

# Survey of Seat Belt Use

WYOMING 2016



*Wyoming*

Wyoming State Government

Wyoming Department of  
Transportation

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The protocols implemented for this study are in accordance with the federal guidelines established in 2012, which distinguish it from all prior surveys of seat belt use in Wyoming. The standards and protocols align with the Uniform Criteria for State Observational Surveys of Seat Belt Use, 23 CFR Part 1340. The 2016 survey analysis is the fifth survey conducted under the 2012 guidelines for seat belt use in the state of Wyoming.

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Table of Contents

Acknowledgments ..... 1

Executive Summary..... 5

    Frequencies ..... 5

    Weighted Estimates of Seat Belt Use ..... 5

    Trends in Wyoming Seat Belt Use, 2012-2016 ..... 7

Introduction ..... 8

Overall Estimates, with Standard Errors and Confidence Intervals ..... 9

Observers ..... 11

The Unweighted Frequencies: Wyoming 2016 ..... 12

Estimates of Occupant Seat Belt Use ..... 18

    Driver and Passenger Comparisons ..... 23

        Drivers and Passengers by Gender and Vehicle Type ..... 26

        Drivers and Passengers by County ..... 26

Trends: 2012-2015..... 29

    Vehicle Occupants ..... 29

    Estimate of Seat Belt Use ..... 30

    Gender ..... 31

    Vehicle Type..... 32

    Population Density ..... 33

    Roadway ..... 34

    Vehicle Registration ..... 35

    Trend in Seat Belt Use by County ..... 36

    Trends in Seat Belt Use for Vehicle Type and Gender ..... 37

Conclusion..... 37

Appendix A: state seat belt use reporting form ..... 38

Appendix B: survey design for Wyoming ..... 39

Appendix C: NHTSA approval and final review ..... 40

Appendix D: detailed tables of collected data ..... 41

    Occupant Seat belt Use Estimates ..... 42

    Occupant Frequencies..... 43

    Occupant seat belt use ..... 47

Driver frequencies .....	50
Driver seat belt estimates.....	54
Passenger frequencies .....	59
Passenger seat belt estimates .....	62
Trends: occupant seat belt use .....	66
Appendix E: observer field test rating .....	42
Appendix F: unknown seat belt use .....	43
Appendix G: Reporting requirements .....	44
Appendix H: SPSS data dictionary .....	45
Figure 1: Frequencies by occupant type .....	12
Figure 2: Frequencies by gender type.....	12
Figure 3: Frequencies by county.....	13
Figure 4: Frequencies by vehicle type .....	13
Figure 5: Percent belted all occupants and occupants in pickup trucks by county .....	14
Figure 6: Frequencies by Site Population Type .....	15
Figure 7: Frequencies by Type of Roadway .....	16
Figure 8: Frequencies by Weekday of Observation.....	16
Figure 9: Frequencies by Weekend and Weekdays .....	17
Figure 10: Frequencies by Registration Type .....	17
Figure 11: Percent belted by occupant type.....	18
Figure 12: Percent belted by occupant gender .....	19
Figure 13: Percent belted by county .....	19
Figure 14: Percent belted by population density.....	20
Figure 15: Percent belted by roadway type.....	20
Figure 16: Percent belted by weekday/weekend.....	21
Figure 17: Percent belted by vehicle type and gender .....	22
Figure 18: Percent belted by occupant type and gender .....	23
Figure 19: Percent belted by occupant and vehicle type.....	24
Figure 20: Percent belted occupant and registration type .....	24
Figure 21: Percent belted by occupant and roadway type .....	25
Figure 22: Percent belted by occupant and weekday/weekend.....	25
Figure 23: Observational Frequencies of Vehicle Occupants, Wyoming Seat Belt Survey, 2012-2016 .....	29
Figure 24: Occupant Seat Belt Use Rates in Wyoming, 2012 to 2016 .....	30
Figure 25: Occupant Seat Belt Use Rates by Gender, Wyoming 2012 to 2016.....	31
Figure 26: Occupant Seat Belt Use by Vehicle Type, Wyoming 2012-2015 .....	32
Figure 27: Occupant Seat Belt Use Rates by Population Density, Wyoming, 2012-2016 .....	33
Figure 28: Occupant Seat Belt Use Rates by Roadway Type, Wyoming, 2012-2015.....	34
Figure 29: Occupant Seat Belt Use Rates by License Status, Wyoming 2012-2015.....	35

Table 1: Estimate of Occupant Belt Use.....	9
Table 2: Estimate of Driver Belt Use.....	9
Table 3: Estimate of Passenger Belt Us.....	10
Table 4: Observers and Frequencies of Vehicle Occupants .....	11
Table 5: Percent belted all occupants and occupants in pickup trucks by county.....	15
Table 6: Occupant Belt Use by Vehicle Type and Gender .....	22
Table 7: Estimates by type of vehicle occupant.....	23
Table 8: Percent belted and frequencies by gender, occupant, and vehicle type .....	26
Table 9: Percent belted and frequencies by county and occupant .....	27
Table 10: Occupant Seat Belt Usage Rates by County, Wyoming 2012-2016.....	36
Table 11: Occupant Belt Use by Vehicle Type and Gender, Wyoming 2013-2016 .....	37

## Executive Summary

The 2016 survey of seat belt use in Wyoming was conducted during the week of June 6 through June 12, 2016. Observations of seat belt use were collected at 288 sites within sixteen counties. Observers engaged in direct data entry using iPads, and the data were analyzed with the use of Excel spreadsheets and SPSS 20.0 software, including the SPSS Complex Samples Module for weighting the data by the sampling probabilities of the sites.

For Wyoming in 2016, the weighted estimates of seat belt use are 80.5 percent belted for all vehicle occupants, 78.2 percent belted for drivers, and 86.2 percent belted for passengers. The standard errors are 0.1 percent for vehicle occupants, 0.2 percent for drivers, and 0.2 percent for passengers.

Additional results include a summary of the analysis of the frequencies, and a summary of the weighted estimates of seat belt use.

## Frequencies

- The data set included observations of 17,939 drivers and 6,954 front seat outboard passengers, totaling 24,893 vehicle occupants.
- Of the 24,893 vehicle occupants, 58.2 percent were male and 41.8 percent were female.
- The average number of observations by county was 1,556, but the range for counties included a low of 590 in Sublette County to a high of 3,271 in Teton County.
- Pickup trucks represented the vehicle type with the largest number of vehicle occupants at 35.7 percent of the sample.
- Almost three-fourths of the observations were collected in rural areas with a population of 5,000 or fewer residents.
- More than seven of every ten observations were collected from sites within secondary roadways.
- More than eight of every ten observations were collected during the weekdays, Monday through Friday.
- More than six of every ten vehicle occupants were in vehicles registered in Wyoming.

## Weighted Estimates of Seat Belt Use

The bulleted items below describe the contextual variables that are tracked:

- Drivers represented more than seven of every ten vehicle occupants, but their 76.8 percent usage rate was lower than that for passengers, whose rate was 86.2 percent. In 2016, of the 17,939 vehicles in this year's survey, only 6,954 vehicles had front seat outboard passengers. As a result, the behavior of drivers was the main determinant of the overall seat belt usage rate.
- Observers were "unsure" about seat belt use for only 1.5 percent of all vehicle occupants.

- Although women were the minority in this survey, their rate of seat belt use was almost nine percent higher than the male rate. The data also revealed that women had higher rates of seat belt use than men in every vehicle type.
- There was considerable variation in seat belt use for the individual counties. The highest rate was found for Carbon County at 90.5 percent, while the lowest rate was 64.5 percent in Sweetwater County. About half of the counties had rates above the statewide average of 80.5 percent, and half the counties had lower rates of seat belt use.
- The seat belt usage rate in urban sites was 71.7 percent, and in rural sites the belted rate was 83.1 percent belted. Because almost three-fourths of the observations were from rural sites, the vehicle occupants in the rural sites were greater determinants of the overall rate of seat belt use.
- The greatest share of observations came from vehicle occupants observed on secondary roads, and the rate of seat belt use on secondary roads was 78.2 percent for Wyoming in 2016. Vehicle occupants on primary roads had a rate of 88.5 percent belted, but they made up about a fifth of all observations. Vehicle occupants on local, rural and city roads had the lowest rate of seat belt use at 69.7 percent, but they comprised less than four percent of the total sample.
- The data revealed that the seat belt usage rate was higher on the two days of the weekend, but more than eight of ten observations were collected from Monday through Friday.
- Women had higher rates of seat belt use in every vehicle type, and they were above the statewide rate in every vehicle type. Male seat belt usage rates were particularly low when they were observed in pickup trucks. That rate of 69.4 percent belted was significant because men in pickup trucks represented almost half of all male vehicle occupants. Furthermore, males in pickup trucks represented more than a fourth of all vehicle occupants in this year's survey.
- In this report, the data was expanded in the section where estimates for drivers and passengers were considered. Generally, passengers, who were very much in the minority of the survey, had higher rates of seat belt use than drivers. Otherwise, the patterns of seat belt use tended to parallel the results for all vehicle occupants.

## Trends in Wyoming Seat Belt Use, 2012-2016

Given that this is the last year for the methodology and the sample originally developed in 2012, the report includes an additional section on trend data. Below is a list of highlights related to the compilation of data from 2012 to the current period.

- There has been considerable growth in the number of observations over the five years, but the rate of increase declined over the past two years.
- The overall estimates of seat belt use differed by no more than a percent or two over the years. The small differences may be statistically significant because of the large sample size, but the differences by year were far from dramatic.
- The differences by gender have been relatively stable over most of the years.
- The low rates of seat belt use for males in pickup trucks has been a consistent finding. This suggests that any improvements in this category would likely have a significant effect on the overall statewide rate.
- Except for an anomaly in 2013, seat belt use rates have been higher in rural areas and on primary roadways. However, rates for vehicle occupants on secondary roadways in rural areas have the greatest impact on the statewide rates.
- Vehicle occupants in out-of-state vehicles have a higher rate of seat belt use than occupants in Wyoming vehicles for every survey year.
- There is considerable variation in seat belt use in the different counties across the years. However, analysis of the data revealed seven counties that were consistently above the statewide average for most years, and another six counties that were usually below the statewide average. (Counties identified in Figure 13)
- Seat belt use by vehicle type and gender have shown consistent patterns across the last four surveys.

More details, tables and graphs can be found in the narrative. Additional documents, and more complete tables can be found in the appendices to this report.



## Introduction

During the week of Monday, June 6 through Sunday, June 12, 2016, trained observers were dispatched to each of the 18 sites within 16 counties in Wyoming. That is a total of 288 sites that were included in this year's study of seat belt use in the "Equality State." In addition, there were two veteran observers whose primary role was to conduct quality assurance reviews at randomly determined sites throughout the week of the survey. Also, two observers were trained so they could step in as alternates when needed. In each instance, observers were equipped with the maps, protocols, and directions to carry out their assignments.

Collectively, they recorded the seat belt use for 17,939 drivers and 6,954 front seat outboard passengers, for a total of 24,893 observations.

This year, 2016, is the third year that observations were recorded directly into iPads, bypassing paper and pencil records and eliminating redundant steps in data processing. Observers sent their electronic records to the staff at DLN Consulting, Inc., who collated and exported the observations into Excel spreadsheets. Eventually, the data was imported into the *Statistical Program for the Social Sciences, v. 20.0* (SPSS), the software program used to analyze the results. Throughout this process, the staff reviewed the records so that the final product was error free. Once cleaned and in SPSS, the three separate files for drivers, passengers, and drivers and passengers combined into all vehicle "occupants," were given variable names, value labels, missing value codes, and other identifying information necessary to prepare the data sets for analysis.

The estimates of seat belt use in this report use the sampling probabilities associated with each site in the sampling methodology approved for Wyoming. The sampling plan was incorporated into the SPSS "Complex Samples Module," which weights the data to permit the calculation of accurate estimates of seat belt use.

The most important numbers in this report were the weighted estimates of seat belt use. However, the report also includes data related to the unweighted frequencies in order to provide full information about the drivers and passengers included in this year's sample. While this information may be useful, statistical inferences from the data should be limited to the estimates that take into account the probabilities used to standardize the results and make them generalizable to conclusions about seat belt use in Wyoming.

After a review of the unweighted frequencies, this report will focus on the estimates of seat belt use for all vehicle occupants, then to a consideration of drivers and passengers separately. In each case, seat belt use associated with several contextual variables will be presented. In particular, seat belt use by vehicle occupants of different gender, in different types of vehicles, in the different counties, within different roadway types, in sites with different population densities, during different days of the week, and in vehicles registered in Wyoming or out-of-state. The report includes commentary as appropriate and graphics as needed to illustrate the results. For questions that are not answered in the narrative, the appendices provide detailed data that can be used to further understand seat belt use in Wyoming, 2016.

## Overall Estimates, with Standard Errors and Confidence Intervals

For this year’s survey, observers collected data on 17, 939 drivers and 6,954 front seat outboard passengers, for a total of 24,893 vehicle occupants. Drivers made up 72.1 percent and passengers made up 27.9 percent of the vehicle occupants. The number of observations was 211 more vehicle occupants than the 2015 number of 24,682.

The overall estimate of seat belt use in Wyoming 2016 is 80.5 percent for the total of 24,893 vehicle occupants. This estimate has a standard error of 0.1 percent, and the 95 percent confidence interval calculation has a range of 80.3 percent to 80.8 percent. Observers were unsure of seat belt use for 328 (1.5%) of the vehicle occupants. The results for all vehicle occupants are presented in the following table. This 2016 estimate was slightly higher, by 0.7 percentage points, than the 2015 estimate of 79.8 percent.

Table 1: Estimate of Occupant Belt Use

	Estimate	Standard Error	95% Confidence Interval		Unweighted Count
			Lower	Upper	
% of Total					
Belted	80.5%	.1%	80.3%	80.8%	19,899
Not Belted	17.9%	.1%	17.7%	18.2%	4,666
Unsure	1.5%	.0%	1.4%	1.6%	328
Total	100.0%	0.0%	100.0%	100.0%	24,893

Data was also calculated to determine the estimate of seat belt use for the 17,939 observations of drivers. For the drivers, the estimate was 78.2 percent belted. Observers were unsure about seat belt use for 232 (1.3%) drivers. The standard error was 0.2 percent, and the confidence intervals for the estimate had a lower range of 77.9 percent and a higher estimate of 78.5 percent. This is consistent with the results of Wyoming seat belt surveys conducted in prior years. The seat belt usage rate for drivers was typically lower than the overall rate by a small percentage. The estimate for the drivers is presented in Table 2.

Table 2: Estimate of Driver Belt Use

	Estimate	Standard Error	95% Confidence Interval		Unweighted Count
			Lower	Upper	
% of Total					
Belted	78.2%	.2%	77.9%	78.5%	13,986
Not Belted	20.4%	.2%	20.1%	20.7%	3,721
Unsure	1.4%	.0%	1.3%	1.5%	232
Total	100.0%	0.0%	100.0%	100.0%	17,939

The estimate for the 6,954 passengers was 86.2 percent seat belt use. Observers were unsure about seat belt use for 96 (1.8%) of the passengers. The standard error was 0.2 percent; the 95 percent confidence intervals had a lower range of 85.8 percent and an upper range of 86.6 percent. The estimate is also consistent with prior surveys in Wyoming in that passengers typically have a higher rate of seat belt use than drivers. These results are illustrated in Table 3.

Table 3: Estimate of Passenger Belt Us

	Estimate	Standard Error	95% Confidence Interval		Unweighted Count
			Lower	Upper	
% of Total					
Belted	86.2%	.2%	85.8%	86.6%	5,913
Not Belted	12.0%	.2%	11.6%	12.4%	945
Unsure	1.8%	.1%	1.6%	1.9%	96
Total	100.0%	0.0%	100.0%	100.0%	6,954

In the following sections, the report begins with information on the observers who collected the data for this survey.

The next section of this report focuses on a presentation of the *unweighted* frequencies for the 2016 survey. These frequencies for the contextual variables provide the raw data that describe the data set. Readers may find this helpful for understanding the characteristics of the observations in the data. This section introduces the major variables, for which weighted estimates are then provided.

After the presentation of the unweighted frequencies, the *weighted* estimates for the main variables in the study are presented. Observers collect information on far more than the seat belt use of occupants, and the seat belt use within these variables makes up a major part of this report.

Next, there is a discussion of the seat belt use of drivers and passengers.

Finally, in the last section of the narrative, some of the major trends in seat belt use in Wyoming over the past five years, 2012-2015, are presented. During those years, the methodology remained the same. As a result, the findings are comparable across the surveys.

## Observers

The quality of any data depends on the accuracy of the recorded observations. As in previous Wyoming surveys, the observers for the 2016 study were trained and their work was monitored during the week of the survey. Two veteran observers provided quality control assurances. Every observer was directed by the observational protocols; each was provided directions and maps to each of their assigned sites. The observers had continuing access to DLN staff throughout the survey week. Reports of observations were routinely monitored by and submitted to DLN during the data collection process.

Table 4 identifies each observer, his or her assigned county, and the number of observations recorded. The average number of observations for 2016 was 1,383 vehicle occupants, but there was a considerable range due to the relative traffic in each county. The largest number of observations occurred in Teton County with 3,721 vehicle occupants, and the lowest number was 590 vehicle occupants in Sublette County.

Please note that there were two observers for Carbon County (Spencer and Darden), and two observers for Sheridan County (Wilson and Parkinson). For logistical reasons, these alternate observers were needed for some of the sites in each of these counties. In all the rest of the counties, one observer covered all the sites within the assigned county.

Table 4: Observers and Frequencies of Vehicle Occupants

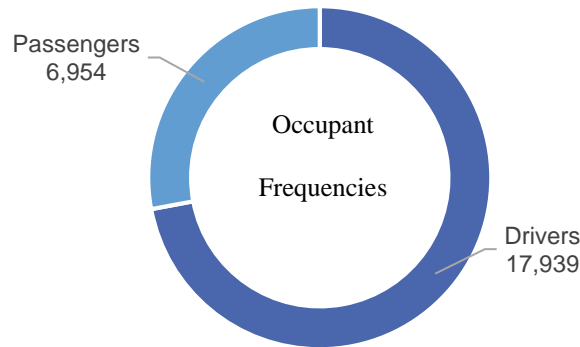
Observer	County	Frequency	Percent	Valid Percent	Cumulative Percent
Monty Byers	Albany	1,809	7.3	7.3	21.0
Dixie Elder	Big Horn	731	2.9	2.9	72.6
Daleen Sebelius	Campbell	1,956	7.9	7.9	42.1
Bill Spencer	Carbon	1,204	4.8	4.8	25.8
Brooke Darden	Carbon	32	0.1	0.1	83.8
Melissa Garcia	Fremont	1,472	5.9	5.9	48.0
Deb Eutsler	Johnson	1,777	7.1	7.1	79.7
Patrick White	Laramie	771	3.1	3.1	51.1
Dawn Edwards	Lincoln	1,403	5.6	5.6	56.7
Tammy Cussins	Natrona	973	3.9	3.9	83.7
Donna Lucas	Park	1,629	6.5	6.5	6.5
Doug Peterson	Platte	1,542	6.2	6.2	62.9
Logan Wilson	Sheridan	1,087	4.4	4.4	67.3
Susan Parkinson	Sheridan	315	1.3	1.3	85.1
Tonya Dove	Sublette	590	2.4	2.4	69.7
Kayla Shear	Sweetwater	2,097	8.4	8.4	34.2
Peggy Dowers	Teton	3,721	14.9	14.9	100.0
Randi Egley	Uinta	1,784	7.2	7.2	13.7
Total		24,893	100.0	100.0	

## The Unweighted Frequencies: Wyoming 2016

This section of the report presents the unweighted frequencies for the vehicle occupants in Wyoming 2016. These “raw” frequencies do not take into account the adjustments made for sampling probabilities, a weighting process that produces the estimates of seat belt use. Readers should be cautious about generalizing from these frequencies to any actual measures of seat belt use. However, as long as these frequencies are viewed as describing the makeup of the data set, and do not include inferences about seat belt use, the information may be helpful.

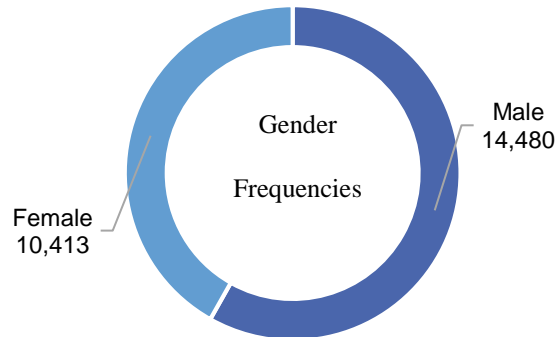
**Vehicle Occupants.** Of the 24,893 vehicle occupants in the survey, 17,939 (72.1%) were drivers and 6,954 (27.9%) were front seat outboard passengers. This means that there were no passengers, drivers only, in more than seven of every ten vehicles observed. Figure 1 illustrates these results.

Figure 1: Frequencies by occupant type



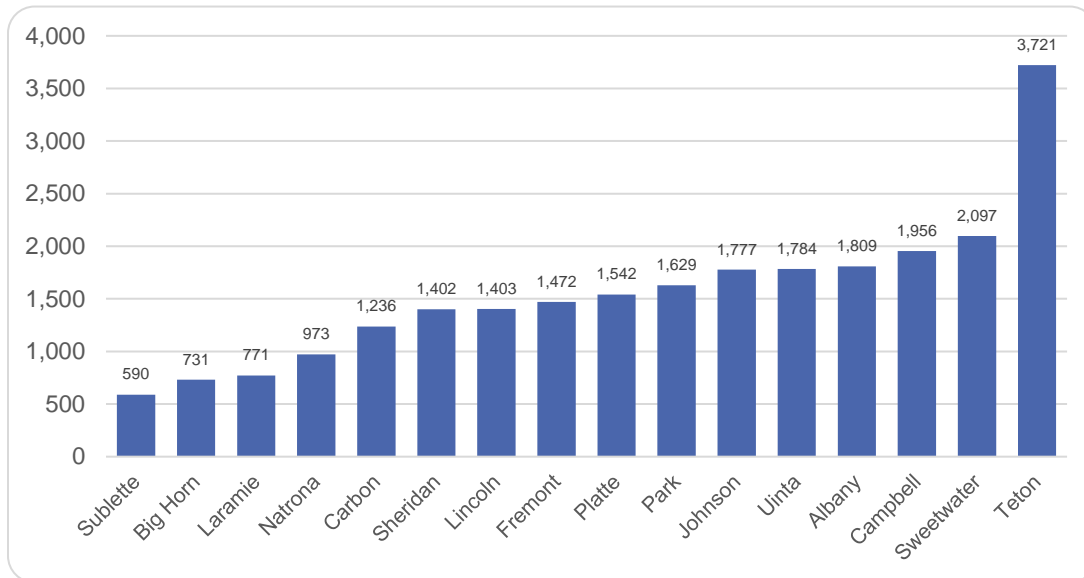
**Occupant Gender.** Of the 24,893 vehicle occupants, observers identified 14,480 (58.2%) as male and 10,413 (41.8%) as female. See Figure 2 for an illustration of these results.

Figure 2: Frequencies by gender type



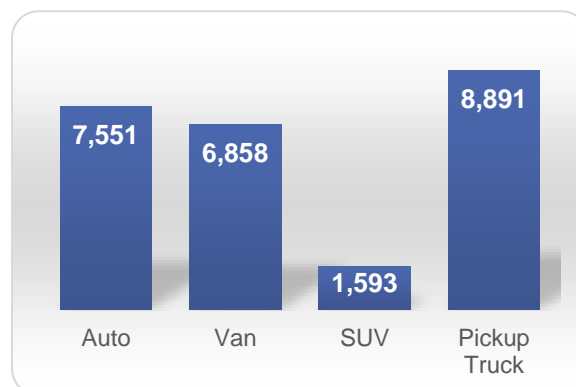
**County Frequencies.** Observations were collected in all of the sixteen counties. The average number of observations by county was 1,556, but the frequencies ranged from a low of 590 in Sublette County to 3,721 in Teton County. There were eight counties with an above average number of observations: including Teton County, they were Albany, Campbell, Carbon, Johnson, Park, Sweetwater and Uinta Counties. The remaining eight counties, including Sublette County, had below average frequencies of observation. They are Big Horn, Fremont, Laramie, Lincoln, Natrona, Platte, Sheridan, and Sublette Counties. Figure 3 illustrates the county distributions.

Figure 3: Frequencies by county



**Vehicle Type.** The largest number of occupants were observed in pickup trucks, with 8,891 occupants (35.7%) This may lead to a stereotype of Wyoming as a pickup truck kind of state. However, 64.3 percent of the occupants were in other types of vehicles. There were 7,551 (30.3%) drivers and passengers in automobiles and 6,858 (27.5%) in vans. The smallest number of occupants for any single vehicle type were found in SUVs: 1,593 (6.4%). Figure 4 illustrates these frequencies.

Figure 4: Frequencies by vehicle type



**Frequencies by County and Vehicle Type.** The lowest rate of seat belt use in Wyoming occurred among occupants of pickup trucks, especially for males, who were also the most common occupants of pickup trucks. Therefore, the seat belt usage rate for any given county is likely to reflect the relative frequency of pickups. For 2016, the average number of vehicle occupants in pickup trucks was 556. However, the absolute frequency was not particularly meaningful because of the relative number of total vehicle occupants. The more meaningful number was the 35.7 percent of pickup truck occupants across all counties. Counties that were above this average included Big Horn (41.7%), Campbell (43.8%), Fremont (37.1%), Johnson (37.3%), Lincoln (37.9%), Park (40.3%), Sheridan (44.2%), Sublette (45.6%), Sweetwater (38.3%), and Uinta (36.5%). Most of the rest of the counties were only a few percent below the average. The exception is Teton, where 23.1 percent of the vehicle occupants were in pickup trucks. Figure 5 depicts these results.

Figure 5: Percent belted all occupants and occupants in pickup trucks by county

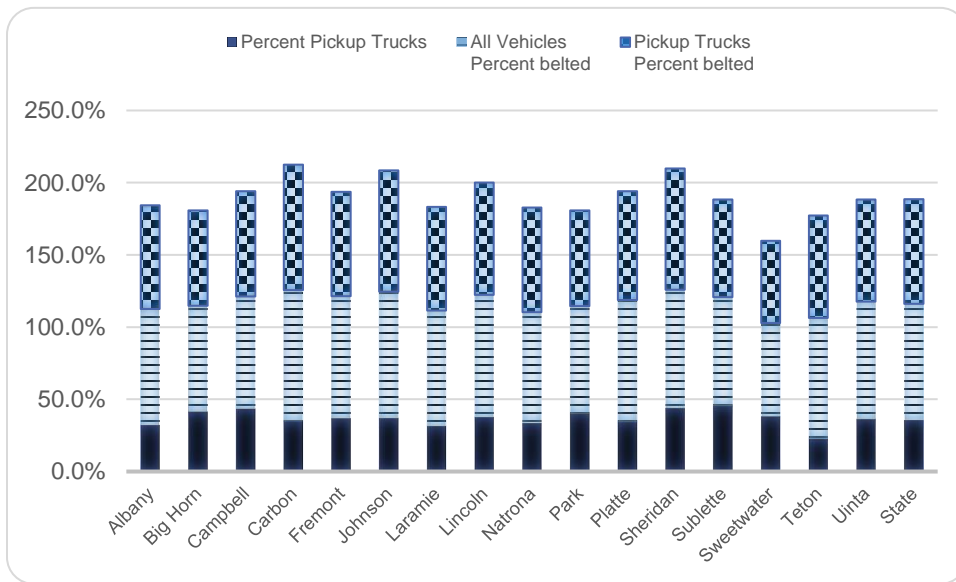
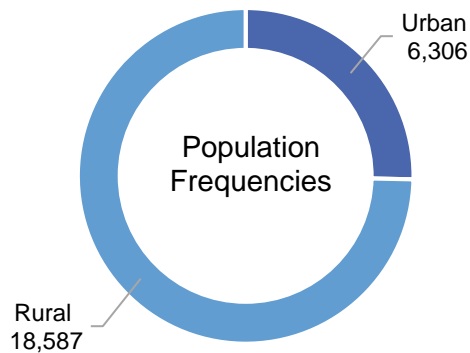


Table 5: Percent belted all occupants and occupants in pickup trucks by county

County	Percent Pickup Trucks	All Vehicles Percent belted	Pickup Trucks Percent belted
Albany	32.4%	80.2%	71.7%
Big Horn	41.7%	73.1%	65.9%
Campbell	43.8%	77.4%	72.9%
Carbon	35.2%	90.5%	86.9%
Fremont	37.1%	84.3%	72.2%
Johnson	37.3%	87.2%	84.1%
Laramie	31.6%	79.9%	71.7%
Lincoln	37.9%	84.4%	77.7%
Natrona	33.6%	76.7%	72.5%
Park	40.3%	74.2%	66.2%
Platte	34.8%	84.0%	75.4%
Sheridan	44.2%	81.8%	84.0%
Sublette	45.6%	75.1%	67.7%
Sweetwater	38.3%	64.5%	57.0%
Teton	23.1%	83.2%	70.9%
Uinta	36.5%	81.1%	70.6%
Total	35.7%	80.5%	72.4%

**Population Density.** In Wyoming, sites with fewer than 5,000 residents are defined by the state as *rural*, while *urban* sites have a population of 5,000 or more. Given these definitions, the great majority of sites in Wyoming are rural, and most of the observations for 2016 were collected in these rural sites. For this year, 18,587 (74.7%) of vehicle occupants were observed in these rural sites and 6,306 (25.3%) were observed in urban sites. These results reflect the stereotypical image of Wyoming as a land of wide-open spaces with relatively low-density populations. Figure 6 illustrates these frequencies.

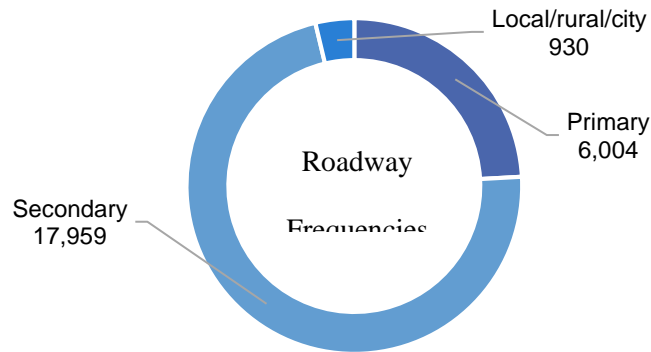
Figure 6: Frequencies by Site Population Type





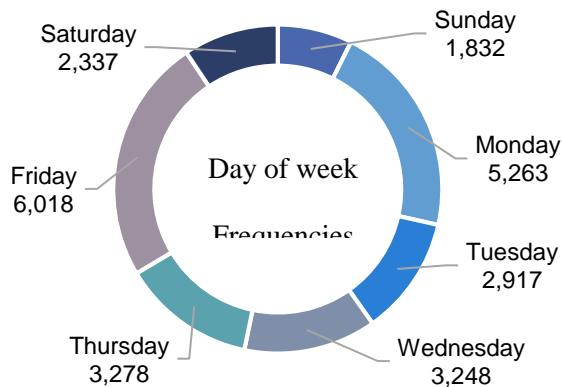
**Type of Roadway.** The definition of roadway type as *primary*, *secondary*, and a catch-all category of *local/rural/city* come from National Highway Traffic Safety Administration’s (NHTSA) classification. In Wyoming, the largest number of vehicle occupants, 17,959 of the 24,893 (72.1%), were observed within secondary roadways. Of the remainder, 6,004 (24.1%) were on primary roads and 930 (3.7%) were observed within local/rural/city roadways. Figure 7 illustrates these results.

Figure 7: Frequencies by Type of Roadway



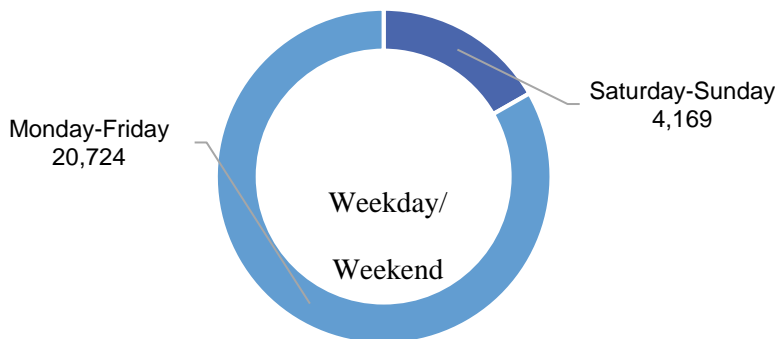
**Frequencies by Day of Week.** The largest number of observations were collected on Monday (21.1%) and Friday (24.2%); together, those two days accounted for 11,281 of the observed vehicle occupants, or, taken together, 45.3 percent of the observed vehicle occupants. The fewest observations were on the weekend, with 7.4 percent on Sunday and 9.4 percent on Saturday. Figure 8 illustrates the distribution by day of observation.

Figure 8: Frequencies by Weekday of Observation



**Weekdays and Weekend.** Given the frequencies by individual day of the week, it is no surprise to find that 83.3 percent (20,724) of the vehicle occupants were observed on the weekdays from Monday through Friday. Saturday and Sunday accounted for 16.7 percent (4,169) of the observations. An illustration of this distribution can be seen in Figure 9.

Figure 9: Frequencies by Weekend and Weekdays



**Vehicle Registration.** Included among the other variables is the vehicle registration based on the observers' check of license plates. The classification associated with each vehicle occupant is a dichotomy: either a Wyoming license or an out-of-state license was recorded. For 2016, 15,304 (61.5%) of the observers were in Wyoming-registered vehicles. There were 8,846 (35.5%) in out-of-state vehicles. Observers were unsure of the type of vehicle license for 743 (3.0%) of the occupants. These frequencies are illustrated in Figure 10.

Figure 10: Frequencies by Registration Type



**Other Variables.** Additional information was collected about factors associated with the observations. For example, 71.6 percent of the observations were collected in the 9:30-11:30 AM, 1:30-3:30 PM, and 3:30-5:30 PM time slots; 28.6 percent were collected in the early morning (7:30-9:30 AM) and noon (11:30-1:30 PM) time slots. In addition, the weather was clear and sunny when 19,317 (77.6%) of the observations were collected. Another factor involved the number of lanes of traffic; data on occupants was collected almost evenly between observations of two lanes (52.2%) and one lane (47.8%). The direction of the traffic during the observations was most commonly westbound (30.7%), the fewest were eastbound (20.3%), with the north and southbound observations at about one-quarter each. The detailed tables for these variables, like all the tables produced for this survey, can be found in the appendices.

## Estimates of Occupant Seat Belt Use

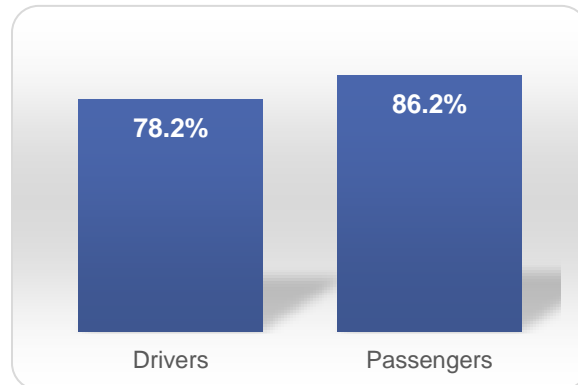
This section, the estimates of seat belt use is broken down within the categories of the variables included in the survey. These estimates were calculated by weighting the raw data, with the weights based on the sampling probabilities of the sites within which observations were collected.

There are some variables, especially seat belt use, where observers encountered instances where they were uncertain, or “unsure,” of the variable’s value. Generally, when this occurred, the “unsure” values were not reported in the narrative because they are typically quite low, e.g., 1.5 percent for seat belt use. For a cleaner narrative, focus was placed on the percentage belted in each instance. However, the full range of alternatives for each variable – “belted,” “not belted,” and, when applicable, “unsure”— were documented in the tables found in the appendices to this report.

These weighted estimates will be presented for the vehicle occupants within each of the major variables. However, this section begins with a reminder of the estimates for the different types of vehicle occupants.

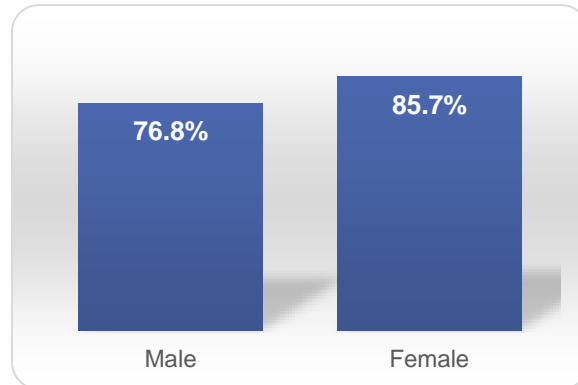
**Estimates for Vehicle Occupants.** Typically, for previous Wyoming surveys, the data revealed that drivers had the lowest seat belt usage rate. This year, drivers were belted at a rate of 78.2 percent and passengers at 86.2 percent, a difference of 8.0 percentage points. Because drivers represented more than seven of every ten vehicle occupants, the driver rate was the greatest determinant of the overall rate for all occupants, which is 80.5 percent for 2016. Figure 11 illustrates these results.

Figure 11: Percent belted by occupant type



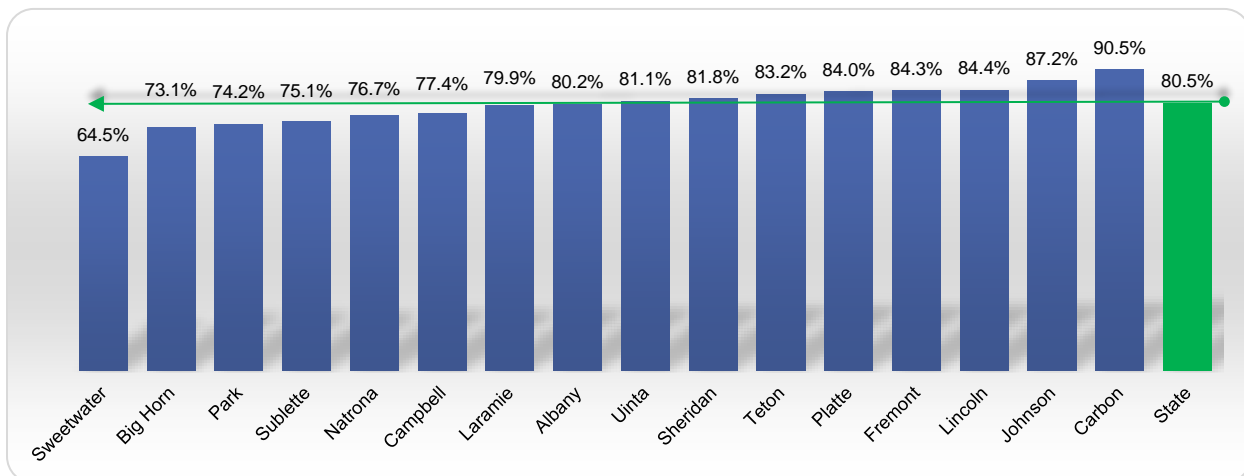
**Occupant Estimates by Gender.** In every survey of seat belt use in Wyoming, female vehicle occupants have had a higher usage rate than males. For 2016, the rate for women was 85.7 percent and the male rate was 76.8 percent, a difference of 8.9 percentage points. However, males made up 58.2 percent of all vehicle occupants. As a result, their numerical dominance and lower usage rate reduced the overall rate to 80.5 percent for all vehicle occupants. Figure 12 illustrates these results.

Figure 12: Percent belted by occupant gender



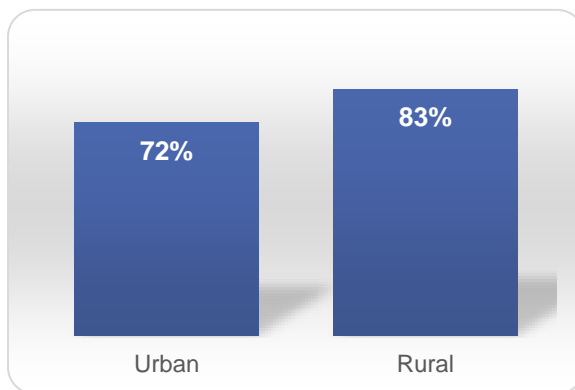
**Occupant Estimates by County.** Occupant seat belt use by county was highest for Carbon County at 90.5 percent, and lowest for Sweetwater County at 64.5 percent, a range of 26.0 percentage points. Eight of the counties had occupant usage rates above the statewide average of 80.5 percent: Carbon (90.5%), Fremont (84.3%), Johnson (87.2%), Lincoln (84.4%), Platte (84.0%), Sheridan (81.8%), Teton (83.2%), and Uinta (81.1%). The remaining eight counties had usage rates below the statewide average: Albany (80.2%), Big Horn (73.1%), Campbell (77.4%), Laramie (79.9%), Natrona (76.7%), Park (74.2%), Sublette (75.1%), and Sweetwater (64.5%). Figure 13 illustrates these results.

Figure 13: Percent belted by county



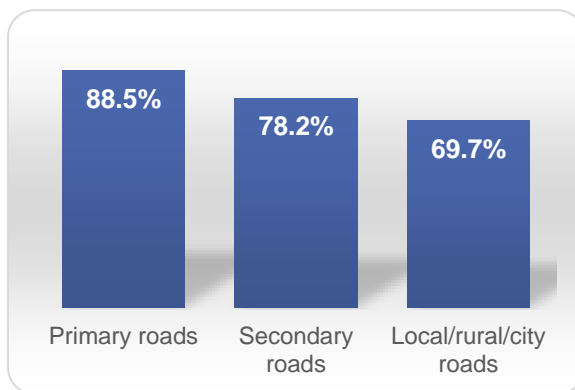
**Occupant Usage Rates by Population Density.** The state of Wyoming identifies sites with equal to or greater than 5,000 residents as urban and fewer than 5,000 residents as rural. When the seat belt use for different types of sites were examined, the estimate was 71.7 percent for urban sites and 83.1 percent for rural sites, a difference of 11.4 percentage points. While the lower urban rate does reduce the statewide rate, the effect was not great because vehicle occupants in urban areas represented about one-quarter (25.3%) of all vehicle occupants in the Wyoming 2016 survey. The rural vehicle occupants, 74.7 percent of the sample, largely determined the overall seat belt usage rate. See Figure 14.

Figure 14: Percent belted by population density



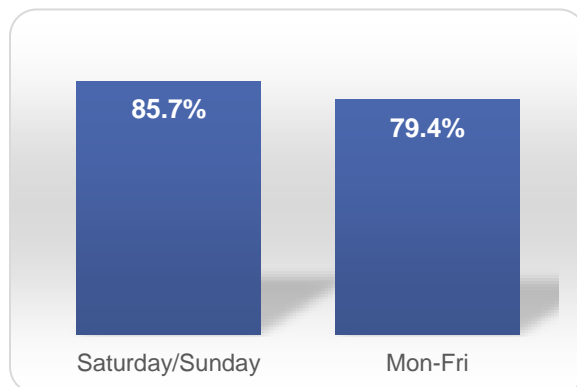
**Occupant Estimates by Type of Roadway.** Observers included the codes for roadway types when they recorded observations of seat belt use. These codes sort observations into primary roads, secondary roads, and a catchall category of local/rural/city roadways. Only the vehicle occupants observed on primary roads had an above average seat belt usage rate: the rate was 88.5 percent belted. This compares to rates of 78.2 percent on secondary roads and 69.7 percent on local/rural/city roads. In other words, the rate on primary roads was 10.3 percentage points greater than the rate on secondary roads, and 18.8 percentage points greater than the rate on the local/rural/city roadways. However, occupants observed on primary roadways made up only 21.1 percent of the Wyoming sample, and the occupants within the local/rural/city roadways represented only 3.7 percent of the total Wyoming sample. The vehicle occupants on secondary roads determined most of the overall seat belt usage rate, which was elevated some by the high rate of usage on primary roadways. See figure 14.

Figure 15: Percent belted by roadway type



**Occupant Estimates by Weekday.** For reporting purposes, the variable for the days of the week were collapsed into weekdays and weekends. The data revealed that vehicle occupants observed on the weekend, Saturday and Sunday, had a seat belt usage rate of 85.7 percent, compared to a rate of 79.4 percent on weekdays, Monday through Friday. This is a difference of 6.3 percentage points. However, 83.4 percent of all observations were collected on weekdays, which made seat belt use on weekdays the primary determinant of the statewide estimate of 80.5 percent for the collective days of the week. Figure 16 illustrates these results.

Figure 16: Percent belted by weekday/weekend



**Occupant Estimates by Gender and Vehicle Type.** Generally, seat belt use rates are higher for females than males. The output for the 2016 survey demonstrates this trend; 76.8 percent belted for males and 85.7 percent belted for females. Usage rates for most vehicle types are generally above the statewide average except in pickup trucks. Even females in pickup trucks, at 81.8 percent, had a usage rate that was above the statewide average of 80.5 percent. This leaves pickup trucks and men. The overall usage rate for males was 76.8 percent belted, but the rate dropped to 69.4 percent for males in pickup trucks. For the other vehicle types, the female seat belt use was higher: 3.8 percentage points higher in automobiles, 2.9 points higher in vans, and 7.0 points higher in SUVs. It appears that men and women behaved similarly with regard to seat belt use, but the differences by gender emerged for SUV occupants, and are especially different in pickup trucks. Why, then, was the overall statewide rate lower for every one of these categories except for males in pickup trucks? Part of the reason is that males have a lower rate of seat belt usage and they represent 58.2 percent of all vehicle occupants in the sample. The other reason is that males in pickup trucks represented 46.9 percent of all male vehicle occupants, and 27.3 percent of all vehicle occupants. This phenomenon, males in pickup trucks, has a disproportionate effect on the overall rate of seat belt use in Wyoming. These results are best appreciated when illustrated by both a table (Table 6) and a chart (Figure 17), as follows.

Figure 17: Percent belted by vehicle type and gender

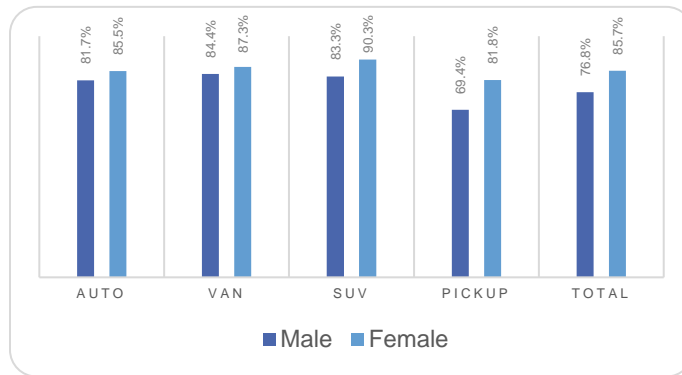


Table 6: Occupant Belt Use by Vehicle Type and Gender

Occ Gender				Occ Belt Use			
				Belted	Not Belted	Unsure	Total
Male	Auto	% within Vehicle Type	Estimate	81.7%	17.1%	1.2%	100.0%
			Unweighted Count	3050	694	44	3788
	Van	% within Vehicle Type	Estimate	84.4%	14.2%	1.4%	100.0%
			Unweighted Count	2564	444	37	3045
	SUV	% within Vehicle Type	Estimate	83.3%	16.1%	.6%	100.0%
			Unweighted Count	703	144	5	852
	Pickup Truck	% within Vehicle Type	Estimate	69.4%	28.7%	1.8%	100.0%
			Unweighted Count	4748	1947	100	6795
	Total	% within Vehicle Type	Estimate	76.8%	21.7%	1.5%	100.0%
			Unweighted Count	11065	3229	186	14480
Female	Auto	% within Vehicle Type	Estimate	85.5%	12.5%	1.9%	100.0%
			Unweighted Count	3155	547	61	3763
	Van	% within Vehicle Type	Estimate	87.3%	11.5%	1.2%	100.0%
			Unweighted Count	3312	456	45	3813
	SUV	% within Vehicle Type	Estimate	90.3%	9.3%	.4%	100.0%
			Unweighted Count	664	75	2	741
	Pickup Truck	% within Vehicle Type	Estimate	81.8%	16.2%	2.1%	100.0%
			Unweighted Count	1703	359	34	2096
	Total	% within Vehicle Type	Estimate	85.7%	12.7%	1.6%	100.0%
			Unweighted Count	8834	1437	142	10413

## Driver and Passenger Comparisons

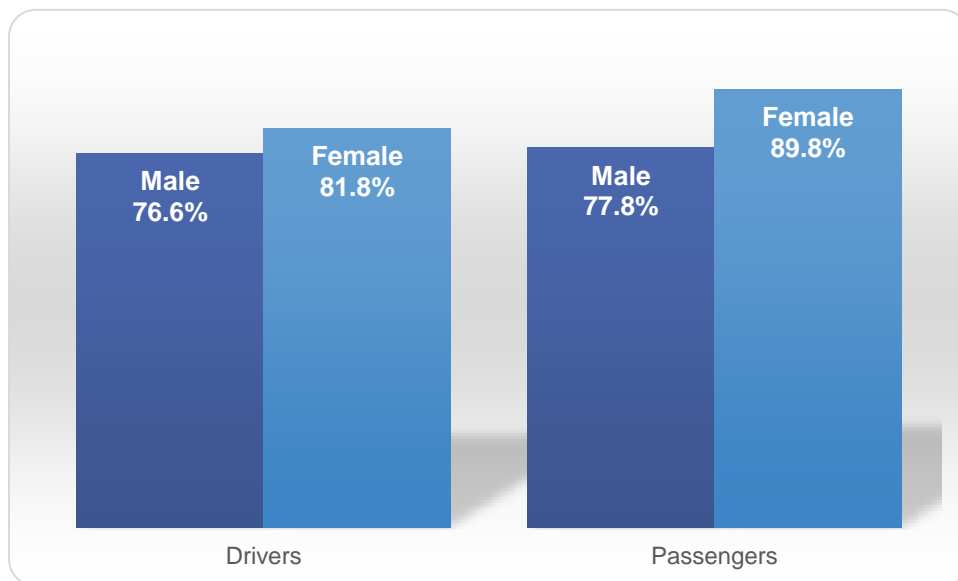
Passengers were observed as belted 86.2 percent of the time, compared to the rate of 78.2 percent for drivers, a difference of 8.0 percentage points. It is important to note that drivers represented 72.1 percent of the sample and passengers 27.9 percent, so that the behavior of drivers was the paramount determinant of the statewide estimate of 80.5 percent belted for all vehicle occupants.

Table 7: Estimates by type of vehicle occupant

<i>Occupant</i>	<i>% Belted</i>
<i>Drivers</i>	78.2%
<i>Passengers</i>	86.2%
<i>All Occupants</i>	80.5%

**Gender.** Male drivers and passengers had a similar rate of seat belt use: 76.6 percent for male drivers and 77.8 percent for male passengers. Women had higher rates of seat belt use as drivers, 81.8 percent belted, but women passengers had an even higher rate of seat belt use as passengers, 89.8 percent. The usage rate favors females by 5.2 percent for drivers and 12.0 percent for passengers.

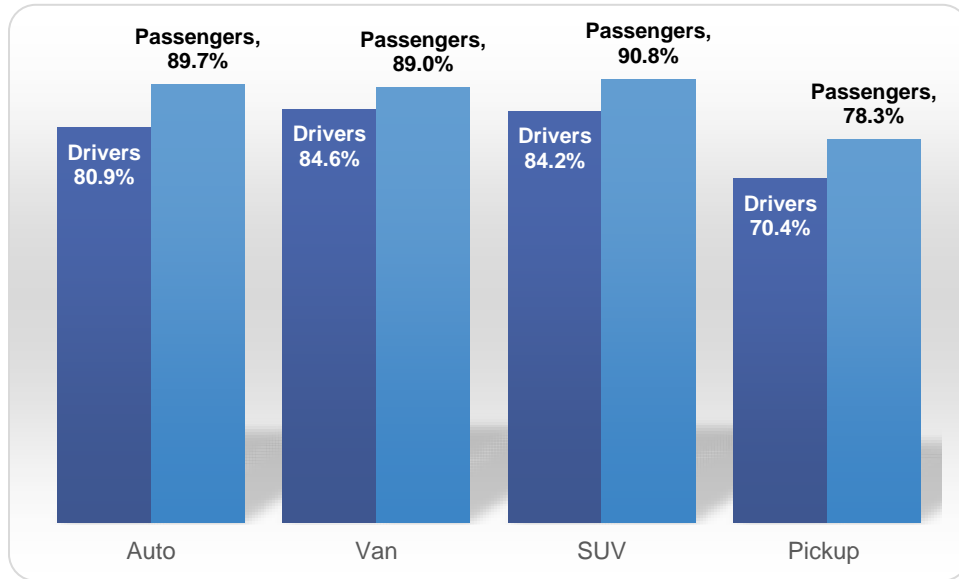
Figure 18: Percent belted by occupant type and gender





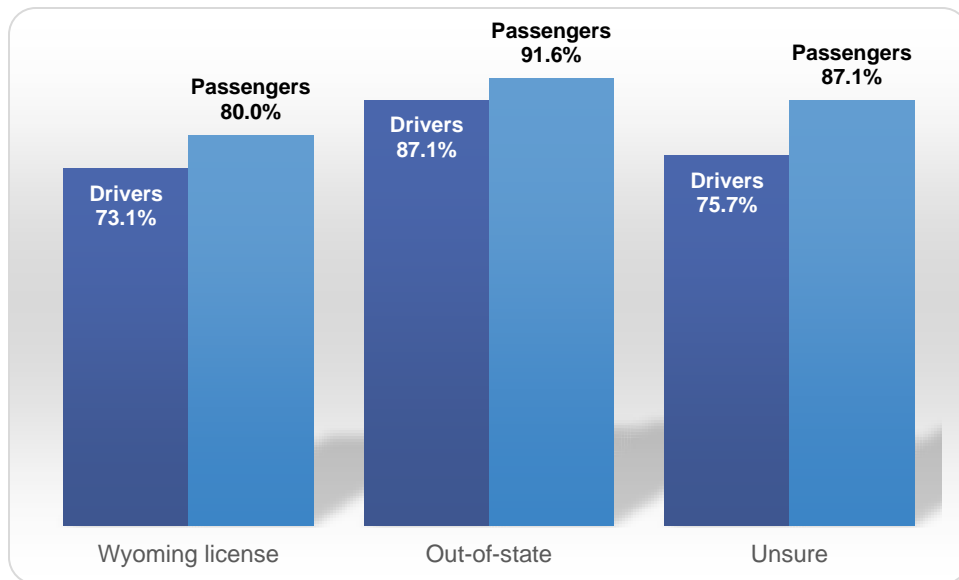
**Vehicle.** Passengers had higher rates of seat belt use within all types of vehicles, with the greatest differences occurring within automobiles and pickup trucks. The differences were still present, though somewhat smaller, within vans and SUVs.

Figure 19: Percent belted by occupant and vehicle type



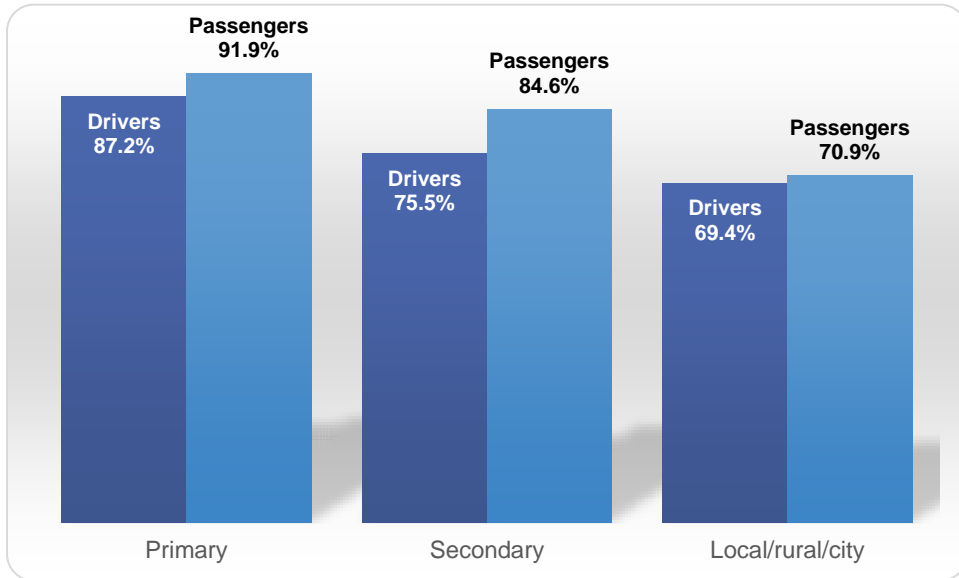
**Vehicle Registration.** Passengers had higher rates of seat belt use within Wyoming vehicles, out-of-state vehicles, and even within situations when observers were not sure about license status.

Figure 20: Percent belted occupant and registration type



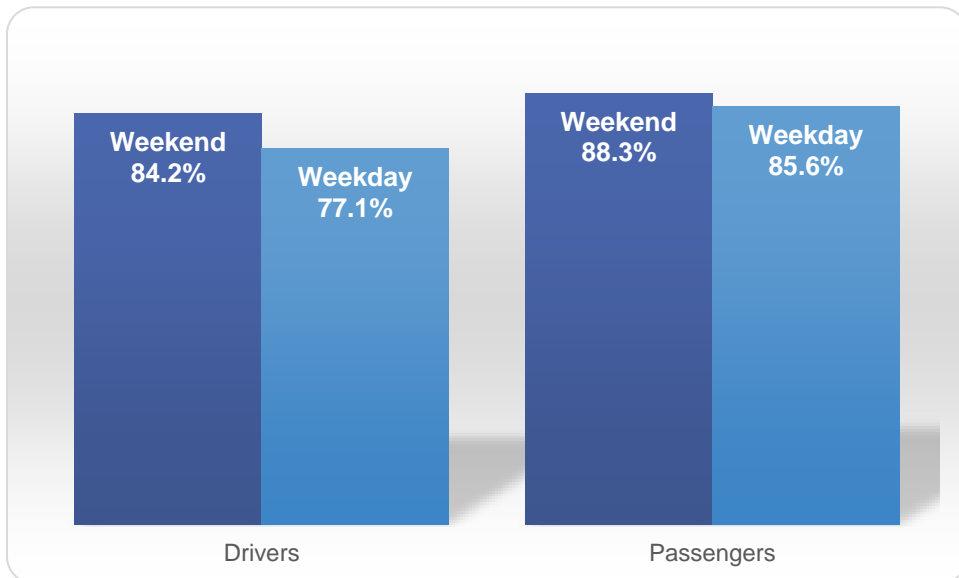
**Roadway.** Passengers had higher rates of seat belt use within all three types of roadways. While the passenger rates were higher, the rates for both drivers and passengers tended to parallel the rates among the different roadway types.

Figure 21: Percent belted by occupant and roadway type



**Weekend.** Passenger rates were higher than driver rates for both weekends and weekdays. Those differences paralleled the rates for the days of the week, with higher rates on weekends.

Figure 22: Percent belted by occupant and weekday/weekend



### Drivers and Passengers by Gender and Vehicle Type

The table below presents a comparison of seat belt use rates for drivers and passengers by gender and vehicle type.

Table 8: Percent belted and frequencies by gender, occupant, and vehicle type

Gender	Vehicle		% Belted Drivers	% Belted Passengers	% Point Diff
Male	Auto	% within Vehicle Type	81.4%	83.7%	2.3%
			2593	457	
	Van	% within Vehicle Type	84.7%	83.3%	-1.4%
			2119	445	
	SUV	% within Vehicle Type	82.8%	85.5%	2.8%
		572	131		
Pickup Truck	% within Vehicle Type	69.5%	69.3%	-0.2%	
		4124	624		
	Total	% within Vehicle Type	76.6%	77.8%	1.2%
			9408	1657	
Female	Auto	% within Vehicle Type	80.0%	91.5%	11.5%
			1669	1486	
	Van	% within Vehicle Type	84.6%	90.9%	6.3%
			1935	1377	
	SUV	% within Vehicle Type	87.2%	93.0%	5.8%
		318	346		
Pickup Truck	% within Vehicle Type	77.1%	84.7%	7.6%	
		656	1047		
	Total	% within Vehicle Type	81.8%	89.8%	8.0%
			4578	4256	

Generally, the rates were higher for females, whether drivers or passengers, and the lowest rate of all can be attributed to males in pickup trucks. This is borne out by the results in the table. However, some other interesting results stand out. For one, the passenger rate was not much different from the rate of drivers within the different types of vehicles. The overall difference among males of +1.2 percentage points belted for male passengers was nearly negligible, especially within vans and pickup trucks, where the rates for male drivers were slightly higher than for male passengers. For females, however, the female passengers had an 8.0-point higher rate than female drivers. The difference of 11.5 percentage points for females in automobiles was especially pronounced.

### Drivers and Passengers by County

Prior discussions revealed that passengers have had a higher rate of seat belt use than drivers (+8.0%). Additionally, about half of the counties were above the statewide average of 80.5 percent belted and half were below. However, when the two factors were combined, some additional facts emerged, as can be seen in Table 9.

Table 9: Percent belted and frequencies by county and occupant

County		% Belted Drivers	% Belted Passengers	% Point Diff
Albany	% within County	77.5%	90.2%	12.7%
		1105	352	
Big Horn	% within County	70.7%	78.8%	8.1%
		367	167	
Campbell	% within County	75.0%	86.1%	11.1%
		1149	361	
Carbon	% within County	90.8%	89.5%	-1.3%
		818	293	
Fremont	% within County	82.3%	89.1%	6.8%
		856	385	
Johnson	% within County	85.9%	90.4%	4.5%
		1069	482	
Laramie	% within County	79.9%	80.0%	0.1%
		497	108	
Lincoln	% within County	83.3%	86.8%	3.5%
		802	383	
Natrona	% within County	75.4%	81.1%	5.7%
		553	160	
Park	% within County	72.4%	79.5%	7.1%
		875	334	
Platte	% within County	82.9%	86.4%	3.5%
		896	403	
Sheridan	% within County	82.3%	80.3%	-2.0%
		826	324	
Sublette	% within County	70.3%	86.4%	16.1%
		291	152	
Sweetwater	% within County	64.6%	64.2%	-0.4%
		1043	310	
Teton	% within County	78.9%	90.7%	11.7%
		1856	1241	
Uinta	% within County	79.1%	85.7%	6.6%
		983	458	
Total	% within County	78.2%	86.2%	8.0%
		13986	5913	

In several of the counties, passengers had a higher seat belt use rate in the double digits. Some of the differences from the table were: Albany, 12.7 points; Campbell, 11.1 points; Sublette, 16.1 points; and Teton, 11.7 points. In a few counties, the differences between passengers and drivers were negligible: Carbon, -1.3 points; Laramie, 0.1 points; and Sweetwater, -0.4 points. The remainder of the counties fell somewhere in between, with passengers having higher rates in each case. In other words, passenger seat belt use can raise the overall rates of seat belt use in some counties. However, a closer look reveals that the number of belted drivers in each county far exceeds the number of belted passengers. Often, the number of drivers is three times the number of passengers. Passengers may often have higher rates of seat belt use, but historical data demonstrates that drivers tend to determine the overall rates.

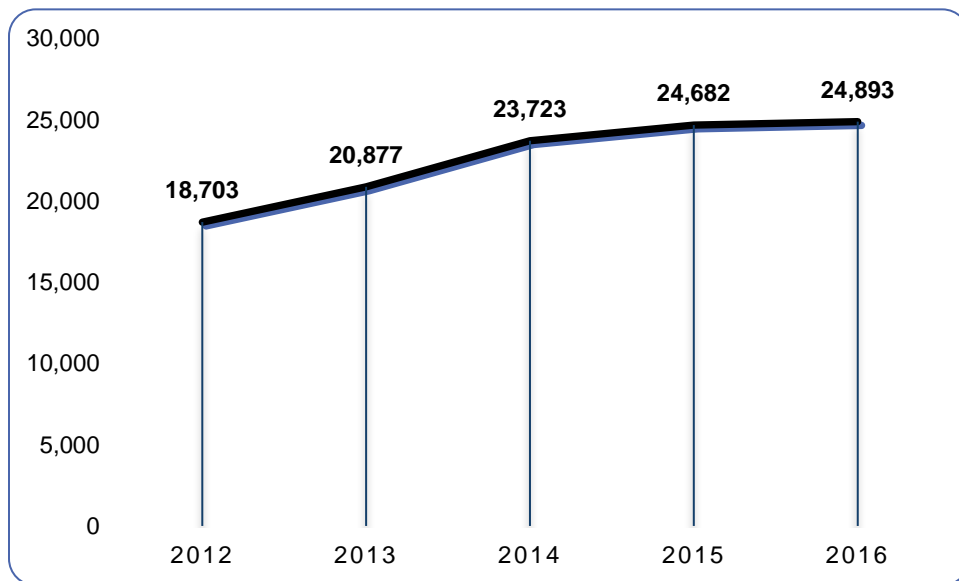
## Trends: 2012-2015

This is the final survey of Wyoming seat belt use under the research design and methodology developed by DLN, Inc. for the 2012 survey. The sites sampled over that time period have been essentially the same, except for those instances when alternative sites were needed, but they were also part of the original sample. This year, more than most, it is appropriate to develop a final summary of trends in the sample and in estimates of seat belt use over the last five years. In this section, those trends are illustrated and discussed.

### Vehicle Occupants

The number of vehicle occupants observed has increased substantially over the years since 2012. There were 2,174 more occupants in 2013 than 2012. The number increased again, from 2013 to 2014, this time by 2,846. Since then, the rate of increase has slowed: 959 vehicle occupants between 2014 and 2015, and 211 between last year and this year's survey. The numerical increases are illustrated by the accompanying graph.

Figure 23: Observational Frequencies of Vehicle Occupants, Wyoming Seat Belt Survey, 2012-2016

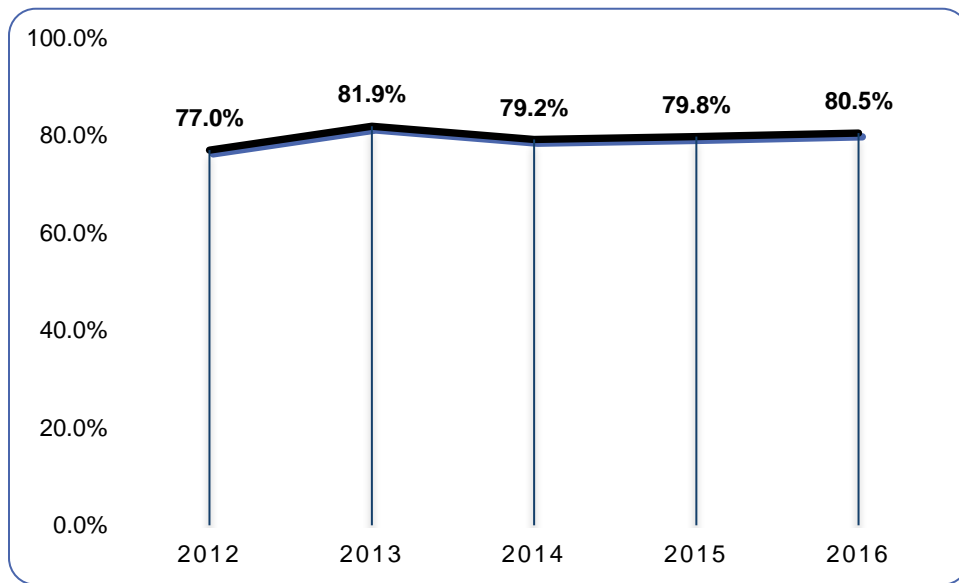


Some of this change may be due to increases in traffic or increases in number of vehicle occupants, although no direct data is available to substantiate that possible claim. Another factor may be that observers have become increasingly skilled at recording larger numbers of vehicle occupants through the use of iPads.

### Estimate of Seat Belt Use

The estimates of occupant seat belt use increased by 4.9 percent between 2012 and 2013 to a high of 81.9 percent belted over the five-year period. In 2014, the rate dropped by 2.7 percent to 79.2 percent. In the past two years, the rate has increased, but only by a fraction of a percent each year: 0.6 percent from 2014 to 2015, and 0.7 percent from 2015 to 2016. Figure 24 illustrates these changes.

Figure 24: Occupant Seat Belt Use Rates in Wyoming, 2012 to 2016



Although large numbers of observations tend to make even small changes statistically significant, the variation over the past few years is not enough to warrant major inferences, other than the fact that the overall estimate seems to have settled on a rate around the eighty percent mark.

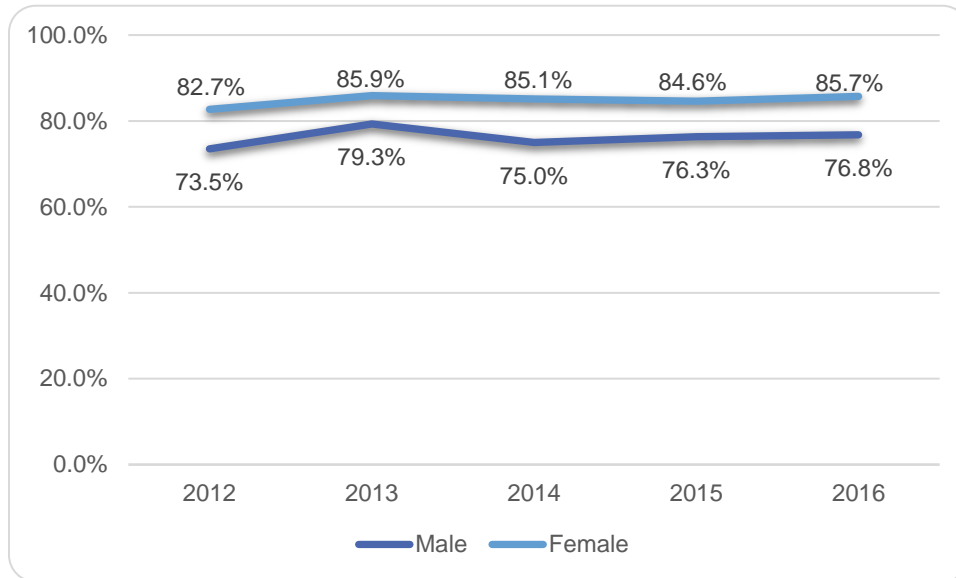
This rate appears to be consistent with Wyoming's status as a state with a secondary seat belt law. States with substantially higher rates of seat belt use (in the 90 percent and above range) are primary law states, where enforcement is direct and not contingent on other traffic violations. Also, there are states with secondary laws that have even lower rates of seat belt use than Wyoming.

It may be argued that Wyoming's current rate of 80.5 percent may be higher than could be reasonably expected. Given Wyoming's wide open spaces, low population density, relatively less traffic, a high number of "work" vehicles – especially pickup trucks driven by men --, and relatively lower numbers of "family" vehicles (autos and vans, sometimes SUVs), and a relatively small number of vehicles with passengers (who have higher rates of seat belt use), it may be surprising to some that the rate is not lower than it is.

## Gender

The rate of seat belt use for female vehicle occupants has been relatively stable over the last five years, essentially in the mid-eighty percent belted range. The male rate has also been stable in the mid-seventy percent range. As a result, the differences from year to year have generally been around eight to ten points higher rate for females. The year 2013 is somewhat of an anomaly. The male rate peaked at a high of 79.3 percent, and the gap between males and females in seat belt use dropped to 6.6 points. Since then the male rate has dropped back to the mid-seventies and the female rate has remained relatively stable in the mid-eighties.

Figure 25: Occupant Seat Belt Use Rates by Gender, Wyoming 2012 to 2016



Discussions earlier in this report pointed to the low rates of seat belt use for males in pickup trucks. Rates for these males have typically been low and a relatively higher percentage of male vehicle occupants are observed in pickup trucks.

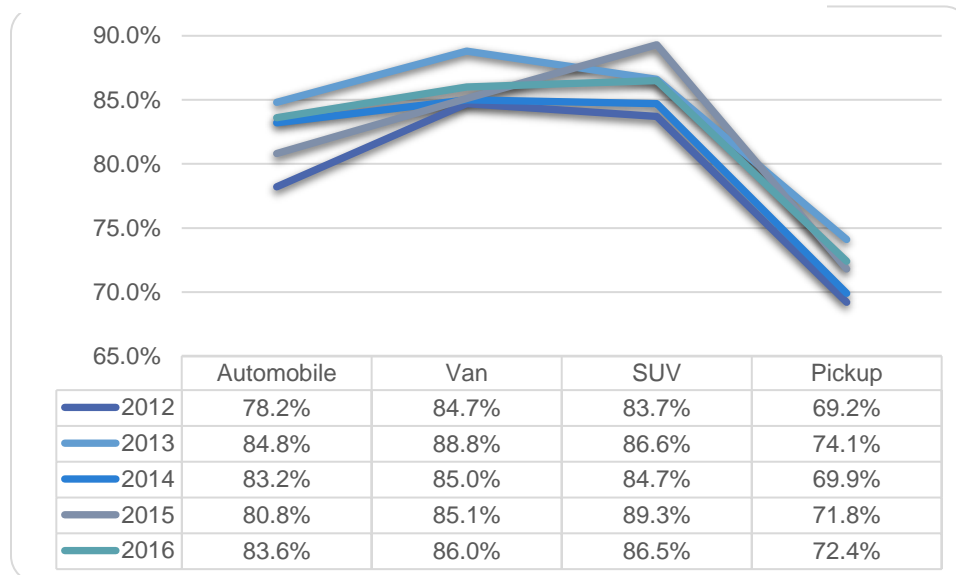
This phenomenon has been consistent over many years. If the state of Wyoming wishes to increase its seat belt usage rate, it would be helpful to raise this rate.



## Vehicle Type

The trend for seat belt use in the four observed vehicle types is illustrated in Figure 26.

Figure 26: Occupant Seat Belt Use by Vehicle Type, Wyoming 2012-2015



Seat belt use rates have typically been highest in vans and SUVs, arguably the most “family” oriented vehicles of the four types. The “family” label is most appropriate for automobiles and vans, and may be appropriate in some instances for SUVs. However, it may be that large pickup trucks with extended cabs, are becoming a vehicle of choice for commuters and families in some parts of the country.

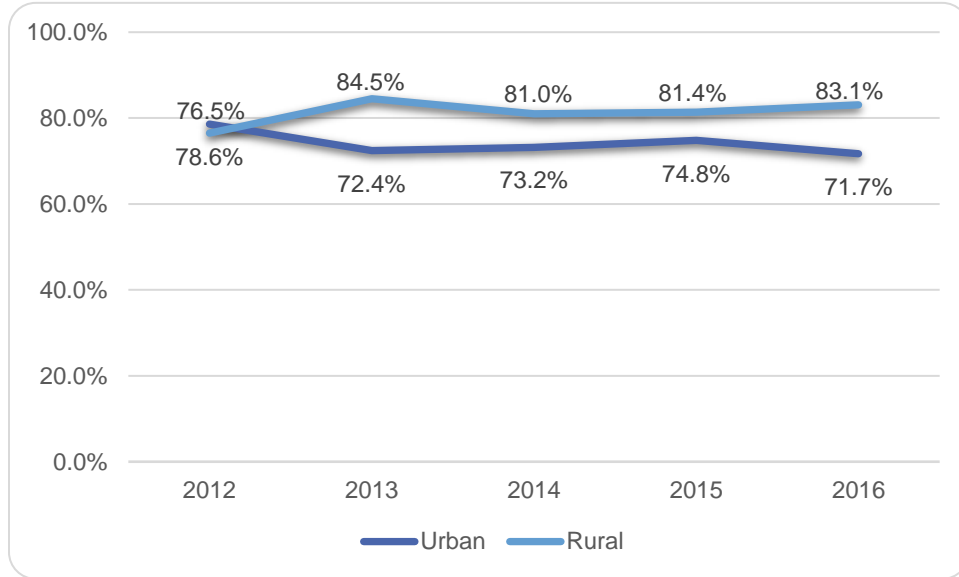
Occupants in automobiles have lower rates of seat belt use, but only by percentages in the single digits.

On the other hand, vehicle occupants in pickup trucks have much lower rates of seat belt use. Among these occupants, the rate of seat belt use reached a high of 74.1 percent in 2013. That figure now seems to be somewhat of an anomaly. The current rate of 72.4 percent belted is the second highest over the past five years. It may be that the current rate is on the cusp of a rising trend. However, because the trend in the rates has been inconsistent, low some years and slightly higher in other years, any prediction that this rate will increase seems overly optimistic.

### Population Density

As a reminder, the urban areas are defined as sites with a population base of more than 5,000; rural areas are less than 5,000. Given those definitions, the trend in seat belt use by population density is illustrated in Figure 27.

Figure 27: Occupant Seat Belt Use Rates by Population Density, Wyoming, 2012-2016

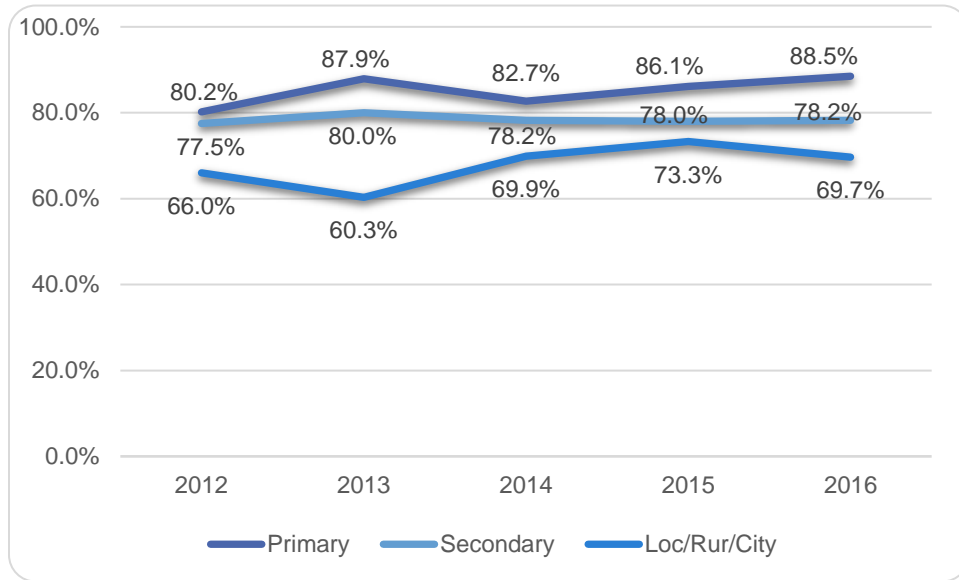


Except for the anomalous finding for 2013, seat belt rates have been higher in rural areas. The greatest differences in the rural-urban rates occurred in 2013 (12.1 points) and 2016 (11.4 points), with smaller differences in 2014 (7.8 points) and 2015 (6.6 points). The higher rates in rural areas help to raise the statewide average in Wyoming because the great majority of observations occur in the rural areas of Wyoming.

## Roadway

The trend in rates of seat belt use by type of roadway is illustrated by the following chart. (Insert chart)

Figure 28: Occupant Seat Belt Use Rates by Roadway Type, Wyoming, 2012-2015



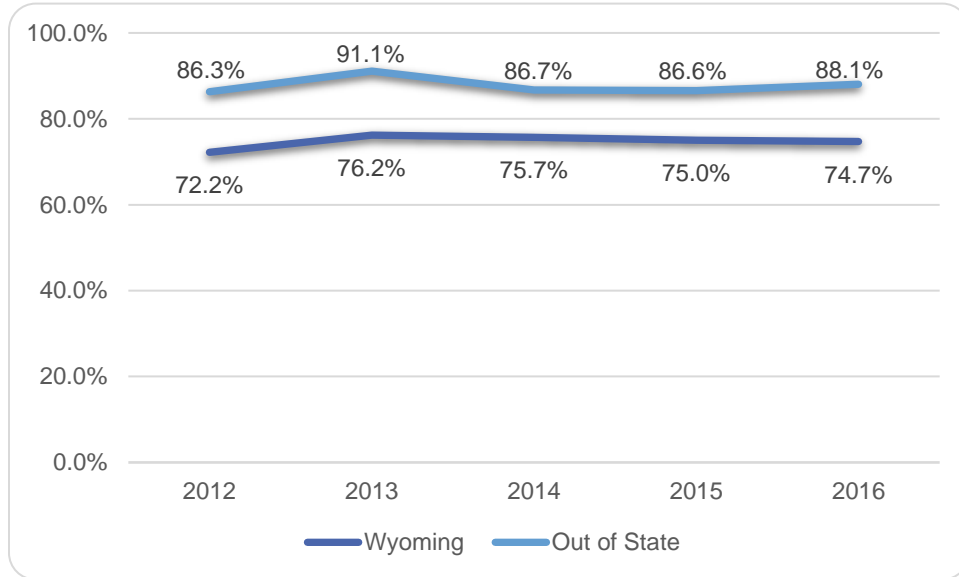
The rates of seat belt use have been highest for vehicle occupants observed within primary roadways, with the highest rate of 88.5 percent occurring this year. Rates are typically lower for secondary roadways, the source of more observations in Wyoming than any other roadway type. The lowest rates have typically been found in the category of local, rural and city roadways.

The rates have been typically in the high eighties for primary roads, the high seventies for secondary roads, and in the high sixties for the local, rural and city roadways.

## Vehicle Registration

Seat belt use by the status of license registration for occupant vehicles is illustrated in Figure 29.

Figure 29: Occupant Seat Belt Use Rates by License Status, Wyoming 2012-2015



As the chart shows, substantially higher rates of seat belt use for occupants in out-of-state vehicles has been the consistent pattern over the past five years. The differences are typically in the double digits. Although most occupants are found in Wyoming vehicles, the statewide rate of seat belt use has benefited from the higher rates of occupants in out-of-state vehicles. At least some of those vehicle occupants are part of Wyoming's considerable tourist trade, and some may come from states with primary laws. Some may also be employees of the tourist attractions. It should be noted that primary laws are in force in Yellowstone National Park (Park County) and Teton National Park (Teton County) and that fact may enhance seat belt use rates in those surrounding areas. However, in the next trend, this does not appear to be the case in Park County. Teton County has typically had a high rate of seat belt use.

### Trend in Seat Belt Use by County

The trend in seat belt use for each county is presented in the table below.

Table 10: Occupant Seat Belt Usage Rates by County, Wyoming 2012-2016

Year	2012	2013	2014	2015	2016
Albany	74.2%	84.4%	84.3%	85.0%	80.2%
Big Horn	60.2%	65.1%	71.5%	74.0%	73.1%
Campbell	60.3%	62.3%	67.6%	88.0%	77.4%
Carbon	83.0%	77.0%	78.8%	91.3%	90.5%
Fremont	72.2%	75.2%	77.0%	83.6%	84.3%
Johnson	74.8%	97.4%	77.3%	75.9%	87.2%
Laramie	74.3%	73.0%	72.9%	80.8%	79.9%
Lincoln	81.4%	82.7%	81.5%	84.3%	84.4%
Natrona	63.1%	63.9%	72.8%	74.0%	76.7%
Park	73.6%	73.0%	80.2%	72.8%	74.2%
Platte	84.5%	85.7%	86.7%	79.1%	84.0%
Sheridan	65.0%	60.5%	57.3%	87.5%	81.8%
Sublette	83.0%	86.0%	84.1%	80.4%	75.1%
Sweetwater	60.3%	77.1%	78.2%	59.0%	64.5%
Teton	98.3%	99.0%	90.1%	79.6%	83.2%
Uinta	72.1%	76.8%	64.9%	78.4%	81.1%
Totals	77.0%	81.9%	79.2%	79.8%	80.5%

Generalizations about the county trends are complicated by the fact that there is at least some variation across the years for all of the counties. However, some counties appear to be above the statewide average for any given survey year. Albany, Carbon, Johnson, Lincoln, Platte, Sublette, and Teton Counties tend to be those most consistently above the statewide averages in a given year. However, most of those counties had at least one year with a much lower rate; except for Lincoln County, which has had the most consistent rates across the years.

There are also counties that typically, have relatively lower rates of seat belt use. They include Big Horn, Campbell, Natrona, Sheridan, Sweetwater, and Uinta counties. However, most of these counties have had a year or years when the seat belt use rate has been unusually higher for that county.

As a result, the only generalization that can be made is that some counties are characterized by relatively higher rates and some by relatively lower rates.

### Trends in Seat Belt Use for Vehicle Type and Gender

The final presentation on trends in seat belt use is for the combination of vehicle type and gender. The trends are illustrated in Table 11 for rates from 2013 to 2016.

Table 11: Occupant Belt Use by Vehicle Type and Gender, Wyoming 2013-2016

Year		2013	2014	2015	2016
Gender	Vehicle Type	Belted	Belted	Belted	Belted
Male	Auto	83.7%	80.6%	78.8%	81.7%
	Van	87.4%	82.9%	83.3%	84.4%
	SUV	85.2%	81.6%	87.5%	83.3%
	Pickup	72.5%	67.2%	69.1%	69.4%
	Total	79.3%	75.0%	76.3%	76.8%
Female	Auto	85.9%	85.7%	82.9%	85.5%
	Van	90.4%	86.7%	86.6%	87.3%
	SUV	87.9%	88.1%	91.5%	90.3%
	Pickup	79.8%	79.6%	80.4%	81.8%
	Total	85.9%	85.1%	85.1%	85.7%
All Occupants		81.9%	79.2%	79.8%	80.5%

These trends are among the most stable of all across the years. Rates of seat belt use are highest for females in all types of vehicles across all the years. The differences between males and females are smallest for automobiles, vans and SUVs, and greatest for pickup trucks. However, the patterns within types of vehicles by gender are parallel for all the vehicle types. Although there are some variations, nearly all the patterns are consistent across years and vehicle types.

### Conclusion

This concludes the narrative about seat belt use in Wyoming for 2016. The appendices follow, providing supporting documents and data tables that served as the basis for this report. For a discussion of the results for this year's survey report, see the Executive Summary at the beginning of the narrative.

Appendix A: state seat belt use reporting form

# State Seat Belt Use Survey Reporting Form

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## PART A

State: Wyoming

Calendar Year of Survey: 2016

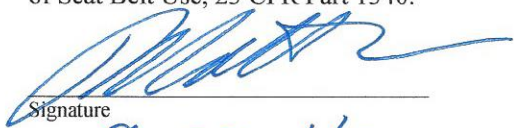
Statewide Seat Belt Use Rate: 80.5Percent

I hereby certify that: The Governor designated Matthew D. Carlson as the State's Highway Safety Representative (GR), and has the authority to sign the certification in writing.

The reported Statewide seat belt use rate is based on a survey design that received approval by NHTSA, in writing, as conforming to the Uniform Criteria for State Observational Surveys of Seat Belt Use, 23 CFR Part 1340.

The survey design remained unchanged since NHTSA approved the survey.

Dr. James G. Leibert<sup>1</sup>, a qualified survey statistician, reviewed the seat belt use rate reported above and information reported in Part B and determined that they meet the Uniform Criteria for State Observational Surveys of Seat Belt Use, 23 CFR Part 1340.

  
Signature

Date

9-27-16  
Matthew D. Carlson  
Printed name of signing official

---

<sup>1</sup> In accordance with the final rule published in Federal Register Vol. 76 No. 63, April 1, 2011, Rules and Regulations, pp. 18042-18059, DLN contracted with statistician, Dr. James G. Leibert to determine that the methods used to process the collected data met the Uniform Criteria for State Observational Surveys of Seat Belt Use, 23 CFR Part 1340. Dr. Leibert reviewed the SPSS output files and related data tables to confirm the data are accurate and true. A copy of Dr. Leibert's abbreviated resume follows.



5820 York Ave. S.      Phone 952.922.0018  
Edina, MN. 55410      E-mail  
   1jleibert@gmail.com

James G. Leibert, PhD.

Summary – Creative problem solver with knowledge of and experience in a broad array of statistical and computational tools and techniques. I understand that there is no one tool or technique that can be used for every situation. I can quickly see connections and use tools and techniques from other fields as appropriate.

## Employment

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Minnesota Department of Human Services, Disability Services Division      St. Paul MN  
Research Scientist III      Current

*Kazakhstan Institute of Management*      *Almaty, Republic of Kazakhstan*  
Chair, Dept. of Political Science and Public Administration  
Director of the Master of Public Administration Program  
Dean of Graduate and Undergraduate Studies  
Economics, and Strategic Research (KIMEP)      2001-2002

*Dickinson State University*      *Dickinson ND*  
International Programs Coordinator      2000 – 2001  
Associate Professor      1999-2001  
Chairman of the Department of Social Sciences      1999 – 2000  
Assistant Professor      1993-1998

- Leadership
- Team Player
- Problem Solving

## Appendix B: survey design for Wyoming

The Wyoming Department of Transportation Highway Safety Program in collaboration with DLN Consulting, Inc. designed the following sampling, data collection, and estimation plan. The National Highway Traffic Safety Administration accepted and approved the plan on April 24, 2012. A copy of the approval notification can be found in Appendix C.

Table of Contents	
Introduction .....	4
Study Design .....	4
Sample Design.....	5
Sample Size and Precision.....	6
County Selection .....	7
Road Segment Selection .....	7
Reserve Sample.....	9
Data Collection.....	9
Site Selection.....	9
Training .....	10
Data Collection Protocols.....	10
Alternate Sites and Rescheduling .....	12
Quality Control.....	12
Imputation, Estimation, and Variance .....	13
Appendix A.....	18
Resumés.....	18
Appendix B.....	22
Selected Road Segments within Each County and Their Probabilities of Selection .....	22
Appendix C.....	31
Sample Data Collection Form and Cover Sheet.....	31
Appendix D.....	34
Training Syllabus .....	34

# Seat Belt Use Survey Design for Wyoming

*Sampling, Data Collection and Estimation Plan*

January 3, 2012

Revised March 7, 2012

Submitted to:

National Highway Traffic Safety Administration  
Traffic Safety Programs  
1200 New Jersey Ave, SE  
Washington, DC 20590

Submitted by:

Wyoming Department of Transportation  
Highway Safety Program  
5300 Bishop Boulevard  
Cheyenne, WY, 82009-3340

DLN Consulting, Inc.  
2493 4<sup>th</sup> Ave W  
Suite G  
Dickinson, ND 58601

## Introduction

This document provides the details of the methods proposed for a survey of seat belt use in the State of Wyoming in 2012. These methods have been developed by Wyoming to comply with the new Uniform Criteria for State Observational Surveys of Seat Belt Use issued in 2011 by the National Highway Traffic Safety Administration (NHTSA).<sup>1</sup>

This proposal includes the following:

- The general parameters of the study design, which produced the proposed sampling frame for the survey of Wyoming seat belt use.
- The sample design, including the proposed sample size and the methods to be used for the selection of road segments.
- The proposed data collection methods, including the training of observers, and the protocols that will guide observers in data collection, and the proposed quality control procedures.
- The proposed analytical methods to be used in producing an estimate of seat belt use in Wyoming, including the statistical use of sampling weights, the methods to adjust for nonresponsive data, and the methods of variance estimation.

This plan is compliant with the Uniform Criteria and will be used for the implementation of Wyoming's 2012 seat belt survey, upon approval.

## Study Design

There are 23 counties in the State of Wyoming. Fatality Analysis Reporting System (FARS) data for the years 2005 – 2009 by county was examined to identify the counties that accounted for at least 85 percent of the cumulative crash-related fatalities during that period of time. Five years of data was selected to produce the largest number of counties available for the sample. Sixteen of the 23 counties accounted for 87.7 percent of the fatalities during this five-year period. Table 1 lists the fatality counts, and cumulative percentage of fatalities by county in Wyoming.

Road segment data was acquired from NHTSA, as developed by the U.S. Census Bureau in the form of 2010 TIGER data, for each of the 16 counties in the sample frame. All roads, with the exception of rural local roads, non-public roads, unnamed roads, unpaved roads, vehicular trails, access ramps, cul-de-sacs, traffic circles, and service drivers. These exclusions are compliant under § 1340.5.a.2.ii. The data include the length of the road segments and the classification of the road segments by road type (MTFCC).<sup>2</sup> This classification scheme locates each road segment within three different types of roads, as follows:

- Primary roads (MTFCC Code S1100), which are generally divided, limited-access highways within the interstate highway system or under state management, and are distinguished by the presence of interchanges. These highways are accessible by ramps and may include toll highways, although there are no toll highways in Wyoming.

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<sup>1</sup> The final rule was published in Federal Register Vol. 76 No. 63, April 1, 2011, Rules and Regulations, pp. 18042 – 18059.

<sup>2</sup> The classification scheme uses the MAF/TIGER feature Class Code, or MTFCC in the database.

Table of Contents	
Introduction .....	4
Study Design .....	4
Sample Design.....	5
Sample Size and Precision.....	6
County Selection .....	7
Road Segment Selection .....	7
Reserve Sample.....	9
Data Collection.....	9
Site Selection.....	9
Training .....	10
Data Collection Protocols.....	10
Alternate Sites and Rescheduling .....	12
Quality Control.....	12
Imputation, Estimation, and Variance .....	13
Appendix A.....	18
Resumés.....	18
Appendix B.....	22
Selected Road Segments within Each County and Their Probabilities of Selection .....	22
Appendix C.....	31
Sample Data Collection Form and Cover Sheet .....	31
Appendix D.....	34
Training Syllabus .....	34

- Secondary roads (MTFCC Code S1200), which are main arteries, usually in the U.S. Highway, State Highway, or County Highway system. These roads have one or more lanes of traffic in each direction, may or may not be divided, and usually have at-grade intersections with many other roads and driveways. They often have both a local name and a route number.
- Local neighborhood roads, rural roads, and city streets (MTFCC Code S1400), including paved non-arterial streets, roads or byways that usually have a single lane of traffic in each direction. The roads in this class may be privately or publicly maintained. Scenic park roads would be included, as would some unpaved roads, in this classification.

This classification scheme will be used to stratify the road segments in each county. The road segments to be included in the statewide sample will be drawn from the strata within each of the selected counties.

### Sample Design

The proposed design is intended to conform to the requirements of the Uniform Criteria. The objective of the design is to generate annual estimates of occupant restraint use for adults and children using booster seats in the front seats of passenger vehicles. Wyoming intends to update the sample of data collection sites every five years in order to have survey results that reflect those counties with more than 85 percent of crash-related fatalities. The sample design described here was provided to Wyoming under a consultant agreement with DLN Consulting, Inc. and Dr. Jamil Ibriq of Dickinson State University in Dickinson, North Dakota.<sup>3</sup> The sample design is for a stratified, systematic, randomly selected sample of data collection segments, with the following detailed steps:

- All 23 counties in Wyoming were listed in descending order of the average number of motor vehicle crash-related fatalities for the period of 2005 to 2009. Fatality Analysis Reporting System (FARS) data were used to determine the number of crash-related fatalities per county. It was determined that 16 of the counties accounted for more than 85.0 percent of traffic-related fatalities.<sup>4</sup> A decision was made by the Wyoming Department of Transportation to include all 16 counties for observation in order to maximize the numbers of counties to be observed. This method used in the first sampling stage resulted in all counties in the sample being selected with certainty and a probability factor of 1. Table 1 lists Wyoming's counties, fatality counts, and cumulative fatality percentages.
- The road segments were selected randomly from all eligible segments in each of the strata in the sampled counties. The road segments were stratified on the basis of the MTFCC road type classification<sup>5</sup>. A total sample of 18 road segments was identified for each county based on the historical number of observations collected over the past five years in Wyoming. This stage of the sampling process resulted in the selection of 288 road segments (16 counties X 18 sites per county).

<sup>3</sup> Dr. Jamil Ibriq's résumé is included in Appendix A.

<sup>4</sup> The 16 counties account for 87.7 percent of traffic-related fatalities in the FARS cumulative data from 2005-2009.

<sup>5</sup> The road types, previously described, are (S1100) primary roads, (S1200) secondary roads, and (S1400) local neighborhood roads, rural roads, and city streets.

- The sampling process included the random selection of additional road segments within each road-type strata and county. These segments are part of a pool of reserve sites that can be substituted for existing segments in the sample that become unavailable due to extensive construction, weather-related problems, or other unanticipated events.
- It is expected that this process will produce approximately 28,800 observations, based on prior surveys of seat belt use in Wyoming. Given this sample size, the standard error should be less than the 2.5 percent maximum specified by the Uniform Criteria. In the event that the standard error exceeds 2.5 percent, additional observations will be collected from existing sites.
- Randomization procedures will be used to determine protocols regarding the initial road segment for observation within each county, the direction of traffic flow for observation, etc., to be described later in this proposal.

**Table 1: Wyoming's Average Motor Vehicle Crash-Related Fatalities  
By County 2005 - 2009**

STATE CODE	COUNTY NAME	Average fatality counts for 5 years	Fatality percentage within the state	Cumulative fatality percentage
Wyoming	FREMONT	20.6	12.4	12.4
Wyoming	SWEETWATER	19	11.4	23.8
Wyoming	NATRONA	13.2	7.9	31.8
Wyoming	CAMPBELL	11.8	7.1	38.9
Wyoming	LARAMIE	11.2	6.7	45.6
Wyoming	CARBON	10	6	51.7
Wyoming	ALBANY	7.6	4.6	56.2
Wyoming	JOHNSON	6.8	4.1	60.3
Wyoming	PARK	6.8	4.1	64.4
Wyoming	TETON	6.4	3.9	68.3
Wyoming	UINTA	6.4	3.9	72.1
Wyoming	SHERIDAN	5.4	3.3	75.4
Wyoming	SUBLETTE	5.4	3.3	78.6
Wyoming	LINCOLN	5.2	3.1	81.8
Wyoming	BIG HORN	5	3	84.8
Wyoming	PLATTE	4.8	2.9	87.7
Wyoming	CONVERSE	4.2	2.5	90.2
Wyoming	GOSHEN	3.3	2	92.2
Wyoming	CROOK	3.2	1.9	94.1
Wyoming	WESTON	3	1.8	95.9
Wyoming	NIOBRARA	2.8	1.7	97.6
Wyoming	HOT SPRINGS	2	1.2	98.8
Wyoming	WASHAKIE	2	1.2	100

### Sample Size and Precision

A standard error of less than 2.5% for the seat belt use estimates is required by the Final Rule. Since 2006, Wyoming has conducted annual seat belt use studies that have historically obtained standard error rates below this threshold (e.g. 1.1%, 1.2%, 0.9%, 1.0%, and 0.8% in the past five years) via



observed sample sizes between 23,404 and 27,274. These observed sample sizes have been obtained from previous sample designs using nine counties and 23 road segments per county. Therefore, since the proposed design is expected to yield a sample of about 28,800 observations (16 counties X 18 sites per county X 100 vehicles per observation site), the precision objective should be achieved without problem. In the event that the precision objective of a 2.5% or less standard error is not met, additional observations will be taken starting with sites having the fewest observations. New data will be added to existing data until the desired precision is achieved.

### **County Selection**

All 16 counties within the sample were selected with certainty. This was a decision made by the Wyoming Department of Transportation to measure seat belt use in all the top fatality counties within the state. As certainty counties, each was assigned a probability factor of 1 (16 counties selected from the 16 counties in the sample) and represented the first stage of sampling.

### **Road Segment Selection**

After determining the number of road segments in each stratum, the probabilities of selection were determined. Based on the probability calculations, no certainty road segments were identified. The road segments in each stratum in each county were then selected randomly using a simple java program. The program randomly selected a particular site from the list of eligible sites in the stratum. Once a site was selected, it was removed from the list of eligible sites in the stratum. The next site was then selected randomly from the remaining sites. This random process continued until all the sites in the stratum were selected.

**Table 2: Roadway Functional Strata by County, Road Segments Population (N), Length, and Number of Segments Selected (n)**

County		MTFCC Strata			Total
		Primary	Secondary	Local	
Albany	N	149	992	0	1141
	Length	60.639697	247.87805	0	308.517747
	n	2	16	0	18
Big Horn	N	0	1182	0	1182
	Length	0	271.087301	0	271.087301
	n	0	18	0	18
Campbell	N	267	1041	0	1308
	Length	97.912343	275.346207	0	373.25855
	n	4	14	0	18
Carbon	N	222	1311	0	1533
	Length	80.064222	419.42926	0	499.493482
	n	3	15	0	18
Fremont	N	1	1891	0	1892
	Length	0.115489	486.099588	0	486.215077
	n	0	18	0	18
Johnson	N	698	862	0	1560
	Length	234.830117	196.282768	0	431.112885
	n	8	10	0	18
Laramie	N	447	966	10768	12181
	Length	170.462425	242.350688	2127.917681	2540.730794
	n	1	1	16	18
Lincoln	N	94	1312	0	1406
	Length	34.119548	284.555377	0	318.674925
	n	1	17	0	18
Natrona	N	402	1516	11520	13438
	Length	124.83999	273.855866	1699.565696	2098.261552
	n	1	2	15	18
Park	N	0	1593	0	1593
	Length	0	365.12326	0	365.12326
	n	0	18	0	18
Platte	N	401	754	0	1155
	Length	145.526417	168.650462	0	314.176879
	n	6	12	0	18
Sheridan	N	228	1470	0	1698
	Length	85.030844	222.495535	0	307.526379
	n	2	16	0	18
Sublette	N	0	1064	0	1064
	Length	0	258.890084	0	258.890084
	n	0	18	0	18
Sweetwater	N	329	1162	0	1491
	Length	154.80921	374.258433	0	529.067643
	n	4	14	0	18
Teton	N	0	785	0	785
	Length	0	226.731063	0	226.731063
	n	0	18	0	18
Uinta	N	223	624	0	847
	Length	74.802936	132.715057	0	207.517993
	n	5	13	0	18

### **Reserve Sample**

In the event that an original road segment is permanently unavailable, a reserve road segment will be used for data collection. The reserve road segment sample consists of two additional road segments per original road segment selected, resulting in a reserve sample of 576 road segments. The reserve sample is generated by selecting the road segments immediately preceding and immediately following each randomly selected road segment, and constitutes the original sample. Since the road segments in the database for any road type and county are organized geographically by their longitude and latitude values, this implies that the road segments in the reserve sample for a particular road type and county are located in close proximity to each other. For example, if  $V_{i-1}$  and  $V_{i+1}$  are the same type as  $V_i$ , i.e., primary road type, and located in the same geographical region, they therefore have similar characteristics in terms of traffic flow and population mix. The reserve sample is developed using simple random sampling in which  $v$  road segments are selected from  $V$  road segments in a particular road classification and county in such a way that every possible combination of  $v$  road segments is equally likely to be the sample selected.

For the purposes of data weighting, the reserve road segments inherit all probabilities of selection and weighting components up to and including the road segment stage of selection from the original road segments actually selected.

### **Data Collection**

#### **Site Selection**

Each of the road segments in the sample, including those in the reserve sample, was mapped according to the latitude and longitude of their midpoints. Observation sites were identified by the intersections that occurred within the road segment, except when there was no identifiable intersection or interchange. In the latter case, the midpoint within the road segment was selected for observation.

The data collection sites on the road segments were selected in a location approximately fifty yards from any controlled intersection. For interstate highways, data collection will occur on a ramp carrying traffic that is exiting the highway. In every case, the choice of the observation site will be based on maximizing observer safety and line of sight for reliable data collection.

The observed direction of travel was randomly assigned for each road segment. The locations of the data collection sites were described on Site Assignment Sheets for each county, and maps were developed to assist the observers and quality control monitors in travelling to the assigned locations.

## **Training**

Wyoming will hire a minimum of 16 observers, one for each county in the sample, to collect the data. Additional observers will be hired as reserve observers and to assist assigned observers in high traffic sites, defined by known traffic patterns associated with the general area of the sample sites.<sup>6</sup>

Two quality control monitors will be hired. Each will be responsible for half the state. Observers and quality control monitors will be recruited by a contracted firm with preference given to individuals who have experience in past seat belt use surveys or other field data collection. Law enforcement personnel will be excluded from the hiring base to reduce data collection bias.

There will be two quality control monitors assigned to cover the data collectors. Quality control monitors will make unannounced visits at ten percent of the total sites for purposes of determining data reliability through the separate collection of data. The quality control monitors will not serve as both observer and quality control monitor.

Training for observers and quality control monitors will be conducted at a central location in the state prior to the state's pre-survey held the last week in April each year. The training session will include lecture, classroom, and field exercises. Each observer and quality control monitor will be tested through participation at a minimum of three observation test sites to acquire an inter-observer agreement ratio.

Test sites will be selected to represent the types of sites and situations observers will encounter in the field. No actual sites in the sample of roadway segments will be used as test sites. During field training, observers and quality control monitors will record data independently on separate observation forms. Each person will document vehicle type, gender, and seat belt use of drivers and outboard front seat passengers. Individual observations will be compared to the group to calculate the agreement rate. All agreement rates must be sufficiently high (85% or higher) or additional training will be conducted.

At the conclusion of the training, observers and quality control monitors will be given a post-training quiz to ensure they understand the survey terminology, the data collection protocols, and the reporting requirements.

Quality control monitors will be given an additional half-day training session that focuses on their specific duties. These include conducting unannounced site visits to a minimum of two sites (10%) for each observer and reviewing the field protocols with the observers during the visits. The quality control monitors will be available to respond to questions and offer assistance to observers as needed.

The training syllabus can be found in Appendix D.

## **Data Collection Protocols**

Observers will collect data on the seat belt use of drivers and outboard passengers, including children in booster seats,<sup>7</sup> on the weekdays and weekends during the collection period during the first full week of

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<sup>6</sup> The definition of high traffic sites includes the number of observations in similar areas from a combination of data from prior Wyoming SBU surveys, and/or demographic information from densely populated areas.

June 2012. Data collection will occur in 45-minute observation periods between the hours of 7:00 a.m. and 6:00 p.m. Start times will be staggered to ensure that a representative number of weekday/weekend sites and rush hour/non-rush hour sites will be included. Observers will cover between four and five sites per day, depending on the accessibility of sites and the travel time needed to arrive at the sites.

All observers will have packets of maps showing the location of assigned sites and data collection forms specific to each assigned site. Additional information will include the road segment names; the location of the intersection within the road segment; the assigned date, time, and direction of travel; and any additional instructions which may apply at any given site. Sites in close geographic proximity to each other will be clustered to increase efficiency of data collection. The first site to be observed within a cluster will be chosen randomly and observations at subsequent sites will be scheduled by geographic proximity to minimize travel within the cluster. The clustering process will be designed so that an observer can cover all the sites within the cluster in a single day.

Some sites will have much heavier traffic than others. An additional observer will be assigned to sites identified as having heavy traffic patterns. One person will be responsible for the visual observation and the second observer will record the observations as verbally provided by the first observer. The objective here is to maximize coverage and minimize those observations where seat belt use cannot be determined due to the volume of traffic. The number of second observers will be determined once all sites have been physically located.

#### ***Data Collection***

All passenger vehicles, including commercial vehicles weighing less than 10,000 pounds, will be eligible for observation. Observers will be provided data collection forms, a sample of which is included in Appendix C.<sup>8</sup> Cover sheets for each site will provide for documentation of important site information, including the location of the road segment, assigned date, time, direction of traffic flow, lanes observed, start and end times, and additional information as appropriate, including weather conditions, road construction, or any other factors which might affect data collection. Observers will fill in the cover form at each site. If observers need to move to an alternate site, the reasons, along with all other information, will be detailed on the cover sheet.

For each vehicle, observers will record the type of vehicle, the gender of each driver and passenger, the belt status for each driver and passenger, and the vehicle license registration (Wyoming or out-of-state). These variables, along with belt use by county and roadway type, will be analyzed for the state of Wyoming.<sup>9</sup>

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<sup>7</sup> Front seat occupants who are child passengers traveling in child seats with harness straps will not be included in the observations.

<sup>8</sup> The sample form included in the appendix may need some modifications before data collection occurs, but any changes are likely to be minor.

<sup>9</sup> Once all statistical calculations have been completed by Dr. Ibriq, Dr. Keith Fernsler will serve as the analyst of the data. Dr. Fernsler's resume can be found in Appendix A.

Belt status for each driver and passenger will be recorded as follows:

- Belted, which is defined as an observable shoulder belt in front of the occupant's shoulder;
- Not belted, when the shoulder belt is not in front of the occupant's shoulder;
- Unknown, which is the code used for the occupant or occupants when the observer cannot determine whether the driver or outboard passenger is belted.
- A code which indicates that no passenger is present.<sup>10</sup> This code would also apply to children restrained in safety seats with harnesses.

For sites with two-way traffic, the direction of the traffic to be observed will be predetermined through a random selection process. For road segments with two or more lanes of traffic traveling in the same direction, observations will be made in the lane closest to the observer.

Generally, observations will occur from observer vehicles. The vehicles will be parked in safe locations that do not hinder normal traffic and are not a traffic hazard. The objective is for the observer to find a safe site from which drivers and front seat outboard passenger seat belt use can be determined. Other considerations include light conditions and the direction of the sun, so as to minimize glare in making observations.

In some instances, observers will not be able to collect data from their vehicles. In those cases, observers may exit the vehicle and stand as close to the intersection as is safely feasible. Whenever they make observations outside the vehicle, observers will wear safety vests and hard hats as required by Wyoming Department of Transportation policy. This safety equipment will be issued to all observers and quality control monitors by the Wyoming Department of Transportation.

### **Alternate Sites and Rescheduling**

Assigned sites on assigned days and times may not be available for a variety of reasons. When a site is temporarily unavailable due to inclement weather or a crash, data collection will be rescheduled for a similar time of day and day of week. If a site is permanently unavailable, such as on a detoured road segment or within a gated community, then an alternate site, selected as part of the reserve sample, will be used as the permanent replacement. The two alternate locations for each site will be clearly identified and listed on the Site Assignment Sheet. Observers will select one of the reserve sites at random. If the selected reserve site is also permanently unavailable, then the observer will use the second reserve site listed.

### **Quality Control**

Quality control monitors will be randomly assigned to two data collection sites within each of the sixteen counties in the Wyoming sample. At each site, the monitor will evaluate the observer's general performance and will work alongside the observer to ensure that the observer is following all survey

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<sup>10</sup> It is possible that separate lines of data for drivers and passengers during the data analysis stage may be created. This process will make it easier to combine drivers and passengers when reporting on seat belt use for all vehicle occupants.

protocols. The quality control monitor will include in the performance evaluation all or more of the following:

- Was the observer on time at the assigned sites?
- Did the observer complete the cover sheets and observation forms correctly?
- Were the observer's observations of seat belt use accurate?

The quality control monitors will prepare full reports on each of their site visits within a reasonable time after a site visit occurs. If there are problems with an observer's performance, the monitor should report these problems to the survey supervisor immediately so problems can be corrected.

Quality control monitors will be especially sensitive to any indications that an observer may have falsified data. Any such falsification will be reported by the monitor immediately so that the observer can be replaced by a reserve observer. This back-up observer will be assigned to revisit all sites where it is proven or suspected that falsification of data may have occurred.

Under normal circumstances, observers will be required to mail completed observation forms to the data entry supervisor at DLN Consulting, Inc. when observations are completed for all sites within the observer's assigned county, provided that no problems are identified by the quality control monitors for any given observer. When problems are identified, observers may be required to return forms from a given site immediately after observations are completed for that site so that the forms can be reviewed. Also, forms may need to be returned as soon as possible if either the quality control monitor or the observer encounters a large number of observations where seat belt use is coded as "unknown."

The data entry supervisor will review all returned forms from the observers to ascertain if the rate of observations coded as "unknown" for seat belt use approximates or exceeds 10 percent of the observations for any given site. If this occurs, the observer will be sent back to any such site for an additional observation period.

## **Imputation, Estimation, and Variance**

This section includes a discussion of the sampling weights and formulas; the procedures for adjustments for "nonresponse;" the estimators, with formulas; and the variance estimation.

### Imputation

No imputation will be done on missing data.

### Variance Estimation

A stratified multistage sample design has been proposed, and as such, direct variance estimation for the seat belt use estimator can be a complicated mathematical process, in addition to being time-consuming and costly. For the variance estimator, the ratio estimation procedure in *The Statistical Package for the Social Sciences (SPSS)* software package, its corresponding *Complex Sample Module for SPSS*, and the joint PSU selection probabilities to calculate the seat belt use rate and its variance will be employed.

## Estimation

The following computation is based on the NHTSA guidelines provided in [1]. NHTSA provides two seat belt rate estimators: a ratio estimator, and an estimator using road segment level VMT. DLN implements the ratio estimator to compute the seat belt rate use.

## Notation

The following notations are used in developing the seat use rate estimator

- The following are the subscripts used:
  - $c$  used for county (PSU)
  - $h$  used for road segment strata.
  - $i$  used for road segment.
  - $j$  used for time segment.
  - $k$  used for road direction.
  - $l$  used for the lane.
  - $m$  used for vehicle.
  - $n$  used for front seat occupants.
- $\pi$  denote the inclusion probability, and
  - $\pi_c$  represents the inclusion probability for a county.
  - $\pi_{hi|c}$  represents the inclusion probability for road segment.
  - $\pi_{j|chi}$  represents the inclusion probability for time segment.
  - $\pi_{k|chij}$  represents the inclusion probability for direction
  - $\pi_{l|chij}$  represents the inclusion probability for lane
  - $\pi_{m|chijl}$  represents the inclusion probability for vehicle.
- $w_{chijklm}$  denote the sampling weight for vehicle  $m$  and is computed as follows:

$$w_{chijklm} = \frac{1}{\pi_{chijklm}} \quad (1)$$

$\pi_{chijklm}$  in Equation (1) represents the overall vehicle inclusion probability which is the product of the selection probabilities at all stages in the sample design.  $\pi_{chijklm}$  is computed as follows:

$$\pi_{chijklm} = \pi_c \cdot \pi_{hi|c} \cdot \pi_{j|chi} \cdot \pi_{k|chij} \cdot \pi_{l|chij} \cdot \pi_{m|chijl}$$



- *Length* denote the length of the road segment.
- *p* denote the rate estimator.

### Nonresponse Adjustment

Given the data collection protocol described in this plan, including the provision for the use of alternate observation sites, road segments with non-zero eligible volume and yet zero observations conducted should be a rare event. Nevertheless, if eligible vehicles passed an eligible site or an alternate eligible site during the observation time but no usable data were collected for some reason, then this site will be considered as a “non-responding site.” The weight for a non-responding site will be distributed over other sites in the same road type in the same PSU. Let

$$\pi_{chi} = \pi_e \cdot \pi_{hij|e}$$

be the road segment selection probability, and

$$w_{chi} = \frac{1}{\pi_{chi}}$$

be the road segment weight. The nonresponding site nonresponse adjustment factor:

$$f_{ch} = \frac{\sum_{\forall i} w_{chi}}{\sum_{\text{responding } i} w_{chi}}$$

will be multiplied to all weights of non-missing road segments in the same road type of the same county and the missing road segments will be dropped from the analysis file. However, if there were no vehicles passing the site during the selected observation time (60 minutes), then this is simply an empty block at this site and this site will not be considered as a nonresponding site, and will not require nonresponse adjustment.

In rare cases, the Nonresponse Adjustment procedure described above fails. For example, if in a county, only one road segment was drawn from a road type and that this segment was nonresponding and both alternate segments were unavailable, then the nonresponse adjustment will not work. In such a rare case, this cell would be collapsed with a cell of a different road type within the same county.

### Seat Use Rate Estimator

The first stratum rate estimator can be obtained using the following equation:

$$p_{chi} = \frac{\sum_{\forall chijklmn} w_{chijklm} \text{Length}_{chi} y_{chijklmn}}{\sum_{\forall chijklmn} w_{chijklm} \text{Length}_{chi}} \quad (2)$$

where

$$y_{chijklmn} = \begin{cases} 1 & \text{if belt is used} \\ 0 & \text{otherwise} \end{cases} \quad (3)$$

In the proposed sample design, it is assumed that after the selecting the road segment  $i$ , the selection probabilities for all vehicles at segment  $i$  are equal. Hence,  $w_{jklm|chi}$  values for the same road segment  $i$  are equal and can be cancelled in the calculation of the first seat belt rate use estimator. Furthermore, since the  $Length_{chi}$  values for all vehicles at road segment  $i$  are the same, the length  $Length_{chi}$  can also be cancelled from the first seat belt rate use estimator. Thus, the first stratum rate estimator for road segment  $i$  that is provided in equation (2) reduces to the following:

$$p_{chi} = \frac{1}{n_{chi}} \sum_{\forall jklmn \in chi} y_{chijklmn} \quad (4)$$

where  $n_{chi}$  is the sample size at road segment  $i$ .

Based on the above analysis, our design does not record amount of observation time, the number of directions, the number of lanes, and the number of vehicles passing the site  $i$ .

For the second stratum, namely the road type, the following formula is used:

$$p_{ch} = \frac{\sum_{\forall i \text{ in } h} w_{chi} \cdot Length_{chi} \cdot p_{chi}}{\sum_{\forall i \text{ in } h} w_{chi} \cdot Length_{chi}} \quad (5)$$

where

$$w_{chi} = \frac{1}{\pi_{chi}} \quad (6)$$

Another method can be used for the calculation of  $P_{chi}$ . Since stratified random sampling is proposed in this methodology where the sample is selected by simple random sampling, that is random sampling without replacement in each stratum, the following equation can be used to calculate the rate estimator at stratum  $h$ .

$$p_{ch} = \frac{1}{n_h} \sum_{i=1}^{n_h} p_{chi} \quad (7)$$

where  $n_h$  is number of road segments each road stratum.

For the county, the following rate estimator will be used:

$$p_c = \frac{\sum_{\forall h \text{ in } c} w_{ch} \cdot Length_{ch} \cdot p_{ch}}{\sum_{\forall h \text{ in } c} w_{ch} \cdot Length_{ch}} \quad (8)$$

where

$$w_{ch} = \frac{1}{\pi_{ch}} \quad (9)$$

The following equation can also be used to compute  $p_c$ .

$$p_c = \frac{1}{n_c} \sum_{i=1}^{n_c} p_{ch} \quad (10)$$

where  $n_c$  is number of road strata in the county.

For the state, the following rate estimator will be used:

$$p = \frac{\sum_{\forall c} w_c \cdot Length_c \cdot p_c}{\sum_{\forall c} w_c \cdot Length_c} \quad (11)$$

where

$$w_c = \frac{1}{n_c} \quad (12)$$

The following equation can also be used to compute  $p$ .

$$p = \frac{1}{n} \sum_{i=1}^n p_c \quad (13)$$

where  $n$  is number of counties in the frame.

## **Appendix A**

### **Resumés**

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12/27/2011

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### CURRENT EMPLOYMENT ACTIVITIES

Research Analyst, Evaluation Research, both quantitative and qualitative. Survey and Observational Research. Focus Group Design and Analysis. Data Analysis and Report Writing. Resident Analyst at DLN Consulting, Inc., 1999 – Present.

### EDUCATION AND PROFESSIONAL ACTIVITIES

AB ('67) and MA ('72) Indiana University, Bloomington, IN; Ph.D. University of Montana, 1979.

College Teaching from 1968 – 1973 and 1978 - 2008 at St. Ambrose College (Iowa), Marycrest College (Iowa), Christopher Newport College (Virginia), and Dickinson State University. Several Bush Foundation Faculty Development Awards at Dickinson State; Social Science Department Chair (five years); DSU Professor Emeritus, 2008 – Present.

Membership in American Sociological Association (1976 – Present); Charter Member of ASA Teaching Resource Center; Author of two editions of the manual for Deviant Behavior courses. American Association of Public Opinion Research membership, 2003 – Present.

Knowledge of Microsoft Word and Excel, the Statistical Package for the Social Sciences; analysis of Census Data; and knowledge of the General Social Survey.

Specializations in sociology include methodology, theory, deviant behavior, criminology, sociological practice and public sociology.

### RECENT CONSULTING ACTIVITIES

Wyoming seat belt pre-surveys and main surveys, research design and methodology development, data analysis, report writing (Wyoming Department of Transportation, 2006-2011; currently assisting in development of 2011 methodology under new Federal rules.

North Dakota Workforce Safety and Insurance, Employer and Injured Worker Surveys; research design, data analysis, and report writing; 2009 – present.

Focus group design, observation, analysis and report writing on topic of underage drinking (youth, law enforcement, educators, university students),

**Community Action Partnership.**

Alcohol, Tobacco and Other Drugs, data analysis and report writing, Dickinson Community Action Program.

North Dakota Seat Belt Use Surveys: Research design and data analysis consultation, 1999-2009, including major redesign in 2006; report writing; data analysis using SPSS.

**CURRENT COMMUNITY SERVICE**

Roughrider Country Kiwanis Club; First Congregational Church, UCC; North Dakota Public Employees Association.

**REFERENCES**

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## **Appendix B**

### **Selected Road Segments within Each County and Their Probabilities of Selection**

STATEFP	COUNTYFP	MTFCC	FULLNAME	TUID	Alt_Name	DIVROAD	DECKEDROAD	Longitude	Latitude	SegLen_Mi	SRSWOR
56	1	51100	I-80	168749730	US Hwy 30	Y	N	-105.378496	41.145686	0.831622	0.01342282
56	1	51200	I-80	604512124		N	N	-105.976683	41.455622	0.185331	0.01342282
56	1	51200	US Hwy 30	604512235	US Hwy 30	N	N	-105.613789	41.436288	0.487287	0.01612903
56	1	51200	S 3rd St	168748704	US Hwy 287	N	N	-105.591913	41.28332	0.082576	0.01612903
56	1	51200	State Hwy 130	168722835		N	N	-106.287656	41.350363	0.427204	0.01612903
56	1	51200	S 3rd St	604506806	US Hwy 287	N	N	-105.594072	41.294338	0.176844	0.01612903
56	1	51200	Snowy Range Rd	168750353	State Hwy 130	N	N	-106.138426	41.297205	0.029432	0.01612903
56	1	51200	N 3rd St	168757040	N 3rd St	N	N	-105.591733	41.328609	0.047988	0.01612903
56	1	51200	State Hwy 13	168722017		N	N	-106.005865	41.719918	0.045972	0.01612903
56	1	51200	N 3rd St	604510122	N 3rd St	N	N	-105.589465	41.349592	0.023102	0.01612903
56	1	51200	Snowy Range Rd	168738815	State Hwy 130	N	N	-105.695098	41.328608	0.311022	0.01612903
56	1	51200	Happy Jack Rd	168744760	State Hwy 210	N	N	-105.309387	41.191091	0.653912	0.01612903
56	1	51200	Bus I-80	168756901	US Hwy 30	N	N	-105.568899	41.309599	0.005935	0.01612903
56	1	51200	State Hwy 10	168745008		N	N	-105.994902	41.032165	0.213298	0.01612903
56	1	51200	US Hwy 30	168737539	US Hwy 30	N	N	-105.618617	41.445781	0.55288	0.01612903
56	1	51200	State Hwy 11	168755506		N	N	-106.090934	41.193713	0.3791	0.01612903
56	1	51200	State Hwy 210	604505747		N	N	-105.438008	41.239964	0.011093	0.01612903
56	1	51200	N 4th St	168755958	Co Rd 67	N	N	-105.975505	41.75157	0.062117	0.01612903
56	3	51200	US Hwy 14 E	605633431		N	N	-107.749401	44.549772	0.01933	0.01522843
56	3	51200	US Hwy 14A E	180494288		NA	NA	-108.222314	44.854737	0.237779	0.01522843
56	3	51200	US Hwy 14A E	180493968		NA	NA	-108.320407	44.840598	0.062603	0.01522843
56	3	51200	US Hwy 14A E	605624056		NA	NA	-108.354114	44.840581	0.053415	0.01522843
56	3	51200	State Hwy 32	180493545		N	N	-108.415772	44.800116	0.006963	0.01522843
56	3	51200	State Hwy 32	605621594		N	N	-108.587279	44.732075	0.173849	0.01522843
56	3	51200	US Hwy 14	180484672		N	N	-108.015517	44.49378	0.057181	0.01522843
56	3	51200	State Hwy 30	605616914		N	N	-108.339589	44.417795	0.321328	0.01522843
56	3	51200	3rd St E	180505210	US Hwy 310	N	N	-108.46286	44.87988	0.015607	0.01522843
56	3	51200	US Hwy 14 Alt	626936823		Y	N	-108.016292	44.79296	0.353805	0.01522843
56	3	51200	US Hwy 16	180500795		N	N	-107.24785	44.177728	0.893127	0.01522843
56	3	51200	US Hwy 14 Alternate Rte	180501932		N	N	-108.376118	44.839933	0.099877	0.01522843
56	3	51200	US Hwy 310	180450602		N	N	-108.584372	44.89102	0.036785	0.01522843
56	3	51200	State Hwy 32	180506937		N	N	-108.49826	44.776846	0.166397	0.01522843
56	3	51200	State Hwy 433	180507017		N	N	-107.938854	44.197309	0.474787	0.01522843
56	3	51200	Marshall St	180508412	State Hwy 31	N	N	-107.962173	44.274582	0.04248	0.01522843
56	3	51200	State Hwy 433	180499656		N	N	-107.979944	44.249642	0.248082	0.01522843
56	3	51200	C St	180485070	State Hwy 36	N	N	-108.041229	44.381112	0.071452	0.01522843



56	5	51100	I-90	607415957	I-90	NA	NA	-105.248589	44.294692	0.2338	0.01498127
56	5	51100	I-90	607413318	I-90	NA	NA	-105.383825	44.295056	0.565923	0.01498127
56	5	51100	I-90	146326960	US Hwy 14	N	N	-105.352327	44.289556	0.032443	0.01498127
56	5	51100	I-90	146347844	US Hwy 14	N	N	-105.378563	44.294171	0.039906	0.01498127
56	5	51200	State Hwy 59	146348156		N	N	-105.526384	44.352279	0.035885	0.01344861
56	5	51200	E 2nd St	146325159	E 2nd St	N	N	-105.489034	44.292555	0.006099	0.01344861
56	5	51200	US Hwy 14	146349851	State Hwy 59	N	N	-105.529311	44.296796	0.051126	0.01344861
56	5	51200	State Hwy 50	146329404		N	N	-105.624261	44.181178	0.128849	0.01344861
56	5	51200	State Hwy 50	146334309		N	N	-105.724815	43.993419	0.268938	0.01344861
56	5	51200	State Hwy 50	146353809		N	N	-105.719015	44.07693	0.152303	0.01344861
56	5	51200	State Hwy 59	607396191		N	N	-105.464887	44.022166	0.220383	0.01344861
56	5	51200	State Hwy 50	146333806		N	N	-105.750504	43.925684	0.026796	0.01344861
56	5	51200	US Hwy 14	146321054	US Hwy 16	N	N	-105.538015	44.391359	0.066024	0.01344861
56	5	51200	State Hwy 50	146353348		N	N	-105.711349	44.114846	0.837201	0.01344861
56	5	51200	State Hwy 51	607406131		N	N	-105.283045	44.288769	0.020793	0.01344861
56	5	51200	US Hwy 14	146346688	State Hwy 59	N	N	-105.530279	44.30921	0.060938	0.01344861
56	5	51200	State Hwy 59	635532528		N	N	-105.44592	43.969271	0.227319	0.01344861
56	7	51100	State Hwy 387	146342308		N	N	-105.979091	43.5588	0.24863	0.01344861
56	7	51100	I-80	611197576		N	N	-106.521149	41.752786	0.67332	0.01351351
56	7	51100	I-80	148702972	I-80	N	N	-106.948342	41.751102	0.026198	0.01351351
56	7	51100	I-80	148729076	I-80	Y	N	-107.373738	41.786936	0.145819	0.01351351
56	7	51200	3rd St	622138133	US Hwy 287	N	N	-107.22921	41.807878	0.184918	0.01444165
56	7	51200	State Hwy 70	148737136		N	N	-107.034068	41.156663	0.828525	0.011444165
56	7	51200	State Hwy 789	148752555		N	N	-107.730909	41.291091	1.697048	0.01444165
56	7	51200	State Hwy 130	148712671		N	N	-106.760293	41.392624	0.460732	0.011444165
56	7	51200	State Hwy 130	148715207		N	N	-106.651357	41.343293	0.077775	0.011444165
56	7	51200	State Hwy 230	148718040		N	N	-106.610856	41.172584	0.416111	0.011444165
56	7	51200	State Hwy 220	148695417		N	N	-107.243952	42.428181	0.229884	0.011444165
56	7	51200	N Higley Blvd	148729803	US Hwy 287 Byp	N	N	-107.215405	41.795669	0.069431	0.011444165
56	7	51200	State Hwy 72	148707454		N	N	-106.453685	41.718692	0.74372	0.011444165
56	7	51200	Lincoln Hwy	148702076	US Hwy 30	N	N	-106.277868	41.901903	1.701502	0.011444165
56	7	51200	State Hwy 230	148743798		N	N	-106.701352	41.218277	0.116587	0.011444165
56	7	51200	State Hwy 789	148736405		N	N	-107.693147	41.20518	0.326679	0.011444165
56	7	51200	State Hwy 230	148714894		N	N	-106.776349	41.255209	0.053899	0.011444165
56	7	51200	State Hwy 487	148727630		N	N	-106.186809	42.097454	1.894335	0.011444165
56	7	51200	State Hwy 130	148716025		N	N	-106.496624	41.32687	0.364838	0.011444165

56	13	51200	Fremont St	628694209	Fremont St	N	N	-108.739361	42.824433	0.041387	0.00951877
56	13	51200	US Hwy 287	148440001	State Hwy 789	N	N	-108.355944	42.651302	0.917551	0.00951877
56	13	51200	S Fifth St	148435866	S Fifth St	N	N	-108.735391	42.83345	0.075688	0.00951877
56	13	51200	US Hwy 287	634121244	US Hwy 287	N	N	-107.749138	42.488102	0.108102	0.00951877
56	13	51200	US Hwy 26	148495718		N	N	-108.56709	43.112365	0.083409	0.00951877
56	13	51200	US Hwy 26	148494149	US Hwy 26	N	N	-109.43973	43.416155	0.271117	0.00951877
56	13	51200	US Hwy 20	148486152	State Hwy 789	N	N	-108.160355	43.394654	0.521853	0.00951877
56	13	51200	Blue Sky Hwy	148473776	Blue Sky Hwy	N	N	-108.766271	43.086613	0.493145	0.00951877
56	13	51200	US Hwy 26	148485578	US Hwy 26	N	N	-109.940564	43.65715	0.666155	0.00951877
56	13	51200	Gas Hillis Rd	148433925	State Hwy 136	N	N	-108.336608	42.993204	0.029512	0.00951877
56	13	51200	US Hwy 26	148495394		N	N	-108.879131	43.24349	0.382653	0.00951877
56	13	51200	US Hwy 20	148468455	State Hwy 789	N	N	-108.115049	43.359974	0.359517	0.00951877
56	13	51200	US Hwy 26	148486961		N	N	-108.920264	43.213638	0.606161	0.00951877
56	13	51200	US Hwy 287	148429899	State Hwy 789	N	N	-107.580341	42.462137	0.201633	0.00951877
56	13	51200	Missouri Valley Rd	148470962	Missouri Valley Rd	N	N	-108.610016	43.214772	0.456474	0.00951877
56	13	51200	State Hwy 789	148448781	US Hwy 20	N	N	-107.689438	43.151979	0.292919	0.00951877
56	13	51200	State Hwy 789	148433053		N	N	-108.553074	42.911615	0.035458	0.00951877
56	19	51100	I-25	624471389	I-25	Y	N	-108.569408	42.910442	0.085218	0.00951877
56	19	51100	I-25	147364609	US Hwy 87	Y	N	-106.646302	43.995016	0.300971	0.01146132
56	19	51100	I-25	147364620	US Hwy 87	Y	N	-106.533561	43.598253	0.116223	0.01146132
56	19	51100	I-90	635198026		Y	N	-106.608497	43.644685	0.809497	0.01146132
56	19	51100	I-90	635203662		Y	N	-106.160823	44.212252	0.230765	0.01146132
56	19	51100	I-90	147303287		Y	N	-106.306087	44.217749	0.201378	0.01146132
56	19	51100	I-90	147364484		Y	N	-106.156158	44.212943	0.018582	0.01146132
56	19	51100	I-90	147365807		Y	N	-106.390326	44.235006	0.124988	0.01146132
56	19	51200	Sussex Rd	147321002	Sussex Rd	N	N	-106.104178	44.219162	0.078479	0.01146132
56	19	51200	N Main St	624035496	State Hwy 196	N	N	-106.297982	43.698467	0.019054	0.01160093
56	19	51200	N Main St	147299782	State Hwy 196	N	N	-106.697436	44.360852	0.066349	0.01160093
56	19	51200	Old Hwy 87	147375368	Old Hwy 87	N	N	-106.698941	44.34753	0.093436	0.01160093
56	19	51200	Sussex Rd	147320405	State Hwy 1002	N	N	-106.70217	44.152286	0.414683	0.01160093
56	19	51200	US Hwy 16	147301629		N	N	-106.52221	43.69458	0.231502	0.01160093
56	19	51200	US Hwy 16	147301697		N	N	-106.917457	44.161293	0.182867	0.01160093
56	19	51200	US Hwy 16	147330545		N	N	-106.92537	44.233648	0.042325	0.01160093
56	19	51200	US Hwy 16	617881865		N	N	-106.686296	44.354195	0.03269	0.01160093
56	19	51200	Sussex Rd	147320871	State Hwy 1002	N	N	-106.7265	44.341227	0.069923	0.01160093
56	19	51200	Sussex Rd	147320871	State Hwy 1002	N	N	-106.373653	43.706753	0.085488	0.01160093

56	21	51100	I- 25	622388802	I- 25	N	N	-104.838174	41.198768	0.794488	0.00223714
56	21	51200	E Four Mile Rd	624043730	E Four Mile Rd	N	N	-104.81166	41.189258	0.093536	0.0010352
56	21	51400	Draper Rd	160176358		N	N	-104.822959	41.096529	0.061319	0.00148588
56	21	51400	Harriman Rd	160145448	Co Rd 102	N	N	-105.255088	41.000815	0.014499	0.00148588
56	21	51400	Hirsig Rd	160162024	Hirsig Rd	N	N	-105.164265	41.552454	0.505235	0.00148588
56	21	51400	E 5th St	160151376		N	N	-104.793841	41.128595	0.059566	0.00148588
56	21	51400	Foothills Rd	160148179		N	N	-104.773765	41.169918	0.052044	0.00148588
56	21	51400	Clear View Cir	160171828		N	N	-104.797632	41.199493	0.174119	0.00148588
56	21	51400	Jack Rabbit Rd	160148102		N	N	-104.772682	41.195892	0.201315	0.00148588
56	21	51400	Douglas St	160148214		N	N	-104.769206	41.167367	0.028956	0.00148588
56	21	51400	E 20th St	160149935		N	N	-104.810315	41.138992	0.061455	0.00148588
56	21	51400	Bus Park	160172654	Bus Park	N	N	-104.057737	41.182368	0.016854	0.00148588
56	21	51400	Carrroll Ave	160147641		N	N	-104.827405	41.165087	0.123116	0.00148588
56	21	51400	Monroe Ave	160152283		N	N	-104.758935	41.135548	0.125386	0.00148588
56	21	51400	Co Rd 138	160160311		N	N	-104.566438	41.120511	0.223542	0.00148588
56	21	51400	McDonald Rd	160176882		N	N	-105.067974	41.152391	0.087434	0.00148588
56	21	51400	McAllister Ln	160179037		N	N	-104.808831	41.174821	0.015039	0.00148588
56	21	51400	Military Rd	608318324		N	N	-104.885953	41.13547	0.003858	0.00148588
56	23	51100	US Hwy 30	611001502		NA	NA	-110.063887	41.684366	0.185933	0.0106383
56	23	51200	Hwy 238	130299361	State Hwy 238	N	N	-110.997509	42.736914	0.321042	0.01295732
56	23	51200	US Hwy 30	130309240		N	N	-110.975366	41.842883	2.388625	0.01295732
56	23	51200	US Hwy 26	130324547	US Hwy 89A	N	N	-111.02474	43.180649	0.251294	0.01295732
56	23	51200	US Hwy 89	130316044	US Hwy 89A	N	N	-111.017462	43.167187	0.031132	0.01295732
56	23	51200	US Hwy 26	130316740	US Hwy 89	N	N	-110.933792	43.191983	0.115793	0.01295732
56	23	51200	Hwy 236	611004110	State Hwy 236	N	N	-110.961819	42.692569	0.058369	0.01295732
56	23	51200	US Hwy 189	611001556		N	N	-110.571305	41.633032	0.036267	0.01295732
56	23	51200	State Hwy 89	635503417		N	N	-111.04699	42.347346	0.288851	0.01295732
56	23	51200	Hwy 237	130297921	State Hwy 237	N	N	-110.950765	42.793945	0.227784	0.01295732
56	23	51200	State Hwy 239	619637613		N	N	-111.030837	42.982527	0.060775	0.01295732
56	23	51200	US Hwy 30	130324450		N	N	-110.954794	41.933748	0.658579	0.01295732
56	23	51200	US Hwy 89	611008956	US Hwy 89A	N	N	-111.025859	43.13296	0.053011	0.01295732
56	23	51200	State Hwy 235	130301475		N	N	-110.242527	42.261535	0.421719	0.01295732
56	23	51200	US Hwy 30	130301732		N	N	-110.981435	42.153542	0.502008	0.01295732
56	23	51200	US Hwy 26	130316677	US Hwy 89	N	N	-110.943822	43.192256	0.401259	0.01295732
56	23	51200	US Hwy 89	611008950	US Hwy 89A	N	N	-111.026041	43.133785	0.062243	0.01295732
56	23	51200	US Hwy 189	130303332		N	N	-110.185824	42.179875	0.328363	0.01295732

56	25	S1100	I- 25	149010081	I- 25	N	N	N	-106.335419	43.056092	0.413891	0.00248756
56	25	S1200	Cy Ave	149022110	Cy Ave	N	N	N	-106.366423	42.82324	0.017426	0.00131926
56	25	S1200	Cole Creek Rd	149038958	Cole Creek Rd	N	N	N	-106.188882	42.891713	0.027375	0.00131926
56	25	S1400	Co Rd 607	149017131		N	N	N	-106.154287	42.66765	0.463712	0.00130208
56	25	S1400	E A St	607727858		N	N	N	-106.300759	42.85147	0.033396	0.00130208
56	25	S1400	Star Ln	617962807		NA	NA	NA	-106.340114	42.849249	0.007403	0.00130208
56	25	S1400	S 5th Ave	149021251		N	N	N	-106.392876	42.84351	0.0661	0.00130208
56	25	S1400	Gooder Ave	149019813		N	N	N	-106.45744	42.894276	0.202048	0.00130208
56	25	S1400	Lakeshore Dr	607699609	Lakeshore Dr	N	N	N	-106.778388	42.529729	0.036057	0.00130208
56	25	S1400	E 13th St	149024110		N	N	N	-106.313672	42.837542	0.017916	0.00130208
56	25	S1400	Co Rd 602	149026356		N	N	N	-106.225292	42.863349	0.012091	0.00130208
56	25	S1400	N 6 Mile Rd	149020050	Co Rd 119	N	N	N	-106.434416	42.899062	0.408276	0.00130208
56	25	S1400	Second St	607727056		N	N	N	-106.365773	42.841959	0.030995	0.00130208
56	25	S1400	Oregon Trl	148992543	Turkey Track Rd	N	N	N	-107.479794	42.473862	0.38719	0.00130208
56	25	S1400	Missouri Ave	607718345	Missouri Ave	N	N	N	-106.29305	42.83014	0.109077	0.00130208
56	25	S1400	N East St	149039592		N	N	N	-106.24357	43.414304	0.07002	0.00130208
56	25	S1400	Goose Egg Cir	607701450		N	N	N	-106.515294	42.760538	0.070234	0.00130208
56	25	S1400	Granada Ave	6179663960		N	N	N	-106.342498	42.814829	0.029059	0.00130208
56	29	S1200	Beartooth Hwy	612523424	US Hwy 212	N	N	N	-109.633519	44.922577	1.645067	0.01129944
56	29	S1200	Chief Joseph Hwy	612522810	Chief Joseph Hwy	N	N	N	-109.644082	44.866408	0.069016	0.01129944
56	29	S1200	N Fork Hwy	627160085	US Hwy 14	N	N	N	-109.619865	44.463599	0.38333	0.01129944
56	29	S1200	Rd 18	149194387	Badger Basin Rd	N	N	N	-108.916337	44.703963	0.240759	0.01129944
56	29	S1200	N Fork Hwy	149206406	US Hwy 14	N	N	N	-109.911367	44.482239	0.238308	0.01129944
56	29	S1200	E Entrance Rd	626966347	US Hwy 14	N	N	N	-110.369413	44.560993	0.680702	0.01129944
56	29	S1200	17th St	612520875	17th St	N	N	N	-109.054089	44.51858	0.033156	0.01129944
56	29	S1200	Hwy 114	612522765	Hwy 114	N	N	N	-108.665672	44.875669	0.469234	0.01129944
56	29	S1200	US Hwy 14 Alt	624469118		N	N	N	-108.683333	44.77285	0.003999	0.01129944
56	29	S1200	Ln 13	612517654	State Hwy 295	N	N	N	-108.750575	44.695729	0.017968	0.01129944
56	29	S1200	W Coulter Ave	149194643	W US Hwy 14A	N	N	N	-108.781521	44.744254	0.145786	0.01129944
56	29	S1200	Powell Hwy	61251823	Powell Hwy	N	N	N	-108.926863	44.679533	0.055645	0.01129944
56	29	S1200	State Hwy 120	149212941		N	N	N	-108.823272	44.12936	0.036804	0.01129944
56	29	S1200	State Hwy 294	149202036	State Hwy 294	N	N	N	-109.016527	44.855058	0.095278	0.01129944
56	29	S1200	Rd 9	612468763	Hwy 295	N	N	N	-108.75993	44.7847	0.219583	0.01129944
56	29	S1200	US Hwy 191	149216474		N	N	N	-111.055155	44.933339	0.096348	0.01129944
56	29	S1200	W Coulter Ave	625076103	W US Hwy 14A	N	N	N	-108.776032	44.745846	0.085806	0.01129944
56	29	S1200	R 9	612522218	Rd 9	N	N	N	-108.759912	44.741851	0.051305	0.01129944

56	31	51100	I-25	160436166	I-25	N	N	-105.033471	42.488013	0.150221	0.01496259
56	31	51100	I-25	606897806	I-25	NA	NA	-105.002408	42.181889	0.336848	0.01496259
56	31	51100	I-25	604828586	I-25	N	N	-104.828994	41.694975	1.05719	0.01496259
56	31	51100	I-25	606897551	I-25	NA	NA	-104.791379	41.788735	0.107012	0.01496259
56	31	51100	I-25	604829666	I-25	NA	NA	-105.048003	42.280869	0.749704	0.01496259
56	31	51100	I-25	618035322	I-25	NA	NA	-104.960093	42.014929	0.189146	0.01496259
56	31	51200	N Pioneer Rd	604823280	N Pioneer Rd	N	N	-104.750109	41.89528	0.703969	0.01591512
56	31	51200	Hartville Hwy	160432353	State Hwy 270	N	N	-104.724922	42.320239	0.333096	0.01591512
56	31	51200	Lake Side Dr	604817760	Lake Side Dr	N	N	-104.747501	42.339779	1.191051	0.01591512
56	31	51200	US Hwy 26	624031047		N	N	-104.847177	42.248395	0.091746	0.01591512
56	31	51200	W Whalen St	604820352	US Hwy 26	N	N	-104.748604	42.269744	0.140121	0.01591512
56	31	51200	State Hwy 34	160445492		N	N	-105.082689	41.953594	0.428089	0.01591512
56	31	51200	N Wheatland Hwy	160445589	State Hwy 320	N	N	-104.936079	42.12393	0.519234	0.01591512
56	31	51200	S Glendo Hwy	160431220	S Glendo Hwy	N	N	-104.992648	42.360525	0.223112	0.01591512
56	31	51200	Hartville Hwy	160441567	State Hwy 270	N	N	-104.694803	42.501143	0.777523	0.01591512
56	31	51200	el Rancho Rd	604820453	el Rancho Rd	N	N	-105.049222	42.271762	0.09635	0.01591512
56	31	51200	Slater Rd	160442550	State Hwy 314	N	N	-104.830403	41.871476	0.442447	0.01591512
56	31	51200	Iron Mountain Rd	160425201	State Hwy 211	N	N	-104.836275	41.756586	0.136607	0.01591512
56	33	51100	I-90	629143491		NA	NA	-106.936971	44.802617	0.025825	0.00877193
56	33	51100	I-90	634774573		NA	NA	-106.828618	44.582922	3.868549	0.00877193
56	33	51200	US Hwy 14	147411270	US Hwy 16	N	N	-106.534251	44.567071	0.032397	0.01088435
56	33	51200	Big Goose Rd	147421444	State Hwy 331	N	N	-107.062538	44.76667	0.019143	0.01088435
56	33	51200	E 5th St	605384408	State Hwy 336	N	N	-106.955285	44.806844	0.031902	0.01088435
56	33	51200	US Hwy 14	147398734		N	N	-107.364785	44.799827	0.737105	0.01088435
56	33	51200	Coffeen Ave	147408472	Coffeen Ave	N	N	-106.94748	44.736972	0.051388	0.01088435
56	33	51200	Front St	147409609	US Hwy 14	N	N	-106.382235	44.637732	0.032159	0.01088435
56	33	51200	US Hwy 14	147400215		N	N	-107.500689	44.714898	0.029523	0.01088435
56	33	51200	State Hwy 345	147396185		N	N	-107.321543	44.948465	0.756063	0.01088435
56	33	51200	N Piney Rd	147420545	N Piney Rd	N	N	-106.900559	44.578041	0.177454	0.01088435
56	33	51200	US Hwy 87	605368387		N	N	-106.885561	44.63175	0.031174	0.01088435
56	33	51200	Fish Hatchery Rd	147419891	State Hwy 194	N	N	-106.918967	44.568667	0.147106	0.01088435
56	33	51200	Big Goose Rd	147399687	State Hwy 331	N	N	-107.070202	44.7648	0.393307	0.01088435
56	33	51200	State Hwy 335	147408335		N	N	-106.980318	44.700411	0.029008	0.01088435
56	33	51200	US Hwy 14	147398523		N	N	-107.476861	44.77952	0.069219	0.01088435
56	33	51200	W Loucks St	614721355	W Loucks St	N	N	-106.973517	44.796617	0.05157	0.01088435
56	33	51200	Main St	147417308	Main St	N	N	-107.262715	44.8711275	0.020451	0.01088435

56	35	51200	Big Piney Calpet Rd	149346148	Big Piney Calpet Rd	N	N	-110.283783	42.393018	0.195383	0.01691729
56	35	51200	Big Piney Calpet Rd	149347154	Big Piney Calpet Rd	N	N	-110.284863	42.37851	0.385055	0.01691729
56	35	51200	State Hwy 352	149330874		N	N	-109.989113	42.956827	0.497131	0.01691729
56	35	51200	State Hwy 352	149342158		N	N	-110.023781	43.098791	0.126517	0.01691729
56	35	51200	Bloomfield Ave	617103316		NA	NA	-109.879699	42.882772	0.190991	0.01691729
56	35	51200	US Hwy 189	614284845	US Hwy 189	N	N	-110.409656	43.20366	0.12783	0.01691729
56	35	51200	State Hwy 352	631784199		N	N	-109.989064	42.97478	0.225948	0.01691729
56	35	51200	Big Piney Calpet Rd	149328921	Big Piney Calpet Rd	N	N	-110.290572	42.358646	0.278765	0.01691729
56	35	51200	Middle Piney Rd	149319272	Middle Piney Rd	N	N	-110.285006	42.538177	0.847708	0.01691729
56	35	51200	Big Piney Calpet Rd	149327486	Big Piney Calpet Rd	N	N	-110.124057	42.387895	0.261669	0.01691729
56	35	51200	State Hwy 354	611631792		N	N	-110.124057	42.890585	0.348304	0.01691729
56	35	51200	State Hwy 353	149335729		N	N	-109.714446	42.749503	0.046943	0.01691729
56	35	51200	Big Piney Calpet Rd	149349722	Big Piney Calpet Rd	N	N	-110.28701	42.453728	0.154211	0.01691729
56	35	51200	State Hwy 352	149348298		N	N	-110.024543	43.100778	0.158921	0.01691729
56	35	51200	Fox Willow Dr	624696401		NA	NA	-109.863534	42.858926	0.039994	0.01691729
56	35	51200	US Hwy 189	149341811	US Hwy 191	N	N	-110.167302	43.096316	0.195055	0.01691729
56	35	51200	State Hwy 353	149343493		N	N	-109.509085	42.67973	0.040054	0.01691729
56	35	51200	US Hwy 191	611631778		N	N	-110.070024	42.890439	0.046435	0.01691729
56	37	51100	I-80	624231944	I-80	NA	NA	-108.780959	41.678094	0.163315	0.01215805
56	37	51100	I-80	633104230	US Hwy 30	N	N	-109.316632	41.554826	0.039476	0.01215805
56	37	51100	I-80 Interstate Rmp	149499689		N	N	-109.587987	41.555451	0.259911	0.01215805
56	37	51100	I-80	149487238	I-80	N	N	-108.066013	41.661045	0.136447	0.01215805
56	37	51200	US Hwy 191	618328344		N	N	-109.437956	42.043985	0.338956	0.01204819
56	37	51200	State Hwy 374	149511333		N	N	-109.482509	41.541523	0.131587	0.01204819
56	37	51200	Uinta Dr	149500497	Uinta Dr	N	N	-109.472709	41.511854	0.0531	0.01204819
56	37	51200	State Hwy 414	149464554		N	N	-109.985213	41.027126	0.131917	0.01204819
56	37	51200	State Hwy 28	149493695		N	N	-109.808056	41.858995	0.147627	0.01204819
56	37	51200	Lower Farson Cutoff Rd	149482132	California-Mormon Emigr	N	N	-109.666317	41.965696	0.038819	0.01204819
56	37	51200	Dewar Dr	149503912	Dewar Dr	N	N	-109.226073	41.584776	0.04782	0.01204819
56	37	51200	US Hwy 191	149496622		N	N	-109.325226	41.744334	0.329502	0.01204819
56	37	51200	Pilot Butte Ave	611877695	Pilot Butte Ave	NA	NA	-109.216939	41.59261	0.030201	0.01204819
56	37	51200	State Hwy 430	149458823		N	N	-108.78958	41.049775	0.243255	0.01204819
56	37	51200	US Hwy 191	149461346	State Hwy 373	N	N	-109.310187	41.437909	1.183344	0.01204819
56	37	51200	State Hwy 372	149499742	State Hwy 374	N	N	-109.591055	41.555985	0.056765	0.01204819
56	37	51200	D St	149502711	State Hwy 430	N	N	-109.2125	41.581594	0.037972	0.01204819
56	37	51200	State Hwy 430	149457693		N	N	-108.836841	41.204642	0.057298	0.01204819

56	39	51200	Grand Loop Rd	130447128	US Hwy 89	N	N	-110.647369	44.4336	0.335289	0.02292994
56	39	51200	State Hwy 22	130412425		N	N	-111.023765	43.531226	0.014713	0.02292994
56	39	51200	W Broadway Ave	626815081	US Hwy 26	N	N	-110.767775	43.479528	0.008592	0.02292994
56	39	51200	US Hwy 26	130414136	US Hwy 26	N	N	-110.747679	43.393058	0.052961	0.02292994
56	39	51200	US Hwy 26	130440602	US Hwy 26	N	N	-110.519893	43.822999	0.705899	0.02292994
56	39	51200	State Hwy 22	235945248		N	N	-111.044466	43.542907	0.121907	0.02292994
56	39	51200	N Cache St	130449024	US Hwy 26	N	N	-110.762232	43.489123	0.002913	0.02292994
56	39	51200	Grand Loop Rd	130410308	US Hwy 89	N	N	-110.849699	44.487252	0.476339	0.02292994
56	39	51200	US Hwy 26	130442142	US Hwy 26	N	N	-110.140642	43.785674	0.058013	0.02292994
56	39	51200	US Hwy 26	130414163	US Hwy 26	N	N	-110.745142	43.384441	0.015347	0.02292994
56	39	51200	US Hwy 26	130416881	US Hwy 26	N	N	-110.179349	43.812532	0.085526	0.02292994
56	39	51200	John D Rockefeller Jr Pkwy	625696810	US Hwy 89	N	N	-110.632246	43.929951	0.644068	0.02292994
56	39	51200	US Hwy 26	633121288	US Hwy 26	N	N	-110.748242	43.394564	0.107092	0.02292994
56	39	51200	Grand Loop Rd	130435259	US Hwy 20	N	N	-110.418215	44.54549	0.012986	0.02292994
56	39	51200	N Moose Wilson Rd	130421972	N Moose Wilson Rd	N	N	-110.846204	43.500474	0.111366	0.02292994
56	39	51200	W Broadway Ave	626815080	US Hwy 26	N	N	-110.767992	43.479487	0.01271	0.02292994
56	39	51200	US Hwy 189	130430099	US Hwy 189	Y	N	-110.730176	43.322355	0.075306	0.02292994
56	39	51200	John D Rockefeller Jr Pkwy	130438888	US Hwy 89	N	N	-110.617709	43.904563	0.02257	0.02292994
56	41	51100	I-80	160262564		N	N	-110.424883	41.332567	0.082322	0.02242152
56	41	51100	I-80	160262989		N	N	-110.382457	41.349435	0.884846	0.02242152
56	41	51100	I-80	160263878		N	N	-110.369274	41.354538	0.581572	0.02242152
56	41	51100	I-80	160276521		N	N	-110.449606	41.328957	0.025325	0.02242152
56	41	51100	I-80 Bus	625848180		N	N	-110.374475	41.316471	0.467979	0.02242152
56	41	51200	State Hwy 150	160278118	State Hwy 150	N	N	-110.949574	41.26097	0.069808	0.02083333
56	41	51200	State Hwy 89	160256726	State Hwy 89 N	N	N	-111.041282	41.406968	0.045853	0.02083333
56	41	51200	State Hwy 414	160278610		N	N	-110.33637	41.272014	0.050479	0.02083333
56	41	51200	State Hwy 414	160276641		N	N	-110.32857	41.269014	0.002005	0.02083333
56	41	51200	State Hwy 89	160259758	State Hwy 89 N	N	N	-110.982831	41.297753	0.059565	0.02083333
56	41	51200	State Hwy 414	160269401		N	N	-110.121784	41.048317	0.287048	0.02083333
56	41	51200	State Hwy 412	160258496		N	N	-110.423572	41.4321	0.102188	0.02083333
56	41	51200	State Hwy 410	160266210		N	N	-110.493857	41.1882	0.094194	0.02083333
56	41	51200	US Hwy 189	160257875		N	N	-110.625197	41.430625	0.935336	0.02083333
56	41	51200	Carter Cutoff Rd	160258469	Carter Cutoff Rd	N	N	-110.441935	41.452999	0.052881	0.02083333
56	41	51200	State Hwy 414	160269069		N	N	-110.178426	41.097522	0.74704	0.02083333
56	41	51200	State Hwy 150	606738273	State Hwy 150 S	N	N	-110.953165	41.262237	0.015361	0.02083333
56	41	51200	State Hwy 89	160275943		N	N	-110.957224	41.281488	0.07992	0.02083333

**Appendix C**

**Sample Data Collection Form and Cover Sheet**



WYDOT SEAT BELT SURVEY DATA COLLECTION FORM	
Observer _____	Total # of observation pages: _____
County _____	Date: _____
Site # _____	
Site Location _____	

Alternate Site Information	
Available alternate sites:	
1. _____	
2. _____	
Is this an alternate site?	Yes      No      (Please circle response)
If yes, which site was selected?	1      2      (Please circle response)
Please provide reason for using alternate site:	
_____	
_____	
_____	

Site Description	
Please circle your responses:	
Assigned traffic flow	North      South      East      West
Number of lanes in this direction:	_____
Weather conditions	clear/sunny      cloudy      light fog      light rain      light snow
Observation Site start and end times:	
Start Time: _____ AM      PM	End Time: _____ AM      PM
<b><u>(Total observation period MUST last EXACTLY 45 minutes)</u></b>	

Vehicle Type				WY License			
(1) Auto	(2) Van	(3) SUV	(4) PU	(1) Y	(2) N	(9) Unsure	
Driver	(1) M	(2) F	(1) Y	(2) N	(3) UK		
Pass.	(1) M	(2) F	(1) Y	(2) N	(3) UK	(4) NP	

Vehicle Type				WY License			
(1) Auto	(2) Van	(3) SUV	(4) PU	(1) Y	(2) N	(9) Unsure	
Driver	(1) M	(2) F	(1) Y	(2) N	(3) UK		
Pass.	(1) M	(2) F	(1) Y	(2) N	(3) UK	(4) NP	

Vehicle Type				WY License			
(1) Auto	(2) Van	(3) SUV	(4) PU	(1) Y	(2) N	(9) Unsure	
Driver	(1) M	(2) F	(1) Y	(2) N	(3) UK		
Pass.	(1) M	(2) F	(1) Y	(2) N	(3) UK	(4) NP	

Vehicle Type				WY License			
(1) Auto	(2) Van	(3) SUV	(4) PU	(1) Y	(2) N	(9) Unsure	
Driver	(1) M	(2) F	(1) Y	(2) N	(3) UK		
Pass.	(1) M	(2) F	(1) Y	(2) N	(3) UK	(4) NP	

Vehicle Type				WY License			
(1) Auto	(2) Van	(3) SUV	(4) PU	(1) Y	(2) N	(9) Unsure	
Driver	(1) M	(2) F	(1) Y	(2) N	(3) UK		
Pass.	(1) M	(2) F	(1) Y	(2) N	(3) UK	(4) NP	

Vehicle Type				WY License			
(1) Auto	(2) Van	(3) SUV	(4) PU	(1) Y	(2) N	(9) Unsure	
Driver	(1) M	(2) F	(1) Y	(2) N	(3) UK		
Pass.	(1) M	(2) F	(1) Y	(2) N	(3) UK	(4) NP	

Vehicle Type				WY License			
(1) Auto	(2) Van	(3) SUV	(4) PU	(1) Y	(2) N	(9) Unsure	
Driver	(1) M	(2) F	(1) Y	(2) N	(3) UK		
Pass.	(1) M	(2) F	(1) Y	(2) N	(3) UK	(4) NP	

Vehicle Type				WY License			
(1) Auto	(2) Van	(3) SUV	(4) PU	(1) Y	(2) N	(9) Unsure	
Driver	(1) M	(2) F	(1) Y	(2) N	(3) UK		
Pass.	(1) M	(2) F	(1) Y	(2) N	(3) UK	(4) NP	

Vehicle Type				WY License			
(1) Auto	(2) Van	(3) SUV	(4) PU	(1) Y	(2) N	(9) Unsure	
Driver	(1) M	(2) F	(1) Y	(2) N	(3) UK		
Pass.	(1) M	(2) F	(1) Y	(2) N	(3) UK	(4) NP	

Vehicle Type				WY License			
(1) Auto	(2) Van	(3) SUV	(4) PU	(1) Y	(2) N	(9) Unsure	
Driver	(1) M	(2) F	(1) Y	(2) N	(3) UK		
Pass.	(1) M	(2) F	(1) Y	(2) N	(3) UK	(4) NP	

**Appendix D**  
**Training Syllabus**

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## Day One

### Welcome and introduction of all participants

- Trainers
- Employer
- Highway Safety Office Personnel
- Observers
- Alternate (reserve) observers
- Quality Control Monitors

### Distribution of equipment

- Checklist of materials, including WYDOT authorization letter, safety materials, all forms & observation materials

### Survey overview

- Steps
- Importance of Data Collection process

### Data Collection Techniques

- Definition of vehicles
- Definition of passengers & belt/booster seat use
- Weekday/weekend
- Heavy traffic v. light traffic
  - Use of second observers
- Weather conditions
- Observation duration

### Scheduling and Rescheduling

- Site assignment sheet
- Daylight observation
- Problems encountered because of temporary impediments (i.e., weather)
- Permanent problems at data collection sites

### Site locations

- Site location & description sheet
- Parking
- Interstate ramps and surface streets
- Direction of travel/number of observed lanes
- Non-intersection requirement
- Alternate site selection

### Data Collection Forms

- Cover sheet
- Recording observations
- Recording temporary problems/weather conditions
- Recording alternate site information

### Safety and Security

#### Field Testing

- Practice field site
-

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**Day Two (AM)**

**Review of maps**

- Locating all sites on county maps

**Shipment of Forms and materials**

- Review materials
- Essential timeline

**Timesheet and expense reporting**

**Field Testing**

- 3 Test Sites

**Post Training Quiz**

**Day Two (PM)**

**Quality Control Training**

- Review of randomly selected QC sites
  - Checklist of field protocols to address during site
  - Inter-observer agreement ratio testing
  - Procedures in cases of suspected or confirmed data falsification
  - Reporting
-

## Appendix C: NHTSA approval and final review

National Highway Traffic Safety Administration  
1200 New Jersey Avenue, SE  
Washington, DC 20590

April 24, 2012

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Dear Wyoming,

The review of your most recent seat belt use survey plan has been completed, and the final review is enclosed. All the design requirements listed in 1340.10 of the Final Rule were evaluated. We are pleased to inform you that your survey plan is fully compliant with the Uniform Criteria for State Observational Surveys of Seat Belt Use. Congratulations!

Sincerely,  
NHTSA

# State Seatbelt Survey Plan

## NHTSA Final Review

Wyoming  
Version 4

Requirement Type	Design Requirement	Status	Comments
Statistical	1 Are the sampling units, with measures of size, defined and compliant with 1340.5.a?	Compliant	16 counties account for approximately 85% of the passenger vehicle crash-related fatalities according to FARS data averages for the period 2005 to 2009 (p.4).
GIS	2 Is the source for the sample frame road segments specified and compliant with 1340.5.a.2.i?	Compliant	Westat supplied 2010 TIGER data (p.4).
Statistical	3 If there are any exclusions to the sampling frame, are they specified and compliant with 1340.5.a.2.ii?	Compliant	Wyoming exercised the available exclusion option and removed rural local roads in counties that are not within Metropolitan Statistical Areas (MSAs), and other non-public roads, unnamed roads, unpaved roads, vehicular trails, access ramps, cul-de-sacs, traffic circles, and service drivers from the dataset (p.4).
Statistical	4 Are the stratification methods for each stage of sampling defined along with a description of methods that were used for allocating the sample units into the strata?	Compliant	1) County: 16 of 23 counties accounted for 85% of the traffic-related fatalities; all 16 counties were selected for the sample (p.5). 2) Road segment: Stratified by MTFCC road classification into three groups (Primary, Secondary, and Local) (pp.4-5).
Statistical	5 Is the method used for selecting road segments for observation sites specified and compliant with 1340.5.b?	Compliant	Segments were sampled by random sampling (p.5). The reserve sample segments were also selected SRS within a particular road classification and county (p.9).
Statistical	6 Is there a list of all observation sites and their probabilities of selection?	Compliant	A list of sites is found in Appendix B (p.23). The probabilities represent an SRS.
Statistical	7 Is there an explanation of how the sample sizes were determined? Is that explanation compliant with section 1340.5.d?	Compliant	Based on historical data, the state estimates a total of 28,800 vehicle observations (16 counties * 18 sites in each county * 100 observations per site) (pp.6-7).



Requirement Type	Design Requirement	Status	Comments
Operational	8 Is the process of assigning observation sites to observation time periods explained? Is it compliant with 1340.6?	Compliant	All observations will be conducted during weekdays and weekends between 7 a.m. and 6 p.m. (p.11). Sites within relatively close geographic proximity will be assigned as data collection clusters. The first site within each cluster will be assigned a random day and time for completion. All other sites within a cluster will be assigned to the same day and scheduled in order of operational efficiency (p.11).
Statistical	9 Is the state statistician named and his/her qualifications described? Does the statistician meet the requirements in 1340.8.c?	Compliant	The statistician's resume is Appendix A (p.19).
Operational	10 Is an observation period defined?	Compliant	45 minutes (p.11)
Operational	11 Are the procedures used to reschedule and substitute observation sites specified and compliant with 1340.5.c?	Compliant	When a site is temporarily unavailable, data collection will be rescheduled for a similar day of the week and time of day. In the event that the site is permanently unworkable, an alternate site, selected as part of the reserve sample, will be used as a permanent replacement (p.12).
Statistical	12 Are the procedures for collecting additional data to reduce the nonresponse rate specified and compliant with 1340.9.f.2?	Compliant	If a site exceeds 10% nonresponse, data collectors will be sent back to that site for an additional observation period (p.13).
Operational	13 Are the data collection procedures described?	Compliant	Data collection will primarily be performed by single observers, except at high volume sites where two data collectors will be assigned (p.11). The observed direction of traffic will be predetermined and randomly assigned (p.12). The appropriate vehicles, occupants, belt use definitions, and data elements are included in the survey (pp.10-12).
Operational	14 Are the number of observers and quality control monitors specified?	Compliant	16 data collectors and 2 QC Monitors will be hired (p.10). QC Monitors will visit 2 sites per county (or 11%) (p.10). Training will take place prior to data collection, during the last week of April (p.10). The training agenda is Appendix D (p.35).
Statistical	15 Is there a description of how the seat belt use rate estimate will be calculated?	Compliant	A ratio estimator will be used (pp.15-16).
Statistical	16 Is there a description of how the variance will be calculated? Is it compliant with 1340.9.g?	Compliant	Complex Sample Module for SPSS will be used to calculate the variance (p.13).

Requirement Type	Design Requirement	Status	Comments
Statistical	17 If any imputation is planned, are the methods specified and compliant with 1340.9.c?	Compliant	No imputation is planned (p.13).
Statistical	18 Are the weighting procedures appropriate for the design, including base weights, and adjustments for observation sites with no usable data, and specified and compliant with 1340.9.d and 1340.9.e?	Compliant	Weights and estimators are appropriate for the SRS design (pp.14-17). The nonresponse adjustment is also appropriate for the proposed plan (p.15).
Statistical	19 If the standard error exceeds 2.5 percentage points, are the procedures to reduce it specified and compliant with 1340.9.g?	Compliant	If the standard error exceeds 2.5%, more data will be collected from existing sites (p.6).

## Appendix D: detailed tables of collected data

## Occupant Seat belt Use Estimates

**Estimate of Occupant Belt Use**

		Estimate	Standard Error	95% Confidence Interval		Unweighted Count
				Lower	Upper	
Percent of total	Belted	80.5%	.1%	80.3%	80.8%	19,899
	Not Belted	17.9%	.1%	17.7%	18.2%	4,666
	Unsure	1.5%	.0%	1.4%	1.6%	328
	Total	100.0%	0.0%	100.0%	100.0%	24,893

**Estimate of Driver Belt Use**

		Estimate	Standard Error	95% Confidence Interval		Unweighted Count
				Lower	Upper	
Percent of total	Belted	78.2%	.2%	77.9%	78.5%	13,986
	Not Belted	20.4%	.2%	20.1%	20.7%	3,721
	Unsure	1.4%	.0%	1.3%	1.5%	232
	Total	100.0%	0.0%	100.0%	100.0%	17,939

**Estimate of Passenger Belt Use**

		Estimate	Standard Error	95% Confidence Interval		Unweighted Count
				Lower	Upper	
Percent of Total	Belted	86.2%	.2%	85.8%	86.6%	5,913
	Not Belted	12.0%	.2%	11.6%	12.4%	945
	Unsure	1.8%	.1%	1.6%	1.9%	96
	Total	100.0%	0.0%	100.0%	100.0%	6,954

## Occupant Frequencies

**Frequencies by Occupant Gender**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	14,480	58.2	58.2	58.2
	Female	10,413	41.8	41.8	100.0
	Total	24,893	100.0	100.0	

**Frequencies by County**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Albany	1,809	7.3	7.3	7.3
	Big Horn	731	2.9	2.9	10.2
	Campbell	1,956	7.9	7.9	18.1
	Carbon	1,236	5.0	5.0	23.0
	Fremont	1,472	5.9	5.9	28.9
	Johnson	1,777	7.1	7.1	36.1
	Laramie	771	3.1	3.1	39.2
	Lincoln	1,403	5.6	5.6	44.8
	Natrona	973	3.9	3.9	48.7
	Park	1,629	6.5	6.5	55.3
	Platte	1,542	6.2	6.2	61.5
	Sheridan	1,402	5.6	5.6	67.1
	Sublette	590	2.4	2.4	69.5
	Sweetwater	2,097	8.4	8.4	77.9
	Teton	3,721	14.9	14.9	92.8
	Uinta	1,784	7.2	7.2	100.0
	Total	24,893	100.0	100.0	

**Frequencies by Vehicle Type**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Auto	7,551	30.3	30.3	30.3
	Van	6,858	27.5	27.5	57.9
	SUV	1,593	6.4	6.4	64.3
	Pickup Truck	8,891	35.7	35.7	100.0
	Total	24,893	100.0	100.0	

**Frequencies by County and Vehicle Type**

		Vehicle Type				Total
		Auto	Van	SUV	Pickup Truck	
County	Albany	521	583	118	587	1,809
	Big Horn	178	209	39	305	731
	Campbell	417	553	130	856	1,956
	Carbon	345	379	77	435	1,236
	Fremont	378	459	89	546	1,472
	Johnson	364	565	186	662	1,777
	Laramie	217	266	44	244	771
	Lincoln	243	517	111	532	1,403
	Natrona	258	324	64	327	973
	Park	418	455	99	657	1,629
	Platte	362	550	93	537	1,542
	Sheridan	406	289	88	619	1,402
	Sublette	117	179	25	269	590
	Sweetwater	620	532	141	804	2,097
	Teton	2,242	455	165	859	3,721
	Uinta	465	543	124	652	1,784
	Total	7,551	6,858	1,593	8,891	24,893

**Frequencies by Site Population Type**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Urban	6,306	25.3	25.3	25.3
	Rural	18,587	74.7	74.7	100.0
	Total	24,893	100.0	100.0	

**Frequencies by Type of Roadway**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary Road	6,004	24.1	24.1	24.1
	Secondary Road	17,959	72.1	72.1	96.3
	Local/Rural /City	930	3.7	3.7	100.0
	Total	24,893	100.0	100.0	

**Frequencies by Weekday of Observation**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sunday	1,832	7.4	7.4	7.4
	Monday	5,263	21.1	21.1	28.5
	Tuesday	2,917	11.7	11.7	40.2
	Wednesday	3,248	13.0	13.0	53.3
	Thursday	3,278	13.2	13.2	66.4
	Friday	6,018	24.2	24.2	90.6
	Saturday	2,337	9.4	9.4	100.0
	Total	24,893	100.0	100.0	

**Frequencies by Weekend and Weekdays**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Saturday-Sunday	4,169	16.7	16.7	16.7
	Monday-Friday	20,724	83.3	83.3	100.0
	Total	24,893	100.0	100.0	

**Frequencies by License Type**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Wyoming License	15,304	61.5	61.5	61.5
	Out of State License	8,846	35.5	35.5	97.0
	Unsure	743	3.0	3.0	100.0
	Total	24,893	100.0	100.0	

**Frequencies by Time of Day**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	7:30-9:30 AM	3,309	13.3	13.3	13.3
	9:30-11:30 AM	5,200	20.9	20.9	34.2
	11:30-1:30 PM	3,803	15.3	15.3	49.5
	1:30-3:30 PM	5,961	23.9	23.9	73.4
	3:30-5:30 PM	6,620	26.6	26.6	100.0
	Total	24,893	100.0	100.0	

**Frequencies by Weather During Observations**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Clear Sunny	19,317	77.6	77.6	77.6
	Cloudy	5,293	21.3	21.3	98.9
	Light Rain	194	.8	.8	99.6
	Heavy Rain	32	.1	.1	99.8
	Intermittent Rain	57	.2	.2	100.0
	Total	24,893	100.0	100.0	

**Frequencies by Number of Lanes Observed**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	One Lane	11,902	47.8	47.8	47.8
	Two Lanes	12,991	52.2	52.2	100.0
	Total	24,893	100.0	100.0	

**Frequencies by Road Direction of Observations**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	North	5,796	23.3	23.3	23.3
	South	6,405	25.7	25.7	49.0
	East	5,051	20.3	20.3	69.3
	West	7,641	30.7	30.7	100.0
	Total	24,893	100.0	100.0	



Occupant seat belt use

Occupant Belt Use by Vehicle Type and Gender

Occupant Gender				Occupant Belt Use			
				Belted	Not Belted	Unsure	Total
Male	Auto	% within Vehicle Type	Estimate	81.7%	17.1%	1.2%	100.0%
			Unweighted Count	3050	694	44	3788
	Van	% within Vehicle Type	Estimate	84.4%	14.2%	1.4%	100.0%
			Unweighted Count	2564	444	37	3045
	SUV	% within Vehicle Type	Estimate	83.3%	16.1%	.6%	100.0%
			Unweighted Count	703	144	5	852
	Pickup Truck	% within Vehicle Type	Estimate	69.4%	28.7%	1.8%	100.0%
			Unweighted Count	4748	1947	100	6795
	Total	% within Vehicle Type	Estimate	76.8%	21.7%	1.5%	100.0%
			Unweighted Count	11065	3229	186	14480
Female	Auto	% within Vehicle Type	Estimate	85.5%	12.5%	1.9%	100.0%
			Unweighted Count	3155	547	61	3763
	Van	% within Vehicle Type	Estimate	87.3%	11.5%	1.2%	100.0%
			Unweighted Count	3312	456	45	3813
	SUV	% within Vehicle Type	Estimate	90.3%	9.3%	.4%	100.0%
			Unweighted Count	664	75	2	741
	Pickup Truck	% within Vehicle Type	Estimate	81.8%	16.2%	2.1%	100.0%
			Unweighted Count	1703	359	34	2096
	Total	% within Vehicle Type	Estimate	85.7%	12.7%	1.6%	100.0%
			Unweighted Count	8834	1437	142	10413

**Belt Use by County and Occupant Type**

County			% Belted Drivers	% Belted Passengers	% Diff
Albany	% within County	Estimate	77.5%	90.2%	12.7%
		Unweighted Count	1105	352	
Big Horn	% within County	Estimate	70.7%	78.8%	8.1%
		Unweighted Count	367	167	
Campbell	% within County	Estimate	75.0%	86.1%	11.1%
		Unweighted Count	1149	361	
Carbon	% within County	Estimate	90.8%	89.5%	-1.3%
		Unweighted Count	818	293	
Fremont	% within County	Estimate	82.3%	89.1%	6.8%
		Unweighted Count	856	385	
Johnson	% within County	Estimate	85.9%	90.4%	4.5%
		Unweighted Count	1069	482	
Laramie	% within County	Estimate	79.9%	80.0%	0.1%
		Unweighted Count	497	108	
Lincoln	% within County	Estimate	83.3%	86.8%	3.5%
		Unweighted Count	802	383	
Natrona	% within County	Estimate	75.4%	81.1%	5.7%
		Unweighted Count	553	160	
Park	% within County	Estimate	72.4%	79.5%	7.1%
		Unweighted Count	875	334	
Platte	% within County	Estimate	82.9%	86.4%	3.5%
		Unweighted Count	896	403	
Sheridan	% within County	Estimate	82.3%	80.3%	-2.0%
		Unweighted Count	826	324	
Sublette	% within County	Estimate	70.3%	86.4%	16.1%
		Unweighted Count	291	152	
Sweetwater	% within County	Estimate	64.6%	64.2%	-0.4%
		Unweighted Count	1043	310	
Teton	% within County	Estimate	78.9%	90.7%	11.7%
		Unweighted Count	1856	1241	
Uinta	% within County	Estimate	79.1%	85.7%	6.6%
		Unweighted Count	983	458	
Total	% within County	Estimate	78.2%	86.2%	8.0%
		Unweighted Count	13986	5913	

**Belt Use by Gender and Occupant Type**

Gender		% Belted	
		Drivers	Passengers
Male	Estimate	76.6%	77.8%
	Unweighted Count	9408	1657
Female	Estimate	81.8%	89.8%
	Unweighted Count	4578	4256
Total	Estimate	78.2%	86.2%
	Unweighted Count	13986	5913

**Belt Use by Roadway and Occupant Type**

Roadway		% Belted	
		Drivers	Passengers
Primary Road	Estimate	87.2%	91.9%
	Unweighted Count	3746	1569
Secondary Road	Estimate	75.5%	84.6%
	Unweighted Count	9720	4218
Local/Rural/City	Estimate	69.4%	70.9%
	Unweighted Count	520	126
Total	Estimate	78.2%	86.2%
	Unweighted Count	13986	5913

**Belt Use by Weekday/Weekend and Occupant Type**

Weekday/Weekend		% Belted	
		Drivers	Passengers
Weekend	Estimate	84.2%	88.3%
	Unweighted Count	2264	1295
Weekday	Estimate	77.1%	85.6%
	Unweighted Count	11722	4618
Total	Estimate	78.2%	86.2%
	Unweighted Count	13986	5913

**Occupant Belt Use by Gender and Vehicle Type**

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Gender	Vehicle			% Belted Drivers	% Belted Passengers	% Diff
Male	Auto	% within Vehicle Type	Estimate	81.4%	83.7%	2.3%
		Unweighted Count		2593	457	
	Van	% within Vehicle Type	Estimate	84.7%	83.3%	-1.4%
		Unweighted Count		2119	445	
	SUV	% within Vehicle Type	Estimate	82.8%	85.5%	2.8%
Unweighted Count			572	131		
Pickup Truck	% within Vehicle Type	Estimate	69.5%	69.3%	-0.2%	
	Unweighted Count		4124	624		
Total	% within Vehicle Type	Estimate	76.6%	77.8%	1.2%	
	Unweighted Count		9408	1657		
Female	Auto	% within Vehicle Type	Estimate	80.0%	91.5%	11.5%
		Unweighted Count		1669	1486	
	Van	% within Vehicle Type	Estimate	84.6%	90.9%	6.3%
		Unweighted Count		1935	1377	
	SUV	% within Vehicle Type	Estimate	87.2%	93.0%	5.8%
		Unweighted Count		318	346	
	Pickup Truck	% within Vehicle Type	Estimate	77.1%	84.7%	7.6%
Unweighted Count			656	1047		
Total	% within Vehicle Type	Estimate	81.8%	89.8%	8.0%	
	Unweighted Count		4578	4256		

#### Occupant Belt Use by

License	% Belted Drivers	% Belted Passengers
Wyoming License	73.1%	80.0%
	8733	2731
Out of State License	87.1%	91.6%
	4893	2955
Unsure	75.7%	87.1%
	360	227
Total	78.2%	86.2%
	13986	5913

Driver frequencies

**Driver Frequencies by County**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Albany	1420	7.9	7.9	7.9
	Big Horn	519	2.9	2.9	10.8
	Campbell	1535	8.6	8.6	19.4
	Carbon	906	5.1	5.1	24.4
	Fremont	1040	5.8	5.8	30.2
	Johnson	1244	6.9	6.9	37.1
	Laramie	633	3.5	3.5	40.7
	Lincoln	962	5.4	5.4	46.0
	Natrona	765	4.3	4.3	50.3
	Park	1209	6.7	6.7	57.0
	Platte	1077	6.0	6.0	63.0
	Sheridan	1001	5.6	5.6	68.6
	Sublette	414	2.3	2.3	70.9
	Sweetwater	1614	9.0	9.0	79.9
	Teton	2352	13.1	13.1	93.0
Uinta	1248	7.0	7.0	100.0	
	Total	17939	100.0	100.0	

**Driver Frequencies by Population**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Urban	4859	27.1	27.1	27.1
	Rural	13080	72.9	72.9	100.0
	Total	17939	100.0	100.0	

**Driver Frequencies by Weekday**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Sunday	1166	6.5	6.5	6.5
	Monday	3889	21.7	21.7	28.2
	Tuesday	2075	11.6	11.6	39.7
	Wednesday	2347	13.1	13.1	52.8
	Thursday	2447	13.6	13.6	66.5
	Friday	4485	25.0	25.0	91.5
	Saturday	1530	8.5	8.5	100.0
	Total	17939	100.0	100.0	

**Driver Frequencies by Observer**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Donna Lucas	1209	6.7	6.7	6.7
	Randi Egley	1248	7.0	7.0	13.7
	Monty Byers	1420	7.9	7.9	21.6
	Bill spencer	883	4.9	4.9	26.5
	Kayla Shear	1614	9.0	9.0	35.5
	Daleen Sebelius	1535	8.6	8.6	44.1
	Melissa Garcia	1040	5.8	5.8	49.9
	Patrick White	633	3.5	3.5	53.4
	Dawn Edwards	962	5.4	5.4	58.8
	Doug Peterson	1077	6.0	6.0	64.8
	Logan Wilson	757	4.2	4.2	69.0
	Tonya Dove	414	2.3	2.3	71.3
	Dixie Elder	519	2.9	2.9	74.2
	Deb Eutsler	1244	6.9	6.9	81.1
	Tammy Cussins	765	4.3	4.3	85.4
	Brooke Darden	23	.1	.1	85.5
	Susan Parkinson	244	1.4	1.4	86.9
	Peggy Dowers	2352	13.1	13.1	100.0
Total	17939	100.0	100.0		

**Driver Frequencies by Driver Belt Use**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Belted	13986	78.0	78.0	78.0
	Not Belted	3721	20.7	20.7	98.7
	Unsure	232	1.3	1.3	100.0
	Total	17939	100.0	100.0	

**Driver Frequencies by Driver Gender**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	12318	68.7	68.7	68.7
	Female	5621	31.3	31.3	100.0
	Total	17939	100.0	100.0	

**Driver Frequencies by Vehicle Type**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Auto	5350	29.8	29.8	29.8
	Van	4804	26.8	26.8	56.6
	SUV	1062	5.9	5.9	62.5
	Pickup Truck	6723	37.5	37.5	100.0
	Total	17939	100.0	100.0	

**Driver Frequencies by License**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Wyoming License	11850	66.1	66.1	66.1
	Out of State License	5612	31.3	31.3	97.3
	Unsure	477	2.7	2.7	100.0
	Total	17939	100.0	100.0	

**Driver Frequencies by Type of Roadway**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary Road	4294	23.9	23.9	23.9
	Secondary Road	12893	71.9	71.9	95.8
	Local/Rural/City	752	4.2	4.2	100.0
	Total	17939	100.0	100.0	

Driver seat belt estimates

Estimate of Driver Belt Use by County

County			Driver Belt Use			
			Belted	Not Belted	Unsure	Total
Albany	% within County	Estimate	77.5%	22.5%	0	100.0%
		Unweighted Count	1105	315	0	1420
Big Horn	% within County	Estimate	70.7%	29.1%	.2%	100.0%
		Unweighted Count	367	151	1	519
Campbell	% within County	Estimate	75.0%	19.2%	5.7%	100.0%
		Unweighted Count	1149	298	88	1535
Carbon	% within County	Estimate	90.8%	8.1%	1.1%	100.0%
		Unweighted Count	818	78	10	906
Fremont	% within County	Estimate	82.3%	17.0%	.7%	100.0%
		Unweighted Count	856	177	7	1040
Johnson	% within County	Estimate	85.9%	13.8%	.3%	100.0%
		Unweighted Count	1069	171	4	1244
Laramie	% within County	Estimate	79.9%	18.9%	1.2%	100.0%
		Unweighted Count	497	128	8	633
Lincoln	% within County	Estimate	83.3%	16.2%	.5%	100.0%
		Unweighted Count	802	155	5	962
Natrona	% within County	Estimate	75.4%	23.4%	1.2%	100.0%
		Unweighted Count	553	201	11	765
Park	% within County	Estimate	72.4%	26.9%	.7%	100.0%
		Unweighted Count	875	325	9	1209
Platte	% within County	Estimate	82.9%	17.1%	0	100.0%
		Unweighted Count	896	181	0	1077
Sheridan	% within County	Estimate	82.3%	16.5%	1.1%	100.0%
		Unweighted Count	826	164	11	1001
Sublette	% within County	Estimate	70.3%	28.5%	1.2%	100.0%
		Unweighted Count	291	118	5	414
Sweetwater	% within County	Estimate	64.6%	35.3%	.1%	100.0%
		Unweighted Count	1043	570	1	1614
Teton	% within County	Estimate	78.9%	18.0%	3.1%	100.0%
		Unweighted Count	1856	424	72	2352
Uinta	% within County	Estimate	79.1%	20.9%	0	100.0%
		Unweighted Count	983	265	0	1248
Total	% within County	Estimate	78.2%	20.4%	1.4%	100.0%
		Unweighted Count	13986	3721	232	17939



**Estimate of Driver Belt Use**

Driver		Estimate	Standard Error	95% Confidence Interval		Unweighted Count
				Lower	Upper	
% of Total	Belted	78.2%	.2%	77.9%	78.5%	13,986
	Not Belted	20.4%	.2%	20.1%	20.7%	3,721
	Unsure	1.4%	.0%	1.3%	1.5%	232
	Total	100.0%	0.0%	100.0%	100.0%	17,939

**Estimate of Driver Belt Use by Day of Observation**

Weekday			Driver Belt Use			
			Belted	Not Belted	Unsure	Total
Sunday	% within Weekday	Estimate	88.6%	10.4%	1.0%	100.0%
		Unweighted Count	1033	123	10	1166
Monday	% within Weekday	Estimate	79.2%	18.6%	2.2%	100.0%
		Unweighted Count	3045	767	77	3889
Tuesday	% within Weekday	Estimate	74.5%	23.1%	2.4%	100.0%
		Unweighted Count	1586	445	44	2075
Wednesday	% within Weekday	Estimate	78.9%	20.2%	.9%	100.0%
		Unweighted Count	1872	456	19	2347
Thursday	% within Weekday	Estimate	75.6%	22.8%	1.6%	100.0%
		Unweighted Count	1839	570	38	2447
Friday	% within Weekday	Estimate	76.3%	23.1%	.6%	100.0%
		Unweighted Count	3380	1072	33	4485
Saturday	% within Weekday	Estimate	81.3%	18.0%	.6%	100.0%
		Unweighted Count	1231	288	11	1530
Total	% within Weekday	Estimate	78.2%	20.4%	1.4%	100.0%
		Unweighted Count	13986	3721	232	17939

**Estimate of Driver Belt Use by Population**

Population				Driver Belt Use			
				Belted	Not Belted	Unsure	Total
Urban	% within Population	Estimate	69.5%	29.5%	1.0%	100.0%	
		Unweighted Count	3393	1415	51	4859	
Rural	% within Population	Estimate	80.9%	17.6%	1.5%	100.0%	
		Unweighted Count	10593	2306	181	13080	
Total	% within Population	Estimate	78.2%	20.4%	1.4%	100.0%	
		Unweighted Count	13986	3721	232	17939	

**Weekend/Weekday Driver Belt Use**

Weekend/Weekday				Driver Belt Use			
				Belted	Not Belted	Unsure	Total
Weekend	% within Weekend	Estimate	84.2%	15.0%	.8%	100.0%	
		Unweighted Count	2264	411	21	2696	
Weekday	% within Weekend	Estimate	77.1%	21.4%	1.5%	100.0%	
		Unweighted Count	11722	3310	211	15243	
Total	% within Weekend	Estimate	78.2%	20.4%	1.4%	100.0%	
		Unweighted Count	13986	3721	232	17939	

**Estimate of Driver Belt Use by Driver Gender**

Driver Gender				Driver Belt Use			
				Belted	Not Belted	Unsure	Total
Male	% within Driver Gender	Estimate	76.6%	21.9%	1.4%	100.0%	
		Unweighted Count	9408	2749	161	12318	
Female	% within Driver Gender	Estimate	81.8%	16.9%	1.4%	100.0%	
		Unweighted Count	4578	972	71	5621	
Total	% within Driver Gender	Estimate	78.2%	20.4%	1.4%	100.0%	
		Unweighted Count	13986	3721	232	17939	

**Estimate of Driver Belt Use by Vehicle Type**

Vehicle Type				Driver Belt Use			
				Belted	Not Belted	Unsure	Total
Auto	% within Vehicle Type	Estimate	80.9%	18.0%	1.2%	100.0%	
		Unweighted Count	4262	1025	63	5350	
Van	% within Vehicle Type	Estimate	84.6%	14.0%	1.3%	100.0%	
		Unweighted Count	4054	687	63	4804	
SUV	% within Vehicle Type	Estimate	84.2%	15.2%	.6%	100.0%	
		Unweighted Count	890	166	6	1062	
Pickup Truck	% within Vehicle Type	Estimate	70.4%	27.8%	1.8%	100.0%	
		Unweighted Count	4780	1843	100	6723	
Total	% within Vehicle Type	Estimate	78.2%	20.4%	1.4%	100.0%	
		Unweighted Count	13986	3721	232	17939	

**Estimate of Driver Belt Use by License Status**

Wyoming License				Driver Belt Use			
				Belted	Not Belted	Unsure	Total
Wyoming License	% within Wyoming License	Estimate	73.1%	25.3%	1.6%	100.0%	
		Unweighted Count	8733	2949	168	11850	
Out of State License	% within Wyoming License	Estimate	87.1%	11.9%	1.0%	100.0%	
		Unweighted Count	4893	669	50	5612	
Unsure	% within Wyoming License	Estimate	75.7%	21.5%	2.7%	100.0%	
		Unweighted Count	360	103	14	477	
Total	% within Wyoming License	Estimate	78.2%	20.4%	1.4%	100.0%	
		Unweighted Count	13986	3721	232	17939	

**Estimate of Driver Belt Use by Type of Roadway**

Type of Roadway				Driver Belt Use			
				Belted	Not Belted	Unsure	Total
Primary Road	% within Type of Roadway	Estimate	87.2%	11.7%	1.1%	100.0%	
		Unweighted Count	3746	503	45	4294	
Secondary Road	% within Type of Roadway	Estimate	75.5%	23.0%	1.5%	100.0%	
		Unweighted Count	9720	2999	174	12893	
Local/Rural/City	% within Type of Roadway	Estimate	69.4%	28.8%	1.7%	100.0%	
		Unweighted Count	520	219	13	752	
Total	% within Type of Roadway	Estimate	78.2%	20.4%	1.4%	100.0%	
		Unweighted Count	13986	3721	232	17939	

**Estimate of Driver Belt Use by Vehicle Type and Gender**

Driver Gender				Driver Belt Use				
				Belted	Not Belted	Unsure	Total	
Male	Auto	% within Vehicle Type	Estimate	81.4%	17.5%	1.1%	100.0%	
			Unweighted Count	2593	600	38	3231	
	Van	% within Vehicle Type	Estimate	84.7%	14.1%	1.2%	100.0%	
			Unweighted Count	2119	363	30	2512	
	SUV	% within Vehicle Type	Estimate	82.8%	16.7%	.5%	100.0%	
			Unweighted Count	572	121	4	697	
	Pickup Truck	% within Vehicle Type	Estimate	69.5%	28.7%	1.9%	100.0%	
			Unweighted Count	4124	1665	89	5878	
	Total	% within Vehicle Type	Estimate	76.6%	21.9%	1.4%	100.0%	
			Unweighted Count	9408	2749	161	12318	
	Female	Auto	% within Vehicle Type	Estimate	80.0%	18.8%	1.3%	100.0%
				Unweighted Count	1669	425	25	2119
Van		% within Vehicle Type	Estimate	84.6%	13.9%	1.5%	100.0%	
			Unweighted Count	1935	324	33	2292	
SUV		% within Vehicle Type	Estimate	87.2%	12.0%	.8%	100.0%	
			Unweighted Count	318	45	2	365	
Pickup Truck		% within Vehicle Type	Estimate	77.1%	21.4%	1.5%	100.0%	
			Unweighted Count	656	178	11	845	
Total		% within Vehicle Type	Estimate	81.8%	16.9%	1.4%	100.0%	
			Unweighted Count	4578	972	71	5621	

## Passenger frequencies

**Passenger Frequencies by County**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Albany	389	5.6	5.6	5.6
Big Horn	212	3.0	3.0	8.6
Campbell	421	6.1	6.1	14.7
Carbon	330	4.7	4.7	19.4
Fremont	432	6.2	6.2	25.7
Johnson	533	7.7	7.7	33.3
Laramie	138	2.0	2.0	35.3
Lincoln	441	6.3	6.3	41.6
Natrona	208	3.0	3.0	44.6
Park	420	6.0	6.0	50.7
Platte	465	6.7	6.7	57.4
Sheridan	401	5.8	5.8	63.1
Sublette	176	2.5	2.5	65.7
Sweetwater	483	6.9	6.9	72.6
Teton	1369	19.7	19.7	92.3
Uinta	536	7.7	7.7	100.0
Total	6954	100.0	100.0	

**Passenger Frequencies by Day of Observations**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Sunday	666	9.6	9.6	9.6
Monday	1374	19.8	19.8	29.3
Tuesday	842	12.1	12.1	41.4
Wednesday	901	13.0	13.0	54.4
Thursday	831	11.9	11.9	66.4
Friday	1533	22.0	22.0	88.4
Saturday	807	11.6	11.6	100.0
Total	6954	100.0	100.0	

**Passenger Frequencies by Population**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Urban	1447	20.8	20.8	20.8
	Rural	5507	79.2	79.2	100.0
	Total	6954	100.0	100.0	

**Passenger Frequencies by Observer**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Donna Lucas	420	6.0	6.0	6.0
	Randi Egley	536	7.7	7.7	13.7
	Monty Byers	389	5.6	5.6	19.3
	Bill Spencer	321	4.6	4.6	24.0
	Kayla Shear	483	6.9	6.9	30.9
	Daleen Sebelius	421	6.1	6.1	37.0
	Melissa Garcia	432	6.2	6.2	43.2
	Patrick White	138	2.0	2.0	45.2
	Dawn Edwards	441	6.3	6.3	51.5
	Doug Peterson	465	6.7	6.7	58.2
	Logan Wilson	330	4.7	4.7	62.9
	Tonya Dove	176	2.5	2.5	65.5
	Dixie Elder	212	3.0	3.0	68.5
	Deb Eutsler	533	7.7	7.7	76.2
	Tammy Cussins	208	3.0	3.0	79.2
	Brooke Darden	9	.1	.1	79.3
	Susan Parkinson	71	1.0	1.0	80.3
	Peggy Dowers	1369	19.7	19.7	100.0
	Total	6954	100.0	100.0	

**Passenger Frequencies by Passenger Belt Use**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Belted	5913	85.0	85.0	85.0
	Not Belted	945	13.6	13.6	98.6
	Unsure	96	1.4	1.4	100.0
	Total	6954	100.0	100.0	

**Passenger Frequencies by Passenger Gender**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	2162	31.1	31.1	31.1
	Female	4792	68.9	68.9	100.0
	Total	6954	100.0	100.0	

**Passenger Frequencies by Vehicle Type**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Auto	2201	31.7	31.7	31.7
	Van	2054	29.5	29.5	61.2
	SUV	531	7.6	7.6	68.8
	Pickup Truck	2168	31.2	31.2	100.0
	Total	6954	100.0	100.0	

**Passenger Frequencies by Vehicle License Status**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Wyoming License	3454	49.7	49.7	49.7
	Out of State License	3234	46.5	46.5	96.2
	Unsure	266	3.8	3.8	100.0
	Total	6954	100.0	100.0	

**Passenger Frequencies by Roadway Type**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary Road	1710	24.6	24.6	24.6
	Secondary Road	5066	72.9	72.9	97.4
	Local/Rural/City	178	2.6	2.6	100.0
	Total	6954	100.0	100.0	

Passenger seat belt estimates

Estimate of Passenger Belt Use by County

County			Passenger Belt Use			
			Belted	Not Belted	Unsure	Total
Albany	% within County	Estimate	90.2%	9.8%	0	100.0%
		Unweighted Count	352	37	0	389
Big Horn	% within County	Estimate	78.8%	21.2%	0	100.0%
		Unweighted Count	167	45	0	212
Campbell	% within County	Estimate	86.1%	12.5%	1.4%	100.0%
		Unweighted Count	361	54	6	421
Carbon	% within County	Estimate	89.5%	9.6%	.9%	100.0%
		Unweighted Count	293	34	3	330
Fremont	% within County	Estimate	89.1%	10.9%	0	100.0%
		Unweighted Count	385	47	0	432
Johnson	% within County	Estimate	90.4%	8.9%	.8%	100.0%
		Unweighted Count	482	47	4	533
Laramie	% within County	Estimate	80.0%	20.0%	0	100.0%
		Unweighted Count	108	30	0	138
Lincoln	% within County	Estimate	86.8%	13.0%	.2%	100.0%
		Unweighted Count	383	57	1	441
Natrona	% within County	Estimate	81.1%	17.1%	1.8%	100.0%
		Unweighted Count	160	43	5	208
Park	% within County	Estimate	79.5%	20.0%	.5%	100.0%
		Unweighted Count	334	84	2	420
Platte	% within County	Estimate	86.4%	13.6%	0	100.0%
		Unweighted Count	403	62	0	465
Sheridan	% within County	Estimate	80.3%	17.9%	1.8%	100.0%
		Unweighted Count	324	70	7	401
Sublette	% within County	Estimate	86.4%	13.6%	0	100.0%
		Unweighted Count	152	24	0	176
Sweetwater	% within County	Estimate	64.2%	35.8%	0	100.0%
		Unweighted Count	310	173	0	483
Teton	% within County	Estimate	90.7%	4.6%	4.7%	100.0%
		Unweighted Count	1241	63	65	1369
Uinta	% within County	Estimate	85.7%	13.7%	.6%	100.0%
		Unweighted Count	458	75	3	536
Total	% within County	Estimate	86.2%	12.0%	1.8%	100.0%
		Unweighted Count	5913	945	96	6954



**Estimate of Passenger Belt Use**

	Estimate	Standard Error	95% Confidence Interval		Unweighted Count	
			Lower	Upper		
% of Total	Belted	86.2%	.2%	85.8%	86.6%	5,913
	Not Belted	12.0%	.2%	11.6%	12.4%	945
	Unsure	1.8%	.1%	1.6%	1.9%	96
	Total	100.0%	0.0%	100.0%	100.0%	6,954

**Estimate of Passenger Belt Use by Population**

Population			Passenger Belt Use			
			Belted	Not Belted	Unsure	Total
Urban	% within Population	Estimate	78.2%	19.8%	2.0%	100.0%
		Unweighted Count	1096	328	23	1447
Rural	% within Population	Estimate	88.1%	10.1%	1.7%	100.0%
		Unweighted Count	4817	617	73	5507
Total	% within Population	Estimate	86.2%	12.0%	1.8%	100.0%
		Unweighted Count	5913	945	96	6954

**Estimate of Passenger Belt Use by Passenger Gender**

Passenger Gender			Passenger Belt Use			
			Belted	Not Belted	Unsure	Total
Male	% within Passenger Gender	Estimate	77.8%	20.6%	1.6%	100.0%
		Unweighted Count	1657	480	25	2162
Female	% within Passenger Gender	Estimate	89.8%	8.4%	1.9%	100.0%
		Unweighted Count	4256	465	71	4792
Total	% within Passenger Gender	Estimate	86.2%	12.0%	1.8%	100.0%
		Unweighted Count	5913	945	96	6954

**Estimate of Passenger Belt Use by Vehicle Type**

Vehicle Type				Passenger Belt Use			
				Belted	Not Belted	Unsure	Total
Auto	% within Vehicle Type	Estimate	89.7%	8.0%	2.3%	100.0%	
		Unweighted Count	1943	216	42	2201	
Van	% within Vehicle Type	Estimate	89.0%	9.9%	1.1%	100.0%	
		Unweighted Count	1822	213	19	2054	
SUV	% within Vehicle Type	Estimate	90.8%	8.9%	.3%	100.0%	
		Unweighted Count	477	53	1	531	
Pickup Truck	% within Vehicle Type	Estimate	78.3%	19.6%	2.0%	100.0%	
		Unweighted Count	1671	463	34	2168	
Total	% within Vehicle Type	Estimate	86.2%	12.0%	1.8%	100.0%	
		Unweighted Count	5913	945	96	6954	

**Estimate of Passenger Belt Use by Vehicle License Status**

License				Passenger Belt Use			
				Belted	Not Belted	Unsure	Total
Wyoming License	% within License	Estimate	80.0%	18.9%	1.1%	100.0%	
		Unweighted Count	2731	689	34	3454	
Out of State License	% within License	Estimate	91.6%	6.3%	2.1%	100.0%	
		Unweighted Count	2955	228	51	3234	
Unsure	% within License	Estimate	87.1%	8.7%	4.2%	100.0%	
		Unweighted Count	227	28	11	266	
Total	% within License	Estimate	86.2%	12.0%	1.8%	100.0%	
		Unweighted Count	5913	945	96	6954	

**Estimate of Passenger Belt Use by Roadway Type**

Roadway Type				Passenger Belt Use			
				Belted	Not Belted	Unsure	Total
Primary Road	% within Roadway Type	Estimate	91.9%	7.8%	.3%	100.0%	
		Unweighted Count	1569	137	4	1710	
Secondary Road	% within Roadway Type	Estimate	84.6%	13.2%	2.2%	100.0%	
		Unweighted Count	4218	758	90	5066	
Local/Rural/City	% within Roadway Type	Estimate	70.9%	28.0%	1.0%	100.0%	
		Unweighted Count	126	50	2	178	
Total	% within Roadway Type	Estimate	86.2%	12.0%	1.8%	100.0%	
		Unweighted Count	5913	945	96	6954	

**Estimate of Passenger Belt Use by Gender and Vehicle Type**

Passenger Gender				Passenger Belt Use			
				Belted	Not Belted	Unsure	Total
Male	Auto	% within Vehicle Type	Estimate	83.7%	14.8%	1.5%	100.0%
			Unweighted Count	457	94	6	557
	Van	% within Vehicle Type	Estimate	83.3%	14.7%	2.1%	100.0%
			Unweighted Count	445	81	7	533
	SUV	% within Vehicle Type	Estimate	85.5%	13.4%	1.0%	100.0%
			Unweighted Count	131	23	1	155
	Pickup Truck	% within Vehicle Type	Estimate	69.3%	29.3%	1.5%	100.0%
			Unweighted Count	624	282	11	917
	Total	% within Vehicle Type	Estimate	77.8%	20.6%	1.6%	100.0%
			Unweighted Count	1657	480	25	2162
Female	Auto	% within Vehicle Type	Estimate	91.5%	5.9%	2.6%	100.0%
			Unweighted Count	1486	122	36	1644
	Van	% within Vehicle Type	Estimate	90.9%	8.2%	.8%	100.0%
			Unweighted Count	1377	132	12	1521
	SUV	% within Vehicle Type	Estimate	93.0%	7.0%	0	100.0%
			Unweighted Count	346	30	0	376
	Pickup Truck	% within Vehicle Type	Estimate	84.7%	12.9%	2.4%	100.0%
			Unweighted Count	1047	181	23	1251
	Total	% within Vehicle Type	Estimate	89.8%	8.4%	1.9%	100.0%
			Unweighted Count	4256	465	71	4792

**Weekend \* Passenger Belt Use**

Weekend				Passenger Belt Use			
				Belted	Not Belted	Unsure	Total
Weekend	% within Weekend	Estimate	88.3%	9.3%	2.3%	100.0%	
		Unweighted Count	1295	152	26	1473	
Weekday	% within Weekend	Estimate	85.6%	12.8%	1.6%	100.0%	
		Unweighted Count	4618	793	70	5481	
Total	% within Weekend	Estimate	86.2%	12.0%	1.8%	100.0%	
		Unweighted Count	5913	945	96	6954	

Trends: occupant seat belt use

**Occupant Seat Belt Use Rates in Wyoming, 2012 to 2016**

Year	2012	2013	2014	2015	2016
Occupants	77.0%	81.9%	79.2%	79.8%	80.5%
		4.9%	-2.7%	0.6%	0.7%

**Occupant Seat Belt Use Rates by Gender, Wyoming 2012 to 2016**

Year	2012	2013	2014	2015	2016
Gender Male	73.5%	79.3%	75.0%	76.3%	76.8%
Female	82.7%	85.9%	85.1%	84.6%	85.7%
Diff	9.2%	6.6%	10.1%	8.3%	8.9%

**Occupant Seat Belt Use Rates by Population Density, Wyoming, 2012-2016**

Year	2012	2013	2014	2015	2016
Population Urban	78.6%	72.4%	73.2%	74.8%	71.7%
Rural	76.5%	84.5%	81.0%	81.4%	83.1%
Diff	-2.1%	12.1%	7.8%	6.6%	11.4%

**Occupant Seat Belt Use Rates by Roadway Type, Wyoming, 2012-2015**

Year	2012	2013	2014	2015	2016
Roadway Primary	80.2%	87.9%	82.7%	86.1%	88.5%
Secondary	77.5%	80.0%	78.2%	78.0%	78.2%
Loc/Rur/City	66.0%	60.3%	69.9%	73.3%	69.7%

**Occupant Seat Belt Use by Vehicle Type, Wyoming 2012-2015**

Year	2012	2013	2014	2015	2016
Vehicle Type Automobile	78.2%	84.8%	83.2%	80.8%	83.6%
Van	84.7%	88.8%	85.0%	85.1%	86.0%
SUV	83.7%	86.6%	84.7%	89.3%	86.5%
Pickup	69.2%	74.1%	69.9%	71.8%	72.4%

**Occupant Seat Belt Use Rates by License Status, Wyoming 2012-2015**

Year		2012	2013	2014	2015	2016
	License Wyoming	72.2%	76.2%	75.7%	75.0%	74.7%
	Out of State	86.3%	91.1%	86.7%	86.6%	88.1%

**Observational Frequencies of Vehicle Occupants, Wyoming Seat Belt Survey, 2012-2016**

Year		2012	2013	2014	2015	2016
	Frequencies	18,703	20,877	23,723	24,682	24,893
	Increase		2,174	2,846	959	211

**Occupant Seat Belt Usage Rates by County, Wyoming 2012-2016**

Year		2012	2013	2014	2015	2016	Average
County	Albany	74.2%	84.4%	84.3%	85.0%	80.2%	81.6%
	Big Horn	60.2%	65.1%	71.5%	74.0%	73.1%	68.8%
	Campbell	60.3%	62.3%	67.6%	88.0%	77.4%	71.1%
	Carbon	83.0%	77.0%	78.8%	91.3%	90.5%	84.1%
	Fremont	72.2%	75.2%	77.0%	83.6%	84.3%	78.5%
	Johnson	74.8%	97.4%	77.3%	75.9%	87.2%	82.5%
	Laramie	74.3%	73.0%	72.9%	80.8%	79.9%	76.2%
	Lincoln	81.4%	82.7%	81.5%	84.3%	84.4%	82.9%
	Natrona	63.1%	63.9%	72.8%	74.0%	76.7%	70.1%
	Park	73.6%	73.0%	80.2%	72.8%	74.2%	74.8%
	Platte	84.5%	85.7%	86.7%	79.1%	84.0%	84.0%
	Sheridan	65.0%	60.5%	57.3%	87.5%	81.8%	70.4%
	Sublette	83.0%	86.0%	84.1%	80.4%	75.1%	81.7%
	Sweetwater	60.3%	77.1%	78.2%	59.0%	64.5%	67.8%
	Teton	98.3%	99.0%	90.1%	79.6%	83.2%	90.0%
	Uinta	72.1%	76.8%	64.9%	78.4%	81.1%	74.7%
	Totals	77.0%	81.9%	79.2%	79.8%	80.5%	79.7%

**Occupant Belt Use by Vehicle Type and Gender, Wyoming 2013-2015**

Year			2013	2014	2015	2016
Gender	Vehicle Type		Belted	Belted	Belted	Belted
Male	Auto		83.7%	80.6%	78.8%	81.7%
	Van		87.4%	82.9%	83.3%	84.4%
	SUV		85.2%	81.6%	87.5%	83.3%
	Pickup		72.5%	67.2%	69.1%	69.4%
	Total		79.3%	75.0%	76.3%	76.8%
Female	Auto		85.9%	85.7%	82.9%	85.5%
	Van		90.4%	86.7%	86.6%	87.3%
	SUV		87.9%	88.1%	91.5%	90.3%
	Pickup		79.8%	79.6%	80.4%	81.8%
	Total		85.9%	85.1%	85.1%	85.7%
	All Occupants		81.9%	79.2%	79.8%	80.5%

**Differences in Seat Belt Use by Gender and Vehicle Type, Wyoming 2013 to 2015\***

Year			2013	2014	2015	2016
Vehicle Type	Auto		2.2%	5.1%	4.1%	3.8%
	Van		3.0%	3.8%	3.3%	3.3%
	SUV		2.7%	6.5%	4.0%	7.0%
	Pickup		7.3%	12.4%	0%	11.3%
	Total		6.6%	10.1%	8.8%	8.9%

\*Differences = (Female - Male Rate) for Each Vehicle Type and Each Year

## Appendix E: observer field test rating

		<b>Written</b>	<b>F-Test 1</b>	<b>F-Test 2</b>	<b>F-Test 3</b>	<b>Average</b>
<i>Albany</i>	Monty Beyers	90.00%	85.10%	85.90%	83.80%	86.20%
<i>Big Horn</i>	Dixie Elder	84.10%	98.50%	85.70%	98.90%	91.80%
<i>Campbell</i>	Dee Sebelius	98.80%	94.80%	95.50%	93.20%	95.58%
<i>Carbon</i>	Bill spencer	89.80%	82.50%	96.50%	97.80%	91.65%
<i>Carbon</i>	Brooke Darden	96.90%	100.00%	74.30%	83.50%	88.68%
<i>Fremont</i>	Melissa Garcia	93.70%	97.60%	93.30%	80.00%	91.15%
<i>Johnson</i>	Deb Eutsler	98.90%	91.10%	94.50%	78.30%	90.70%
<i>Laramie</i>	Patrick White	84.30%	88.70%	95.90%	98.10%	91.75%
<i>Lincoln</i>	Dawn Edwards	96.90%	100.00%	92.60%	97.70%	96.80%
<i>Natrona</i>	Tammy Cussins	80.90%	99.00%	94.40%	100.00%	93.58%
<i>Park</i>	Donna Lucas	98.90%	95.10%	100.00%	99.00%	98.25%
<i>Platte</i>	Doug Peterson	78.80%	99.00%	85.90%	88.20%	87.98%
<i>Sheridan</i>	Logan Wilson	97.30%	100.00%	73.50%	87.00%	89.45%
<i>Sheridan</i>	Susan Parkinson	97.30%	97.30%	84.70%	100.00%	94.83%
<i>Sublette</i>	Tonya Dove	93.60%	97.50%	86.70%	90.20%	92.00%
<i>Sweetwater</i>	Kayla Schear	96.60%	95.50%	100.00%	90.60%	95.68%
<i>Teton</i>	Peggy Dowers	83.30%	87.20%	94.60%	89.40%	88.63%
<i>Uinta</i>	Randi Egley	96.70%	95.30%	95.20%	98.10%	96.33%
<i>Quality Control</i>	Bridget White	98.90%	91.90%	94.70%	89.20%	93.68%
<i>Quality Control</i>	Vicky Peterson	84.30%	98.60%	95.90%	93.70%	93.13%
		92.00%	94.74%	90.99%	91.84%	92.39%
		Field Test Overall Average				92.39%
		Written Overall Average				92.00%



## Appendix F: unknown seat belt use

<i>County</i>	<b>County Code</b>	<b>Unknown Driv+Pass</b>	<b>Total Obsv. Driv+Pass</b>	<b>County Rate</b>
<i>Albany</i>	1	0	1785	0.000000
<i>Big Horn</i>	3	0	680	0.000000
<i>Campbell</i>	5	94	1864	0.050429
<i>Carbon</i>	7	13	1236	0.010518
<i>Fremont</i>	13	4	1230	0.003252
<i>Johnson</i>	19	8	1773	0.004512
<i>Laramie</i>	21	8	771	0.010376
<i>Lincoln</i>	23	6	1402	0.004280
<i>Natrona</i>	25	16	968	0.016529
<i>Park</i>	29	11	1627	0.006761
<i>Platte</i>	31	0	1542	0.000000
<i>Sheridan</i>	33	18	1395	0.012903
<i>Sublette</i>	35	5	590	0.008475
<i>Sweetwater</i>	37	1	1915	0.000522
<i>Teton</i>	39	137	3656	0.037473
<i>Uinta</i>	41	3	1781	0.001684
<i>State</i>		324	24215	0.013380

## Appendix G: Reporting requirements – data collected at observation sites

1. Standard Error of Statewide Belt Use Rate: 0.1 percent
2. Nonresponse Rate as provided in §1340.9 (f)
  - a. Nonresponse rate for the survey variable seat belt use: 1.3880 percent

## PART B-DATA COLLECTED AT OBSERVATION SITES

Site ID	Site type <sup>1</sup>	Date observed	Sample weight	Number of drivers	Number of front passengers	Number of occupants <sup>2</sup> belted	Number of occupants unbelted	Number of occupants with unknown belt use
168749730	1: Original	06/10/2016	7.657718121	181	70	233	18	0
604512124	2: Original	06/08/2016	7.657718121	68	21	75	14	0
604516236	3: Original	06/09/2016	1.150201613	191	33	197	27	0
168748704	4: Original	06/06/2016	1.150201613	144	42	151	35	0
168722835	5: Original	06/07/2016	1.150201613	11	4	10	5	0
604506806	6: Original	06/06/2016	1.150201613	176	56	188	44	0
168750353	7: Original	06/07/2016	1.150201613	38	15	41	12	0
168757040	8: Original	06/06/2016	1.150201613	78	16	62	32	0
168722017	9: Original	06/09/2016	1.150201613	7	2	7	2	0
604510122	10: Original	06/10/2016	1.150201613	93	21	88	26	0
168738815	11: Original	06/08/2016	1.150201613	40	12	32	20	0
168744760	12: Original	06/11/2016	1.150201613	19	5	23	1	0
168756901	13: Original	06/06/2016	1.150201613	271	57	236	92	0
168745008	14: Original	06/12/2016	1.150201613	8	5	13	0	0
168737539	15: Original	06/09/2016	1.150201613	36	8	32	12	0
168755506	16: Original	06/07/2016	1.150201613	7	2	6	3	0
604505747	17: Original	06/10/2016	1.150201613	27	12	35	4	0
168755958	18: Original	06/09/2016	1.150201613	25	8	28	5	0
605633431	1: Original	06/09/2016	1	14	9	18	5	0
180494288	2: Original	06/07/2016	1	11	6	14	3	0
180493968	3: Original	06/07/2016	1	57	21	66	12	0
605624056	4: Original	06/06/2016	1	37	6	26	17	0
180493545	5: Original	06/08/2016	1	15	3	11	7	0
605621594	6: Original	06/08/2016	1	7	1	6	2	0
180484672	7: Original	06/09/2016	1	41	16	50	7	0
605616914	8: Original	06/10/2016	1	15	2	14	3	0
180505210	9: Original	06/06/2016	1	41	13	37	17	0
626936823	10: Original	06/07/2016	1	5	4	6	3	0
605624431	11: Original	06/12/2016	1	63	45	73	35	0
180501932	12: Original	06/06/2016	1	57	18	56	19	0
180490602	13: Original	06/06/2016	1	41	17	45	13	0
180506937	14: Original	06/08/2016	1	11	3	9	5	0
180507017	15: Original	06/11/2016	1	16	4	17	3	0
180508412	16: Original	06/11/2016	1	17	8	20	4	1
180499656	17: Original	06/11/2016	1	14	10	13	11	0
180485070	18: Original	06/10/2016	1	57	26	53	30	0

Site ID	Site type <sup>1</sup>	Date observed	Sample weight	Number of drivers	Number of front passengers	Number of occupants <sup>2</sup> belted	Number of occupants unbelted	Number of occupants with unknown belt use
607415957	1: Original	06/06/2016	4.898876404	145	59	177	19	8
607413318	2: Original	06/09/2016	4.898876404	214	34	191	42	15
146326960	3: Original	06/06/2016	4.898876404	141	44	149	30	6
146347844	4: Original	06/06/2016	4.898876404	124	52	154	15	7
146348156	5: Original	06/10/2016	1.25648415	23	8	27	2	2
146325159	6: Original	06/08/2016	1.25648415	125	27	101	40	11
146349851	7: Original	06/08/2016	1.25648415	191	42	162	68	3
146329404	8: Original	06/08/2016	1.25648415	23	5	24	3	1
146334309	9: Original	06/09/2016	1.25648415	35	5	30	7	3
146353809	10: Original	06/09/2016	1.25648415	31	8	30	5	4
607396191	11: Original	06/07/2016	1.25648415	52	9	47	7	7
146333806	12: Original	06/11/2016	1.25648415	20	8	24	3	1
146321054	13: Original	06/10/2016	1.25648415	27	6	25	8	0
146353348	14: Original	06/09/2016	1.25648415	53	11	53	6	5
607406131	15: Original	06/06/2016	1.25648415	26	11	25	9	3
146346688	16: Original	06/10/2016	1.25648415	172	35	134	64	9
635532528	17: Original	06/07/2016	1.25648415	75	27	86	14	2
146342308	18: Original	06/12/2016	1.25648415	58	30	71	10	7
611197576	1: Original	06/09/2016	6.905405405	118	38	152	2	2
148702972	2: Original	06/09/2016	6.905405405	147	59	200	5	1
148729076	3: Original	06/10/2016	6.905405405	134	60	192	2	0
622138133	4: Original	06/10/2016	1.169336384	88	33	102	19	0
148737136	5: Original	06/6/2016	1.169336384	0	0	0	0	0
148752555	6: Original	06/06/2016	1.169336384	21	3	23	0	1
148712671	7: Original	06/08/2016	1.169336384	51	10	56	4	1
148715207	8: Original	06/08/2016	1.169336384	20	6	26	0	0
148718040	9: Original	06/07/2016	1.169336384	8	2	9	1	0
148695417	10: Original	06/12/2016	1.169336384	84	35	114	4	1
148729803	11: Original	06/10/2016	1.169336384	152	64	151	65	0
148707454	12: Original	06/09/2016	1.169336384	4	0	4	0	0
148702481	13b: Alternate	06/11/2016	1.169336384	10	6	12	1	3
148743798	14: Original	06/07/2016	1.169336384	11	2	12	0	1
148736405	15: Original	06/06/2016	1.169336384	8	0	6	2	0
148714894	16: Original	06/07/2016	1.169336384	35	9	39	5	0
148727630	17: Original	06/11/2016	1.169336384	13	3	11	2	3
148716025	18: Original	06/08/2016	1.169336384	2	0	2	0	0
148493966	1b: Alternate	06/06/2016	1.000528821	107	20	86	38	3
148440001	2: Original	06/08/2016	1.000528821	43	23	62	4	0
148435866	3: Original	06/06/2016	1.000528821	65	14	51	27	1

Site ID	Site type <sup>1</sup>	Date observed	Sample weight	Number of drivers	Number of front passengers	Number of occupants <sup>2</sup> belted	Number of occupants unbelted	Number of occupants with unknown belt use
634121244	4: Original	06/08/2016	1.000528821	27	8	32	3	0
148495718	5: Original	06/10/2016	1.000528821	39	11	42	8	0
148494149	6: Original	06/07/2016	1.000528821	40	24	57	7	0
148486152	7: Original	06/11/2016	1.000528821	108	49	152	5	0
148473776	8: Original	06/09/2016	1.000528821	37	13	42	8	0
148485578	9: Original	06/07/2016	1.000528821	45	29	68	6	0
148433925	10: Original	06/10/2016	1.000528821	2	0	0	2	0
148468814	11a: Alternate	06/09/2016	1.000528821	19	14	29	4	0
148468455	12: Original	06/11/2016	1.000528821	96	51	129	18	0
148496119	13b: Alternate	06/09/2016	1.000528821	64	24	59	29	0
148429899	14: Original	06/08/2016	1.000528821	13	8	20	1	0
148448781	15: Original	06/12/2016	1.000528821	112	71	171	12	0
148470962	16: Original	06/10/2016	1.000528821	9	2	7	4	0
148433053	17: Original	06/06/2016	1.000528821	109	34	117	25	1
148432511	18: Original	06/06/2016	1.000528821	105	37	117	23	2
624034874	1: Original	06/09/2016	2.23495702	48	19	65	2	0
147364609	2: Original	06/07/2016	2.23495702	52	26	73	3	2
147364620	3: Original	06/07/2016	2.23495702	65	25	89	0	1
635198026	4: Original	06/08/2016	2.23495702	91	57	134	14	0
635203662	5: Original	06/08/2016	2.23495702	100	55	138	17	0
147347862	6b: Alternate	06/08/2016	2.23495702	70	37	99	8	0
147364484	7: Original	06/08/2016	2.23495702	114	55	158	11	0
147365807	8: Original	06/08/2016	2.23495702	76	27	101	2	0
147321001	9: Original	06/12/2016	1.80974478	2	0	1	1	0
147312456	10: Original	06/11/2016	1.80974478	93	40	113	20	0
147299440	11: Original	06/10/2016	1.80974478	189	68	181	76	0
147375368	12: Original	06/09/2016	1.80974478	6	0	2	4	0
147320405	13: Original	06/07/2016	1.80974478	5	1	6	0	0
147301635	14: Original	06/06/2016	1.80974478	53	33	80	1	5
147301707	15: Original	06/06/2016	1.80974478	18	9	27	0	0
147330545	16: Original	06/10/2016	1.80974478	221	67	250	38	0
617881865	17: Original	06/11/2016	1.80974478	41	14	34	21	0
147320871	18: Original	06/12/2016	1.80974478	0	0	0	0	0
622388802	1: Original	06/10/2016	27.25055928	202	30	208	22	2
624043730	2: Original	06/10/2016	12.60973085	26	6	26	6	0
160176358	3: Original	06/07/2016	1.13122214	4	1	2	3	0
160145448	4: Original	06/07/2016	1.13122214	3	1	3	1	0
160162024	5: Original	06/12/2016	1.13122214	0	0	0	0	0
160151376	6: Original	06/08/2016	1.13122214	135	35	108	61	1

Site ID	Site type <sup>1</sup>	Date observed	Sample weight	Number of drivers	Number of front passengers	Number of occupants <sup>2</sup> belted	Number of occupants unbelted	Number of occupants with unknown belt use
160148179	7: Original	06/09/2016	1.13122214	1	0	1	0	0
160171828	8: Original	06/09/2016	1.13122214	1	1	2	0	0
160148102	9: Original	06/09/2016	1.13122214	0	0	0	0	0
160148214	10: Original	06/09/2016	1.13122214	5	2	4	3	0
160149935	11: Original	06/07/2016	1.13122214	5	1	3	3	0
160172654	12: Original	06/11/2016	1.13122214	10	4	1	13	0
160147641	13: Original	06/10/2016	1.13122214	4	0	4	0	0
160152283	14: Original	06/08/2016	1.13122214	5	1	5	1	0
160160311	15: Original	06/08/2016	1.13122214	16	2	13	5	0
160176882	16: Original	06/06/2016	1.13122214	2	1	3	0	0
160179037	17: Original	06/10/2016	1.13122214	213	53	221	40	5
608318324	18: Original	06/06/2016	1.13122214	1	0	1	0	0
611001502	1: Original	06/06/2016	14.95744681	20	8	26	0	2
130299361	2: Original	06/09/2016	1.071646341	19	1	14	6	0
130309240	3: Original	06/08/2016	1.071646341	48	27	63	12	0
130324547	4: Original	06/11/2016	1.071646341	70	32	78	24	0
130316044	5: Original	06/11/2016	1.071646341	141	62	162	41	0
130316740	6: Original	06/12/2016	1.071646341	98	66	148	16	0
611004110	7: Original	06/09/2016	1.071646341	30	4	21	13	0
611001556	8: Original	06/06/2016	1.071646341	38	15	43	8	2
611004390	9: Original	06/09/2016	1.071646341	24	7	23	7	1
130297921	10: Original	06/09/2016	1.071646341	12	3	11	4	0
611011156	11: Original	06/10/2016	1.071646341	25	16	34	7	0
130324450	12: Original	06/08/2016	1.071646341	43	22	58	7	0
611008956	13: Original	06/10/2016	1.071646341	112	40	124	28	0
130301475	14: Original	06/07/2016	1.071646341	6	0	5	1	0
130301732	15: Original	06/08/2016	1.071646341	54	27	76	5	0
130316677	16: Original	06/12/2016	1.071646341	72	38	99	11	0
611008950	17: Original	06/10/2016	1.071646341	121	56	157	19	1
130303332	18: Original	06/07/2016	1.071646341	29	17	43	3	0
149010081	1: Original	06/12/2016	33.4278607	157	72	213	16	0
149022110	2: Original	06/06/2016	8.864116095	223	50	197	71	5
149038958	3: Original	06/09/3026	8.864116095	38	10	28	18	2
149017131	4: Original	06/11/2016	1.166493056	0	0	0	0	0
607727858	5: Original	06/10/2016	1.166493056	12	2	8	6	0
617962807	6: Original	06/08/2016	1.166493056	6	2	5	3	0
149021251	7: Original	06/08/2016	1.166493056	3	0	3	0	0
149019867	8: Original	06/08/2016	1.166493056	36	3	24	14	1
607699609	9: Original	06/07/2016	1.166493056	15	6	9	11	1

Site ID	Site type <sup>1</sup>	Date observed	Sample weight	Number of drivers	Number of front passengers	Number of occupants <sup>2</sup> belted	Number of occupants unbelted	Number of occupants with unknown belt use
149024110	10: Original	06/10/2016	1.166493056	189	39	141	84	3
149026356	11: Original	06/09/2016	1.166493056	1	0	0	1	0
607739973	12: Original	06/08/2016	1.166493056	2	0	1	1	0
607727056	13: Original	06/06/2016	1.166493056	9	0	4	5	0
147301793	14a: Alternate	06/07/2016	1.166493056	25	13	34	0	4
607718345	15: Original	06/10/2016	1.166493056	13	2	10	5	0
149039592	16: Original	06/12/2016	1.166493056	0	0	0	0	0
607701450	17: Original	06/07/2016	1.166493056	20	5	19	6	0
617963960	18: Original	06/06/2016	1.166493056	16	4	17	3	0
612523424	1: Original	06/08/2016	1	30	24	49	5	0
612522810	2: Original	06/08/2016	1	8	3	10	1	0
627160085	3: Original	06/06/2016	1	41	31	63	8	1
149194387	4: Original	06/09/2016	1	18	4	17	5	0
149206406	5: Original	06/06/2016	1	18	15	33	0	0
626966347	6: Original	06/06/2016	1	203	69	193	79	0
612520875	7: Original	06/07/2016	1	167	66	178	54	1
612522765	8: Original	06/11/2016	1	28	11	32	7	0
624469118	9: Original	06/11/2016	1	63	29	59	33	0
612517654	10: Original	06/10/2016	1	33	5	24	14	0
149194643	11: Original	06/10/2016	1	177	54	163	67	1
612521823	12: Original	06/09/2016	1	122	44	124	39	3
149212941	13: Original	06/07/2016	1	20	6	23	3	0
149202036	14: Original	06/09/2016	1	10	2	9	3	0
612468763	15: Original	06/11/2016	1	18	5	16	7	0
612523179	16: Original	06/12/2016	1	2	0	2	0	0
625076103	17: Original	06/10/2016	1	160	36	140	53	3
612522218	18: Original	06/10/2016	1	91	16	74	31	2
160436166	1: Original	06/12/2016	2.880299252	169	75	227	17	0
606897806	2: Original	06/10/2016	2.880299252	161	68	210	19	0
604828586	3: Original	06/08/2016	2.880299252	124	60	163	21	0
606897551	4: Original	06/08/2016	2.880299252	145	54	169	30	0
620601368	5: Original	06/11/2016	2.880299252	92	45	121	16	0
618035322	6: Original	06/06/2016	2.880299252	142	60	183	19	0
604823280	7: Original	06/07/2016	1.531830239	1	0	0	1	0
160432353	8: Original	06/09/2016	1.531830239	19	9	20	8	0
604817760	9: Original	06/09/2016	1.531830239	6	3	9	0	0
624031047	10: Original	06/10/2016	1.531830239	61	31	67	25	0
604820352	11: Original	06/09/2016	1.531830239	108	40	82	66	0
160445492	12: Original	06/06/2016	1.531830239	16	5	17	4	0



Site ID	Site type <sup>1</sup>	Date observed	Sample weight	Number of drivers	Number of front passengers	Number of occupants <sup>2</sup> belted	Number of occupants unbelted	Number of occupants with unknown belt use
160445589	13: Original	06/06/2016	1.531830239	15	2	8	9	0
160431220	14: Original	06/12/2016	1.531830239	3	3	6	0	0
160441567	15: Original	06/09/2016	1.531830239	5	3	8	0	0
604820453	16: Original	06/11/2016	1.531830239	3	2	4	1	0
604823224	17a: Alternate	06/07/2016	1.531830239	3	3	0	6	0
160425201	18: Original	06/08/2016	1.531830239	4	2	5	1	0
629143491	1: Original	06/10/2016	7.447368421	78	33	82	28	1
634774573	2: Original	06/08/2016	7.447368421	121	58	174	5	0
147411270	3: Original	06/12/2016	1.155102041	12	7	17	2	0
147421444	4: Original	06/11/2016	1.155102041	31	7	30	7	1
605384408	5: Original	06/10/2016	1.155102041	76	38	89	24	1
147398734	6: Original	06/07/2016	1.155102041	17	1	18	0	0
147408472	7: Original	06/09/2016	1.155102041	123	69	153	38	1
147409609	8: Original	06/12/2016	1.155102041	7	2	7	1	1
147400215	9: Original	06/07/2016	1.155102041	38	7	43	2	0
147396185	10: Original	06/06/2016	1.155102041	4	1	4	1	0
147420545	11: Original	06/08/2016	1.155102041	9	2	9	2	0
605368387	12: Original	06/09/2016	1.155102041	25	7	30	2	0
147419891	13: Original	06/08/2016	1.155102041	19	3	21	1	0
147399687	14: Original	06/11/2016	1.155102041	22	6	19	7	2
147408335	15: Original	06/09/2016	1.155102041	63	33	89	7	0
147398523	16: Original	06/07/2016	1.155102041	78	48	116	10	0
614721355	17: Original	06/10/2016	1.155102041	172	49	136	75	10
147417308	18: Original	06/06/2016	1.155102041	106	30	113	22	1
149346148	1: Original	06/06/2016	1	4	1	2	3	0
149347154	2: Original	06/06/2016	1	12	1	5	8	0
149330874	3: Original	06/10/2016	1	18	5	11	12	0
149342158	4: Original	06/11/2016	1	17	7	15	9	0
617103316	5: Original	06/09/2016	1	117	46	103	58	2
614284845	6: Original	06/12/2016	1	44	31	69	6	0
631784199	7: Original	06/10/2016	1	12	2	12	2	0
149329449	8: Original	06/07/2016	1	0	0	0	0	0
149319272	9: Original	06/07/2016	1	3	1	3	1	0
149327486	10: Original	06/06/2016	1	3	0	2	1	0
611631792	11: Original	06/09/2016	1	13	4	14	3	0
149335729	12: Original	06/08/2016	1	5	1	4	2	0
149349722	13: Original	06/06/2016	1	2	0	2	0	0
149348298	14: Original	06/11/2016	1	16	8	17	7	0
624696401	15: Original	06/09/2016	1	11	1	5	7	0

Site ID	Site type <sup>1</sup>	Date observed	Sample weight	Number of drivers	Number of front passengers	Number of occupants <sup>2</sup> belted	Number of occupants unbelted	Number of occupants with unknown belt use
149341811	16: Original	06/12/2016	1	63	34	91	5	1
149343493	17: Original	06/08/2016	1	1	1	2	0	0
611631778	18: Original	06/09/2016	1	73	33	86	18	2
624231944	1: Original	06/07/2016	4.531914894	143	46	140	49	0
633104230	2: Original	06/06/2016	4.531914894	207	74	210	70	1
149499646	3a: Alternate	06/09/2016	4.531914894	3	1	2	2	0
149487238	4: Original	06/07/2016	4.531914894	137	62	142	57	0
618328344	5: Original	06/08/2016	1.28313253	61	22	53	30	0
149511333	6: Original	06/09/2016	1.28313253	59	11	47	23	0
618324181	7: Original	06/09/2016	1.28313253	349	81	266	164	0
149464554	8: Original	06/12/2016	1.28313253	43	14	29	28	0
149493695	9: Original	06/08/2016	1.28313253	9	4	9	4	0
149491956	10: Original	06/08/2016	1.28313253	6	1	5	2	0
149503912	11: Original	06/10/2016	1.28313253	312	84	215	181	0
149496622	12: Original	06/10/2016	1.28313253	70	21	62	29	0
611877695	13: Original	06/10/2016	1.28313253	154	38	110	82	0
149458823	14: Original	06/11/2016	1.28313253	2	0	0	2	0
149461346	15: Original	06/06/2016	1.28313253	20	14	30	4	0
149499742	16: Original	06/09/2016	1.28313253	20	4	17	7	0
149502711	17: Original	06/10/2016	1.28313253	16	5	13	8	0
149457693	18: Original	06/11/2016	1.28313253	3	1	3	1	0
130447128	1: Original	06/11/2016	1	213	195	365	29	14
130412425	2: Original	06/08/2016	1	103	48	130	18	3
626815081	3: Original	06/07/2016	1	218	99	244	66	7
130414136	4: Original	06/06/2016	1	122	58	134	44	2
130440602	5: Original	06/09/2016	1	122	94	172	31	13
235945248	6: Original	06/08/2016	1	63	29	81	11	0
130449024	7: Original	06/07/2016	1	192	107	223	71	5
130410308	8: Original	06/11/2016	1	94	81	163	8	4
130442142	9: Original	06/09/2016	1	26	18	44	0	0
130414163	10: Original	06/06/2016	1	153	47	161	22	17
130416881	11: Original	06/09/2016	1	33	24	53	3	1
625696810	12: Original	06/10/2016	1	124	89	202	7	4
633121288	13: Original	06/06/2016	1	119	59	146	21	11
130435259	14: Original	06/12/2016	1	147	128	256	11	8
130421972	15: Original	06/07/2016	1	235	63	193	84	21
626815080	16: Original	06/07/2016	1	188	77	207	45	13
130430099	17: Original	06/06/2016	1	65	40	91	7	7
130438888	18: Original	06/10/2016	1	135	113	232	9	7

Site ID	Site type <sup>1</sup>	Date observed	Sample weight	Number of drivers	Number of front passengers	Number of occupants <sup>2</sup> belted	Number of occupants unbelted	Number of occupants with unknown belt use
160262564	1: Original	06/06/2016	3.798206278	156	63	200	18	1
160262989	2: Original	06/06/2016	3.798206278	86	41	120	7	0
160263878	3: Original	06/06/2016	3.798206278	80	36	111	5	0
160276521	4: Original	06/06/2016	3.798206278	114	68	171	11	0
625848180	5: Original	06/08/2016	3.798206278	67	18	62	23	0
160278118	6: Original	06/11/2016	1.357371795	133	56	156	33	0
160256726	7: Original	06/10/2016	1.357371795	54	17	65	6	0
160278610	8: Original	06/08/2016	1.357371795	112	44	89	67	0
160276641	9: Original	06/08/2016	1.357371795	24	8	20	12	0
160259758	10: Original	06/10/2016	1.357371795	121	62	138	45	0
160269401	11: Original	06/07/2016	1.357371795	4	2	6	0	0
160258496	12: Original	06/09/2016	1.357371795	8	4	10	1	1
160266210	13: Original	06/08/2016	1.357371795	1	0	0	1	0
160257875	14: Original	06/12/2016	1.357371795	22	10	31	1	0
160258469	15: Original	06/09/2016	1.357371795	11	5	14	2	0
160269069	16: Original	06/07/2016	1.357371795	14	6	16	4	0
606738273	17: Original	06/11/2016	1.357371795	127	58	132	53	0
160275943	18: Original	06/10/2016	1.357371795	114	38	100	51	1
Total				17,939	6,954	19,899	4,666	328

Standard Error of Statewide Belt Use Rate<sup>3</sup>: 0.1 percent

Nonresponse Rate as provided in §1340.9 (f)

Nonresponse rate for the survey variable seat belt use: 1.3380 percent

<sup>1</sup>Identify if the observation site is an original observation site or an alternate observation site.

<sup>2</sup>Occupants refer to both drivers and passengers

<sup>3</sup>The standard error may not exceed 2.5 percent

Appendix H: SPSS data dictionary

GET

FILE='C:\Users\keith\Documents\Wyoming 2016\occupants 2016.sav'.  
DATASET NAME DataSet1 WINDOW=FRONT.  
DISPLAY DICTIONARY.

### File Information

[DataSet1] C:\Users\keith\Documents\Wyoming 2016\occupants 2016.sav

### Variable Information

Variable	Position	Label	Measurement Level	Role	Column Width	Alignment
InclProbOfRoadType	1	InclProbOfRoadType	Scale	Input	12	Right
TLID	2	TLID	Scale	Input	12	Right
SRSWOR	3	SRSWOR	Scale	Input	12	Right
County	4	County	Nominal	Input	12	Right
Site#	5	Site #	Nominal	Input	12	Right
Population	6	Population	Nominal	Input	12	Right
Roadway	7	Roadway	Scale	Input	12	Right
day	8	Weekday	Nominal	Input	12	Right
observer	9	Observer	Nominal	Input	12	Right
weather	10	Weather	Nominal	Input	12	Right
lanes	11	Lanes	Nominal	Input	12	Right
direction	12	Road Direction	Nominal	Input	12	Right
OccupBelt	13	Occ Belt Use	Nominal	Input	12	Right
OccupGender	14	Occ Gender	Nominal	Input	12	Right
carType	15	Vehicle Type	Nominal	Input	12	Right
wyPlate	16	License	Nominal	Input	12	Right
timeStamp	17	Time of Day	Nominal	Input	12	Right
Case#	18	Case#	Nominal	Input	8	Right
Roadway2	19	Type of Road	Nominal	Input	10	Right
Weekday2	20	Weekend	Nominal	Input	10	Right
filter_\$	21	County = 13 (FILTER)	Nominal	Input	10	Right

Variable Information

Variable	Print Format	Write Format	Missing Values
InclProbOfRoadType	F12.7	F12.7	
TLID	F12	F12	
SRSWOR	F12.9	F12.9	
County	F12	F12	99
Site#	F3	F3	
Population	F12	F12	9
Roadway	F12	F12	99
day	F12	F12	9
observer	F12	F12	99
weather	F12	F12	9
lanes	F12	F12	9
direction	F12	F12	9
OccupBelt	F12	F12	9, 99
OccupGender	F12	F12	9, 99
carType	F12	F12	9
wyPlate	F12	F12	99
timeStamp	F12	F12	9
Case#	F8	F8	
Roadway2	F8	F8	
Weekday2	F8	F8	9
filter_\$	F1	F1	

Variables in the working file

Variable Values

Value		Label
County	1	Albany
	3	Big Horn
	5	Campbell
	7	Carbon
	13	Fremont
	19	Johnson
	21	Laramie
	23	Lincoln
	25	Natrona
	29	Park
	31	Platte
	33	Sheridan
	35	Sublette
	37	Sweetwater
	39	Teton
41	Uinta	
Population	1	Urban
	2	Rural
Roadway	11	Primary Road
	12	Secondary Road
	14	Local/Rural /City
day	1	Sunday
	2	Monday
	3	Tuesday
	4	Wednesday
	5	Thursday
	6	Friday
	7	Saturday
observer	1	Donna Lucas
	7	Bridget White
	14	Vicky Peterson
	20	Randi Egley
	23	Monty Byers
	30	Bill Spencer
	35	Kayla Shear
39	Daleen Sebelius	

Variable Values

Value		Label
	40	Melissa Garcia
	41	Patrick White
	42	Dawn Edwards
	44	Doug Peterson
	45	Logan Wilson
	46	Tonya Dove
	47	Dixie Elder
	48	Deb Eutsler
	49	Tammy Cussins
	50	Brooke Darden
	51	Susan Parkinson
	52	Peggy Dowers
weather	1	Clear Sunny
	2	Cloudy
	3	Foggy
	4	Light Rain
	5	Snow/Ice
	6	Heavy Rain
	7	Intermittent Rain
lanes	1	One Lane
	2	Two Lanes
direction	1	North
	2	South
	3	East
	4	West
OccupBelt	1	Belted
	2	Not Belted
	3	Unsure
OccupGender	1	Male
	2	Female
carType	1	Auto
	2	Van
	3	SUV
	4	Pickup Truck



Variable Values

Value		Label
wyPlate	1	Wyoming License
	2	Out of State License
	9	Unsure
timeStamp	1	7:30-9:30 AM
	2	9:30-11:30 AM
	3	11:30-1:30 PM
	4	1:30-3:30 PM
	5	3:30-5:30 PM
Roadway2	11	Primary Road
	12	Secondary Road
	14	Local/Rural /City
Weekday2	1	Saturday-Sunday
	2	Monday-Friday
filter_\$	0	Not Selected
	1	Selected

DISPLAY DICTIONARY.

**File Information**

[DataSet1] C:\Users\keith\Documents\Wyoming 2016\occupants 2016.sav

# State Seat Belt Use Survey Reporting Form

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## PART A

State: Wyoming

Calendar Year of Survey: 2016

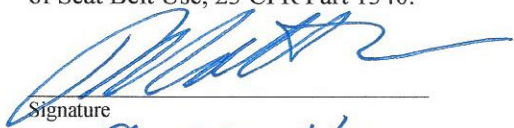
Statewide Seat Belt Use Rate: 80.5Percent

I hereby certify that: The Governor designated Matthew D. Carlson as the State's Highway Safety Representative (GR), and has the authority to sign the certification in writing.

The reported Statewide seat belt use rate is based on a survey design that received approval by NHTSA, in writing, as conforming to the Uniform Criteria for State Observational Surveys of Seat Belt Use, 23 CFR Part 1340.

The survey design remained unchanged since NHTSA approved the survey.

Dr. James G. Leibert<sup>1</sup>, a qualified survey statistician, reviewed the seat belt use rate reported above and information reported in Part B and determined that they meet the Uniform Criteria for State Observational Surveys of Seat Belt Use, 23 CFR Part 1340.

  
Signature

Date

9-27-16  
Matthew D. Carlson  
Printed name of signing official

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<sup>1</sup> In accordance with the final rule published in Federal Register Vol. 76 No. 63, April 1, 2011, Rules and Regulations, pp. 18042-18059, DLN contracted with statistician, Dr. James G. Leibert to determine that the methods used to process the collected data met the Uniform Criteria for State Observational Surveys of Seat Belt Use, 23 CFR Part 1340. Dr. Leibert reviewed the SPSS output files and related data tables to confirm the data are accurate and true. A copy of Dr. Leibert's abbreviated resume follows.