# Survey of Seat Belt Use

## Wyoming, 2012

The protocols implemented for this study are in accordance with the new federal guidelines, which distinguish it from all prior surveys of seat belt use in Wyoming. Consequently, the 2012 survey analysis becomes the new baseline survey for seat belt use in the state of Wyoming.

## Acknowledgments

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# Executive Summary

The following narrative and appendices describe the results of the 2012 survey of seat belt use in the state of Wyoming. This study was developed in accordance the Uniform Criteria for State Observational Surveys of Seat Belt Use, 23 CFR Part §1340. This 2012 methodology distinguishes it from all prior surveys of seat belt use in Wyoming. Consequently, this becomes the new baseline survey of seat belt use in Wyoming and no comparisons with prior surveys or the results of those surveys, except in the most general sense, are presented in this report. The narrative that follows discusses the characteristics of the sample, followed by a presentation of the estimates of seat belt use overall and within the categories of several important variables. The estimates that are presented are derived from data that was weighted in accordance with the probabilities associated with the sampling methodology.

Below is a summary of the major results that are discussed in detail in the rest of the report.

- The overall estimate of seat belt use for all vehicle occupants was 77.0 percent. This estimate is based on observations of 24, 738 drivers, and outboard passengers in 18,705 vehicles across eighteen sites in each of sixteen counties, for a total of 288 sites. The standard error associated with this estimate was 1.20 percent. Observers were unable to determine seat belt use for 466 drivers and passengers, or 2.0 percent of the sample.

- Outboard passengers were belted at a rate of 78.7 percent, slightly higher than the 76.4 percent rate for drivers.

- The seat belt usage rate in rural areas was 76.5 percent and 78.6 percent of urban sites. Rural sites accounted for more than two-thirds of the drivers and passengers in the sample.

- Teton County had the highest rate of seat belt use at 98.3 percent. Other counties with rates above the statewide average include Platte, Carbon, Sublette and Lincoln. Counties with relatively low rates of seat belt use include Big Horn, Campbell, Sweetwater, and Natrona.

- Drivers and Passengers in vehicles registered outside of Wyoming had a much higher rate of seat belt use, at 86.3 percent, than do their counterparts in vehicles registered in Wyoming, with a seat belt usage rate of 72.2 percent. However, less than a third of the occupants are in out-of-state vehicles.

- The rate of seat belt use was highest on primary roads at 80.2 percent belted. The rate on secondary roads was 77.5 percent. The lowest level of seat belt use was associated with drivers and passengers on local roads, rural roads, and city streets, where the estimate was 66.0 percent belted.

- Females were belted at a rate of 82.7 percent, while the comparable rate for males was 73.5 percent, a difference of 9.2 percentage points. Females generally had higher rates of seat belt use for every category of every variable examined in this survey.

- The highest rates of seat belt use were found for drivers and passengers in vans and SUVs at 84.7 percent and 83.7 belted, respectively. Occupants in automobiles were belted at a rate of 78.2 percent, while drivers and passengers in pickup trucks were belted at a rate of 69.2 percent.

- Females had higher rates of seat belt use in every type of vehicle, especially in pickup trucks where 76.6 percent of females were belted compared to a rate of 67.3 percent for males. Males made up more than three-fourths of the pickup truck occupants in this survey.

The narrative continues with a description of the sample frequencies, followed by the presentation of the estimates of seat belt use for the state of Wyoming in 2012.

## Quality Assurance

### Observers

All observers participated in training. The training session was held during May 2012 prior to the survey. The training included both classroom instruction and field observations.

Each observer was tested for an inter-accuracy ratio through participation in a minimum of three observation test sites. Test sites were selected to represent the types of sites and situations observers could expect to encounter during the actual survey. None of the practice test sites were actual sites in the sample of roadway segments. Observers worked in teams of two, observing the same vehicles but recording the observations independently on separate observation forms. Teams were rotated throughout the field training to ensure that each observer was paired at least three times with a different partner. Each observer recorded type of vehicle, seat belt use, and gender data during the tests. The average inter-accuracy ratio for all observers after testing was 91.7 percent.

At the conclusion of the training, observers and quality control monitors were given a post-training quiz to ensure they understood the survey terminology, the data collection protocols, and the reporting requirements. The average score for all observers after testing was 89.71 percent.

### Data Entry

Quality control standards were developed for the data entry. The following steps were taken by the data entry supervisor to ensure quality control:

1. Each site packet was double-checked to ensure that the actual number of observation sheets was the same as that noted by the observer.
2. Each observation sheet was double-checked to ensure the number of observations entered by the data entry operators equaled the actual number of observations.
3. All problems detected in the coding by the data entry operators were noted and brought to the attention of the supervisor prior to the data cleaning. In instances when a code appeared to be inaccurate, the supervisor, with the help of additional staff when necessary, determined the correct code for entry.
4. Each hard copy observation sheet was compared with the electronic data entry record, which mirrored the sheet.

Data entry accuracy was recorded at 99.98 percent. All errors discovered during quality assurance checks were corrected to achieve 100 percent accuracy.

# Introduction and Description of the Sample

During the week of June 4 through June 10, 2012, 18 trained observers were dispatched to 16 counties in Wyoming with the charge to collect observations of seat belt use on drivers and outboard passengers. The observers covered eighteen sites in each county, for a total of 288 different intersections. Each observer followed specific observational directions and protocols in recording seat belt use for occupants of each vehicle that passed before them during their appointed times at each site.

## Observers and Counties

Table 1 lists the observers, the counties each observer covered, and the corresponding observational frequencies.

**Table 1: Observers and Counties, Wyoming 2012**

| Observer | County | Frequency | Percent |
|---|---|---|---|
| D Lucas | Albany | 1,378 | 7.4% |
| A Caldwell | Big Horn | 548 | 2.9% |
| C Wren | Campbell | 1,686 | 9.0% |
| T Pacheco | Carbon | 897 | 4.8% |
| M Wilson | Fremont | 780 | 4.2% |
| S Wolf | Johnson | 1,109 | 5.9% |
| W Sussex (& Wilson) | Laramie | 993 | 5.3% |
| C Hoopes | Lincoln | 1,007 | 5.4% |
| Taylor (& Romero) | Natrona | 1,101 | 5.9% |
| B Smith | Park | 1,245 | 6.7% |
| V Peterson | Platte | 1,567 | 8.4% |
| M Haycock | Sheridan | 1,107 | 5.9% |
| S McCleery | Sublette | 498 | 2.7% |
| S Hawk | Sweetwater | 1,317 | 7.1% |
| J Dobbs | Teton | 2,007 | 10.7% |
| R Egley | Uinta | 1,465 | 7.8% |
| All Counties | Total | 18,705 | 100.1% |
| | Average | 1,169 | 6.3% |

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The observers were able to collect complete seat belt use data on the occupants of 18,705 vehicles across the sixteen counties.[1] The number of vehicle observations collected by each observer ranged from a low of 498 in Sublette County, to a high of 2,007 in Teton County. The average number of observed vehicles was 1,169.

Teton County produced the highest proportion of observed vehicles at 10.7 percent of the total; the fewest number of vehicles for any county was 548 in Big Horn County, which comprised 2.9 percent of the sample. Three counties (Teton, Campbell, and Platte) accounted for more than a quarter (28.1%) of the observations. If the observations for another three counties (Uinta, Albany and Sweetwater) were added in, there were six counties that accounted for more than half (50.4%) of the observations. The counties with the fewest observations were Big Horn, Sublette, Fremont and Carbon; between them, they accounted for 14.6 percent of the observations.

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[1] Please note that two observers joined to make part of the observations in Laramie County (W. Sussex and M. Wilson) and in Natrona County (Taylor and Romero). This procedure was followed to insure the reliability of observations in sites that required observation across two lanes of traffic with an expected high volume of vehicles.

## Drivers and Passengers

Most of the observed vehicles had only drivers, while some also included outboard, front seat passengers. Figure 1 illustrates the frequencies for the drivers and passengers.

**Figure 1: Frequency of observations by vehicle occupant type**
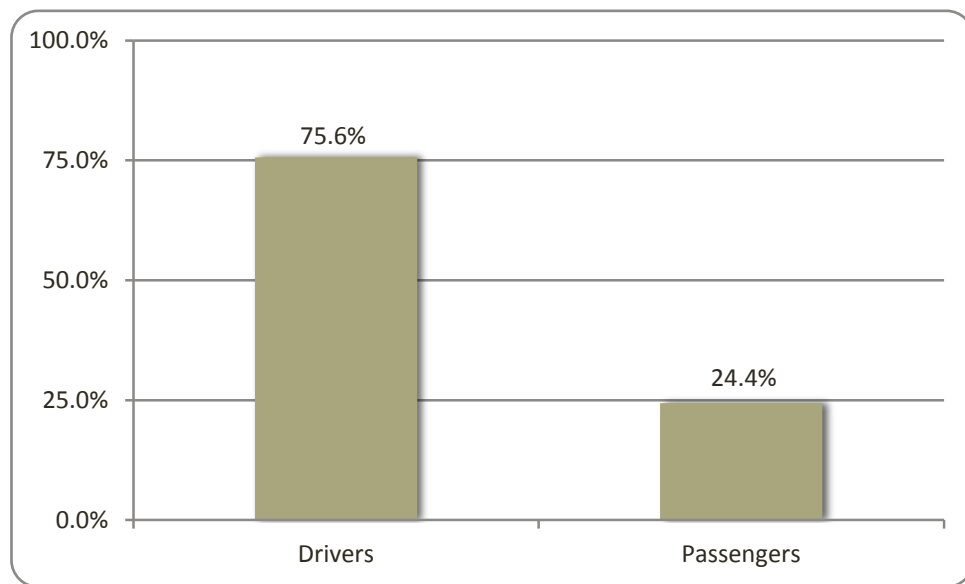


Adding the 6,037 passengers to the 18,705 drivers resulted in a total of 24,742 vehicle occupants. The chart shows that passengers made up about a fourth of the occupants, while drivers are three-fourths of the occupants.

## Population Density: Urban and Rural Sites

Some of the 24,742 drivers and passengers in the 18,705 observed vehicles were in urban areas and some were in rural areas. In Wyoming, sites in rural areas have fewer than 5,000 residents, while urban areas have a population of 5,000 or more. Given that definition, about three in ten vehicles (31.6%) were observed in urban areas and 68.4 percent were observed in rural areas. Figure 2 illustrates the breakdown by population density.

**Figure 2: Frequency of observations by population density**
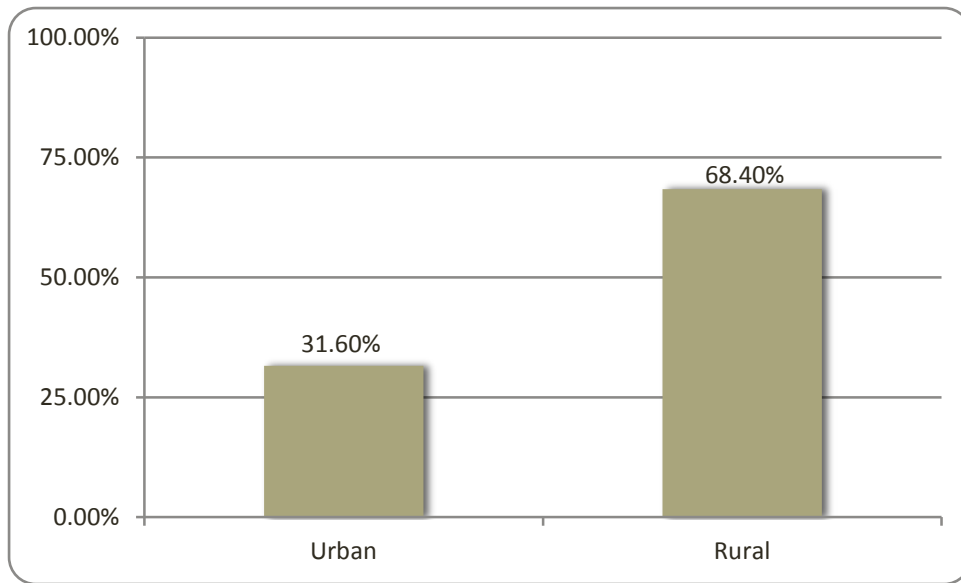
## Type of Roadway

In addition to collecting information on the county, the type of vehicle occupant, and the population density of each site, observers also noted the type of roadway associated with each observation within each site. More than two-thirds of the observed vehicles (68.7%) were on secondary roads. Most of the remaining of the observed vehicles in the sample (23.0%) were traveling on primary roads, while 8.2 percent of the sample consisted of vehicles on local roads. Figure 3 illustrates the aspects of the roadway sample.

**Figure 3: Observations by roadway type**
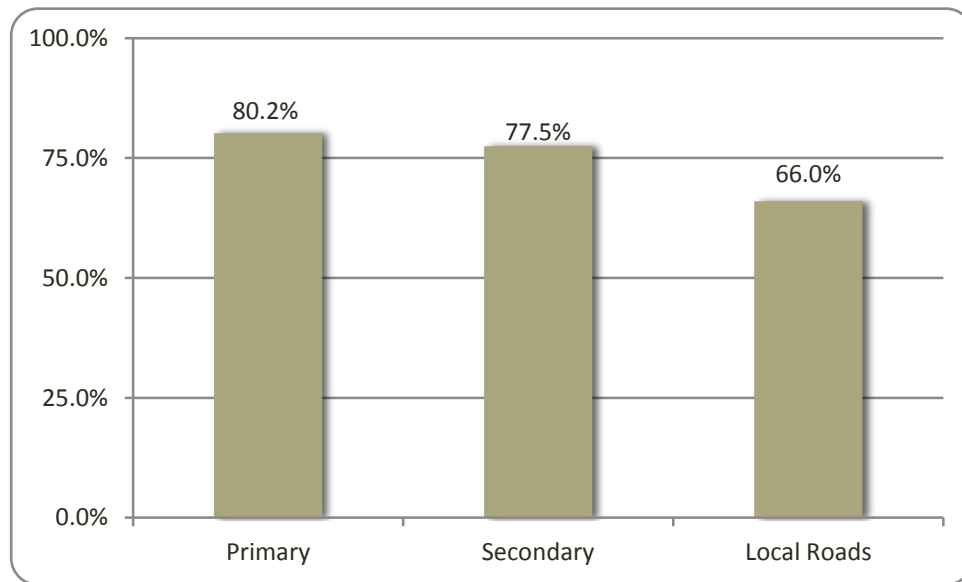
## Vehicle Registration

Observers also attempted to record information on the registration plates of each vehicle. Specifically, observers noted whether the vehicles were licensed in Wyoming or out-of-state. Observers also noted those instances when they could not identify the registration.

Most of the vehicles had Wyoming license plates; 71.8 percent were Wyoming registered vehicles. About a fourth of the vehicles (26.8%) were from out-of-state. Observers were unable to identify the registration status for only 257 of the 18,705 vehicles; observers noted that they were "unsure" about 1.4 percent of the registrations. Figure 4 illustrates the results license plate type.

**Figure 4: Frequency of observations by license plate type**
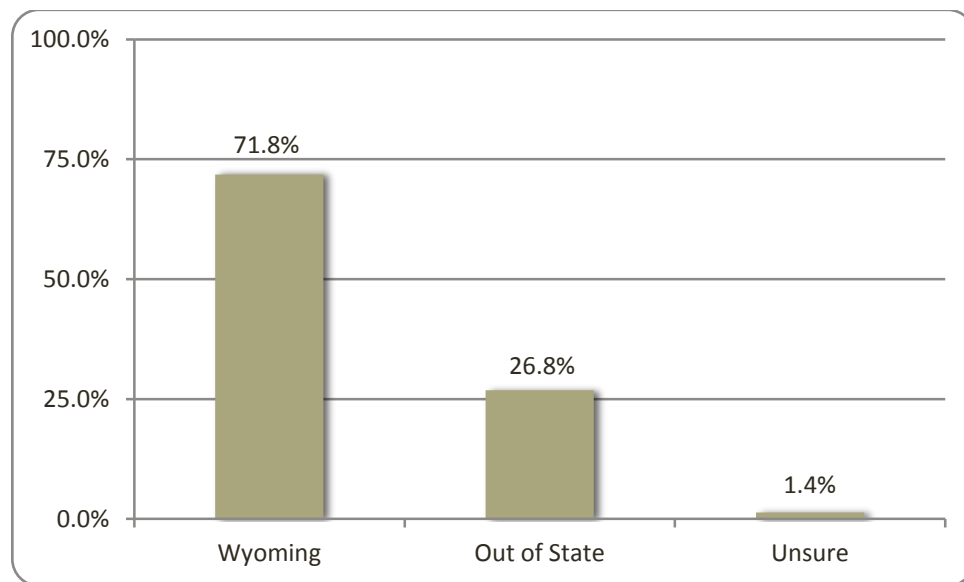
## Vehicle Type

The numbers of each vehicle type recorded by observers was not surprising to anyone familiar with Wyoming: mostly passenger cars and pickup trucks, with a considerable number of sport utility vehicles (SUVs), and relatively few vans. The most frequently occurring vehicle in this sample was the pickup truck at 36.4 percent of the 18,705 vehicles. Next were passenger cars at 32.7 percent. In other words, pickup trucks and automobiles represented nearly seven of every ten vehicles, or 69.1 percent. SUVs accounted for 23.0 percent of the vehicles. Vans made up 7.9 percent of the vehicles. Figure 5 illustrates the composition of vehicle types in the survey, by percent.

**Figure 5: Survey composition, by vehicle type**
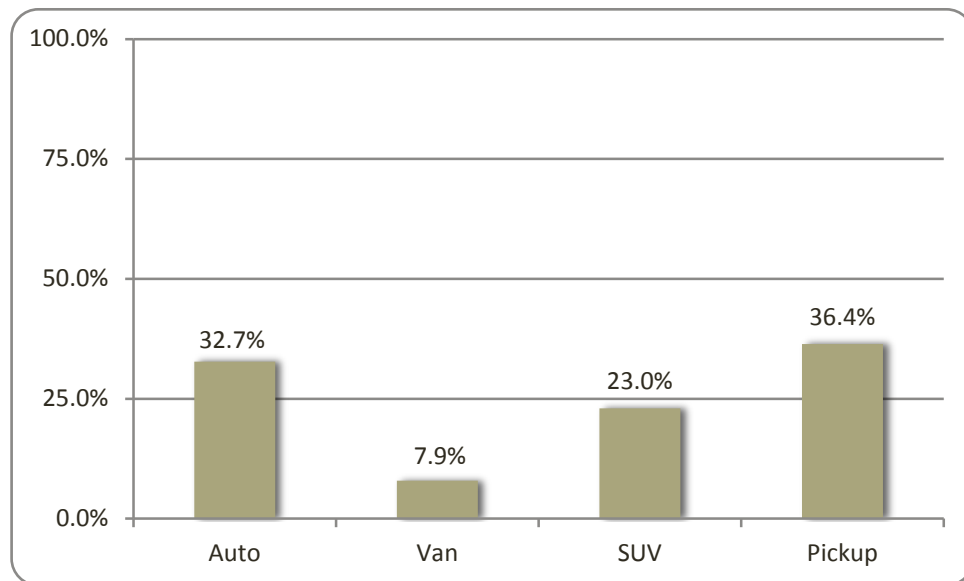
## Observations by Gender and Vehicle Occupant

The observers also recorded the gender of the 24,706 vehicle occupants in the sample. Figure 6 illustrates the gender distribution results.

**Figure 6: Composition of observations by gender**
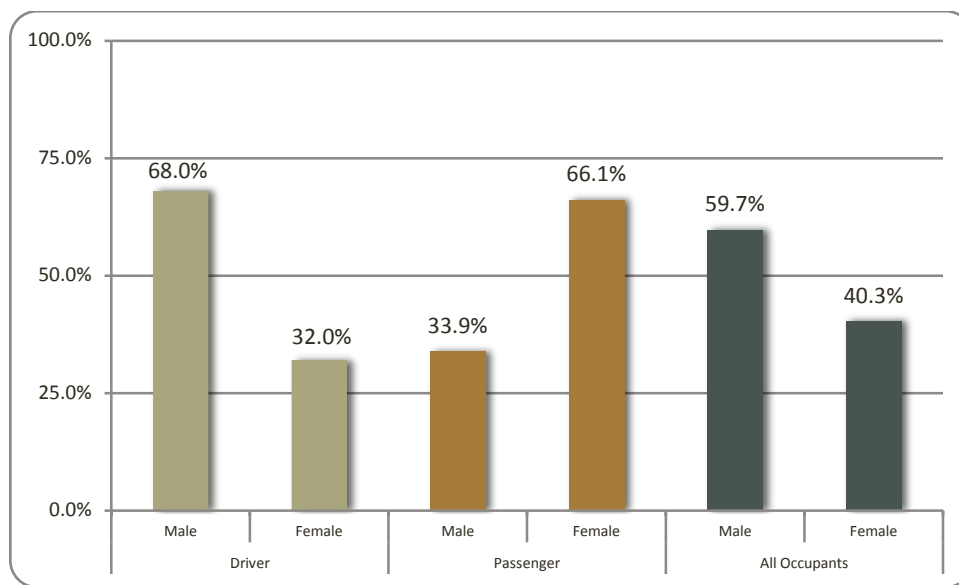


Figure 6 demonstrates that most of the vehicle occupants in the sample (59.9%) were male occupants. Typically, males were also the drivers; in this sample, males accounted for 68.0 percent of the drivers. Females were more typically passengers in the vehicles. Less than a third of the drivers (32.0%), were female, but nearly two-thirds (66.1%) of the passengers were female. Later in the analysis, there will be discussion about the linkage between gender, vehicle type, and seat belt use.

Below is a bulleted summary of the main characteristics of the sample of observations for the Wyoming seat belt survey, 2012:

- Seat belt use was observed for 18,705 drivers and 6,037 outboard, front seat passengers. Seat belt use was recorded for a total of 24,742 vehicle occupants.

- Six counties (Teton, Campbell, Platte, Uinta, Albany, and Sweetwater) accounted for half of the 18,705 vehicles carrying drivers and passengers. The counties with the fewest observed vehicles (Big Horn, Sublette, Fremont and Carbon) accounted for only 14.6 percent of the observations.

- More than two-thirds of the vehicles were observed within sites defined as rural, and one-third of the vehicles were in urban areas.

- More than two-thirds of the vehicles were observed on secondary roads. For the remaining third of the vehicles, about a fourth were on primary roads and fewer than one-in-ten were on local roads.

- More than seven of every ten observed vehicles were registered in Wyoming. The remaining vehicles had out-of-state license plates.

- The most common types of vehicles in the sample were, pickup trucks and automobiles, which accounted for about seven of every ten vehicles. SUVs accounted for nearly a fourth of the vehicles, while less than one-in-ten vehicles was a van.

- Most of the vehicle occupants were males and males were most likely to be drivers. About a third of the drivers, were females and two-thirds of the passengers in the sample were female.

# Estimates of Seat Belt Use

The best estimate of seat belt use for 2012 in Wyoming was 77.0 percent. This estimate was based on observations of 24,738 vehicle occupants in 18,703 vehicles. The standard error for the belted vehicle occupants was 1.20 percent. Based on the computation of at a 95% confidence interval, it can be said that for an infinite number of samples, the percent belted would fall between a low of 71.6 percent belted and a high of 81.6 percent belted.

To arrive at these estimates, the recorded and coded data was prepared for analysis with the use of *IBM SPSS Statistics 20*[2] (SPSS). The calculations made use of the "Complex Samples" routine within SPSS. This part of the overall program weights the data so that the estimates reflect the sampling methodology for the study. In this case, the sampling methodology included a selection of road types within each county, and this was followed by a selection of sites within each road type. The data set included the probabilities of selection for each road type and each site. These probabilities were incorporated into a "complex samples plan" to be used for the estimates of seat belt use, which are presented in this report.

The following parts of the report include the details of collected data. For example, the next section presents more information on seat belt use by the different vehicle occupants, and includes the estimates of those who were wearing seat belts, and the proportion of those vehicle occupants whose seat belt use could not be determined by the observers. Following that, seat belt use estimates are presented for urban and rural areas, for each of the counties in the sample, by the type of roadway, by vehicle type, by license status, by the gender of the vehicle occupants, and by the various combinations of gender and vehicle types.

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[2] A dictionary of the data file is included in Appendix H.

## Drivers and Passengers

Figure 7 illustrates the estimates of seat belt use for drivers, passengers, and all vehicle occupants.

**Figure 7: Percent belted by vehicle occupant type**
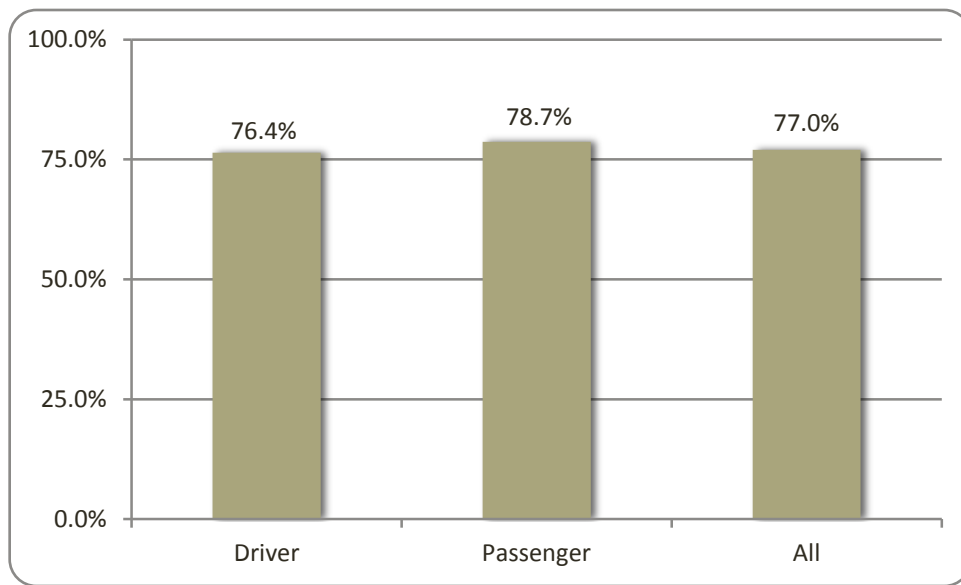


Passengers had a slightly higher rate of seat belt use at 78.7 percent than drivers at 76.4 percent.

The values of the standard errors were computed for each category of seat belt use. For all vehicle occupants, the standard error for those belted was equal to 1.20 percent; for the "not belted", 1.40 percent, and for the "unsure", 0.30 percent.

**Table 2: Standard Errors by Seat Belt Use and Vehicle Occupant, Wyoming, 2012**

| | | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|---|
| | Standard Error Computation -- Belted | | | | |
| | | | Estimate | Unwtd Ct | Est*UnWtCt |
| | | Driver | 1.10% | 13821 | 152 |
| | | Passenger | 1.50% | 4575 | 69 |
| | | Both | 1.20% | 18396 | 221 |
| | Standard Error Computation -- Not Belted | | | | |
| | | | Estimate | Unwtd Ct | Est*UnWtCt |
| | | Driver | 1.20% | 4599 | 55 |
| | | Passenger | 2.00% | 1277 | 26 |
| | | Both | 1.40% | 5876 | 81 |
| | Standard Error Computation -- Unsure | | | | |
| | | | Estimate | Unwtd Ct | Est*UnWtCt |
| | | Driver | 0.10% | 283 | 0 |
| | | Passenger | 0.50% | 183 | 1 |
| | | Both | 0.30% | 466 | 1 |

Before proceeding, the following notes on the data are in order.

- Often, the total numbers of vehicle occupants may differ from the number reported in the presentation of the frequencies. This occurs because of missing data. For example, the above percentages were based on 18,703 drivers and 6,035 passengers, for 24,738 total observations for which there is complete seat belt usage information. This number is less than was reported earlier in the frequencies (24,742 observations) because the data was not complete for four of the vehicle occupants. This is a common occurrence: for any given variable, a few cases may not be complete and are coded as missing data.

- The rest of this report focuses on the vehicle occupants and is not broken down by drivers and passengers. If an instance is encountered where the differences between drivers and passengers are significant for any particular variable, we will point that out. The appendix to

the report contains detailed information on drivers and passengers. The tables in the appendix also include the unweighted counts associated with the different categories of the variables.

- The remainder of the report focuses on seat belt use within a variety of situations. We begin with a comparison of seat belt rates in urban and rural areas of Wyoming.

## Population Density

In Wyoming, urban sites are designated as those within areas with 5,000 residents or more, while rural sites have fewer residents. Wyoming is a rural state, so it is not surprising that more than two-thirds of the observations, or 68.8 percent, came from rural sites. Seat belt use was slightly lower in the rural sites, although the differences were not great in this survey. Figure 8 depicts the distribution of occupants belted by population density.

**Figure 8: Vehicle occupants belted by population density**
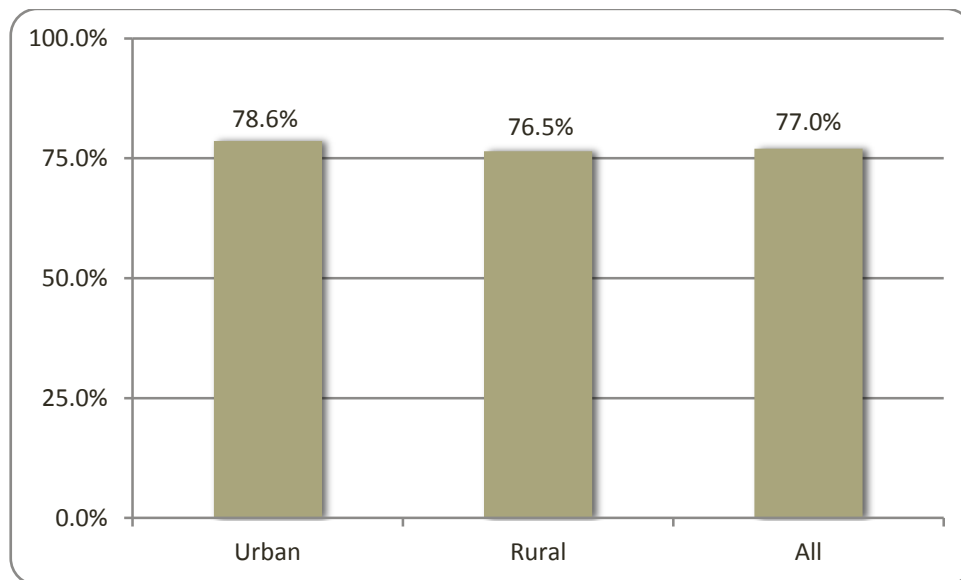


The seat belt usage rate was 76.5 percent in rural areas and 78.6 percent in urban sites, a difference of only 2.1 percentage points. The "unsure" observations amounted to 2.4 percent in urban sites and 1.9 percent in rural sites. This result on seat belt use by population density was based on 24,738 observations.

County

Figure 9 depicts the seat belt use rates for the sixteen counties in the sample.

**Figure 9: Percent belted by county**
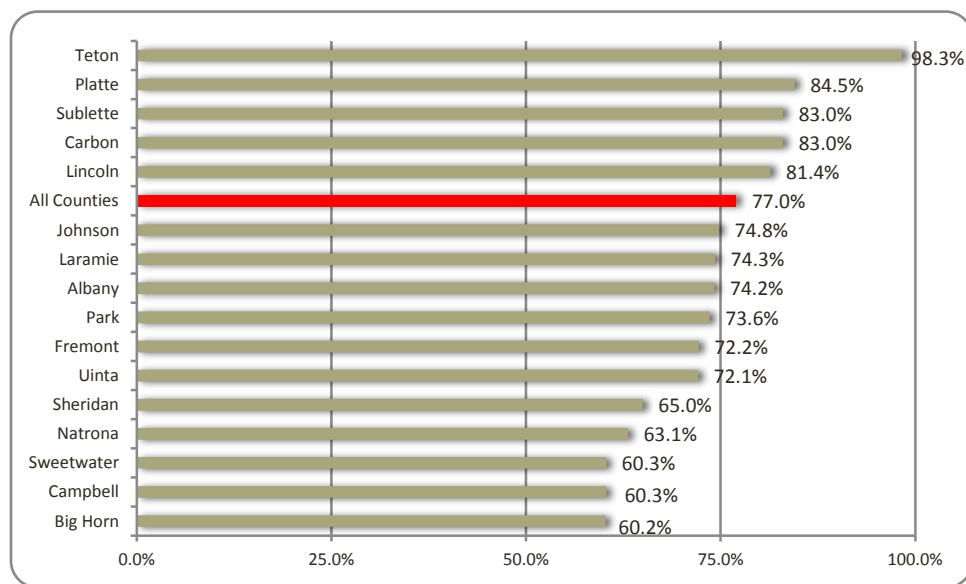


The overall estimate of seat belt use for Wyoming was 77.0 percent for this study. Some counties had lower rates, and some were higher. For example, the highest rate of seat belt use was in Teton County at 98.3 percent belted, 21.3 percentage points higher than the state average.

Other counties with seat belt usage rates above the norm were Platte (84.5%), Carbon (83.0%), Sublette (83.0%), and Lincoln (81.4%). Counties with relatively low rates of seat belt use include Big Horn (60.2%), Campbell (60.3%), Sweetwater (60.3%), and Natrona (63.1%). The low rates in Campbell, Sweetwater, and Natrona are particularly significant because those three counties accounted for about one in five observations in this survey (20.7%). The low rates in these counties were somewhat offset by the higher rates in Teton and Platte Counties, which together accounted for 19.3 percent of the observations. The appendices to this report contain county specific information on seat belt use.

## Vehicle Registration

Observers recorded the vehicle registration status of each vehicle in the sample. Specifically, they determined if the vehicles' plates were from Wyoming or out-of-state. The observers could not determine the license status for 1.4 percent of the sample. Figure 10 illustrates the results for seat belt use by license status.

**Figure 10: Percent belted by type of license plate**
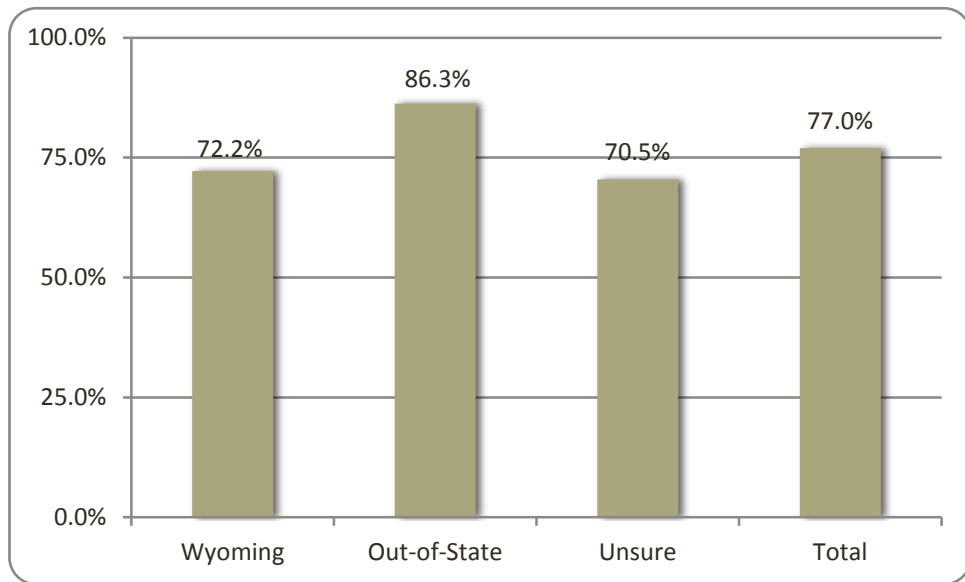


Most of the vehicle occupants in this survey were in vehicles registered in Wyoming (68.7%); 29.9 percent were out-of-state vehicles, and observers did not determine the license status for 1.4 percent, or 344 of the 24,738 vehicle occupants.

As indicated by the chart, vehicle occupants in out-of-state vehicles had a much higher rate of seat belt use (86.3%) than those in Wyoming registered vehicles (72.2%), a difference of 14.1 percentage points. Although occupants in out-of-state vehicles were far fewer in number in this survey, they did raise the overall percent belted by about five points to 77.0 percent overall.

## Roadway

There are three types of roadways in this survey. Primary roads are major roadways, often, but not always, four-lane roads. Secondary roads are typically two-lane roads that are part of the state or federal highway system. The third type is a "catch-all" category that includes all types of local roads. For this survey, 69.1 percent of the observations of occupant seat belt use occurred on secondary roads, 23.5 percent on primary roads, and 7.4 percent on the third category of local roads.

Figure 11 shows the rates of seat belt use by roadway type.

**Figure 11: Percent belted by roadway type**
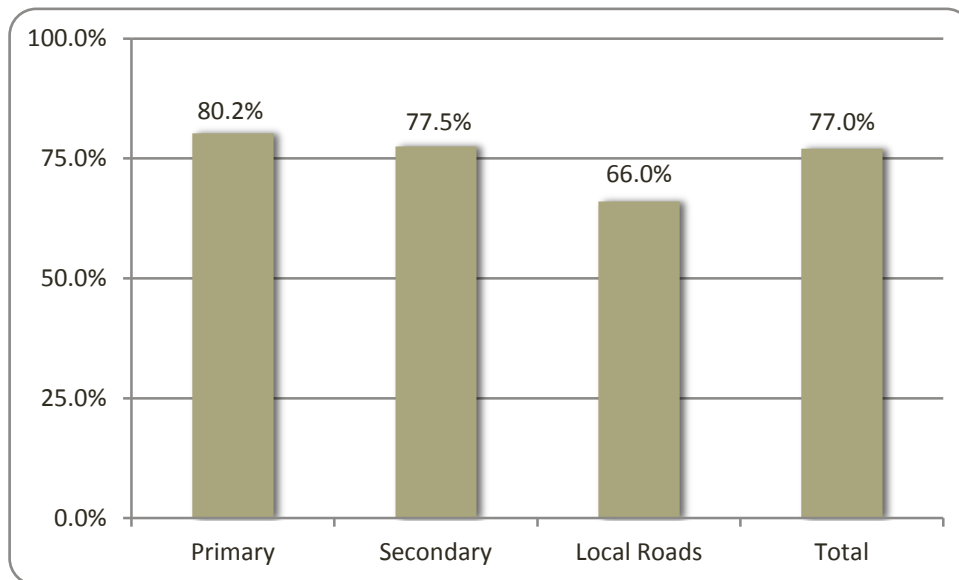


More than eight-of-ten occupants (80.2%) observed on primary roads were wearing seat belts; the comparable rate on secondary roads was 77.5 percent. The data reveals that occupants on local roads were least likely to be belted at 66.0 percent. This latter rate is 14.2 percentage points lower than the rate for those traveling on primary roads.

The appendices of this report contain additional information on seat belt usage by roadway type.

## Gender

Observers also attempted to ascertain the gender of vehicle occupants. They were able to report on gender for 24,702 vehicle occupants out of the 24,738 total observations with relatively complete data, or 99.9 percent of the observations.

**Figure 12: Percent belted by gender**
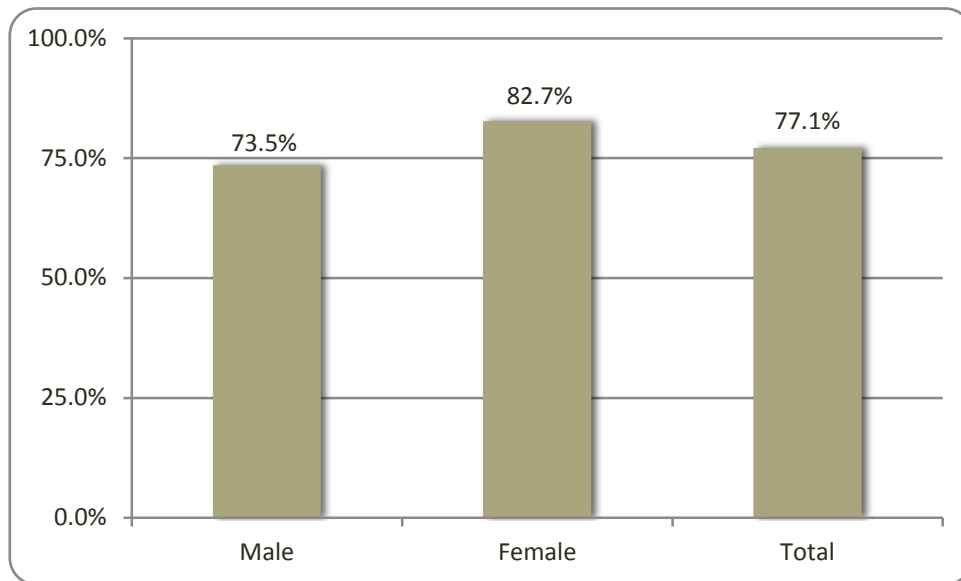


The Wyoming 2012 survey data revealed the following:

- Males comprised up 59.7 percent of the sample, while females were 40.3 percent of the sample.
- 68.0 percent of the drivers were male, while 66.1 percent of the passengers were female.

The overall usage rate for females was 82.7 percent and 73.5 percent for males, a difference of 9.2 percentage points. Figure 12 illustrates the results of percent belt by gender.

This is one instance in which gender and vehicle occupant type intersects. For example, one might hypothesize that the male seat belt usage rate was low because relatively few males were passengers and the passenger rate was typically higher. However, it was found that females had higher rates of seat belt use regardless of where they were seated in the vehicle. The comparable seat belt usage rates for drivers were 80.7 percent for females and 74.6 percent for males; the rates for passengers were 65.6 percent belted for males and 85.5 percent for females. For every combination of variables, females had a higher rate of seat belt use. Another example is found later in this report when the seat belt rates for the different combinations of gender and vehicle type are examined.

## Vehicle Type

Figure 13 shows that occupants of vans (84.7%) and SUVs (83.7%) had the highest rates of seat belt use. However, these two vehicle types carried less than a third (31.8%) of the vehicle occupants observed in this study. The remaining two-thirds were in automobiles and pickup trucks, which had lower usage rates. Pickup trucks carried the most occupants in this survey: pickups were associated with 34.9 percent of the occupants. Pickup drivers and passengers were belted at a rate of 69.2 percent, which is 7.8 percentage points lower than the overall average of 77.0 percent belted for occupants in all vehicle types.

**Figure 13: Percent belted by vehicle type**
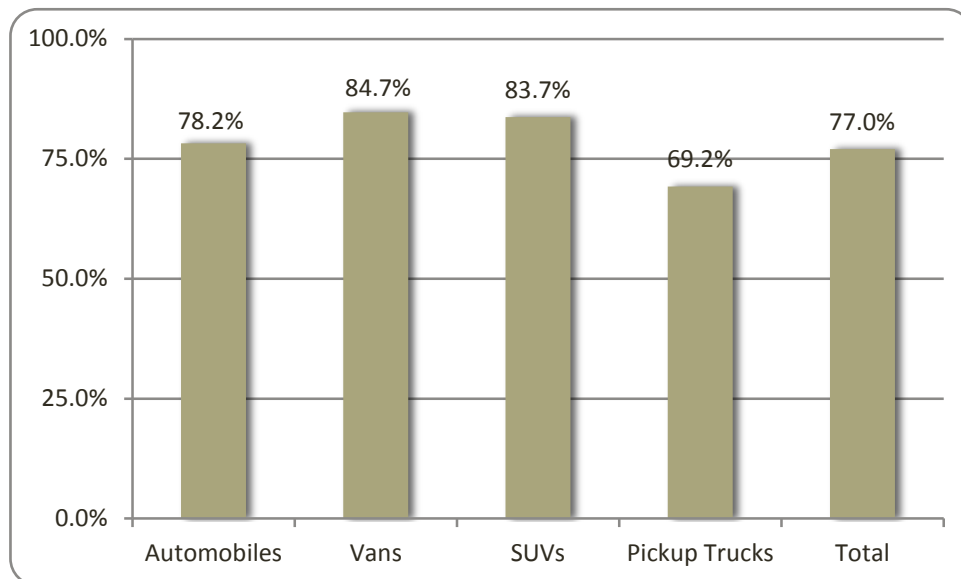
Traditionally, automobiles are known as the prototypically American vehicle, but in this study only a third (33.3 percent) of the vehicle occupants were in automobiles. As is apparent from the chart, these automobile occupants were belted at a rate of 78.2 percent, which was slightly above the overall average of 77.0 percent.

## Gender and Vehicle Type

The estimates of seat belt use for all occupants by gender and vehicle type are illustrated in Figure 14.

**Figure 14: Percent belted by gender and vehicle type**
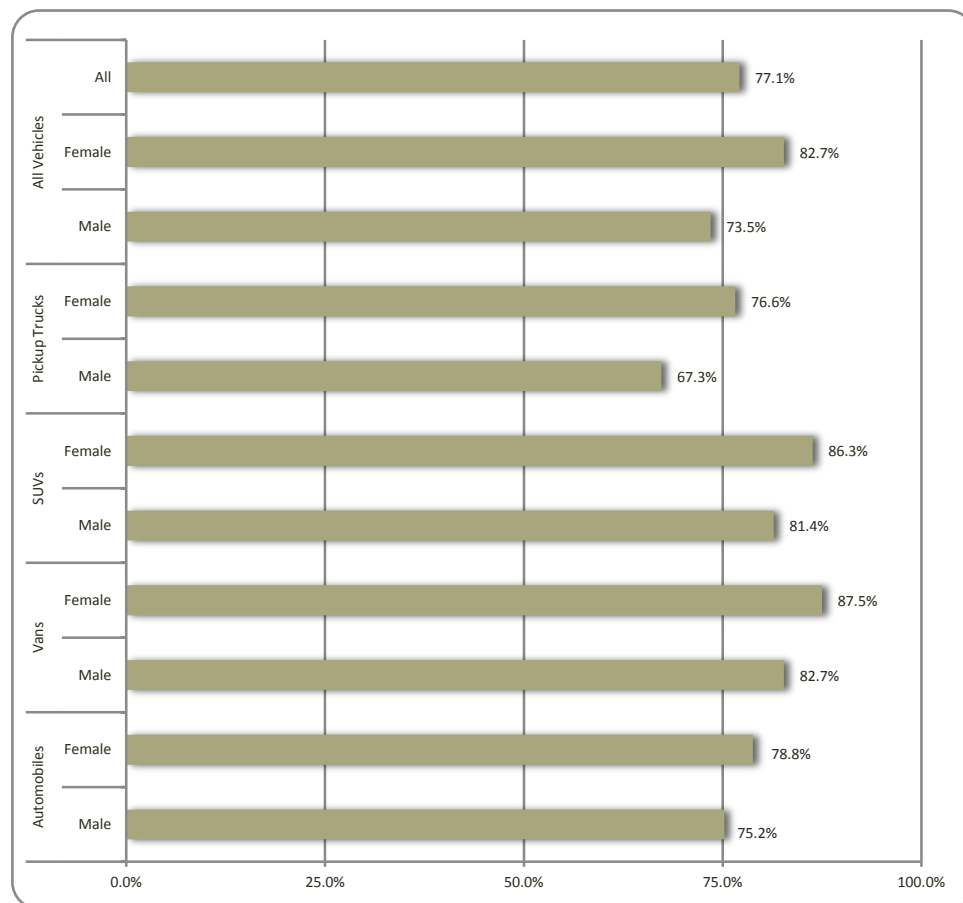
The chart reveals that females had a higher seat belt usage rate in every vehicle type. Earlier, an overall rate of 82.7 percent belted for females and 73.5 percent for males was presented, a difference of plus 9.2 points higher for females when compared to the male rates. However, the difference (again, as can be seen from the chart) was smaller for automobiles (+3.6%), vans (+4.8%) and SUVs (+4.9%). The greatest difference exists in pickup trucks (+9.3%).

Pickup trucks are stereotypically male vehicles, while vans may be stereotyped as "family" vehicles; automobiles and SUVs may be less gender-typed in terms of usage. There is mixed support for these stereotypes in the current data. Certainly, the pickup seems to be a male vehicle in Wyoming: 78.0 percent of the vehicle occupants in pickups were identified as male. However, vans also had more male occupants, with 55.6 percent male. The other two types of vehicles were not particularly "gendered" in the data. Females comprised 50.4 percent of automobile occupants and 51.5 percent of SUV occupants.

Females had higher rates of seat belt use in every type of vehicle, but the greatest difference occurred in pickup trucks. However, this is not because the female rate was especially high in pickup trucks: at 76.6 percent belted, the female rate in pickups was actually below the overall seat belt use rate of 77.0 percent. The gender difference in pickup trucks was largely attributable to the relatively low rate for males at 67.3 percent belted. This is significant for the overall seat belt usage rate when one considers that pickup trucks carried 34.9 percent of the vehicle occupants in this study, and 78.0 percent of pickup truck occupants were males.

## Conclusion

The appendices of this report contain detailed tables related to the data collected for the Wyoming statewide seat belt survey analysis. The tables are in Appendix C of the report. The reader can find complete tables summarizing the results, especially in terms of detailed differences between drivers and passengers in seat belt use, as well as the actual percentages for those vehicle occupants where observers could not determine seat belt use.

Survey of Seat Belt Use

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# Appendix A: State seat belt use reporting form

# State Seat Belt Use Survey Reporting Form

**PART A**

State: <u>Wyoming</u>                                                 Calendar Year of Survey: <u>2012</u>

Statewide Seat Belt use Rate: <u>    77.0%</u>

I hereby certify that: <u>Matt Carlson</u>   has been designated by the Governor 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 was approved 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 has remained unchanged since the survey was approved by NHTSA.

<u>Dr. James G. Leibert</u>[3], a qualified survey statistician, has reviewed the seat belt use rate reported above and information reported in Part B and has determined that they meet the Uniform Criteria for State Observational Surveys of Seat Belt Use, 23 CFR Part 1340.

_____
Signature

_____
Date

_____
Printed name of signing official

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[3] 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 abbreviate resume follows.

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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** –

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

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

**Associate Professor** (1999-2001) / **International Programs Coordinator** (2000 – 2001)

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Leadership

Team Player

Problem Solving

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# 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.

# Seat Belt Use Survey Design for Wyoming

Sampling, Data Collection and Estimation Plan

Revised 04-03-2012

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# Seat Belt Use Survey Design for Wyoming

*Sampling, Data Collection and Estimation Plan*

January 3, 2012
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Submitted to:

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

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## 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).[1]

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 per cent 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).[2] 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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[1] The final rule was published in Federal Register Vol. 76 No. 63, April 1, 2011, Rules and Regulations, pp. 18042 – 18059.
[2] The classification scheme uses the MAF/TIGER feature Class Code, or MTFCC in the database.

- 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.[3] 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.[4] 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[5]. 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).

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[3] Dr. Jamil Ibriq's résumé is included in Appendix A.
[4] The 16 counties account for 87.7 percent of traffic-related fatalities in the FARS cumulative data from 2005-2009.
[5] 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

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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 | | Primary | Secondary | Local | Total |
|---|---|---|---|---|---|
| | | | MTFCC Strata | | |
| 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 $V_i\text{-}1$ 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.[6]

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,[7] on the weekdays and weekends during the collection period during the first full week of

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[6] 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.[8] 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.[9]

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[7] Front seat occupants who are child passengers traveling in child seats with harness straps will not be included in the observations.

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

[9] 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.[10] 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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[10] 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.

<u>Imputation</u>

No imputation will be done on missing data.

<u>Variance Estimation</u>

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:

$$w_{chijklm} = \frac{1}{\pi_{chijklm}} \tag{1}$$

$\pi_{chijklm}$ 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

$$\pi_{chi} = \pi_c \cdot \pi_{hi|c}$$

be the road segment selection probability, and

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

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

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

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:

$$p_{chi} = \frac{\sum_{\forall\ chijklmn}\ w_{chijklm}\ Length_{chi}\ y_{chijklmn}}{\sum_{\forall\ chijklmn}\ w_{chijklm}\ Length_{chi}} \tag{2}$$

where

$$y_{gchijklmn} = \begin{cases} 1 & if\ belt\ is\ used \\ 0 & otherwise \end{cases} \tag{3}$$

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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, $w_{jklmn|chi}$ 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:

$$p_{chi} = \frac{1}{n_{chi}} \sum_{\forall jklmn \, \in \, chi} y_{chijklmn} \tag{4}$$

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:

$$p_{ch} = \frac{\sum_{\forall \, i \, in \, h} \; w_{chi} \; Length_{chi} \, p_{chi}}{\sum_{\forall \, i \, in \, h} \; w_{chi} \; Length_{chi}} \tag{5}$$

where

$$w_{chi} = \frac{1}{\pi_{chi}} \tag{6}$$

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 $h$.

$$p_{ch} = \frac{1}{n_h} \sum_{i=1}^{n_h} p_{chi} \tag{7}$$

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

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

$$p_c = \frac{\sum_{\forall \, h \, in \, c} \; w_{ch} \cdot Length_{ch} \cdot p_{ch}}{\sum_{\forall \, h \, in \, c} \; w_{chi} \cdot Length_{ch}} \tag{8}$$

where

$$w_{ch} = \frac{1}{\pi_{ch}} \tag{9}$$

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

$$p_c = \frac{1}{n_c} \sum_{i=1}^{n_c} p_{ch} \tag{10}$$

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

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

$$p = \frac{\sum_{\forall c} w_c \cdot Length_c \cdot p_c}{\sum_{\forall c} w_c \cdot Length_c} \tag{11}$$

where

$$w_c = \frac{1}{\pi_c} \tag{12}$$

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

$$p = \frac{1}{n} \sum_{i=1}^{n} p_c \tag{13}$$

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

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**Appendix A**

**Resumés**

# Jamil Ibriq

*Summary*

Dr. Jamil Ibriq is an assistant professor at Dickinson State University with extensive experience in simulation modeling that involves sampling and optimization techniques. Dr. Ibriq has expertise in area of data processing and survey research methodology. Dr. Ibriq is a proficient user of many programming languages and software packages, including SPSS.

*Education*

Ph.D., Computer Engineering, Florida Atlantic University, 2007
M.S., Computer Science, 2000
B.A. Biochemistry, University of Texas at Austin, 1979

*Professional Associations*

IEEE
ACM

*Computer Skills*

- Operation Systems: Windows, UNIX/LINUX, and UNIX shell scripts.
- Programming Languages: C, C++, Java, Visual Basic, SQL, Oracle PL/SQL, Motorola 68000 Assembly Language, PHP, Python, HTML, and Perl
- Software: Windows database, spreadsheet, and presentation software, TeX and LaTeX, SPSS, MatLab.

*Publications*

- J. Ibriq, I. Mahgoub, and M. Ilyas. Handbook of Information & Communication Security chapter Secure Routing in Wireless Sensor Networks, pages 549-574. Springer, Germany, December 2010.
- J. Ibriq and I. Mahgoub, "Hierarchical Key Management Scheme for Wireless Sensor Networks," in Proceedings of the 21st IEEE International Conference on Advanced Information Networking and Applications (AINA '07) Niagara Falls, Canada, May 2007, pages 210-219.
- J. Ibriq, I. Mahgoub, M. Ilyas and M. Cardei, Encyclopedia of Wireless and Mobile Communications chapter: Key Management Schemes in Wireless Sensor Networks, CRC Press, Boca Raton, FL, December 2007, pages 1509-1522.
- J. Ibriq and I. Mahgoub,"A hierarchical key management scheme for wireless sensor networks," Technical report, Florida Atlantic University, Boca Raton, FL, April 2006.
- J. Ibriq and I. Mahgoub, "A secure hierarchical routing protocol for wireless sensor networks," in Proceedings of the 10th IEEE International Conference on Communication Systems (ICCS '06 ),Singapore, October 2006, pages 1-6.
- J. Ibriq and I. Mahgoub,"Cluster-based Routing in Wireless Sensor Networks: Issues and Challenges," in Proceedings of the 2004 International Symposium on Performance Evaluation of Computer and Telecommunication Systems San Jose, CA, July 2004, pages 759 –766.

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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 | S1100 | I-80 | 168749730 | US Hwy 30 | Y | N | -105.378496 | 41.145686 | 0.831622 | 0.01342282 |
| 56 | 1 | S1100 | I-80 | 604512124 | | N | N | -105.976683 | 41.455622 | 0.185331 | 0.01342282 |
| 56 | 1 | S1200 | US Hwy 30 | 604512235 | US Hwy 30 | N | N | -105.613789 | 41.436288 | 0.487287 | 0.01612903 |
| 56 | 1 | S1200 | S 3rd St | 168748704 | US Hwy 287 | N | N | -105.591913 | 41.28322 | 0.082576 | 0.01612903 |
| 56 | 1 | S1200 | State Hwy 130 | 168722835 | | N | N | -106.287656 | 41.350363 | 0.427204 | 0.01612903 |
| 56 | 1 | S1200 | S 3rd St | 604506806 | US Hwy 287 | N | N | -105.594072 | 41.294338 | 0.176844 | 0.01612903 |
| 56 | 1 | S1200 | Snowy Range Rd | 168750353 | State Hwy 130 | N | N | -106.138426 | 41.297205 | 0.029432 | 0.01612903 |
| 56 | 1 | S1200 | N 3rd St | 168757040 | N 3rd St | N | N | -105.591733 | 41.328609 | 0.047988 | 0.01612903 |
| 56 | 1 | S1200 | State Hwy 13 | 168722017 | | N | N | -106.005865 | 41.719918 | 0.045972 | 0.01612903 |
| 56 | 1 | S1200 | N 3rd St | 604510122 | N 3rd St | N | N | -105.589465 | 41.349592 | 0.023102 | 0.01612903 |
| 56 | 1 | S1200 | Snowy Range Rd | 168738815 | State Hwy 130 | N | N | -105.695098 | 41.328608 | 0.311022 | 0.01612903 |
| 56 | 1 | S1200 | Happy Jack Rd | 168744760 | State Hwy 210 | N | N | -105.309387 | 41.191091 | 0.653912 | 0.01612903 |
| 56 | 1 | S1200 | Bus I-80 | 168756901 | US Hwy 30 | N | N | -105.568899 | 41.309599 | 0.005935 | 0.01612903 |
| 56 | 1 | S1200 | State Hwy 10 | 168745008 | | N | N | -105.994902 | 41.032165 | 0.213298 | 0.01612903 |
| 56 | 1 | S1200 | US Hwy 30 | 168737539 | US Hwy 30 | N | N | -105.618617 | 41.445781 | 0.55288 | 0.01612903 |
| 56 | 1 | S1200 | State Hwy 11 | 168755506 | | N | N | -106.090934 | 41.193713 | 0.3791 | 0.01612903 |
| 56 | 1 | S1200 | State Hwy 210 | 604505747 | | N | N | -105.438008 | 41.239964 | 0.011093 | 0.01612903 |
| 56 | 1 | S1200 | N 4th St | 168755958 | Co Rd 67 | N | N | -105.975505 | 41.75157 | 0.062117 | 0.01612903 |
| 56 | 3 | S1200 | US Hwy 14 E | 605633431 | | N | N | -107.749401 | 44.549772 | 0.01933 | 0.01522843 |
| 56 | 3 | S1200 | US Hwy 14A E | 180494288 | | NA | NA | -108.222314 | 44.854737 | 0.237779 | 0.01522843 |
| 56 | 3 | S1200 | US Hwy 14A E | 180493968 | | NA | NA | -108.320407 | 44.840598 | 0.062603 | 0.01522843 |
| 56 | 3 | S1200 | US Hwy 14A E | 605624056 | | NA | NA | -108.354114 | 44.840581 | 0.053415 | 0.01522843 |
| 56 | 3 | S1200 | State Hwy 32 | 180493545 | | N | N | -108.415772 | 44.800116 | 0.006963 | 0.01522843 |
| 56 | 3 | S1200 | State Hwy 32 | 605621594 | | N | N | -108.587279 | 44.732075 | 0.173849 | 0.01522843 |
| 56 | 3 | S1200 | US Hwy 14 | 180484672 | | N | N | -108.015517 | 44.49378 | 0.057181 | 0.01522843 |
| 56 | 3 | S1200 | State Hwy 30 | 605616914 | | N | N | -108.339589 | 44.417795 | 0.321328 | 0.01522843 |
| 56 | 3 | S1200 | 3rd St E | 180505210 | US Hwy 310 | N | N | -108.46286 | 44.87988 | 0.015607 | 0.01522843 |
| 56 | 3 | S1200 | US Hwy 14 Alt | 626936823 | | Y | N | -108.016292 | 44.79296 | 0.353805 | 0.01522843 |
| 56 | 3 | S1200 | US Hwy 16 | 180500795 | | N | N | -107.224785 | 44.177728 | 0.893127 | 0.01522843 |
| 56 | 3 | S1200 | US Hwy 14 Alternate Rte | 180501932 | | N | N | -108.376118 | 44.839933 | 0.099877 | 0.01522843 |
| 56 | 3 | S1200 | US Hwy 310 | 180490602 | | N | N | -108.584372 | 44.89102 | 0.036785 | 0.01522843 |
| 56 | 3 | S1200 | State Hwy 32 | 180506937 | | N | N | -108.49826 | 44.776846 | 0.166397 | 0.01522843 |
| 56 | 3 | S1200 | State Hwy 433 | 180507017 | | N | N | -107.938854 | 44.197309 | 0.474787 | 0.01522843 |
| 56 | 3 | S1200 | Marshall St | 180508412 | State Hwy 31 | N | N | -107.962173 | 44.274582 | 0.04248 | 0.01522843 |
| 56 | 3 | S1200 | State Hwy 433 | 180499656 | | N | N | -107.979944 | 44.249642 | 0.248082 | 0.01522843 |
| 56 | 3 | S1200 | C St | 180485070 | State Hwy 36 | N | N | -108.041229 | 44.381112 | 0.071452 | 0.01522843 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 56 | 5 S1100 | I-90 | 607415957 | I-90 | NA | NA | -105.248589 | 44.294692 | 0.2338 | 0.01498127 |
| 56 | 5 S1100 | I-90 | 607413318 | I-90 | NA | NA | -105.383825 | 44.295056 | 0.565923 | 0.01498127 |
| 56 | 5 S1100 | I-90 | 146326960 | US Hwy 14 | N | N | -105.352327 | 44.289556 | 0.032443 | 0.01498127 |
| 56 | 5 S1100 | I-90 | 146347844 | US Hwy 14 | N | N | -105.378563 | 44.294171 | 0.039906 | 0.01498127 |
| 56 | 5 S1200 | State Hwy 59 | 146348156 | | N | N | -105.526384 | 44.352279 | 0.035885 | 0.01344861 |
| 56 | 5 S1200 | E 2nd St | 146325159 | E 2nd St | N | N | -105.489034 | 44.292555 | 0.006099 | 0.01344861 |
| 56 | 5 S1200 | US Hwy 14 | 146349851 | State Hwy 59 | N | N | -105.529311 | 44.296796 | 0.051126 | 0.01344861 |
| 56 | 5 S1200 | State Hwy 50 | 146329404 | | N | N | -105.62461 | 44.181178 | 0.128849 | 0.01344861 |
| 56 | 5 S1200 | State Hwy 50 | 146334309 | | N | N | -105.724815 | 43.993419 | 0.268938 | 0.01344861 |
| 56 | 5 S1200 | State Hwy 50 | 146353809 | | N | N | -105.719015 | 44.07693 | 0.152303 | 0.01344861 |
| 56 | 5 S1200 | State Hwy 59 | 607396191 | | N | N | -105.464887 | 44.022166 | 0.220383 | 0.01344861 |
| 56 | 5 S1200 | State Hwy 50 | 146333806 | | N | N | -105.750504 | 43.925684 | 0.026796 | 0.01344861 |
| 56 | 5 S1200 | US Hwy 14 | 146321054 | US Hwy 16 | N | N | -105.538015 | 44.391359 | 0.066024 | 0.01344861 |
| 56 | 5 S1200 | State Hwy 50 | 146353348 | | N | N | -105.711349 | 44.114846 | 0.837201 | 0.01344861 |
| 56 | 5 S1200 | State Hwy 51 | 607406131 | | N | N | -105.283045 | 44.288769 | 0.020793 | 0.01344861 |
| 56 | 5 S1200 | US Hwy 14 | 146346688 | State Hwy 59 | N | N | -105.530279 | 44.30921 | 0.060938 | 0.01344861 |
| 56 | 5 S1200 | State Hwy 59 | 635532528 | | N | N | -105.44592 | 43.969271 | 0.227319 | 0.01344861 |
| 56 | 5 S1200 | State Hwy 387 | 146342308 | | N | N | -105.979091 | 43.5588 | 0.24863 | 0.01344861 |
| 56 | 7 S1100 | I-80 | 611197576 | | N | N | -106.521149 | 41.752786 | 0.67332 | 0.01351351 |
| 56 | 7 S1100 | I-80 | 148702972 | I-80 | N | N | -106.948342 | 41.751102 | 0.026198 | 0.01351351 |
| 56 | 7 S1100 | I-80 | 148729076 | I-80 | Y | N | -107.373738 | 41.786936 | 0.145819 | 0.01351351 |
| 56 | 7 S1200 | 3rd St | 622138133 | US Hwy 287 | N | N | -107.22921 | 41.807878 | 0.184918 | 0.01144165 |
| 56 | 7 S1200 | State Hwy 70 | 148737136 | | N | N | -107.034068 | 41.156663 | 0.828525 | 0.01144165 |
| 56 | 7 S1200 | State Hwy 789 | 148752555 | | N | N | -107.730909 | 41.291091 | 1.697048 | 0.01144165 |
| 56 | 7 S1200 | State Hwy 130 | 148712671 | | N | N | -106.760293 | 41.392624 | 0.460732 | 0.01144165 |
| 56 | 7 S1200 | State Hwy 130 | 148715207 | | N | N | -106.651357 | 41.343293 | 0.077775 | 0.01144165 |
| 56 | 7 S1200 | State Hwy 230 | 148718040 | | N | N | -106.610856 | 41.172584 | 0.416111 | 0.01144165 |
| 56 | 7 S1200 | State Hwy 220 | 148695417 | | N | N | -107.243952 | 42.428181 | 0.229884 | 0.01144165 |
| 56 | 7 S1200 | N Higley Blvd | 148729803 | US Hwy 287 Byp | N | N | -107.215405 | 41.795669 | 0.069431 | 0.01144165 |
| 56 | 7 S1200 | State Hwy 72 | 148707454 | | N | N | -106.453685 | 41.718692 | 0.74372 | 0.01144165 |
| 56 | 7 S1200 | Lincoln Hwy | 148702076 | US Hwy 30 | N | N | -106.277868 | 41.901903 | 1.701502 | 0.01144165 |
| 56 | 7 S1200 | State Hwy 230 | 148743798 | | N | N | -106.701352 | 41.218277 | 0.116587 | 0.01144165 |
| 56 | 7 S1200 | State Hwy 789 | 148736405 | | N | N | -107.693147 | 41.220518 | 0.326679 | 0.01144165 |
| 56 | 7 S1200 | State Hwy 230 | 148714894 | | N | N | -106.776349 | 41.255209 | 0.053899 | 0.01144165 |
| 56 | 7 S1200 | State Hwy 487 | 148727630 | | N | N | -106.186809 | 42.097454 | 1.894335 | 0.01144165 |
| 56 | 7 S1200 | State Hwy 130 | 148716025 | | N | N | -106.496624 | 41.32687 | 0.364838 | 0.01144165 |

| 56 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 56 | 13 | S1200 | Fremont St | 628694209 | Fremont St | N | N | -108.739361 | 42.824433 | 0.041387 | 0.00951877 |
| 56 | 13 | S1200 | US Hwy 287 | 148440001 | State Hwy 789 | N | N | -108.355944 | 42.651302 | 0.917551 | 0.00951877 |
| 56 | 13 | S1200 | S Fifth St | 148435866 | S Fifth St | N | N | -108.735391 | 42.83345 | 0.075688 | 0.00951877 |
| 56 | 13 | S1200 | US Hwy 287 | 634121244 | US Hwy 287 | N | N | -107.749138 | 42.488102 | 0.108102 | 0.00951877 |
| 56 | 13 | S1200 | US Hwy 26 | 148495718 | | N | N | -108.56709 | 43.112365 | 0.083409 | 0.00951877 |
| 56 | 13 | S1200 | US Hwy 26 | 148494149 | US Hwy 26 | N | N | -109.43973 | 43.416155 | 0.271117 | 0.00951877 |
| 56 | 13 | S1200 | US Hwy 20 | 148486152 | State Hwy 789 | N | N | -108.160355 | 43.394654 | 0.521853 | 0.00951877 |
| 56 | 13 | S1200 | Blue Sky Hwy | 148473776 | Blue Sky Hwy | N | N | -108.766271 | 43.086613 | 0.493145 | 0.00951877 |
| 56 | 13 | S1200 | US Hwy 26 | 148485578 | US Hwy 26 | N | N | -109.940564 | 43.65715 | 0.666155 | 0.00951877 |
| 56 | 13 | S1200 | Gas Hills Rd | 148433925 | State Hwy 136 | N | N | -108.336608 | 42.993204 | 0.029512 | 0.00951877 |
| 56 | 13 | S1200 | US Hwy 26 | 148495394 | | N | N | -108.879131 | 43.224349 | 0.382653 | 0.00951877 |
| 56 | 13 | S1200 | US Hwy 20 | 148468455 | State Hwy 789 | N | N | -108.115049 | 43.35974 | 0.359517 | 0.00951877 |
| 56 | 13 | S1200 | US Hwy 26 | 148486961 | | N | N | -108.920264 | 43.213638 | 0.606161 | 0.00951877 |
| 56 | 13 | S1200 | US Hwy 287 | 148429899 | State Hwy 789 | N | N | -107.580341 | 42.462137 | 0.201633 | 0.00951877 |
| 56 | 13 | S1200 | US Hwy 20 | 148448781 | US Hwy 20 | N | N | -107.689438 | 43.151979 | 0.292919 | 0.00951877 |
| 56 | 13 | S1200 | Missouri Valley Rd | 148470962 | Missouri Valley Rd | N | N | -108.610016 | 43.214772 | 0.456474 | 0.00951877 |
| 56 | 13 | S1200 | State Hwy 789 | 148433053 | | N | N | -108.553074 | 42.911615 | 0.035458 | 0.00951877 |
| 56 | 13 | S1200 | State Hwy 789 | 148432511 | | N | N | -108.569408 | 42.910442 | 0.085218 | 0.00951877 |
| 56 | 19 | S1100 | I-25 | 624471389 | I-25 | N | Y | -106.646302 | 43.995016 | 0.300971 | 0.01146132 |
| 56 | 19 | S1100 | I-25 | 147364609 | US Hwy 87 | N | Y | -106.533561 | 43.598253 | 0.116223 | 0.01146132 |
| 56 | 19 | S1100 | I-25 | 147364620 | US Hwy 87 | N | Y | -106.608497 | 43.644685 | 0.809497 | 0.01146132 |
| 56 | 19 | S1100 | I-90 | 635198026 | | N | Y | -106.160823 | 44.212252 | 0.230765 | 0.01146132 |
| 56 | 19 | S1100 | I-90 | 635203662 | | N | Y | -106.306087 | 44.217749 | 0.201378 | 0.01146132 |
| 56 | 19 | S1100 | I-90 | 147303287 | | N | Y | -106.156158 | 44.212943 | 0.018582 | 0.01146132 |
| 56 | 19 | S1100 | I-90 | 147364484 | | N | Y | -106.390326 | 44.235006 | 0.124988 | 0.01146132 |
| 56 | 19 | S1100 | I-90 | 147365807 | | N | Y | -106.104178 | 44.219162 | 0.078479 | 0.01146132 |
| 56 | 19 | S1200 | Sussex Rd | 147321002 | Sussex Rd | N | N | -106.297982 | 43.698467 | 0.019054 | 0.01160093 |
| 56 | 19 | S1200 | N Main St | 624035496 | State Hwy 196 | N | N | -106.697436 | 44.360852 | 0.066349 | 0.01160093 |
| 56 | 19 | S1200 | N Main St | 147299782 | State Hwy 196 | N | N | -106.698941 | 44.34753 | 0.093436 | 0.01160093 |
| 56 | 19 | S1200 | Old Hwy 87 | 147375368 | Old Hwy 87 | N | N | -106.70217 | 44.152286 | 0.414683 | 0.01160093 |
| 56 | 19 | S1200 | Sussex Rd | 147320405 | State Hwy 1002 | N | N | -106.52221 | 43.69458 | 0.231502 | 0.01160093 |
| 56 | 19 | S1200 | US Hwy 16 | 147301629 | | N | N | -106.917457 | 44.161293 | 0.182867 | 0.01160093 |
| 56 | 19 | S1200 | US Hwy 16 | 147301697 | | N | N | -106.92537 | 44.233648 | 0.042325 | 0.01160093 |
| 56 | 19 | S1200 | US Hwy 16 | 147330545 | | N | N | -106.686296 | 44.354195 | 0.03269 | 0.01160093 |
| 56 | 19 | S1200 | US Hwy 16 | 617881865 | | N | N | -106.7265 | 44.341227 | 0.069923 | 0.01160093 |
| 56 | 19 | S1200 | Sussex Rd | 147320871 | State Hwy 1002 | N | N | -106.373653 | 43.706753 | 0.085488 | 0.01160093 |

| 56 | 21 S1100 | I- 25 | 622388802 | I- 25 | N | N | -104.838174 | 41.198768 | 0.794488 | 0.00223714 |
|---|---|---|---|---|---|---|---|---|---|---|
| 56 | 21 S1200 | E Four Mile Rd | 624043730 | E Four Mile Rd | N | N | -104.81166 | 41.189258 | 0.093536 | 0.0010352 |
| 56 | 21 S1400 | Draper Rd | 160176358 | | N | N | -104.822959 | 41.096529 | 0.061319 | 0.00148588 |
| 56 | 21 S1400 | Harriman Rd | 160145448 | Co Rd 102 | N | N | -105.255088 | 41.000815 | 0.014499 | 0.00148588 |
| 56 | 21 S1400 | Hirsig Rd | 160162024 | Hirsig Rd | N | N | -105.164265 | 41.552454 | 0.505235 | 0.00148588 |
| 56 | 21 S1400 | E 5th St | 160151376 | | N | N | -104.793841 | 41.128595 | 0.05956 | 0.00148588 |
| 56 | 21 S1400 | Foothills Rd | 160148179 | | N | N | -104.773765 | 41.169918 | 0.052044 | 0.00148588 |
| 56 | 21 S1400 | Clear View Cir | 160171828 | | N | N | -104.797632 | 41.199493 | 0.174119 | 0.00148588 |
| 56 | 21 S1400 | Jack Rabbit Rd | 160148102 | | N | N | -104.772682 | 41.195892 | 0.201315 | 0.00148588 |
| 56 | 21 S1400 | Douglas St | 160148214 | | N | N | -104.769206 | 41.167367 | 0.028956 | 0.00148588 |
| 56 | 21 S1400 | E 20th St | 160149935 | | N | N | -104.810315 | 41.138992 | 0.061455 | 0.00148588 |
| 56 | 21 S1400 | Bus Park | 160172654 | Bus Park | N | N | -104.057737 | 41.182368 | 0.016854 | 0.00148588 |
| 56 | 21 S1400 | Carroll Ave | 160147641 | | N | N | -104.827405 | 41.165087 | 0.123116 | 0.00148588 |
| 56 | 21 S1400 | Monroe Ave | 160152283 | | N | N | -104.758935 | 41.135548 | 0.125386 | 0.00148588 |
| 56 | 21 S1400 | Co Rd 138 | 160160311 | | N | N | -104.566438 | 41.120511 | 0.223542 | 0.00148588 |
| 56 | 21 S1400 | McDonald Rd | 160176882 | | N | N | -105.067974 | 41.152391 | 0.087434 | 0.00148588 |
| 56 | 21 S1400 | McAllister Ln | 160179037 | | N | N | -104.808831 | 41.174821 | 0.015039 | 0.00148588 |
| 56 | 21 S1400 | Military Rd | 608318324 | | N | N | -104.885953 | 41.13547 | 0.003858 | 0.00148588 |
| 56 | 23 S1100 | US Hwy 30 | 611001502 | | NA | NA | -110.063887 | 41.684366 | 0.185933 | 0.0106383 |
| 56 | 23 S1200 | Hwy 238 | 130299361 | State Hwy 238 | N | N | -110.997509 | 42.736914 | 0.321042 | 0.01295732 |
| 56 | 23 S1200 | US Hwy 30 | 130309240 | | N | N | -110.975366 | 41.842883 | 2.388625 | 0.01295732 |
| 56 | 23 S1200 | US Hwy 26 | 130324547 | US Hwy 89A | N | N | -111.02474 | 43.180649 | 0.251294 | 0.01295732 |
| 56 | 23 S1200 | US Hwy 89 | 130316044 | US Hwy 89A | N | N | -111.017462 | 43.167187 | 0.031132 | 0.01295732 |
| 56 | 23 S1200 | US Hwy 26 | 130316740 | US Hwy 89 | N | N | -110.933792 | 43.191983 | 0.115793 | 0.01295732 |
| 56 | 23 S1200 | Hwy 236 | 611004110 | State Hwy 236 | N | N | -110.961819 | 42.692569 | 0.058369 | 0.01295732 |
| 56 | 23 S1200 | US Hwy 189 | 611001556 | | N | N | -110.571305 | 41.633032 | 0.036267 | 0.01295732 |
| 56 | 23 S1200 | State Hwy 89 | 635503417 | | N | N | -111.04699 | 42.347346 | 0.288851 | 0.01295732 |
| 56 | 23 S1200 | Hwy 237 | 130297921 | State Hwy 237 | N | N | -110.950765 | 42.793945 | 0.227784 | 0.01295732 |
| 56 | 23 S1200 | State Hwy 239 | 619637613 | | N | N | -111.030837 | 42.982527 | 0.060775 | 0.01295732 |
| 56 | 23 S1200 | US Hwy 30 | 130324450 | | N | N | -110.954794 | 41.923748 | 0.658579 | 0.01295732 |
| 56 | 23 S1200 | US Hwy 89 | 611008956 | US Hwy 89A | N | N | -111.025859 | 43.13296 | 0.053011 | 0.01295732 |
| 56 | 23 S1200 | State Hwy 235 | 130301475 | | N | N | -110.242527 | 42.261535 | 0.421719 | 0.01295732 |
| 56 | 23 S1200 | US Hwy 30 | 130301732 | | N | N | -110.981435 | 42.153542 | 0.502008 | 0.01295732 |
| 56 | 23 S1200 | US Hwy 26 | 130316677 | US Hwy 89 | N | N | -110.943822 | 43.192256 | 0.401259 | 0.01295732 |
| 56 | 23 S1200 | US Hwy 89 | 611008950 | US Hwy 89A | N | N | -111.026041 | 43.133785 | 0.062243 | 0.01295732 |
| 56 | 23 S1200 | US Hwy 189 | 130303332 | | N | N | -110.185824 | 42.179875 | 0.328363 | 0.01295732 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 56 | 25 S1100 | I- 25 | 149010081 | I- 25 | | N | N | -106.335419 | 43.056092 | 0.413891 | 0.00248756 |
| 56 | 25 S1200 | Cy Ave | 149022110 | Cy Ave | | N | N | -106.366423 | 42.82324 | 0.017426 | 0.00131926 |
| 56 | 25 S1200 | Cole Creek Rd | 149038958 | Cole Creek Rd | | N | N | -106.188882 | 42.891713 | 0.027375 | 0.00131926 |
| 56 | 25 S1400 | Co Rd 607 | 149017131 | | | N | N | -106.154287 | 42.66765 | 0.463712 | 0.00130208 |
| 56 | 25 S1400 | E A St | 607727858 | | | N | N | -106.300759 | 42.85147 | 0.033396 | 0.00130208 |
| 56 | 25 S1400 | Star Ln | 617962807 | | | NA | NA | -106.340114 | 42.849249 | 0.007403 | 0.00130208 |
| 56 | 25 S1400 | S 5th Ave | 149021251 | | | N | N | -106.392876 | 42.84351 | 0.0661 | 0.00130208 |
| 56 | 25 S1400 | Gooder Ave | 149019813 | | | N | N | -106.45744 | 42.894276 | 0.202048 | 0.00130208 |
| 56 | 25 S1400 | Lakeshore Dr | 607699609 | Lakeshore Dr | | N | N | -106.778388 | 42.529729 | 0.036057 | 0.00130208 |
| 56 | 25 S1400 | E 13th St | 149024110 | | | N | N | -106.313672 | 42.837542 | 0.017916 | 0.00130208 |
| 56 | 25 S1400 | Co Rd 602 | 149026356 | | | N | N | -106.225292 | 42.853349 | 0.012091 | 0.00130208 |
| 56 | 25 S1400 | N 6 Mile Rd | 149020050 | Co Rd 119 | | N | N | -106.434416 | 42.899062 | 0.408276 | 0.00130208 |
| 56 | 25 S1400 | Second St | 607727056 | | | N | N | -106.365773 | 42.841959 | 0.030995 | 0.00130208 |
| 56 | 25 S1400 | Oregon Trl | 148992543 | Turkey Track Rd | | N | N | -107.479794 | 42.473862 | 0.38719 | 0.00130208 |
| 56 | 25 S1400 | Missouri Ave | 607718345 | Missouri Ave | | N | N | -106.29305 | 42.83014 | 0.109077 | 0.00130208 |
| 56 | 25 S1400 | N East St | 149039592 | | | N | N | -106.24357 | 43.414304 | 0.02002 | 0.00130208 |
| 56 | 25 S1400 | Goose Egg Cir | 607701450 | | | N | N | -106.515294 | 42.760538 | 0.070234 | 0.00130208 |
| 56 | 25 S1400 | Granada Ave | 617963960 | | | N | N | -106.342498 | 42.814829 | 0.029059 | 0.00130208 |
| 56 | 29 S1200 | Beartooth Hwy | 612523424 | US Hwy 212 | | N | N | -109.633519 | 44.922577 | 1.645067 | 0.01129944 |
| 56 | 29 S1200 | Chief Joseph Hwy | 612522810 | Chief Joseph Hwy | | N | N | -109.644082 | 44.866408 | 0.069016 | 0.01129944 |
| 56 | 29 S1200 | N Fork Hwy | 627160085 | US Hwy 14 | | N | N | -109.619865 | 44.463599 | 0.38333 | 0.01129944 |
| 56 | 29 S1200 | Rd 18 | 149194387 | Badger Basin Rd | | N | N | -108.916337 | 44.703963 | 0.240759 | 0.01129944 |
| 56 | 29 S1200 | N Fork Hwy | 149206406 | US Hwy 14 | | N | N | -109.911367 | 44.482239 | 0.238308 | 0.01129944 |
| 56 | 29 S1200 | E Entrance Rd | 626966347 | US Hwy 14 | | N | N | -110.363413 | 44.560993 | 0.680702 | 0.01129944 |
| 56 | 29 S1200 | 17th St | 612520875 | 17th St | | N | N | -109.054089 | 44.51858 | 0.033156 | 0.01129944 |
| 56 | 29 S1200 | Hwy 114 | 612522765 | Hwy 114 | | N | N | -108.665672 | 44.875669 | 0.469234 | 0.01129944 |
| 56 | 29 S1200 | US Hwy 14 Alt | 624469118 | | | N | N | -108.683333 | 44.77285 | 0.003999 | 0.01129944 |
| 56 | 29 S1200 | Ln 13 | 612517654 | State Hwy 295 | | N | N | -108.750575 | 44.695729 | 0.017968 | 0.01129944 |
| 56 | 29 S1200 | W Coulter Ave | 149194643 | W US Hwy 14A | | N | N | -108.781521 | 44.744254 | 0.145786 | 0.01129944 |
| 56 | 29 S1200 | Powell Hwy | 612521823 | Powell Hwy | | N | N | -108.926863 | 44.679533 | 0.055645 | 0.01129944 |
| 56 | 29 S1200 | State Hwy 120 | 149212941 | | | N | N | -108.823272 | 44.12936 | 0.036804 | 0.01129944 |
| 56 | 29 S1200 | State Hwy 294 | 149202036 | State Hwy 294 | | N | N | -109.016527 | 44.855058 | 0.095278 | 0.01129944 |
| 56 | 29 S1200 | Rd 9 | 612468763 | Hwy 295 | | N | N | -108.75993 | 44.7847 | 0.219583 | 0.01129944 |
| 56 | 29 S1200 | US Hwy 191 | 149216474 | | | N | N | -111.055155 | 44.933339 | 0.096348 | 0.01129944 |
| 56 | 29 S1200 | W Coulter Ave | 625076103 | W US Hwy 14A | | N | N | -108.776052 | 44.745846 | 0.085806 | 0.01129944 |
| 56 | 29 S1200 | R 9 | 612522218 | Rd 9 | | N | N | -108.759912 | 44.741851 | 0.051305 | 0.01129944 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 56 | 31 | S1100 | I-25 | 160436166 | I-25 | N | N | -105.033471 | 42.48013 | 0.150221 | 0.01496259 |
| 56 | 31 | S1100 | I-25 | 606897806 | I-25 | NA | NA | -105.002408 | 42.181889 | 0.336848 | 0.01496259 |
| 56 | 31 | S1100 | I-25 | 604828586 | I-25 | N | N | -104.828994 | 41.694975 | 1.05719 | 0.01496259 |
| 56 | 31 | S1100 | I-25 | 606897551 | I-25 | NA | NA | -104.791379 | 41.788735 | 0.107012 | 0.01496259 |
| 56 | 31 | S1100 | I-25 | 604829666 | I-25 | NA | NA | -105.048003 | 42.280869 | 0.749704 | 0.01496259 |
| 56 | 31 | S1100 | I-25 | 618035322 | I-25 | NA | NA | -104.96093 | 42.014929 | 0.189146 | 0.01496259 |
| 56 | 31 | S1200 | N Pioneer Rd | 604823280 | N Pioneer Rd | N | N | -104.750109 | 41.89528 | 0.703969 | 0.01591512 |
| 56 | 31 | S1200 | Hartville Hwy | 160432353 | State Hwy 270 | N | N | -104.724922 | 42.320239 | 0.333096 | 0.01591512 |
| 56 | 31 | S1200 | Lake Side Dr | 604817760 | Lake Side Dr | N | N | -104.747501 | 42.33979 | 1.191051 | 0.01591512 |
| 56 | 31 | S1200 | US Hwy 26 | 624031047 | | N | N | -104.847177 | 42.248395 | 0.091746 | 0.01591512 |
| 56 | 31 | S1200 | W Whalen St | 604820352 | US Hwy 26 | N | N | -104.748604 | 42.269744 | 0.140121 | 0.01591512 |
| 56 | 31 | S1200 | State Hwy 34 | 160445492 | | N | N | -105.082689 | 41.953594 | 0.428089 | 0.01591512 |
| 56 | 31 | S1200 | N Wheatland Hwy | 160445589 | State Hwy 320 | N | N | -104.936079 | 42.12393 | 0.519234 | 0.01591512 |
| 56 | 31 | S1200 | S Glendo Hwy | 160431220 | S Glendo Hwy | N | N | -104.992648 | 42.360525 | 0.223112 | 0.01591512 |
| 56 | 31 | S1200 | Hartville Hwy | 160441567 | State Hwy 270 | N | N | -104.694803 | 42.501143 | 0.777523 | 0.01591512 |
| 56 | 31 | S1200 | el Rancho Rd | 604820453 | el Rancho Rd | N | N | -105.049222 | 42.271762 | 0.09635 | 0.01591512 |
| 56 | 31 | S1200 | Slater Rd | 160442550 | State Hwy 314 | N | N | -104.830403 | 41.871476 | 0.442447 | 0.01591512 |
| 56 | 31 | S1200 | Iron Mountain Rd | 160425201 | State Hwy 211 | N | N | -104.836275 | 41.756586 | 0.136607 | 0.01591512 |
| 56 | 33 | S1100 | I-90 | 629143491 | | NA | NA | -106.936971 | 44.802617 | 0.025825 | 0.00877193 |
| 56 | 33 | S1100 | I-90 | 634774573 | | NA | NA | -106.828618 | 44.582922 | 3.868549 | 0.00877193 |
| 56 | 33 | S1200 | US Hwy 14 | 147411270 | US Hwy 16 | N | N | -106.534251 | 44.567071 | 0.032397 | 0.01088435 |
| 56 | 33 | S1200 | Big Goose Rd | 147421444 | State Hwy 331 | N | N | -107.062538 | 44.76667 | 0.019143 | 0.01088435 |
| 56 | 33 | S1200 | E 5th St | 605384408 | State Hwy 336 | N | N | -106.955285 | 44.806844 | 0.031902 | 0.01088435 |
| 56 | 33 | S1200 | US Hwy 14 | 147398734 | | N | N | -107.364785 | 44.799827 | 0.737105 | 0.01088435 |
| 56 | 33 | S1200 | Coffeen Ave | 147408472 | Coffeen Ave | N | N | -106.94748 | 44.736972 | 0.051388 | 0.01088435 |
| 56 | 33 | S1200 | Front St | 147409609 | US Hwy 14 | N | N | -106.382235 | 44.637732 | 0.032159 | 0.01088435 |
| 56 | 33 | S1200 | US Hwy 14 | 147400215 | | N | N | -107.500689 | 44.714898 | 0.029523 | 0.01088435 |
| 56 | 33 | S1200 | State Hwy 345 | 147396185 | | N | N | -107.321543 | 44.948465 | 0.756063 | 0.01088435 |
| 56 | 33 | S1200 | N Piney Rd | 147420545 | N Piney Rd | N | N | -106.900559 | 44.578041 | 0.177454 | 0.01088435 |
| 56 | 33 | S1200 | US Hwy 87 | 605368387 | | N | N | -106.885561 | 44.63175 | 0.031174 | 0.01088435 |
| 56 | 33 | S1200 | Fish Hatchery Rd | 147419891 | State Hwy 194 | N | N | -106.918967 | 44.568667 | 0.147106 | 0.01088435 |
| 56 | 33 | S1200 | Big Goose Rd | 147399687 | State Hwy 331 | N | N | -107.070202 | 44.7648 | 0.393307 | 0.01088435 |
| 56 | 33 | S1200 | State Hwy 335 | 147408335 | | N | N | -106.980318 | 44.700411 | 0.029008 | 0.01088435 |
| 56 | 33 | S1200 | US Hwy 14 | 147398523 | | N | N | -107.476861 | 44.77952 | 0.069219 | 0.01088435 |
| 56 | 33 | S1200 | W Loucks St | 614721355 | W Loucks St | N | N | -106.973517 | 44.796617 | 0.05157 | 0.01088435 |
| 56 | 33 | S1200 | Main St | 147417308 | Main St | N | N | -107.262715 | 44.871275 | 0.020451 | 0.01088435 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 56 | 35 S1200 | Big Piney Calpet Rd | 149346148 | Big Piney Calpet Rd | N | N | -110.283783 | 42.393018 | 0.195383 | 0.01691729 |
| 56 | 35 S1200 | Big Piney Calpet Rd | 149347154 | Big Piney Calpet Rd | N | N | -110.284863 | 42.37851 | 0.385055 | 0.01691729 |
| 56 | 35 S1200 | State Hwy 352 | 149330874 | | N | N | -109.989113 | 42.956827 | 0.497131 | 0.01691729 |
| 56 | 35 S1200 | State Hwy 352 | 149342158 | | N | N | -110.023781 | 43.098791 | 0.126517 | 0.01691729 |
| 56 | 35 S1200 | Bloomfield Ave | 617103316 | | NA | NA | -109.879699 | 42.882772 | 0.190991 | 0.01691729 |
| 56 | 35 S1200 | US Hwy 189 | 614284845 | US Hwy 189 | N | N | -110.409656 | 43.20366 | 0.12783 | 0.01691729 |
| 56 | 35 S1200 | State Hwy 352 | 631784199 | | N | N | -109.989064 | 42.97478 | 0.225948 | 0.01691729 |
| 56 | 35 S1200 | Big Piney Calpet Rd | 149328921 | Big Piney Calpet Rd | N | N | -110.290572 | 42.358646 | 0.278765 | 0.01691729 |
| 56 | 35 S1200 | Middle Piney Rd | 149319272 | Middle Piney Rd | N | N | -110.285006 | 42.538177 | 0.847708 | 0.01691729 |
| 56 | 35 S1200 | Big Piney Calpet Rd | 149327486 | Big Piney Calpet Rd | N | N | -110.282524 | 42.387895 | 0.261669 | 0.01691729 |
| 56 | 35 S1200 | State Hwy 354 | 611631792 | | N | N | -110.124057 | 42.890585 | 0.348304 | 0.01691729 |
| 56 | 35 S1200 | State Hwy 353 | 149335729 | | N | N | -109.714446 | 42.749503 | 0.046943 | 0.01691729 |
| 56 | 35 S1200 | Big Piney Calpet Rd | 149349722 | Big Piney Calpet Rd | N | N | -110.28701 | 42.453728 | 0.154211 | 0.01691729 |
| 56 | 35 S1200 | State Hwy 352 | 149348298 | | N | N | -110.024543 | 43.100778 | 0.158921 | 0.01691729 |
| 56 | 35 S1200 | Fox Willow Dr | 624696401 | | NA | NA | -109.863534 | 42.858926 | 0.039994 | 0.01691729 |
| 56 | 35 S1200 | US Hwy 189 | 149341811 | US Hwy 191 | N | N | -110.167302 | 43.096316 | 0.195055 | 0.01691729 |
| 56 | 35 S1200 | State Hwy 353 | 149343493 | | N | N | -109.509085 | 42.67973 | 0.040054 | 0.01691729 |
| 56 | 35 S1200 | US Hwy 191 | 611631778 | | N | N | -110.070024 | 42.890439 | 0.046435 | 0.01691729 |
| 56 | 37 S1100 | I-80 | 624231944 | I-80 | NA | NA | -108.780959 | 41.678094 | 0.163315 | 0.01215805 |
| 56 | 37 S1100 | I-80 | 633104230 | US Hwy 30 | N | N | -109.316632 | 41.554826 | 0.039476 | 0.01215805 |
| 56 | 37 S1100 | I-80 Interstate Rmp | 149499689 | | N | N | -109.587987 | 41.555451 | 0.259911 | 0.01215805 |
| 56 | 37 S1100 | I-80 | 149487238 | I-80 | N | N | -108.066013 | 41.661045 | 0.136447 | 0.01215805 |
| 56 | 37 S1200 | US Hwy 191 | 618328344 | | N | N | -109.437956 | 42.043985 | 0.338956 | 0.01204819 |
| 56 | 37 S1200 | State Hwy 374 | 149511333 | | N | N | -109.482509 | 41.541523 | 0.131587 | 0.01204819 |
| 56 | 37 S1200 | Uinta Dr | 149500497 | Uinta Dr | N | N | -109.472709 | 41.511854 | 0.0531 | 0.01204819 |
| 56 | 37 S1200 | State Hwy 414 | 149464554 | | N | N | -109.985213 | 41.027126 | 0.131917 | 0.01204819 |
| 56 | 37 S1200 | State Hwy 28 | 149493695 | | N | N | -109.808056 | 41.858995 | 0.147627 | 0.01204819 |
| 56 | 37 S1200 | Lower Farson Cutoff Rd | 149492132 | California-Mormon Emigr | N | N | -109.666317 | 41.965696 | 0.038819 | 0.01204819 |
| 56 | 37 S1200 | Dewar Dr | 149503912 | Dewar Dr | N | N | -109.226073 | 41.584776 | 0.04782 | 0.01204819 |
| 56 | 37 S1200 | US Hwy 191 | 149496622 | | N | N | -109.325226 | 41.744334 | 0.329502 | 0.01204819 |
| 56 | 37 S1200 | Pilot Butte Ave | 611877695 | Pilot Butte Ave | NA | NA | -109.216939 | 41.59261 | 0.030201 | 0.01204819 |
| 56 | 37 S1200 | State Hwy 430 | 149458823 | | N | N | -108.78958 | 41.049775 | 0.243255 | 0.01204819 |
| 56 | 37 S1200 | US Hwy 191 | 149461346 | State Hwy 373 | N | N | -109.310187 | 41.437909 | 1.183344 | 0.01204819 |
| 56 | 37 S1200 | State Hwy 372 | 149499742 | State Hwy 374 | N | N | -109.591055 | 41.555985 | 0.056765 | 0.01204819 |
| 56 | 37 S1200 | D St | 149502711 | State Hwy 430 | N | N | -109.2125 | 41.581594 | 0.037972 | 0.01204819 |
| 56 | 37 S1200 | State Hwy 430 | 149457693 | | N | N | -108.836841 | 41.204642 | 0.057298 | 0.01204819 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 56 | 39 S1200 | Grand Loop Rd | 130447128 | US Hwy 89 | | N | -110.647369 | 44.4336 | 0.335289 | 0.02292994 |
| 56 | 39 S1200 | State Hwy 22 | 130412425 | | N | N | -111.023765 | 43.531226 | 0.014713 | 0.02292994 |
| 56 | 39 S1200 | W Broadway Ave | 626815081 | US Hwy 26 | N | N | -110.767775 | 43.479528 | 0.008592 | 0.02292994 |
| 56 | 39 S1200 | US Hwy 26 | 130414136 | US Hwy 26 | N | N | -110.747679 | 43.393058 | 0.052961 | 0.02292994 |
| 56 | 39 S1200 | US Hwy 26 | 130440602 | US Hwy 26 | N | N | -110.519893 | 43.822999 | 0.705899 | 0.02292994 |
| 56 | 39 S1200 | State Hwy 22 | 235945248 | | N | N | -111.044466 | 43.542907 | 0.121907 | 0.02292994 |
| 56 | 39 S1200 | N Cache St | 130449024 | US Hwy 26 | N | N | -110.762232 | 43.489123 | 0.002913 | 0.02292994 |
| 56 | 39 S1200 | Grand Loop Rd | 130410308 | US Hwy 89 | N | N | -110.849699 | 44.487252 | 0.476339 | 0.02292994 |
| 56 | 39 S1200 | US Hwy 26 | 130442142 | US Hwy 26 | N | N | -110.140642 | 43.785674 | 0.058013 | 0.02292994 |
| 56 | 39 S1200 | US Hwy 26 | 130414163 | US Hwy 26 | N | N | -110.745142 | 43.384441 | 0.015347 | 0.02292994 |
| 56 | 39 S1200 | US Hwy 26 | 130416881 | US Hwy 26 | N | N | -110.179349 | 43.812532 | 0.085526 | 0.02292994 |
| 56 | 39 S1200 | John D Rockefeller Jr Pkwy | 625696810 | US Hwy 89 | N | N | -110.632246 | 43.929951 | 0.644068 | 0.02292994 |
| 56 | 39 S1200 | US Hwy 26 | 633121288 | US Hwy 26 | N | N | -110.748242 | 43.394564 | 0.107092 | 0.02292994 |
| 56 | 39 S1200 | Grand Loop Rd | 130435259 | US Hwy 20 | N | N | -110.418215 | 44.54549 | 0.012986 | 0.02292994 |
| 56 | 39 S1200 | N Moose Wilson Rd | 130421972 | N Moose Wilson Rd | N | N | -110.846204 | 43.500474 | 0.111366 | 0.02292994 |
| 56 | 39 S1200 | W Broadway Ave | 626815080 | US Hwy 26 | N | N | -110.767992 | 43.479487 | 0.01271 | 0.02292994 |
| 56 | 39 S1200 | US Hwy 189 | 130430099 | US Hwy 189 | Y | N | -110.730176 | 43.322355 | 0.075306 | 0.02292994 |
| 56 | 39 S1200 | John D Rockefeller Jr Pkwy | 130438888 | US Hwy 89 | N | N | -110.617709 | 43.904563 | 0.02257 | 0.02292994 |
| 56 | 41 S1100 | I-80 | 160262564 | | N | N | -110.424833 | 41.332567 | 0.082322 | 0.02242152 |
| 56 | 41 S1100 | I-80 | 160262989 | | N | N | -110.382457 | 41.349435 | 0.884846 | 0.02242152 |
| 56 | 41 S1100 | I-80 | 160263878 | | N | N | -110.369274 | 41.354538 | 0.581572 | 0.02242152 |
| 56 | 41 S1100 | I-80 | 160276521 | | N | N | -110.449606 | 41.328957 | 0.025325 | 0.02242152 |
| 56 | 41 S1100 | I-80 Bus | 625848180 | | N | N | -110.374475 | 41.316471 | 0.479979 | 0.02242152 |
| 56 | 41 S1200 | State Hwy 150 | 160278118 | State Hwy 150 | N | N | -110.948574 | 41.26097 | 0.069808 | 0.02083333 |
| 56 | 41 S1200 | State Hwy 89 | 160256726 | State Hwy 89 N | N | N | -111.041282 | 41.406968 | 0.045853 | 0.02083333 |
| 56 | 41 S1200 | State Hwy 414 | 160278610 | | N | N | -110.33637 | 41.272014 | 0.050479 | 0.02083333 |
| 56 | 41 S1200 | State Hwy 414 | 160276641 | | N | N | -110.32857 | 41.269014 | 0.002005 | 0.02083333 |
| 56 | 41 S1200 | State Hwy 89 | 160259758 | State Hwy 89 N | N | N | -110.982831 | 41.297753 | 0.059565 | 0.02083333 |
| 56 | 41 S1200 | State Hwy 414 | 160269401 | | N | N | -110.121784 | 41.048317 | 0.287048 | 0.02083333 |
| 56 | 41 S1200 | State Hwy 412 | 160258496 | | N | N | -110.423572 | 41.4321 | 0.102188 | 0.02083333 |
| 56 | 41 S1200 | State Hwy 410 | 160266210 | | N | N | -110.493857 | 41.1882 | 0.094194 | 0.02083333 |
| 56 | 41 S1200 | US Hwy 189 | 160257875 | | N | N | -110.625197 | 41.430625 | 0.935336 | 0.02083333 |
| 56 | 41 S1200 | Carter Cutoff Rd | 160258469 | Carter Cutoff Rd | N | N | -110.441935 | 41.452999 | 0.052881 | 0.02083333 |
| 56 | 41 S1200 | State Hwy 414 | 160269069 | | N | N | -110.178426 | 41.097522 | 0.74704 | 0.02083333 |
| 56 | 41 S1200 | State Hwy 150 | 606738273 | State Hwy 150 S | N | N | -110.953165 | 41.262237 | 0.015361 | 0.02083333 |
| 56 | 41 S1200 | 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

**(Total observation period MUST last EXACTLY 45 minutes)**

| | 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 |

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**Appendix D**

**Training Syllabus**

---

<u>Day One</u>

**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

---

<u>Day Two (AM)</u>

**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**

<u>Day Two (PM)</u>

**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**

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# 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). |

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Appendix D: Detailed tables of collected data

## Confidence Intervals

| 95 % Confidence Intervals for Drivers and Passengers, Wyoming 2012 | | | |
|---|---|---|---|
| | | | |
| | Lower | Unwtd Ct | Est*Unwtd Ct |
| Drivers | 71.6% | 13,821.0 | 9,895.8 |
| Passengers | 71.4% | 4,575.0 | 3,266.6 |
| Both | 71.6% | 18,396.0 | 13,162.4 |
| | | | |
| | Upper | | |
| Drivers | 80.7% | 13,821.0 | 11,153.5 |
| Passengers | 84.5% | 4,575.0 | 3,865.9 |
| Both | 81.6% | 18,396.0 | 15,019.4 |

| 95% Confidence Intervals for Belted Occupants | | | |
|---|---|---|---|
| | | | |
| | | 95% Confidence Interval | |
| | Estimate | Lower | Upper |
| Occupants | 77.0% | 71.6% | 81.6% |

## Frequencies

| Drivers and Passengers, Wyoming 2012 | | |
|---|---|---|
| **Observations by Vehicle Occupant Type** | | |
| **Occupants** | Frequency | Percent |
| **Drivers** | 18,705 | 75.6% |
| **Passengers** | 6,037 | 24.4% |
| **All Occupants** | 24,742 | 100.0% |

| Observations and Vehicle Types, Wyoming 2012 | | |
|---|---|---|
| **Vehicle Types** | Frequency | Percent |
| **Auto** | 6,123 | 32.7% |
| **Van** | 1,473 | 7.9% |
| **SUV** | 4,301 | 23.0% |
| **Pickup** | 6,808 | 36.4% |
| **Total** | 18,705 | 100.0% |

| Observations by license plate type, Wyoming 2012 | | |
|---|---|---|
| **Status** | Frequency | Percent |
| **Wyoming** | 13,433 | 71.8% |
| **Out of State** | 5,015 | 26.8% |
| **Unsure** | 257 | 1.4% |
| **Total** | 18,705 | 100.0% |

| Observations by Population Density, Wyoming 2012 | | |
|---|---|---|
| **Population Density** | Frequency | Percent |
| **Urban** | 5,911 | 31.60% |
| **Rural** | 12,794 | 68.40% |
| **Total** | 18,705 | 100.00% |

| Observations by Roadway Type, Wyoming 2012 | | |
|---|---|---|
| **Roadway Type** | Frequency | Percent |
| **Primary Road** | 4,310 | 23.0% |
| **Secondary Road** | 12,854 | 68.7% |
| **Local/Rural/City St** | 1,539 | 8.2% |
| | 18,703 | 100.0% |

| Observations by Gender, Wyoming 2012 | | | |
|---|---|---|---|
| **Occupant** | Gender | Frequency | Percent |
| **Driver** | Male | 12,720 | 68.0% |
| | Female | 5,985 | 32.0% |
| | All Drivers | 18,705 | 100.0% |
| **Passenger** | Male | 2,033 | 33.9% |
| | Female | 3,968 | 66.1% |
| | All Passengers | 6,001 | 100.0% |
| **All Occupants** | Male | 14,753 | 59.7% |
| | Female | 9,953 | 40.3% |
| | All Occupants | 24,706 | 100.0% |

## Drivers and Passengers

| Seat Belt Use by Vehicle Occupant, Wyoming 2012 | | | | |
|---|---|---|---|---|
| Occupant | Seat Belt Use | Estimate | Unwtd Ct | Est*UnWtCt |
| Driver | Belted | 76.4% | 13821 | 10559 |
| | Not Belted | 22.1% | 4599 | 1016 |
| | Unsure | 1.5% | 283 | 4 |
| | All | 100.0% | 18703 | |
| Passenger | Belted | 78.7% | 4575 | 3601 |
| | Not Belted | 18.6% | 1277 | 238 |
| | Unsure | 2.7% | 183 | 5 |
| | All | 100.0% | 6035 | |
| Both | Belted | 77.0% | 18396 | 14160 |
| | Not Belted | 21.3% | 5876 | 1254 |
| | Unsure | 2.0% | 466 | 9 |
| | All | 100.3% | 24738 | |

| Standard Errors by Seat Belt Use and Vehicle Occupant, Wyoming, 2012 | | | | |
|---|---|---|---|---|
| Standard Error Computation -- Belted | | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| | Driver | 1.10% | 13821 | 152 |
| | Passenger | 1.50% | 4575 | 69 |
| | Both | 1.20% | 18396 | 221 |

| Standard Error Computation -- Not Belted | | | |
|---|---|---|---|
| | Estimate | Unwtd Ct | Est*UnWtCt |
| Driver | 1.20% | 4599 | 55 |
| Passenger | 2.00% | 1277 | 26 |
| Both | 1.40% | 5876 | 81 |

| Standard Error Computation -- Unsure | | | |
|---|---|---|---|
| | Estimate | Unwtd Ct | Est*UnWtCt |
| Driver | 0.10% | 283 | 0 |
| Passenger | 0.50% | 183 | 1 |
| Both | 0.30% | 466 | 1 |

## Population density

| Seat Belt Rate Computation For Urban Sites | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|
| **Driver** | Belted | 77.6% | 4431 | 3,438 |
| | Not Belted | 21.1% | 1410 | 298 |
| | Unsure | 1.4% | 70 | 1 |
| | Total | 100.0% | 5911 | |
| **Passenger** | Belted | 81.6% | 1411 | 1,151 |
| | Not Belted | 15.0% | 338 | 51 |
| | Unsure | 3.4% | 64 | 2 |
| | Total | 100.0% | 1813 | |
| **Both** | Belted | 78.6% | 5842 | 4,590 |
| | Not Belted | 19.9% | 1748 | 348 |
| | Unsure | 2.4% | 134 | 3 |
| | Total | 100.8% | 7724 | |

| Seat Belt Rate computation for Rural Sites | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|
| **Driver** | Belted | 76.1% | 9390 | 7,146 |
| | Not Belted | 22.4% | 3189 | 714 |
| | Unsure | 1.5% | 213 | 3 |
| | Total | 100.0% | 12792 | |
| | | | | |
| **Passenger** | Belted | 77.6% | 3164 | 2,455 |
| | Not Belted | 19.9% | 939 | 187 |
| | Unsure | 2.5% | 119 | 3 |
| | Total | 100.0% | 4222 | |
| | | | | |
| **Both** | Belted | 76.5% | 12554 | 9,601 |
| | Not Belted | 21.8% | 4128 | 901 |
| | Unsure | 1.9% | 332 | 6 |
| | Total | 100.2% | 17014 | |

## Roadway type

| Percent Belted for All Vehicle Occupants by Roadway Type | | | |
|---|---|---|---|
| **Wyoming 2012** | | | |
| **Roadway Type** | Estimate | Frequency | % of Occupants |
| **Primary** | 80.2% | 5,816 | 23.5% |
| **Secondary** | 77.5% | 17,091 | 69.1% |
| **Local, Rural, City** | 66.0% | 1,831 | 7.4% |
| **Total** | 77.0% | 24,738 | 100.0% |

| Seat Belt Use by Roadway Type, Wyoming 2012 | | | | |
|---|---|---|---|---|
| **Primary Roads** | | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 79.4% | 3420 | 2,715 |
| | Not Belted | 18.8% | 801 | 151 |
| | Unsure | 1.9% | 89 | 2 |
| | Total | 100.0% | 4310 | |
| | | | | |
| **Passenger** | Belted | 82.5% | 1225 | 1,011 |
| | Not Belted | 13.6% | 213 | 29 |
| | Unsure | 3.9% | 68 | 3 |
| | Total | 100.0% | 1506 | |
| | | | | |
| **Both** | Belted | 80.2% | 4645 | 3,726 |
| | Not Belted | 17.7% | 1014 | 180 |
| | Unsure | 2.8% | 157 | 4 |
| | Total | 100.7% | 5816 | |

| Secondary Roads | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|
| **Driver** | Belted | 75.6% | 9380 | 7,091 |
| | Not Belted | 23.0% | 3282 | 755 |
| | Unsure | 1.4% | 102 | 1 |
| | Total | 100.0% | 12764 | |
| | | | | |
| **Passenger** | Belted | 82.5% | 1225 | 1,011 |
| | Not Belted | 13.6% | 213 | 29 |
| | Unsure | 3.9% | 68 | 3 |
| | Total | 100.0% | 1506 | |
| | | | | |
| **Both** | Belted | 77.5% | 3171 | 8,102 |
| | Not Belted | 22.4% | 3495 | 784 |
| | Unsure | 2.4% | 170 | 4 |
| | Total | 102.3% | 6836 | |

| Local Roads, Rural Roads and City Streets | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|
| **Driver** | Belted | 66.8% | 1021 | 682 |
| | Not Belted | 33.1% | 516 | 171 |
| | Unsure | 0.1% | 2 | 0 |
| | Total | 100.0% | 1539 | |
| | | | | |
| **Passenger** | Belted | 61.7% | 179 | 110 |
| | Not Belted | 37.9% | 112 | 42 |
| | Unsure | 0.3% | 1 | 0 |
| | Total | 99.9% | 292 | |
| | | | | |
| **Both** | Belted | 66.0% | 1200 | 792 |
| | Not Belted | 34.0% | 628 | 213 |
| | Unsure | 0.2% | 3 | 0 |
| | Total | 100.2% | 1831 | |

## Vehicle type

| Percent Belted for All Vehicle Occupants by Vehicle Type | | | |
|---|---|---|---|
| **Wyoming 2012** | | Total | % of Total |
| **Vehicle Type** | % Belted | Frequency | Occupants |
| **Automobiles** | 78.2% | 8,241 | 33.3% |
| **Vans** | 84.7% | 2,087 | 8.4% |
| **SUVs** | 83.7% | 5,779 | 23.4% |
| **Pickup Trucks** | 69.2% | 8,631 | 34.9% |
| **Total** | 77.0% | 24,738 | 100.0% |

| Seat Belt Use by Vehicle Type, Wyoming 2012 | | | | |
|---|---|---|---|---|
| **Automobiles** | | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 77.5% | 4617 | 3,578 |
| | Not Belted | 20.7% | 1393 | 288 |
| | Unsure | 1.8% | 112 | 2 |
| | Total | 100.0% | 6122 | |
| | | | | |
| **Passenger** | Belted | 80.2% | 1631 | 1,308 |
| | Not Belted | 16.7% | 418 | 70 |
| | Unsure | 3.1% | 70 | 2 |
| | Total | 100.0% | 2119 | |
| | | | | |
| **Both** | Belted | 78.2% | 6248 | 4,886 |
| | Not Belted | 19.8% | 1811 | 358 |
| | Unsure | 2.3% | 182 | 4 |
| | Total | 100.3% | 8241 | |

| Vans | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|
| **Driver** | Belted | 83.7% | 1185 | 992 |
| | Not Belted | 15.4% | 275 | 42 |
| | Unsure | 0.8% | 13 | 0 |
| | Total | 100.0% | 1473 | |
| | | | | |
| **Passenger** | Belted | 87.0% | 521 | 453 |
| | Not Belted | 11.5% | 82 | 9 |
| | Unsure | 1.5% | 11 | 0 |
| | Total | 100.0% | 614 | |
| | | | | |
| **Both** | Belted | 84.7% | 1706 | 1,445 |
| | Not Belted | 14.5% | 357 | 52 |
| | Unsure | 1.1% | 24 | 0 |
| | Total | 100.3% | 2087 | |

| SUVs | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|
| **Driver** | Belted | 83.3% | 3450 | 2,874 |
| | Not Belted | 15.7% | 807 | 127 |
| | Unsure | 1.0% | 44 | 0 |
| | Total | 100.0% | 4301 | |
| | | | | |
| **Passenger** | Belted | 85.0% | 1218 | 1,035 |
| | Not Belted | 13.0% | 225 | 29 |
| | Unsure | 1.9% | 35 | 1 |
| | Total | 99.9% | 1478 | |
| | | | | |
| **Both** | Belted | 83.7% | 4668 | 3,909 |
| | Not Belted | 15.1% | 1032 | 156 |
| | Unsure | 1.4% | 79 | 1 |
| | Total | 100.3% | 5779 | |

| Pickup Trucks | | | | |
|---|---|---|---|---|
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 69.4% | 4569 | 3,171 |
| | Not Belted | 29.0% | 2124 | 616 |
| | Unsure | 1.7% | 114 | 114 |
| | Total | 100.1% | 6807 | |
| | | | | |
| **Passenger** | Belted | 68.5% | 1205 | 825 |
| | Not Belted | 28.1% | 552 | 155 |
| | Unsure | 3.4% | 67 | 2 |
| | Total | 100.0% | 1824 | |
| | | | | |
| **Both** | Belted | 69.2% | 5774 | 3,996 |
| | Not Belted | 28.8% | 2676 | 771 |
| | Unsure | 64.2% | 181 | 116 |
| | Total | 162.3% | 8631 | |

## Type of license plate

| Percent Belted for All Vehicle Occupants by License Status | | | |
|---|---|---|---|
| **Wyoming, 2012** | | | |
| | | Total | |
| License Status | Estimate | Frequency | % of Occupants |
| **Wyoming** | 72.2% | 16,986 | 68.7% |
| **Out-of-State** | 86.3% | 7,408 | 29.9% |
| **Unsure** | 70.5% | 344 | 1.4% |
| **Total** | 77.0% | 24,738 | 100.0% |

| Seat Belt Use by License Status, Wyoming 2012 | | | | |
|---|---|---|---|---|
| **Wyoming** | | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 72.4% | 9461 | 6,850 |
| | Not Belted | 26.2% | 3785 | 992 |
| | Unsure | 1.4% | 185 | 3 |
| | Total | 100.0% | 13431 | |
| | | | | |
| **Passenger** | Belted | 71.3% | 2466 | 1,758 |
| | Not Belted | 25.4% | 970 | 246 |
| | Unsure | 3.3% | 119 | 4 |
| | Total | 100.0% | 3555 | |
| | | | | |
| **Both** | Belted | 72.2% | 11927 | 8,608 |
| | Not Belted | 26.0% | 4755 | 1,238 |
| | Unsure | 2.1% | 304 | 7 |
| | Total | 100.4% | 16986 | |

| Out-of-State | | | | |
|---|---|---|---|---|
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 85.6% | 4188 | 3,585 |
| | Not Belted | 13.0% | 742 | 96 |
| | Unsure | 1.4% | 85 | 1 |
| | Total | 100.0% | 5015 | |
| | | | | |
| **Passenger** | Belted | 87.8% | 2046 | 1,796 |
| | Not Belted | 10.2% | 286 | 29 |
| | Unsure | 2.1% | 61 | 1 |
| | Total | 100.1% | 2393 | |
| | | | | |
| **Both** | Belted | 86.3% | 6234 | 5,381 |
| | Not Belted | 12.2% | 1028 | 126 |
| | Unsure | 1.7% | 146 | 2 |
| | Total | 100.2% | 7408 | |

| Unsure of License Status | | | | |
|---|---|---|---|---|
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 69.3% | 172 | 119 |
| | Not Belted | 25.9% | 72 | 19 |
| | Unsure | 4.8% | 13 | 1 |
| | Total | 100.0% | 257 | |
| | | | | |
| **Passenger** | Belted | 73.8% | 63 | 46 |
| | Not Belted | 23.6% | 21 | 5 |
| | Unsure | 2.6% | 3 | 0 |
| | Total | 100.0% | 87 | |
| | | | | |
| **Both** | Belted | 70.5% | 235 | 166 |
| | Not Belted | 25.4% | 93 | 24 |
| | Unsure | 4.4% | 16 | 1 |
| | Total | 100.3% | 344 | |

| All Observations | | | | |
|---|---|---|---|---|
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 76.4% | 13821 | 10,559 |
| | Not Belted | 22.1% | 4599 | 1,016 |
| | Unsure | 1.5% | 283 | 4 |
| | Total | 100.0% | 18703 | |
| | | | | |
| **Passenger** | Belted | 78.7% | 4575 | 3,601 |
| | Not Belted | 18.6% | 1277 | 238 |
| | Unsure | 2.7% | 183 | 5 |
| | Total | 100.0% | 6035 | |
| | | | | |
| **Both** | Belted | 77.0% | 18396 | 14,160 |
| | Not Belted | 21.3% | 5876 | 1,254 |
| | Unsure | 2.0% | 466 | 9 |
| | Total | 100.3% | 24738 | |

## Gender

| Percent Belted for All Vehicle Occupants | | | |
|---|---|---|---|
| by Occupant Gender | | | |
| Wyoming 2012 | Total | % of | |
| Gender | Estimate | Frequency | Total | |
| Male | 73.5% | 14,752 | 59.7% | |
| Female | 82.7% | 9,950 | 40.3% | |
| Total | 77.1% | 24,702 | 100.0% | |
| | | | | |
| | | | | |
| | Drivers | % | Passengers | % |
| Male | 12719 | 68.0% | 2033 | 33.9% |
| Female | 5984 | 32.0% | 3966 | 66.1% |
| Total | 18703 | 100.0% | 5999 | 100.0% |

| Seat Belt Use by Gender of Occupants, Wyoming 2012 | | | | |
|---|---|---|---|---|
| Males | | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| Driver | Belted | 74.6% | 9124 | 6,807 |
| | Not Belted | 23.9% | 3381 | 808 |
| | Unsure | 1.6% | 214 | 3 |
| | Total | 100.0% | 12719 | |
| | | | | |
| Passenger | Belted | 65.6% | 1275 | 836 |
| | Not Belted | 31.7% | 699 | 222 |
| | Unsure | 2.7% | 59 | 2 |
| | Total | 100.0% | 2033 | |
| | | | | |
| Both | Belted | 73.5% | 10399 | 7,643 |
| | Not Belted | 25.2% | 4080 | 1,030 |
| | Unsure | 1.8% | 273 | 5 |
| | Total | 100.6% | 14752 | |

| Females | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|
| **Driver** | Belted | 80.7% | 4697 | 3,790 |
| | Not Belted | 18.1% | 1218 | 220 |
| | Unsure | 1.2% | 69 | 1 |
| | Total | 100.0% | 5984 | |
| | | | | |
| **Passenger** | Belted | 85.5% | 3300 | 2,822 |
| | Not Belted | 12.6% | 576 | 73 |
| | Unsure | 1.9% | 90 | 2 |
| | Total | 100.0% | 3966 | |
| | | | | |
| **Both** | Belted | 82.7% | 7997 | 6,612 |
| | Not Belted | 16.3% | 1794 | 293 |
| | Unsure | 1.6% | 159 | 3 |
| | Total | 100.6% | 9950 | |

| All Occupants | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|
| **Driver** | Belted | 76.4% | 13821 | 10,559 |
| | Not Belted | 22.1% | 4599 | 1,016 |
| | Unsure | 1.5% | 283 | 4 |
| | Total | 100.0% | 18703 | |
| | | | | |
| **Passenger** | Belted | 79.2% | 4575 | 3,623 |
| | Not Belted | 18.7% | 1275 | 238 |
| | Unsure | 2.2% | 149 | 3 |
| | Total | 100.1% | 5999 | |
| | | | | |
| **Both** | Belted | 77.1% | 18396 | 14,183 |
| | Not Belted | 21.4% | 5874 | 1,255 |
| | Unsure | 1.7% | 432 | 8 |
| | Total | 100.2% | 24702 | |

| Male Drivers and Passengers, Wyoming 2012 | | | | |
|---|---|---|---|---|
| **Males in Automobiles** | | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 76.6% | 2603 | 1,994 |
| | Not Belted | 21.6% | 832 | 180 |
| | Unsure | 1.8% | 69 | 1 |
| | Total | 100.0% | 3504 | |
| | | | | |
| **Passenger** | Belted | 64.6% | 353 | 228 |
| | Not Belted | 32.0% | 204 | 65 |
| | Unsure | 3.4% | 20 | 1 |
| | Total | 100.0% | 577 | |
| | | | | |
| **Both** | Belted | 75.2% | 2956 | 2,222 |
| | Not Belted | 23.6% | 1036 | 245 |
| | Unsure | 2.2% | 89 | 2 |
| | Total | 101.0% | 4081 | |

| Females in Automobiles | | | | |
|---|---|---|---|---|
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 78.8% | 2014 | 1,587 |
| | Not Belted | 19.5% | 561 | 109 |
| | Unsure | 1.8% | 43 | 1 |
| | Total | 100.0% | 2618 | |
| | | | | |
| **Passenger** | Belted | 86.3% | 1278 | 1,103 |
| | Not Belted | 11.6% | 213 | 25 |
| | Unsure | 2.1% | 37 | 1 |
| | Total | 100.0% | 1528 | |
| | | | | |
| **Both** | Belted | 81.7% | 3292 | 2,690 |
| | Not Belted | 17.3% | 774 | 134 |
| | Unsure | 1.9% | 80 | 2 |
| | Total | 101.0% | 4146 | |

| Males in Vans | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|
| **Driver** | Belted | 83.6% | 807 | 675 |
| | Not Belted | 15.4% | 189 | 29 |
| | Unsure | 0.9% | 11 | 0 |
| | Total | 100.0% | 1007 | |
| | | | | |
| **Passenger** | Belted | 76.1% | 113 | 86 |
| | Not Belted | 23.0% | 36 | 8 |
| | Unsure | 0.9% | 2 | 0 |
| | Total | 100.0% | 151 | |
| | | | | |
| **Both** | Belted | 82.7% | 920 | 761 |
| | Not Belted | 16.6% | 225 | 37 |
| | Unsure | 0.9% | 13 | 0 |
| | Total | 100.2% | 1158 | |

| Females in Vans | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|
| **Driver** | Belted | 84.0% | 378 | 318 |
| | Not Belted | 15.5% | 86 | 13 |
| | Unsure | 0.6% | 2 | 0 |
| | Total | 100.0% | 466 | |
| | | | | |
| **Passenger** | Belted | 90.7% | 408 | 370 |
| | Not Belted | 8.0% | 45 | 4 |
| | Unsure | 1.2% | 7 | 0 |
| | Total | 99.9% | 460 | |
| | | | | |
| | | | | |
| **Both** | Belted | 87.5% | 786 | 688 |
| | Not Belted | 12.9% | 131 | 17 |
| | Unsure | 1.1% | 9 | 0 |
| | Total | 101.5% | 926 | |

| Males in SUVs | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|
| **Driver** | Belted | 82.3% | 1888 | 1,554 |
| | Not Belted | 16.7% | 482 | 80 |
| | Unsure | 1.0% | 28 | 0 |
| | Total | 100.0% | 2398 | |
| | | | | |
| **Passenger** | Belted | 75.3% | 285 | 215 |
| | Not Belted | 23.1% | 103 | 24 |
| | Unsure | 1.6% | 8 | 0 |
| | Total | 100.0% | 396 | |
| | | | | |
| **Both** | Belted | 81.4% | 2173 | 1,768 |
| | Not Belted | 17.8% | 585 | 104 |
| | Unsure | 1.1% | 36 | 0 |
| | Total | 100.3% | 2794 | |

| Females in SUVs | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|
| **Driver** | Belted | 84.8% | 1562 | 1,325 |
| | Not Belted | 14.3% | 325 | 46 |
| | Unsure | 0.9% | 16 | 0 |
| | Total | 100.0% | 1903 | |
| | | | | |
| **Passenger** | Belted | 88.7% | 933 | 828 |
| | Not Belted | 9.8% | 122 | 12 |
| | Unsure | 1.5% | 21 | 0 |
| | Total | 100.0% | 1076 | |
| | | | | |
| **Both** | Belted | 86.3% | 2495 | 2,152 |
| | Not Belted | 13.1% | 447 | 58 |
| | Unsure | 1.2% | 37 | 0 |
| | Total | 100.6% | 2979 | |

| Males in Pickups | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|
| **Driver** | Belted | 68.3% | 3826 | 2,613 |
| | Not Belted | 29.9% | 1878 | 562 |
| | Unsure | 1.8% | 106 | 2 |
| | Total | 100.0% | 5810 | |
| | | | | |
| **Passenger** | Belted | 60.4% | 524 | 316 |
| | Not Belted | 36.7% | 356 | 131 |
| | Unsure | 2.9% | 29 | 1 |
| | Total | 100.0% | 909 | |
| | | | | |
| **Both** | Belted | 67.3% | 4350 | 2,930 |
| | Not Belted | 31.0% | 2234 | 692 |
| | Unsure | 2.0% | 135 | 3 |
| | Total | 100.4% | 6719 | |

| Females in Pickups | | Estimate | Unwtd Ct | Est*UnWtCt |
|---|---|---|---|---|
| **Driver** | Belted | 76.1% | 743 | 565 |
| | Not Belted | 23.1% | 246 | 57 |
| | Unsure | 0.8% | 8 | 0 |
| | Total | 100.0% | 997 | |
| | | | | |
| **Passenger** | Belted | 77.2% | 681 | 526 |
| | Not Belted | 20.2% | 196 | 40 |
| | Unsure | 2.6% | 25 | 1 |
| | Total | 100.0% | 902 | |
| | | | | |
| **Both** | Belted | 76.6% | 1424 | 1,091 |
| | Not Belted | 21.8% | 442 | 96 |
| | Unsure | 2.2% | 33 | 1 |
| | Total | 100.6% | 1899 | |

## Gender and vehicle type

| Seat Belt Use for Vehicle Occupants by Gender and Vehicle Type, Wyoming 2012 | | | | |
|---|---|---|---|---|
| **Vehicle Type** | Gender | % Belted | Frequency* | % of Sample** |
| **Automobiles** | Male | 75.2% | 4,081 | 49.6% |
| | Female | 78.8% | 4,146 | 50.4% |
| | All | 78.2% | 8,227 | 122.8% |
| **Vans** | Male | 82.7% | 1,158 | 55.6% |
| | Female | 87.5% | 926 | 44.4% |
| | All | 84.7% | 2,084 | 100.0% |
| **SUVs** | Male | 81.4% | 2,794 | 48.3% |
| | Female | 86.3% | 2,979 | 51.5% |
| | All | 83.7% | 5,779 | 100.0% |
| **Pickup Trucks** | Male | 67.3% | 6,719 | 78.0% |
| | Female | 76.6% | 1,899 | 22.0% |
| | All | 69.2% | 8,618 | 100.0% |
| **All Vehicles** | Male | 73.5% | 14,752 | 59.7% |
| | Female | 82.7% | 9,950 | 40.3% |
| | All | 77.1% | 24,702 | 100.0% |
| | | | | |
| **\*The total number of male or female occupants by vehicle type.** | | | | |
| **\*\*The relative percentage of males or females or both by vehicle type.** | | | | |

## County

| Estimated Rates of Seat Belt Use by County for All Vehicle Occupants | | | | |
|---|---|---|---|---|
| | Vehicle Occupants | | | |
| | Drivers | Passengers | All Occupants | Total | % of Statewide |
| **County** | % Belted | % Belted | % Belted | Frequency | Observations |
| **Albany** | 73.0% | 77.0% | 74.2% | 1,905 | 7.7% |
| **Big Horn** | 58.2% | 65.3% | 60.2% | 735 | 3.0% |
| **Campbell** | 61.3% | 56.2% | 60.3% | 2,121 | 8.6% |
| **Carbon** | 79.7% | 90.4% | 83.0% | 1,250 | 5.1% |
| **Fremont** | 72.9% | 70.4% | 72.2% | 1,095 | 4.4% |
| **Johnson** | 71.6% | 82.7% | 74.8% | 1,491 | 6.0% |
| **Laramie** | 74.7% | 72.1% | 74.3% | 1,167 | 4.7% |
| **Lincoln** | 79.8% | 84.8% | 81.4% | 1,461 | 5.9% |
| **Natrona** | 64.5% | 53.9% | 63.1% | 1,292 | 5.2% |
| **Park** | 72.2% | 77.8% | 73.6% | 1,643 | 6.6% |
| **Platte** | 83.1% | 87.9% | 84.5% | 2,171 | 8.8% |
| **Sheridan** | 65.7% | 62.3% | 65.0% | 1,430 | 5.8% |
| **Sublette** | 80.7% | 89.7% | 83.0% | 653 | 2.6% |
| **Sweetwater** | 64.4% | 37.6% | 60.3% | 1,719 | 6.9% |
| **Teton** | 98.0% | 99.3% | 98.3% | 2,606 | 10.5% |
| **Uinta** | 70.3% | 76.7% | 72.1% | 1,999 | 8.1% |
| **All Counties** | 76.4% | 78.7% | 77.0% | 24,738 | 100.0% |

| Albany County Wyoming 2012 | | | |
|---|---|---|---|
| **Seat Belt Rate Computation** | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 73.0% | 1009 | 736.57 |
| | Not Belted | 25.0% | 342 | 85.50 |
| | Unsure | 2.0% | 27 | 0.54 |
| **Passenger** | Belted | 77.0% | 408 | 314.16 |
| | Not Belted | 19.5% | 101 | 19.70 |
| | Unsure | 3.5% | 18 | 0.63 |
| **Both** | Belted | 74.2% | 1417 | 1050.73 |
| | Not Belted | 23.7% | 443 | 105.20 |
| | Unsure | 2.6% | 45 | 1.17 |
| | | | 1905 | |

| Big Horn County | | | |
|---|---|---|---|
| **Seat Belt Rate Computation** | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 58.2% | 319 | 185.66 |
| | Not Belted | 38.3% | 210 | 80.43 |
| | Unsure | 3.5% | 19 | 0.67 |
| **Passenger** | Belted | 65.3% | 122 | 79.67 |
| | Not Belted | 28.3% | 53 | 15.00 |
| | Unsure | 6.4% | 12 | 0.77 |
| **Both** | Belted | 60.2% | 441 | 265.32 |
| | Not Belted | 36.3% | 263 | 95.43 |
| | Unsure | 4.6% | 31 | 1.43 |
| | | | 735 | |

| Campbell County | | | | |
|---|---|---|---|---|
| **Seat Belt Rate Computation** | | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 61.3% | 1029 | 630.78 |
| | Not Belted | 37.8% | 641 | 242.30 |
| | Unsure | 1.0% | 16 | 0.16 |
| **Passenger** | Belted | 56.2% | 243 | 136.57 |
| | Not Belted | 33.9% | 150 | 50.85 |
| | Unsure | 9.8% | 42 | 4.12 |
| **Both** | Belted | 60.3% | 1272 | 767.34 |
| | Not Belted | 37.1% | 791 | 293.15 |
| | Unsure | 7.4% | 58 | 4.28 |
| | | | 2121 | |

| Carbon County | | | | |
|---|---|---|---|---|
| **Seat Belt Rate Computation** | | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 79.7% | 711 | 566.67 |
| | Not Belted | 17.5% | 159 | 27.83 |
| | Unsure | 2.9% | 27 | 0.78 |
| **Passenger** | Belted | 90.4% | 318 | 287.47 |
| | Not Belted | 7.5% | 27 | 2.03 |
| | Unsure | 2.2% | 8 | 0.18 |
| **Both** | Belted | 83.0% | 1029 | 854.14 |
| | Not Belted | 16.0% | 186 | 29.85 |
| | Unsure | 2.7% | 35 | 0.96 |
| | | | 1250 | |

| Fremont County | | | |
|---|---|---|---|
| **Seat Belt Rate Computation** | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 72.9% | 567 | 413.34 |
| | Not Belted | 26.9% | 209 | 56.22 |
| | Unsure | 0.3% | 2 | 0.01 |
| **Passenger** | Belted | 70.4% | 223 | 156.99 |
| | Not Belted | 29.0% | 92 | 26.68 |
| | Unsure | 0.6% | 2 | 0.01 |
| **Both** | Belted | 72.2% | 790 | 570.34 |
| | Not Belted | 27.5% | 301 | 82.90 |
| | Unsure | 0.5% | 4 | 0.02 |
| | | | 1095 | |

| Johnson County | | | |
|---|---|---|---|
| **Seat Belt Rate Computation** | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 71.6% | 794 | 568.50 |
| | Not Belted | 27.1% | 300 | 81.30 |
| | Unsure | 1.3% | 15 | 0.20 |
| **Passenger** | Belted | 82.7% | 316 | 261.33 |
| | Not Belted | 16.3% | 62 | 10.11 |
| | Unsure | 1.0% | 4 | 0.04 |
| **Both** | Belted | 74.8% | 1110 | 829.84 |
| | Not Belted | 25.3% | 362 | 91.41 |
| | Unsure | 1.2% | 19 | 0.24 |
| | | | 1491 | |

| Laramie County | | | |
|---|---|---|---|
| **Seat Belt Rate Computation** | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 74.7% | 736 | 549.79 |
| | Not Belted | 25.1% | 255 | 64.01 |
| | Unsure | 0.2% | 2 | 0.00 |
| **Passenger** | Belted | 72.1% | 122 | 87.96 |
| | Not Belted | 27.9% | 52 | 14.51 |
| | Unsure | 0.0% | 0 | 0.00 |
| **Both** | Belted | 74.3% | 858 | 637.75 |
| | Not Belted | 25.6% | 307 | 78.51 |
| | Unsure | 0.2% | 2 | 0.00 |
| | | | 1167 | |

| Lincoln County | | | |
|---|---|---|---|
| **Seat Belt Rate Computation** | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 79.8% | 804 | 641.59 |
| | Not Belted | 20.2% | 203 | 41.01 |
| | Unsure | 0.0% | 0 | 0.00 |
| **Passenger** | Belted | 84.8% | 385 | 326.48 |
| | Not Belted | 15.2% | 69 | 10.49 |
| | Unsure | 0.0% | 0 | 0.00 |
| **Both** | Belted | 81.4% | 1189 | 968.07 |
| | Not Belted | 18.9% | 272 | 51.49 |
| | Unsure | 0.0% | 0 | 0.00 |
| | | | 1461 | |

| Natrona County | | | | |
|---|---|---|---|---|
| **Seat Belt Rate Computation** | | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 64.5% | 675 | 435.38 |
| | Not Belted | 35.3% | 424 | 149.67 |
| | Unsure | 0.2% | 2 | 0.00 |
| **Passenger** | Belted | 53.9% | 102 | 54.98 |
| | Not Belted | 45.1% | 87 | 39.24 |
| | Unsure | 1.0% | 2 | 0.02 |
| **Both** | Belted | 63.1% | 777 | 490.35 |
| | Not Belted | 37.0% | 511 | 188.91 |
| | Unsure | 0.6% | 4 | 0.02 |
| | | | 1292 | |

| Park County | | | | |
|---|---|---|---|---|
| **Seat Belt Rate Computation** | | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 72.2% | 898 | 648.36 |
| | Not Belted | 27.7% | 345 | 95.57 |
| | Unsure | 0.1% | 2 | 0.00 |
| **Passenger** | Belted | 77.8% | 310 | 241.18 |
| | Not Belted | 22.2% | 88 | 19.54 |
| | Unsure | 0.0% | 0 | 0.00 |
| **Both** | Belted | 73.6% | 1208 | 889.54 |
| | Not Belted | 26.6% | 433 | 115.10 |
| | Unsure | 0.1% | 2 | 0.00 |
| | | | 1643 | |

| Platte County | | | | |
|---|---|---|---|---|
| **Seat Belt Rate Computation** | | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 83.1% | 1306 | 1085.29 |
| | Not Belted | 16.9% | 261 | 44.11 |
| | Unsure | 0.0% | 0 | 0.00 |
| **Passenger** | Belted | 87.9% | 532 | 467.63 |
| | Not Belted | 12.1% | 72 | 8.71 |
| | Unsure | 0.0% | 0 | 0.00 |
| **Both** | Belted | 84.5% | 1838 | 1552.91 |
| | Not Belted | 15.9% | 333 | 52.82 |
| | Unsure | 0.0% | 0 | 0.00 |
| | | | 2171 | |

| Sheridan County | | | | |
|---|---|---|---|---|
| **Seat Belt Rate Computation** | | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 65.7% | 732 | 480.92 |
| | Not Belted | 28.6% | 311 | 88.95 |
| | Unsure | 5.7% | 64 | 3.65 |
| **Passenger** | Belted | 62.3% | 201 | 125.22 |
| | Not Belted | 20.7% | 65 | 13.46 |
| | Unsure | 17.0% | 57 | 9.69 |
| **Both** | Belted | 65.0% | 933 | 606.15 |
| | Not Belted | 27.2% | 376 | 102.40 |
| | Unsure | 11.0% | 121 | 13.34 |
| | | | 1430 | |

| Sublette County | | | |
|---|---|---|---|
| **Seat Belt Rate Computation** | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 80.7% | 402 | 324.41 |
| | Not Belted | 18.9% | 94 | 17.77 |
| | Unsure | 0.4% | 2 | 0.01 |
| **Passenger** | Belted | 89.7% | 139 | 124.68 |
| | Not Belted | 9.7% | 15 | 1.46 |
| | Unsure | 0.6% | 1 | 0.01 |
| **Both** | Belted | 83.0% | 541 | 449.10 |
| | Not Belted | 17.6% | 109 | 19.22 |
| | Unsure | 0.5% | 3 | 0.01 |
| | | | 653 | |

| Sweetwater County | | | |
|---|---|---|---|
| **Seat Belt Rate Computation** | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 64.4% | 848 | 546.11 |
| | Not Belted | 29.7% | 392 | 116.42 |
| | Unsure | 5.9% | 77 | 4.54 |
| **Passenger** | Belted | 37.6% | 151 | 56.78 |
| | Not Belted | 54.7% | 220 | 120.34 |
| | Unsure | 7.7% | 31 | 2.39 |
| **Both** | Belted | 60.3% | 999 | 602.89 |
| | Not Belted | 38.7% | 612 | 236.76 |
| | Unsure | 6.4% | 108 | 6.93 |
| | | | 1719 | |

| Teton County | | | | |
|---|---|---|---|---|
| **Seat Belt Rate Computation** | | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 98.0% | 1966 | 1926.68 |
| | Not Belted | 1.3% | 27 | 0.35 |
| | Unsure | 0.7% | 14 | 0.10 |
| **Passenger** | Belted | 99.3% | 595 | 590.84 |
| | Not Belted | 0.3% | 2 | 0.01 |
| | Unsure | 0.3% | 2 | 0.01 |
| **Both** | Belted | 98.3% | 2561 | 2517.52 |
| | Not Belted | 2.2% | 16 | 0.36 |
| | Unsure | 0.3% | 30 | 0.10 |
| | | | 2607 | |

| Uinta County | | | | |
|---|---|---|---|---|
| **Seat Belt Rate Computation** | | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 70.3% | 1025 | 720.58 |
| | Not Belted | 28.7% | 426 | 122.26 |
| | Unsure | 1.0% | 14 | 0.14 |
| **Passenger** | Belted | 76.7% | 408 | 312.94 |
| | Not Belted | 22.5% | 122 | 27.45 |
| | Unsure | 0.8% | 4 | 0.03 |
| **Both** | Belted | 72.1% | 1433 | 1033.51 |
| | Not Belted | 27.3% | 548 | 149.71 |
| | Unsure | 1.0% | 18 | 0.17 |
| | | | 1999 | |

| All Counties | | | |
|---|---|---|---|
| **Seat Belt Rate Computation** | | | |
| | | Estimate | Unwtd Ct | Est*UnWtCt |
| **Driver** | Belted | 76.4% | 13821 | 10559.24 |
| | Not Belted | 22.1% | 4599 | 1016.38 |
| | Unsure | 1.5% | 283 | 4.25 |
| **Passenger** | Belted | 78.7% | 4575 | 3600.53 |
| | Not Belted | 18.6% | 1277 | 237.52 |
| | Unsure | 2.7% | 183 | 4.94 |
| **Both** | Belted | 77.0% | 18396 | 14159.77 |
| | Not Belted | 21.3% | 5876 | 1253.90 |
| | Unsure | 2.0% | 466 | 9.19 |
| | | | 24738 | |

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Appendix E: Observer field test ratings

| Observer | F-Test 1 | F-Test 2 | F-Test 3 | Written Exam |
|---|---|---|---|---|
| Alecia Caldwell | 83.64% | 95.68% | 96.87% | 90.00% |
| Joan Dobbs | 99.10% | 80.46% | 87.13% | 88.90% |
| Randi Egley | 89.57% | 98.29% | 93.75% | 90.00% |
| Judy Grenier | 88.89% | 94.67% | 95.10% | 90.00% |
| Stacie Hawk | 92.36% | 85.16% | 86.11% | 80.00% |
| Michael Haycock | 89.15% | 92.31% | 92.50% | 90.00% |
| Chereon Hoops | 98.63% | 94.84% | 98.99% | 85.00% |
| Richard Macht | 88.19% | 81.82% | 99.40% | 90.00% |
| Sandy McCleery | 93.20% | 87.22% | 87.10% | 100.00% |
| Theresa Pacheco | 85.85% | 95.56% | 98.15% | 80.00% |
| Vicky Peterson | 99.11% | 88.18% | 99.37% | 90.00% |
| Helen Romero | 93.46% | 78.82% | 86.60% | 85.00% |
| Bill Smith | 98.63% | 85.16% | 93.46% | 85.00% |
| Whitney Sussex | 89.17% | 98.33% | 98.98% | 90.00% |
| Debbie Taylor | 89.83% | 83.00% | 98.02% | 90.00% |
| Bridget White | 93.08% | 93.65% | 97.13% | 90.00% |
| Chelsea Wilson | 88.59% | 87.98% | 81.42% | 95.00% |
| Melody Wilson | 86.18% | 91.03% | 90.71% | 100.00% |
| Shawna Wolf | 99.11% | 86.23% | 92.94% | 85.00% |
| Crystal Wren | 99.26% | 88.98% | 93.86% | 95.00% |
| Donna Lucas | 95.00% | 90.50% | 91.70% | 95.00% |

Appendix F: Unknown seat belt use

| County | County Code | Unknown Driv+Pass | Total Obsv. Driv+Pass | County Rate |
|--------|-------------|-------------------|-----------------------|-------------|
| Albany | 1 | 49 | 1702 | 0.02879 |
| Big Horn | 3 | 31 | 736 | 0.04212 |
| Campbell | 5 | 44 | 2109 | 0.020863 |
| Carbon | 7 | 33 | 1199 | 0.027523 |
| Fremont | 13 | 4 | 1094 | 0.003656 |
| Johnson | 19 | 19 | 2802 | 0.006781 |
| Laramie | 21 | 2 | 1190 | 0.001681 |
| Lincoln | 23 | 0 | 1390 | 0 |
| Natrona | 25 | 2 | 1125 | 0.001778 |
| Park | 29 | 2 | 1652 | 0.001211 |
| Platte | 31 | 0 | 2075 | 0 |
| Sheridan | 33 | 118 | 1366 | 0.086384 |
| Sublette | 35 | 3 | 655 | 0.00458 |
| Sweetwater | 37 | 98 | 1727 | 0.056746 |
| Teton | 39 | 18 | 2528 | 0.00712 |
| Uinta | 41 | 16 | 2018 | 0.007929 |
| Statewide | | 439 | 25368 | 0.017305 |

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

| Site ID | Site type<br><br>Identify if the observation site is an original observation site or an alternate observation site. | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted<br><br>Occupants refer to both drivers and passengers. | Number of occupants unbelted | Number of occupants with unknown belt use |
|---|---|---|---|---|---|---|---|---|
| County: Albany (1) | | | | | | | | |
| 168749730 | 1: Original | 06/08/2012 | 0.0134228187919463 | 156 | 84 | 195 | 43 | 2 |
| 604512124 | 2: Original | 06/06/2012 | 0.0134228187919463 | 59 | 28 | 80 | 7 | 0 |
| 604516236 | 3: Alternate | 06/07/2012 | 0.0134228187919463 | 172 | 81 | 194 | 51 | 8 |
| 168748704 | 4: Original | 06/04/2012 | 0.0134228187919463 | 125 | 60 | 116 | 60 | 9 |
| 168722835 | 5: Original | 06/05/2012 | 0.0134228187919463 | 3 | 1 | 4 | 0 | 0 |
| 604506806 | 6: Original | 06/04/2012 | 0.0134228187919463 | 190 | 60 | 190 | 49 | 11 |
| 168750353 | 7: Original | 06/05/2012 | 0.0134228187919463 | 10 | 5 | 14 | 1 | 0 |
| 168757040 | 8: Original | 06/04/2012 | 0.0134228187919463 | 89 | 21 | 83 | 25 | 2 |
| 168722017 | 9: Original | 06/07/2012 | 0.0134228187919463 | 9 | 4 | 10 | 3 | 0 |
| 604510122 | 10: Original | 06/08/2012 | 0.0134228187919463 | 80 | 21 | 59 | 42 | 0 |
| 168738815 | 11: Original | 06/06/2012 | 0.0134228187919463 | 27 | 10 | 29 | 6 | 2 |
| 168744760 | 12: Original | 06/09/2012 | 0.0134228187919463 | 24 | 11 | 30 | 5 | 0 |
| 168756901 | 13: Original | 06/04/2012 | 0.0134228187919463 | 223 | 43 | 180 | 78 | 8 |
| 168745008 | 14: Original | 06/10/2012 | 0.0134228187919463 | 7 | 6 | 9 | 4 | 0 |
| 168737539 | 15: Original | 06/07/2012 | 0.0134228187919463 | 43 | 15 | 50 | 7 | 1 |
| 168755506 | 16: Original | 06/05/2012 | 0.0134228187919463 | 4 | 2 | 4 | 2 | 0 |
| 604505747 | 17: Original | 06/08/2012 | 0.0134228187919463 | 140 | 71 | 154 | 55 | 2 |
| 168755958 | 18: Original | 06/07/2012 | 0.0134228187919463 | 17 | 4 | 16 | 5 | 0 |
| Total | | | | 1378 | 527 | 1417 | 443 | 45 |

| Site ID | Site type  Identify if the observation site is an original observation site or an alternate observation site. | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted  Occupants refer to both drivers and passengers. | Number of occupants unbelted | Number of occupants with unknown belt use |
|---|---|---|---|---|---|---|---|---|
| County: Big Horn (3) | | | | | | | | |
| 605633431 | 1: Original | 06/07/2012 | 0.015228426 | 46 | 23 | 50 | 18 | 1 |
| 180494288 | 2: Original | 06/05/2012 | 0.015228426 | 11 | 5 | 8 | 7 | 1 |
| 180493968 | 3: Original | 06/05/2012 | 0.015228426 | 29 | 8 | 22 | 14 | 1 |
| 605624056 | 4: Original | 06/04/2012 | 0.015228426 | 43 | 8 | 22 | 27 | 2 |
| 180493545 | 5: Original | 06/06/2012 | 0.015228426 | 16 | 2 | 9 | 8 | 1 |
| 605621594 | 6: Original | 06/06/2012 | 0.015228426 | 18 | 5 | 13 | 10 | 0 |
| 180484672 | 7: Original | 06/07/2012 | 0.015228426 | 52 | 20 | 56 | 16 | 0 |
| 605616914 | 8: Original | 06/08/2012 | 0.015228426 | 32 | 9 | 19 | 18 | 4 |
| 180505210 | 9: Original | 06/04/2012 | 0.015228426 | 54 | 12 | 28 | 36 | 2 |
| 626936823 | 10: Original | 06/05/2012 | 0.015228426 | 8 | 4 | 7 | 3 | 2 |
| 180500795 | 11: Original | 06/08/2012 | 0.015228426 | 44 | 27 | 64 | 4 | 3 |
| 180501932 | 12: Original | 06/04/2012 | 0.015228426 | 33 | 8 | 16 | 22 | 3 |
| 180490602 | 13: Original | 06/04/2012 | 0.015228426 | 30 | 12 | 27 | 14 | 1 |
| 180506937 | 14: Original | 06/06/2012 | 0.015228426 | 18 | 2 | 15 | 4 | 1 |
| 180507017 | 15: Original | 06/09/2012 | 0.015228426 | 19 | 9 | 18 | 6 | 4 |
| 180508412 | 16: Original | 06/09/2012 | 0.015228426 | 25 | 10 | 26 | 9 | 0 |
| 180499656 | 17: Original | 06/09/2012 | 0.015228426 | 13 | 5 | 12 | 5 | 1 |
| 180485070 | 18: Original | 06/08/2012 | 0.015228426 | 57 | 18 | 29 | 42 | 4 |
| Total | | | | 548 | 187 | 441 | 263 | 31 |

| Site ID | Site type | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted | Number of occupants unbelted | Number of occupants with unknown belt use |
|---------|-----------|---------------|---------------|-------------------|----------------------------|----------------------------|------------------------------|--------------------------------------------|
| | Identify if the observation site is an original observation site or an alternate observation site. | | | | | Occupants refer to both drivers and passengers. | | |
| County: Campbell (5) | | | | | | | | |
| 607415957 | 1: Original | 06/04/2012 | 0.014981273 | 166 | 49 | 168 | 40 | 7 |
| 607413318 | 2: Original | 06/04/2012 | 0.014981273 | 164 | 29 | 129 | 53 | 11 |
| 146326960 | 3: Original | 06/04/2012 | 0.014981273 | 174 | 43 | 134 | 76 | 7 |
| 146347844 | 4: Original | 06/04/2012 | 0.014981273 | 143 | 63 | 117 | 82 | 7 |
| 146348156 | 5: Original | 06/08/2012 | 0.014981273 | 32 | 3 | 19 | 14 | 2 |
| 146325159 | 6: Original | 06/06/2012 | 0.014981273 | 177 | 46 | 101 | 120 | 2 |
| 146349851 | 7: Original | 06/06/2012 | 0.014981273 | 198 | 40 | 133 | 104 | 1 |
| 146329404 | 8: Original | 06/06/2012 | 0.014981273 | 38 | 8 | 32 | 12 | 2 |
| 146334309 | 9: Original | 06/07/2012 | 0.014981273 | 39 | 10 | 30 | 18 | 1 |
| 146353809 | 10: Original | 06/07/2012 | 0.014981273 | 34 | 5 | 22 | 16 | 1 |
| 607396191 | 11: Original | 06/05/2012 | 0.014981273 | 63 | 15 | 48 | 27 | 3 |
| 146333806 | 12: Original | 06/09/2012 | 0.014981273 | 30 | 12 | 20 | 21 | 1 |
| 146321054 | 13: Original | 06/08/2012 | 0.014981273 | 25 | 12 | 25 | 11 | 1 |
| 146353348 | 14: Original | 06/07/2012 | 0.014981273 | 53 | 6 | 43 | 15 | 1 |
| 607406131 | 15: Original | 06/04/2012 | 0.014981273 | 42 | 14 | 32 | 20 | 4 |
| 146346688 | 16: Original | 06/08/2012 | 0.014981273 | 204 | 46 | 113 | 133 | 4 |
| 635532528 | 17: Original | 06/05/2012 | 0.014981273 | 69 | 20 | 62 | 25 | 2 |
| 146342308 | 18: Original | 06/10/2012 | 0.014981273 | 35 | 14 | 44 | 4 | 1 |
| Total | | | | 1686 | 435 | 1272 | 791 | 58 |

| Site ID | Site type<br><br>Identify if the observation site is an original observation site or an alternate observation site. | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted<br><br>Occupants refer to both drivers and passengers. | Number of occupants unbelted | Number of occupants with unknown belt use |
|---|---|---|---|---|---|---|---|---|
| County: Carbon (7) | | | | | | | | |
| 611197576 | 1: Original | 06/07/2012 | 0.013513514 | 135 | 44 | 164 | 10 | 5 |
| 148702972 | 2: Original | 06/07/2012 | 0.013513514 | 144 | 71 | 192 | 21 | 2 |
| 148729076 | 3: Original | 06/08/2012 | 0.013513514 | 127 | 76 | 166 | 37 | 0 |
| 622138133 | 4: Original | 06/08/2012 | 0.013513514 | 81 | 23 | 77 | 25 | 2 |
| 148737136 | 5: Original | 06/04/2012 | 0.013513514 | 2 | 1 | 3 | 0 | 0 |
| 148752555 | 6: Original | 06/04/2012 | 0.013513514 | 19 | 6 | 18 | 0 | 7 |
| 148712671 | 7: Original | 06/06/2012 | 0.013513514 | 41 | 18 | 50 | 7 | 2 |
| 148715207 | 8: Original | 06/06/2012 | 0.013513514 | 19 | 6 | 17 | 6 | 2 |
| 148718040 | 9: Original | 06/05/2012 | 0.013513514 | 4 | 31 | 34 | 0 | 1 |
| 148695417 | 10: Original | 06/10/2012 | 0.013513514 | 57 | 39 | 79 | 16 | 1 |
| 148729803 | 11: Original | 06/08/2012 | 0.013513514 | 159 | 6 | 111 | 52 | 2 |
| 148707454 | 12: Original | 06/07/2012 | 0.013513514 | 12 | 4 | 13 | 2 | 1 |
| 148702076 | 13: Original | 06/09/2012 | 0.013513514 | 8 | 5 | 12 | 1 | 0 |
| 148743798 | 14: Original | 06/05/2012 | 0.013513514 | 16 | 9 | 20 | 2 | 3 |
| 148736405 | 15: Original | 06/04/2012 | 0.013513514 | 18 | 5 | 20 | 2 | 1 |
| 148714894 | 16: Original | 06/05/2012 | 0.013513514 | 30 | 6 | 28 | 5 | 3 |
| 148727630 | 17: Original | 06/09/2012 | 0.013513514 | 19 | 3 | 20 | 0 | 2 |
| 148716025 | 18: Original | 06/06/2012 | 0.013513514 | 6 | 0 | 5 | 0 | 1 |
| Total | | | | 897 | 353 | 1029 | 186 | 35 |

| Site ID | Site type | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted | Number of occupants unbelted | Number of occupants with unknown belt use |
|---|---|---|---|---|---|---|---|---|
| | Identify if the observation site is an original observation site or an alternate observation site. | | | | | Occupants refer to both drivers and passengers. | | |
| County: Fremont (13) | | | | | | | | |
| 628694209 | 1: Original | 06/04/2012 | 0.009518773 | 28 | 16 | 23 | 21 | 0 |
| 148440001 | 2: Original | 06/06/2012 | 0.009518773 | 29 | 11 | 26 | 14 | 0 |
| 148435866 | 3: Original | 06/04/2012 | 0.009518773 | 73 | 4 | 49 | 28 | 0 |
| 634121244 | 4: Original | 06/06/2012 | 0.009518773 | 22 | 14 | 24 | 12 | 0 |
| 148495718 | 5: Original | 06/08/2012 | 0.009518773 | 42 | 14 | 49 | 7 | 0 |
| 148494149 | 6: Original | 06/05/2012 | 0.009518773 | 29 | 44 | 58 | 15 | 0 |
| 148486152 | 7: Original | 06/09/2012 | 0.009518773 | 92 | 6 | 68 | 30 | 0 |
| 148473776 | 8: Original | 06/07/2012 | 0.009518773 | 19 | 13 | 22 | 10 | 0 |
| 148485578 | 9: Original | 06/05/2012 | 0.009518773 | 18 | 3 | 18 | 3 | 0 |
| 148433925 | 10: Original | 06/08/2012 | 0.009518773 | 3 | 19 | 12 | 10 | 0 |
| 148495394 | 11: Original | 06/07/2012 | 0.009518773 | 30 | 57 | 61 | 26 | 0 |
| 148468455 | 12: Original | 06/09/2012 | 0.009518773 | 92 | 9 | 82 | 19 | 0 |
| 148486961 | 13: Original | 06/07/2012 | 0.009518773 | 17 | 6 | 17 | 6 | 0 |
| 148429899 | 14: Original | 06/06/2012 | 0.009518773 | 13 | 23 | 24 | 12 | 0 |
| 148448781 | 15: Original | 06/10/2012 | 0.009518773 | 39 | 2 | 28 | 13 | 0 |
| 148470962 | 16: Original | 06/08/2012 | 0.009518773 | 10 | 39 | 34 | 15 | 0 |
| 148433053 | 17: Original | 06/04/2012 | 0.009518773 | 113 | 33 | 106 | 37 | 3 |
| 148432511 | 18: Original | 06/04/2012 | 0.009518773 | 111 | 0 | 90 | 20 | 1 |
| Total | | | | 780 | 313 | 791 | 298 | 4 |

| Site ID | Site type<br><br>Identify if the observation site is an original observation site or an alternate observation site. | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted<br><br>Occupants refer to both drivers and passengers. | Number of occupants unbelted | Number of occupants with unknown belt use |
|---|---|---|---|---|---|---|---|---|
| County: Johnson (19) | | | | | | | | |
| 624034874 | 1: Alternate | 06/07/2012 | 0.011461318 | 55 | 11 | 54 | 11 | 1 |
| 147364609 | 2: Original | 06/05/2012 | 0.011461318 | 48 | 11 | 47 | 11 | 1 |
| 147364620 | 3: Original | 06/05/2012 | 0.011461318 | 66 | 17 | 64 | 16 | 3 |
| 635198026 | 4: Original | 06/06/2012 | 0.011461318 | 98 | 35 | 93 | 38 | 2 |
| 635203662 | 5: Original | 06/06/2012 | 0.011461318 | 99 | 43 | 116 | 24 | 2 |
| 147303287 | 6: Original | 06/06/2012 | 0.011461318 | 112 | 53 | 140 | 24 | 1 |
| 147364484 | 7: Original | 06/06/2012 | 0.011461318 | 67 | 23 | 72 | 16 | 2 |
| 147365807 | 8: Original | 06/06/2012 | 0.011461318 | 2 | 0 | 1 | 1 | 0 |
| 147321002 | 9: Original | 06/10/2012 | 0.011461318 | 2 | 0 | 1 | 1 | 0 |
| 147312456 | 10: Alternate | 06/09/2012 | 0.011461318 | 64 | 26 | 67 | 21 | 2 |
| 147299440 | 11: Alternate | 06/08/2012 | 0.011461318 | 4 | 1 | 1 | 4 | 0 |
| 147375368 | 12: Original | 06/07/2012 | 0.011461318 | 7 | 0 | 5 | 2 | 0 |
| 147320405 | 13: Original | 06/05/2012 | 0.011461318 | 7 | 0 | 5 | 2 | 0 |
| 147301635 | 14: Alternate | 06/04/2012 | 0.011461318 | 38 | 21 | 51 | 8 | 0 |
| 147301707 | 15: Alternate | 06/04/2012 | 0.011461318 | 186 | 63 | 153 | 95 | 1 |
| 147330545 | 16: Original | 06/08/2012 | 0.011461318 | 24 | 13 | 34 | 3 | 0 |
| 617881865 | 17: Original | 06/09/2012 | 0.011461318 | 3 | 1 | 1 | 3 | 0 |
| 147320871 | 18: Original | 6/10/2012 | 0.011461318 | 3 | 1 | 1 | 3 | 0 |
| Total | | | | 885 | 319 | 906 | 283 | 15 |

| Site ID | Site type<br><br>Identify if the observation site is an original observation site or an alternate observation site. | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted<br><br>Occupants refer to both drivers and passengers. | Number of occupants unbelted | Number of occupants with unknown belt use |
|---|---|---|---|---|---|---|---|---|
| County: Laramie (21) | | | | | | | | |
| 622388802 | 1: Original | 06/08/2012 | 0.002237136 | 114 | 11 | 106 | 19 | 0 |
| 624043730 | 2: Original | 06/08/2012 | 0.002237136 | 27 | 3 | 24 | 6 | 0 |
| 160176358 | 3: Original | 06/05/2012 | 0.002237136 | 55 | 11 | 50 | 16 | 0 |
| 160145448 | 4: Original | 06/05/2012 | 0.002237136 | 1 | 0 | 0 | 1 | 0 |
| 160162024 | 5: Original | 06/10/2012 | 0.002237136 | 0 | 0 | 0 | 0 | 0 |
| 160151376 | 6: Original | 06/06/2012 | 0.002237136 | 244 | 30 | 160 | 112 | 2 |
| 160148179 | 7: Original | 06/07/2012 | 0.002237136 | 86 | 27 | 86 | 27 | 0 |
| 160171828 | 8: Original | 06/07/2012 | 0.002237136 | 2 | 0 | 1 | 1 | 0 |
| 160148102 | 9: Original | 06/07/2012 | 0.002237136 | 3 | 0 | 3 | 0 | 0 |
| 160148214 | 10: Original | 06/07/2012 | 0.002237136 | 4 | 1 | 1 | 4 | 0 |
| 160149935 | 11: Original | 06/05/2012 | 0.002237136 | 222 | 30 | 196 | 56 | 0 |
| 160172654 | 12: Original | 06/09/2012 | 0.002237136 | 6 | 4 | 0 | 10 | 0 |
| 160147641 | 13: Original | 06/08/2012 | 0.002237136 | 42 | 12 | 36 | 18 | 0 |
| 160152283 | 14: Original | 06/06/2012 | 0.002237136 | 64 | 18 | 68 | 14 | 0 |
| 160160311 | 15: Original | 06/06/2012 | 0.002237136 | 22 | 5 | 23 | 4 | 0 |
| 160176882 | 16: Original | 06/04/2012 | 0.002237136 | 45 | 18 | 55 | 8 | 0 |
| 160179037 | 17: Original | 06/08/2012 | 0.002237136 | 8 | 1 | 8 | 1 | 0 |
| 608318324 | 18: Original | 06/04/2012 | 0.002237136 | 48 | 3 | 41 | 10 | 0 |
| Total | | | | 993 | 174 | 858 | 307 | 2 |

| Site ID | Site type | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted | Number of occupants unbelted | Number of occupants with unknown belt use |
|---|---|---|---|---|---|---|---|---|
| | Identify if the observation site is an original observation site or an alternate observation site. | | | | | Occupants refer to both drivers and passengers. | | |
| County: Lincoln (23) | | | | | | | | |
| 611001502 | 1: Original | 06/04/2012 | 0.012957317 | 33 | 12 | 36 | 9 | 0 |
| 130299361 | 2: Original | 06/07/2012 | 0.012957317 | 42 | 13 | 36 | 19 | 0 |
| 130309240 | 3: Original | 06/06/2012 | 0.012957317 | 30 | 18 | 45 | 3 | 0 |
| 130324547 | 4: Original | 06/09/2012 | 0.012957317 | 61 | 32 | 75 | 18 | 0 |
| 130316044 | 5: Original | 06/09/2012 | 0.012957317 | 94 | 45 | 104 | 35 | 0 |
| 130316740 | 6: Original | 06/10/2012 | 0.012957317 | 100 | 60 | 148 | 12 | 0 |
| 611004110 | 7: Original | 06/07/2012 | 0.012957317 | 67 | 29 | 60 | 36 | 0 |
| 611001556 | 8: Original | 06/04/2012 | 0.012957317 | 42 | 14 | 36 | 20 | 0 |
| 611004390 | 9: Alternate | 06/07/2012 | 0.012957317 | 15 | 4 | 15 | 4 | 0 |
| 130297921 | 10: Original | 06/07/2012 | 0.012957317 | 34 | 10 | 29 | 15 | 0 |
| 619637613 | 11: Original | 06/08/2012 | 0.012957317 | 43 | 18 | 32 | 29 | 0 |
| 130324450 | 12: Original | 06/06/2012 | 0.012957317 | 41 | 19 | 50 | 10 | 0 |
| 611008956 | 13: Original | 06/08/2012 | 0.012957317 | 136 | 54 | 167 | 23 | 0 |
| 130301475 | 14: Original | 06/05/2012 | 0.012957317 | 4 | 0 | 3 | 1 | 0 |
| 130301732 | 15: Original | 06/06/2012 | 0.012957317 | 28 | 18 | 42 | 4 | 0 |
| 130316677 | 16: Original | 06/10/2012 | 0.012957317 | 99 | 47 | 129 | 17 | 0 |
| 611008950 | 17: Original | 06/08/2012 | 0.012957317 | 118 | 52 | 154 | 16 | 0 |
| 130303332 | 18: Original | 06/05/2012 | 0.012957317 | 20 | 9 | 28 | 1 | 0 |
| Total | | | | 1007 | 454 | 1189 | 272 | 0 |

| Site ID | Site type | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted | Number of occupants unbelted | Number of occupants with unknown belt use |
|---|---|---|---|---|---|---|---|---|
| | Identify if the observation site is an original observation site or an alternate observation site. | | | | | Occupants refer to both drivers and passengers. | | |
| County: Natrona (25) | | | | | | | | |
| 149010081 | 1: Original | 06/10/2012 | 0.002487562 | 131 | 8 | 125 | 14 | 0 |
| 149022110 | 2: Original | 06/04/2012 | 0.002487562 | 240 | 38 | 145 | 130 | 3 |
| 149038958 | 3: Original | 06/07/2012 | 0.002487562 | 43 | 13 | 35 | 21 | 0 |
| 149017131 | 4: Original | 06/09/2012 | 0.002487562 | 1 | 0 | 0 | 1 | 0 |
| 607727858 | 5: Original | 06/08/2012 | 0.002487562 | 200 | 31 | 142 | 89 | 0 |
| 617962807 | 6: Original | 06/06/2012 | 0.002487562 | 10 | 1 | 11 | 0 | 0 |
| 149021251 | 7: Original | 06/06/2012 | 0.002487562 | 6 | 1 | 4 | 3 | 0 |
| 149019867 | 8: Alternate | 06/06/2012 | 0.002487562 | 33 | 3 | 15 | 21 | 0 |
| 607699609 | 9: Original | 06/05/2012 | 0.002487562 | 9 | 2 | 9 | 2 | 0 |
| 149024110 | 10: Original | 06/07/2012 | 0.002487562 | 253 | 55 | 163 | 145 | 0 |
| 149026356 | 11: Original | 06/07/2012 | 0.002487562 | 17 | 5 | 12 | 10 | 0 |
| 607739973 | 12: Alternate | 06/07/2012 | 0.002487562 | 46 | 3 | 26 | 22 | 1 |
| 607727056 | 13: Original | 06/04/2012 | 0.002487562 | 25 | 9 | 22 | 12 | 0 |
| 607699508 | 14: Original | 06/05/2012 | 0.002487562 | 9 | 4 | 8 | 5 | 0 |
| 607718345 | 15: Original | 06/08/2012 | 0.002487562 | 56 | 15 | 44 | 27 | 0 |
| 149039592 | 16: Original | 06/10/2012 | 0.002487562 | 0 | 0 | 0 | 0 | 0 |
| 607701450 | 17: Original | 06/05/2012 | 0.002487562 | 9 | 2 | 6 | 5 | 0 |
| 617963960 | 18: Original | 06/04/2012 | 0.002487562 | 13 | 1 | 10 | 4 | 0 |
| Total | | | | 1101 | 191 | 777 | 511 | 4 |

| Site ID | Site type<br><br>Identify if the observation site is an original observation site or an alternate observation site. | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted<br><br>Occupants refer to both drivers and passengers. | Number of occupants unbelted | Number of occupants with unknown belt use |
|---------|------|------|------|------|------|------|------|------|
| County: Park (29) | | | | | | | | |
| 612523424 | 1: Original | 06/04/2012 | 0.011299435 | 13 | 10 | 19 | 3 | 1 |
| 612522810 | 2: Original | 06/04/2012 | 0.011299435 | 7 | 2 | 6 | 3 | 0 |
| 627160085 | 3: Original | 06/04/2012 | 0.011299435 | 58 | 36 | 89 | 5 | 0 |
| 149194387 | 4: Original | 06/05/2012 | 0.011299435 | 12 | 5 | 7 | 10 | 0 |
| 149206406 | 5: Original | 06/06/2012 | 0.011299435 | 25 | 17 | 40 | 2 | 0 |
| 626966347 | 6: Original | 06/06/2012 | 0.011299435 | 230 | 59 | 207 | 82 | 0 |
| 612520875 | 7: Original | 06/07/2012 | 0.011299435 | 207 | 55 | 162 | 100 | 0 |
| 612522765 | 8: Original | 06/07/2012 | 0.011299435 | 38 | 19 | 48 | 9 | 0 |
| 624469118 | 9: Original | 06/07/2012 | 0.011299435 | 71 | 41 | 94 | 18 | 0 |
| 612517654 | 10: Original | 06/07/2012 | 0.011299435 | 29 | 2 | 16 | 15 | 0 |
| 149194643 | 11: Original | 06/08/2012 | 0.011299435 | 152 | 50 | 149 | 53 | 0 |
| 612521823 | 12: Original | 06/08/2012 | 0.011299435 | 125 | 26 | 104 | 47 | 0 |
| 149212941 | 13: Original | 06/08/2012 | 0.011299435 | 24 | 4 | 22 | 5 | 1 |
| 149202036 | 14: Original | 06/08/2012 | 0.011299435 | 9 | 2 | 8 | 3 | 0 |
| 612468763 | 15: Original | 06/09/2012 | 0.011299435 | 14 | 9 | 14 | 9 | 0 |
| 612523179 | 16: Alternate | 06/09/2012 | 0.011299435 | 1 | 0 | 1 | 0 | 0 |
| 625076103 | 17: Original | 06/09/2012 | 0.011299435 | 148 | 46 | 159 | 35 | 0 |
| 612522218 | 18: Original | 06/10/2012 | 0.011299435 | 82 | 15 | 63 | 34 | 0 |
| Total | | | | 1245 | 398 | 1208 | 433 | 2 |

| Site ID | Site type<br><br>Identify if the observation site is an original observation site or an alternate observation site. | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted<br><br>Occupants refer to both drivers and passengers. | Number of occupants unbelted | Number of occupants with unknown belt use |
|---|---|---|---|---|---|---|---|---|
| County: Platte (31) | | | | | | | | |
| 160436166 | 1: Original | 06/10/2012 | 0.014962594 | 240 | 118 | 337 | 21 | 0 |
| 606897806 | 2: Original | 06/08/2012 | 0.014962594 | 140 | 61 | 188 | 13 | 0 |
| 604828586 | 3: Original | 06/06/2012 | 0.014962594 | 147 | 35 | 159 | 23 | 0 |
| 606897551 | 4: Original | 06/06/2012 | 0.014962594 | 158 | 52 | 157 | 53 | 0 |
| 620601368 | 5: Alternate | 06/09/2012 | 0.014962594 | 159 | 78 | 227 | 10 | 0 |
| 618035322 | 6: Original | 06/04/2012 | 0.014962594 | 190 | 56 | 210 | 36 | 0 |
| 604823280 | 7: Original | 06/05/2012 | 0.014962594 | 4 | 1 | 3 | 2 | 0 |
| 160432353 | 8: Original | 06/07/2012 | 0.014962594 | 20 | 9 | 23 | 6 | 0 |
| 604817760 | 9: Original | 06/07/2012 | 0.014962594 | 9 | 3 | 11 | 1 | 0 |
| 624031047 | 10: Original | 06/08/2012 | 0.014962594 | 90 | 32 | 94 | 28 | 0 |
| 604820352 | 11: Original | 06/07/2012 | 0.014962594 | 109 | 41 | 84 | 66 | 0 |
| 160445492 | 12: Original | 06/04/2012 | 0.014962594 | 20 | 6 | 18 | 8 | 0 |
| 160445589 | 13: Original | 06/04/2012 | 0.014962594 | 14 | 6 | 13 | 7 | 0 |
| 160431220 | 14: Original | 06/10/2012 | 0.014962594 | 240 | 94 | 286 | 48 | 0 |
| 160441567 | 15: Original | 06/07/2012 | 0.014962594 | 15 | 7 | 17 | 5 | 0 |
| 604820453 | 16: Original | 06/09/2012 | 0.014962594 | 1 | 1 | 2 | 0 | 0 |
| 160442550 | 17: Original | 06/05/2012 | 0.014962594 | 2 | 1 | 1 | 2 | 0 |
| 160425201 | 18: Original | 06/06/2012 | 0.014962594 | 9 | 3 | 8 | 4 | 0 |
| Total | | | | 1567 | 604 | 1838 | 333 | 0 |

| Site ID | Site type<br><br>Identify if the observation site is an original observation site or an alternate observation site. | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted<br><br>Occupants refer to both drivers and passengers. | Number of occupants unbelted | Number of occupants with unknown belt use |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| County: Sheridan (33) | | | | | | | | |
| 629143491 | 1: Original | 06/08/2012 | 0.010884354 | 88 | 41 | 101 | 16 | 12 |
| 634774573 | 2: Original | 06/06/2012 | 0.010884354 | 112 | 33 | 96 | 22 | 27 |
| 147411270 | 3: Original | 06/10/2012 | 0.010884354 | 14 | 6 | 11 | 9 | 0 |
| 147421444 | 4: Original | 06/09/2012 | 0.010884354 | 24 | 6 | 19 | 8 | 3 |
| 605384408 | 5: Original | 06/08/2012 | 0.010884354 | 206 | 41 | 140 | 97 | 10 |
| 147398734 | 6: Original | 06/05/2012 | 0.010884354 | 20 | 16 | 29 | 6 | 1 |
| 147408472 | 7: Original | 06/07/2012 | 0.010884354 | 145 | 47 | 126 | 53 | 13 |
| 147409609 | 8: Original | 06/10/2012 | 0.010884354 | 7 | 2 | 2 | 5 | 2 |
| 147400215 | 9: Original | 06/05/2012 | 0.010884354 | 26 | 12 | 25 | 11 | 2 |
| 147396185 | 10: Original | 06/04/2012 | 0.010884354 | 4 | 2 | 4 | 0 | 2 |
| 147420545 | 11: Original | 06/06/2012 | 0.010884354 | 28 | 9 | 24 | 11 | 2 |
| 605368387 | 12: Original | 06/07/2012 | 0.010884354 | 27 | 8 | 20 | 13 | 2 |
| 147419891 | 13: Original | 06/06/2012 | 0.010884354 | 9 | 3 | 6 | 3 | 3 |
| 147399687 | 14: Original | 06/09/2012 | 0.010884354 | 37 | 3 | 28 | 10 | 2 |
| 147408335 | 15: Original | 06/07/2012 | 0.010884354 | 76 | 13 | 48 | 33 | 8 |
| 147398523 | 16: Original | 06/05/2012 | 0.010884354 | 30 | 18 | 31 | 6 | 11 |
| 614721355 | 17: Original | 06/08/2012 | 0.010884354 | 187 | 42 | 160 | 60 | 9 |
| 147417308 | 18: Original | 06/04/2012 | 0.010884354 | 67 | 21 | 63 | 13 | 12 |
| Total | | | | 1107 | 323 | 933 | 376 | 121 |

| Site ID | Site type<br><br>Identify if the observation site is an original observation site or an alternate observation site. | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted<br><br>Occupants refer to both drivers and passengers. | Number of occupants unbelted | Number of occupants with unknown belt use |
|---|---|---|---|---|---|---|---|---|
| County: Sublette (35) | | | | | | | | |
| 149346148 | 1: Original | 06/04/2012 | 0.016917293 | 5 | 2 | 5 | 2 | 0 |
| 149347154 | 2: Original | 06/04/2012 | 0.016917293 | 12 | 1 | 11 | 2 | 0 |
| 149330874 | 3: Original | 06/08/2012 | 0.016917293 | 7 | 2 | 8 | 1 | 0 |
| 149342158 | 4: Original | 06/09/2012 | 0.016917293 | 14 | 10 | 17 | 7 | 0 |
| 617103316 | 5: Original | 06/07/2012 | 0.016917293 | 161 | 38 | 170 | 28 | 1 |
| 614284845 | 6: Original | 06/10/2012 | 0.016917293 | 38 | 22 | 57 | 3 | 0 |
| 631784199 | 7: Original | 06/08/2012 | 0.016917293 | 16 | 2 | 12 | 6 | 0 |
| 149328921 | 8: Original | 06/05/2012 | 0.016917293 | 6 | 3 | 7 | 2 | 0 |
| 149319272 | 9: Original | 06/05/2012 | 0.016917293 | 5 | 1 | 5 | 1 | 0 |
| 149327486 | 10: Original | 06/04/2012 | 0.016917293 | 3 | 0 | 3 | 0 | 0 |
| 611631792 | 11: Original | 06/07/2012 | 0.016917293 | 11 | 1 | 6 | 6 | 0 |
| 149335729 | 12: Original | 06/06/2012 | 0.016917293 | 29 | 6 | 20 | 15 | 0 |
| 149349722 | 13: Original | 06/04/2012 | 0.016917293 | 0 | 0 | 0 | 0 | 0 |
| 149348298 | 14: Original | 06/09/2012 | 0.016917293 | 9 | 5 | 11 | 3 | 0 |
| 624696401 | 15: Original | 06/07/2012 | 0.016917293 | 25 | 2 | 17 | 10 | 0 |
| 149341811 | 16: Original | 06/10/2012 | 0.016917293 | 57 | 26 | 74 | 9 | 0 |
| 149343493 | 17: Original | 06/06/2012 | 0.016917293 | 6 | 2 | 8 | 0 | 0 |
| 611631778 | 18: Original | 06/07/2012 | 0.016917293 | 94 | 32 | 110 | 14 | 2 |
| Total | | | | 498 | 155 | 541 | 109 | 3 |

| Site ID | Site type<br><br>Identify if the observation site is an original observation site or an alternate observation site. | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted<br><br>Occupants refer to both drivers and passengers. | Number of occupants unbelted | Number of occupants with unknown belt use |
|---|---|---|---|---|---|---|---|---|
| County: Sweetwater (37) | | | | | | | | |
| 624231944 | 1: Original | 06/05/2012 | 0.012158055 | 115 | 40 | 86 | 44 | 25 |
| 633104230 | 2: Original | 06/04/2012 | 0.012158055 | 166 | 37 | 140 | 53 | 10 |
| 149499689 | 3: Original | 06/07/2012 | 0.012158055 | 6 | 2 | 5 | 3 | 0 |
| 149487238 | 4: Original | 06/05/2012 | 0.012158055 | 107 | 32 | 75 | 46 | 18 |
| 618328344 | 5: Original | 06/06/2012 | 0.012158055 | 69 | 26 | 54 | 32 | 9 |
| 149511333 | 6: Original | 06/07/2012 | 0.012158055 | 33 | 10 | 30 | 12 | 1 |
| 618324181 | 7: Alternate | 06/07/2012 | 0.012158055 | 256 | 78 | 176 | 143 | 15 |
| 149464554 | 8: Original | 06/10/2012 | 0.012158055 | 26 | 20 | 28 | 17 | 1 |
| 149493695 | 9: Original | 06/06/2012 | 0.012158055 | 0 | 0 | 0 | 0 | 0 |
| 149491956 | 10: Alternate | 06/06/2012 | 0.012158055 | 12 | 7 | 11 | 8 | 0 |
| 149503912 | 11: Original | 06/08/2012 | 0.012158055 | 256 | 68 | 169 | 146 | 9 |
| 149496622 | 12: Original | 06/08/2012 | 0.012158055 | 58 | 22 | 46 | 27 | 7 |
| 611877695 | 13: Original | 06/08/2012 | 0.012158055 | 139 | 46 | 115 | 61 | 9 |
| 149458823 | 14: Original | 06/10/2012 | 0.012158055 | 3 | 0 | 3 | 0 | 0 |
| 149461346 | 15: Original | 06/04/2012 | 0.012158055 | 13 | 2 | 9 | 5 | 1 |
| 149499742 | 16: Original | 06/07/2012 | 0.012158055 | 17 | 5 | 19 | 3 | 0 |
| 149502711 | 17: Original | 06/08/2012 | 0.012158055 | 37 | 6 | 29 | 11 | 3 |
| 149457693 | 18: Original | 06/10/2012 | 0.012158055 | 4 | 1 | 4 | 1 | 0 |
| Total | | | | 1317 | 402 | 999 | 612 | 108 |

| Site ID | Site type<br><br>Identify if the observation site is an original observation site or an alternate observation site. | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted<br><br>Occupants refer to both drivers and passengers. | Number of occupants unbelted | Number of occupants with unknown belt use |
|---|---|---|---|---|---|---|---|---|
| County: Teton (39) | | | | | | | | |
| 130447128 | 1: Original | 06/09/2012 | 0.022929936 | 112 | 59 | 168 | 0 | 3 |
| 130412425 | 2: Original | 06/06/2012 | 0.022929936 | 71 | 6 | 74 | 0 | 3 |
| 626815081 | 3: Original | 06/05/2012 | 0.022929936 | 224 | 56 | 274 | 6 | 0 |
| 130414136 | 4: Original | 06/04/2012 | 0.022929936 | 145 | 3 | 141 | 5 | 2 |
| 130440602 | 5: Original | 06/07/2012 | 0.022929936 | 92 | 60 | 148 | 2 | 2 |
| 235945248 | 6: Original | 06/06/2012 | 0.022929936 | 71 | 27 | 96 | 2 | 0 |
| 130449024 | 7: Original | 06/05/2012 | 0.022929936 | 180 | 84 | 263 | 1 | 0 |
| 130410308 | 8: Original | 06/09/2012 | 0.022929936 | 66 | 19 | 85 | 0 | 0 |
| 130442142 | 9: Original | 06/07/2012 | 0.022929936 | 35 | 20 | 55 | 0 | 0 |
| 130414163 | 10: Original | 06/04/2012 | 0.022929936 | 149 | 1 | 145 | 1 | 4 |
| 130416881 | 11: Original | 06/07/2012 | 0.022929936 | 35 | 24 | 59 | 0 | 0 |
| 625696810 | 12: Original | 06/08/2012 | 0.022929936 | 56 | 26 | 81 | 1 | 0 |
| 633121288 | 13: Original | 06/04/2012 | 0.022929936 | 145 | 7 | 152 | 0 | 0 |
| 130435259 | 14: Original | 06/10/2012 | 0.022929936 | 116 | 104 | 219 | 1 | 0 |
| 130421972 | 15: Original | 06/05/2012 | 0.022929936 | 175 | 5 | 178 | 2 | 0 |
| 626815080 | 16: Original | 06/05/2012 | 0.022929936 | 204 | 35 | 234 | 5 | 0 |
| 130430099 | 17: Original | 06/04/2012 | 0.022929936 | 33 | 0 | 28 | 3 | 2 |
| 130438888 | 18: Original | 06/08/2012 | 0.022929936 | 98 | 63 | 161 | 0 | 0 |
| Total | | | | 2007 | 599 | 2561 | 29 | 16 |

| Site ID | Site type

Identify if the observation site is an original observation site or an alternate observation site. | Date observed | Sample weight | Number of drivers | Number of front passengers | Number of occupants belted

Occupants refer to both drivers and passengers. | Number of occupants unbelted | Number of occupants with unknown belt use |
|---|---|---|---|---|---|---|---|---|
| County: Uinta (41) | | | | | | | | |
| 160262564 | 1: Original | 06/04/2012 | 0.022421525 | 132 | 53 | 162 | 21 | 2 |
| 160262989 | 2: Original | 06/04/2012 | 0.022421525 | 113 | 22 | 111 | 21 | 3 |
| 160263878 | 3: Original | 06/04/2012 | 0.022421525 | 118 | 46 | 144 | 17 | 3 |
| 160276521 | 4: Original | 06/04/2012 | 0.022421525 | 142 | 57 | 167 | 30 | 2 |
| 625848180 | 5: Original | 06/06/2012 | 0.022421525 | 55 | 14 | 43 | 26 | 0 |
| 160278118 | 6: Original | 06/09/2012 | 0.022421525 | 164 | 71 | 158 | 75 | 2 |
| 160256726 | 7: Original | 06/08/2012 | 0.022421525 | 56 | 28 | 77 | 6 | 1 |
| 160278610 | 8: Original | 06/06/2012 | 0.022421525 | 113 | 29 | 73 | 68 | 1 |
| 160276641 | 9: Original | 06/06/2012 | 0.022421525 | 29 | 5 | 23 | 11 | 0 |
| 160259758 | 10: Original | 06/08/2012 | 0.022421525 | 120 | 46 | 95 | 70 | 1 |
| 160269401 | 11: Original | 06/05/2012 | 0.022421525 | 10 | 1 | 6 | 5 | 0 |
| 160258496 | 12: Original | 06/07/2012 | 0.022421525 | 8 | 4 | 11 | 1 | 0 |
| 160266210 | 13: Original | 06/06/2012 | 0.022421525 | 1 | 0 | 1 | 0 | 0 |
| 160257875 | 14: Original | 06/10/2012 | 0.022421525 | 29 | 12 | 36 | 5 | 0 |
| 160258469 | 15: Original | 06/07/2012 | 0.022421525 | 7 | 1 | 5 | 3 | 0 |
| 160269069 | 16: Original | 06/05/2012 | 0.022421525 | 15 | 3 | 10 | 7 | 1 |
| 606738273 | 17: Original | 06/09/2012 | 0.022421525 | 189 | 84 | 170 | 101 | 2 |
| 160275943 | 18: Original | 06/08/2012 | 0.022421525 | 164 | 58 | 141 | 81 | 0 |
| Total | | | | 1465 | 534 | 1433 | 548 | 18 |

Standard Error of Statewide Belt Use Rate: 1.20%

Nonresponse Rate as provided in §1340.9 (f)

Nonresponse rate for the survey variable seat belt use: 1.73%

Appendix H: SPSS data dictionary

```
DISPLAY DICTIONARY.
```

## File Information: Wyoming 2012 Seat Belt Use Data File

**Notes**

| | | |
|---|---|---|
| Output Created | | 11-SEP-2012 10:25:40 |
| Comments | | |
| Input | Data | C:\Documents and Settings\keith\My Documents\Wyoming 2012\Keith Data\Drivers & Passengers.sav |
| | Active Dataset | DataSet1 |
| | Filter | <none> |
| | Weight | <none> |
| | Split File | <none> |
| | N of Rows in Working Data File | 18706 |
| Syntax | | DISPLAY DICTIONARY. |
| Resources | Processor Time | 00:00:00.00 |
| | Elapsed Time | 00:00:00.03 |

```
[DataSet1] C:\Documents and Settings\keith\My Documents\Wyoming 2012\Keith Data\Drivers & Passengers.sav
```

**Variable Information**

| Variable | Position | Label | Measurement Level | Role | Column Width | Alignment | Print Format | Write Format | Missing Values |
|---|---|---|---|---|---|---|---|---|---|
| TLID | 1 | NHTSA Site ID | Scale | Input | 12 | Right | F12 | F12 | |
| SRSWOR | 2 | Site Probabilities | Scale | Input | 10 | Right | F12.6 | F12.6 | |
| InclProbOfRoadType | 3 | Roadway Probabilities | Scale | Input | 12 | Right | F12.6 | F12.6 | |
| Roadh | 4 | Road (h) | Nominal | Input | 5 | Right | F12 | F12 | |
| @#Lanesl | 5 | # Lanes (l) | Nominal | Input | 8 | Right | F12 | F12 | |
| Weatherw | 6 | Weather (w) | Nominal | Input | 8 | Right | F12 | F12 | |
| Timej | 7 | Time (j) | Nominal | Input | 6 | Right | F12 | F12 | |
| Countyc | 8 | County (c) | Nominal | Input | 8 | Right | F12 | F12 | |
| Site# | 9 | Site ID Number w/ Co | Nominal | Input | 6 | Right | F4 | F4 | |
| Population | 10 | Population Density | Nominal | Input | 7 | Right | F4 | F4 | 9 |
| Roadway | 11 | Roadway Type | Nominal | Input | 9 | Right | F5 | F5 | 9999 |
| Weekday | 12 | Weekday | Nominal | Input | 8 | Right | F12 | F12 | 9 |
| Observer | 13 | Observer | Nominal | Input | 8 | Right | F12 | F12 | 99 |
| Case# | 14 | Case # | Nominal | Input | 5 | Right | F5 | F5 | |
| Vehicle | 15 | Vehicle Type | Nominal | Input | 8 | Right | F12 | F12 | 9 |
| License | 16 | License Status | Nominal | Input | 8 | Right | F12 | F12 | 8 |
| Driver | 17 | Driver Belt Use | Nominal | Input | 8 | Right | F12 | F12 | 9 |
| DriverSex | 18 | Driver Gender | Nominal | Input | 9 | Right | F12 | F12 | 9 |
| Pass | 19 | Passenger Belt Use | Nominal | Input | 6 | Right | F12 | F12 | 9, 4 |
| PassSex | 20 | Passenger Gender | Nominal | Input | 8 | Right | F12 | F12 | 9, 3 |
| Roadway2 | 21 | Roadway Type 2 | Nominal | Input | 9 | Right | F8 | F8 | 9999 |

Variables in the working file

**Variable Values**

| Value | | Label |
|---|---|---|
| Countyc | 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 | 1100 | Primary Road |
| | 1200 | Secondary Road |
| | 1400 | Local/Rural/City St |
| Weekday | 1 | Sunday |
| | 2 | Monday |
| | 3 | Tuesday |
| | 4 | Wednesday |
| | 5 | Thursday |
| | 6 | Friday |
| | 7 | Saturday |
| Observer | 1 | Donna Lucas |
| | 2 | Alicia Caldwell |
| | 3 | Crystal Wren |
| | 4 | Theresa Pacheco |
| | 5 | Melody Wilson |
| | 6 | Shawna Wolf |
| | 7 | Bridget White |
| | 8 | Whitney Sussex |
| | 9 | Chelsea Wilson |
| | 10 | Chereon Hoopes |
| | 11 | Deb Taylor |
| | 12 | Helen Romero |
| | 13 | Bill Smith |
| | 14 | Vicky Peterson |
| | 15 | Richard Macht |
| | 16 | Michael Haycock |
| | 17 | Sandy McCleery |
| | 18 | Stacy Hawk |
| | 19 | Joan Dobbs |
| | 20 | Randi Egley |
| | 21 | Taylor & Romero |
| | 22 | Sussex & Wilson |

| Vehicle | 1 | Auto |
|---|---|---|
| | 2 | Van |
| | 3 | SUV |
| | 4 | Pickup |
| License | 1 | Wyoming |
| | 2 | Out of State |
| | 9 | Unsure |
| Driver | 1 | Belted |
| | 2 | Not Belted |
| | 3 | Unsure |
| DriverSex | 1 | Male |
| | 2 | Female |
| Pass | 1 | Belted |
| | 2 | Not Belted |
| | 3 | Unsure |
| | 4[a] | No Passenger |
| PassSex | 1 | Male |
| | 2 | Female |
| Roadway2 | 1100 | Primary Road |
| | 1200 | Secondary Road |
| | 1400 | Local/Rural/City St |

a. Missing value

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Report submitted by

DLN CONSULTING INC