2014 WYOMING

SURVEY OF SEAT BELT USE

The protocols implemented for this study are in accordance with the federal guidelines established in 2012, which distinguish it from all prior surveys of seat belt use in Wyoming. The standards and protocols align with the Uniform Criteria for State Observational Surveys of Seat Belt Use, 23 CFR Part 1340. The 2014 survey analysis is the third survey conducted under the 2012 guidelines for seat belt use in the state of Wyoming

Prepared by DLN Consulting, Inc.

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Table of Contents

Executive Summary

For the 2014 survey of seat belt use in Wyoming, 79.2 percent of vehicle occupants were observed wearing seat belts. This result is lower than the 2013 rate, but higher than the 2012 rate. The range across all three years is less than five percentage points.

In this report, we present the following:

- A general discussion of the results that summarizes and highlights some of the key findings.
- A review of the unweighted frequencies, which provides a context for the reported results.
- The estimates of seat belt use for all vehicle occupants, including the overall rate and the rates for the categories of the contingent variables.
- The estimates of seat belt use for drivers.
- The estimates of seat belt use for outboard passengers.
- The trends in the estimates across the 2012 to 2014 surveys, which represent the surveys conducted under the new methodology and the new sample implemented in 2012.
- An appendix that contains detailed tables and supporting documents.

Discussion

From June 2 to June 8, sixteen observers collected data on seat belt use in 16 Wyoming counties, covering 288 road sites. For the first time, the Wyoming observers received iPads and training in its use for the purposes of data collection. This facilitated the direct collection of observations and eliminated the need for separate pencil-and-paper based data entry.

The final overall estimate of seat belt use for all observed vehicle occupants was 79.2 percent. This is an *estimate* based on utilization of sample probabilities for each site within each roadway type to weight the data by using the Complex Samples module in SPSS, a software package for data analysis. The standard error for the occupants who were using seat belts was 1.3 percent, well within the outside limit (2.5%) for the test of confidence in the result. The estimate of those not wearing seat belts was 20.4 percent, and for an estimated 0.4 percent of the sample, the observers were unsure about the vehicle occupant's seat belt use. These results were based on 23,723 vehicle occupants. Of these occupants, 17,613 were drivers and 6,110 were passengers.

The rate of 79.2 percent belted was 2.7 percentage points below the rate of 81.9 percent in 2013. However, this drop in the rate, while perhaps disappointing and perhaps important in terms of real-life events, is not statistically significant. Two other qualifying observations are appropriate. First, the 2014 rate (79.2%) was higher than the rate for Wyoming in 2012. Second, there are 2,846 more observations in 2014 than in 2013, an increase of 13.6 points. These increased observations, made possible the use of the iPads, increased the statistical confidence in the validity of the 2014 rate, as indicated by the standard error and the confidence intervals.

The passenger rate of seat belt use was 83.6 percent, while drivers were observed as belted at a rate of 77.6 percent, a difference of 6.0 points. Female vehicle occupants were estimated to have a seat belt usage rate of 85.1 percent, 10.1 points higher than the male rate of 75.0 percent. This is important because males made up six of every ten vehicle occupants in the survey. The estimates indicate that rural vehicle occupants have a considerably higher rate of seat belt use, and that occupants observed on primary roadways are more likely to be wearing seat belts than occupants on the other types of roadways. Seat belt rates for occupants of automobiles, vans, and SUVs are higher than the overall rate, but those rates are offset by the much lower rate for pickup truck occupants, so

much lower, in fact, that the pickup truck rate depressed the overall rate by about 5.1 percent.[1] The overall rate of seat belt use in pickup trucks was 69.9 percent and 67.2 percent for males only in pickup trucks.

As in past years, the seat belt use rate was lower for occupants in Wyoming registered vehicles and higher for occupants of out-of-state vehicles. This is another factor that depresses the overall rate because more than two-thirds of vehicle occupants were observed in Wyoming registered vehicles.

The rate of seat belt use declined from 81.9 percent in 2013 to 79.2 percent in 2014. However, this percentage is still 2.2 percentage points higher than the rate of 77.0 percent in 2012.

Females had higher rates of seat belt use across the past three years, although the gap is smaller in 2013. The rate of seat belt use in rural sites was higher than the urban rate, but the 2013 difference is greater than the rates in the other years. Rates for occupants observed on primary roads were higher than on secondary roads and lowest on local/rural/city roadways across all three surveys. Occupants of pickup trucks had the lowest rates of all.

To sum up, the results for 2014 showed a lower rate of seat belt use than in 2013, but a higher rate than in 2012. This is evident in that rates for key groups declined from 2013 to 2014 (males, pickup truck occupants, occupants in Wyoming-licensed vehicles, and some counties, for example). However, the patterns of seat belt use were usually consistent across the categories of the contingent variables (driver or passenger, population density, roadway type, vehicle type, license registration, and county). There are some exceptions, noted in the narrative. For more details and supporting information, the reader may refer to the appendix of this report.

[1] By examining only the occupants of automobiles, vans and SUVs, and by, omitting occupants of pickup trucks, would be the overall rate have been 84.3 percent.

Quality Assurance

Observers

All observers participated in training. The training session took place in May 2014 prior to the survey. The training included both classroom instruction and field observations.

Observers participated in testing for an inter-accuracy ratio through participation in a minimum of three observation test sites. Selected test sites represented 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 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 91.5 percent, higher than the 85 percent required by the methodology.

At the conclusion of the training, observers and quality control monitors received 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 92.8 percent, significantly higher than the required 80 percent.

Data Compilation

iPads were used to collect the 2014 seat belt survey, which required adding an iPad and survey tool training segment. The observers received basic iPad training related to the functions, features, and maintenance. All iPads were preloaded with the 2014 Seat Belt Survey data collection tool. All the observers and quality control staff received training on the individual components of the application in audio, visual, and tactile format. On day one each of the training participants were provided a period to practice using the program during the training session. After practicing in the classroom, the observers had an opportunity to complete a mock data collection period. On day two, the observers completed four data collection sessions. Three of the four data collection sessions were used to calculate their individual inter-accuracy ratios.

Introduction

During the week of June 2nd to June 8th, 2014, sixteen trained observers were dispatched to sixteen counties in Wyoming with the charge to collect observations of seat belt use on vehicle occupants, including the drivers and front seat outboard passengers. Each observer covered eighteen sites in each county from the Monday to Sunday observational period, which means that 288 intersections were included in the statewide sample. The observers received instruction to follow very specific observational directions and protocols. In addition to the sixteen assigned observers, two alternate observers trained, veteran observers joined with assigned observers to conduct quality assurance reviews at randomly determined sites throughout the week.

This year, for the first time, the observers recorded their observations directly into "iPads" instead of creating paper and pencil records, which used to require an additional and separate data entry process. DLN staff exported the data and merged the records into Excel files for vehicle drivers, passengers, and a third file for all occupants, the combined drivers, and passengers. Next, the Excel files were imported into the SPSS software program and the files were prepared for analysis, a process that involves "cleaning" any errors and specifying the information needed for each variable (labels, missing value codes, etc.). The actual analysis utilized the "complex samples" module in SPSS to weight the data in accordance with sample selection probabilities.

The most important results in this report are the weighted percentages for seat belt use. However, the first section of the report reviews the *unweighted* frequencies for the variables in the survey. These variables include frequencies of vehicle occupants within the contextual variables associated with each occupant, that is, whether the occupant was male or female, observed in an urban or rural site, the day of the week when occupants were observed, vehicle registration status – Wyoming or out-of-state license – of the vehicle containing the occupants, the county associated with each occupant, the time of day of each observation, and the type of roadway associated with each vehicle occupant. Since these frequencies were unweighted, they were primarily useful for the purposes of full disclosure. However, the reader should be careful about making any inferences from this data because it does not take into account the sampling probability of each observation.

The *weighted* estimates of seat belt use, which do take into account those sampling probabilities, follows the unweighted frequencies. In addition to the overall report of seat belt use, the main section of the report will examine estimates of seat belt use within the categories of the relevant variables (driver or passenger, male or female, vehicle type, license status, etc.). These estimates reflected a sampling plan that weights each observation based on sample probabilities and was utilized by the complex samples module in SPSS.

Standard Error and Confidence Intervals

The overall estimate of seat belt use for Wyoming in 2014 was 79.2 percent belted among 23,723 observed vehicle drivers and outboard front seat passengers. The standard error of the mean for this estimate of belted vehicle occupants was 1.3 percent.

The 23,723 observed vehicle occupants included 17, 613 drivers and 6,110 passengers. Drivers were belted at a rate of 77.6 percent, and passengers at a rate of 83.6 percent. Observers reported they were "unsure" about seat belt use for occupants 0.4 percent of the time.

Table 1: Occupant Belts Use in Wyoming, 2014

Occupant Belt Use in Wyoming, 2014						
		Estimate	Standard Error	95% Confidence Interval		Unweighted Count
				Lower	Upper	
Percent of Total	Belted	79.2%	1.3%	73.3%	84.1%	18,405
	Not Belted	20.4%	1.4%	14.9%	27.3%	5,207
	Unsure	0.4%	0.2%	0.1%	2.8%	111
	Total	100.0%				23,723

Table 1 presents the 2014 seat belt use data, which includes the confidence intervals for the weighted estimate of the seat belt use for belted vehicle occupants.

Observers

It is an axiom of survey research that the quality of any data ultimately depends on the accuracy of the records of those who are closest to the phenomena to be measured, seat belt use in this case. The skills of the observers, harnessed by the directions and protocols, are the most important determinants of the quality of this survey.

Table 2 identifies each observer and his or her assigned county of observation.

Table 2: Observers by County of Observations, Wyoming 2014

Observers by County of Observations, Wyoming 2014				
Observers	County	Observations	Total	Percent
Dorothy Johnstone	Bighorn	529	529	2.2%
Sandy McCleery	Laramie	793	793	3.3%
Samantha Anderson	Natrona	885	885	3.7%
Deanna Frey	Fremont	1,137	1,137	4.8%
Dallas Darden	Laramie	1,137	1,137	4.8%
Brianna Beck	Lincoln	1,183	1,183	5.0%
Eric Johnson	Campbell	1,206	1,206	5.1%
Kristi Holifield	Sheridan	1,501	1,501	6.3%
Monty Byers	Albany	1,552	1,552	6.5%
Vicky Peterson	Platte	1,552	1,552	6.5%
Trevice Fifield	Johnson	1,569	1,569	6.6%
Kayla Shear	Uinta	1,646	1,646	6.9%
Darcy Ronne	Park	1,736	1,736	7.3%
Derek Bacon	Campbell	1,813	1,813	7.6%
Bill Spencer	Sweetwater	1,929	1,929	8.1%
Chereon Hoops	Teton	3,555	3,555	15.0%
Totals		23,723	23,723	100.0%
		Average	1,483	

The number of observations varied because of the differences in traffic among the different counties. The average number of observations for each observer was 1,483, for 23,723 vehicle occupants.

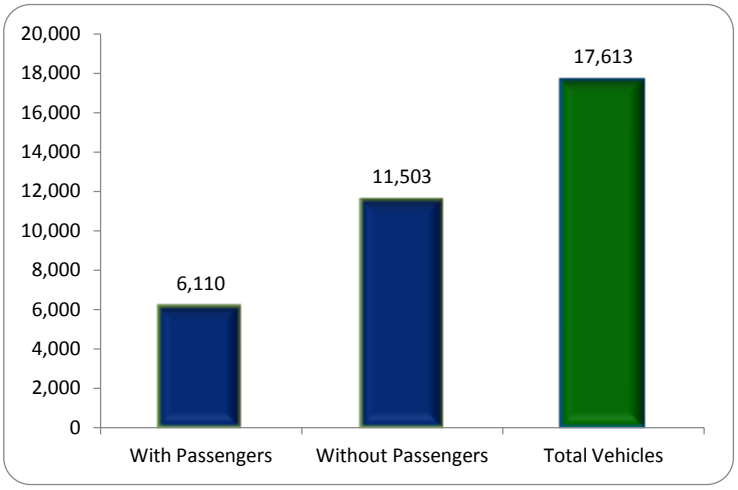
Frequencies

This section is devoted to frequencies *not* weighted by sampling probabilities. [2] Similarly, these are not "estimates" but the actual numbers of observations, presented within the categories of the major variables. The weighting process adjusts the actual observations, producing the estimates of seat belt use expressed in percentages.

Observers recorded information on drivers and outboard, front seat passengers for each observed vehicle. For the 2014 survey, 17,613 vehicles were observed, and there were no passengers in 11,503, or 65.3 percent, of the vehicles. There were 6,110 vehicles, or 34.6 percent, that *did* contain passengers. These percentages are nearly identical to those from the 2013 survey, when 64.7 percent of the vehicles had only drivers. When the drivers (17,613) and the passengers (6,110) were added together, we arrive at 23,723 vehicle occupants for 2014. There were 20,877 vehicle occupants in the 2013 sample. Therefore, there were 2,846 more observations in 2014, an increase of 13.6 points from 2013 to 2014.[3] From a speculative standpoint, it is possible that this increase may be due to a more efficient process of direct data entry on iPads, rather than the paper and pencil entry process used in prior years, although it may be simply due to an increase in vehicle traffic between 2013 and 2014.

Figure 1 demonstrates the basic frequencies for vehicles, with and without passengers.

Figure 1: Frequencies with and without passengers

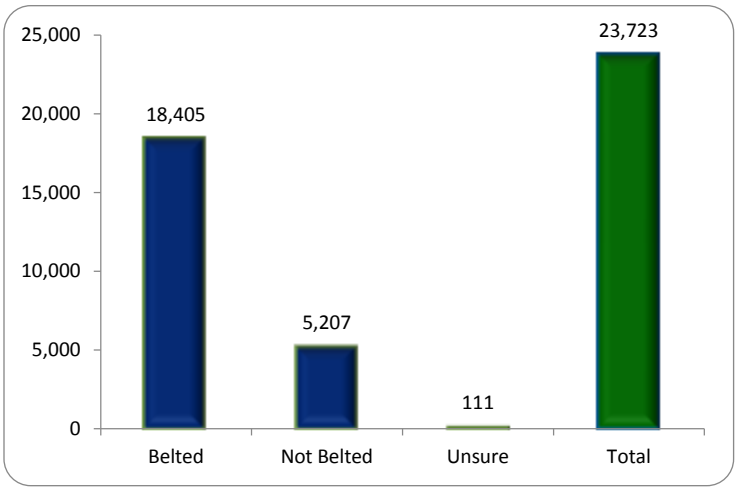


[2] These "raw" frequencies do not take into account the adjustments made for sampling probabilities to produce the more accurate estimates. Therefore, the percentages are not reported here because they would not be accurate estimates of seat belt use and would be misleading.

[3] The total frequencies represent all the vehicle occupants for which seat belt usage was recorded, although this does reflect instances in which observers were "unsure" about seat belt use.

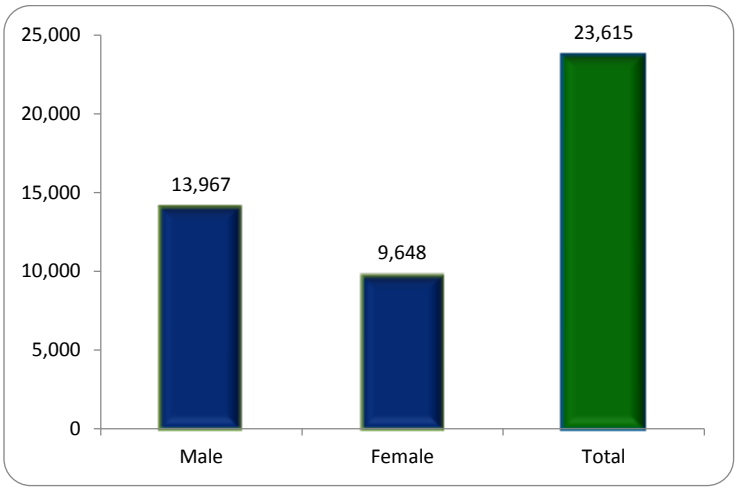
Occupant Belt Use: For the 23,723 vehicle occupants, 18,405 were observed as wearing seat belts; 5,207 were not belted, and observers were "unsure" about belt use for 111 of the vehicle occupants.

Figure 2: Frequencies by Occupant Belt Use



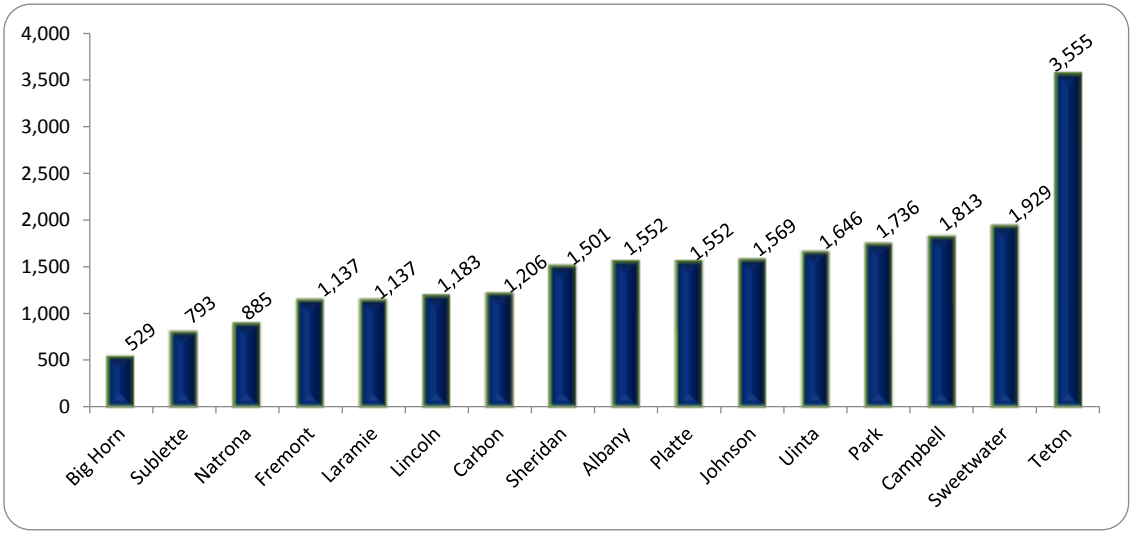
Occupant Gender: Observers identified 13,967 vehicle occupants as male and 9,648 as female, accounting for all 23,723 vehicle occupants.

Figure 3: Frequencies by Occupant Gender



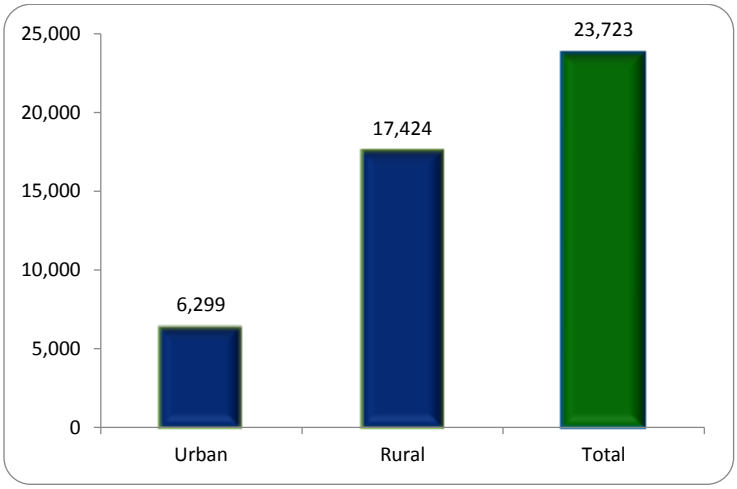
County: Observations were collected within each of 16 counties. The average number of observations per county was 1,483 for the 2014 survey. However, there was considerable variation in traffic among the various counties. Counties with above average vehicle occupants include Albany, Campbell, Johnson, Park, Platte, Sheridan, Sweetwater, Teton, and Uinta Counties. The rest (Big Horn, Carbon, Fremont, Laramie, Lincoln, Natrona, and Sublette) were below the average number of observations.

Figure 4: Frequencies by County



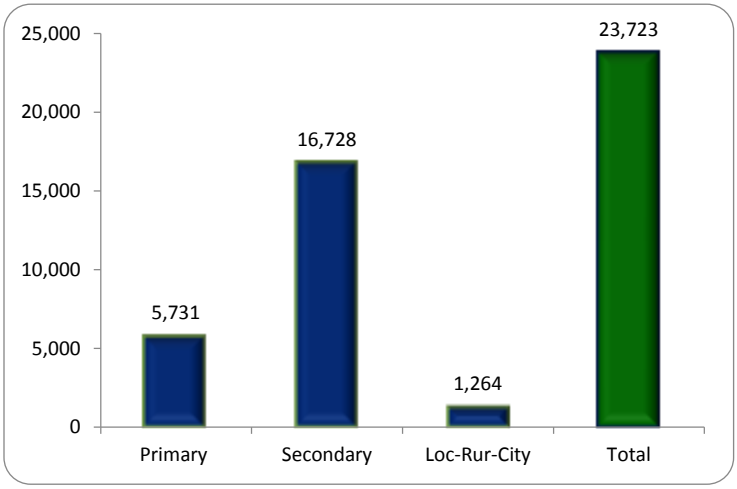
Population Density: For Wyoming, sites with fewer than 5,000 residents are defined by the state as *rural*, while *urban* sites have a population of more than 5,000. Given this definition, the great majority of vehicle occupants, 17,424, were observed in rural sites; 6,299 occupants were observed in urban areas. This affirms the essentially rural character of Wyoming.

Figure 5: Frequencies by Population Density



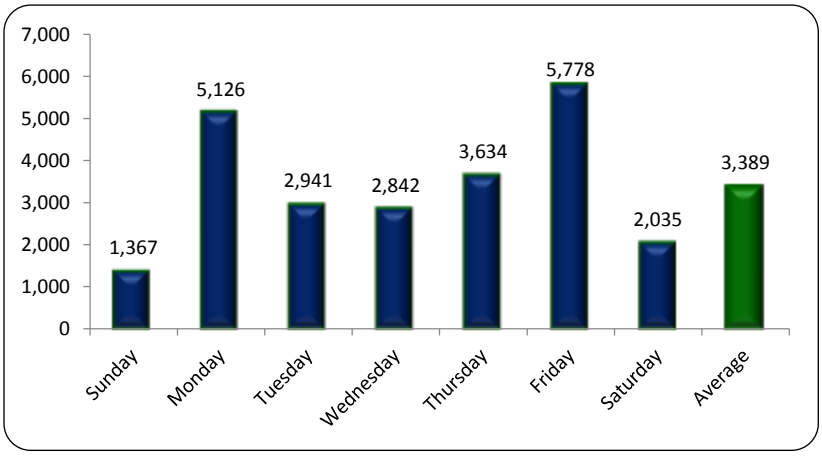
Roadway Type: One of the factors that influence the site sampling, and, therefore, the sample weights, is the type of roadway. There are three types of roadway in the sample: primary roads, which include four-lane highways and interstates; secondary roads, which are mostly federal and state-maintained highways; and local roadways, which are mostly local roads and city streets. Customarily, the greatest majority of observations were collected on secondary roads while the fewest observations were made on the local, rural, or city roadways.

Figure 6: Frequencies by Roadway Type



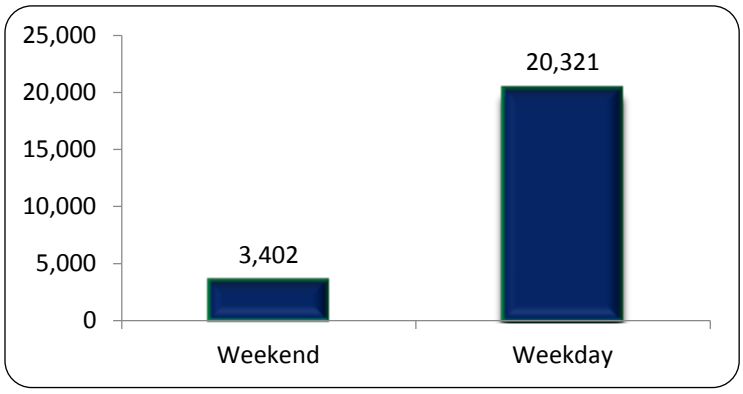
Day of Week: Observers collected data for all the days of the week. In 2014, observers collected an average of 3,389 observations per day. The number of observations was above the average on Monday and Friday, fairly close to the average on Thursday, and below the average the rest of the days.

Figure 7: Frequencies by Day of Week



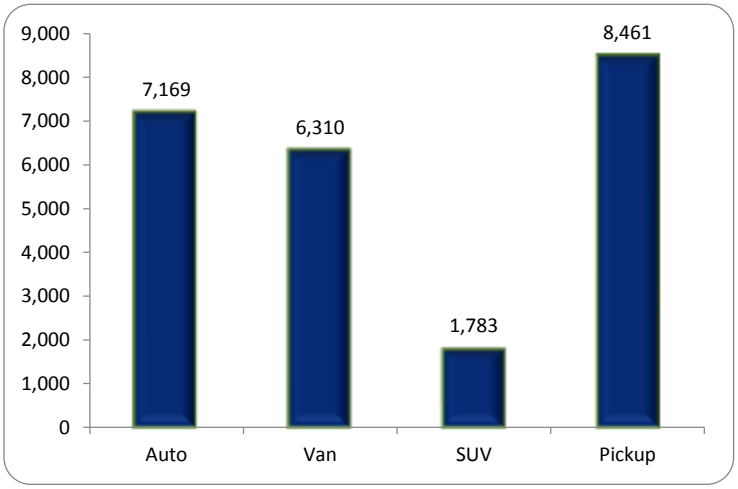
Weekday vs. Weekend: For 2014, weekdays accounted for 20,321 of the 23,723 vehicle occupants. The weekend accounted for 3,402 drivers and passengers.

Figure 8: Frequencies by weekend and weekday



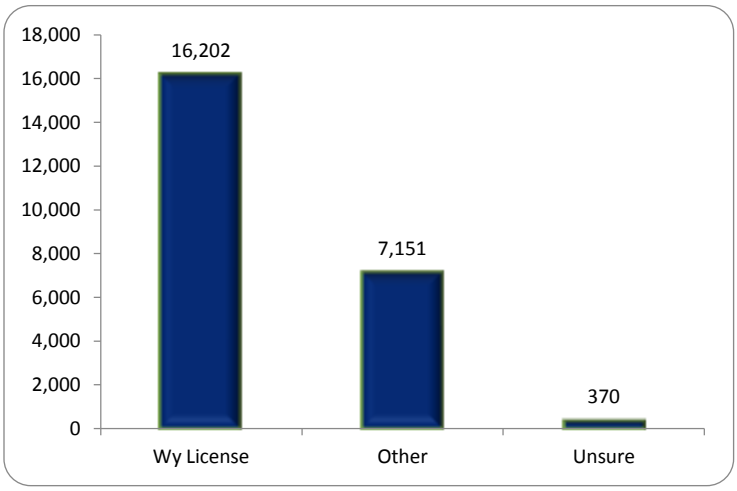
Vehicle Type: Observers collected data on four types of vehicles autos, vans, SUVs, and pickup trucks. For this survey, most of the vehicle occupants were observed in pickup trucks, which suggests pickups were a top choice among vehicle drivers in Wyoming. The omnipresent automobile, were second in terms of occupants in this survey. Together, pickups and autos account for 15,630 of the occupants in this survey. Vans were also popular with vehicle occupants. However, relatively few of the drivers and passengers were, at 6310 observed in SUVs.

Figure 9: Frequencies by Vehicle Type



Vehicle Registration Type: Observers collected information on the type of license plates for each vehicle, identifying their observations as either Wyoming registration or out-of-state registration. Observers also noted if they were unsure about the vehicle registration associated with each vehicle occupant. For this year, as in past surveys, the great majority of occupants were observed in Wyoming-licensed vehicles, 16,202 of the 23,723 vehicle occupants. There were 7,151 in out-of-state licensed vehicles, and observers were unsure about license status for 370 vehicle occupants.

Figure 10: Frequencies by Registration Type



Vehicle Type by County: Table 3 presents the unweighted number of vehicles within each vehicle type for each county in the sample. The unweighted number can be misleading when it comes to estimates of seat belt use, but, in this case, the average number of vehicle occupants in pickups overall and the number for each county were included. These numbers were offered for those readers who may wish to make comparisons, largely because occupants of pickup trucks tend to have much lower rates of seat belt use. It follows that counties with an above average number of occupants in pickups *may* expect lower seat belt usage rates, although this is not necessarily true because of the effects of other variables.

The counties of Big Horn, Campbell, and Sublette had the highest proportions of occupants in pickup trucks relative to occupants in other vehicles. On the other hand, Teton County has a relatively small number of occupants in pickup trucks relative to occupants of other vehicle types. Most of the rest of the counties were within a few percentage points of the average number of occupants of pickup trucks. Table 3 illustrates the occupants by vehicle type for the counties.

Table 3: Frequencies of Vehicle Types by County, Wyoming 2014

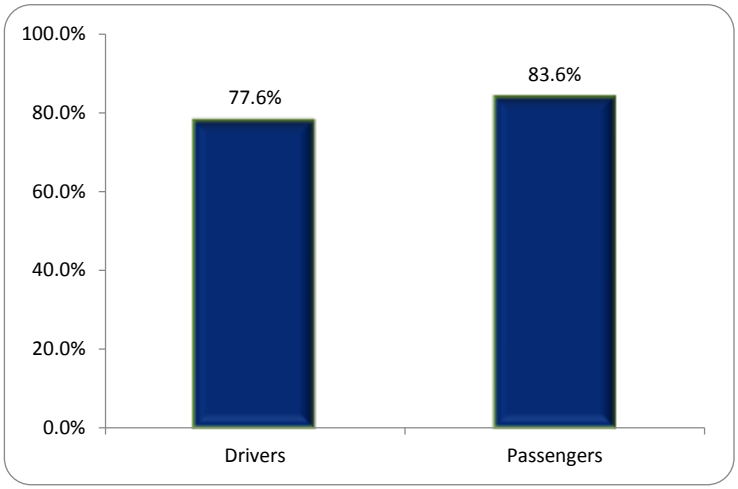
	Vehicle Type					
County	Auto	Van	SUV	Pickup	Total	Percent of Site Total
Albany	485	460	122	485	1,552	31.3%
Big Horn	146	122	42	219	529	41.4%
Campbell	450	421	98	844	1,813	46.6%
Carbon	336	319	100	451	1,206	37.4%
Fremont	323	312	82	420	1,137	36.9%
Johnson	456	418	129	566	1,569	36.1%
Laramie	355	310	106	366	1,137	32.2%
Lincoln	294	341	86	462	1,183	39.1%
Natrona	258	244	61	322	885	36.4%
Park	457	514	117	648	1,736	37.3%
Platte	432	457	114	549	1,552	35.4%
Sheridan	434	376	103	588	1,501	39.2%
Sublette	161	230	44	358	793	45.1%
Sweetwater	692	396	121	720	1,929	37.3%
Teton	1,361	943	348	903	3,555	25.4%
Uinta	529	447	110	560	1,646	34.0%
Total	7,169	6,310	1,783	8,461	23,723	35.7%
Average	448	394	111	529	1,483	35.7%

Estimates of Occupant Seat Belt Use

In this section, the estimates of seat belt use were reported for the 2014 Wyoming seat belt survey. These estimates were calculated after weighting the data to take into account sampling probabilities. The estimates were presented for each of the major variables and the categories within those variables.

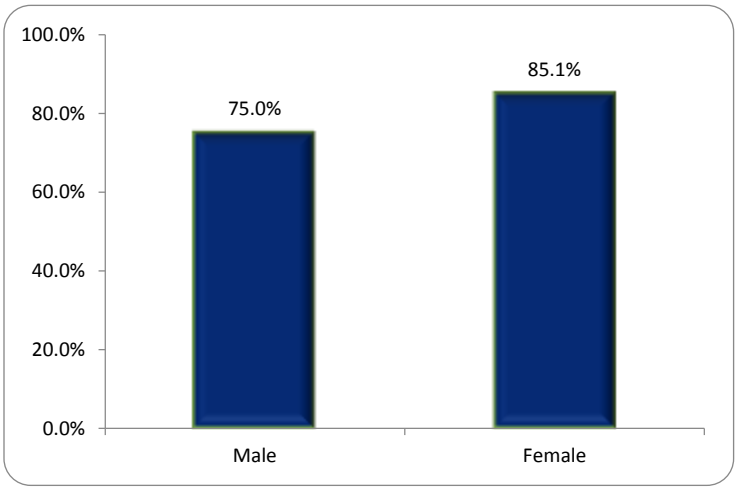
Type of Occupant: The rate of seat belt use for passengers was 83.6 percent, while drivers were observed as belted at a rate of 77.6 percent. The seat belt use rate was 6.0 points higher for passengers than it was for drivers. The overall estimate of seat belt use for all vehicle occupants is 79.2 percent. Figure 11 demonstrates these results.

Figure 11: Percent Belted by Occupant Type



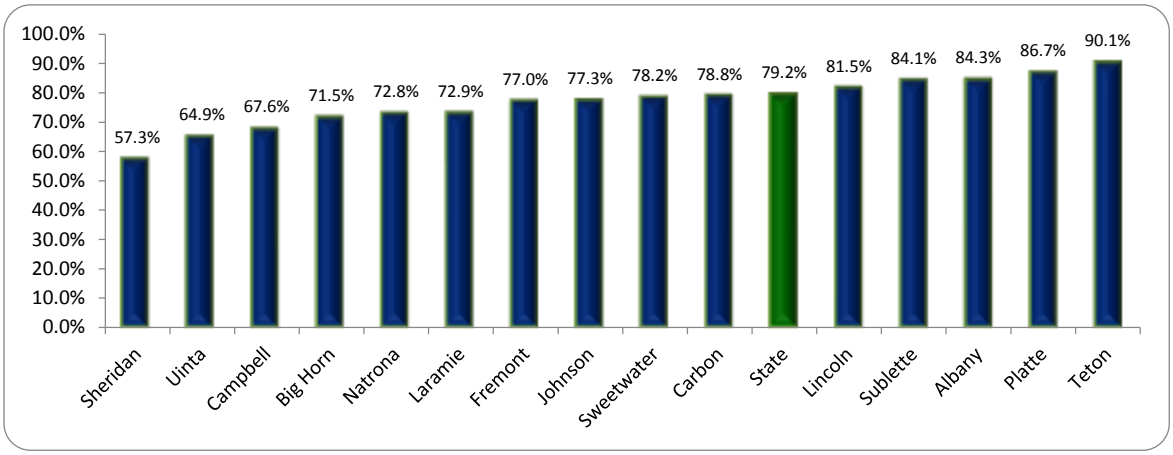
Occupant Gender: The estimated seat belt use for females was 85.1 percent, which is 10.1 percentage points higher than the male rate of 75.0 percent. Because males made up nearly 60.0 percent of the occupants, their lower rate of seat belt use suppressed the overall rate. This is a typical finding in Wyoming surveys, although the 10.1 points difference is greater than the difference for 2013, which was 6.6 points.

Figure 12: Percent Belted by Occupant Gender



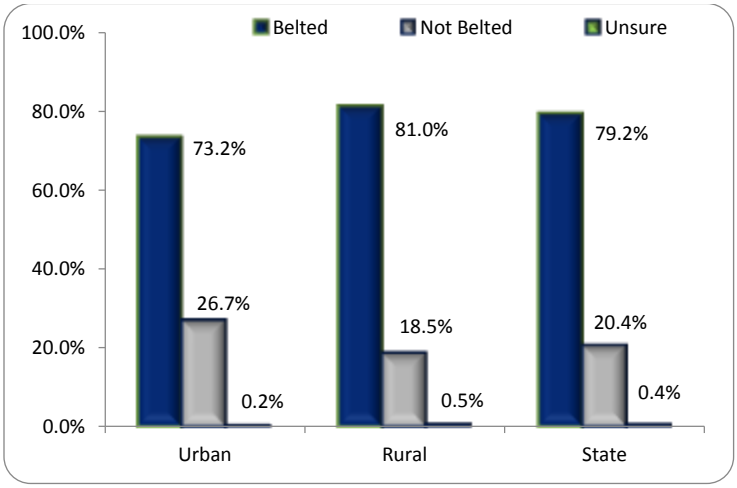
County: Figure 13 illustrates the rate of seat belt use by county. Counties that were *above* the overall rate of seat belt use (79.2 percent) include Albany, Lincoln, Park, Platte, Sublette, and Teton Counties. Platte and Teton Counties had the highest rates of seat belt use for vehicle occupants. Teton County typically had the highest rate of seat belt use, although the Teton rate for vehicle occupants dropped from 98.6 percent in 2013 to 90.1 percent in this year's survey, a decline of 8.5 percentage points. Counties that were considerably *below* the overall rate were Big Horn, Campbell, Laramie, Natrona, Sheridan, and Uinta Counties. Vehicle occupants in Sheridan County had the lowest rate of seat belt use, while occupants in Uinta County also had a relatively low rate of seat belt use.

Figure 13: Percent Belted by County of Observation



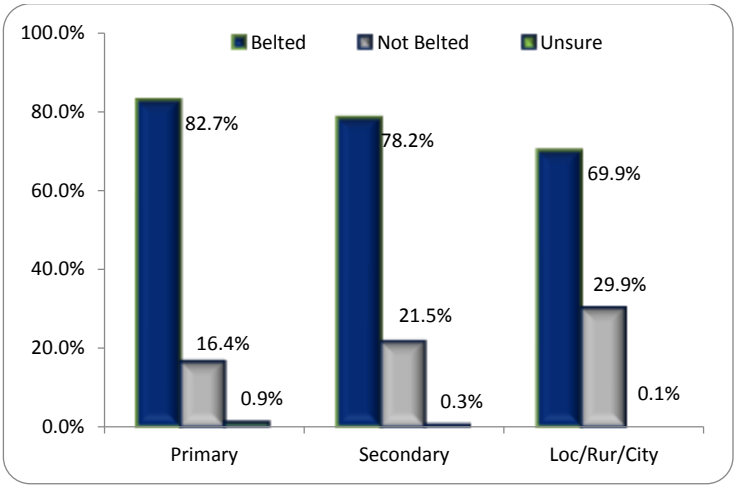
Population: The rate of seat belt use for vehicle occupants observed in rural sites was 81.0 percent, which is 7.8 percentage points higher than the rate of 73.2 percent for vehicle occupants in urban sites. Since occupants in rural sites represent nearly three-fourths of the vehicle occupants, their rate of seat belt use tended to determine most of the overall rate.

Figure 14: Percent Belted by Population



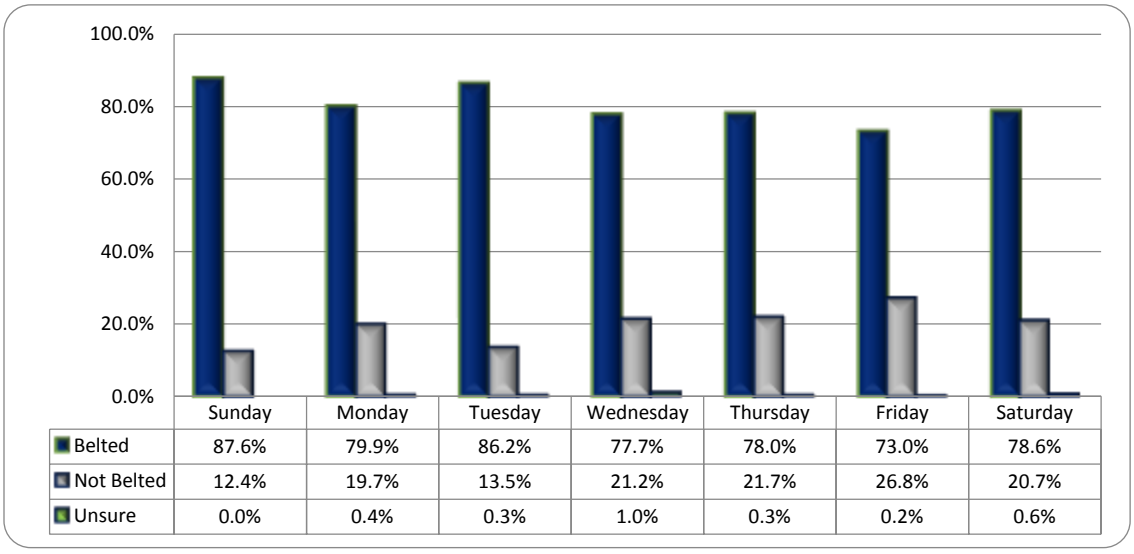
Roadway Type: The rates of seat belt use for vehicle occupants were 82.7 percent for primary roadways, 78.2 percent for secondary roadways, and 69.9 percent for vehicle occupants observed on local roads, rural roads, and city streets. Most of the overall rate of seat belt use was determined by vehicle occupants observed on secondary roads, mainly because they represented about seven of every ten vehicle occupants.

Figure 15: Percent Belted by Roadway Type



Weekday: Vehicle occupants were most likely observed as belted on Sunday and Tuesday in the 2014 weeklong survey. Seat belt use was lowest on Friday. The rates on other days of the week hovered around the overall average.

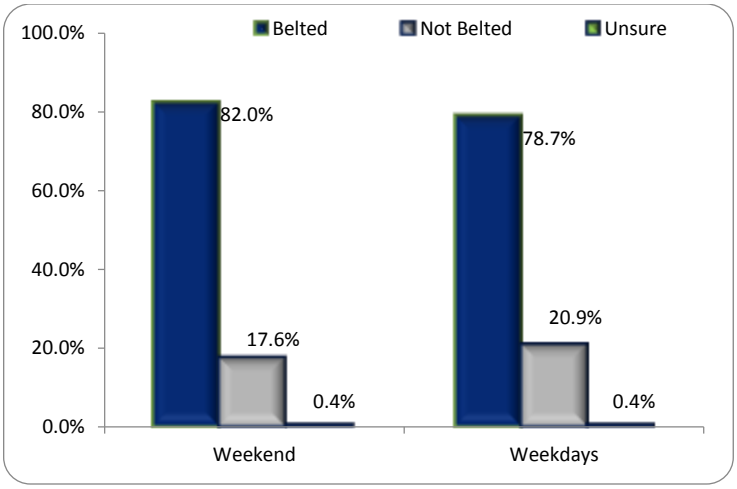
Figure 16: Percent Belted by the Day of the Week



	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Belted	87.6%	79.9%	86.2%	77.7%	78.0%	73.0%	78.6%
Not Belted	12.4%	19.7%	13.5%	21.2%	21.7%	26.8%	20.7%
Unsure	0.0%	0.4%	0.3%	1.0%	0.3%	0.2%	0.6%

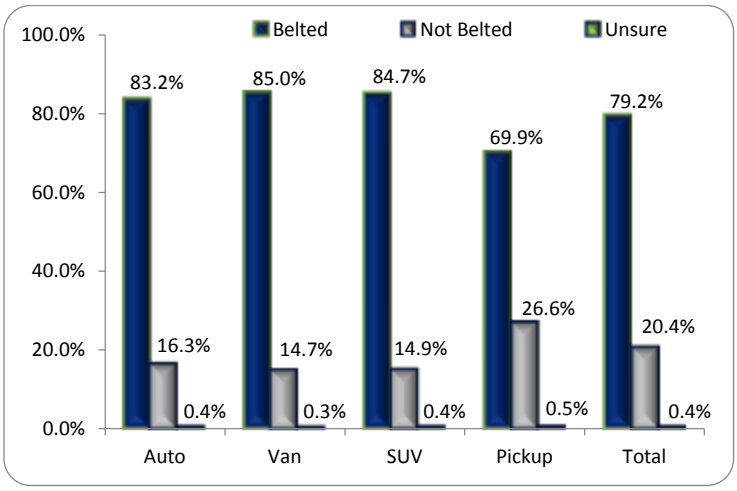
The Weekend: The high rate of seat belt use on Sunday accounted for an overall higher rate of use on the weekend, although this was offset some by the high rate of use on Tuesday. As a result, the difference between weekend and weekday seat belt use is only 3.3 percentage points as illustrated in Figure 17.

Figure 17: Percent Belted by Weekdays vs. Weekend



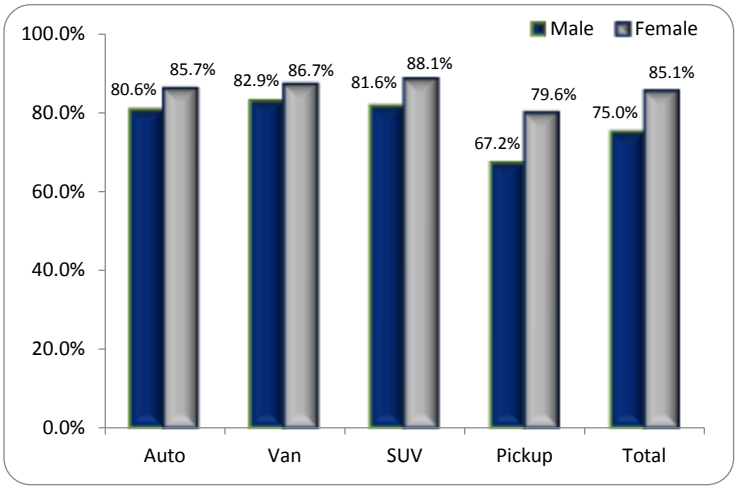
Vehicle Type: For 2014, just as for 2013, the rates of seat belt use were above the overall rate for all vehicle types (automobiles, vans, SUVs) except for occupants in pickup trucks, who had a much lower rate of seat belt use. Seat belt use was 13.3 percentage points higher for automobile occupants, 15.1 for van occupants, and 14.8 for SUV occupants than it was for vehicle occupants in pickup trucks. In fact, if pickup truck observations were omitted, the overall rate of seat belt use would rise to about 84.3 percent, or 5.1 percentage points higher than the overall rate of 79.2 percent.

Figure 18: Percent Belted by Vehicle Type



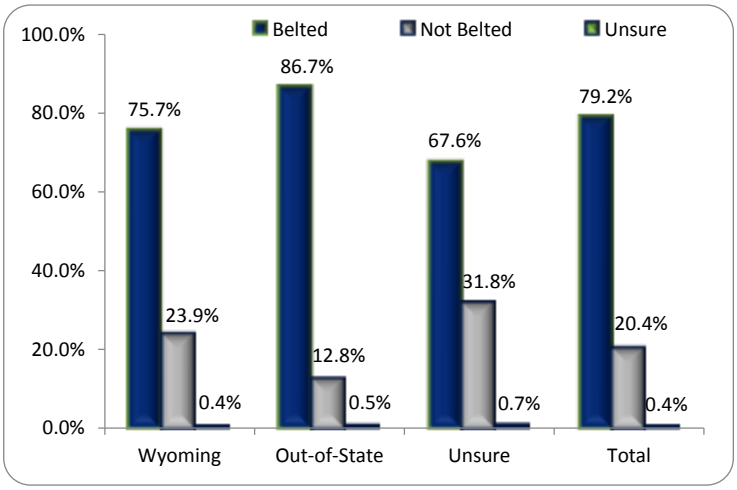
Vehicle Type and Gender: Female vehicle occupants had higher rates of seat belt use in every vehicle type, including pickup trucks. For males in pickup trucks, the rate of seat belt use was 67.2 percent, 12 points lower than the overall rate of 79.2 percent of the sample. Females were also less likely to wear seat belts when they were observed in pickup trucks, but that rate for females was 79.6 percent, still higher than the overall rate. The diminished tendency for seat belt use for pickup truck occupants suppressed the overall rate of seat belt use, especially for males. Generally, the rates for male and female vehicle occupants were similar in automobiles, vans, and SUVs, ranging from a low of 80.6 percent for males in automobiles, to a high of 88.1 percent for females in SUVs. For 2014, just as for previous surveys of seat belt use in Wyoming, the least use of seat belts involves men in pickup trucks.

Figure 19: Percent Belted by Vehicle and Gender



Vehicle Registration Type: Vehicle occupants observed in out-of-state vehicles were belted at a rate of 86.7 percent, which was 11 points higher than the rate of 75.7 percent for occupants observed in Wyoming registered vehicles. The out-of-state rate tended to increase the overall rate, but occupants in Wyoming vehicles represented more than two-thirds of the occupants in this survey. The rate was lowest for vehicle occupants when observers were unsure about the vehicle licensing, but those occupants represented less than 2.0 percent of the sample.

Figure 20: Percent Belted by Registration Type

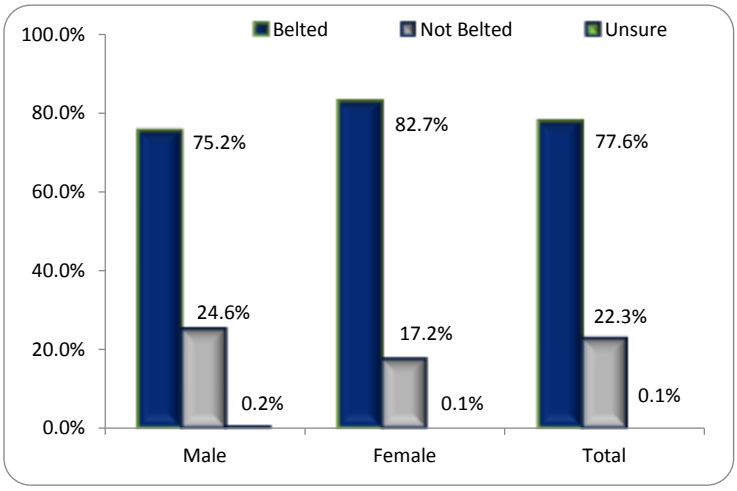


Estimates of Seat Belt Use for Drivers

In this section, the drivers were isolated for analysis. The patterns for drivers were typically the same as for all occupants, largely because drivers represented nearly three-fourths (74.2%) of the vehicle occupants: drivers represented 17,613 of the 23,723 vehicle occupants. Although passengers made up a small part of the overall sample, their higher rates of seat belt use tended to modestly increase the rates of occupants over the rates for the drivers alone.

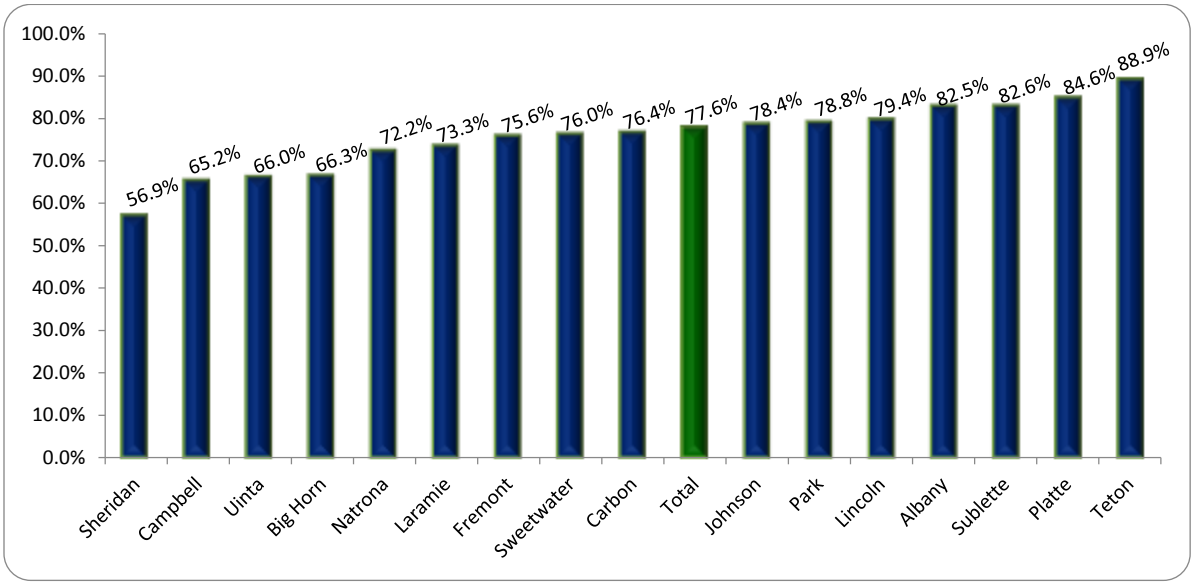
Driver Gender: Male drivers were observed as belted at a rate of 75.2 percent, while the rate for female drivers was 82.7 percent, a difference of 7.5 points. Because of the lower rate by males, the overall rate for drivers dropped to 77.6 percent. The higher rate for females raised the overall rate by 2.4 points in this survey, which is nearly identical to the gender effect measured in the 2013 survey.

Figure 21: Percent of Drivers Belted by Driver Gender



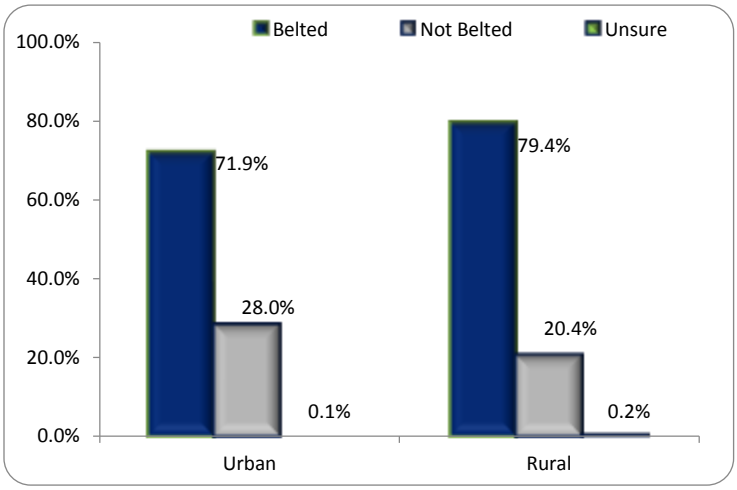
County: Counties where the estimated rates of seat belt use were above the overall average of 77.6 percent included Albany, Johnson, Lincoln, Park, Platte, Sublette, and Teton Counties. The highest rate was found in Teton County at 88.9 percent. It should be noted that Teton County has typically had the highest wage rate in Wyoming surveys, although the rate in 2014 was 9.7 points lower for drivers than it was in 2013, when nearly every driver in Teton County was observed as wearing a seat belt (98.6 percent). Counties where seat belt use was considerably lower than average in this year's survey included Big Horn, Campbell, and Sheridan Counties.

Figure 22: Percent of Drivers Belted by County



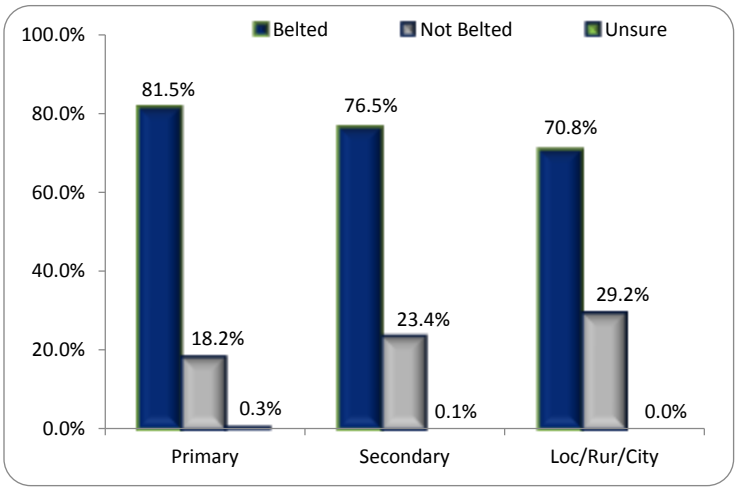
Population: The rate of seat belt use for drivers observed in rural sites was 79.4 percent, which was 7.5 percent higher than the rate of 71.9 percent for drivers in urban areas. Because seven out of every ten drivers (72.2 percent) was observed at a rural site, their higher rate of seat belt use increased the overall rate.

Figure 23: Percent of drivers belted by population density



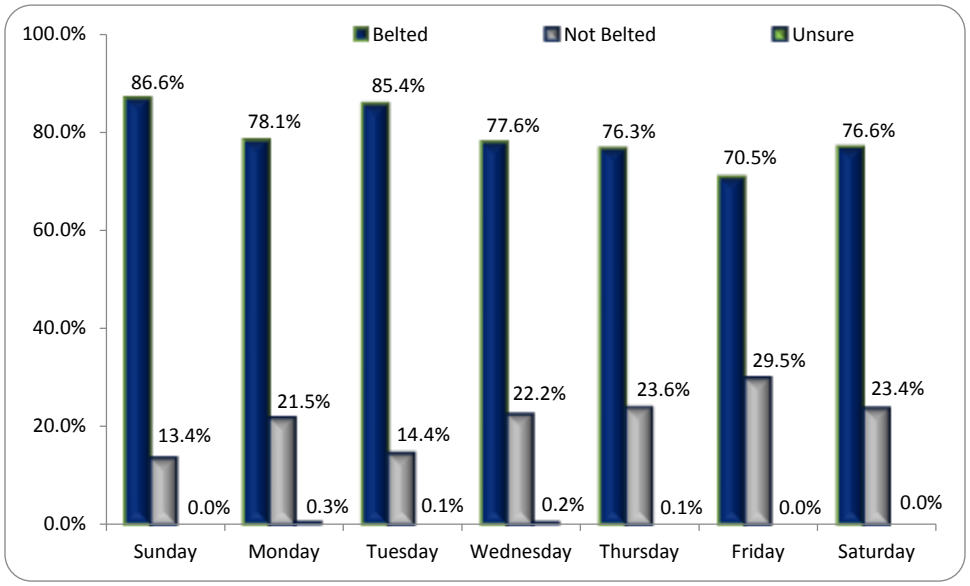
Roadway Type: Drivers observed on primary roads were observed as belted 81.5 percent of the time. The rate on secondary roadways was 5.0 percentage points lower at 76.5 percent, and the rate on local, rural and city roadways is 70.8 percent, 10.7 points lower than the rate associated with primary roads. The rate on secondary roads (76.5%) was closest to the overall rate (77.6%) because drivers on secondary roads represented 70.6 percent of the sample.

Figure 24: Percent of Drivers Belted by Roadway Type



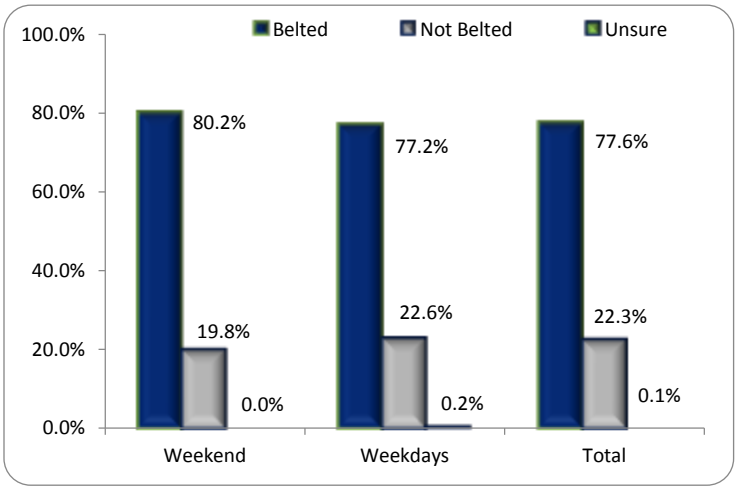
Weekdays: Drivers were more likely to be wearing seat belts when observed on a Sunday or Tuesday, and least likely to be belted on Friday. In fact, the Sunday rate is 16.1 percentage points higher than the Friday rate. The rates on the other days are much closer to the average of 77.6 percent.

Figure 25: Percent of Drivers Belted by Day of Week



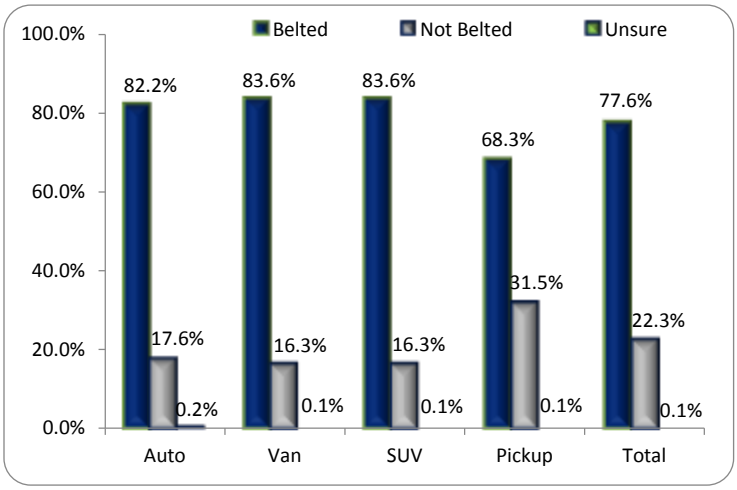
Weekday vs. Weekend: Because of the high rate on Sunday and a Saturday rate that is closest to the average, the weekend rate of 80.2 percent is modestly higher than the weekday rate of 77.2 percent. Because the five weekdays produce more observations than the two weekend days, the weekday observations account for most of the overall average.

Figure 26: Percent of Drivers Belted by Weekends vs. Weekdays



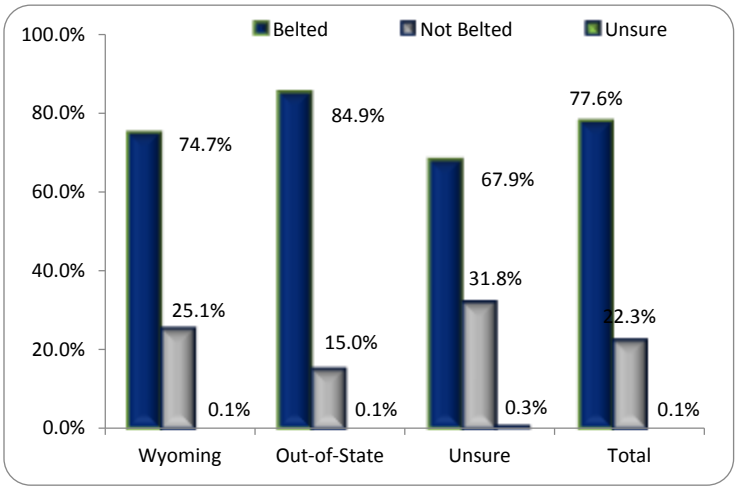
Vehicle Type: Drivers in pickup trucks were observed as belted at a rate of 68.3 percent, which is 14.8 percentage points higher than the combined average for drivers in automobiles, vans, and SUVs (83.6 %). Drivers in these automobiles, vans, and SUVs were belted at almost identical rates.

Figure 27: Percent of Drivers Belted by Vehicle Type



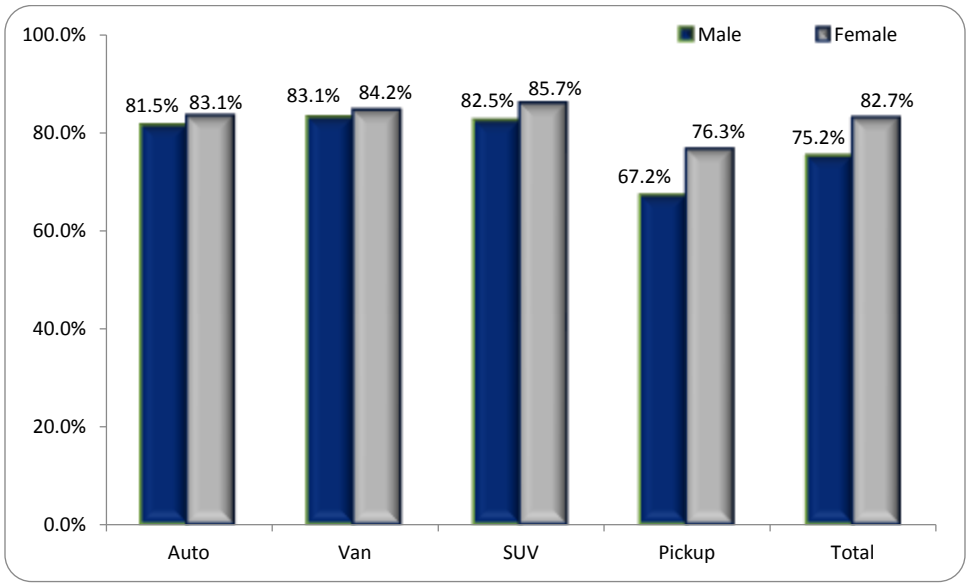
Vehicle Registration Type: Drivers in out-of-state vehicles were observed wearing seat belts 84.9 percent of the time, a rate that is 10.2 points higher than the comparable rate for drivers in Wyoming-registered vehicles (74.7%). The out-of-state drivers tend to increase the overall rate, but, because drivers in Wyoming-registered vehicles constitute 71.6 percent of the sample, their average of 74.7 percent is much closer to the overall driver rate of 77.6 percent. Generally, observers were very sure of their classification by license status: observers said they were unsure about license status only 0.3 percent of the time.

Figure 28: Percent Drivers Belted by Registration Type



Driver Gender and Vehicle Type: Male drivers made up three-fourths of all drivers in the sample, so their behavior toward seat belt use is very important to this report. However, male and female rates of seat belt use were very much alike, with female rates only slightly higher, in automobiles, vans, and SUVs. For those vehicles, the seat belt usage rates for male and female drivers ranged from a low of 81.5 percent to a high of 85.7 percent. The story is much different for drivers in pickup trucks. First, 5,742 of the 6,583 drivers of pickup trucks were males, or 87.2 percent of the sample of pickup truck drivers. Their rate of seat belt use was 67.9 percent, nearly ten points lower than the overall rate and almost fifteen points lower than the overall rate for female drivers. It is true that women pickup truck drivers have the lowest seat belt usage rate among women at 76.3 percent, but that rate is only 1.3 percent below the overall rate for all drivers (77.6%). Nearly four out of ten drivers were observed in pickup trucks; almost nine out of ten were males. That combination of males in pickup trucks, given their relatively low rate of seat belt use, is very important when it comes to seat belt use in Wyoming.

Figure 29: Percent of Drivers Belted by Gender and Vehicle Type



Estimates of Seat Belt Use by Passengers

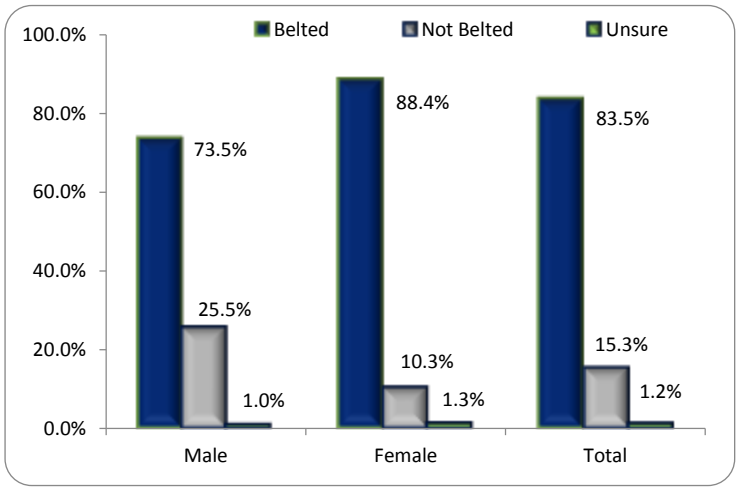
In this section, seat belt use by outboard passengers is presented for the same variables as for occupants and drivers. In each case, graphs and tables will illustrate the narrative, with more detail presented in the appendix to this report.

It is appropriate at this point to remind readers that passengers had a higher rate of seat belt use at 83.6 percent than did driver at 77.6 percent. The passenger rate has the effect of raising the overall rate to 79.2 percent. However, the 6,110 passengers in this survey represent only about one of every four vehicle occupants in the sample (25.8 percent); the much larger number of drivers (17,613) were the major determiners of the overall rate.

It has been typical in Wyoming surveys to find higher rates of seat belt use by passengers for every combination of variables in the survey. However, the patterns of seat belt use within the categories, while higher, will look very much like the patterns being presented for drivers, and, when passengers are added, all vehicle occupants.

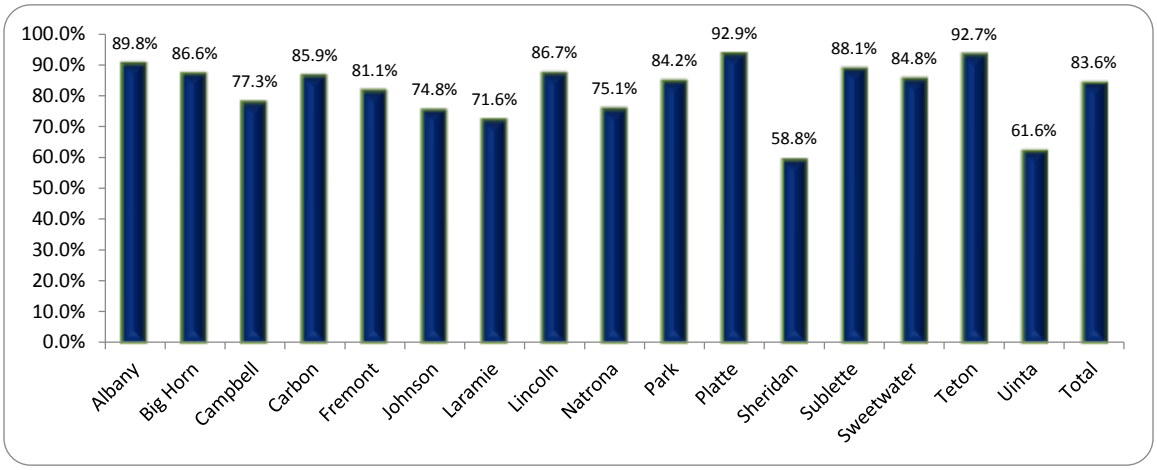
Gender: While drivers were more often male, passengers were more likely to be female. For the 2014 survey, females made up two-thirds (66.1%) of the passengers, and males were a third (33.9%) of the passengers. The female passengers were observed as belted 88.4 percent of the time, while males were belted at a rate of 73.5 percent, a difference of 14.9 percent. The higher number of females and the much greater tendency of females to use seat belts contributed to the higher overall rate of seat belt usage for passengers (83.5%).

Figure 30: Percent of Passengers Belted by Gender



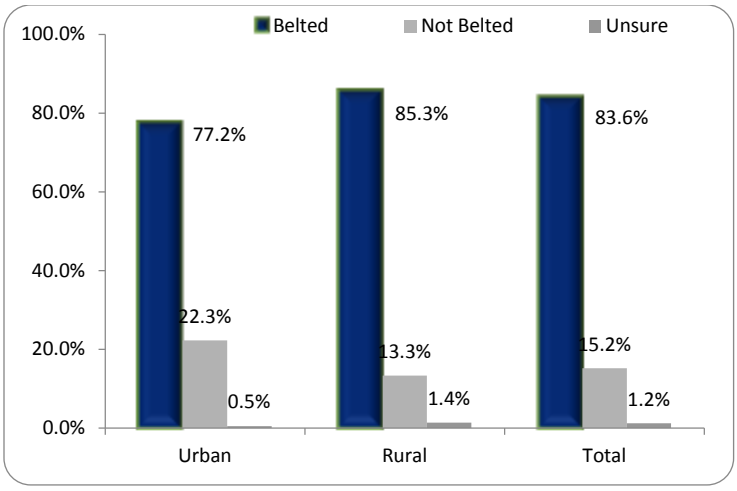
County: Individual county seat belt use for passengers exceeded. The overall average for passengers (83.6 %) in the counties of Albany, Big Horn, Carbon, Lincoln, Park, Platte, Sublette, Sweetwater, and Teton Counties, with the highest rate in Teton County (92.7%). The lowest rate for passenger seat belt use was in Sheridan (58.8%), while below average rates were also found in Campbell, Johnson, Laramie, Natrona, and Uinta Counties. All of the counties had fewer than 500 observed passengers with the exception of Teton County with 1,112 passengers, where we find nearly one-fifth of the 6,110 passengers and the second highest rate of passenger seat belt use at 92.7 percent.

Figure 31: Percent of Passengers Belted by County



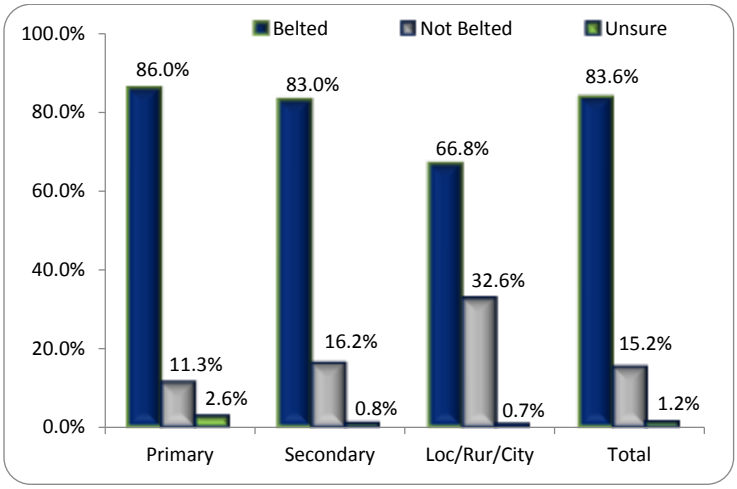
Population: Passengers observed in rural sites were observed as belted 85.3 percent of the time, which is slightly higher (1.7%) than the overall rate for passengers (83.6%). Passengers in rural sites accounted for more than three-fourths (85.3%) of the passengers in the survey.

Figure 32: Percent of Passengers Belted by Population Type



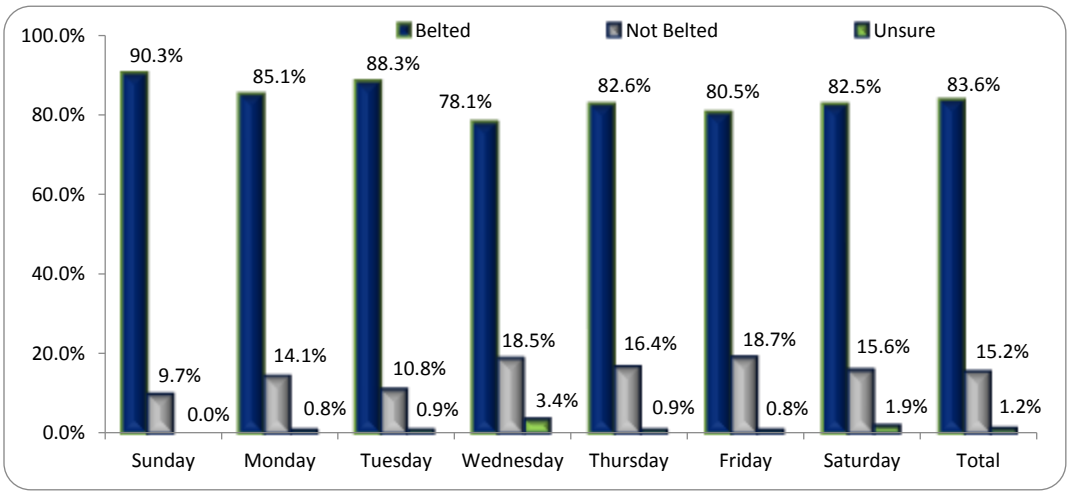
Roadway: Passengers observed in primary road sites, which include four-lane interstate highways, had the highest rate of seat belt use at 86.0 percent. The seat belt usage rate was slightly lower (83.0%) on primary roadways, which are mostly federal and state-maintained highways. The lowest rate was found among passengers observed in the remaining category that include local, rural and city roadways; that rate is 66.8 percent, which is 16.8 points lower than the overall rate (83.6%). Passengers observed within secondary roadways represent 70.2 percent of the sample, while passengers in primary roadways are 25.3 percent of the sample. The passengers in local, rural and city roadways, who had the much lower rate of seat belt use, account for only 4.4 percent of the passengers in the survey, so their seat belt usage rate, while low, has relatively little effect on the overall rate.

Figure 33: Percent of Passengers Belted by Roadway Type



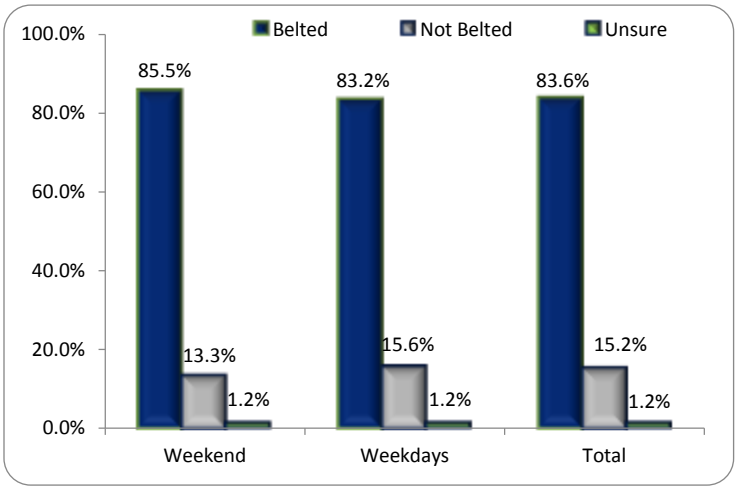
Weekdays: The pattern for passengers is similar to the overall pattern of seat belt use for weekdays. The highest rates were observed Sunday, Tuesday, and Saturday, with the lowest rate on Wednesday. However, the day of the week counted for relatively little in terms of the variation in the seat belt usage rate. The low rate on Wednesday (78.1%) was 5.5 points lower than the overall rate for passengers (83.6%), while the high rate for Sunday passengers (90.3%) was 6.7 points higher than the overall passenger rate. Saturday and Sunday passengers represented 18.3 percent of the entire sample.

Figure 34: Percent of Passengers Belted by Day of Week



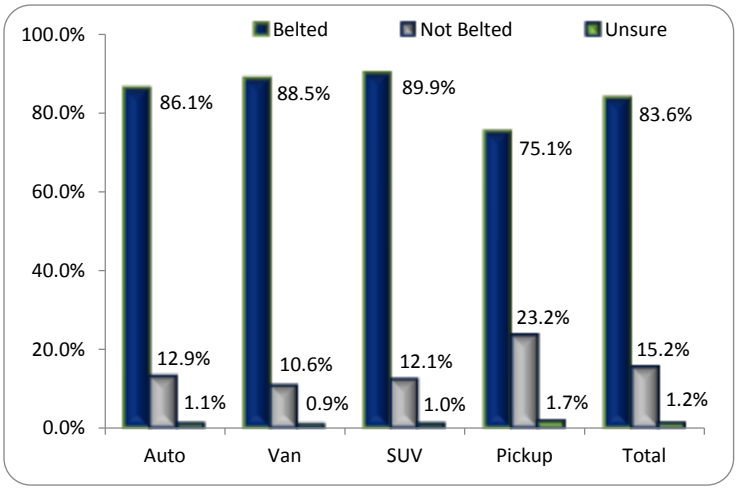
Weekday vs. Weekend: Given the results for individual days of the week, it is not surprising to find that weekend passengers had the higher rate of 85.5 percent, compared to a weekday rate of 83.2 percent, a difference of 2.3 points. Weekday passengers represented 81.7 percent of the passengers in the survey.

Figure 35: Percent of Passengers Belted by Weekday vs. Weekend



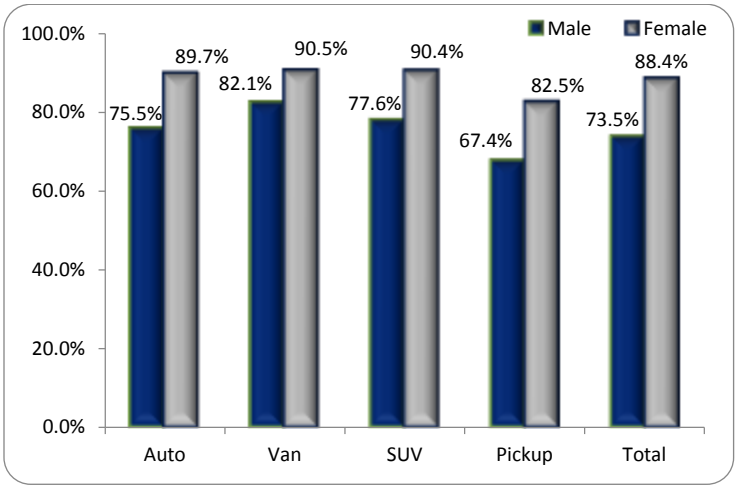
Vehicle Type: There were only modest differences among passengers in automobiles, vans and SUVs; passenger seat belt usage rates in these three vehicle types all exceeded the overall rate. However, passengers in pickup trucks had a much lower rate of 75.1 percent belted, which was 8.5 points lower than the overall rate (83.6 percent). Pickup truck passengers represented the largest proportion of the sample at 30.7 percent so this low rate of seat belt use had a considerable effect on the overall rate. However, the rate for automobile passengers at 86.1 percent and van passengers at 88.5 percent offset much of the low rate found for passengers in pickup trucks. The rate for passengers in SUVs, while the highest rate at 89.9 percent, had relatively little effect on the overall rate for passengers because van passengers represented less than ten percent of the sample (9.7%).

Figure 36: Percent of Passengers Belted by Vehicle Type



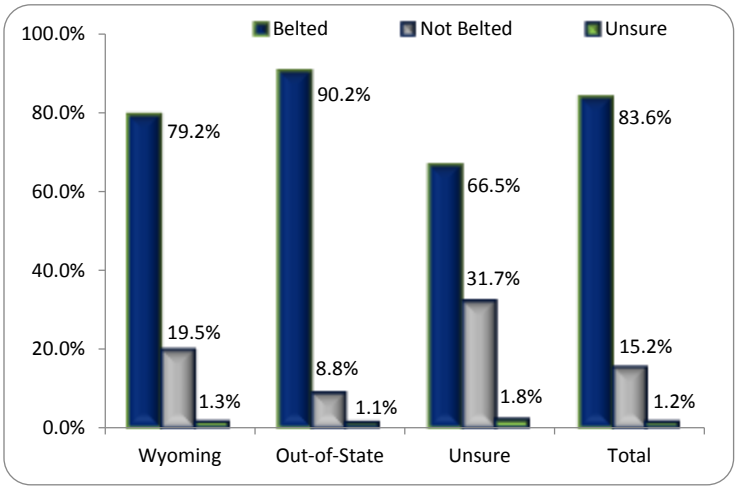
Gender and Vehicle Type: The rates of seat belt use for females were higher than the rate for males in every type of vehicle. The rate was greater for females in automobiles by 14.2 percent, in vans by 8.4 percent, in SUVs by 12.8 percent, and in pickups by a whopping 21.0 percent. These differences accounted for the overall difference between males and females as passengers, a difference of 14.9 percent. While female passengers were least likely to be belted in pickup trucks, which at a rate of 88.4 percent was still 4.8 points above the overall rate. On the other hand, the male passenger rate in pickup trucks, at 67.4 percent, was 16.2 points below the overall rate. Finally, one of the reasons why the rate for passengers is higher is because females represented nearly two-thirds of the passengers observed in this survey.

Figure 37: Percent of Passengers Belted by Gender and Vehicle Type



Vehicle Registration: Passengers observed in out-of-state vehicles were observed as belted at a rate of 90.2 percent, which is 11.0 points higher than the rate for passengers in Wyoming vehicles (79.2%). The overall rate is not higher because Wyoming vehicle passengers represented 58.9 percent of the sample, so their lower rate tended to suppress the overall rate. Observers were unsure about the license status of vehicles for 1.2 percent of the sample.

Figure 38: Percent of Passengers Belted by Registration Type



Trends: A Discussion

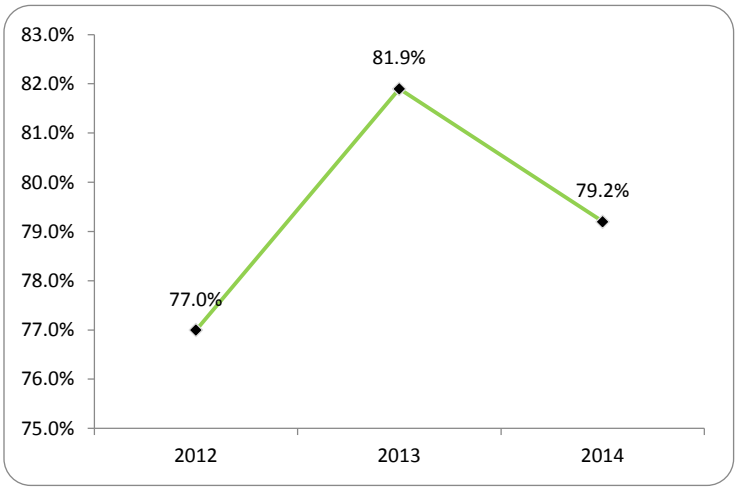
In this section, some of the trends across the three surveys from 2012 to 2014 were reviewed. These survey results are a reflection the new methodology developed and first implemented in 2012. Since that time, the sample sites and the procedures for collecting observations have been essentially the same. All that is different are the actual observations, and one change in the data collection process: the observers directly entered the data by utilizing Apple iPads. As in the past, the observations were downloaded into Microsoft Excel files, which were then loaded into SPSS software for preparation of the final data set, followed by the data analysis.

The Number of Observations and Direct Data Entry

The first trend item of note is the increased number of observations, from 20,877 in 2013 to 23,723 in 2014, as 13.6 percentage points increased in observations. Based on the monitoring of the observers, it is likely that the process of direct data entry has advantages over the "paper and pencil" methods of the past and may account for some of the increase in observations.[4] Whether that is true, it can be said that the process was simpler and more efficient, because the paper forms were eliminated and an extra data entry step from the forms to Excel was gone. Also, the extra data entry from the paper forms created opportunities for additional errors in the data records of the past. With the new process, one more source of errors was reduced. All told, it could be concluded that the direct data entry by observers was simpler and more efficient, contributed to the increase in observations, and reduced the number of coding errors in the data.

Seat Belt Use Trends: 2012-2014

Figure 39: Occupant Seat Belt Usage Rates in Wyoming for 2012-2014



For all vehicle occupants, the rate of seat belt usage was 77.0 percent in 2012, 81.9 percent in 2013, and 79.2 percent in 2014. The rate increased by 4.9 points from 2012 to 2013, and then dropped 2.7 points in the current 2014 survey.

[4] Of course, the increase may be due to increased traffic, in part or in whole. But, even if that is the case, the more efficient process of direct data entry likely made it easier to capture that increase.

When it comes to seat belt use, increased rates are a cause for celebration and decreased rates are a source of disappointment, justifiably because of the well-established link between safety and seat belt use. However, there is another way to evaluate trends: the determination of whether changes are *statistically* significant.

To determine the statistical significance, the 2013 and 2014 data files were merged and the Complex Samples module was used to compare seat belt usage rates in terms of a Chi-Square test of significance. The results were presented in the following table.

Table 4: Year * Occupant Seat Belt Use

Year * Occupant Seat Belt Use

			Occ Belt Use			
Year			Belted	Not Belted	Unsure	Total
2013	% within Year	Estimate	81.9%	17.1%	1.0%	100.0%
		Unweighted Count				20877
2014	% within Year	Estimate	79.2%	20.4%	.4%	100.0%
		Unweighted Count				23723
Total	% within Year	Estimate	80.5%	18.8%	.7%	100.0%
		Unweighted Count				44600

Tests of Independence

		Chi-Square	Adjusted F	df1	df2	Sig.
Year * Occ Belt Use	Pearson	127.091	7.634	1.000	2.000	.110
	Likelihood Ratio	128.142	7.697	1.000	2.000	.109

The adjusted F is a variant of the second-order Rao-Scott adjusted chi-square statistic. Significance is based on the adjusted F and its degrees of freedom.

The standard for evaluating a test of significance is the .01 level of significance.[5] At that level, the appropriate interpretation is that the observed difference must be statistically significant and would occur by chance only one time in a hundred samples. For our comparison of the 2013 and 2014 rates, the Chi-Square significance is .110, which leads us to conclude that the decrease between 2013 and 2014 is ***not*** statistically significant. Our samples might reveal a difference, but that difference may be due to chance. In any case, we do not want to be too confident in emphasizing the decrease in seat belt use from 2013 to 2014. It is just as likely that the 2013 rate was an anomaly, unusually high for any number of reasons, and that the 2014 rate may be closer to the actual rate that would be found in an infinite number of samples for the seat belt surveys in Wyoming.

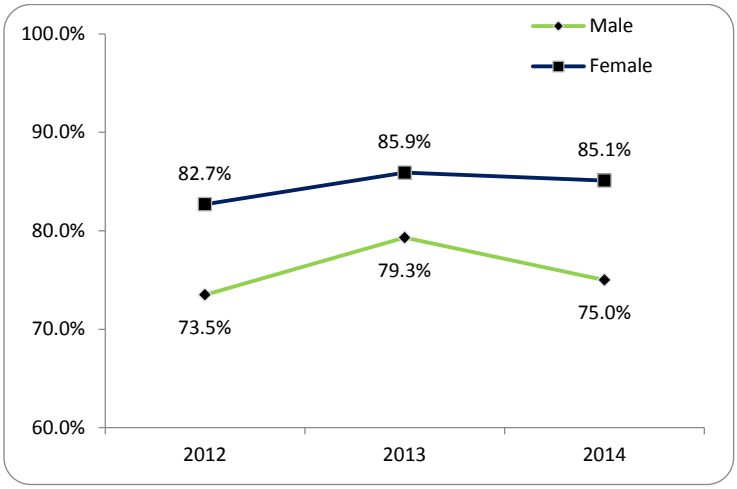
[5] Sometimes statisticians use a more relaxed standard, at the .05 or .10 level of significance. This does not matter in this case because the significance level of .110 is above any of these norms.

Additional Trends

In addition to the above analysis of the overall trend in seat belt use in Wyoming between 2012 and 2013, the following presents the trends for the major variables in the Wyoming surveys. For each of the trend lines, there is an appropriate accompanying graph illustrating the results.

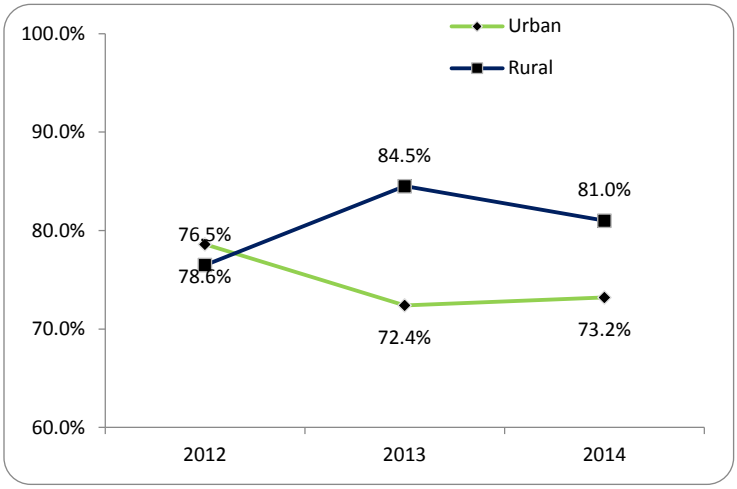
Gender: For each of the three surveys, the seat belt usage rate for female vehicle occupants was greater than the male rate. The difference was greatest in the current 2014 survey (the female rate was 10.1 points higher, with a comparable difference in 2012 (9.2%), and the lowest difference in 2013 (6.6%). As in the rate for all occupants, the rates by gender for 2012 and 2014 have a similar gender gap; 2013 had a gender difference in rates that was substantively lower, making it the aberration for the three years. However, it should be noted that female seat belt usage rates were likely to be higher than male rates in every survey of seat belt use, and this pattern was true across most combinations of variables.

Figure 40: Occupant Seat Belt Rates by Gender 2012 -2014



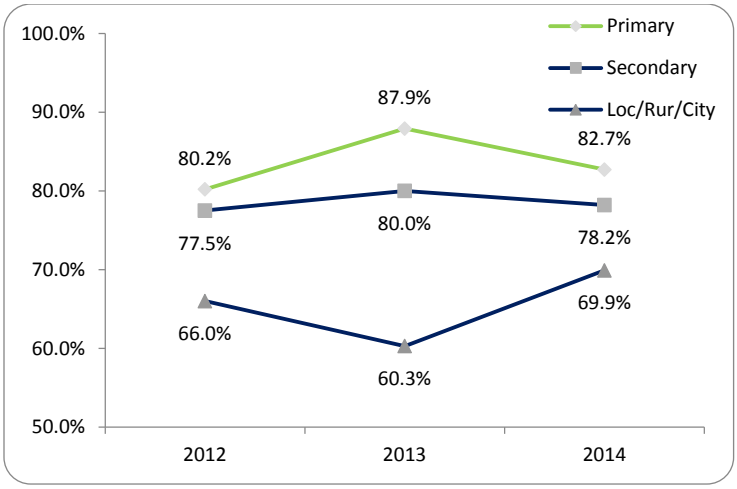
Population: The rural rate tends to be higher than the urban rate of seat belt use in Wyoming surveys. This was particularly true in 2013, when the rural rate is higher by 12.1 points and 2014 when the rural rate was higher by 7.8 percent. For this variable, the 2012 survey produced an anomalous result, with a difference of only 2.1 points. The higher rural rate is a persistent finding.

Figure 41: Occupant Seat Belt Rates by Population Density, 2012 -2014



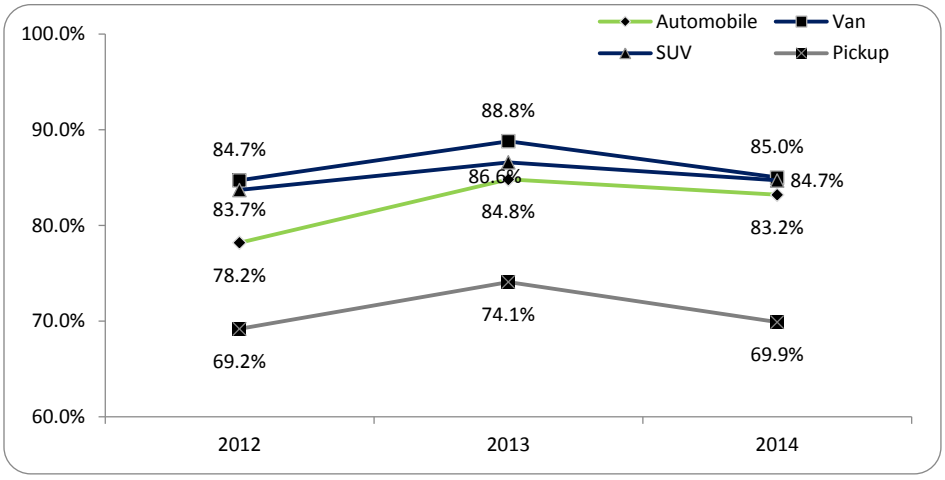
Roadway: For all three years, seat belt use was highest for vehicle occupants observed on primary roads. Primary roads include four-lane and interstate highways, where higher seat belt rates are typically above average in surveys. Seat belt usage rates were usually closer to the average on secondary roadways, which include state and federally maintained highways. Local, rural and city roadways usually have the lowest rates, often well-below average. This pattern held true for all three Wyoming surveys. The difference between primary and local/rural/city roads was greatest, at 12.8 points in 2014 and 14.2 points in 2012. The unusual difference was found in the 2013 survey, when the rate on primary roads was 27.6 points higher than the rate on local/rural/city roads. For all three surveys, the rates on secondary roads were closest to the overall seat belt use rates in each respective survey.

Figure 42: Occupant Seat Belt Usage Rates by Roadway Type, 2012 – 2014



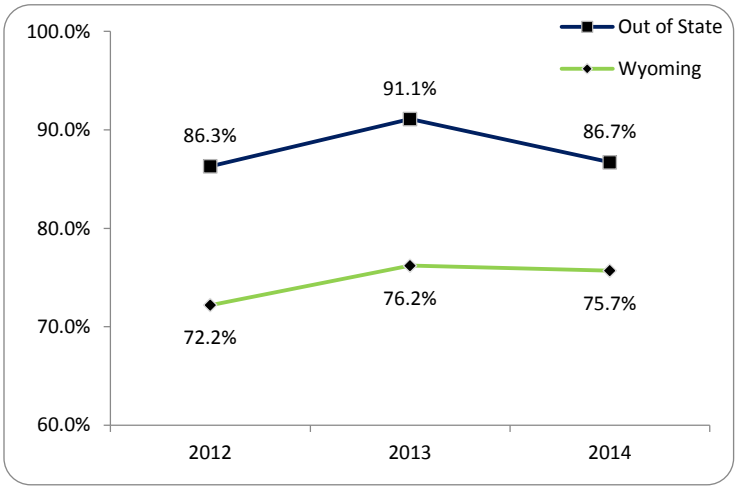
Vehicle Type: Seat belt use rates were lowest for occupants observed in pickup trucks; the highest rates were usually found for occupants of vans. That difference was typically about 14 to 15 points or more for the three surveys. The rate for pickup truck occupants was also typically below the overall rate for vehicle occupants. For these surveys, the pickup truck rate was 7.8 points below the overall rate in both the 2012 and 2013 surveys; however, it was 9.3 points below the overall rate for 2014. This low rate for pickup truck occupant and the high proportion of pickup trucks among all Wyoming vehicles (around 35%) may have a lot to do with the decreased rate of seat belt use in 2014.

Figure 43: Occupant Seat Belt Rates by Vehicle Type, 2012 - 2014



Vehicle Registration Type: Occupants observed in out-of-state registered vehicles had a higher rate of seat belt use across all three survey years. The rate is higher by 14.1 points in 2012 and 14.9 points in 2013. The difference was not as great for 2014, where out-of-state registered vehicle occupants had an 11.0 percentage points higher rate of seat belt use than occupants observed in Wyoming-licensed vehicles.

Figure 44: Occupant Seat Belt Usage Rates by Registration, 2012 - 2014



County: For all three survey years, the consistently lowest rates of seat belt use were found in Big Horn, Campbell, Natrona, and Sheridan Counties. The consistently highest rates were found in Lincoln, Platte, Sublette, and Teton Counties. The other counties were either between these two groups, or were less consistent in seat belt rates across the three years. For example, Johnson County had an uncharacteristically high rate in 2013, as did Natrona, Park, and Sweetwater Counties in 2014. Sheridan County had the lowest rates in both 2013 and 2014, dropping to an overall low of 57.3 percent in 2014. Teton County, which has characteristically had nearly total seat belt use among vehicle occupants, dropped to a rate of 90.1 percent in 2014. It was suggested in previous surveys that Teton's rate might be a consequence of the substantial number of government employees, out-of-state visitors, and seasonal residents, all of whom are more likely than the average vehicle occupant to wear a seat belt. However, the reader should be skeptical of near - 100 percent rates for any county, and the 90.1 percent rate for 2014 seems to be more likely for Teton County.

Table 5: Occupant Seat Belt Usage Rates by County, 2012-2014

							2014
	2012	2013	2014	14-13	14-12		Co-overall
Albany	74.2%	84.4%	84.3%	-0.1%	10.1%	0.792	5.1%
Big Horn	60.2%	65.1%	71.5%	6.4%	11.3%	0.792	-7.7%
Campbell	60.3%	62.3%	67.6%	5.3%	7.3%	0.792	-11.6%
Carbon	83.0%	77.0%	78.8%	1.8%	-4.2%	0.792	-0.4%
Fremont	72.2%	75.2%	77.0%	1.8%	4.8%	0.792	-2.2%
Johnson	74.8%	97.4%	77.3%	-20.1%	2.5%	0.792	-1.9%
Laramie	74.3%	73.0%	72.9%	-0.1%	-1.4%	0.792	-6.3%
Lincoln	81.4%	82.7%	81.5%	-1.2%	0.1%	0.792	2.3%
Natrona	63.1%	63.9%	72.8%	8.9%	9.7%	0.792	-6.4%
Park	73.6%	73.0%	80.2%	7.2%	6.6%	0.792	1.0%
Platte	84.5%	85.7%	86.7%	1.0%	2.2%	0.792	7.5%
Sheridan	65.0%	60.5%	57.3%	-3.2%	-7.7%	0.792	-21.9%
Sublette	83.0%	86.0%	84.1%	-1.9%	1.1%	0.792	4.9%
Sweetwater	60.3%	77.1%	78.2%	1.1%	17.9%	0.792	-1.0%
Teton	98.3%	99.0%	90.1%	-8.9%	-8.2%	0.792	10.9%
Uinta	72.1%	76.8%	64.9%	-11.9%	-7.2%	0.792	-14.3%
Totals	77.0%	81.9%	79.2%	-2.7%	2.2%	0.792	0.0%

Closing

A review of the major results appears in the executive summary at the beginning of the report, so it is not repeated here. Instead, the reader may refer to the extensive resources found in the appendix. The appendix contains detailed tables summarizing the results. Specifically, in terms of detailed differences among occupants within various categories of the main descriptive variables in the study. The appendices also contain detailed differences between drivers and passengers in terms of seat belt use. In addition, the appendices contain the documents that provide full details on the methodology that guided the data collection and the analysis of the data.

Appendix A: State seat belt use reporting form

State Seat Belt Use Survey Reporting Form

PART A

State: Wyoming Calendar Year of Survey: 2014

Statewide Seat Belt use Rate: 79.2 Percent

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

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

The survey design remained unchanged since NHTSA approved the survey.

Dr. James G. Leibert[6], a qualified survey statistician, reviewed the seat belt use rate reported above and information reported in Part B and determined that they meet the Uniform Criteria for State Observational Surveys of Seat Belt Use, 23 CFR Part 1340.

_____
Signature

_____
Date

_____
Printed name of signing official

[6] 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.

5820 York Ave. S.
Edina, MN. 55410

Phone 952.922.0018
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)

Chairman of the Department of Social Sciences (1999 – 2000) \ Assistant Professor (1993-1998), Dickinson State University Dickinson, ND, 1993-2001.

Leadership

Team Player

Problem Solving

Appendix B: Survey design for Wyoming

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

Table of Contents

Seat Belt Use Survey Design for Wyoming

Sampling, Data Collection and Estimation Plan

January 3, 2012
Revised March 7, 2012

Submitted to:

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

Submitted by:

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

DLN Consulting, Inc.
2493 4th Ave W
Suite G
Dickinson, ND 58601

Introduction

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

[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.

Table of Contents

- 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).

[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

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

County Selection

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

Road Segment Selection

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

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

County		MTFCC Strata			Total
		Primary	Secondary	Local	
Albany	N	149	992	0	1141
	Length	60.639697	247.87805	0	308.517747
	n	2	16	0	18
Big Horn	N	0	1182	0	1182
	Length	0	271.087301	0	271.087301
	n	0	18	0	18
Campbell	N	267	1041	0	1308
	Length	97.912343	275.346207	0	373.25855
	n	4	14	0	18
Carbon	N	222	1311	0	1533
	Length	80.064222	419.42926	0	499.493482
	n	3	15	0	18
Fremont	N	1	1891	0	1892
	Length	0.115489	486.099588	0	486.215077
	n	0	18	0	18
Johnson	N	698	862	0	1560
	Length	234.830117	196.282768	0	431.112885
	n	8	10	0	18
Laramie	N	447	966	10768	12181
	Length	170.462425	242.350688	2127.917681	2540.730794
	n	1	1	16	18
Lincoln	N	94	1312	0	1406
	Length	34.119548	284.555377	0	318.674925
	n	1	17	0	18
Natrona	N	402	1516	11520	13438
	Length	124.83999	273.858866	1699.585696	2098.281552
	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	74.802996	132.715057	0	207.517993
	n	5	13	0	18

Reserve Sample

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

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

Data Collection

Site Selection

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

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

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

Training

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

[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

[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.

Imputation

No imputation will be done on missing data.

Variance Estimation

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

Estimation

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

Notation

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

- The following are the subscripts used:
  - c used for county (PSU)
  - h used for road segment strata.
  - i used for road segment.
  - j used for time segment.
  - k used for road direction.
  - l used for the lane.
  - m used for vehicle.
  - n used for front seat occupants.
- π denote the inclusion probability, and
  - π_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

$$\pi_{ehi} = \pi_e \cdot \pi_{hij}$$

be the road segment selection probability, and

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

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

$$f_{eh} = \frac{\sum_{\forall\ i\ \in} w_{ehi}}{\sum_{responding\ i} w_{ehi}}$$

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:

$$\hat{p}_{ehi} = \frac{\sum_{\forall\ ehijklmn} w_{ehijklm} \cdot Length_{ehi} \cdot y_{ehijklmn}}{\sum_{\forall\ ehijklmn} w_{ehijklm} \cdot Length_{ehi}} \tag{2}$$

where

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

In the proposed sample design, it is assumed that after the selecting the road segment i, the selection probabilities for all vehicles at segment i are equal. Hence, $w_{jklmn|chi}$ 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.

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

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

where

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

The following equation can also be used to compute p.

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

where n is number of counties in the frame.

Appendix A

Resumés

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12/27/2011

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CURRENT EMPLOYMENT ACTIVITIES

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

EDUCATION AND PROFESSIONAL ACTIVITIES

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

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

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

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

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

RECENT CONSULTING ACTIVITIES

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

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

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

Community Action Partnership.

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

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

CURRENT COMMUNITY SERVICE

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

REFERENCES

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Appendix B

Selected Road Segments within Each County and Their Probabilities of Selection

STATEFP	COUNTYFP	MTFCC	FULLNAME	TLID	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	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	Y	N	-106.646302	43.995016	0.300971	0.01146132
56	19	S1100	I- 25	147364609	US Hwy 87	Y	N	-106.533561	43.598253	0.116223	0.01146132
56	19	S1100	I- 25	147364620	US Hwy 87	Y	N	-106.608497	43.644685	0.809497	0.01146132
56	19	S1100	I- 90	635198026		Y	N	-106.160823	44.212252	0.230765	0.01146132
56	19	S1100	I- 90	635203662		Y	N	-106.306087	44.217749	0.201378	0.01146132
56	19	S1100	I- 90	147303287		Y	N	-106.156158	44.212943	0.018582	0.01146132
56	19	S1100	I- 90	147364484		Y	N	-106.390326	44.235006	0.124988	0.01146132
56	19	S1100	I- 90	147365807		Y	N	-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

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

56	31	S1100	I- 25	160436166	I- 25	N	N	-105.033471	42.488013	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

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

56	39	S1200	Grand Loop Rd	130447128	US Hwy 89	N	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	0.467979	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

Appendix D

Training Syllabus

Day One

Welcome and introduction of all participants

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

Distribution of equipment

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

Survey overview

- Steps
- Importance of Data Collection process

Data Collection Techniques

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

Scheduling and Rescheduling

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

Site locations

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

Data Collection Forms

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

Safety and Security

Field Testing

- Practice field site

Day Two (AM)

Review of maps
- Locating all sites on county maps

Shipment of Forms and materials
- Review materials
- Essential timeline

Timesheet and expense reporting

Field Testing
- 3 Test Sites

Post Training Quiz

Day Two (PM)

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

Appendix C: NHTSA Approval and Final Review

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

April 24, 2012

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Dear Wyoming,

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

Sincerely,
NHTSA

State Seatbelt Survey Plan

NHTSA Final Review

Wyoming

Version 4

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

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

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

Appendix D: Detailed tables of collected data

Frequencies

Frequencies of Vehicle Types by County, Wyoming 2013						
	Vehicle Type					
County	Auto	Van	SUV	Pickup	Total	
Albany	485	460	122	485	1,552	31.3%
Big Horn	146	122	42	219	529	41.4%
Campbell	450	421	98	844	1,813	46.6%
Carbon	336	319	100	451	1,206	37.4%
Fremont	323	312	82	420	1,137	36.9%
Johnson	456	418	129	566	1,569	36.1%
Laramie	355	310	106	366	1,137	32.2%
Lincoln	294	341	86	462	1,183	39.1%
Natrona	258	244	61	322	885	36.4%
Park	457	514	117	648	1,736	37.3%
Platte	432	457	114	549	1,552	35.4%
Sheridan	434	376	103	588	1,501	39.2%
Sublette	161	230	44	358	793	45.1%
Sweetwater	692	396	121	720	1,929	37.3%
Teton	1,361	943	348	903	3,555	25.4%
Uinta	529	447	110	560	1,646	34.0%
Total	7,169	6,310	1,783	8,461	23,723	35.7%
Average	448	394	111	529	1,483	35.7%

Frequencies by Category

Category		Unweighted Counts	Category		Unweighted Counts
Day of Week	Sunday	1,367	**Direction**	North	5,150
	Monday	5,126		South	5,989
	Tuesday	2,941		East	5,264
	Wednesday	2,842		West	7,320
	Thursday	3,634		Total	23,723
	Friday	5,778			
	Saturday	2,035	**Number of lanes**	One Lane	12,979
	Total	23,723		Two Lanes	9,047
	Average	3,389		Three Lanes	297
	Weekend	3,402		Four Lanes	1,400
	Weekday	20,321		Total	23,723
	Total	23,723			
Vehicle Type			**Weather**	Clear/Sunny	16,740
	Auto	7,169		Cloudy	4,855
	Van	6,310		Foggy	222
	SUV	1,783		Light Rain	1,384
	Pickup	8,461		Heavy Rain	187
	Total	23,723		Occasional Rain	335
				Total	23,723
Time of Day	7:30-9:30	3,473			
	9:30-11:30	5,294	**Registration**	Wy License	16,202
	11:30-1:30	3,631		Other	7,151
	1:30-3:30	4,992		Unsure	370
	3:30-5:30	6,333		Total	23,723
	Total	23,723			

Frequencies of Vehicle Types by County, Wyoming 2013

	Vehicle Type					
County	Auto	Van	SUV	Pickup	Total	
Albany	485	460	122	485	1,552	31.3%
Big Horn	146	122	42	219	529	41.4%
Campbell	450	421	98	844	1,813	46.6%
Carbon	336	319	100	451	1,206	37.4%
Fremont	323	312	82	420	1,137	36.9%
Johnson	456	418	129	566	1,569	36.1%
Laramie	355	310	106	366	1,137	32.2%
Lincoln	294	341	86	462	1,183	39.1%
Natrona	258	244	61	322	885	36.4%
Park	457	514	117	648	1,736	37.3%
Platte	432	457	114	549	1,552	35.4%
Sheridan	434	376	103	588	1,501	39.2%
Sublette	161	230	44	358	793	45.1%
Sweetwater	692	396	121	720	1,929	37.3%
Teton	1,361	943	348	903	3,555	25.4%
Uinta	529	447	110	560	1,646	34.0%
Total	7,169	6,310	1,783	8,461	23,723	35.7%
Average	448	394	111	529	1,483	35.7%

Frequencies by vehicle type and County, Wyoming 2014

	Vehicle Type				
County	Auto	Van	SUV	Pickup	Total
Albany	537	104	433	417	1,491
	36.0%	7.0%	29.0%	28.0%	100.0%
Big Horn	142	28	118	214	502
	28.3%	5.6%	23.5%	42.6%	100.0%
Campbell	450	421	98	844	1,813
	24.8%	23.2%	5.4%	46.6%	100.0%
Carbon	336	319	100	451	1,206
	27.9%	26.5%	8.3%	37.4%	100.0%
Fremont	323	312	82	420	1,137
	28.4%	27.4%	7.2%	36.9%	100.0%
Johnson	456	418	129	566	1,569
	29.1%	26.6%	8.2%	36.1%	100.0%
Laramie	355	310	106	366	1,137
	31.2%	27.3%	9.3%	32.2%	100.0%
Lincoln	294	341	86	462	1,183
	24.9%	28.8%	7.3%	39.1%	100.0%
Natrona	258	244	61	322	885
	29.2%	27.6%	6.9%	36.4%	100.0%
Park	457	514	117	648	1,736
	26.3%	29.6%	6.7%	37.3%	100.0%
Platte	432	457	114	549	1,552
	27.8%	29.4%	7.3%	35.4%	100.0%
Sheridan	434	376	103	588	1,501
	28.9%	25.0%	6.9%	39.2%	100.0%
Sublette	161	230	44	358	793
	20.3%	29.0%	5.5%	45.1%	100.0%
Sweetwater	692	396	121	720	1,929
	35.9%	20.5%	6.3%	37.3%	100.0%
Teton	1,361	943	348	903	3,555
	38.3%	26.5%	9.8%	25.4%	100.0%
Uinta	529	447	110	560	1,646
	32.1%	27.2%	6.7%	34.0%	100.0%
Total	7,169	6,310	1,783	8,461	23,723
	30.2%	26.6%	7.5%	35.7%	100.0%

Occupant Seat Belt Use

Overall Occupant Belt Use in Wyoming, 2014						
			Standard	95% Confidence Interval		Unweighted Count
		Estimate	Error	Lower	Upper	Count
% of Total	Belted	79.2%	1.3%	73.3%	84.1%	18,405
	Not Belted	20.4%	1.4%	14.9%	27.3%	5,207
	Unsure	0.4%	0.2%	0.1%	2.8%	111
	Total	100.0%				23,723

Occupant Belt Use by Occupant Gender 2014					
	Belted	Not Belted	Unsure	Total	Unweighted Count
Male	75.0%	24.7%	0.3%	100.0%	13,967
Female	85.1%	14.3%	0.6%	100.0%	8,737
Total	79.1%	20.5%	0.4%	100.0%	23,615

Occupant Belt Use by County of Observations 2014					
	Belted	Not Belted	Unsure	Total	Unweighted Count
Sheridan	57.3%	42.7%	0.0%	100.0%	1,501
Uinta	64.9%	34.3%	0.8%	100.0%	1,646
Campbell	67.6%	32.3%	0.1%	100.0%	1,813
Big Horn	71.5%	28.4%	0.2%	100.1%	529
Natrona	72.8%	26.6%	0.6%	100.0%	885
Laramie	72.9%	27.1%	0.0%	100.0%	1,137
Fremont	77.0%	22.7%	0.4%	100.1%	1,137
Johnson	77.3%	18.0%	4.7%	100.0%	1,569
Sweetwater	78.2%	21.7%	0.1%	100.0%	1,929
Carbon	78.8%	20.5%	0.7%	100.0%	1,206
State	79.2%	20.4%	0.4%	100.0%	21,987
Park	80.2%	19.8%	0.0%	100.0%	1,736
Lincoln	81.5%	18.5%	0.0%	100.0%	1,183
Sublette	84.1%	15.9%	0.0%	100.0%	793
Albany	84.3%	15.7%	0.0%	100.0%	1,552
Platte	86.7%	13.3%	0.0%	100.0%	1,552

Teton	90.1%	9.8%	0.1%	100.0%	3,555

Occupant Belt Use by the Day of the Week 2014

	Belted	Not Belted	Unsure	Total	Unweighted Count
Sunday	87.6%	12.4%	0.0%	100.0%	1,367
Monday	79.9%	19.7%	0.4%	100.0%	5,126
Tuesday	86.2%	13.5%	0.3%	100.0%	2,941
Wednesday	77.7%	21.2%	1.0%	99.9%	2,842
Thursday	78.0%	21.7%	0.3%	100.0%	3,634
Friday	73.0%	26.8%	0.2%	100.0%	5,778
Saturday	78.6%	20.7%	0.6%	99.9%	2,035
Total	79.2%	20.4%	0.4%	100.0%	23,723

Occupant Belt Use by Weekdays and Weekend 2014

	Belted	Not Belted	Unsure	Total	Unweighted Count
Weekend	82.0%	17.6%	0.4%	100.0%	3,402
Weekdays	78.7%	20.9%	0.4%	100.0%	20,321
Total	79.2%	20.4%	0.4%	100.0%	23,723

Occupant Belt Use by Roadway Type

		Belted	Not Belted	Unsure	Total	Unweighted Count
Roadway	Primary	82.7%	16.4%	0.9%	100.0%	5,731
	Secondary	78.2%	21.5%	0.3%	100.0%	16,278
	Local/Rural/City	69.9%	29.9%	0.1%	99.9%	1,264
	Total	79.2%	20.4%	0.4%	100.0%	23,273

Occupant Belt Use by Vehicle Type 2014

		Belted	Not Belted	Unsure	Total	Unweighted Count
Vehicle Type	Auto	83.2%	16.3%	0.4%	100.0%	7,169
	Van	85.0%	14.7%	0.3%	100.0%	6,310
	SUV	84.7%	14.9%	0.4%	100.0%	1,783
	Pickup	69.9%	26.6%	0.5%	100.0%	8,461
	Total	79.2%	20.4%	0.4%	100.0%	23,723

Occupant Belt Use by Vehicle Type and Gender

Gender	Vehicle Type	Belted	Not Belted	Unsure	Total	Unweighted Count
Male	Auto	80.6%	19.1%	0.3%	100.0%	3,516
	Van	82.9%	16.9%	0.1%	99.9%	2,826
	SUV	81.6%	18.2%	0.2%	100.0%	976
	Pickup	67.2%	32.4%	0.4%	100.0%	6,649
	Total	75.0%	24.7%	0.3%	100.0%	13,967
Female	Auto	85.7%	13.8%	0.5%	100.0%	3,617
	Van	86.7%	12.9%	0.4%	100.0%	3,459
	SUV	88.1%	11.3%	0.6%	100.0%	787
	Pickup	79.6%	19.4%	1.0%	100.0%	1,785
	Total	85.1%	14.3%	0.6%	100.0%	9,648
	All Occupants	79.2%	20.4%	0.4%	100.0%	23,615

Driver Seat Belt Use

Driver Belt Use by Driver Gender Wyoming 2014

		Belted	Not Belted	Unsure	Total	Unweighted Count
Gender	Male	75.2%	24.6%	0.2%	100.0%	11,933
	Female	82.7%	17.2%	0.1%	100.0%	5,680
	Total	77.6%	22.3%	0.1%	100.0%	17,613

Driver Belt Use by County Wyoming 2014

		Belted	Not Belted	Unsure	Total	Unweighted Count
County	Sheridan	56.9%	43.1%	0.0%	100.0%	1,164
	Campbell	65.2%	34.7%	0.1%	100.0%	1,448
	Uinta	66.0%	33.8%	0.2%	100.0%	1,228
	Big Horn	66.3%	33.4%	0.3%	100.0%	395
	Natrona	72.2%	27.8%	0.0%	100.0%	712
	Laramie	73.3%	26.7%	0.0%	100.0%	863
	Fremont	75.6%	24.1%	0.4%	100.1%	852
	Sweetwater	76.0%	23.9%	0.1%	100.0%	1,455
	Carbon	76.4%	23.4%	0.2%	100.0%	897
	Johnson	78.4%	20.6%	1.0%	100.0%	1,109
	Park	78.8%	21.2%	0.0%	100.0%	1,298
	Lincoln	79.4%	20.6%	0.0%	100.0%	852
	Albany	82.5%	17.5%	0.0%	100.0%	1,161
	Sublette	82.6%	17.4%	0.0%	100.0%	575
	Platte	84.6%	15.4%	0.0%	100.0%	1,161
	Teton	88.9%	11.0%	0.1%	100.0%	2,443
	Total	77.6%	22.3%	0.1%	100.0%	17,613

Driver Belt Use by Population Density Wyoming 2014

		Belted	Not Belted	Unsure	Total	Unweighted Count
Population	Urban	71.9%	28.0%	0.1%	100.0%	4,898
	Rural	79.4%	20.4%	0.2%	100.0%	12,715
	Total	77.6%	22.3%	0.1%	100.0%	17,613

Driver Belt Use by Roadway Type Wyoming 2014						
		Belted	Not Belted	Unsure	Total	Unweighted Count
Roadway	Primary	81.5%	18.2%	0.3%	100.0%	4,180
	Secondary	76.5%	23.4%	0.1%	100.0%	12,438
	Local/Rural/City	70.8%	29.2%	0.0%	100.0%	995
	Total	77.6%	22.3%	0.1%	100.0%	17,613

Driver Belt Use by Weekday Wyoming 2014						
		Belted	Not Belted	Unsure	Total	Unweighted Count
Weekday	Sunday	86.6%	13.4%	0.0%	100.0%	887
	Monday	78.1%	21.5%	0.3%	100.0%	3,902
	Tuesday	85.4%	14.4%	0.1%	100.0%	2,181
	Wednesday	77.6%	22.2%	0.2%	100.0%	2,113
	Thursday	76.3%	23.6%	0.1%	100.0%	2,772
	Friday	70.5%	29.5%	0.0%	100.0%	4,381
	Saturday	76.6%	23.4%	0.0%	100.0%	1,377
	Total	77.6%	22.3%	0.1%	100.0%	17,613

Driver Belt Use by Weekend and Weekdays Wyoming 2014						
		Belted	Not Belted	Unsure	Total	Unweighted Count
Weekend	Weekend	80.2%	19.8%	0.0%	100.0%	2,264
	Weekdays	77.2%	22.6%	0.2%	100.0%	15,349
	Total	77.6%	22.3%	0.1%	100.0%	17,613

Driver Belt Use by Vehicle Type Wyoming 2014

		Belted	Not Belted	Unsure	Total	Unweighted Count
Vehicle Type	Auto	82.2%	17.6%	0.2%	100.0%	5,303
	Van	83.6%	16.3%	0.1%	100.0%	4,535
	SUV	83.6%	16.3%	0.1%	100.0%	1,192
	Pickup	68.3%	31.5%	0.1%	100.0%	6,583
	Total	77.6%	22.3%	0.1%	100.0%	17,613

Driver Belt Use by License Type Wyoming 2014

		Belted	Not Belted	Unsure	Total	Unweighted Count
License Type	Wyoming	74.7%	25.1%	0.1%	99.9%	12,606
	Out-of-State	84.9%	15.0%	0.1%	100.0%	4,736
	Unsure	67.9%	31.8%	0.3%	100.0%	271
	Total	77.6%	22.3%	0.1%	100.0%	17,613

Driver Belt Use by Gender and Vehicle Type Wyoming 2014

Gender	Vehicle Type	Belted	Not Belted	Unsure	Total	Unweighted Count
Male	Auto	81.5%	18.2%	0.3%	100.0%	3,010
	Van	83.1%	16.8%	0.1%	100.0%	2,390
	SUV	82.5%	17.3%	0.1%	99.9%	791
	Pickup	67.2%	32.6%	0.2%	100.0%	5,742
	Total	75.2%	24.6%	0.2%	100.0%	11,933
Female	Auto	83.1%	16.8%	0.1%	100.0%	2,293
	Van	84.2%	15.7%	0.2%	100.1%	2,145
	SUV	85.7%	14.3%	0.0%	100.0%	401
	Pickup	76.3%	23.7%	0.0%	100.0%	841
	Total	82.7%	17.2%	0.1%	100.0%	5,680

Passenger Seat Belt Use

Passenger Belt Use by Gender Wyoming 2014					
	Belted	Not Belted	Unsure	Total	Unweighted Count
Male	73.5%	25.5%	1.0%	100.0%	2,034
Female	88.4%	10.3%	1.3%	100.0%	3,968
Total	83.5%	15.3%	1.2%	100.0%	6,002

Passenger Belt Use by County Wyoming 2014					
	Belted	Not Belted	Unsure	Total	Unweighted Count
Albany	89.8%	10.2%	0.0%	100.0%	391
Big Horn	86.6%	13.4%	0.0%	100.0%	134
Campbell	77.3%	22.7%	0.0%	100.0%	365
Carbon	85.9%	12.1%	2.0%	100.0%	309
Fremont	81.1%	18.6%	0.4%	100.1%	285
Johnson	74.8%	11.6%	13.7%	100.1%	460
Laramie	71.6%	28.4%	0.0%	100.0%	274
Lincoln	86.7%	13.3%	0.0%	100.0%	331
Natrona	75.1%	22.1%	2.8%	100.0%	173
Park	84.2%	15.8%	0.0%	100.0%	438
Platte	92.9%	7.1%	0.2%	100.2%	391
Sheridan	58.8%	41.2%	0.0%	100.0%	337
Sublette	88.1%	11.9%	0.0%	100.0%	218
Sweetwater	84.8%	15.2%	0.0%	100.0%	474
Teton	92.7%	7.3%	0.0%	100.0%	1,112
Uinta	61.6%	35.8%	2.6%	100.0%	418
Total	83.6%	15.2%	1.2%	100.0%	6,110

Passenger Belt Use by Population Density Wyoming 2014					
	Belted	Not Belted	Unsure	Total	Unweighted Count
Urban	77.2%	22.3%	0.5%	100.0%	1,401
Rural	85.3%	13.3%	1.4%	100.0%	4,709
Total	83.6%	15.2%	1.2%	100.0%	6,110

Passenger Belt Use by Roadway Type Wyoming 2014					
	Belted	Not Belted	Unsure	Total	Unweighted Count
Primary	86.0%	11.3%	2.6%	99.9%	1,551
Secondary	83.0%	16.2%	0.8%	100.0%	4,290
Local/Rural/City	66.8%	32.6%	0.7%	100.0%	269
Total	83.6%	15.2%	1.2%	100.0%	6,110

Passenger Belt Use by Weekday Wyoming 2014						
		Belted	Not Belted	Unsure	Total	Unweighted Count
Weekday	Sunday	90.3%	9.7%	0.0%	100.0%	460
	Monday	85.1%	14.1%	0.8%	100.0%	1,224
	Tuesday	88.3%	10.8%	0.9%	100.0%	760
	Wednesday	78.1%	18.5%	3.4%	100.0%	729
	Thursday	82.6%	16.4%	0.9%	100.0%	882
	Friday	80.5%	18.7%	0.8%	100.0%	1,397
	Saturday	82.5%	15.6%	1.9%	100.0%	658
	Total	83.6%	15.2%	1.2%	100.0%	6,110

Passenger Belt Use by Weekend and Weekdays Wyoming 2014						
		Belted	Not Belted	Unsure	Total	Unweighted Count
Weekend	Weekend	85.5%	13.3%	1.2%	100.0%	1,118
	Weekdays	83.2%	15.6%	1.2%	100.0%	4,992

	Total	83.6%	15.2%	1.2%	100.0%	6,110

Passenger Belt Use by Vehicle Type Wyoming 2014

		Belted	Not Belted	Unsure	Total	Unweighted Count
Vehicle Type	Auto	86.1%	12.9%	1.1%	100.1%	1,866
	Van	88.5%	10.6%	0.9%	100.0%	1,775
	SUV	89.9%	12.1%	1.0%	100.0%	591
	Pickup	75.1%	23.2%	1.7%	100.0%	1,878
	Total	83.6%	15.2%	1.2%	100.0%	6,110

Passenger Belt Use by License Type Wyoming 2014

		Belted	Not Belted	Unsure	Total	Unweighted Count
License Type	Wyoming	79.2%	19.5%	1.3%	100.0%	3,596
	Out-of-State	90.2%	8.8%	1.1%	100.1%	2,415
	Unsure	66.5%	31.7%	1.8%	100.0%	99
	Total	83.6%	15.2%	1.2%	100.0%	6,110

Passenger Belt Use by Gender and Vehicle Type Wyoming 2014

Gender	Vehicle Type	Belted	Not Belted	Unsure	Total	Unweighted Count
Male	Auto	75.5%	24.1%	0.4%	100.0%	506
	Van	82.1%	17.4%	0.6%	100.1%	436
	SUV	77.6%	22.0%	0.4%	100.0%	185
	Pickup	67.4%	31.0%	1.6%	100.0%	907
	Total	73.5%	25.5%	1.0%	100.0%	2,034
Female	Auto	89.7%	9.1%	1.2%	100.0%	1,324
	Van	90.5%	8.7%	0.9%	100.1%	1,314
	SUV	90.4%	8.3%	1.3%	100.0%	386
	Pickup	82.5%	15.7%	1.8%	100.0%	944
	Total	88.4%	10.3%	1.3%	100.0%	3,968

Trend Data

Occupant Seat Belt Usage Rates by County, 2012-2014								
		2012	2013	2014	14-13	14-12		2014 Co-overall
County	Albany	74.2%	84.4%	84.3%	-0.1%	10.1%	0.792	5.1%
	Big Horn	60.2%	65.1%	71.5%	6.4%	11.3%	0.792	-7.7%
	Campbell	60.3%	62.3%	67.6%	5.3%	7.3%	0.792	-11.6%
	Carbon	83.0%	77.0%	78.8%	1.8%	-4.2%	0.792	-0.4%
	Fremont	72.2%	75.2%	77.0%	1.8%	4.8%	0.792	-2.2%
	Johnson	74.8%	97.4%	77.3%	-20.1%	2.5%	0.792	-1.9%
	Laramie	74.3%	73.0%	72.9%	-0.1%	-1.4%	0.792	-6.3%
	Lincoln	81.4%	82.7%	81.5%	-1.2%	0.1%	0.792	2.3%
	Natrona	63.1%	63.9%	72.8%	8.9%	9.7%	0.792	-6.4%
	Park	73.6%	73.0%	80.2%	7.2%	6.6%	0.792	1.0%
	Platte	84.5%	85.7%	86.7%	1.0%	2.2%	0.792	7.5%
	Sheridan	65.0%	60.5%	57.3%	-3.2%	-7.7%	0.792	-21.9%
	Sublette	83.0%	86.0%	84.1%	-1.9%	1.1%	0.792	4.9%
	Sweetwater	60.3%	77.1%	78.2%	1.1%	17.9%	0.792	-1.0%
	Teton	98.3%	99.0%	90.1%	-8.9%	-8.2%	0.792	10.9%
	Uinta	72.1%	76.8%	64.9%	-11.9%	-7.2%	0.792	-14.3%
	Totals	77.0%	81.9%	79.2%	-2.7%	2.2%	0.792	0.0%

Occupant Seat Belt Usage Rates in Wyoming for 2012-2014			
	2012	2013	2014
Occupants	77.0%	81.9%	79.2%

Occupant Seat Belt Usage Rates by Gender, 2012-2014				
		2012	2013	2014
Gender	Male	73.5%	79.3%	75.0%
	Female	82.7%	85.9%	85.1%

Occupant Seat Belt Usage Rates by Population Density, 2012-2014				
		2012	2013	2014
Population	Urban	78.6%	72.4%	73.2%
	Rural	76.5%	84.5%	81.0%

Occupant Seat Belt Usage Rates by Roadway Type, 2012-2014				
		2012	2013	2014
Roadway	Primary	80.2%	87.9%	82.7%
	Secondary	77.5%	80.0%	78.2%
	Local/Rural/City	66.0%	60.3%	69.9%

Occupant Seat Belt Rates by Vehicle Type, 2012-2014				
		2012	2013	2014
Vehicle Type	Automobile	78.2%	84.8%	83.2%
	Van	84.7%	88.8%	85.0%
	SUV	83.7%	86.6%	84.7%
	Pickup	69.2%	74.1%	69.9%

Occupant Seat Belt Usage Rates by License Status, 2012-2014				
		2012	2013	2014
License	Wyoming	72.2%	76.2%	75.7%
	Out of State	86.3%	91.1%	86.7%

Test of significance between 2013 and 2014 seat belt use

Year * Occ Belt Use

Year			Occ Belt Use			
			Belted	Not Belted	Unsure	Total
2013	% within Year	Estimate	81.9%	17.1%	1.0%	100.0%
		Unweighted Count	16540	4110	227	20877
2014	% within Year	Estimate	79.2%	20.4%	.4%	100.0%
		Unweighted Count	18405	5207	111	23723
Total	% within Year	Estimate	80.5%	18.8%	.7%	100.0%
		Unweighted Count	34945	9317	338	44600

Tests of Independence

		Chi-Square	Adjusted F	df1	df2	Sig.
Year * Occ Belt Use	Pearson	127.091	7.634	1.000	2.000	.110
	Likelihood Ratio	128.142	7.697	1.000	2.000	.109

The adjusted F is a variant of the second-order Rao-Scott adjusted chi-square statistic. Significance is based on the adjusted F and its degrees of freedom.

Appendix E: Observer field test rating

Observer	F-Test 1	F-Test 2	F-Test 3	Written	Avg. Field Test
Brianna Beck	97.53%	91.57%	91.25%	85.00%	93.45%
Bridget White	99.15%	94.97%	87.65%	100.00%	93.92%
Chereon Hoopes	97.70%	93.55%	99.14%	85.00%	96.80%
Dallas Darden	99.15%	97.73%	96.49%	100.00%	97.79%
Darcy Ronne	99.21%	80.85%	95.98%	90.00%	92.01%
Deanna Frey	97.53%	92.41%	77.66%	85.00%	89.20%
Derek Bacon	99.29%	99.56%	99.52%	90.00%	99.46%
Desiree Matthews	96.30%	96.30%	93.48%	90.00%	95.36%
Dorothy Johnstone	99.15%	99.21%	81.58%	100.00%	93.31%
Eric Johnson	99.51%	86.13%	95.95%	85.00%	93.86%
Kayla Schear	81.30%	88.46%	92.47%	90.00%	87.41%
Kristi Holfield	97.48%	98.15%	82.05%	100.00%	92.56%
Linda Poirier	74.16%	64.94%	70.00%	95.00%	69.70%
Monty Byers	87.32%	91.28%	91.34%	100.00%	89.98%
Richard Macht	97.67%	87.41%	82.64%	90.00%	89.24%
Samantha Anderson	80.63%	96.12%	93.43%	90.00%	90.06%
Sandy McCleery	99.52%	93.06%	99.16%	90.00%	97.25%
Trevice Fifield	72.81%	99.20%	96.40%	95.00%	89.47%
Vicky Peterson	86.15%	87.41%	83.06%	95.00%	85.54%
William Spencer	95.96%	94.52%	90.00%	100.00%	93.49%
	92.88%	91.64%	89.96%		
	Field Test Overall Average		91.49%		
	Written Overall Average		92.75%		

Appendix F: Unknown seat belt use

County	County Code	Unknown Driv+Pass	Total Obsv. Driv+Pass	County Rate
Albany	1	2	1483	0.001349
Big Horn	3	20	491	0.040733
Campbell	5	52	1989	0.026144
Carbon	7	73	776	0.094072
Fremont	13	0	1078	0
Johnson	19	1	1551	0.000645
Laramie	21	20	659	0.030349
Lincoln	23	0	1245	0
Natrona	25	1	1922	0.00052
Park	29	18	1138	0.015817
Platte	31	1	1922	0.00052
Sheridan	33	0	1339	0
Sublette	35	0	640	0
Sweetwater	37	0	1280	0
Teton	39	2	2505	0.000798
Uinta	41	5	1852	0.0027
State		195	21870	0.008916

Appendix G: Reporting requirements – data collected at observation sites

1. Standard Error of Statewide Belt Use Rate: 1.3 percent
2. Nonresponse Rate as provided in §1340.9 (f)
    a. Nonresponse rate for the survey variable seat belt use: 0.8916 percent

The following pages contain the collected data related to the individual counties.

County Information

Albany County

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	Number of occupants unbelted	Number of occupants with unknown belt use
168749730	1: Original	6/6/2014	7.657718121	156	63	191	28	0
604512124	2: Original	6/4/2014	7.657718121	40	14	51	3	0
604516236	3: Original	6/5/2014	1.150201613	182	54	194	42	0
168748704	4: Original	6/2/2014	1.150201613	124	39	421	21	0
168722835	5: Original	6/3/2014	1.150201613	14	9	21	2	0
604506806	6: Original	6/2/2014	1.150201613	131	46	150	27	0
168750353	7: Original	6/3/2014	1.150201613	21	10	28	3	0
168757040	8: Original	6/2/2014	1.150201613	100	31	99	32	0
168722017	9: Original	6/5/2014	1.150201613	4	2	4	2	0
604510122	10: Original	6/6/2014	1.150201613	93	37	107	23	0
168738815	11: Original	6/4/2014	1.150201613	33	12	37	8	0
168744760	12: Original	6/7/2014	1.150201613	17	6	21	2	0
168756901	13: Original	6/2/2014	1.150201613	163	38	166	35	0
168745008	14: Original	6/8/2014	1.150201613	8	8	12	4	0
168737539	15: Original	6/5/2014	1.150201613	35	6	37	4	0
168755506	16: Original	6/3/2014	1.150201613	3	1	3	1	0
604505747	17: Original	6/6/2014	1.150201613	22	11	33	0	0
168755958	18: Original	6/5/2014	1.150201613	15	4	15	4	0
			Totals	1161	391	1590	241	0

Big Horn County

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	Number of occupants unbelted	Number of occupants with unknown belt use
605633431	1: Original	6/5/2014	1	13	5	16	2	0
180494288	2: Original	6/3/2014	1	5	2	7	0	0
180493968	3: Original	6/3/2014	1	35	6	28	13	0
605624056	4: Original	6/2/2014	1	21	3	13	11	0
180493545	5: Original	6/4/2014	1	5	2	5	2	0
605621594	6: Original	6/4/2014	1	2	1	3	0	0
180484672	7: Original	6/5/2014	1	57	22	64	15	0
605616914	8: Original	6/6/2014	1	12	7	15	4	0
180505210	9: Original	6/2/2014	1	42	8	34	15	1
626936823	10: Original	6/3/2014	1	11	5	12	4	0
180500795	11: Original	6/8/2014	1	31	23	42	12	0
180501932	12: Original	6/2/2014	1	35	12	27	20	0
180490602	13: Original	6/2/2014	1	35	7	34	8	0
180506937	14: Original	6/4/2014	1	4	2	5	1	0
180507017	15: Original	6/7/2014	1	8	4	9	3	0
180508412	16: Original	6/7/2014	1	14	6	17	3	0
180499656	17: Original	6/7/2014	1	4	1	3	2	0
180485070	18: Original	6/6/2014	1	61	18	44	35	0
			Totals	395	134	378	150	1

Campbell County

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	Number of occupants unbelted	Number of occupants with unknown belt use
607415957	1: Original	6/2/2014	4.898876404	122	53	138	37	0
607413318	2: Original	6/2/2014	4.898876404	195	27	150	72	0
146326960	3: Original	6/2/2014	4.898876404	161	42	152	51	0
146347844	4: Original	6/2/2014	4.898876404	131	58	148	40	1
146348156	5: Original	6/6/2014	1.25648415	25	5	20	10	0
146325159	6: Original	6/4/2014	1.25648415	138	28	80	86	0
146349851	7: Original	6/4/2014	1.25648415	41	10	39	12	0
146329404	8: Original	6/4/2014	1.25648415	40	8	33	15	0
146334309	9: Original	6/5/2014	1.25648415	29	7	24	12	0
146353809	10: Original	6/5/2014	1.25648415	30	6	21	15	0
607396191	11: Original	6/3/2014	1.25648415	66	16	62	20	0
146333806	12: Original	6/7/2014	1.25648415	21	7	20	8	0
146321054	13: Original	6/6/2014	1.25648415	27	5	19	13	0
146353348	14: Original	6/5/2014	1.25648415	76	18	50	44	0
607406131	15: Original	6/2/2014	1.25648415	21	7	13	15	0
146346688	16: Original	6/6/2014	1.25648415	169	28	109	88	0
635532528	17: Original	6/3/2014	1.25648415	104	19	89	34	0
146342308	18: Original	6/8/2014	1.25648415	52	21	53	20	0
			Totals	1448	365	1220	592	1

Carbon County

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	Number of occupants unbelted	Number of occupants with unknown belt use
611197576	1: Original	6/5/2014	6.905405405	96	35	123	7	1
148702972	2: Original	6/5/2014	6.905405405	127	48	143	29	3
148729076	3: Original	6/6/2014	6.905405405	136	67	168	34	1
622138133	4: Original	6/6/2014	1.169336384	74	24	81	14	3
148737136	5: Original	6/2/2014	1.169336384	27	5	13	19	0
148752555	6: Original	6/2/2014	1.169336384	13	2	13	2	0
148712671	7: Original	6/4/2014	1.169336384	41	10	39	12	0
148715207	8: Original	6/4/2014	1.169336384	17	6	17	6	0
148718040	9: Original	6/3/2014	1.169336384	6	3	1	8	0
148695417	10: Original	6/8/2014	1.169336384	60	21	75	6	0
148729803	11: Original	6/6/2014	1.169336384	197	62	179	80	0
148707454	12: Original	6/5/2014	1.169336384	1	0	1	0	0
148702076	13: Original	6/7/2014	1.169336384	6	2	5	3	0
148743798	14: Original	6/3/2014	1.169336384	20	4	15	9	0
148736405	15: Original	6/2/2014	1.169336384	24	8	22	10	0
148714894	16: Original	6/3/2014	1.169336384	36	6	33	9	0
148727630	17: Original	6/7/2014	1.169336384	8	3	8	3	0
148716025	18: Original	6/4/2014	1.169336384	8	3	9	2	0
			Totals	897	309	945	253	8

Fremont County

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	Number of occupants unbelted	Number of occupants with unknown belt use
148435993	1: Original	6/2/2014	1.000528821	20	5	21	4	0
148440001	2: Original	6/4/2014	1.000528821	14	11	25	0	0
148435866	3: Original	6/2/2014	1.000528821	89	22	62	49	0
634121244	4: Original	6/4/2014	1.000528821	20	8	27	1	0
148495718	5: Original	6/6/2014	1.000528821	65	16	56	25	0
148494149	6: Original	6/3/2014	1.000528821	34	9	41	2	0
148486152	7: Original	6/7/2014	1.000528821	94	41	103	32	0
148473776	8: Original	6/5/2014	1.000528821	30	10	22	18	0
148485578	9: Original	6/3/2014	1.000528821	18	12	29	1	0
148433925	10: Original	6/6/2014	1.000528821	4	1	2	3	0
148495394	11: Original	6/5/2014	1.000528821	26	14	34	5	1
148468455	12: Original	6/7/2014	1.000528821	86	44	99	31	0
148486961	13: Original	6/5/2014	1.000528821	28	11	28	11	0
148429899	14: Original	6/4/2014	1.000528821	16	2	14	4	0
148448781	15: Original	6/8/2014	1.000528821	73	30	90	13	0
148470962	16: Original	6/6/2014	1.000528821	18	2	12	8	0
148433053	17: Original	6/2/2014	1.000528821	102	27	111	17	1
148432511	18: Original	6/2/2014	1.000528821	115	20	99	34	2
			Totals	852	285	875	258	4

Johnson County

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	Number of occupants unbelted	Number of occupants with unknown belt use
624034874	1: Original	6/5/2014	2.23495702	31	12	38	3	2
147364609	2: Original	6/3/2014	2.23495702	52	23	57	10	8
147364620	3: Original	6/3/2014	2.23495702	62	25	75	9	3
635203226	4b: Alternate	6/4/2014	2.23495702	58	30	77	7	4
635203662	5: Original	6/4/2014	2.23495702	71	38	95	10	4
147347862	6b: Alternate	6/4/2014	2.23495702	92	51	115	18	10
147364484	7: Original	6/4/2014	2.23495702	100	42	121	15	6
147365807	8: Original	6/4/2014	2.23495702	59	19	68	4	6
147321002	9: Original	6/8/2014	1.80974478	4	2	5	1	0
147312456	10: Original	6/7/2014	1.80974478	66	28	62	23	9
147299440	11: Original	6/6/2014	1.80974478	129	36	106	55	4
147375368	12: Original	6/5/2014	1.80974478	63	26	81	4	4
147320405	13: Original	6/3/2014	1.80974478	4	1	2	2	1
147301635	14: Original	6/2/2014	1.80974478	28	16	36	5	3
147301707	15: Original	6/2/2014	1.80974478	11	5	11	1	4
147330545	16: Original	6/6/2014	1.80974478	219	84	207	95	1
617881865	17: Original	6/7/2014	1.80974478	58	20	56	17	5
147320871	18: Original	6/8/2014	1.80974478	2	2	2	2	0
			Totals	1109	460	1214	281	74

Laramie County

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	Number of occupants unbelted	Number of occupants with unknown belt use
622388802	1: Original	6/6/2014	27.25055928	171	87	206	52	0
624043730	2: Original	6/6/2014	12.60973085	59	6	46	19	0
160176358	3: Original	6/3/2014	1.13122214	1	0	0	1	0
160145448	4: Original	6/3/2014	1.13122214	7	1	8	0	0
160162024	5: Original	6/5/2014	1.13122214	163	55	176	42	0
160151376	6: Original	6/4/2014	1.13122214	143	34	87	90	0
160148179	7: Original	6/5/2014	1.13122214	6	1	3	4	0
160171828	8: Original	6/5/2014	1.13122214	2	0	2	0	0
160148102	9: Original	6/5/2014	1.13122214	2	0	2	0	0
160148214	10: Original	6/5/2014	1.13122214	38	5	30	13	0
160149935	11: Original	6/3/2014	1.13122214	6	3	6	3	0
160172654	12: Original	6/7/2014	1.13122214	17	12	14	15	0
160147641	13: Original	6/6/2014	1.13122214	8	2	9	1	0
160152283	14: Original	6/4/2014	1.13122214	13	5	10	8	0
160160311	15: Original	6/4/2014	1.13122214	12	1	13	0	0
160176882	16: Original	6/2/2014	1.13122214	43	19	53	9	0
160179037	17: Original	6/6/2014	1.13122214	137	36	124	49	0
608318324	18: Original	6/2/2014	1.13122214	35	7	30	12	0
			Totals	863	274	819	318	0

Lincoln County

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	Number of occupants unbelted	Number of occupants with unknown belt use
611001502	1: Original	6/2/2014	14.95744681	23	3	22	4	0
130299361	2: Original	6/5/2014	1.071646341	24	8	24	8	0
130309240	3: Original	6/4/2014	1.071646341	33	15	39	9	0
130324547	4: Original	6/7/2014	1.071646341	34	9	35	8	0
130316044	5: Original	6/7/2014	1.071646341	157	69	177	49	0
130316740	6: Original	6/8/2014	1.071646341	69	26	84	11	0
611004110	7: Original	6/5/2014	1.071646341	27	7	21	13	0
611001556	8: Original	6/2/2014	1.071646341	26	8	25	9	0
611004390	9: Original	6/5/2014	1.071646341	16	6	18	4	0
130297921	10: Original	6/5/2014	1.071646341	20	3	13	10	0
619637613	11: Original	6/6/2014	1.071646341	28	7	24	11	0
130324450	12: Original	6/4/2014	1.071646341	38	19	48	9	0
611008956	13: Original	6/6/2014	1.071646341	107	43	133	17	0
130301475	14: Original	6/3/2014	1.071646341	3	2	5	0	0
130301732	15: Original	6/4/2014	1.071646341	36	13	41	8	0
130316677	16: Original	6/8/2014	1.071646341	69	33	87	15	0
611008950	17: Original	6/6/2014	1.071646341	120	50	145	25	0
130303332	18: Original	6/3/2014	1.071646341	22	10	23	9	0
			Totals	852	331	964	219	0

Natrona County

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	Number of occupants unbelted	Number of occupants with unknown belt use
149010081	1: Original	6/8/2014	33.4278607	121	46	139	27	1
149022110	2: Original	6/2/2014	8.864116095	205	31	157	77	2
149038958	3: Original	6/5/2014	8.864116095	24	8	16	16	0
149017131	4: Original	6/7/2014	1.166493056	0	0	0	0	0
607727858	5: Original	6/6/2014	1.166493056	18	8	22	4	0
617962807	6: Original	6/4/2014	1.166493056	17	3	17	3	0
149021251	7: Original	6/4/2014	1.166493056	1	1	2	0	0
149019867	8: Original	6/4/2014	1.166493056	10	0	7	3	0
607699609	9: Original	6/3/2014	1.166493056	8	4	8	3	1
149024110	10: Original	6/6/2014	1.166493056	217	53	197	72	1
149026356	11: Original	6/5/2014	1.166493056	26	8	17	17	0
607739973	12: Original	6/4/2014	1.166493056	10	1	4	7	0
607727056	13: Original	6/2/2014	1.166493056	1	0	0	1	0
607699508	14: Original	6/3/2014	1.166493056	0	0	0	0	0
607718345	15: Original	6/6/2014	1.166493056	48	7	39	16	0
149039592	16: Original	6/8/2014	1.166493056	0	0	0	0	0
607701450	17: Original	6/3/2014	1.166493056	0	0	0	0	0
617963960	18: Original	6/2/2014	1.166493056	6	3	4	5	0
			Totals	712	173	629	251	5

Park County

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	Number of occupants unbelted	Number of occupants with unknown belt use
612523424	1: Original	6/4/2014	1	11	10	20	1	0
612522810	2: Original	6/4/2014	1	14	10	20	4	0
627160085	3: Original	6/2/2014	1	33	29	57	5	0
149194387	4: Original	6/5/2014	1	14	5	15	4	0
149206406	5: Original	6/2/2014	1	36	29	61	4	0
626966347	6: Original	6/2/2014	1	212	65	182	95	0
612520875	7: Original	6/3/2014	1	233	59	227	65	0
612522765	8: Original	6/7/2014	1	38	17	46	9	0
624469118	9: Original	6/7/2014	1	22	8	25	5	0
612517654	10: Original	6/6/2014	1	21	4	18	7	0
149194643	11: Original	6/6/2014	1	111	34	133	12	0
612521823	12: Original	6/5/2014	1	165	45	197	13	0
149212941	13: Original	6/3/2014	1	40	18	50	8	0
149202036	14: Original	6/5/2014	1	13	4	12	5	0
612468763	15: Original	6/7/2014	1	62	22	67	17	0
612523179	16: Original	6/8/2014	1	29	14	40	3	0
625076103	17: Original	6/6/2014	1	163	49	165	47	0
612522218	18: Original	6/6/2014	1	81	16	57	40	0
			Totals	1298	438	1392	344	0

Platte County

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	Number of occupants unbelted	Number of occupants with unknown belt use
160436166	1: Original	6/8/2014	2.880299252	2	1	3	0	0
606897806	2: Original	6/6/2014	2.880299252	177	42	203	17	0
604828586	3: Original	6/4/2014	2.880299252	157	57	189	25	0
606897551	4: Original	6/4/2014	2.880299252	185	61	230	16	0
620601368	5: Original	6/7/2014	2.880299252	107	37	138	6	0
618035322	6: Original	6/2/2014	2.880299252	215	84	274	25	0
604823280	7: Original	6/3/2014	1.531830239	2	1	2	1	0
160432353	8: Original	6/5/2014	1.531830239	34	13	38	9	0
604817760	9: Original	6/5/2014	1.531830239	26	12	35	3	0
624031047	10: Original	6/6/2014	1.531830239	53	16	60	9	0
604820352	11: Original	6/5/2014	1.531830239	107	27	75	59	0
160445492	12: Original	6/2/2014	1.531830239	33	14	38	9	0
160445589	13: Original	6/2/2014	1.531830239	28	8	23	13	0
160431220	14: Original	6/8/2014	1.531830239	2	1	3	0	0
160441567	15: Original	6/5/2014	1.531830239	9	2	8	3	0
604820453	16: Original	6/7/2014	1.531830239	11	8	18	1	0
160442550	17: Original	6/3/2014	1.531830239	8	2	6	4	0
160425201	18: Original	6/4/2014	1.531830239	5	4	6	3	0
			Totals	1161	390	1349	203	0

Sheridan County

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	Number of occupants unbelted	Number of occupants with unknown belt use
629143491	1: Original	6/6/2014	7.447368421	208	68	162	114	0
634774573	2: Original	6/4/2014	7.447368421	124	39	131	32	0
147411270	3: Original	6/8/2014	1.155102041	14	9	8	15	0
147421444	4: Original	6/7/2014	1.155102041	29	10	18	21	0
605384408	5: Original	6/6/2014	1.155102041	212	45	124	133	0
147398734	6: Original	6/3/2014	1.155102041	22	17	28	11	0
147408472	7: Original	6/5/2014	1.155102041	160	36	105	91	0
147409609	8: Original	6/8/2014	1.155102041	10	5	8	7	0
147400215	9: Original	6/3/2014	1.155102041	11	9	16	4	0
147396185	10: Original	6/2/2014	1.155102041	2	0	2	0	0
147420545	11: Original	6/4/2014	1.155102041	20	5	10	15	0
605368387	12: Original	6/5/2014	1.155102041	43	7	22	28	0
147419891	13: Original	6/4/2014	1.155102041	12	4	11	5	0
147399687	14: Original	6/7/2014	1.155102041	22	8	20	10	0
147408335	15: Original	6/5/2014	1.155102041	88	20	53	55	0
147398523	16: Original	6/3/2014	1.155102041	21	15	31	5	0
614721355	17: Original	6/6/2014	1.155102041	129	29	83	75	0
147417308	18: Original	6/2/2014	1.155102041	37	11	36	12	0
			Totals	1164	337	868	633	0

Sublette County

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	Number of occupants unbelted	Number of occupants with unknown belt use
149346148	1: Original	6/2/2014	1	0	0	0	0	0
149347154	2: Original	6/2/2014	1	3	0	2	1	0
149330874	3: Original	6/6/2014	1	10	3	8	5	0
149342158	4: Original	6/7/2014	1	9	6	11	4	0
617103316	5: Original	6/5/2014	1	163	55	176	42	0
614284845	6: Original	6/8/2014	1	91	40	115	16	0
631784199	7: Original	6/6/2014	1	10	5	9	6	0
149328921	8: Original	6/3/2014	1	4	0	3	1	0
149319272	9: Original	6/3/2014	1	2	2	4	0	0
149327486	10: Original	6/2/2014	1	4	1	5	0	0
611631792	11: Original	6/5/2014	1	16	0	14	2	0
149335729	12: Original	6/4/2014	1	39	7	31	15	0
149349722	13: Original	6/2/2014	1	35	13	44	4	0
149348298	14: Original	6/7/2014	1	21	10	29	2	0
624696401	15: Original	6/5/2014	1	6	1	5	2	0
149341811	16: Original	6/8/2014	1	81	47	114	14	0
149343493	17: Original	6/4/2014	1	4	1	5	0	0
611631778	18: Original	6/5/2014	1	77	27	92	12	0

Sweetwater County

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	Number of occupants unbelted	Number of occupants with unknown belt use
624231944	1: Original	6/3/2014	4.531914894	210	88	278	20	0
633104230	2: Original	6/2/2014	4.531914894	197	68	245	20	0
149499689	3: Original	6/5/2014	4.531914894	7	2	6	3	0
149487238	4: Original	6/3/2014	4.531914894	109	59	153	15	0
618328344	5: Original	6/4/2014	1.28313253	58	27	70	15	0
149511333	6: Original	6/5/2014	1.28313253	64	14	57	21	0
618324181	7: Original	6/5/2014	1.28313253	269	51	207	112	1
149464554	8: Original	6/8/2014	1.28313253	49	29	75	3	0
149493695	9: Original	6/4/2014	1.28313253	0	0	0	0	0
149491956	10: Original	6/4/2014	1.28313253	7	3	6	4	0
149503912	11: Original	6/6/2014	1.28313253	241	67	191	117	0
149496622	12: Original	6/6/2014	1.28313253	38	11	42	7	0
611877695	13: Original	6/6/2014	1.28313253	124	30	92	61	1
149458823	14: Original	6/7/2014	1.28313253	5	1	5	1	0
149461346	15: Original	6/2/2014	1.28313253	9	4	12	1	0
149499742	16: Original	6/5/2014	1.28313253	29	7	32	4	0
149502711	17: Original	6/6/2014	1.28313253	36	13	34	15	0
149457693	18: Original	6/7/2014	1.28313253	3	0	2	1	0
			Totals	1455	474	1507	420	2

Teton County

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	Number of occupants unbelted	Number of occupants with unknown belt use
130447128	1: Original	6/7/2014	1	116	102	206	12	0
130412425	2: Original	6/4/2014	1	88	34	113	9	0
626815081	3: Original	6/3/2014	1	288	79	318	49	0
130414136	4: Original	6/2/2014	1	167	70	203	33	1
130440602	5: Original	6/5/2014	1	192	119	270	41	0
235945248	6: Original	6/4/2014	1	70	24	87	7	0
130449024	7: Original	6/3/2014	1	198	107	256	49	0
130410308	8: Original	6/7/2014	1	78	68	137	9	0
130442142	9: Original	6/5/2014	1	44	28	67	5	0
130414163	10: Original	6/2/2014	1	133	34	153	14	0
130416881	11: Original	6/5/2014	1	25	20	45	0	0
625696810	12: Original	6/6/2014	1	46	25	62	9	0
633121288	13: Original	6/2/2014	1	149	60	179	28	2
130435259	14: Original	6/8/2014	1	120	97	206	11	0
130421972	15: Original	6/3/2014	1	253	52	277	28	0
626815080	16: Original	6/3/2014	1	222	75	284	13	0
130430099	17: Original	6/2/2014	1	143	34	151	26	0
130438888	18: Original	6/6/2014	1	111	84	189	6	0
			Totals	2443	1112	3203	349	3

Uinta County

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	Number of occupants unbelted	Number of occupants with unknown belt use
160262564	1: Original	6/2/2014	3.798206278	133	53	160	22	4
160262989	2: Original	6/2/2014	3.798206278	89	33	66	55	1
160263878	3: Original	6/2/2014	3.798206278	86	33	75	44	0
160276521	4: Original	6/2/2014	3.798206278	109	29	119	18	1
625848180	5: Original	6/4/2014	3.798206278	61	13	46	28	0
160278118	6: Original	6/7/2014	1.357371795	103	41	83	60	1
160256726	7: Original	6/6/2014	1.357371795	51	16	47	20	0
160278610	8: Original	6/4/2014	1.357371795	38	8	17	28	1
160276641	9: Original	6/4/2014	1.357371795	107	33	64	75	1
160259758	10: Original	6/6/2014	1.357371795	105	35	83	56	1
160269401	11: Original	6/3/2014	1.357371795	11	2	12	1	0
160258496	12: Original	6/5/2014	1.357371795	4	2	6	0	0
160266210	13: Original	6/4/2014	1.357371795	1	0	0	1	0
160257875	14: Original	6/8/2014	1.357371795	19	6	19	6	0
160258469	15: Original	6/5/2014	1.357371795	7	3	8	2	0
160269069	16: Original	6/3/2014	1.357371795	9	4	6	6	1
606738273	17: Original	6/7/2014	1.357371795	161	68	143	85	1
160275943	18: Original	6/6/2014	1.357371795	134	39	110	62	1
			Totals	1228	418	1064	569	6

Appendix H: SPSS data dictionary

```
GET
  FILE='B:\495-WYDOT Seat Belt Survey\Reports\2014\SPSS Wyoming 2014\Occupant
s 2014.sav'.
DATASET NAME DataSet1 WINDOW=FRONT.
DISPLAY DICTIONARY.
```

File Information

```
[DataSet1] B:\495-WYDOT Seat Belt Survey\Reports\2014\SPSS Wyoming 2014\Occup
ants 2014.sav
```

Variable Information

Variable	Position	Label	Measurement Level	Role	Column Width	Alignment
InclProbOfRoadType	1	InclProbOfRoadType	Scale	Input	12	Right
TLID	2	TLID	Scale	Input	12	Right
SRSWOR	3	SRSWOR	Nominal	Input	12	Right
County	4	County	Nominal	Input	12	Right
observer	5	Observer	Nominal	Input	12	Right
Site#	6	Site #	Nominal	Input	12	Right
Population	7	Population	Nominal	Input	12	Right
Roadway	8	Roadway	Scale	Input	12	Right
Weekday	9	Weekday	Nominal	Input	12	Right
Roaddirection	10	Road direction	Nominal	Input	12	Right
lanes	11	Lanes	Nominal	Input	12	Right
weather	12	Weather	Nominal	Input	12	Right
Time	13	Time	Nominal	Input	12	Right
Case#	14	Case#	Nominal	Input	6	Left
Vehicle	15	Vehicle	Nominal	Input	12	Right
License	16	License	Nominal	Input	12	Right
OccupSex	17	Occ Gender	Nominal	Input	12	Right
Occup	18	Occ Belt Use	Nominal	Input	12	Right
Roadway2	19	Type of Roadway	Nominal	Input	10	Right
Day_of_Week	20	Day of Week	Nominal	Input	13	Right
Year	21	Year	Nominal	Input	8	Right
Year2	22	<none>	Nominal	Input	10	Right

Variable Information

Variable	Print Format	Write Format	Missing Values
InclProbOfRoadType	F12.5	F12.5	
TLID	F12.5	F12.5	
SRSWOR	F12.5	F12.5	
County	F12	F12	99
observer	F12	F12	99
Site#	F12	F12	
Population	F12	F12	9
Roadway	F12	F12	99
Weekday	F12	F12	9
Roaddirection	F12	F12	9
lanes	F12	F12	9
weather	F12	F12	9
Time	F12	F12	9
Case#	A6	A6	
Vehicle	F12	F12	9
License	F12	F12	
OccupSex	F12	F12	99
Occup	F12	F12	9
Roadway2	F8	F8	99
Day_of_Week	F8	F8	9
Year	F8	F8	
Year2	F8.2	F8.2	

Variables in the working file

Variable Values

Value		Label
County	1	Albany
	3	Big Horn
	5	Campbell
	7	Carbon
	13	Fremont
	19	Johnson
	21	Laramie
	23	Lincoln
	25	Natrona
	29	Park
	31	Platte
	33	Sheridan
	35	Sublette
	37	Sweetwwater
	39	Teton
	41	Uinta
observer	7	Bridget White
	10	Chereon Hoops
	14	Vicky Peterson
	17	Sandy McCleery
	23	Monty Byers
	26	Dallas Darden
	27	Dorothy Johnstone
	28	Kristi Holyfield
	29	Brianna Beck
	30	Bill Spencer
	31	Darcy Ronne
	32	Deanna Frey
	33	Desiree Matthews
	34	Eric Johnson
	35	Kayla Schear
	36	Samantha Anderson
	37	Trevice Fifield
	38	Derek Bacon

Variable Values

Value		Label
Population	1	Urban
	2	Rural
Roadway	11	Primary
	12	Secondary
	14	Loc-Rur-City
Weekday	1	Sunday
	2	Monday
	3	Tuesday
	4	Wednesday
	5	Thursday
	6	Friday
	7	Saturday
Roaddirection	1	North
	2	South
	3	East
	4	West
lanes	1	One Lane
	2	Two Lanes
	3	Three Lanes
	4	Four Lanes
weather	1	Clear/Sunny
	2	Cloudy
	3	Foggy
	4	Light Rain
	5	Snow/Ice
	6	Heavy Rain
	7	Occasional Rain
Time	1	7:30-9:30
	2	9:30-11:00
	3	11:30-1:30
	4	1:30-3:30
	5	3:30-5:30
Vehicle	1	Auto
	2	Van
	3	SUV
	4	PickUp

Variable Values

Value		Label
License	1	Wyoming License
	2	Out-of-State
	9	Unsure
OccupSex	1	Male
	2	Female
Occup	1	Belted
	2	Not Belted
	3	Unsure
Roadway2	11	Primary
	12	Secondary
	14	Loc-Rur-City
Day_of_Week	1	Weekend
	2	Weekday
Year	1	2013
	2	2014

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