NORTH DAKOTA STATEWIDE TRAFFIC SAFETY SURVEY, 2013

Traffic Safety Performance Measures for State and Federal Agencies

Prepared for

Traffic Safety Office, Safety Division, North Dakota Department of Transportation

Prepared by

Kimberly Vachal, PhD
Laurel Benson, Research Project Specialist
Andrew Kubas, M.S.

Upper Great Plains Transportation Institute
North Dakota State University, Fargo

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Disclaimer

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1. INTRODUCTION

The United States lags behind other developed countries in several transportation safety categories. For example, the road traffic death rate is much higher than in other countries (World Health Organization 2013) (Figure 1.1). Progress has been made with regard to reducing the number of traffic deaths, but crashes that result in fatalities, injuries, and property damage continue to take place because of preventable factors such as driving under the influence of alcohol or operating a vehicle without a safety belt. These facts reveal that more work is needed to improve driver behavior and overall safety on the roadway. 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 initiative to improve transparency and quantify metrics for behavior-based investments designed to reduce motor vehicle crashes, the Governor's Highway Safety Association (GHSA) and National Highway Traffic Safety Administration (NHTSA) established a set of performance measures aimed at revealing traffic safety priorities and progress related to behavioral safety plans and programs (Hedlund 2008).

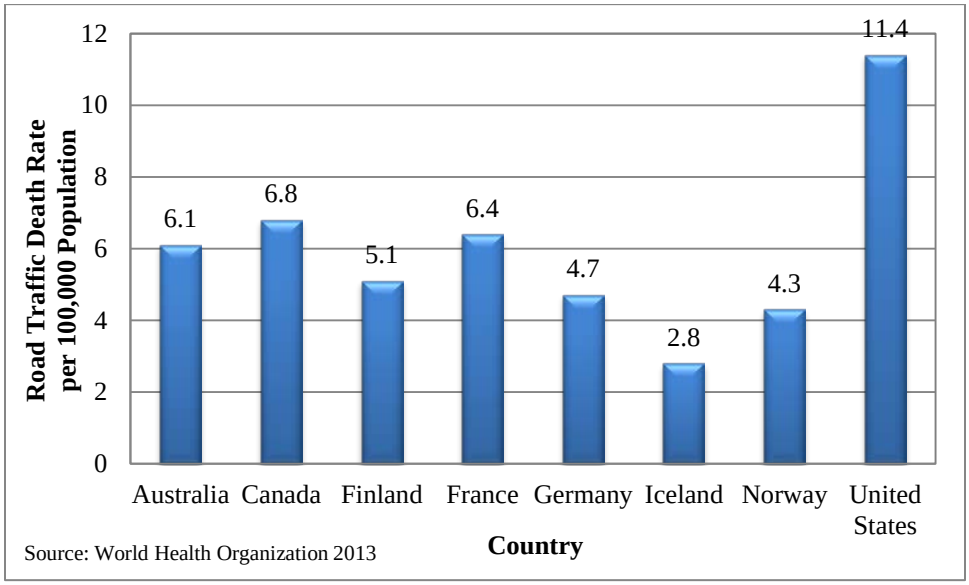

Figure 1.1 Road Traffic Death Rate for Selected Countries, 2010

Within the GHSA-NHTSA safety effort, 14 measures were agreed upon as *Minimum Performance Measures (MPM)*. These include one behavior, three activity, and ten outcome 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 offered for the *MPM* include goal setting, goal-action linkages, resource allocation, program evaluation, and communication. Other benefits arise via improvements to organizational focus, feedback processes, and accountability (Herbel et al. 2009). The measures were defined to monitor overall traffic safety performance in addition to progress related to prioritized behavioral issues. These prioritized behavioral issues include occupant protection, alcohol use, and speeding. In addition, 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 the existing national Fatality Analysis Reporting System (FARS) 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 generally calculated as follows:

- Core outcome measures
    - C-1) Number of traffic fatalities (FARS). States are encouraged to report 3-year or 5-year moving averages as appropriate. (One such example is when annual counts are small enough that random fluctuations may inaccurately reflect true trends. This comment applies to all fatality measures.)
    - C-2) Number of serious injuries in traffic crashes (state crash data files).
    - C-3) Fatalities/VMT (FARS, FHWA). States should set a goal for total fatalities/VMT; states should report both rural and urban fatalities/VMT in addition to total fatalities/VMT.
    - C-4) Number of unrestrained passenger vehicle occupant fatalities, all seat positions (FARS).
    - C-5) Number of fatalities in crashes involving a driver or motorcycle operator with at least a blood alcohol content (BAC) of 0.08 g/dL (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 age 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 (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 *MPM* publication also referenced four other areas for measuring improvement and implementation. These areas focused on 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 attitudes, awareness, and behavior. A core question set was developed by a GHSA-NHTSA working group and presented to state Departments of Transportation following the preliminary *MPM* recommendations (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. The 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.

Currently, federal initiatives relating to driver behavior focus most on impaired driving, seat belt use, and speeding. As such, the core questions emphasize these issues (Hedlund et al. 2009). The core questions of the focus areas are as follows:

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

These questions have been incorporated into the "North Dakota Driver Survey" developed in conjunction with the North Dakota Department of Transportation Traffic Safety Office (TSO) (see Appendix A for complete survey). The TSO expanded the survey to gain additional information relevant to its goals and responsibilities.

The annual Highway Safety Plan (HSP) provides insight for current priorities and activities (Ziegler et al. 2012a). The most recent HSP outlines goals related to the overall traffic safety mission of the NDDOT, along with specific issues to address in the fiscal year. In 2013, these issues will be studied via projects designed to improve the following areas: planning and administration, police traffic services, traffic records, occupant protection, motorcycle safety, speed management, youth/young adult drivers, community traffic safety projects, and impaired driving prevention. 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 observed seat belt use at 76.7%. This is an improvement from the prior year, but is below the five-year average of 79.4% (Ziegler et al. 2012a). Results here will enhance understanding of behavior by providing additional coverage, expanded insight to issues, and an increased number of measures.

2. METHOD

A mail survey was selected as the method for the driver traffic safety survey. A draft survey was designed by blending the 10 core questions with additional NDDOT-designated questions related to education, policy, and enforcement. The questions were developed based on a review of literature, including previous surveys of this type, and guidelines offered by the GHSA-NHTSA working group. The mailing to drivers included a TSO cover letter which invited driver participation and explained the survey goals. The survey was mailed to drivers on March 15, 2013 and was open to response until May 1, 2013.

State DOT driver records provided the population for the sampling. Initially, the North Dakota Department of Transportation mail list consisted of 8,000 driver addresses. From this initial list of addresses, it was discovered that some regional, geographic, age, and gender demographics were underrepresented in the sample. The state DOT provided additional addresses to account for the underrepresentation. As such, 500 addresses were added to the population to ensure that the underrepresentation was mitigated, and demographic cohorts were adjusted accordingly. The final mail list contained 8,500 addresses. Unlike mailing lists from prior years of this study, extensive screening of the address list led to zero addresses being identified as duplicates and zero addresses being flagged as "problem addresses." From the 8,500 original addresses, just one was returned by the postal service as being undeliverable. Of the useable survey responses received, 1,988 were verified as valid responses and form the driver response sample in the analysis.

The sample size was based on a 95% confidence interval, with a 5% confidence level. The expected response was estimated at 20%. Although mail survey response is typically low, with 10% not uncommon, a slightly better response rate was anticipated due to the parameters used in the survey design and administration. These parameters include keeping the survey to a single page, including the state agency cover letter, and using state agency mail envelopes.

A disproportionate stratified random survey sample was used to select drivers. The North Dakota driver region was 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 conducted for a target driver group of 18-to-34 year-old male drivers. The disproportionate stratified sampling structure was used to elicit sufficient driver participation to allow robust analysis of responses by region, geography, and a target driver group. Using these simple average responses, however, would provide skewed results in representing the statewide driver population. For example, drivers age 25 to 34 were 33.5% of the survey sample and account for 22.4% of the survey responses. However, this age cohort accounts for only 18.5% of the licensed driver population in the state. Therefore, the post-stratification weighting process is used to give an appropriate weight to responses for statewide estimates. Results from post-stratification consider North Dakota registered driver age, gender, and location when weighting to reflect the views, perceptions, and behaviors of the statewide driving population. Note that answers with 30 or fewer 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.

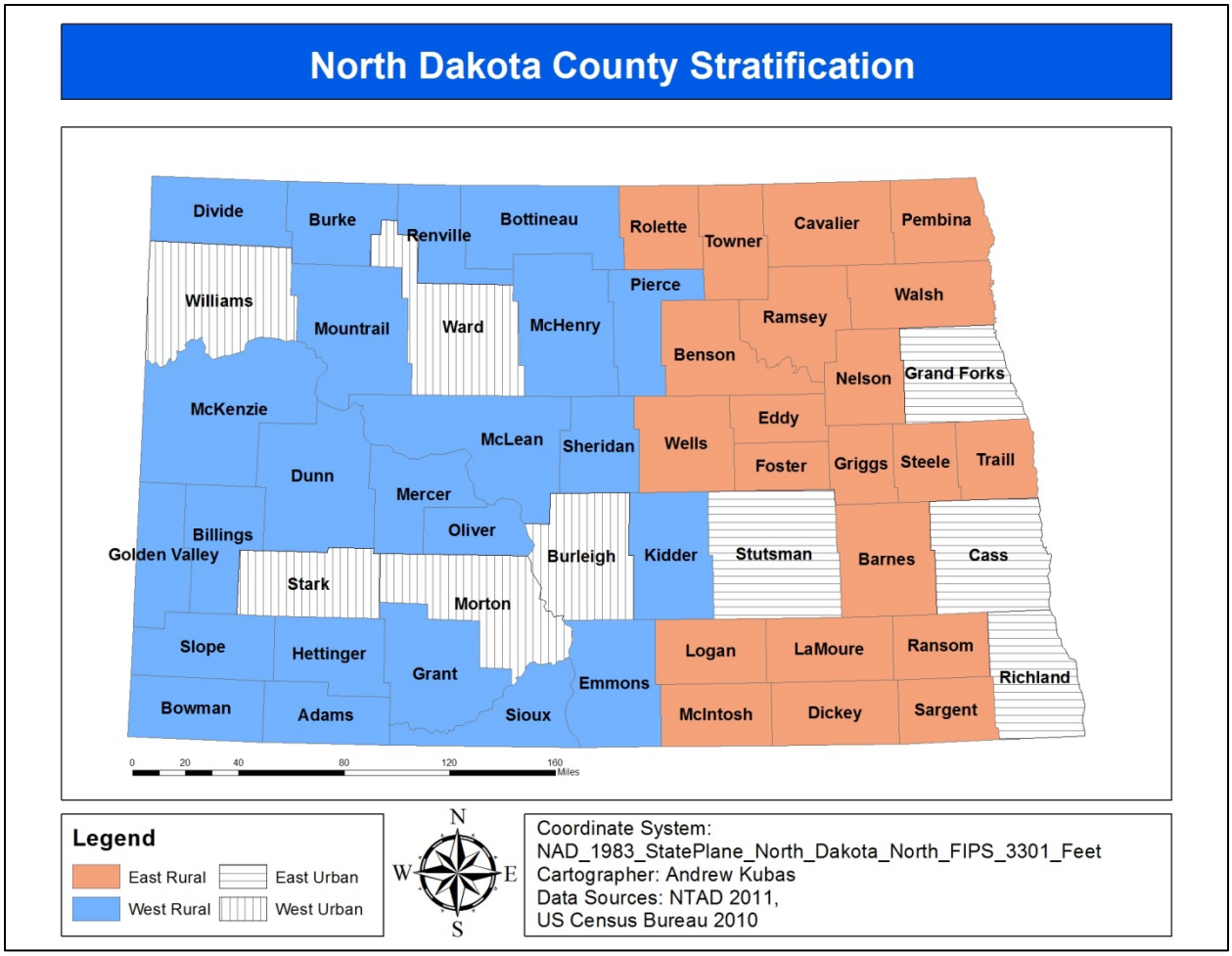

Figure 2.1 County Stratification

The regional geography was defined by aggregating North Dakota health regions into two regions that most closely represented an east/west division of the state. The urban geography includes the largest urban population counties according to the rural and urban population figures in the most recently published US Census data. Four urban counties are located in the east and five in the west, as indicated by the population density geography definitions used in the study. The nine counties represent nearly 95% of the urban population in the state (US Census Bureau 2010). The sampling probabilities for the survey are shown in Table 2.1.

Table 2.1 Sampling Probabilities

REGION	GEOGRAPHY	DRIVER AGE/SEX	SAMPLING PROBABILITY
East	Urban	18-34M	0.034
East	Urban	Other	0.006
East	Rural	18-34M	0.072
East	Rural	Other	0.012
West	Urban	18-34M	0.039
West	Urban	Other	0.007
West	Rural	18-34M	0.104
West	Rural	Other	0.018

3. RESPONSE

Survey response rate was 23.4% with 1,988 valid responses received from the sample mailing to 8,499 drivers. The response rate was comparable to prior surveys. As expected, oversampling of the 18-34 year-old male driver target group was needed to achieve a sample sufficient for statistical analysis. The target group response rate was 11.4% compared to 32.7% for other drivers. Sampling to elicit response by region and geography was successful as shown in Table 3.1. The 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**
REGION	East	537 (28.2%)	423 (22.2%)	**960 (50.4%)**
	West	621 (32.6%)	324 (17.0%)	**945 (49.6%)**
	Total	**1,158 (60.8%)**	**747 (39.2%)**	**1,905**

Frequency Missing: 83

The sample design did not account for age or gender beyond the target male group. Responses have an acceptable distribution among age cohorts (Table 3.2) and an acceptable distribution among gender (Ziegler et al. 2012b). The highest share of responses is among drivers age 25-34; this age cohort makes up 22.4% of the survey responses. The 75+ age cohort makes up the lowest proportion of the survey responses with only 5.2% of the total valid responses. Nonetheless, there are well over 30 responses from each age cohort, making statistical extrapolation possible and allowing for inferences to be made via generalizations of the entire North Dakota driver population. Response rates were nearly identical by gender. Just as the North Dakota driver population is approximately equal between males and females, so too were survey responses in this study; 49.7% were male and 50.3% were female. The number of responses based on gender also provides sufficient data to expand these responses to represent the entire North Dakota driver population.

Table 3.2 Response by Age Group

	Survey		Population	
Age Group	Responses	Share	Drivers	Share
18-24	307	15.5%	62,124	12.5%
25-34	443	22.4%	91,703	18.5%
35-44	197	10.0%	71,377	14.4%
45-54	304	15.4%	88,254	17.8%
55-64	384	19.4%	82,821	16.7%
65-74	241	12.2%	45,780	9.2%
75 and Older	103	5.2%	38,644	7.8%

Frequency Missing: 9

Information regarding drivers' annual travel provides background for understanding statewide driving activity. The expected trend in driving behavior is that as drivers age, the number of annual miles traveled decreases. This expected trend is evident in the average annual miles traveled summarized in Figure 3.1. A majority of drivers in the 18-24, 25-34, 35-44, 45-54, 55-64, and 65-74 age cohorts report driving more

than 10,000 miles per year. Responses show 58.9% of those over the age of 75 drive less than 10,000 miles yearly. Over two-fifths (42.7%) of 45-54 year-olds reported driving more than 15,000 miles annually; this was the largest proportion among age cohorts for driving at least 15,000 miles each year. In contrast, nearly half (44.9%) of drivers over the age of 75 stated that they drive less than 5,000 miles per year. With the exception of 45-54 year-olds and 55-64 year-olds, all age cohorts responded that a majority of their traveling is greater than 5,000 but less than 15,000 miles per year.

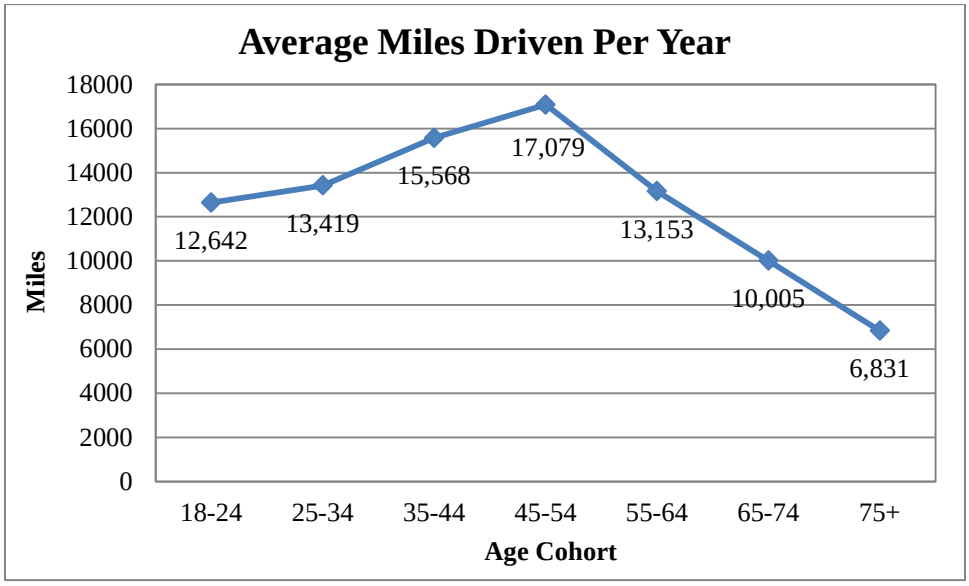

Figure 3.1 Average Miles Driven per Year, by Age

In North Dakota, the western portion of the state is generally associated with more miles driven annually. Similarly, it is assumed that rural residents travel more frequently than their urban counterparts. Thus, one would expect residents from the western region of the state and residents from rural backgrounds to travel further on average than their eastern and urban neighbors. When age is broken down by both region and geography, it becomes apparent that drivers from the western part of the state and drivers from rural areas do indeed drive more, on average, than other drivers (Table 3.3) (Figure 3.2). Drivers from the western half of the state reported traveling 13,217 miles per year, a slightly larger number than their eastern counterparts who traveled 12,832 miles annually. Responses reveal that rural residents, on average, drive farther than urban residents in every single age cohort. Rural residents reported annual travel of 16,612 miles compared to just 12,045 miles yearly for urban North Dakotans. The annual travel is important in understanding travel patterns and exposure for traffic safety assessments.

Table 3.3 Annual Miles Driven by Age, Factoring for Region and Geography

Age	East	West	Urban	Rural
18-24	13,705	11,762	11,628	16,562
25-34	13,877	12,923	12,324	16,243
35-44	**16,971**	14,861	14,986	**19,487**
45-54	15,559	**18,310**	**16,499**	18,577
55-64	12,796	13,724	12,382	16,860
65-74	9,766	10,849	9,130	16,371
75 and older	7,123	6,066	6,490	9,225

Bold: Highest in region or geography

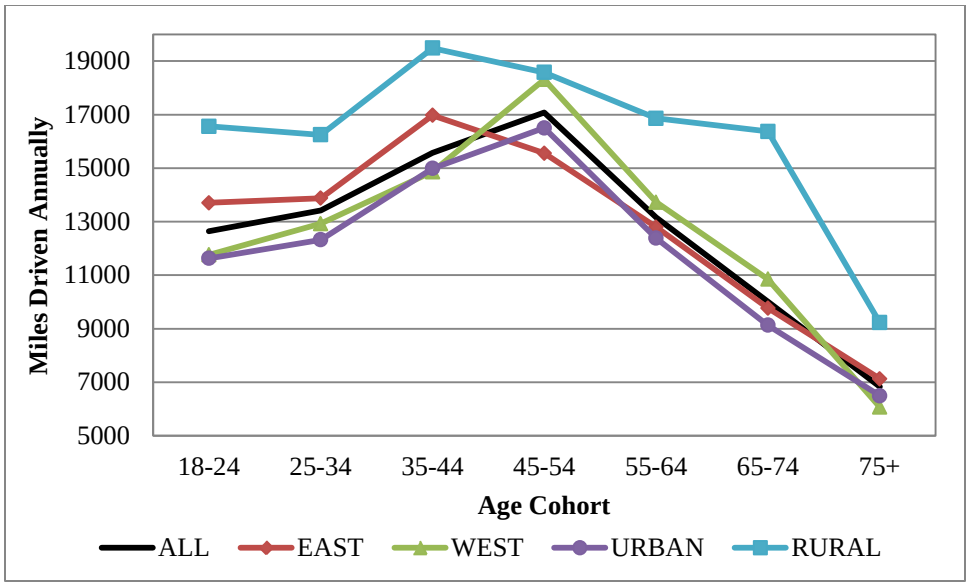

Figure 3.2 Average Annual Driving Activity, by Respondent Group

Among drivers from the eastern half of the state, 35-44 year-olds drive the most at an average of 16,971 miles yearly. For drivers from the west, the 45-54 year-old cohort travels the most per year, an average of 18,310 miles. In the nine urban counties, 45-54 year-olds also have the highest rate of annual travel. In rural North Dakota, 35-44 year-olds yet again drive the most at 19,487 miles annually. This was the largest annual average of any group studied in this project. The largest discrepancy in annual travel is between urban and rural drivers in the 65-74 year-old cohort. Whereas urban drivers age 65-74 reported traveling 9,130 miles annually, rural drivers in this same age group drive an average of 16,371 miles per year, a difference of over 7,000 miles. Differences in driving activity may influence views and perceptions of traffic safety. This information is also valuable in understanding and interpreting information regarding crashes, injuries, fatalities, and assessing driver risk. Specific information regarding driver responses is provided in Table 3.4.

Table 3.4 Annual Driving Activity by Age Group

Driver Age	Less than 5,000	5,000 to 9,999	10,000 to 14,999	More than 15,000
18-24	13.6%	31.1%	25.8%	29.4%
25-34	11.4%	17.4%	36.2%	35.0%
35-44	7.6%	13.1%	44.1%	35.2%
45-54	8.6%	19.8%	28.9%	42.7%
55-64	18.6%	19.8%	26.8%	34.8%
65-74	26.4%	19.3%	34.4%	20.0%
75+	44.9%	14.0%	36.4%	4.7%

Frequency Missing: 111

Table 3.5 and Table 3.6 indicate that driving activity does vary substantially by region and geography. Although the proportion of residents driving more than 10,000 miles annually are nearly identical – regional summaries show that 65.1% of those living in the eastern half of the state travel at least 10,000 miles per year and that a comparable proportion, 63.1% of western respondents, travel the same amount – residents from the western half of the state do drive further on average, as revealed in Table 3.3. A t-test for equality of means shows that the difference in annual travel patterns between eastern and western respondents is statistically significant at the 5% level, with western residents traveling farther annually ($t=-1.994$, $df=1,806$, $p=0.046$).

Table 3.5 Annual Driving Activity by Region

Region	Less than 5,000	5,000 to 9,999	10,000 to 14,999	More than 15,000
East	16.4%	18.5%	33.5%	31.6%
West	14.6%	22.3%	32.2%	30.9%

Frequency Missing: 77

In both the urban and rural portions of North Dakota, a majority of residents also drive more than 10,000 miles yearly. A 16.1% larger share of the population in rural areas report traveling more than 10,000 miles per year at 76.8% compared to 60.7% for their urban counterparts. The difference in the average number of miles traveled yearly by urban and rural respondents was statistically significant at the 1% level ($t=-5.411$, $df=1,806$, $p<0.001$).

Table 3.6 Annual Driving Activity by Geography

Geography	Less than 5,000	5,000 to 9,999	10,000 to 14,999	More than 15,000
Urban	17.4%	21.8%	33.7%	27.0%
Rural	8.6%	14.5%	29.7%	47.1%

Frequency Missing: 77

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. Additionally, the scale responses can be transformed into ordinal values to help quantify responses between scale extremes to allow for some statistical testing of relationships and means. The higher-than-expected 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 are aimed at three specific issues: impaired driving, seat belt use, and speeding. Response frequencies for the 10 core questions are included in Table 4.1. The table includes 2010, 2011, and 2012 responses to establish metrics that may be used to identify North Dakota driving trends. Responses show drivers believe law enforcement is more likely to ticket for speeding violations than for impaired driving or seat belt violations. Frequencies show that 61.5% of drivers believe chances are higher than average that speeding drivers will be ticketed. This is higher than the 55.0% and 44.3% of respondents who believe there is a greater-than-average likelihood that drivers will be ticketed for impaired driving or seat belt violations, respectively. Responses show that whether or not one chooses to operate a vehicle after consuming alcohol is likely dependent upon perceptions of getting a ticket for illegal driving behavior. For example, among those that operated a vehicle at least 10 times within two hours of consuming one or two alcoholic beverages, 44.4% believed that the chances of getting a ticket for not wearing a seat belt were low, and 14.4% believed that said chances of receiving a ticket were high. A clear trend emerged: those that perceived the chances of getting a ticket for not wearing a seat belt to be low were more likely to have chosen to drive after drinking. The relationship was statistically significant at the 1% level (Chi-Sq.=49.356, df=12, $p<0.001$). Similar patterns occurred for those believing the chances of getting a ticket for speeding were low; those perceiving the chances of getting a ticket as being higher-than-average operated a vehicle after drinking less often (Chi-Sq.=41.289, df=12, $p<0.001$). The same patterns took place among those choosing to operate a vehicle within two hours of consuming three or more alcoholic drinks. In this survey, operating a vehicle after consuming three or more alcoholic drinks appears to be linked to one's perceived chances of getting arrested for driving under the influence (Chi-Sq.=27.446, df=12, p=0.007), perceived chances of getting a ticket for not wearing a seat belt (Chi-Sq.=21.482, df=12, p=0.044), and one's perceived chances of getting a ticket for speeding (Chi-Sq.=31.460, df=12, p=0.002).

In this survey, 30.5% 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. About one-tenth of these individuals, 3.0%, reported driving a vehicle between six and ten times in the last two months within two hours of consuming one or two alcoholic beverages. In contrast, just 7.6% of survey participants noted that they had operated a vehicle within two hours of drinking three or more drinks at least once during the past two months.

With regard to speeding, 8.9% and 10.1% of drivers report high levels of speeding activity – considering those who answered "always" or "nearly always" to the questions on 30 miles per hour and 65 mile per hour speed zones, respectively. Drivers are more likely to speed on the 30 mile per hour road, with only 13.4% of the drivers reporting that they "never" speed on these roads compared to 18.0% of drivers who "never" speed on the 65 mile per hour roads.

Table 4.1 Core Question Responses

Core	Survey Question	Responses				
ID-1	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	
	2013[#]	69.5%	26.8%	3.0%	0.7%*	
	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	
	2013[#]	92.4%	6.6%	0.8%*	0.2%*	
ID-2	Have you recently read, seen, or heard anything about drunk driving enforcement?					
		Yes	No			
	2013	88.9%	11.1%			
	2012	89.5%	10.5%			
	2011	87.0%	13.0%			
	2010	85.0%	15.0%			
ID-3	Chances of someone getting arrested if they drive after drinking alcohol?					
		Very Likely	Sw. Likely	Likely	Unlikely	V. Unlikely
	2013	25.9%	29.1%	26.5%	16.7%	1.8%
	2012	32.5%	29.7%	25.9%	10.3%	1.6%
	2011	31.3%	26.7%	26.7%	12.6%	2.7%
	2010	25.0%	26.0%	31.0%	15.0%	4.0%
SB-1	How often do you use seat belts when you drive or ride in a vehicle?					
		Always	N. Always	Sometimes	Rarely	Never
	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%
SB-2	Have you recently read, seen, or heard anything about seat belt law enforcement?					
		Yes	No			
	2013	80.6%	19.4%			
	2012	84.7%	15.3%			
	2011	82.8%	17.2%			
	2010	77.0%	23.0%			
SB-3	What do you think the chances are of getting a ticket if you don't wear your seat belt?					
		Very Likely	Sw. Likely	Likely	Unlikely	V. Unlikely
	2013	15.5%	28.8%	21.8%	31.3%	2.7%
	2012	17.1%	28.1%	26.6%	23.7%	4.5%
	2011	16.0%	22.6%	25.3%	25.0%	11.2%
	2010	14.0%	26.0%	23.0%	26.0%	10.0%
SP-1a	On a road with 30 mph speed limit, how often do you drive faster than 35 mph?					
		Always	N. Always	Sometimes	Rarely	Never
	2013	1.3%*	7.6%	35.5%	42.2%	13.4%
	2012	0.6%*	6.4%	31.6%	46.3%	15.2%
	2011	1.1%*	3.5%	32.9%	47.3%	15.2%
	2010	1.0%	4.0%	31.0%	47.0%	17.0%
SP-1b	On a road with 65 mph speed limit, how often do you drive faster than 70 mph?					
		Always	N. Always	Sometimes	Rarely	Never
	2013	1.3%*	8.8%	26.0%	45.9%	18.0%
	2012	1.1%*	6.3%	23.5%	45.6%	23.5%
	2011	1.2%*	6.2%	27.3%	44.9%	20.5%
	2010	1.0%	5.0%	22.0%	45.0%	28.0%
SP-2	What do you think the chances are of getting a ticket if you drive over the speed limit?					
		Very Likely	Sw. Likely	Likely	Unlikely	V. Unlikely
	2013	24.0%	37.5%	29.3%	8.4%	0.9%*
	2012	28.7%	33.6%	28.8%	7.4%	1.5%*
	2011	28.0%	31.3%	29.1%	9.5%	2.1%
	2010	26.0%	30.0%	28.0%	12.0%	4.0%
SP-3	Have you recently read, seen, or heard anything about speed enforcement?					
		Yes	No			
	2013	36.3%	63.7%			
	2012	34.2%	65.8%			
	2011	35.8%	64.2%			
	2010	57.0%	43.0%			

Note: Please see Appendix A for exacting question and response wording
*Estimate uncertain due to limited sample size
[#]Due to wording changes in ID-1, trends from previous years could not be studied

The share of drivers reporting that they always use their seat belts when driving or riding in a vehicle is lower than the information presented by the core behavior metric of 76.7%. Driver self-reported use collected here shows that just 70.5% "always" wear a seat belt with another 21.3% indicating usage as "nearly always." The 70.5% of drivers who "always" wear a seat belt represents an increase of nearly 8 percentage points compared to 2012. Only 2.2% of drivers reported that they "rarely" or "never" use a seat belt, an improvement from the 3.8% that "rarely" or "never" used a safety belt last year.

Responses to awareness of public media or other education messages about traffic safety related to drinking, speeding, and seat belt issues shows speed enforcement is least often read, seen, or heard as a traffic safety topic; just 36.3% of survey participants responded that they had such exposure to this safety message. This was, however, a slight increase from the 34.2% that had exposure in 2012. These low rates of exposure represent a stark contrast when compared to messages about drunk driving and seat belt enforcement. Exposure rates to these two safety topics were 89.9% and 80.6%, respectively. Even so, these exposure rates decreased slightly when compared to 2012. Considering these trends and drivers' perceptions that there is a relatively high risk for ticketing, it seems as though enforcement determines driving attitudes and actions more so than education.

The relationship between behavior and the enforcement expectations and education awareness has an unexpected result. One would presume an inverse relationship between a negative behavior – such as speeding – and a related education or enforcement influence, as measured by read, seen, or heard exposure levels and perceived likelihood for ticketing, respectively. As illustrated in Figure 4.1, driver responses are not consistent with this expectation as the lowest expectation for a ticket is associated with the lowest reported levels of negative behavior in the seat belt issue. With seat belts, 44.3% of drivers have more than an average expectation of receiving a ticket for not wearing a seat belt, but only 2.2% report speeding "always" or "nearly always" in the questions posed in this survey. With drinking, 55.0% see a greater-than-average chance for a ticket. A slightly larger share, 2.4%, reports a more-than-average likelihood that they will operate a vehicle after drinking. A much larger proportion, 61.5%, indicated that they think there is an above average chance of receiving a ticket for speeding. Nearly one-in-ten (9.5%) drivers report that they have a higher-than-average likelihood of speeding while driving.

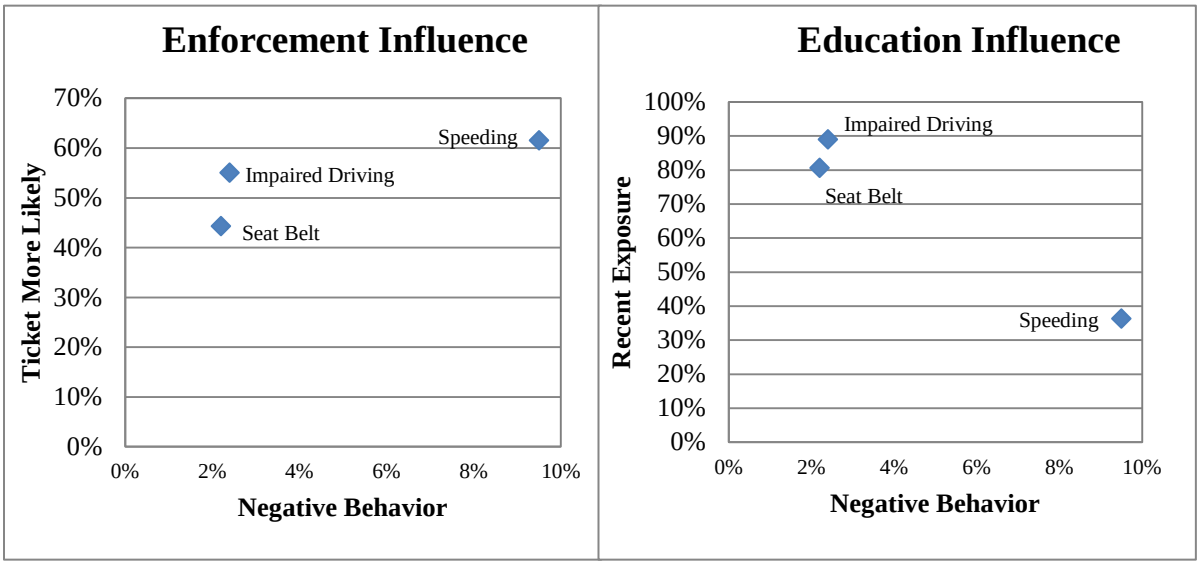

Figure 4.1 Driver Action Related to Enforcement and Education

The education influence is mixed, considering responses to the read, seen, or heard questions. The highest level of reported exposure is for driving after drinking, yet it has the second-highest reported level of negative behavior. One would expect – with the most exposure to educational messages – that impaired driving would then have the lowest level of negative behavior. Similarly, educational exposure to messages about seat belt safety has the second-highest exposure level, but the lowest associated rate of negative behavior. One would expect the lowest rate of negative behavior to be associated with the highest rate of educational exposure. One outcome is expected: speeding has the lowest level of exposure and the highest level of negative behavior. This is a logical relationship: one would expect drivers to be more likely to behave negatively if they have not had as much educational exposure to the safety topic.

To further investigate relationships among the core questions and issues that may be related, measures of association are calculated for driver responses. The Pearson coefficient measures the strength of association between two variables – in this case the driver responses. Correlation coefficients range from -1 to +1, with values closer to these extremes considered strong relationships. Relationships between -0.5 and +0.5 are generally considered weak and inconsequential. For example, although the "seat belt use" and "ticket for not wearing a seat belt" variables do have the expected positive relationship at Pearson Corr.=0.131, the correlation measure shows that less than 2% of their variability is shared. Statistically significant relationships are found among many responses, but the Pearson correlation calculations suggest that there are no strong relationships among all of the questions or within issues (Table 4.2).

Table 4.2 Correlations in Core Question Responses

	ID1a	ID1b	ID2	ID3	SB1	SB2	SB3	SP1a	SP1b	SP2	SP3
ID1a: Drive After Drinking 1-2 Drinks	1	**.573**** **.000**	.060** .009	-.020 .371	-.168** .000	.044 .056	-.126** .000	.131** .000	.205** .000	-.058* .011	-.104** .000
ID1b: Drive After Drinking 3+ Drinks		1	.034 .140	-.037 .116	-.190** .000	.008 .722	-.081** .000	.123** .000	.142** .000	-.015 .524	-.084** .000
ID2: Read, Seen, or Heard Drunk Driving			1	.126** .000	-.036 .110	**.507**** **.000**	.069** .002	-.013 .579	-.009 .677	.241** .000	.069** .002
ID3: Arrest for Drinking				1	-.008 .729	.122** .000	.347** .000	.006 .805	.027 .236	.116** .000	.425** .000
SB1: Seat Belt Use					1	-.063** .006	.122** .000	-.052* .020	-.058** .010	-.006 .785	.094** .000
SB2: Read, Seen, or Heard Seat Belt						1	.050* .027	-.017 .454	-.045* .048	.313** .000	.071** .002
SB3: Ticket for Seat Belt							1	-.024 .280	-.084** .000	.144** .000	.395** .000
SP1a: Speed on 30 MPH Road								1	.499** .000	-.005 .836	-.052* .020
SP1b: Speed on 65 MPH Road									1	-.085** .000	-.090** .000
SP2: Read, Seen, or Heard Speed										1	.098** .000
SP3: Ticket for Speeding											1

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

There were two substantive relationships within the core question correlations studied, though these relationships were relatively weak. One substantive relationship is that between driving within two hours of having one or two drinks and driving within two hours of having three or more drinks (Pearson Corr.=0.573, $p<0.001$, n=1,854). These two variables share roughly 33% of their variability. This relationship reveals that – as one chooses to operate a vehicle within two hours of having one or two drinks – one is more likely to also choose to operate a vehicle within two hours of having three or more drinks. The other substantive relationship was between exposure to messages about impaired driving and exposure to messages about using safety belts while in a vehicle (Pearson Corr.=0.507, $p<0.001$, n=1,937). These two variables share approximately 26% of their variability. Exposure to these safety messages are related, but the relationship is weak, indicating that the questions address difference perceptions of exposure to these educational messages. 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 levels and thus are not considered substantive.

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

Table 4.3 Other Question Responses

Survey Question	**Responses**				
Traffic Safety Knowledge/Tools					
			YES	NO	DNK
Greater police presence increases seat belt use.			59.4%[#]	40.6%[#]	22.9%
Have you recently read, seen, or heard traffic safety ads relating to sobriety checkpoints?			59.2%	40.8%	
Driver Preferences					
	St. Favor	Sw. Favor	Neutral	Sw. Oppose	St. Oppose
Do you favor or oppose…					
Higher fines for speeding?	16.2%	22.2%	31.7%	15.2%	14.4%
Harsher DUI penalties?	54.3%	22.0%	15.0%	4.2%	4.5%
Primary seat belt law?	28.7%	19.5%	18.3%	13.2%	19.6%
Driver Behavior					
		YES	NO		
In the past year, did you get a speeding ticket?		6.9%	92.7%		
Driver Distraction					
	Daily	Few/Week	Few/Month	<1/Month	Never
Cell Phone Text While Driving	5.8%	12.9%	15.1%	14.8%	51.4%
Cell Phone Talk While Driving	22.9%	23.8%	26.2%	15.6%	11.6%
Perceptions of Other Road Users					
How often do others use seat belts?	Always 2.5%	N. Always 45.4%	Sometimes 50.0%	Rarely 2.0%	Never 0.1%*
Percent of fatal crashes involving drunk drivers?	1 – 20% 4.2%	21 – 40% 16.3%	41 – 60% 36.5%	61 – 80% 36.5%	81 – 100% 6.6%
Number of DUI arrests/year in ND?	0 – 1,500 15.2%	1,500 – 2,999 33.0%	3,000 – 4,499 33.1%	4,500 – 5,999 13.3%	More than 6,000 5.3%

[#]Percentages calculated based on those who answered "Yes" or "No"
*Estimate uncertain due to limited sample size

In terms of traffic safety knowledge, roughly three-fifths (59.4%) of North Dakota drivers believe that greater police presence on the roadway increases the use of safety belts while driving. A comparable proportion, 59.2%, indicated that they had recently read, seen, or heard information about sobriety checkpoints.

In regard to driver preferences, opinions were mixed regarding which issues were favored and opposed (Figure 4.2). A much higher proportion of respondents (54.3%) strongly favored harsher penalties for those who receive a DUI compared to those who strongly favor higher fines for speeding (16.2%) and those who strongly favor having a primary seat belt law in North Dakota (28.7%). The proportion of individuals strongly opposing the primary seat belt law (19.6%) was larger than the proportion of respondents strongly opposing higher fines for speeding (14.4%) and harsher DUI penalties (4.5%). Approximately one-third (31.7%) of respondents considered themselves neutral towards having higher fines for speeding; responses to this question appear to follow somewhat of a bell curve, peaking at those who feel neutral towards the issue. What was uniform among these three questions is that a larger share of respondents either "strongly favor" or "somewhat favor" the three safety strategies than do those that "somewhat oppose" or "strongly oppose" them. This indicates that these are preferred safety strategies among the greater North Dakota driver population. Transportation safety officials and practitioners can use this information as they work to improve traffic safety within the state.

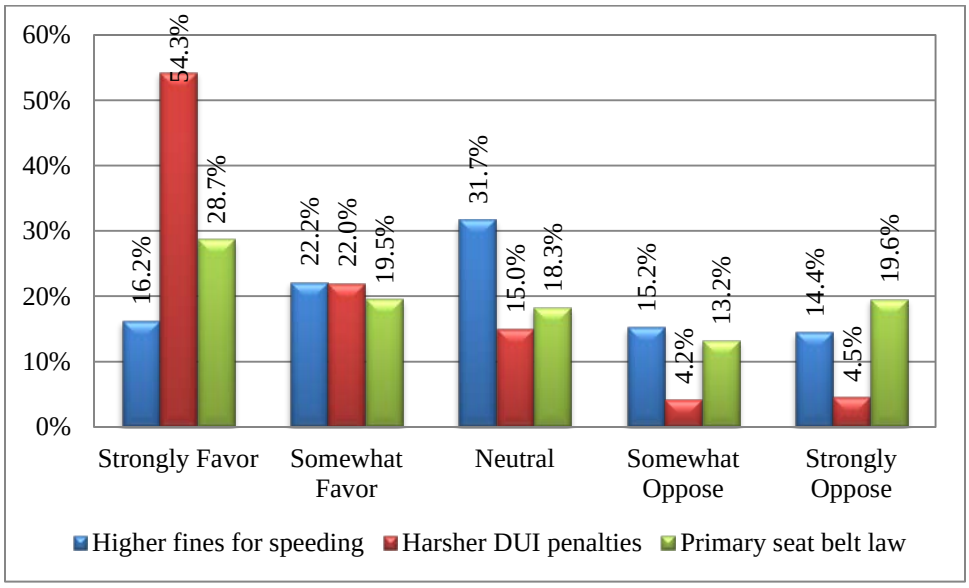

Figure 4.2 Driver Preferences

Some initial trends can be observed in driver preferences between 2010 and 2013. Note that the three questions highlighted in Figure 6 were not addressed in the 2011 survey. In terms of those drivers who prefer having higher fines for speeding offenders, results were relatively equal between the 2010 and 2013 surveys (Figure 4.3). There was a modest increase among drivers who indicated that they "strongly oppose" having higher fines for speeding compared to last year. The number of drivers in 2013 indicating that they either "somewhat favor," "somewhat oppose," or are "neutral" towards having higher speeding fines decreased slightly compared to 2012. The proportion of those that "strongly favor" higher speeding fines has remained consistent throughout all surveys.

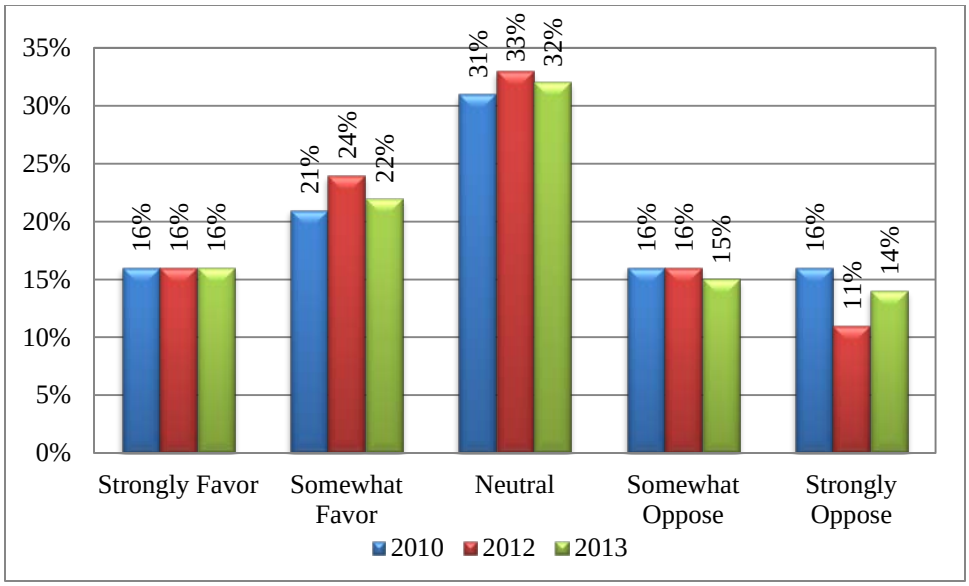

Figure 4.3 Driver Preferences for Higher Speeding Fines

There were modest changes from 2010 to 2013 in terms of drivers' preferences for having harsher penalties for those arrested for driving under the influence (Figure 4.4). As of 2013, a majority (54%) of respondents "strongly favor" having harsher DUI penalties, an increase from 2010 (48%) and 2012 (47%). Slightly fewer North Dakotans are "neutral" towards having harsher DUI penalties. There was a one percentage point increase in the proportion of survey participants that "strongly oppose" stiffer penalties from 2012 to 2013, though the overall proportion is still smaller than it was in 2010.

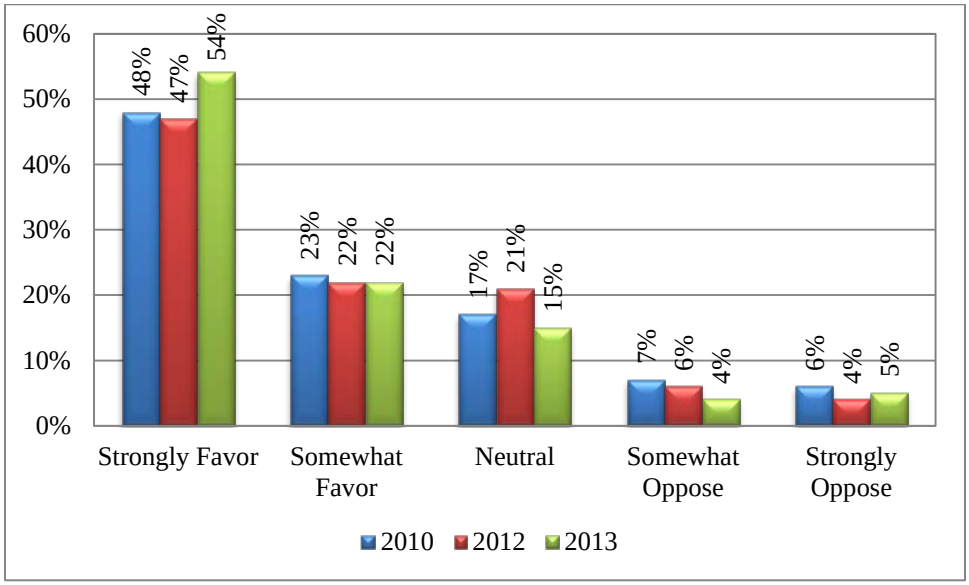

Figure 4.4 Driver Preferences for Harsher DUI Penalties

The area with the most noticeable changes between 2010 and 2013 is driver preferences towards having a primary seat belt law in North Dakota (Figure 4.5). Whereas in 2010 nearly half (46%) of the North Dakota population "strongly favored" a primary seat belt law, only about three in ten (29%) hold the same viewpoint in 2013. It should be noted, however, that this represents a six percentage point increase from

2012 responses. An even smaller proportion, 20%, “somewhat favor” a primary seat belt law. This is a noticeable drop from the 27% of North Dakotans that held this opinion last year and is also a drop from the 25% of respondents that “somewhat favored” a primary seat belt law in the 2010 baseline year. All other categories remained consistent between 2012 and 2013. It is unknown why such a dramatic shift in viewpoints occurred between 2010 and 2013. Identical parameters were used in the survey design and administration during the previous studies. Moreover, the same weighting procedures were applied to the samples. It is unknown if external factors may have influenced attitudes towards having a primary seat belt law in the state.

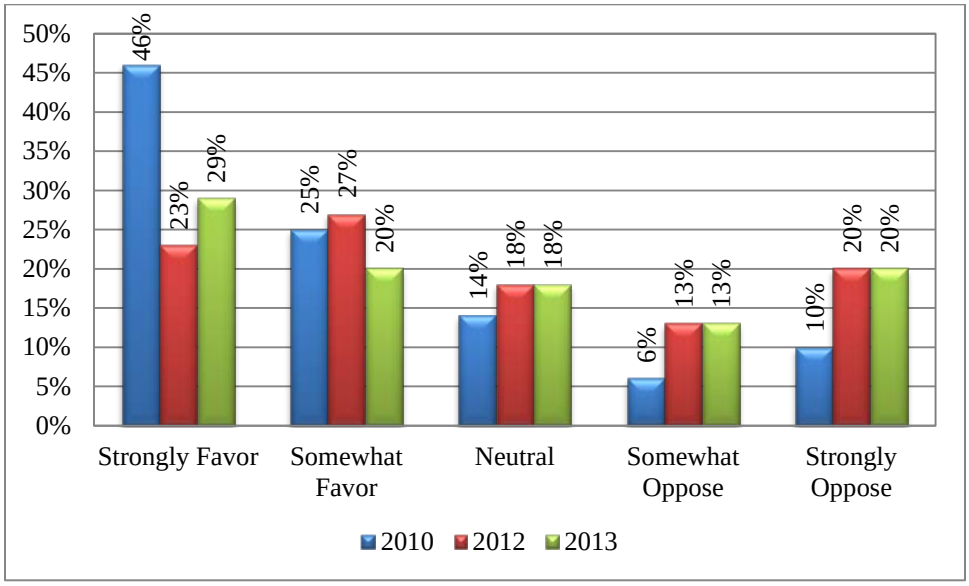

Figure 4.5 Driver Preferences for a Primary Seat Belt Law

Driver behavior varies significantly by demographic. One behavior variable was addressed in this survey; it dealt with whether or not the respondent received a speeding ticket within the last year (Figure 4.6). High-risk young males (HRM) are an 18-34 year-old targeted demographic known for engaging in especially dangerous driving behaviors. It is not surprising that this particular group had the highest rate of those who had received a speeding ticket within the last year. Of all high-risk young males surveyed in this study, 15.2% had received a speeding ticket in the last 12 months. Roughly one in ten (10.4%) rural respondents revealed that they had received a speeding ticket within the last year. Similarly, 9.3% of males indicated that they had received a ticket for speeding within the last year. Males in this survey were more likely to have received a speeding ticket than their female counterparts, although their overall number may have been inflated by the high-risk male demographic (Chi-Sq.=12.718, df=1, $p<0.001$). Rates of receiving a speeding ticket for females, non-high-risk young males, western residents, and urban residents are relatively comparable: all of these four demographics had between a 6.0% and 6.5% rate of getting a speeding ticket within the last year.

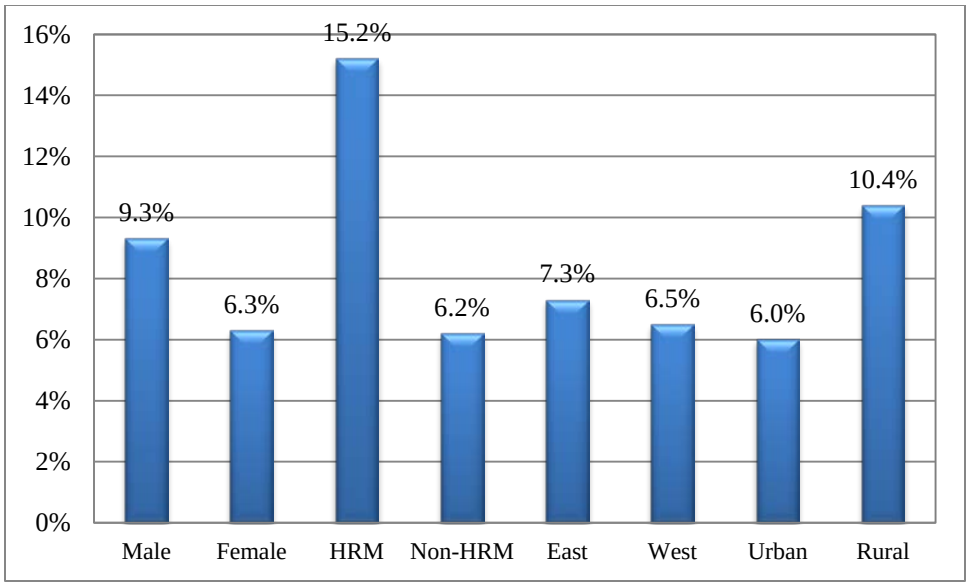

Figure 4.6 Driver Behavior, by Speeding Ticket in the Last Year

Two 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 via texting or talking on the phone while driving. In terms of texting while driving, results in 2011 and 2012 were comparable, but there are some noticeable changes in 2013 (Figure 4.7). For example, the proportion of respondents that "never" text on the phone while driving decreased from around 61% in 2011 and 2012 to just over 51% in 2013. The percentage of North Dakotans admitting to texting on the phone while driving "daily," "a few times per week," or "a few times per month" rose for all three texting rates. It is clear that, within the state, cell phone use for texting while driving is trending in a more dangerous direction.

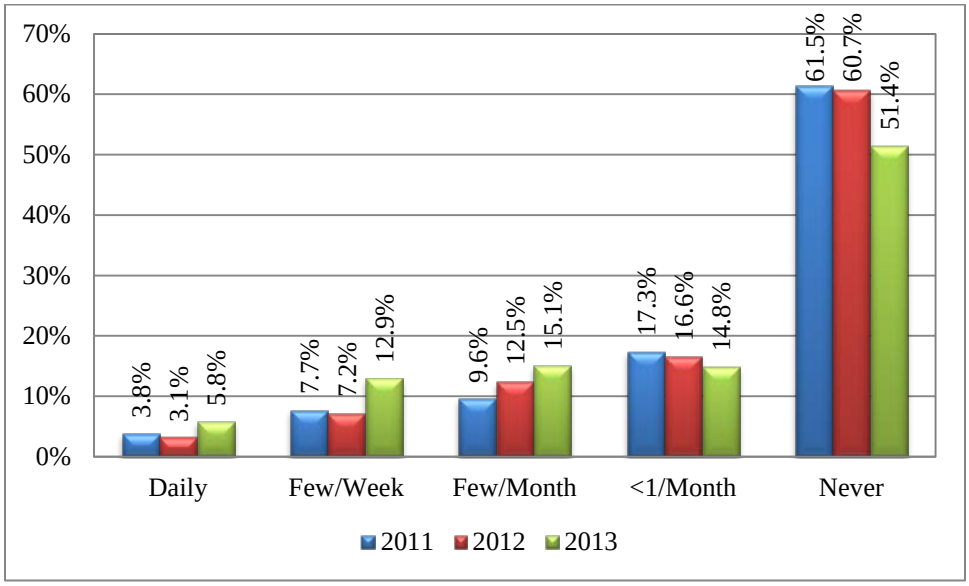

Figure 4.7 Cell Phone Texting Distractions, by Year

Drivers are more likely to use their cell phone for talking while driving (Figure 4.8). About one in nine (22.9%) drivers in North Dakota use their cell phone for talking while driving on a daily basis. This represents an increase from both 2011 and 2012 results. Although the proportion of residents using their cell phone to talk while driving "a few times per week," "a few times per month," and "less than once per month" have remained relatively stable over the last three years, the proportion of those responding that they "never" use their cell phone for talking while driving decreased nearly seven percentage points from 2012 to 2013. Fewer North Dakotans are choosing the safest option possible.

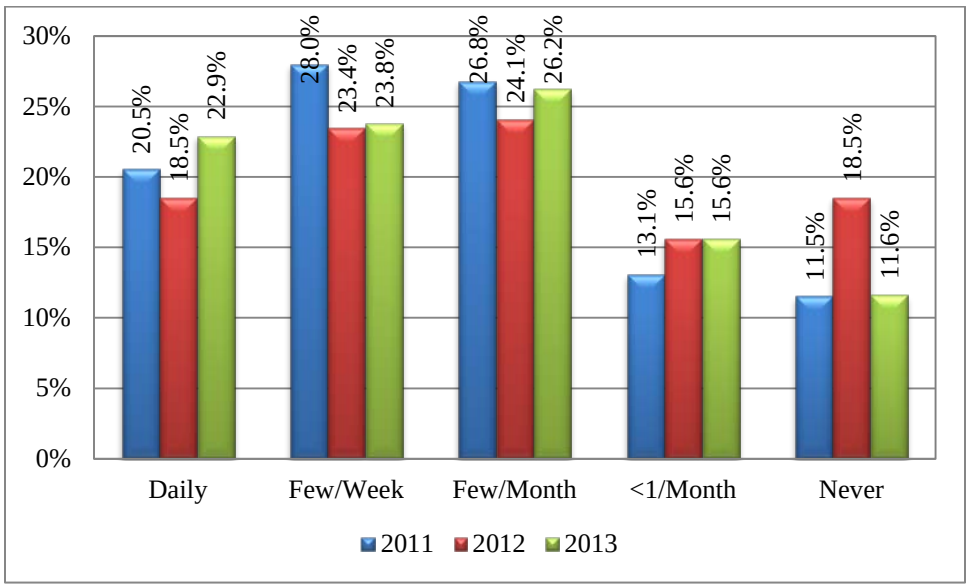

Figure 4.8 Cell Phone Talking Distractions, by Year

Perceptions regarding behaviors of other drivers show there is a "self-versus-other" dichotomy in the state. Respondents believe others are less likely to use seat belts. Self-reported seat belt use show drivers "always" or "nearly always" wear seat belts 91.8% of the time. In contrast, respondents believe other drivers "always" or "nearly always" use seat belts at a rate of 47.9%. A paired samples t-test shows that perceptions of self-versus-other seat belt use are noticeably different ($t=47.564$, $df=1,963$, $p<0.001$). With regard to impaired driving, responses show only about one-third of drivers accurately identified impaired driving frequencies in North Dakota. About one-third (36.5%) of respondents correctly identified the proportion of fatal crashes in the state that involve impaired drivers. However, a larger proportion, 43.1%, thought that the rate of fatal crashes involving alcohol was much greater. This again implies that respondents perceive other drivers to be less safe and partake in dangerous activity. Interestingly, responses show that drivers think the number of DUI arrests issued annually in North Dakota is much smaller than the actual number of total DUI arrests. Whereas 33.1% correctly identified the number of yearly DUI arrests, nearly half (48.2%) thought that there were far fewer DUI arrests in North Dakota on an annual basis. Perhaps there is a link between overestimating annual DUI fatalities and underestimating DUI arrests: this may be explained because – by volume – there are so few fatalities caused by DUI, yet respondents believe that a high proportion of said fatalities involve alcohol. As such, respondents may transitively believe that the number of DUI arrests are also low, yet presume that many of these arrests stemmed from a fatal crash.

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 may be beneficial to investigate differences within the driver population to determine if they are perceived or substantiated. This information may be valuable in more effectively allocating traffic safety resources and conducting program assessments, and focusing programs and strategies beyond traditional typical statewide treatment. To more easily quantify and manage the discussion of driver responses in the strata, numeric values are assigned to the descriptive answers to create ordinal scales. These transformations also allow for expanded statistical analysis of responses. The quantitative scale definitions are provided in Table 4.4.

Stratification in sampling the driver population provides an opportunity to look at the drivers based on region and geography – as defined in the methods section. In addition, the young male driver group can be distinguished as a high-risk driver population. 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 show 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 4.47. This number is below the goal of 5.0 – which is equivalent to "always" in the driver survey response. Table 13 shows the changes in mean values from 2010 to 2013. The principle 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.

Table 4.4 Quantitative Scale Definitions for Responses

Q#	Question	Scale	Conversion Values
1	Seat Belt Use	1-5	1=Never to 5=Always
2	Seat Belt Use, Others	1-5	1=Never to 5=Always
3	Police Presence SB	0-1	0=No, 1=Yes
4	Ticket Likely Seat Belt	1-5	1=Very Unlikely to 5=Very Likely
5	Primary Seat Belt Law	1-5	1=Strongly Oppose to 5=Strongly Favor
6	Ticket Likely Speeding	1-5	1=Very Unlikely to 5=Very Likely
7	30 MPH Speed Zone	1-5	1=Never to 5=Always
8	65 MPH Speed Zone	1-5	1=Never to 5=Always
9	Higher Speeding Fines	1-5	1=Strongly Oppose to 5=Strongly Favor
10	Speeding Ticket	0-1	0=No, 1=Yes
11	Chances of DUI Arrest	1-5	1=Very Unlikely to 5=Very Likely
13	Tougher DUI Penalties	1-5	1=Strongly Oppose to 5=Strongly Favor
14	%Fatalities Involving DUI	1-5	1=1-20% to 5=81-100%
15	Annual DUI Arrests	1-5	1=0-1,499 to 5=More than 6,000
16a	RSH Seat Belt	0-1	0=No, 1=Yes
16b	RSH Speeding	0-1	0=No, 1=Yes
16c	RSH Impaired Driving	0-1	0=No, 1=Yes
16d	RSH Sobriety Checkpoint	0-1	0=No, 1=Yes
17	Cell Phone Text	1-5	1=Never to 5=Daily
18	Cell Phone Talk	1-5	1=Never to 5=Daily

The regional and geographic strata were tested for significant differences. Driver views and self-reported behaviors showed some regional variation in comparing drivers from the east and west. Similar responses for exposure to policy opinions were found when comparing drivers from opposite sides of the state. In all, six issues were statistically significant by region and nine issues were statistically significant in rural/urban comparisons.

There were significant differences in driving behaviors and attitudes. In terms of seat belt use, residents from the western half of the state were more likely to wear safety belts while operating a motor vehicle than respondents from the eastern part of North Dakota (Chi-Sq.=10.032, df=4, p=0.040). This was the first time in the four years of this survey in which seat belt use from western residents outpaced the seat belt use of eastern residents. Respondents from the western portion of North Dakota were more likely to support higher fines for speeding infractions (Chi-Sq.=10.375, df=4, p=0.035). Respondents in the eastern half of the state more often used a cell phone to text while driving than did respondents from the west. This difference was statistically significant at the 1% level (Chi-Sq.=14.252, df=4, p=0.007). Another difference that was significant at the 1% level was that of exposure to messages about sobriety checkpoints; those living in the eastern half of the state were more likely to have had exposure than those living in western North Dakota (Chi-Sq.=16.245, df=1, p<0.001).

Some issues that were statistically significant by region were also statistically significant when comparing rural and urban drivers. For example, just as western residents were more likely to wear a seat belt while operating a vehicle, so too were urban residents more likely to wear a safety belt than their rural counterparts (Chi-Sq.=55.331, df=4, p<0.001) (Figure 4.9). More than three-fourths (75.4%) of urban residents reported using a seat belt “always” compared to just 52.2% of rural residents. A higher proportion of rural residents reported “never” wearing safety belts while operating a motor vehicle. Urban residents have been more likely to use a safety belt when operating a motor vehicle in all four years that this survey has been administered. Exposure to messages about sobriety checkpoints was also statistically significant when factoring for geography: rural residents had a greater likelihood of exposure than urban individuals (Chi-Sq.=12.221, df=1, p<0.001).

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

		Statewide	Region			Geography		
Question	Scale	All	East	West	Sig.	Urban	Rural	Sig.
Seat Belt Use	1-5	4.47	4.44	4.50	*	4.54	4.36	**
Seat Belt Use, Others	1-5	3.49	3.51	3.48		3.52	3.49	*
Police Presence SB	0-1	0.60	0.59	0.61		0.58	0.60	
Ticket Likely Seat Belt	1-5	3.17	3.18	3.15		3.10	3.17	**
Primary Seat Belt Law	1-5	3.04	3.05	3.02		3.05	3.04	
Ticket Likely Speeding	1-5	3.67	3.66	3.68	*	3.63	3.67	
30 MPH Speed Zone	1-5	2.39	2.38	2.40		2.37	2.39	
65 MPH Speed Zone	1-5	2.23	2.22	2.24		2.29	2.23	**
Higher Speeding Fines	1-5	3.08	3.02	3.15	*	3.07	3.08	
Speeding Ticket	0-1	0.07	0.08	0.07		0.07	0.07	
Chances of DUI Arrest	1-5	3.53	3.54	3.52		3.51	3.53	
Tougher DUI Penalties	1-5	4.01	3.99	4.03		4.05	4.01	
%Fatalities Involving DUI	1-5	3.19	3.19	3.20		3.22	3.19	
Annual DUI Arrests	1-5	2.56	2.52	2.60	*	2.58	2.56	
RSH Seat Belt	0-1	0.83	0.83	0.82		0.80	0.83	**
RSH Speeding	0-1	0.39	0.40	0.38		0.36	0.39	**
RSH Impaired Driving	0-1	0.90	0.91	0.89		0.88	0.90	**
RSH Sobriety Checkpoint	0-1	0.63	0.68	0.59	**	0.60	0.63	**
Cell Phone Text	1-5	1.95	2.03	1.86	**	1.98	1.95	
Cell Phone Talk	1-5	3.24	3.27	3.20		3.31	3.24	*

*Significant difference at the 5% level for Pearson Chi-Square test
**Significant difference at the 1% level for Pearson Chi-Square test

In fact, exposure rates to safety messages that can be read, seen, or heard were statistically significant by geography when addressing all four safety messages in this survey. In each instance, exposure levels were greater for rural residents than for their urban counterparts. Exposure rates to messages about safety belts (Chi-Sq.=9.727, df=1, p=0.002), speeding (Chi-Sq.=11.212, df=1, p=0.001), impaired driving (Chi-Sq.=9.412, df=1, p=0.002), and sobriety checkpoints (p=12.221, d=1, p<0.001) were all statistically significant at the 1% level.

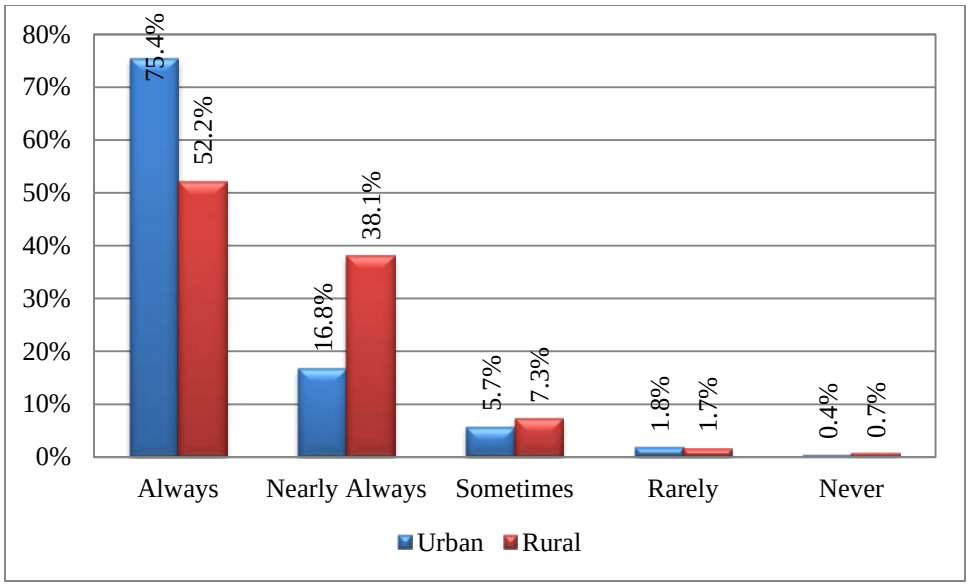

Figure 4.9 Seat Belt Use, by Geography

The four-year trends presented in Table 4.6 provide insight about patterns that may be emerging from North Dakota driver responses. Although only four years of data are provided, some initial conclusions can be made. For example, self-reported seat belt use is currently at a four-year high with an average rating of 4.47. This means that the average North Dakotan is currently wearing a seat belt "always" or "nearly always" when operating a motor vehicle. Another positive trend is that the perceived likelihood of receiving a ticket for not wearing a seat belt is also at a four-year high. This perception may be leading some residents to wear a safety belt more often when operating a motor vehicle.

There are a few negative trends, however, that emerge when examining these results over the previous four years. For example, the frequency with which North Dakotans speed in a 30-mile-per-hour zone has increased each year. Similarly, self-reported statistics for those choosing to speed in a 65-mile-per-hour zone is at a four-year high. This may explain why responses in this survey show that the perceived likelihood of getting a ticket for speeding is lower than it was in 2012. These negative behaviors and perceptions reveal that there is still room for improvement in North Dakota.

Two other trends are noticeable over the four-year period being examined. First, there is a consistent disconnect regarding seat belt use between urban and rural drivers. Urban residents are significantly more likely to wear seat belts while driving when compared to their rural counterparts. Note, however, that in 2013 rural residents' self-reported seat belt use was the highest it has been since this annual survey has been conducted. Although both subcategories are well under the goal of a mean value of 5.00, rural residents are much farther away from this target number. Perhaps more efforts are needed to increase seat belt use among these individuals. Second, sobriety checkpoints are consistently less recognized by residents in the western half of the state than those living in the eastern half. There are still statistically significant differences despite the fact that the exposure rates of eastern residents decreased noticeably compared to 2012 and that exposure rates among western North Dakotans is at a four-year high. It is clear that exposure to messages about sobriety checkpoints is much more common in the east than it is in the western half of North Dakota. Improvement to this area must be made in the future.

Table 4.6 Differences in Driver Views and Behaviors from 2010-2013, by Region and Geography

			Statewide	Region			Geography			Core
Question	Year	Scale	All	East	West	Sig.	Urban	Rural	Sig.	Y/N
Seat Belt Use	2013	1-5	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
Ticket Likely SB	2013	1-5	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
Ticked Likely Speed	2013	1-5	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
Speed 30 MPH Zone	2013	1-5	2.39	2.38	2.40		2.37	2.39		Y
	2012		2.33	2.30	2.35		2.34	2.32		Y
	2011		2.31	2.35	2.22	**	2.31	2.31		Y
	2010		2.29	2.25	2.32		2.29	2.27		Y
Speed 65 MPH Zone	2013	1-5	2.23	2.22	2.24		2.29	2.23	**	Y
	2012		2.19	2.11	2.29	**	2.23	2.15	*	Y
	2011		2.22	2.29	2.04	**	2.16	2.13		Y
	2010		2.19	2.17	2.20		2.20	2.15		Y
Arrest for DUI	2013	1-5	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
RSH Seat Belt	2013	0-1	0.83	0.83	0.82		0.80	0.83	**	Y
	2012		0.88	0.89	0.86		0.85	0.90	*	Y
	2011		0.84	0.84	0.84		0.83	0.87		Y
	2010		0.77	0.76	0.77		0.75	0.80		Y
RSH Speeding	2013	0-1	0.39	0.40	0.38		0.36	0.39	**	Y
	2012		0.38	0.39	0.36		0.36	0.39		Y
	2011		0.38	0.39	0.36		0.39	0.36		Y
	2010		0.57	0.57	0.56		0.57	0.56		Y
RSH DUI	2013	0-1	0.90	0.91	0.89		0.88	0.90	**	Y
	2012		0.90	0.90	0.90		0.90	0.90		Y
	2011		0.88	0.88	0.88		0.87	0.90		Y
	2010		0.85	0.86	0.84		0.86	0.83		Y
RSH S. Checkpoint	2013	0-1	0.63	0.68	0.59	**	0.60	0.63	**	N
	2012		0.65	0.77	0.51	**	0.65	0.66		N
	2011		0.57	0.59	0.53		0.57	0.58		N
	2010		0.68	0.78	0.57	**	0.69	0.64	*	N
Police Presence	2013	0-1	0.60	0.59	0.61		0.58	0.60		N
	2012		0.66	0.71	0.61	**	0.64	0.69	*	N
	2011		0.66	0.66	0.67		0.65	0.69		N
	2010		0.74	0.74	0.75		0.74	0.74		N

*Significant at the 5% level for Pearson Chi-Square test
**Significant at the 1% level for Pearson Chi-Square test

4.2.2 Young Male Driver Target Group

As with the previous three surveys, the selected target group of male drivers between 18 and 34 years of age does show significantly different behaviors, exposure levels, and views when compared to other drivers (Table 4.7). In terms of behavior, high-risk male drivers in this survey are more likely to exhibit behavior at odds with traffic safety goals, such as speeding in a 30 mile per hour zone (Chi-Sq.=13.925, df=4, p=0.008), speeding in a 65 mile per hour zone (Chi-Sq.=61.430, df=4, p<0.001)., texting while driving (Chi-Sq.=243.953, df=4, p<0.001), and talking on the phone while driving (Chi-Sq.=87.957, df=4, p<0.001).

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

Question	Target Male Drivers 18-34 Year-olds n=430	Other Drivers n=1,548	Sig.
Seat Belt Use	4.18	4.52	**
Seat Belt Use, Other Drivers	3.35	3.53	**
Ticket Likely Seat Belt	2.97	3.23	**
Police Presence Increases SB Use	0.42	0.64	**
Primary Seat Belt Law	2.65	3.11	**
Ticket Likely Speeding	3.52	3.71	**
Speed in 30 MPH Zone	2.42	2.38	**
Speed in 65 MPH Zone	2.51	2.15	**
Higher Fines for Speeding	2.64	3.19	**
Received Speeding Ticket in Last Year	0.15	0.05	**
Drive After Drinking 1-2 Drinks	0.59	0.33	**
Drive After Drinking 3+ Drinks	0.19	0.08	**
Chance Arrest for DUI	3.67	3.49	*
Favor/Oppose More DUI Penalties	3.78	4.06	**
RSH Seat Belt	0.82	0.83	
RSH Speeding	0.33	0.42	**
RSH Drunk Driving	0.91	0.89	
RSH Sobriety Checkpoints	0.57	0.66	**
Cell Phone Text	2.77	1.72	**
Cell Phone Talk	3.75	3.09	**
%Fatal Crashes Involving DUI	3.20	3.20	
Annual DUI Arrests	2.71	2.51	**

*Significant difference at the 5% level for Pearson Chi-Square test
**Significant difference at the 1% level for Pearson Chi-Square test

In addition to exhibiting higher levels of risky behavior than the rest of the driver population, young males are also less likely to engage in safe driving behaviors. The high-risk young male drivers surveyed are substantially less likely to wear safety belts than other drivers (Chi-Sq.=58.494, df=4, p<0.001). Only 48.7% of young male drivers “always” wear a seat belt while driving or riding in a vehicle, a number much smaller compared to the 72.3% of other drivers that “always” do so. The share of young males who

report that they “rarely” or “never” use seat belts (6.5%) is more than three times the rate of other drivers (1.8%). Lower reported levels of seat belt usage likely go hand-in-hand with the fact that young male drivers have a lower expectancy for law enforcement to ticket drivers for seat belt violations when compared to the balance of the driver population (Chi-Sq.=25.158, df=4, p<0.001). This implies that these two behaviors from young males are linked: young male drivers do not use seat belts in part because they perceive that there is a low risk of facing consequences from law enforcement for not doing so.

The TSO continues to explore opportunities to increase safe driving behavior overall in this driver group. Young male driver responses to read, seen, or heard education and exposure questions offer some insight. Exposure to traffic safety messages that can be read, seen, or heard vary between the young male drivers and other drivers based on the message at hand. There was no statistically significant difference between messages about using a seat belt (Chi-Sq.=0.341, df=1, p=0.560) and messages regarding impaired driving (Chi-Sq.=0.914, df=1, p=0.339) between the two groups. Differences between high-risk young male drivers and all other driver groups were statistically significant for exposure to material that can be read, seen, or heard about sobriety checkpoints with the young male driver group having less exposure (Chi-Sq.=10.403, df=1, p=0.001). Differences in exposure rates to materials about speeding were also statistically significant at the 1% level (Chi-Sq.=10.640, df=1, p=0.001).

It is particularly interesting to note the attitudes of young male drivers towards driving under the influence of alcohol. Differences in opinions about the chances of getting arrested for DUI are statistically significant at the 5% level with young male drivers thinking there is a greater likelihood of facing arrest (Chi-Sq.=12.108, df=4, p=0.017). Similarly, the mean values of exposure to material that can be read, seen, or heard about impaired driving were higher among young male drivers than all other driver groups, although it was not a statistically significant difference. This suggests that messages regarding driving under the influence of alcohol are successfully reaching this target group and may partially explain why young male drivers believe there is a greater-than-average chance of getting arrested for driving under the influence of alcohol. However, despite the fact that this target group holds these opinions about impaired driving, it is important to understand that – when compared to the rest of the driver population – young male drivers still have a higher propensity to drive within two hours of consuming one or two drinks (Chi-Sq.=63.922, df=3, p<0.001) and a higher likelihood of driving within two hours of consuming three or more drinks (Chi-Sq.=38.309, df=3, p<0.001). This implies that the messages which are reaching young male drivers may not be effective. This in part may explain why young male drivers do not favor more stringent DUI penalties as much as all other drivers (Chi-Sq.=19.152, df=4, p=0.001).

Young male drivers have views about driving that are explicitly different than other drivers. For example, the target age group indicated that they do not think that a greater police presence increases the use of safety belts among drivers as much as the rest of the population does (Chi-Sq.=55.734, df=1, p<0.001) (Figure 4.10). Only 43.1% of high-risk young males agreed that a greater police presence on the roadway directly translates to greater compliance via seat belt use. This is a considerably lower percentage than all other driver groups included in this study.

Moreover, this target group is less likely to support having a primary seat belt law in North Dakota than other groups (Chi-Sq.=38.161, df=4, p<0.001). Whereas only 31.4% of high-risk young male drivers support a primary seat belt law in the state based on those who responded they either “somewhat favor” or “strongly favor” such a law, anywhere from 43.7% to 52.7% of all other groups support having such a law in place.

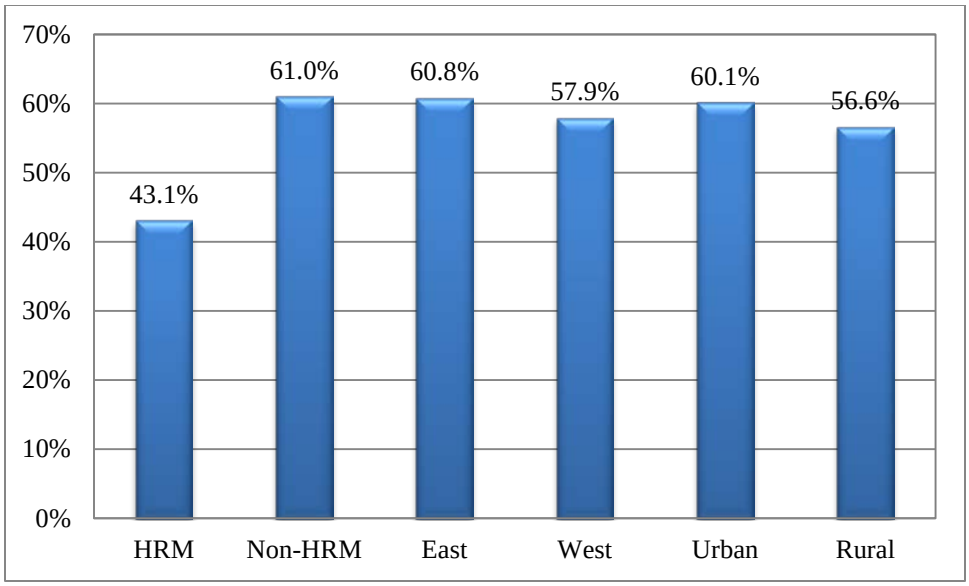

Figure 4.10 Percent Believing that More Police Presence Increases Seat Belt Use, by Group

One contrast from last year is the overall support for a primary seat belt law from various driver groups (Figure 4.11). Overall support for a primary seat belt law has diminished in three of the six driver groups studied and remained the same in one. The most notable improvement in support for a primary seat belt law between 2012 and 2013 has been from rural residents. Whereas 37.2% either "somewhat" or "strongly" favored such a law in 2012, there has been an increase of more than 7 percentage points for support of such a law in 2013. The overall proportion of high-risk males supporting a primary seat belt law in North Dakota increased more than 2 percentage points between 2012 and 2013.

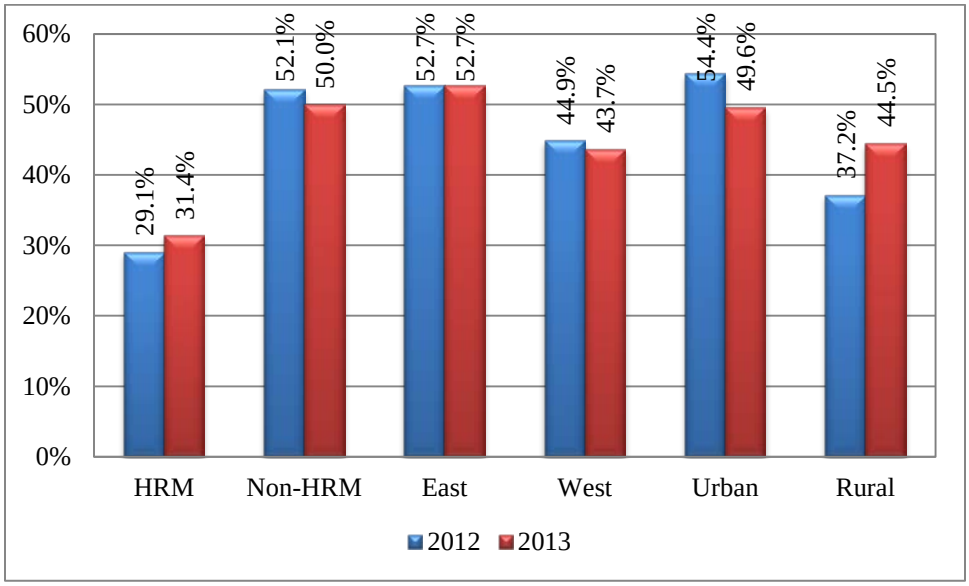

Figure 4.11 Percent of Drivers "Somewhat" or "Strongly" Favoring Primary Seat Belt Law, 2012–2013

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

Table 4.8 Responses for High-Risk Male Drivers

Question		**Responses, by Driver Group**				
Seat Belt Use	n=1,972	Always	N. Always	Sometimes	Rarely	Never
	Other	72.3%	20.4%	5.5%	1.6%	0.2%**
	HR Males	48.7%	32.2%	12.6%	3.6%**	2.9%**
Seat Belt Use, Others	n=1,960	Always	N. Always	Sometimes	Rarely	Never
	Other	2.5%	46.2%	49.4%	1.8%**	0.1%**
	HR Males	2.0%**	36.0%	57.2%	4.8%**	0.0%**
Police Presence	n=1,970	YES[#]	NO[#]	DNK		
	Other	61.0%	39.0%	23.6%		
	HR Males	43.1%	56.9%	14.8%		
Seat Belt Ticket	n=1,969	V. Likely	Sw. Likely	Likely	Unlikely	V. Unlikely
	Other	15.8%	29.5%	21.4%	31.0%	2.3%
	HR Males	12.0%	19.7%	26.2%	35.2%	6.8%**
Primary Seat Belt Law	n=1,965	S. Favor	Sw. Favor	Neutral	Sw. Oppose	S. Oppose
	Other	29.7%	20.3%	18.5%	13.0%	18.5%
	HR Males	19.4%	12.0%	17.8%	16.6%	34.2%
Chance Speed Ticket	n=1,970	V. Likely	Sw. Likely	Likely	Unlikely	V. Unlikely
	Other	24.5%	37.8%	28.7%	8.1%	0.9%**
	HR Males	17.2%	33.1%	36.0%	12.4%	1.2%**
Speed in 30 mph	n=1,973	Always	N. Always	Sometimes	Rarely	Never
	Other	1.2%**	7.5%	35.9%	41.9%	13.5%
	HR Males	3.2%**	8.9%	30.0%	45.5%	12.4%
Speed in 65 mph	n=1,972	Always	N. Always	Sometimes	Rarely	Never
	Other	1.1%**	8.4%	25.6%	46.4%	18.5%
	HR Males	3.0%**	13.5%	31.7%	39.5%	12.3%
Speed Fines	n=1,972	S. Favor	Sw. Favor	Neutral	Sw. Oppose	S. Oppose
	Other	16.6%	23.2%	31.9%	14.8%	13.5%
	HR Males	11.2%	12.0%	30.5%	20.3%	26.1%
Got Speeding Ticket	n=1,970	YES	NO			
	Other	6.2%	93.8%			
	HR Males	15.2%	84.8%			
Chance DUI Arrest	n=1,945	V. Likely	Sw. Likely	Likely	Unlikely	V. Unlikely
	Other	25.7%	29.2%	26.4%	16.8%	1.9%**
	HR Males	28.3%	27.9%	26.9%	15.5%	1.4%**
Drive 1-2 Drinks	n=1,958	None	1-5 Times	6-10 Times	10+ Times	
	Other	71.1%	25.7%	2.6%	0.6%**	
	HR Males	51.5%	39.0%	7.0%	2.5%**	
Drive 3+ Drinks	n=1,865	None	1-5 Times	6-10 Times	10+ Times	
	Other	93.3%	5.8%	0.7%**	0.1%**	
	HR Males	82.3%	15.8%	1.2%**	0.7%**	
DUI Penalties	n=1,963	S. Favor	Sw. Favor	Neutral	Sw. Oppose	S. Oppose
	Other	55.3%	21.9%	14.7%	4.0%	4.1%
	HR Males	42.0%	23.5%	18.9%	6.4%	9.2%
%Fatal Crashes	n=1,955	1-20%	21-40%	41-60%	61-80%	81-100%
	Other	4.2%	16.2%	36.3%	36.5%	6.7%
	HR Males	3.8%**	17.7%	38.1%	35.6%	4.8%**
Yearly DUI Arrests	n=1,904	0-1,499	1,500-2,999	3,000-4,499	4,500-5,999	6,000+
	Other	15.6%	32.9%	33.0%	13.2%	5.3%
	HR Males	11.2%	33.2%	34.5%	14.8%	6.3%**
Cell Phone Text	n=1,965	Daily	Few/Week	Few/Month	<1/Month	Never
	Other	5.3%	12.2%	14.3%	14.6%	53.7%
	HR Males	12.8%	19.9%	24.4%	17.6%	25.3%
Cell Phone Talk	n=1,962	Daily	Few/Week	Few/Month	<1/Month	Never
	Other	21.9%	23.7%	26.1%	16.0%	12.2%
	HR Males	33.7%	25.0%	27.3%	10.3%	3.6%**

Note: Please see Appendix A for exact question and response wording.
[#]"Yes" and "No" percentages based on those who answered yes/no.
**Estimate uncertain due to limited sample size

4.2.3 Young Female Driver Group

Another driver group with noticeable differences in behavior and attitudes is that of 18-34 year-old female drivers. Like their high-risk male counterparts, younger female drivers tend to exhibit behaviors that are more dangerous than all other drivers. Similarly, their attitudes towards safe driving habits and exposure to messages promoting safe driving lag behind other driver groups (Table 4.9). When this female driver group was compared to all other drivers, there were statistically significant differences for each variable studied in this project. The results from the "other driver" group were likely skewed from extreme viewpoints held by high-risk male drivers. As such, the young female driver group was compared only to non-high-risk male other drivers.

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

Question	Target Female Drivers 18-34 Year-olds n=319	Non-HRM Other Drivers n=1,225	Sig.
Seat Belt Use	4.58	4.51	
Seat Belt Use, Other Drivers	3.36	3.58	**
Ticket Likely Seat Belt	3.15	3.25	*
Police Presence Increases SB Use	0.47	0.69	**
Primary Seat Belt Law	3.24	3.08	
Ticket Likely Speeding	3.76	3.70	
Speed in 30 MPH Zone	2.53	2.33	**
Speed in 65 MPH Zone	2.49	2.06	**
Higher Fines for Speeding	2.86	3.28	**
Received Speeding Ticket in Last Year	0.09	0.04	**
Drive After Drinking 1-2 Drinks	0.36	0.32	
Drive After Drinking 3+ Drinks	0.09	0.08	
Chance Arrest for DUI	3.67	3.44	*
Favor/Oppose More DUI Penalties	4.20	4.03	
RSH Seat Belt	0.78	0.84	**
RSH Speeding	0.22	0.47	**
RSH Drunk Driving	0.88	0.90	
RSH Sobriety Checkpoints	0.50	0.69	**
Cell Phone Text	2.59	1.49	**
Cell Phone Talk	3.79	2.91	**
%Fatal Crashes Involving DUI	3.28	3.18	
Annual DUI Arrests	2.67	2.47	

*Significant difference at the 5% level for Pearson Chi-Square test
**Significant difference at the 1% level for Pearson Chi-Square test

The 18-34 year-old female cohort is less likely to think that one will receive a ticket for not wearing a seat belt (Chi-Sq.=11.858, df=4, p=0.018). This group is also less likely to think that greater police presence increases seat belt use among motorists (Chi-Sq.=39.042, df=1, p<0.001). This driver group exhibits especially dangerous behaviors and attitudes for speeding. Young females are more likely to speed in both 30-mile-per-hour zones (Chi-Sq.=23.365, df=4, p<0.001) and 65-mile-per-hour zones (Chi-Sq.=70.627, df=4, p<0.001). The 18-34 year-old female group is less supportive of higher fines for speeding (Chi-Sq.=35.723, df=4, p<0.001) and is more likely to have received a speeding ticket within the last year (Chi-Sq.=13.024, df=1, p<0.001). Young female drivers in North Dakota also have less exposure to safety messages. Advertisements about seat belt use (Chi-Sq.=7.388, df=1, p=0.007), speeding (Chi-Sq.=63.045, df=1, p<0.001), and sobriety checkpoints (Chi-Sq.=39.476, df=1, p<0.001) were all recognized less often by 18-34 year-old females. Like their high-risk young male counterparts, young females were also more likely to text on the phone while driving (Chi-Sq.=243.485, df=1, p<0.001) and more likely to talk on the phone while operating a vehicle (Chi-Sq.=115.846, df=1, p<0.001).

With regard to impaired driving, there was one unique difference among young female drivers and all others. Just like their high-risk young male counterparts, 18-34 year-old females thought that the chances of being arrested for driving under the influence were more likely than did other drivers (Chi-Sq.=13.207, df=4, p=0.010). This reaffirms that messages about the dangers of operating a vehicle while impaired are reaching the key demographic of young drivers.

5. CONCLUSION

The initial statewide driver traffic safety survey provides baseline metrics for the TSO and others in understanding perceptions and behaviors related to focus issues. A core set of questions addresses nationally agreed upon priorities, including seat belts, drinking and 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 based upon examination of trends that have taken place over the last four years of administering this survey. First, there is a clear dichotomy between how urban and rural residents approach the use of a seat belt while operating a vehicle. Results clearly show that rural residents are substantially less likely to use safety belts than their urban counterparts. Improvement in this area must be made to reduce rates of fatalities and serious injuries during crash events among rural North Dakotans. Second, there is a bifurcation among exposure rates to messages about sobriety checkpoints contingent upon whether one lives in the western or eastern half of the state. This study – along with those conducted between 2010 and 2012 – reveal that western North Dakotans are far less exposed to messages about sobriety checkpoints. In a portion of the state that is rapidly succumbing to change via a growing energy sector and oil extraction, it may be beneficial to make residents in this half of the state more aware of this traffic safety tool.

Within the entire driver population, a target driver group of young male drivers engages in relatively high-risk driving practices and has some disregard for reducing potential for crash injury through consistent seat belt use. Many substantial differences in seat belt use, speeding, and distracted driving were found when comparing high-risk young males to all other North Dakota drivers. High-risk males hold especially unique viewpoints towards impaired driving. This group is more likely to believe that one will be arrested when choosing to operate a vehicle after drinking, yet they choose to drive after consuming alcohol at rates that are far greater than all other drivers. More resources must be allocated to this group to change their perceptions and, ultimately, their behaviors regarding impaired driving.

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 more robust by having fewer respondents from western, urban areas and more respondents from western, rural areas. Nonetheless, the response rate for this survey was satisfactory and most of the desired performance metrics were able to be extrapolated to represent the entire North Dakota driver population.

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APPENDIX A. SURVEY INSTRUMENT

2013 North Dakota Driver Survey

All Responses Are Confidential

1. **How often do you use seat belts when you drive or ride in a vehicle?**
   □ Always □ Nearly Always □ Sometimes □ Rarely □ Never

2. **How often do you think other North Dakota drivers use their seat belts?**
   □ Always □ Nearly Always □ Sometimes □ Rarely □ Never

3. **Greater police presence increases seat belt use.**
   □ Yes □ No □ Do Not Know

4. **What do you think the chance is of getting a ticket if you don't wear your seat belt?**
   □ Very Likely □ Somewhat Likely □ Likely □ Unlikely □ Very Unlikely

5. **The secondary seat belt law in North Dakota requires law enforcement to observe a prior traffic violation before issuing a seat belt citation. Do you favor or oppose a primary seat belt law where law enforcement can stop and cite for failure to wear a seat belt only?**
   □ Strongly Favor □ Somewhat Favor □ Do Not Favor or Oppose □ Somewhat Oppose □ Strongly Oppose

6. **What do you think the chance is of getting a ticket if you drive over the speed limit?**
   □ Very Likely □ Somewhat Likely □ Likely □ Unlikely □ Very Unlikely

7. **On a local road with a speed limit of 30 mph, how often do you drive faster than 35 mph?**
   □ Always □ Nearly Always □ Sometimes □ Rarely □ Never

8. **On a road with a speed limit of 65 mph, how often do you drive faster than 70 mph?**
   □ Always □ Nearly Always □ Sometimes □ Rarely □ Never

9. **Do you favor or oppose higher fees/fines for speeding violations?**
   □ Strongly Favor □ Somewhat Favor □ Do Not Favor or Oppose □ Somewhat Oppose □ Strongly Oppose

10. **In the past 12 months, have you received a speeding ticket?**
    □ Yes □ No

11. **What do you think the chances are of someone getting arrested if they drive after drinking alcohol?**
    □ Very Likely □ Somewhat Likely □ Likely □ Unlikely □ Very Unlikely

12. **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

13. **Do you favor or oppose more stringent DUI penalties?**
    □ Strongly Favor □ Somewhat Favor □ Do Not Favor or Oppose □ Somewhat Oppose □ Strongly Oppose

14. **What percentage of fatal crashes in North Dakota do you think involve drunk drivers?**
    □ 1% - 20% □ 21% - 40% □ 41% - 60% □ 61% - 80% □ 81% - 100%

15. **How many DUI arrests do you think are made each year in North Dakota?**
    □ 0 – 1,499 □ 1,500 – 2,999 □ 3,000 – 4,499 □ 4,500 – 5,999 □ More than 6,000

16. **Have you recently read, seen, or heard traffic safety ads relating to:**

Seat Belt Law Enforcement	□ Yes	□ No	**If yes, where?**	□ TV	□ Radio	□ Print	□ Other
Speed Enforcement	□ Yes	□ No	**If yes, where?**	□ TV	□ Radio	□ Print	□ Other
Drunk Driving Enforcement	□ Yes	□ No	**If yes, where?**	□ TV	□ Radio	□ Print	□ Other
Sobriety Checkpoints	□ Yes	□ No	**If yes, where?**	□ TV	□ Radio	□ Print	□ Other

17. **How often do you text message on a cell phone while driving a vehicle?**
    □ Daily □ Few Times per Week □ Few Times per Month □ Less than Once per Month □ Never

18. **How often do you talk on your cell phone while driving a vehicle?**
    □ Daily □ Few Times per Week □ Few Times per Month □ Less than Once per Month □ Never

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

20. **Type of Vehicle You <u>Most Often</u> Drive: (select one)** □ Car □ Pickup □ SUV □ Van □ Motorcycle

21. **Approximate Miles Driven Last Year:** _____

22. **Your Gender:** □ Male □ Female

23. **Your Zip Code:** _____

Thank you for your time and participation.

APPENDIX B. DO NOT KNOW/REFUSE TO ANSWER RESPONSES

Q#	Question	Total Responses	Missing Responses	DNK Responses
	Seat Belt			
Q1	Seat Belt Use	1,981	7	
Q2	Seat Belt Use, Others	1,969	19	
Q3	Police Presence Increases SB	1,529	9	450
Q4	Chance Ticket Seat Belt	1,977	11	
Q5	Primary Seat Belt Law	1,973	15	
	Speeding			
Q6	Chance Ticket Speeding	1,978	10	
Q7	Speed, 30 MPH Zone	1,982	6	
Q8	Speed, 65 MPH Zone	1,981	7	
Q9	Higher Speeding Fines	1,981	7	
Q10	Received Speeding Ticket	1,979	9	
	Alcohol			
Q11	Chance Arrest Drinking	1,953	35	
Q12a	Drive After 1-2 Drinks	1,965	23	
Q12b	Drive After 3+ Drinks	1,872	116	
Q13	More Stringent DUI Penalties	1,971	17	
	Knowledge			
Q14	Percent Fatal Crash DUI	1,962	26	
Q15	Annual DUI Arrests	1,909	79	
	Awareness/Exposure			
Q16a	RSH Seat Belt	1,955	33	
Q16b	RSH Speeding	1,901	87	
Q16c	RSH Drunk Driving	1,952	36	
Q16d	RSH Sobriety Checkpoints	1,929	59	
	Distracted Driving			
Q17	Cell Phone Text	1,971	17	
Q18	Cell Phone Talk	1,967	21	
Total n=1,988				

APPENDIX C. DRIVER RESPONSES BY REGION AND GEOGRAPHY

Question	Region or Geography, Response							
Have you recently read, seen, or heard anything about...	EAST		WEST		URBAN		RURAL	
	YES	NO	YES	NO	YES	NO	YES	NO
Speed Enforcement	40.7%	59.3%	31.3%	68.7%	37.3%	62.7%	32.6%	67.4%
Sobriety Checkpoints	66.5%	33.5%	50.6%	49.4%	58.7%	41.3%	61.1%	38.9%

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	16.4%	14.3%	24.1%	23.8%	24.5%	27.5%
Sw. Likely	31.8%	25.2%	41.6%	32.7%	31.9%	25.7%
Likely	21.1%	22.6%	26.3%	32.8%	24.7%	28.5%
Unlikely	27.8%	35.4%	7.0%	10.1%	16.8%	16.6%
V. Unlikely	2.9%	2.5%	1.1%*	0.7%*	2.0%*	1.7%*

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	15.9%	13.7%	23.9%	24.0%	26.4%	24.0%
Sw. Likely	27.8%	32.2%	36.1%	42.4%	28.6%	30.8%
Likely	20.5%	26.6%	29.9%	26.7%	26.9%	25.0%
Unlikely	32.7%	26.0%	9.1%	5.9%	16.2%	18.8%
V. Unlikely	3.0%	1.5%*	0.9%*	0.9%*	1.9%*	1.5%*

Times driving after drinking 1-2 drinks in the past 60 days…	None	1-5 Times	6-10 Times	10+ Times
East	68.8%	27.1%	3.4%	0.7%*
West	70.4%	26.3%	2.5%*	0.8%*
Urban	69.7%	26.7%	2.7%	0.8%*
Rural	68.9%	26.9%	3.8%*	0.4%*

Times driving after drinking 3+ drinks in the past 60 days…	None	1-5 Times	6-10 Times	10+ Times
East	92.6%	6.0%	1.2%*	0.1%*
West	92.1%	7.4%	0.3%*	0.3%*
Urban	92.5%	6.7%	0.7%*	0.2%*
Rural	92.1%	6.6%	1.2%*	0.1%*

Seat Belt Use	Always	N. Always	Sometimes	Rarely	Never
East	69.0%	24.0%	5.4%	1.0%*	0.5%*
West	72.2%	18.1%	6.7%	2.6%*	0.4%*
Urban	75.4%	16.8%	5.7%	1.8%*	0.4%*
Rural	52.5%	38.1%	7.3%	1.7%*	0.7%*

Text messaging while driving	Daily	Few/Week	Few/Month	<1/Month	Never
East	6.1%	10.4%	15.7%	13.8%	53.9%
West	5.5%	15.8%	14.3%	16.0%	48.4%
Urban	5.4%	12.5%	14.1%	14.0%	54.0%
Rural	7.4%	14.0%	18.8%	18.1%	41.8%

Talking on cell phone while driving	Daily	Few/Week	Few/Month	<1/Month	Never
East	21.3%	22.5%	24.5%	18.3%	13.4%
West	24.7%	25.3%	28.1%	12.4%	9.3%
Urban	22.6%	22.9%	25.8%	16.2%	12.6%
Rural	23.9%	27.3%	27.7%	13.4%	7.8%