceived Likelihood of Receiving a Ticket for Not Wearing a Seat Belt as Very Unlikely or Unlikely
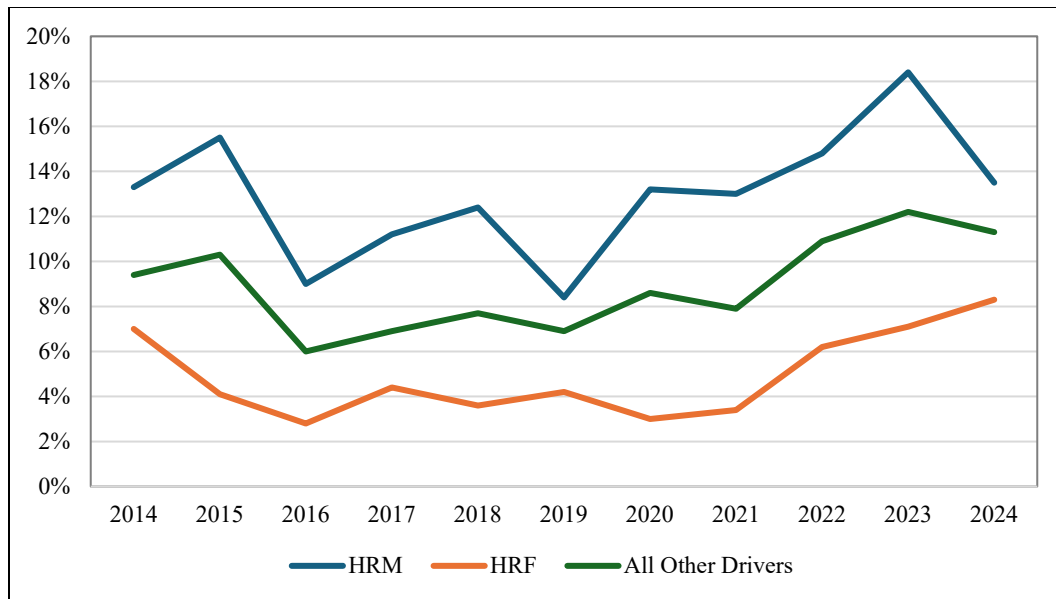
Figure B.3 Drivers Reporting the Perceived Likelihood of Receiving a Ticket for Speeding as Very Unlikely or Unlikely
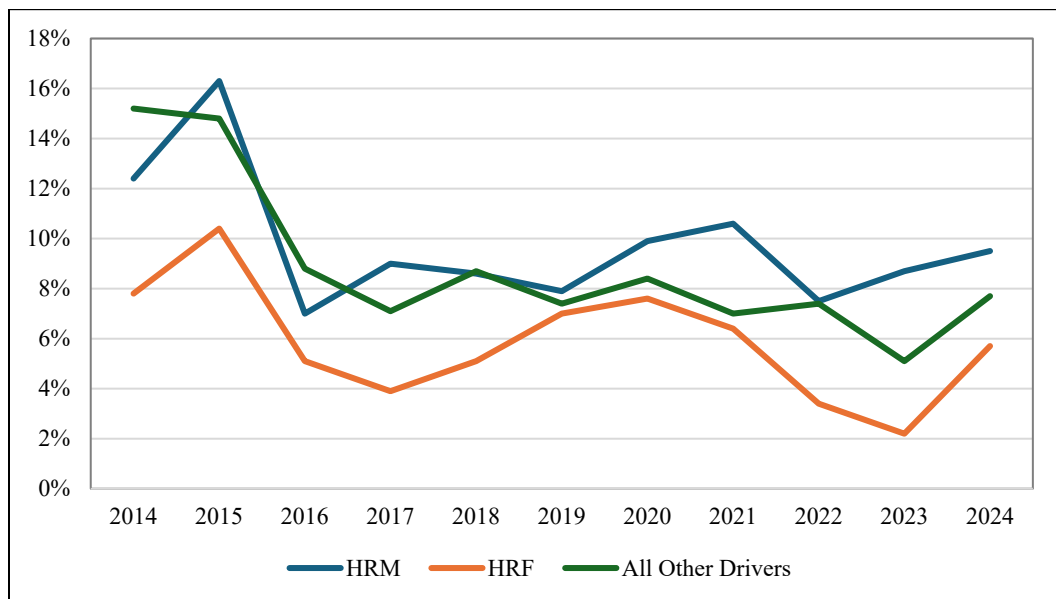
Figure B.4 Drivers Reporting the Perceived Likelihood of Being Arrested for Impaired Driving as Very Unlikely or Unlikely

Table B.1 Longitudinal Response Averages from High-Risk Male Drivers					
Question	Year	Scale	HRM	Other	Sig.
Seat Belt Use	2024	1-5	4.64	4.83	
1=Never to 5=Always	2023		4.60	4.80	**
	2022		4.56	4.79	**
	2021		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	**
2020–2024 Five-Year Average			**4.52**	**4.79**	
2019–2023 Five-Year Average			**4.48**	**4.77**	
2018–2022 Five-Year Average			**4.43**	**4.76**	
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	2024	1-5	2.93	3.29	**
	2023		2.67	3.14	**
	2022		2.88	3.05	*
	2021		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	**
2020–2024 Five-Year Average			**2.82**	**3.16**	
2019–2023 Five-Year Average			**2.80**	**3.13**	
2018–2022 Five-Year Average			**2.85**	**3.13**	
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	2024	1-5	3.30	3.45	
1=Very Unlikely to 5=Very Likely	2023		3.27	3.46	
	2022		3.43	3.50	
	2021		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	**
2020–2024 Five-Year Average			**3.38**	**3.51**	
2019–2023 Five-Year Average			**3.44**	**3.56**	
2018–2022 Five-Year Average			**3.48**	**3.59**	
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	2024	1-5	3.99	3.81	*
1=Very Unlikely to 5=Very Likely	2023		4.00	3.87	
	2022		3.90	3.74	*
	2021		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	
2020–2024 Five-Year Average			**3.91**	**3.79**	
2019–2023 Five-Year Average			**3.87**	**3.78**	
2018–2022 Five-Year Average			**3.85**	**3.75**	
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	2024	1-5	4.76	4.83	
1=Never to 5=Always	2023		4.71	4.80	
	2022		4.71	4.79	
	2021		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	
2020-2024 Five-Year Average			**4.70**	**4.79**	
2019-2023 Five-Year Average			**4.68**	**4.77**	
2018-2022 Five-Year Average			**4.68**	**4.76**	
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	2024	1-5	3.18	3.29	
1=Very Unlikely to 5=Very Likely	2023		2.99	3.14	
	2022		3.02	3.05	
	2021		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	*
2020-2024 Five-Year Average			**3.03**	**3.16**	
2019-2023 Five-Year Average			**3.03**	**3.13**	
2018-2022 Five-Year Average			**3.07**	**3.13**	
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	2024	1-5	3.55	3.45	**
	2023		3.58	3.46	*
	2022		3.63	3.50	**
	2021		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	
2020-2024 Five-Year Average			**3.64**	**3.51**	
2019-2023 Five-Year Average			**3.69**	**3.56**	
2018-2022 Five-Year Average			**3.73**	**3.59**	
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	2024	1-5	4.05	3.81	**
	2023		4.21	3.87	**
	2022		4.15	3.74	**
	2021		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	*
2020-2024 Five-Year Average			**4.05**	**3.79**	
2019-2023 Five-Year Average			**4.04**	**3.78**	
2018-2022 Five-Year Average			**4.00**	**3.75**	
2017-2021 Five-Year Average			**3.99**	**3.75**	
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		
SB1	Seat Belt Use	1,140	6
SB3	Seat Belt Use, Others	1,135	11
SB2	Chance Ticket Seat Belt	1,140	6
	Speeding		
SP1	Speed 75 MPH Zone	1,143	3
SP2	Chance Ticket Speeding	1,141	5
SP3	Fines for Speeding	1,140	6
	Alcohol/Impairment		
ID1	Chance Arrest Drinking	1,139	7
ID4	Drive After Rx/Drug	1,135	11
ID2a	Alternate Driver	1,135	11
ID2b	Alternate Driver Type	1,146	0
ID3a	Drive 1–2 Drinks	868	278
ID3b	Drive 3+ Drinks	773	373
	Distracted Driving		
DD1	Handheld Ban	1,136	10
DD2	Chance Ticket Distracted	1,140	6
DD3	Use Phone While Driving	1,122	24
DD3a	Use Phone Purpose	1,146	0
DD3b	Use Phone Hands-Free	900	246
DD4	Use Phone, Others	1,133	13
	Awareness/Exposure		
VZ1a	RSH Seat Belt	1,108	38
VZ1b	RSH Speeding	1,070	76
VZ1c	RSH Drunk Driving	1,106	40
VZ1d	RSH Distracted Driving	1,091	55
VZ1e	RSH *Vision Zero*	1,050	96

Total n=1,146

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	16.5%	13.0%	14.0%	14.0%	33.9%	34.4%
Likely	24.7%	21.4%	32.3%	31.8%	29.9%	32.9%
Sw. Likely	35.9%	34.4%	44.1%	43.4%	28.9%	26.3%
Unlikely	20.5%	24.3%	8.2%	9.8%	6.5%	5.8%
V. Unlikely	2.5%**	6.9%	1.5%**	1.0%**	0.7%**	0.5%**
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	15.2%	14.8%	13.1%	17.3%	32.6%	39.7%
Sw. Likely	23.7%	22.1%	32.5%	30.4%	32.2%	27.1%
Likely	35.1%	36.2%	43.0%	46.7%	28.2%	26.7%
Unlikely	21.2%	24.8%	10.0%	4.7%**	6.6%	4.9%**
V. Unlikely	4.8%	2.1%**	1.4%**	0.8%**	0.4%**	1.6%**
Times driving after drinking 1–2 drinks in the past 60 days…			None	1-5 Times	6-10 Times	10+ Times
East			60.5%	37.5%	1.3%**	0.7%**
West			59.3%	36.7%	3.7%**	0.2%**
Urban			59.1%	37.9%	2.4%**	0.6%**
Rural			63.7%	34.3%	1.8%**	0.2%**
Times driving after drinking 3+ drinks in the past 60 days…			None	1-5 Times	6-10 Times	10+ Times
East			94.3%	4.7%**	0.4%**	0.5%**
West			93.3%	5.7%**	0.7%**	0.3%**
Urban			94.1%	5.1%**	0.7%**	0.1%**
Rural			93.3%	5.3%**	0.0%**	1.4%**
Seat Belt Use		Always	N. Always	Sometimes	Rarely	Never
East		86.9%	10.5%	1.3%**	0.5%**	0.7%**
West		84.0%	8.7%	5.8%**	1.4%**	0.2%**
Urban		89.2%	6.8%	2.7%**	0.7%**	0.6%**
Rural		73.4%	20.6%	4.3%**	1.6%**	0.2%**
**Fewer than 30 responses in this group						

APPENDIX E. EXPOSURE TO TRAFFIC SAFETY MESSAGES
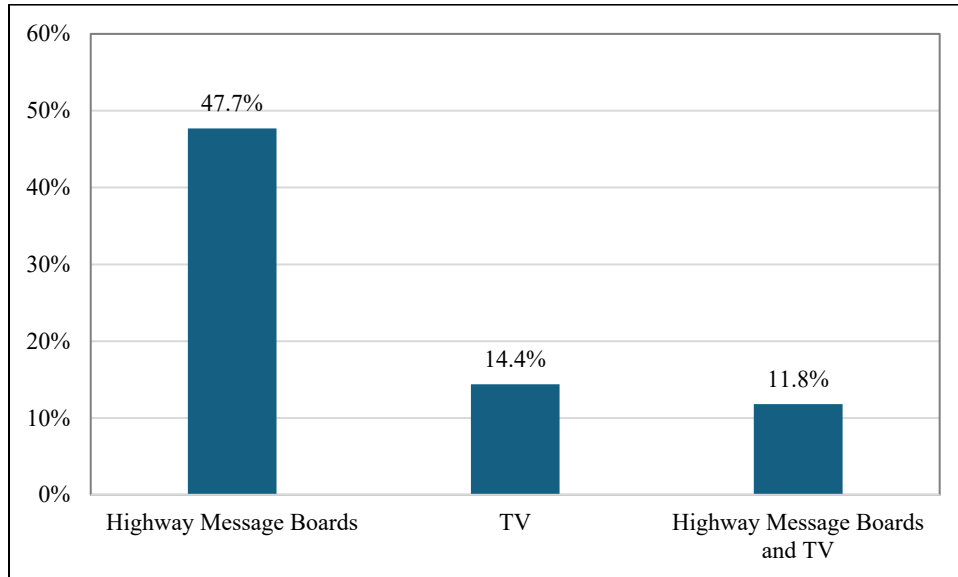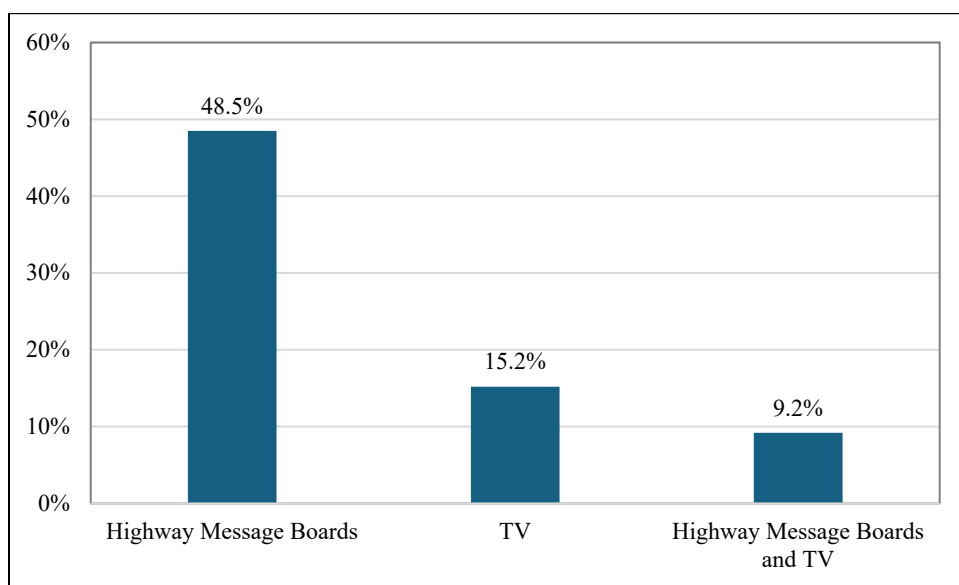

Figure E.1 Exposure to Messages about Seat Belts, by Source
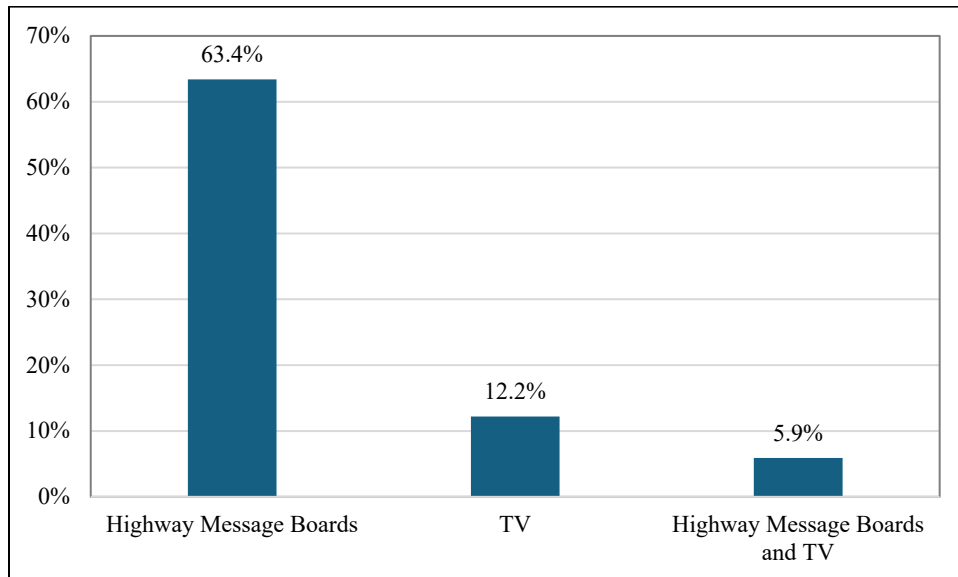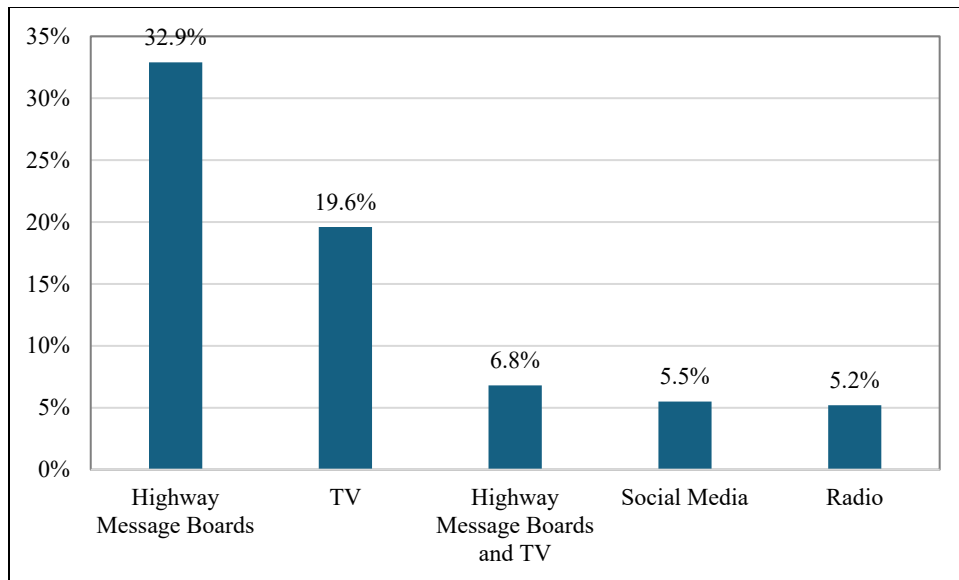

Figure E.2 Exposure to Messages about Speeding, by Source
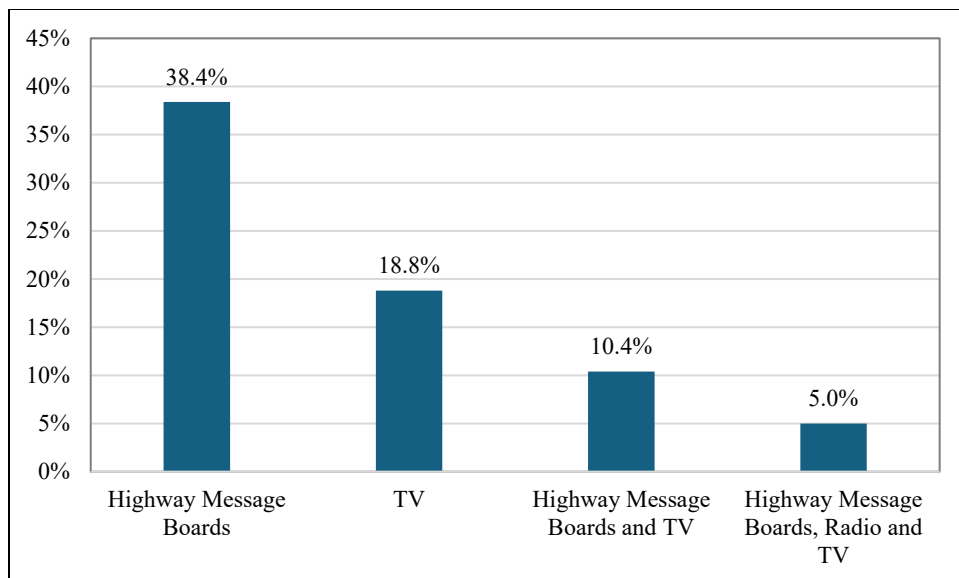
Figure E.3 Exposure to Messages about Drunk Driving, by Source

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	1.8%**	0.5%**	97.7%
Pickup	3.7%**	6.6%**	89.7%
SUV	0.9%**	3.1%**	96.0%
Van	0.4%**	2.2%**	97.4%

**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	70.1%	28.7%	1.1%**	0.0%**
Pickup	47.6%	45.8%	6.7%**	0.0%**
SUV	57.0%	40.0%	2.1%**	0.9%**
Van	65.2%**	33.8%**	1.0%**	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	95.7%	4.1%**	0.2%**	0.0%**
Pickup	87.1%	8.4%**	1.8%**	2.7%**
SUV	94.8%	4.5%**	0.5%**	0.1%**
Van	90.6%	9.4%**	0.0%**	0.0%**

**Fewer than 30 responses in this group

APPENDIX G. COUNTY-LEVEL RESPONSES

Table G.1 Seat Belt Use

County*	Never	Rarely	Sometimes	Nearly Always	Always
Burleigh	0.0%	1.7%	5.8%	8.4%	84.1%
Cass	1.3%	0.1%	0.4%	5.8%	92.5%
Grand Forks	0.0%	0.3%	0.0%	9.3%	90.4%
Morton	0.5%	0.5%	6.7%	3.1%	89.2%
Richland	0.0%	0.0%	1.0%	26.2%	72.7%
Stark	0.0%	0.0%	5.6%	24.9%	69.4%
Stutsman	0.0%	0.0%	7.4%	20.2%	72.4%
Ward	0.0%	0.8%	7.4%	13.5%	78.3%

*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
Burleigh	4.3%	24.9%	39.3%	22.0%	9.4%
Cass	3.7%	20.1%	32.6%	27.0%	16.6%
Grand Forks	0.6%	15.6%	44.8%	18.6%	20.4%
Morton	17.6%	21.5%	18.3%	21.4%	21.1%
Richland	1.4%	18.9%	52.8%	23.8%	3.2%
Stark	0.0%	36.4%	39.0%	3.1%	21.5%
Stutsman	0.5%	23.0%	40.9%	15.3%	20.2%
Ward	6.6%	28.0%	23.8%	26.4%	15.1%

*Only counties with 30 or more responses are included

Table G.3 Ticket Likelihood for Speeding

County*	Very Unlikely	Unlikely	Somewhat Likely	Likely	Very Likely
Burleigh	1.4%	11.0%	41.5%	34.7%	11.4%
Cass	2.1%	10.3%	43.2%	32.0%	12.5%
Grand Forks	0.3%	5.4%	42.1%	36.0%	16.2%
Morton	0.0%	11.3%	48.4%	22.9%	17.5%
Richland	0.0%	3.3%	66.1%	28.4%	2.2%
Stark	0.0%	2.3%	60.4%	18.7%	18.6%
Stutsman	0.5%	15.4%	48.8%	31.7%	3.6%
Ward	0.6%	1.4%	49.4%	35.9%	12.7%

*Only counties with 30 or more responses are included

Table G.4 Chances of Arrest for Driving Under Influence of Alcohol/Drugs

County*	Very Unlikely	Unlikely	Somewhat Likely	Likely	Very Likely
Burleigh	0.3%	6.4%	26.4%	33.3%	33.6%
Cass	0.5%	8.0%	28.6%	31.5%	31.3%
Grand Forks	0.0%	3.1%	29.3%	28.6%	39.0%
Morton	0.7%	5.5%	31.2%	36.2%	26.4%
Richland	0.0%	2.5%	42.6%	25.8%	29.1%
Stark	0.0%	1.3%	12.9%	25.0%	60.8%
Stutsman	0.6%	13.4%	25.6%	30.0%	30.4%
Ward	1.4%	8.7%	28.5%	12.4%	49.0%

*Only counties with 30 or more responses are included

Table G.5 Likelihood of Getting Ticketed for Distracted Driving

County*	Very Unlikely	Unlikely	Somewhat Likely	Likely	Very Likely
Burleigh	7.8%	34.1%	30.1%	21.8%	6.3%
Cass	11.7%	27.1%	25.5%	26.1%	9.6%
Grand Forks	5.5%	23.4%	30.5%	25.8%	14.8%
Morton	6.4%	34.0%	37.0%	19.4%	3.2%
Richland	1.0%	25.5%	45.3%	25.2%	2.9%
Stark	1.0%	19.6%	41.3%	25.7%	12.3%
Stutsman	1.3%	26.0%	34.6%	20.8%	17.2%
Ward	7.6%	21.9%	48.5%	12.1%	9.8%

*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
Calls	28.3%
Calls and Maps	27.2%
Calls, Maps and Texts	14.0%
Maps	7.5%
Calls and Texts	6.3%
Calls, Maps and Other	2.6%
Calls, Emails, Maps and Texts	1.3%
Other	1.3%
Calls, Emails, Maps, Other, Social Media and Texts	1.3%
Maps and Other	1.2%
Calls, Maps, Other and Texts	1.1%
Texts	1.0%
Calls and Other	0.9%
Maps and Texts	0.8%
Calls, Social Media and Texts	0.6%
Calls, Emails, Maps, Other and Texts	0.6%
Calls and Emails	0.5%
Calls, Emails, Maps, Social Media and Texts	0.5%
Calls, Maps and Social Media	0.4%
Calls and Social Media	0.4%
Calls, Maps, Other, Social Media and Texts	0.4%
Calls, Emails and Text	0.3%
Maps, Other and Texts	0.3%
Calls, Other and Texts	0.3%
Calls, Emails, Social Media and Text	0.2%
Calls, Maps, Social Media and Texts	0.2%
Maps , Social Media and Texts	0.1%
Calls, Emails, Other and Texts	0.1%
Emails, Maps, Other, Social Media and Texts	0.1%
Emails	0.1%
Calls, Emails and Maps	<0.1%
Calls, Emails, Other, Social Media and Texts	<0.1%

Note: Percentages based on those who do use a phone while driving