# SEAT BELT USE IN SOUTH DAKOTA

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North Dakota State University, Dept. 2880

P.O. Box 6050

Fargo, North Dakota 58108-6050

Kimberly Vachal[1], Donald Malchose[2], Andrew Kubas[2], Laurel Benson[3]

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[1]Research Faculty, [2]Research Associate, [3]Research Project Specialist.

**Disclaimer**

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# EXECUTIVE SUMMARY

South Dakota's seat belt use study provides statistically reliable data from which generalizations, comparative analyses and recommendations can be developed. The National Occupant Protection Use Survey (NOPUS) provides the South Dakota Department of Public Safety (SDDPS) with a system that monitors seat belt use rates within the state. The National Highway Traffic Safety Administration (NHTSA) funds NOPUS through the SDDPS's Office of Highway Safety.

In April 2011, NHTSA issued new Uniform Criteria for state observational surveys of seat belt use in an effort to improve the survey's representativeness. The revised criteria, implemented for the 2012 survey and outlined in the Federal Register Vol. 76 No. 63, resulted in changes to the county selection, sites, road type classifications and weighting procedures. One of the main changes NHTSA implemented was to focus county selection by using crash-related fatalities data, as reported by Fatality Analysis Reporting System (FARS), instead of population-based exclusion criterion used in the past.

To choose the survey counties, all 66 counties in South Dakota were listed in descending order based on the average number of motor vehicle crash-related fatalities from 2006 to 2010. The top 38 counties accounted for at least 85% of the state's total crash-related fatalities. This comprised the first stage sampling frame. These 38 counties were then stratified by region based on statistical differences in seat belt use observed in prior surveys between the counties in the western and eastern parts of the state. Therefore, the 38 counties in the sampling frame were stratified according to geographical region with 18 counties in the west and 20 counties in the east. Eight counties were selected from each region using probability proportional to size (PPS) sampling with vehicle miles traveled (VMT) as the measure of size (MOS).

Road segments within each county were then stratified by MAF/TIGER Feature Class Code (MTFCC) road type and sorted by segment length. A random, systematic sample of 20 road segments was selected using PPS with road segment length by road segment type within each sampled county as the MOS. This represents the second stage of sample selection. This process resulted in the selection of 320 road segments (16 counties x 20 sites per county). Additional sites were also selected for use as alternate sites.

During the week of June 8-14, trained observers visited each site in their assigned counties to collect seat belt use data as prescribed in the handbook they received. Drivers and right front seat passengers in vehicles with a gross vehicle weight up to 10,000 lbs. were observed for seat belt use.

For the 2015 statewide survey, observers tracked seat belt use for 20,923 drivers and 7,740 right front-seat passengers, for a total of 28,663 vehicle occupants. The estimates of seat belt use were 74.3% for drivers, 80.5% for passengers, and an overall unweighted estimate of 76.0% belted for drivers and passengers combined. Adjusting the raw state rate for the survey design and weights resulted in a weighted state rate of 73.6%.

Overall, males were less likely than females to wear seat belts (71.9% vs. 81.0%). Male rates were observed to be anywhere from 4% to 25% lower than female use rates across the counties surveyed, with the exception of Shannon County where male use exceeded female use by 2%. The trend of higher female use rates holds for each vehicle type as well – female use ranged from 77.6% to 85.9% over the four vehicle types, while male use ranged from 66.1% to 80.5%. Van occupants had the highest seat belt use rate at 83.4% followed by SUVs (81.4%), cars (75.5%), and pickups/small trucks (69.1%).

Although drivers outnumbered passengers by a ratio of 2.7 to 1, passengers buckled up at a rate of 80.5% compared to drivers at 74.3%. This may be mainly due to the fact that drivers are more likely to be men than women (64.3% vs. 35.7%), and their seat belt use rates are lower than women – 71.7% compared to 78.8% respectively. For passengers, the reverse is true. Women represented 67.9% of the passengers with a use rate of 84.0%, while men represented 32.1% of the passengers with a use rate of 72.7%.

Rates by region indicate occupants in the east were more likely to buckle up (81.5%) than those in the west (71.6%). Regional differences in seat belt use were also reflected by road type. Whereas occupants from both regions exhibited roughly the same rates of use on primary roads, the propensity for seat belt use was greater from occupants in the east half of the state on both local and secondary road types.

NHTSA reports the national average seat belt use rate was 87% in 2014. South Dakota falls below this average with a weighted rate of 73.6%. This compares to last year's weighted rate of 68.9%. Comparisons to prior years should be made with caution because of changes in the sampling methodology implemented in 2012.

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# INTRODUCTION

The Upper Great Plains Transportation Institute (UGPTI), a research and education center at North Dakota State University (NDSU) located in Fargo, ND, was contracted by the South Dakota Department of Public Safety (SDDPS) to conduct a field survey of seat belt use in 2015. The study replicates the sampling methodology previously revised and approved by the National Highway Transportation Safety Administration (NHTSA) and the SDDPS for the 2012 survey. Requirements for conducting statewide seat belt surveys are published in the Federal Register, Vol. 76 No. 63, April 1, 2011, Rules and Regulations, pp. 18042 – 18059. The methodology was redesigned to yield a more statistically valid estimate of the current seat belt use rate on all roadways in South Dakota.

# OBJECTIVE

The objective of this study was to determine the rate of seat belt use of drivers and right front-seat passengers in the state of South Dakota.

Additional analyses determined seat belt use rates in the following categories:

- Occupant (driver, passenger)
- Gender (male, female)
- Type of vehicle (car, van, sport utility vehicle, pickup/small truck)
- Region of state (east, west)
- Roadway type (primary, secondary, local)

A description of the tasks involved in conducting the statewide seat belt survey is provided in this report which also includes general information about the methods and protocols. Table 1 summarizes the 2015 survey.

**Table 1: Summary of the Seat Belt Use Survey**

| | |
|---|---|
| **Methodology** | Multistage Stratified Cluster Design with Probability Proportional to Size Sampling |
| **Source of Samples** | 2011 revised methodology, approved by SDDPS and NHTSA; Westat* supplied list of road segments using 2010 TIGER data developed by the U.S. Census Bureau based on the MAF/TIGER Feature Class Code (MTFCC); three classifications: 1) Primary Roads, 2) Secondary Roads, and 3) Local Roads |
| **Geographic Coverage** | State of South Dakota |
| **Identified Regions** | East<br>West |
| **Selected Counties** | East Region:<br>Beadle, Brookings, Brown, Codington, Lincoln, Minnehaha, Roberts, Union<br>West Region:<br>Corson, Custer, Harding, Hughes, Lawrence, Meade, Pennington, Shannon |
| **Number of Sites** | 320 |
| **Survey Period** | June 8-14, 2015 |
| **Observation Duration Per Site** | 60 minutes |
| **Sample Size** | 20,947 vehicles (includes all vehicles where either the driver or passenger or both had a known protection status) |

*A research and statistical survey organization

# METHODOLOGY OVERVIEW

On April 1, 2011, NHTSA published revised Uniform Criteria for the state observational seat belt surveys to guide occupant protection programs. The new rule changed many aspects of the survey design. One of these changes was to include counties in the sampling frame based on fatality-based inclusion criterion as opposed to the population-based criterion of the past.

It was determined that 38 counties accounted for at least 85% of South Dakota's total crash-related fatalities from 2006 to 2010. A sample of 16 counties was selected for the survey of seat belt use in South Dakota. Counties represent the primary sampling unit (PSU). Half of the counties were selected from the western part of the state and the other eight selected from the eastern half. Within each of those 16 counties a sample of 20 sites was selected, providing a total of 320 site locations across the state. A reserve sample of sites was also selected to replace the original sites if unforeseen circumstances arose. The sites within the counties are the secondary sampling unit. The sites were stratified by road type, identified within three classifications: primary roads, secondary roads, and local roads.

The formulas contained in this report use the following definitions.

*g* – denotes the strata (east or west)
*c* – denotes the county
*h* – denotes the road segment strata (primary, secondary, or local)
*i* – denotes the road segment
*j* – denotes the time segment
*k* – denotes the vehicle's direction of travel
*l* – denotes the lane of observation
*m* – denotes the vehicle
*n* – denotes the front-seat occupant (driver or passenger)

Within each stratum, east and west, counties were selected with probability proportional to size (PPS) with the measure of size (MOS) being vehicle miles traveled (VMT). If we let $g = 1,2$ be the first stage strata,$v_{gc}$ be the VMT for county $c$ in stratum $g$, and $v_g = \sum_{all\ c\ in\ g} v_{gc}$ be the total VMT for all counties in first stage stratum $g$, then the PSU inclusion probability is: $\pi_{gc} = n_g v_{gc}/v_g$ , here $n_g$is the PSU sample size for first stage stratum $g$ that was allocated. First each strata was analyzed to identify if any certainty counties existed. A county was selected with certainty if its MOS was equal to or exceeded $v_g/n_g$. Each certainty county identified was set aside and the stratum MOS was reduced by that county's VMT and $n_g$ was reduced by one. This process was repeated until no county's MOS was equal to or

greater than $v_g/n_g$ based on the reduced values for $v_g$ and $n_g$. The probabilities of selection for the remaining counties in the stratum were calculated based on the new values for $v_g$ and $n_g$. Pennington, Meade, and Lawrence counties were selected with certainty from the west region, while Minnehaha and Lincoln counties were selected with certainty from the east region. The remaining counties for each region were selected using the SAS 9.2 procedure PROC SURVEYSELECT based on the re-calculated probabilities of selection.

Next, road segments within each county were implicitly stratified by its MAF/TIGER Feature Class Code - primary, secondary and local. The list of eligible road segments within each county was sorted by segment length within MTFCC group to obtain an ordered list. Road segments were selected with PPS using length as the MOS. The same procedure that was used to identify certainty counties was used to identify any certainty sites. With no certainty road segments being identified, a sampling interval (I) was calculated as the total length across all remaining road segments within the county divided by the number of road segments to select within each county (i.e. 20 less the number of certainty sites). A random starting point (RS) was selected between 0 and the calculated I, which determined the first road segment selected. Subsequent road segments selected were determined by adding multiples of I to RS until the desired number of road segments was selected and/or the end of the sorted list was reached.

Once the sites were chosen, a random order of the sites to observe within each county was constructed. One of the sites in each county was randomly chosen as the starting site. This site was then randomly assigned to one of the 77 one-hour time slots within the week as mandated by the Uniform Criteria. The time slots cover Monday through Sunday from 7 a.m. to 6 p.m. Once the initial site was selected and assigned to a time slot, the remaining sites were clustered and arranged within the county to achieve administrative and economic efficiencies. After each site was identified, the direction of travel was chosen randomly as either N/W or S/E. The lane of traffic was chosen as the closest lane to where the observer could find a suitable and safe place to make their observations.

Under this stratified multistage sample design, the inclusion probability for each observed vehicle is the product of selection probabilities at all stages:

> $\pi_{gc}$ for county, $\pi_{hi|gc}$ for road segment, $\pi_{j|gchi}$ for time segment, $\pi_{k|gchij}$ for direction, $\pi_{l|gchij}$ for lane, and $\pi_{m|gchijl}$for vehicle.

So the overall vehicle inclusion probability is:

$$\pi_{gchijklm} = \pi_{gc} \cdot \pi_{hi|gc} \cdot \pi_{j|gchi} \cdot \pi_{k|gchij} \cdot \pi_{l|gchij} \cdot \pi_{m|gchijl}$$

The sampling weight (design weight) for vehicle *m* is:

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

Noting that all front-seat occupants were observed and letting the driver/passenger seat belt use status be:

$$y_{gchijklmn} = \begin{cases} 1, & if\ belt\ used \\ 0, & otherwise \end{cases}.$$

Then the seat belt use rate estimator is a ratio estimator calculated as follows:

$$\rho = \frac{\sum_{all\ gchijklmn} w_{gchijklm} y_{gchijklmn}}{\sum_{all\ gchijklmn} w_{gchijklm}}.$$

This estimator captures traffic volume and vehicle miles traveled through design weights (which will include nonresponse adjustment factors) at various stages and it does not require knowledge of VMT/DVMT.

The weighted average seat belt use rate for South Dakota calculated using this estimator was found to be 73.6% in 2015. Information on previous years' rates is found in the Statewide Results section of this report.

## Standard Error and Confidence Intervals

The standard error of the state seat belt use rate measures the amount of random sampling error in the survey results. The smaller the standard error the more accurate the seat belt use rate when compared to the true, but unknown, seat belt use rate for South Dakota. Assuming the design of the survey accurately measures the variable of interest, the larger the survey sample, the more accurate the results.

The estimated standard error for the state seat belt use rate is found by taking the square root of the variance, so

$$SE(\hat{p}_s) = \sqrt{V(\hat{p}_s)}$$

Where:

$SE(\hat{p}_s)$ = the estimated standard error for the state seat belt use rate

$V(\hat{p}_s)$ = the estimated variance for the state seat belt use rate

$\hat{p}_s$ = the estimated state seat belt use rate

Using SAS callable SUDAAN statistical software, the standard error for the state seat belt use was calculated to be 0.8%. From this, we can build a 95% confidence interval for the state seat belt use. The 95% confidence interval formula is $\hat{p}_s \pm 1.96 * SE(\hat{p}_s)$, where each of the terms has the meaning above and the value 1.96 is the tabled value from the standard normal distribution for a 95% confidence interval.

**Table 2: Confidence Interval**

| 95% Confidence Interval and Estimated Standard Error for the 2015 State Seat Belt Use | | | | |
|---|---|---|---|---|
| **Occupants** | **State Rate** | **Standard Error** | **95% CI Lower Limit** | **95% CI Upper Limit** |
| 28,663 | 73.6% | 0.8% | 72.0% | 75.1% |

The 95% confidence interval means that statistically there is only a 5% chance that the actual statewide seat belt percentage falls outside the range of 72.0% to 75.1%.

## Nonresponse Rate

A factor that could potentially bias the results and invalidate the survey is if results have exceedingly high nonresponse rates. A nonresponse occurs when the observer tries but cannot determine an occupant's seat belt use. As stipulated in NHTSA's guidelines, the nonresponse rate of 2.99% did not exceed 10% (over the entire survey). Had the rate exceeded the allowable maximum, individual counties that registered above the 10% threshold would have been revisited to acquire additional observations.

## Observational Protocols

The observational protocols used in the 2015 study adhere to the Uniform Criteria as outlined in the Federal Register. Observations were conducted Monday through Sunday. The day of the week and time of day were randomly chosen for one site within each county. The remaining sites within each county were arranged based on the first site to minimize travel and costs. This predetermined order of observation sites to be visited each day was provided to each observer before the survey. A complete list of county observation sites are found in Appendix A of this report. The traffic direction of vehicles to be observed was randomly chosen in advance and was limited to one direction.

An 11-hour block of daylight, from 7 a.m. to 6 p.m., was identified as the observational period. Observations at each site occurred in a predetermined time slot, requiring a 60-minute observation period

which began at the start of the predetermined time slot or the first 5-minute interval after arrival at the site if the observer was delayed, and ending exactly 60 minutes later.

### Traffic Conditions and Data Collection Problems

Observers were trained to cope with traffic problems in the following manner:

- When traffic was heavy and there were too many vehicles to count visually, recording was done as long as possible and then stopped until the observer could catch up with observations. Some vehicles were, of necessity, outside the sample. When this occurred, counting resumed after no more than a one-minute pause. Once an observer's eyes were locked on a vehicle, a count of that vehicle was required on the observation form.

- At sites with more than one lane of traffic in the predetermined direction, observations were made from the lane closest to the observer.

### Site Accessibility Problems

Field observers could terminate observations at a preselected site if any of the following circumstances arose: (1) weather conditions that would hinder the accuracy of the observations; (2) heavy traffic flow that might endanger the safety of the observer; or (3) road conditions that rendered observations unfeasible, such as road construction, detoured traffic, or a crash site. In these circumstances, observers were directed to contact the project coordinator immediately for assignment of an alternate site if a suitable vantage point could not be established.

### Observed Vehicles

All vehicles with a gross vehicle weight up to 10,000 lbs. were observed and classified on the observation form as cars, vans, sport utility vehicles, and pickups (includes other small trucks, i.e. flatbed, utility service, and small box trucks, etc.) Large trucks (semi or large box), large emergency vehicles (ambulance/fire), and RVs/motor homes were not included in the survey.

### Observations

Type of vehicle, gender characteristics and seat belt use for both drivers and right front-seat passengers were recorded. Observations occurred from within the observer's vehicle whenever possible. The observer was parked as close as possible to the road for accurate observation without compromising observer safety. If observations could not be conducted from within the vehicle, the observer was allowed to stand off the roadway. Observers were required to wear an ANSI-approved Type-2 safety vest at all times to enhance visibility of the observer.

### Problems Encountered by Observers

Unforeseen circumstances prevented site observations as originally scheduled in three survey counties. However, in accordance with guidelines outlined in the Federal Register, observers were able to complete these sites by adhering to the prescribed schedules the following week. Complete information on site locations is found in Appendix A.

## QUALITY ASSURANCE

### Observers

The SDDPS contracted directly with a nonprofit organization for observers to complete the field work, as they have with previous surveys. As part of the quality control process, training materials were provided for distribution to the observers to ensure accuracy in conducting the field observations. During observation week, quality control personnel also carried out unannounced site visits (one per county) to verify observers were located within valid road segments, conforming to the prearranged day of week/time of day schedules, and properly recording seat belt data. All observers were required to have a current license with proof of adequate vehicle insurance if not using state fleet vehicles, and were required to wear seat belts while conducting observations.

### Data Entry

Steps were taken to ensure quality control with respect to data entry. Each site packet was checked to ensure the number of observation sheets submitted was the same as that noted by the observers. Database records were verified to match the number of observations. An accuracy check was done on a systematic sample of records and was measured at greater than 99.9% for every field. Errors discovered during quality assurance checks were corrected prior to completion of all analyses.

# RESULTS

## Sample Size by Year

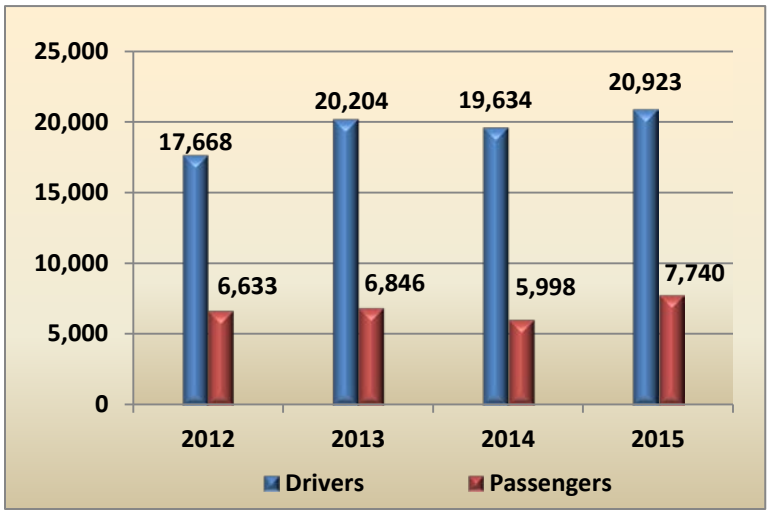



**Figure 1: Driver and Passenger Observations, 2012-2015**

The 2015 survey yielded seat belt use on 20,923 drivers and 7,740 passengers for a total of 28,663 occupants (Figure 1). Several county sites captured only a limited number of observed vehicles because of low traffic volume. However, these sites are important to the aggregate measurement of statewide and county seat belt use and therefore are captured each year. Complete details on the number of observations and use by site are found in Appendix E.

## Statewide Results

The overall unweighted results of the 2015 statewide survey indicate 76.0**%** of vehicle occupants were observed wearing seat belts on South Dakota roads. Because the survey employs a two-stage stratified random sampling scheme, a more appropriate estimate of the seat belt use rate is found by weighting the unadjusted rate using the formulas from the methodology section. Using those formulas, the overall weighted seat belt use rate in South Dakota was 73.6% for 2015. Figure 2 shows a comparison of years of seat belt use since implementation of the amended methodology in 2012.

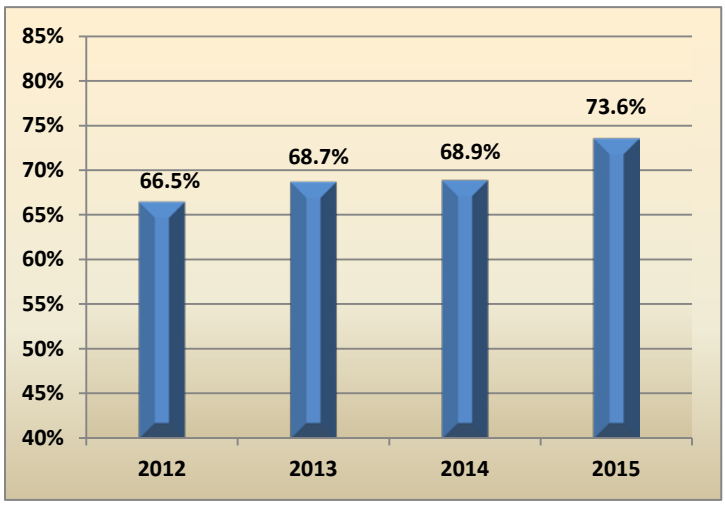



**Figure 2: Statewide Results, 2012-2015, Weighted**

Given that driver-to-passenger ratios can influence overall use rates, the annual ratios are given in Table 3. The surveys have maintained similar ratios throughout the years, ranging from 2.7 to 3.3.

**Table 3: Driver Passenger Ratio, 2012 - 2015**

| | 2012 | 2013 | 2014 | 2015 | Difference Baseline (2012 ) to Current Year |
|---|---|---|---|---|---|
| **Ratio** Drivers:Passengers | 2.7 | 3.0 | 3.3 | 2.7 | +0.0 |
| Drivers as % of Sample | 72.7% | 74.7% | 76.6% | 73.0% | +0.3 |

## County Results

Weighted seat belt use rates for all vehicle occupants in the 16 counties included in the sample are mapped in Figure 3. For comparative purposes, the subsequent graph (Figure 4) illustrates rates in descending order alongside county averages based on data from 2012 through 2015.

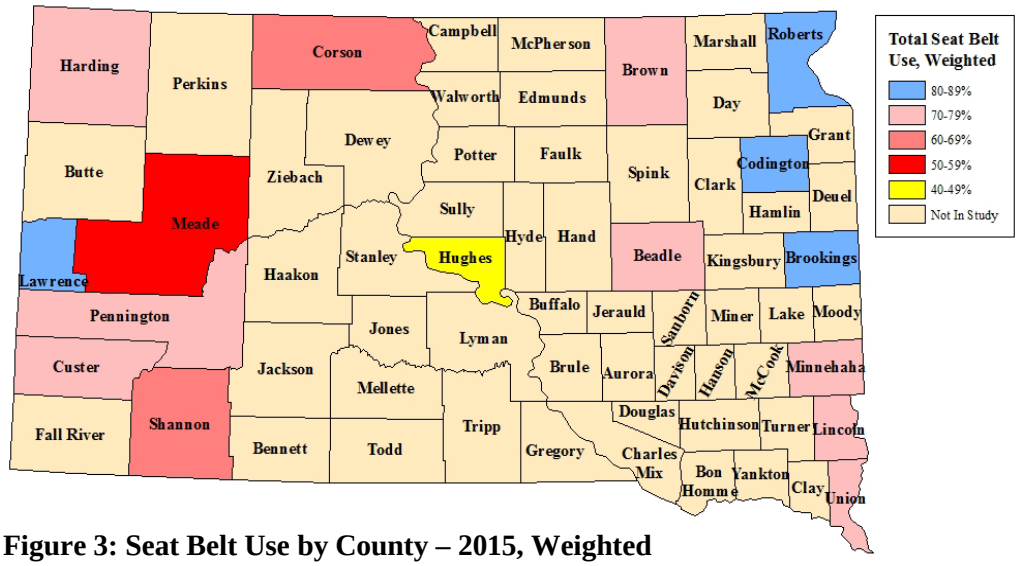



**Figure 3: Seat Belt Use by County – 2015, Weighted**

Belt use ranged from a low of 49.4% in Hughes County to a high of 86.6% in Lawrence County. Use rates can vary considerably from year-to-year and caution should be used when interpreting changes from one year to the next at the county level. The changes can often represent sampling difference and may not

be statistically significant, especially for counties where there are few total observations.[1] However, even the rates for counties with more observations may be volatile. Because of this variability, the average of the annual rates is provided to demonstrate representative county rates over time. A supplemental table of annual county rates can be found in Appendix C.

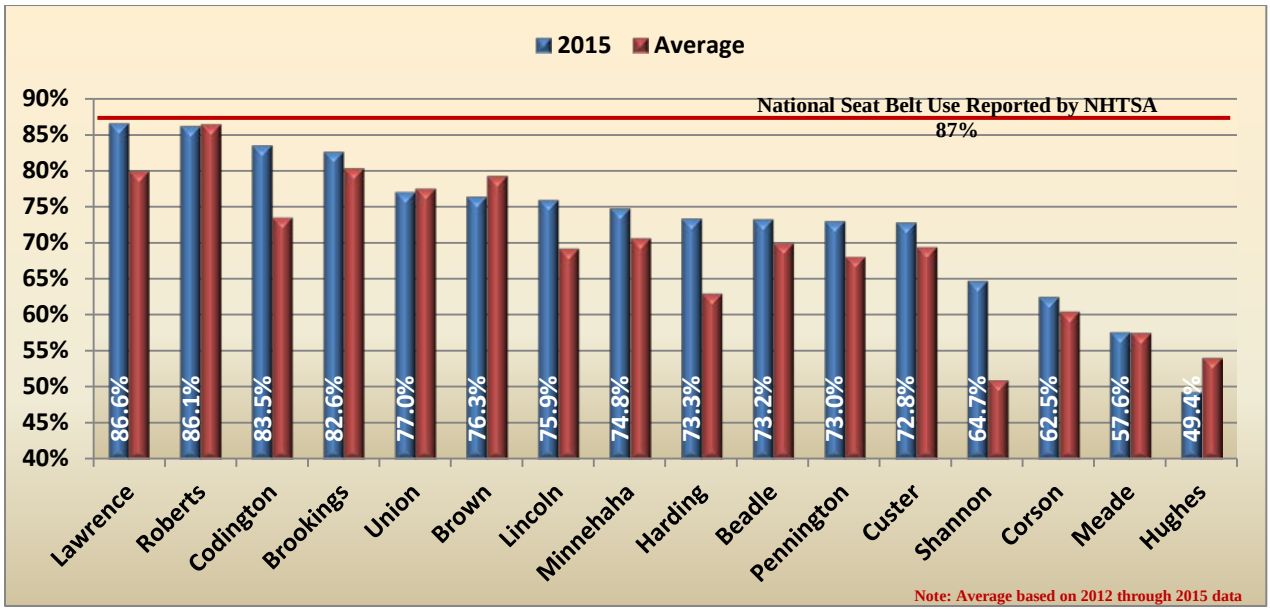
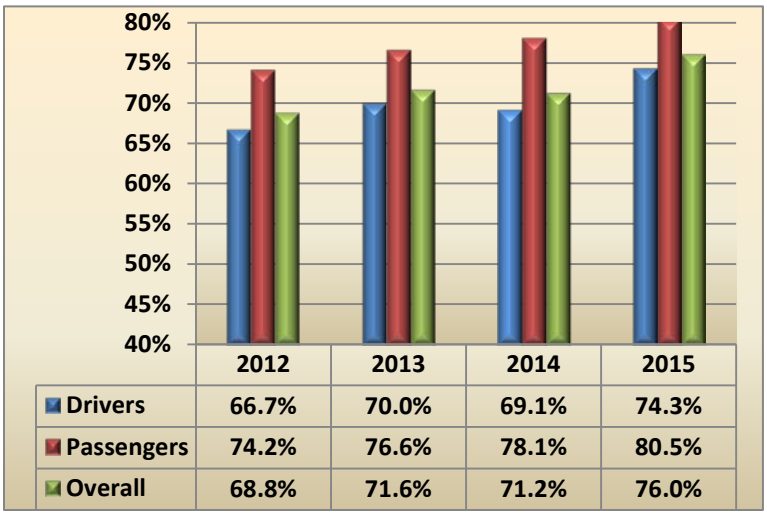



**Figure 4: Seat Belt Use By County, Weighted, Descending Order of Use**

## Results for Vehicle Occupants

The unweighted estimates of seat belt use were 74.3% for drivers, 80.5% for passengers, and an overall estimate of seat belt use of 76.0% for drivers and passengers combined (Figure 5).

In 2015, one-fourth of the counties surveyed reflected driver seat belt use above 80% (Figure 6). Driver seat belt use was highest in Codington County at



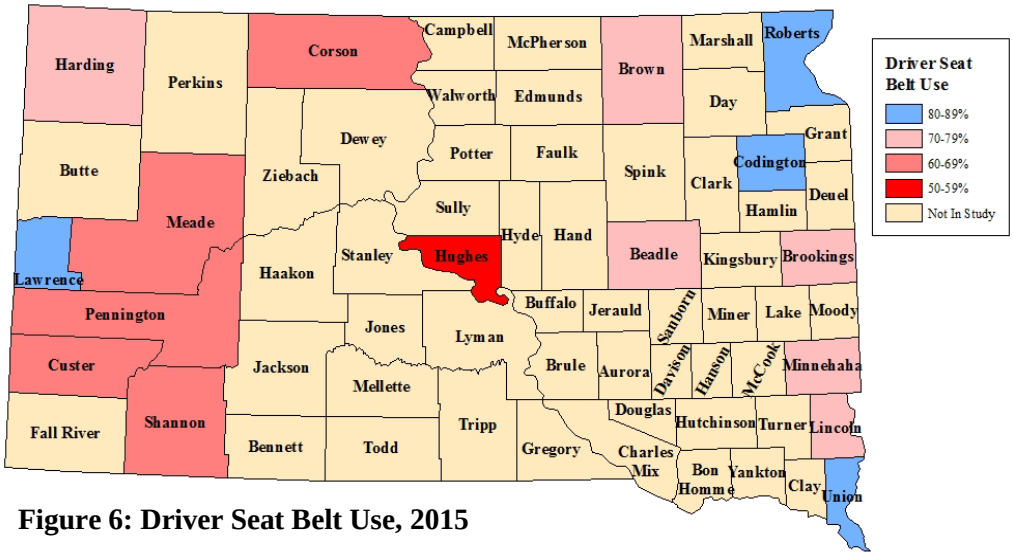

| | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|
| Drivers | 66.7% | 70.0% | 69.1% | 74.3% |
| Passengers | 74.2% | 76.6% | 78.1% | 80.5% |
| Overall | 68.8% | 71.6% | 71.2% | 76.0% |

**Figure 5: Percent Belted by Vehicle Occupant, Unweighted**

[1]The frequencies of observations by county are presented in Appendix E of the report.

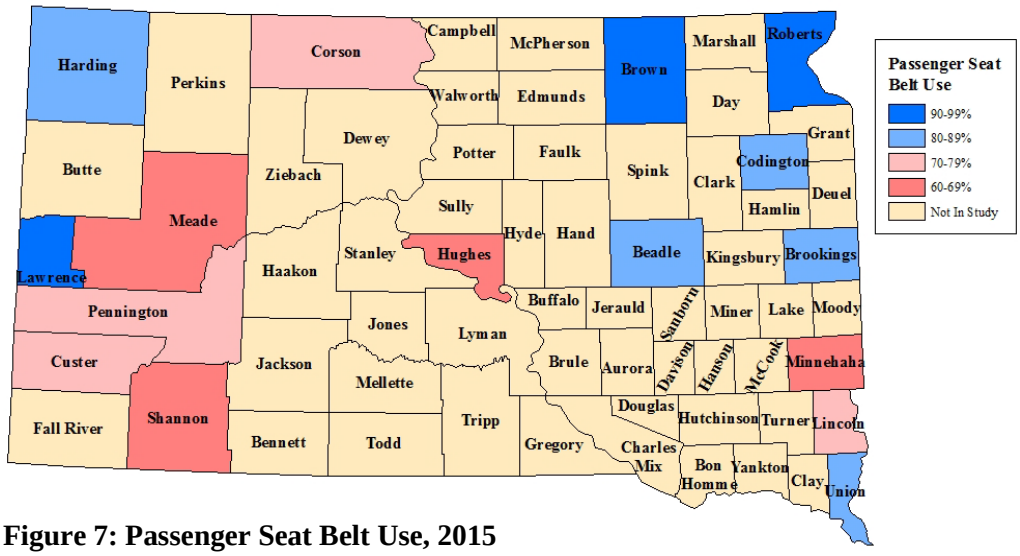
88.3%, followed by Roberts – 86.2%, Lawrence – 83.2%, and Union – 81.3%. Several of the remaining counties had driver use lower than 70%.

Typically passenger seat belt use outpaces driver use and this was the case in 75% of the surveyed counties. However, the reverse was observed in Lincoln, Minnehaha, Shannon and Union counties where driver use was slightly higher. Passenger rates range from a low of 64.3% in Shannon to a high of 92.6% in Lawrence (Figure 7).




| | 4 Yr Average |
|---|---|
| Beadle | 72.7% |
| Brookings | 77.7% |
| Brown | 74.1% |
| Codington | 70.1% |
| Corson | 63.1% |
| Custer | 72.4% |
| Harding | 56.4% |
| Hughes | 65.1% |
| Lawrence | 75.7% |
| Lincoln | 66.2% |
| Meade | 62.8% |
| Minnehaha | 69.1% |
| Pennington | 69.4% |
| Roberts | 79.6% |
| Shannon | 57.9% |
| Union | 76.5% |

**Figure 6: Driver Seat Belt Use, 2015**




| | 4 Yr Average |
|---|---|
| Beadle | 80.2% |
| Brookings | 86.1% |
| Brown | 83.9% |
| Codington | 79.4% |
| Corson | 66.4% |
| Custer | 78.7% |
| Harding | 63.3% |
| Hughes | 65.8% |
| Lawrence | 88.8% |
| Lincoln | 73.7% |
| Meade | 69.5% |
| Minnehaha | 74.8% |
| Pennington | 68.8% |
| Roberts | 91.4% |
| Shannon | 50.2% |
| Union | 80.5% |

**Figure 7: Passenger Seat Belt Use, 2015**

Efforts to address seat belt use in South Dakota are ongoing. The weighted rate of 73.6% realized this year is lower than the national average of 87% (2014) reported by NHTSA. Experiences from other states

suggest some impetus to cause a major shift will be necessary to achieve significant increases in seat belt use. One possibility would be enactment of a primary seat belt law which NHTSA suggests would increase seat belt use rates by 10% to 15%. Another related possibility is increased enforcement.

Some factors that may be useful in discussions about increasing seat belt use in South Dakota are found in the remainder of this report, which focuses on differences in seat belt use among regions of the state, gender, vehicle type, and roadway type.

## Results by South Dakota Regions

The survey sampling methodology groups the state into east and west regions. Both east and west regions contain "certainty" counties and additional counties selected from the remaining counties in each region for a total of eight counties.[2] The results for the 2015 survey follow an established pattern of distribution, see Figure 8. There were 12,525 records collected in the east and 16,138 in the west.

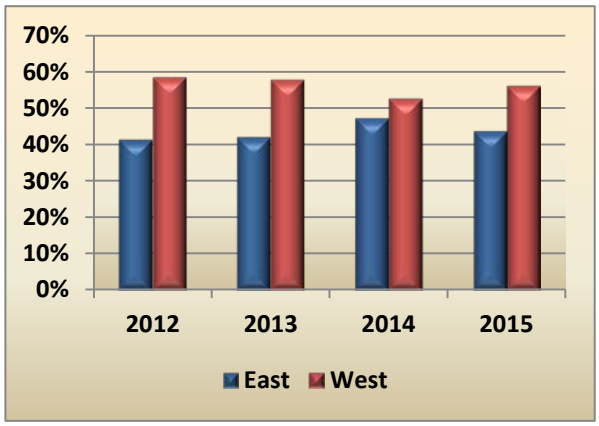
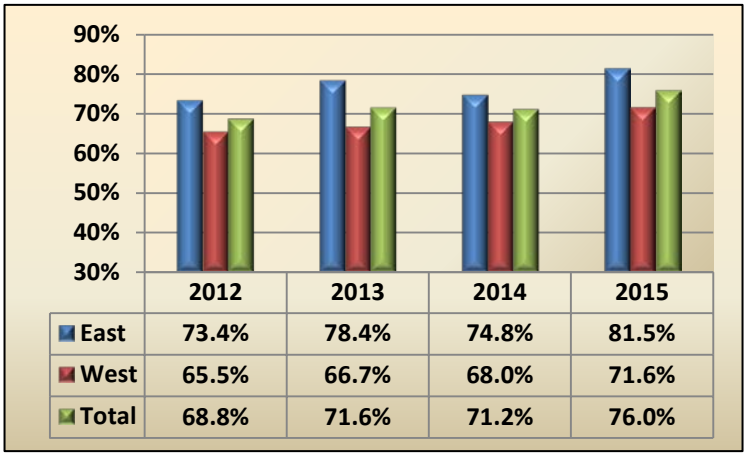



**Figure 8: Percent of Sample by Region**




| | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|
| East | 73.4% | 78.4% | 74.8% | 81.5% |
| West | 65.5% | 66.7% | 68.0% | 71.6% |
| Total | 68.8% | 71.6% | 71.2% | 76.0% |

**Figure 9: Percent Belted by Region, Unweighted**

Seat belt use has traditionally been higher in the east than the west as shown in Figure 9. This was demonstrated again in 2015 with rates of 81.5% and 71.6% in the east and west regions, respectively. An increase in restraint use over the previous three years was noticed in both regions in 2015.

[2] See the discussion of the sampling methodology for details on certainty counties and the selection processes.

## Results by Vehicle Type

Beginning with the 2012 statewide seat belt survey, South Dakota incorporated the expanded Uniform Criteria vehicle eligibility to include all passenger vehicles with a gross vehicle weight up to 10,000 pounds. This change necessitated the inclusion of various small trucks (i.e. flatbed, utility service, and small box trucks, etc.) These additional truck observations **are hereafter included in the "pickup" category** to prevent confusion with larger truck activity.

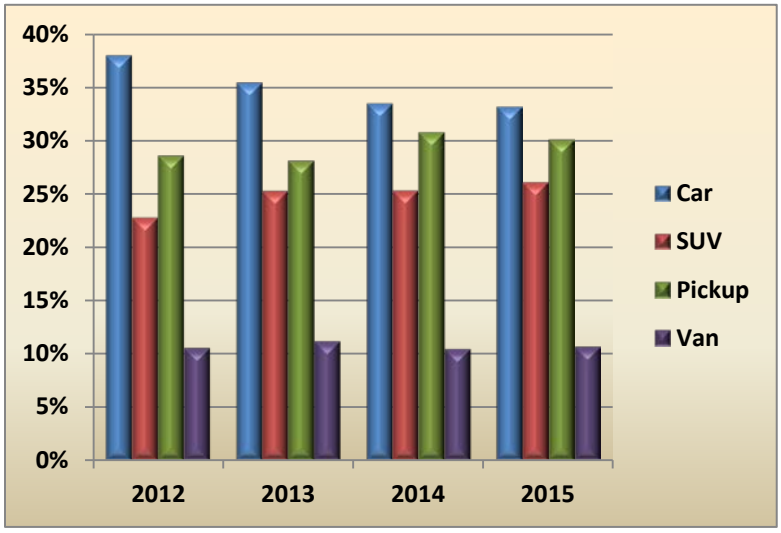
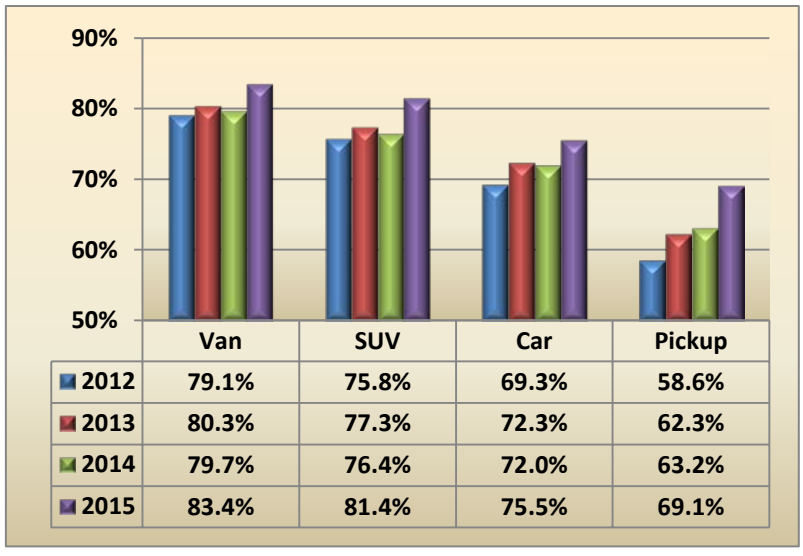



**Figure 10: Composition of Sample by Vehicle Type**

In general, vehicle distribution in the 2015 sample was consistent with previous survey years with only marginal variations in share noticed. Despite the share of cars having decreased from 38.0% in 2012 to 33.2% in 2015, this vehicle type continued to represent the largest share in the sample (Figure 10).

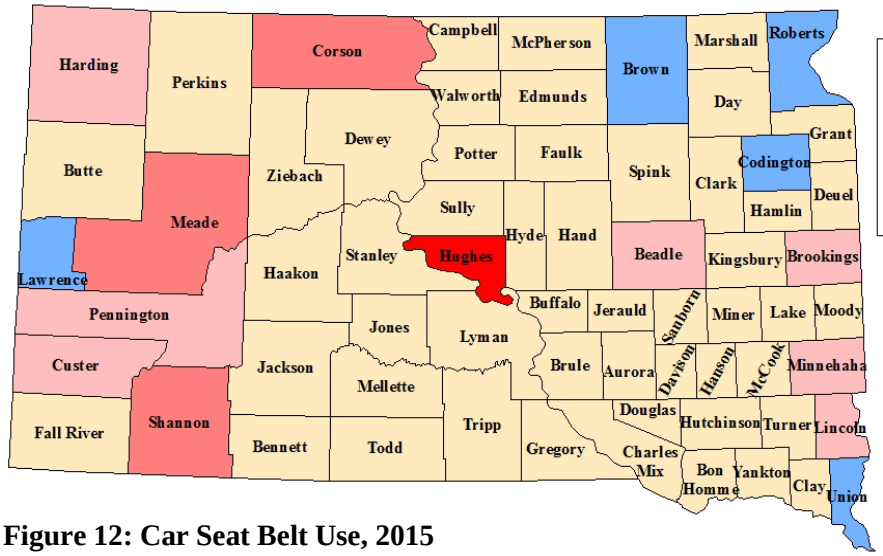
The results for overall seat belt use by vehicle type are shown in Figure 11. When considering the 2012 to 2015 survey years, restraint use this year was observed to be greater across all vehicle types. Although the pickup category was perceived to have the largest increase, this rate continues to be less than 70% and was considerably lower than the rates in other vehicle types. Pickup occupants typically demonstrate lower seat belt use and this use rate, coupled with its share of the sample, can depress the overall state rate. These results are consistent with the long-term trends for seat belt use in South Dakota and other states that are largely




| | Van | SUV | Car | Pickup |
|---|---|---|---|---|
| 2012 | 79.1% | 75.8% | 69.3% | 58.6% |
| 2013 | 80.3% | 77.3% | 72.3% | 62.3% |
| 2014 | 79.7% | 76.4% | 72.0% | 63.2% |
| 2015 | 83.4% | 81.4% | 75.5% | 69.1% |

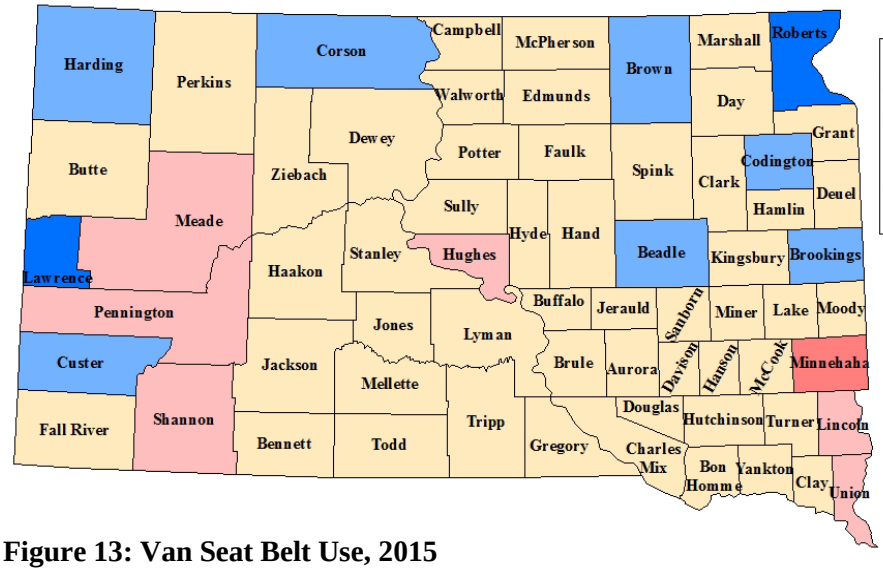
**Figure 11: Percent Belted by Vehicle Type for All Occupants, Unweighted**

rural and have a high proportion of pickup trucks. Maps detailing seat belt use by county and vehicle type are found in Figures 12 through 15.




| | 4 Yr Average |
|---|---|
| Beadle | 77.9% |
| Brookings | 80.9% |
| Brown | 80.3% |
| Codington | 76.7% |
| Corson | 61.3% |
| Custer | 73.3% |
| Harding | 61.8% |
| Hughes | 60.1% |
| Lawrence | 81.4% |
| Lincoln | 71.4% |
| Meade | 63.5% |
| Minnehaha | 73.2% |
| Pennington | 67.3% |
| Roberts | 87.2% |
| Shannon | 49.0% |
| Union | 83.3% |

**Figure 12: Car Seat Belt Use, 2015**




| | 4 Yr Average |
|---|---|
| Beadle | 85.2% |
| Brookings | 83.4% |
| Brown | 84.5% |
| Codington | 85.9% |
| Corson | 76.0% |
| Custer | 89.3% |
| Harding | 64.4% |
| Hughes | 70.8% |
| Lawrence | 88.9% |
| Lincoln | 75.9% |
| Meade | 74.6% |
| Minnehaha | 75.6% |
| Pennington | 70.5% |
| Roberts | 91.7% |
| Shannon | 58.9% |
| Union | 88.9% |

**Figure 13: Van Seat Belt Use, 2015**

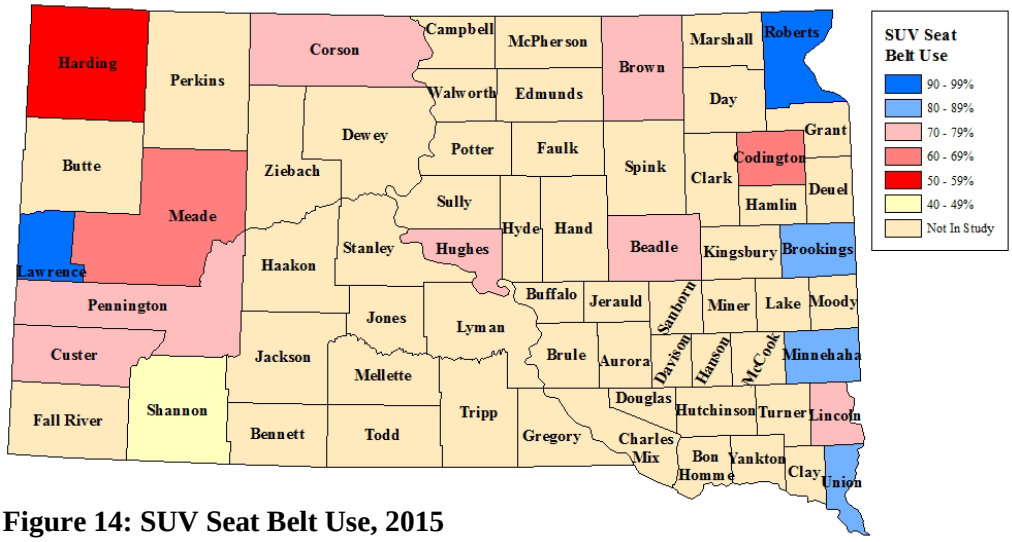



**Figure 14: SUV Seat Belt Use, 2015**

| | 4 Yr Average |
|---|---|
| Beadle | 81.9% |
| Brookings | 86.6% |
| Brown | 80.9% |
| Codington | 81.4% |
| Corson | 70.8% |
| Custer | 79.0% |
| Harding | 69.6% |
| Hughes | 66.1% |
| Lawrence | 86.3% |
| Lincoln | 77.0% |
| Meade | 71.1% |
| Minnehaha | 77.2% |
| Pennington | 71.9% |
| Roberts | 90.5% |
| Shannon | 57.3% |
| Union | 86.2% |

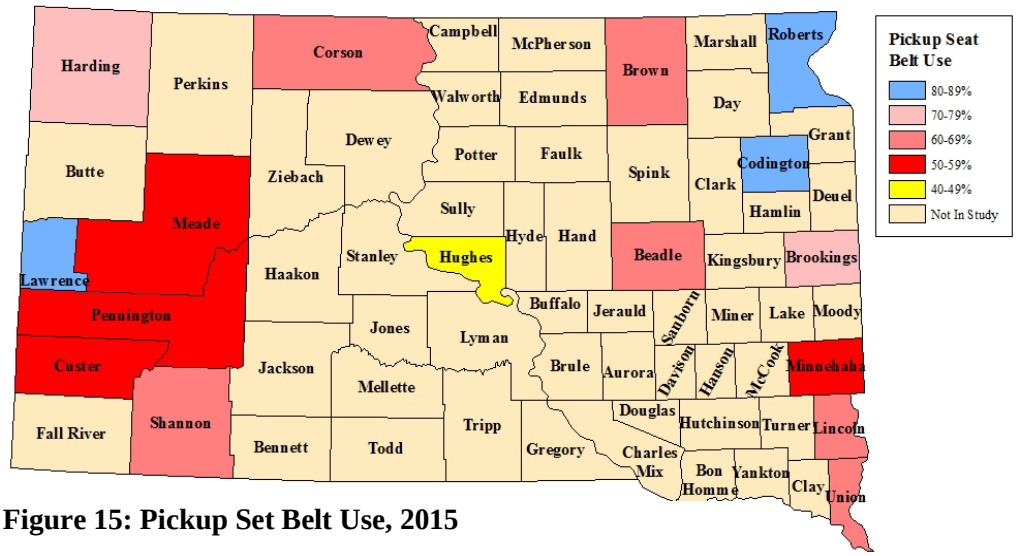



**Figure 15: Pickup Set Belt Use, 2015**

| | 4 Yr Average |
|---|---|
| Beadle | 63.2% |
| Brookings | 70.6% |
| Brown | 65.7% |
| Codington | 69.3% |
| Corson | 58.1% |
| Custer | 62.1% |
| Harding | 56.9% |
| Hughes | 51.9% |
| Lawrence | 75.1% |
| Lincoln | 59.1% |
| Meade | 51.3% |
| Minnehaha | 58.3% |
| Pennington | 55.0% |
| Roberts | 77.5% |
| Shannon | 53.5% |
| Union | 64.6% |

## Results by Gender and Seat Belt Use

Overall, males represented 55.5% and females 44.2% of the 2015 sample. When considering occupant position, drivers were roughly twice as likely to be male than female, but were only half the representation in the passenger demographic (Figure 16). In a small percentage of observations, occupant gender was unable to be determined, but occupant protection was still recorded. These cases are included in all of the analyses except where gender is one of the variables of interest. Removing these observations

for these parts of the analyses has no effect on the overall numbers, but is mentioned here for comprehensive reporting.

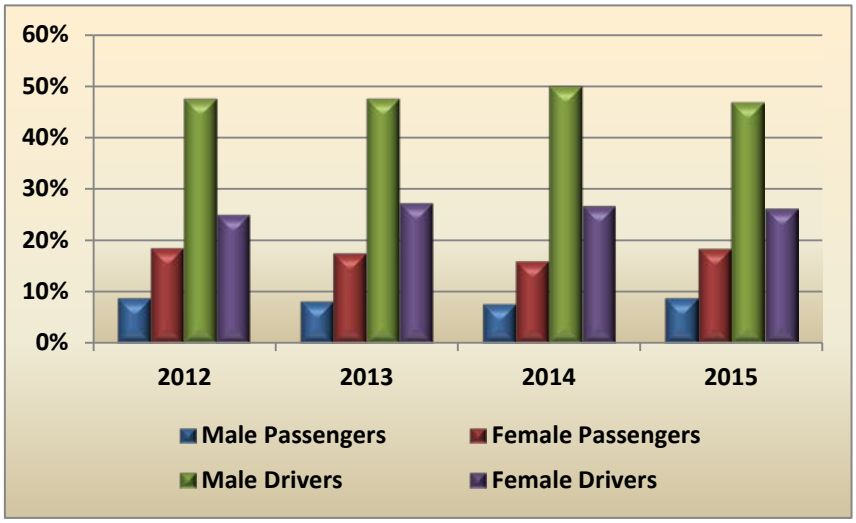
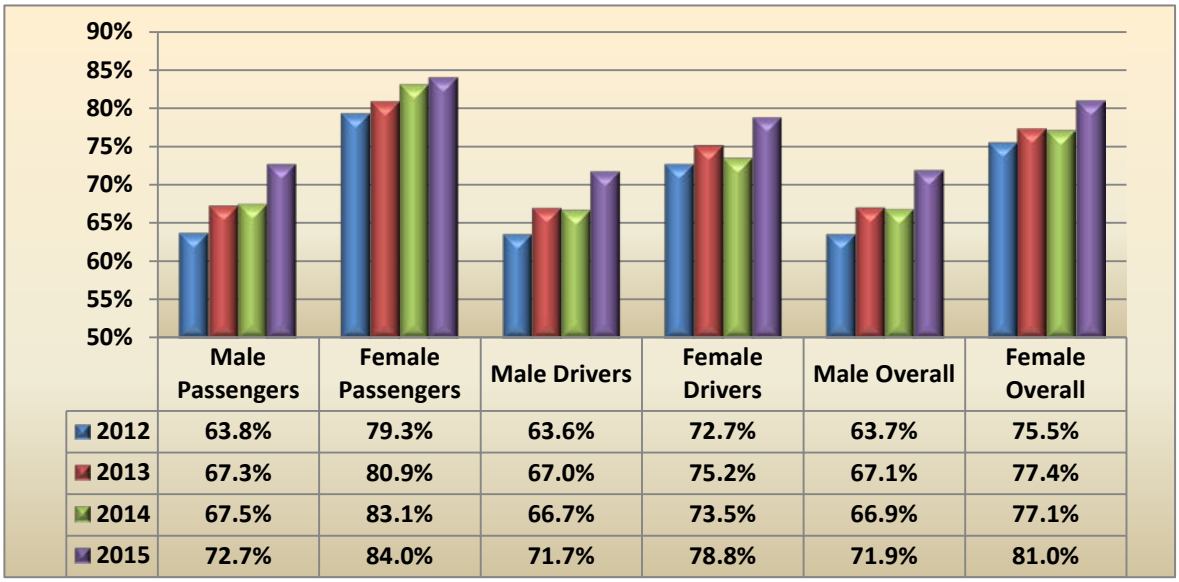



**Figure 16: Percent of Sample by Gender and Vehicle Occupant**

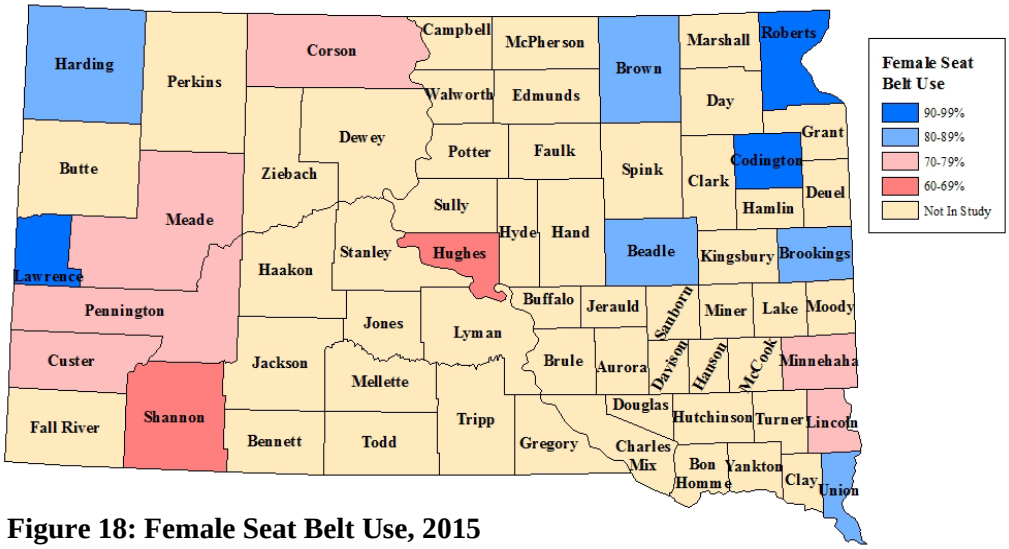
Females, regardless of occupant position, consistently demonstrated higher seat belt use than males (Figure 17). Female passengers led seat belt use rates at 84.0% followed by female driver use rates of 78.8%. Rates for male occupants were comparable irrespective of position.




| | Male Passengers | Female Passengers | Male Drivers | Female Drivers | Male Overall | Female Overall |
|---|---|---|---|---|---|---|
| 2012 | 63.8% | 79.3% | 63.6% | 72.7% | 63.7% | 75.5% |
| 2013 | 67.3% | 80.9% | 67.0% | 75.2% | 67.1% | 77.4% |
| 2014 | 67.5% | 83.1% | 66.7% | 73.5% | 66.9% | 77.1% |
| 2015 | 72.7% | 84.0% | 71.7% | 78.8% | 71.9% | 81.0% |

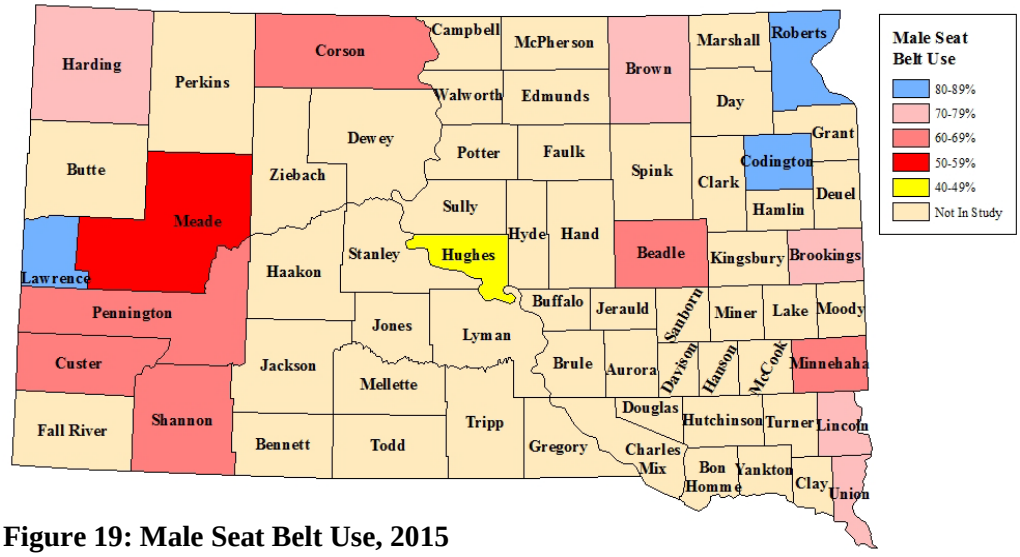
**Figure 17: Percent Belted by Gender and Vehicle Occupant**

The following maps (Figures 18 and 19) show seat belt use by gender. Codington, Lawrence, and Roberts counties lead both genders in observed seat belt use, ranging from 80.9% to 87.1% for males, and 91.0% to 94.3% for females. Hughes County demonstrated the lowest rates for both female and male occupants, 63.3% and 49.8% respectively. Seat belt use was higher in the eastern half of the state for both males and females.




| | 4 Yr Average |
|---|---|
| Beadle | 85.0% |
| Brookings | 86.6% |
| Brown | 80.3% |
| Codington | 82.0% |
| Corson | 70.1% |
| Custer | 79.0% |
| Harding | 65.5% |
| Hughes | 65.6% |
| Lawrence | 87.1% |
| Lincoln | 77.3% |
| Meade | 72.3% |
| Minnehaha | 78.4% |
| Pennington | 71.1% |
| Roberts | 93.4% |
| Shannon | 54.1% |
| Union | 87.3% |

**Figure 18: Female Seat Belt Use, 2015**




| | 4 Yr Average |
|---|---|
| Beadle | 67.8% |
| Brookings | 74.8% |
| Brown | 72.6% |
| Codington | 73.1% |
| Corson | 58.6% |
| Custer | 69.8% |
| Harding | 59.6% |
| Hughes | 55.1% |
| Lawrence | 77.2% |
| Lincoln | 64.4% |
| Meade | 54.8% |
| Minnehaha | 65.2% |
| Pennington | 61.8% |
| Roberts | 79.5% |
| Shannon | 52.8% |
| Union | 72.5% |

**Figure 19: Male Seat Belt Use, 2015**

## Results by Gender and Vehicle Type

When considering the data without respect to the driver/passenger demographic, females had higher representation in all vehicle types except pickups (Figure 20). For pickups, males made up 76.2% of the sample, outnumbering female occupants by a ratio greater than 3 to 1. The gender breakdown of the other vehicle types was fairly uniform.

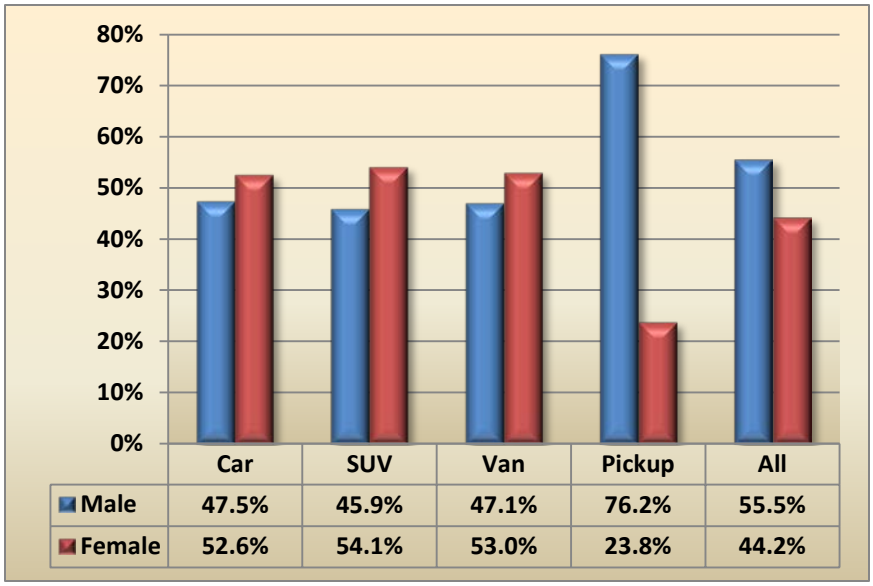



**Figure 20: Percent of Sample by Vehicle Type and Gender, 2015**

Female seat belt use ranged from a low of 77.6% (car) to a high of 85.9% (van) across the vehicle types. Further breakdown showed females exhibited higher rates than males for every type of vehicle, although the size of the difference varied (Figure 21). Male use ranged between 66.1% (pickup) and 80.5% (van). Although observed restraint use was lowest in pickups, it should be noted that rates for both genders in this vehicle type have registered considerable improvement since 2012. Males have shown relative improvement of 19% from a low of 55.5% in 2012 to 66.1% in 2015; and females have increased 13% from 69.5% in 2012 to 78.8% in 2015.

| | 4 Yr Average | |
|---|---|---|
| | Male | Female |
| Car | 69.5% | 74.9% |
| SUV | 74.4% | 80.6% |
| Van | 77.0% | 83.9% |
| Pickup | 60.1% | 74.4% |

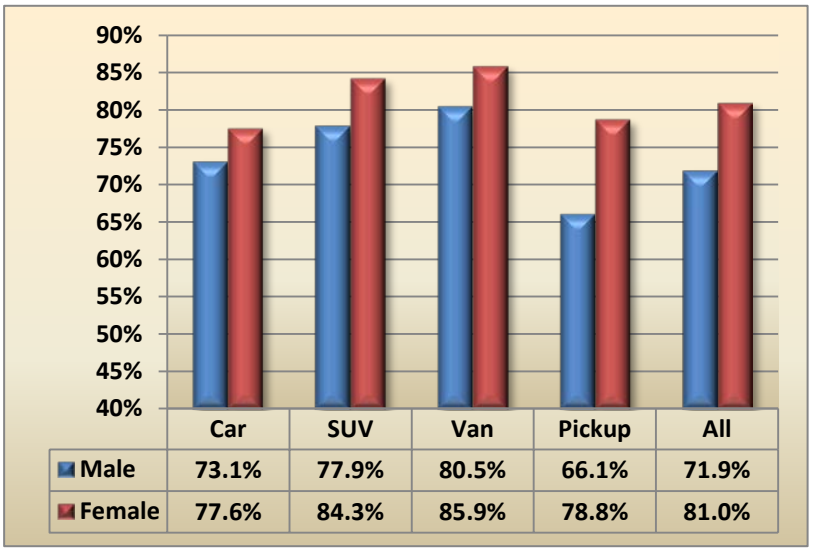


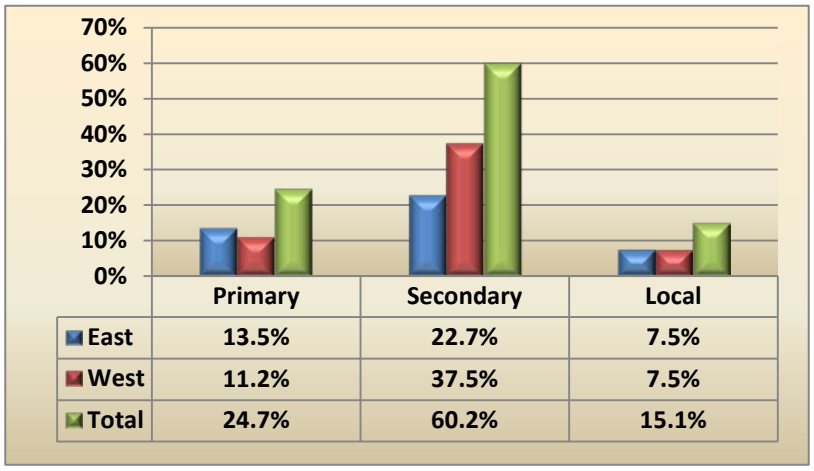

**Figure 21: Percent Belted by Gender and Vehicle Type, 2015**

## Results by Roadway Type

Roadways are classified into three road types and broadly described as follows:

- Primary road – divided, limited-access, i.e. interstates
- Secondary road – main arteries usually in the U.S./State/County highway system
- Local neighborhood road/rural road/city street – paved, non-arterial streets

Comprehensive definitions of road type are provided in Appendix F. In the 2015 survey, primary, secondary and local roadways accounted for 24.7%, 60.2%, and 15.1% of the vehicle occupants, respectively (Figure 22).

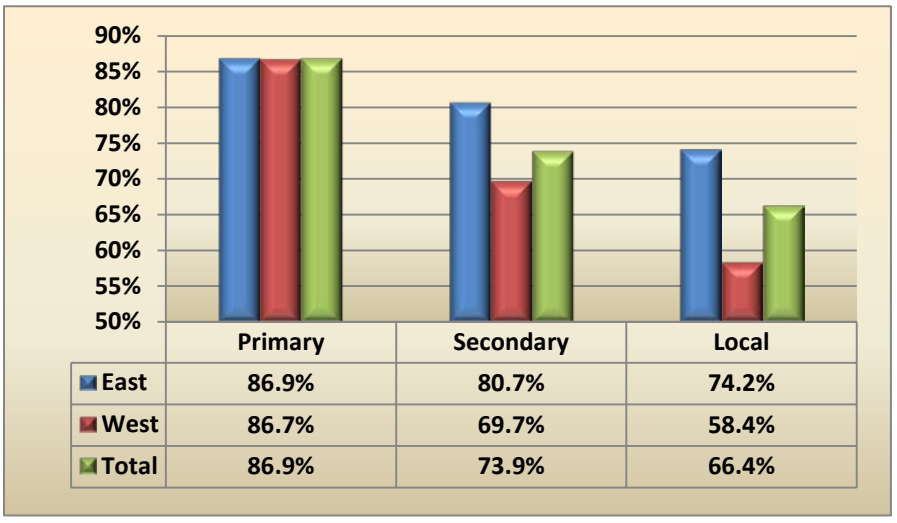



| | Primary | Secondary | Local |
|---|---|---|---|
| East | 13.5% | 22.7% | 7.5% |
| West | 11.2% | 37.5% | 7.5% |
| Total | 24.7% | 60.2% | 15.1% |

**Figure 22: Percent of Sample by Roadway Type, 2015**

Differences in seat belt use rates were found across the road types. Predictably, vehicle occupants on interstate roads were belted at considerably higher rates than those on secondary and local roads (Figure 23). While secondary roads represented 60.2% of the sample, seat belt use on this road type was 73.9%, negatively influencing the overall unweighted state rate. Local roads had the lowest overall rate of 66.4%.

Seat belt use stratified by region and roadway revealed that, while there was little differentiation between use in the east and west regions on primary roads, belt use on secondary and local roads was much higher in the east. The largest variation in east/west use was found on local roads, with rates of 74.2% and 58.4%, respectively.




| | Primary | Secondary | Local |
|---|---|---|---|
| East | 86.9% | 80.7% | 74.2% |
| West | 86.7% | 69.7% | 58.4% |
| Total | 86.9% | 73.9% | 66.4% |

**Figure 23: Seat Belt Use by Roadway Type, 2015**

# SUMMARY

Observers collected data on seat belt use for 20,923 drivers and 7,740 right front-seat passengers, for a total of 28,663 vehicle occupants. The observations were collected at 320 sites across 16 counties. Based on the sampling methodology weighting procedures, the final estimate for the statewide seat belt use was 73.6%. Experiences from other states indicate that improvement in seat belt use will likely only occur through some type of significant change such as implementation of a primary seat belt law, increased funding for additional enforcement, or possibly higher fines (NHTSA).

A summary of major findings regarding seat belt use in South Dakota for 2015 are:

- **Region.** In 2015, rates of seat belt use were higher in the east region overall at 81.5% versus the west region at 71.6%. The driver population from the east recorded a rate of 80.0% compared to 69.6% in the west. The difference in passenger use was also fairly pronounced with observed use of 86.0% in the east and 76.7% in the west.

- **County.** Lawrence and Roberts counties demonstrated seat belt use approaching the national average of 87.0% with use rates of 86.6% and 86.1%, respectively. Codington and Brookings counties were also above 80%. Of the 16 counties observed, four registered seat belt use of less than 65.0% - Corson, Hughes, Meade, and Shannon.

- **Vehicle Type.** The results of the 2015 statewide survey indicated that rates of seat belt use were higher across all vehicle types than in 2014. Seat belt use among pickup occupants, however, continues to depress the overall rate in South Dakota because occupants of these vehicles made up 30.1% of the sample and the use is low – 69.1% overall, with male occupants at 66.1%.

- **Gender.** Females consistently have higher rates when compared to males not only in South Dakota, but across the nation. In the 2015 survey, female occupants were observed to have belt use of 81.0%, compared to male occupants with 71.9%. Higher rates hold for females whether they are drivers or passengers in all counties except Shannon where male drivers had a slight edge. The lowest county rate of seat belt use for both female and male occupants was measured in Hughes County with 63.3% and 49.8% respectively.

- **Gender and Vehicle Type.** Females had higher rates of seat belt use than males for every vehicle type. The highest rate for males was found in vans, 80.5%, and the lowest in pickups, 66.1%. Females also registered the highest rate in vans, 85.9%, while the lowest use was in cars, 77.6%.

- **Road Type.** Secondary roads held the largest share of occupants in the sample, 60.2%, with primary and local roads representing smaller shares, 24.7% and 15.1% respectively. Frequency of seat belt use was highest on primary roads, 86.9%, followed by secondary roads, 73.9%, and local roads, 66.4%.

**APPENDICES**

# Appendix A: Site Locations

**BEADLE COUNTY**

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | 387th St | -98.498895 | 44.522873 | N | 1.003615 |
| 2 | 208th St | -98.387149 | 44.370637 | S | 0.948403 |
| 3 | 387th St | -98.498886 | 44.507727 | S | 0.915376 |
| 4 | US Hwy 14 | -98.498879 | 44.449455 | N | 0.833306 |
| 5 | 387th St | -98.502482 | 44.595344 | N | 0.745207 |
| 6 | 400th Ave | -98.220528 | 44.608293 | S | 0.656662 |
| 7 | 400th Ave | -98.214157 | 44.482487 | N | 0.561295 |
| 8 | US Hwy 281 | -98.457806 | 44.243787 | N | 0.49878 |
| 9 | US Hwy 14 | -98.148824 | 44.370366 | E | 0.475124 |
| 10 | 400th Ave | -98.213894 | 44.228642 | N | 0.436569 |
| 11 | US Hwy 14 | -98.139611 | 44.37033 | W | 0.382748 |
| 12 | 400th Ave | -98.220394 | 44.572158 | N | 0.3362 |
| 13 | 400th Ave | -98.213895 | 44.237984 | S | 0.297515 |
| 14 | US Hwy 14 | -98.252737 | 44.372232 | E | 0.245804 |
| 15 | US Hwy 14 | -98.122248 | 44.370073 | W | 0.199272 |
| 16 | 4th St NW | -98.24397 | 44.3739 | E | 0.156425 |
| 17 | 400th Ave | -98.213651 | 44.297289 | N | 0.120626 |
| 18 | Dakota Ave N | -98.214312 | 44.390622 | N | 0.085825 |
| 19 | US Hwy 14 | -98.214886 | 44.370353 | E | 0.06802 |
| 20 | Commercial Ave NW | -98.474983 | 44.41188 | S | 0.016778 |

## BROOKINGS COUNTY

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | I- 29 | -96.757764 | 44.202619 | N | 0.952568 |
| 2 | I- 29 | -96.75863 | 44.302921 | N | 0.626889 |
| 3 | I- 29 | -96.756588 | 44.43353 | S | 0.366034 |
| 4 | I- 29 | -96.757208 | 44.242807 | N | 0.021472 |
| 5 | 454th Ave | -97.129114 | 44.246424 | S | 0.99894 |
| 6 | 454th Ave | -97.128871 | 44.289628 | N | 0.995382 |
| 7 | 217th St | -96.536516 | 44.239011 | E | 0.94024 |
| 8 | 203rd St | -96.495146 | 44.441352 | W | 0.936691 |
| 9 | 217th St | -96.676288 | 44.239197 | E | 0.889083 |
| 10 | 203rd St | -96.614595 | 44.441411 | W | 0.791415 |
| 11 | 454th Ave | -97.12785 | 44.535477 | S | 0.750972 |
| 12 | 203rd St | -96.458418 | 44.441446 | E | 0.602246 |
| 13 | 211th St | -97.053475 | 44.325961 | W | 0.488795 |
| 14 | 212th St | -96.602759 | 44.311142 | W | 0.461913 |
| 15 | 212th St | -96.542978 | 44.3114 | W | 0.385221 |
| 16 | 18th St | -96.784745 | 44.325845 | E | 0.337574 |
| 17 | State Hwy 30 | -96.624937 | 44.439892 | W | 0.253343 |
| 18 | 486th Ave | -96.486455 | 44.304882 | N | 0.174208 |
| 19 | 211th St | -96.922732 | 44.326003 | W | 0.099283 |
| 20 | 211th St | -97.089758 | 44.325752 | E | 0.046174 |

**BROWN COUNTY**

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | 406th Ave | -98.103942 | 45.595938 | N | 1.006492 |
| 2 | 406th Ave | -98.103675 | 45.75544 | S | 1.002944 |
| 3 | 410th Ave | -98.020694 | 45.697386 | N | 1.002026 |
| 4 | 386th Ave | -98.517549 | 45.785753 | N | 1.000464 |
| 5 | US Hwy 281 | -98.516562 | 45.26407 | N | 0.999634 |
| 6 | 404th Ave | -98.144879 | 45.842465 | N | 0.993632 |
| 7 | US Hwy 12 | -98.649964 | 45.444478 | W | 0.945343 |
| 8 | US Hwy 12 | -98.691079 | 45.442245 | E | 0.940394 |
| 9 | 110th St | -98.073129 | 45.791782 | E | 0.882096 |
| 10 | 386th Ave | -98.515631 | 45.337809 | N | 0.801075 |
| 11 | US Hwy 12 | -98.25485 | 45.458767 | W | 0.700769 |
| 12 | 406th Ave | -98.104027 | 45.346018 | N | 0.580441 |
| 13 | 406th Ave | -98.104286 | 45.323667 | N | 0.510549 |
| 14 | 406th Ave | -98.10358 | 45.403601 | N | 0.47402 |
| 15 | US Hwy 12 | -98.609729 | 45.445577 | E | 0.436772 |
| 16 | US Hwy 12 | -98.176592 | 45.458327 | W | 0.374865 |
| 17 | State Hwy 10 | -98.164118 | 45.790993 | E | 0.267636 |
| 18 | US Hwy 281 | -98.515457 | 45.421979 | N | 0.188533 |
| 19 | US Hwy 281 | -98.509427 | 45.476435 | N | 0.09484 |
| 20 | US Hwy 281 | -98.510658 | 45.479158 | W | 0.003334 |

## CODINGTON COUNTY

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | I- 29 | -96.973333 | 44.809857 | S | 1.041215 |
| 2 | I- 29 | -96.990917 | 44.822432 | S | 0.645341 |
| 3 | I- 29 | -97.054647 | 45.046186 | S | 0.46683 |
| 4 | I- 29 | -97.056258 | 44.903271 | S | 0.203797 |
| 5 | State Hwy 20 | -97.300819 | 45.012227 | N | 1.115274 |
| 6 | 455th Ave | -97.106101 | 44.999026 | N | 0.995289 |
| 7 | 158th St | -97.462863 | 45.093964 | E | 0.928586 |
| 8 | 157th St | -96.994626 | 45.107221 | E | 0.845082 |
| 9 | 173rd St | -97.317396 | 44.876562 | E | 0.739059 |
| 10 | N Hwy 20 | -97.16221 | 44.934711 | S | 0.632751 |
| 11 | Csd Hwy 20 | -96.97097 | 45.106918 | E | 0.544547 |
| 12 | 9th Ave SW | -97.21316 | 44.890669 | W | 0.489164 |
| 13 | 173rd St | -97.345274 | 44.876349 | E | 0.43279 |
| 14 | State Hwy 20 | -97.208377 | 44.958699 | N | 0.359389 |
| 15 | 172nd St | -97.253817 | 44.890413 | E | 0.319874 |
| 16 | State Hwy 20 | -97.291881 | 45.005432 | S | 0.250894 |
| 17 | 4th St NE | -97.106841 | 44.917754 | S | 0.196801 |
| 18 | 10th St NW | -97.131878 | 44.909088 | S | 0.140532 |
| 19 | N Hwy 20 | -97.178566 | 44.946605 | N | 0.097374 |
| 20 | N Hwy 20 | -97.17622 | 44.94493 | E | 0.064402 |

## CORSON COUNTY

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | State Hwy 1806 | -100.500043 | 45.535099 | N | 3.239461 |
| 2 | State Hwy 65 | -101.325951 | 45.690413 | N | 1.819116 |
| 3 | US Hwy 12 | -101.115406 | 45.91585 | E | 1.482052 |
| 4 | State Hwy 1806 | -100.514881 | 45.618676 | S | 1.19243 |
| 5 | State Hwy 65 | -101.359739 | 45.653559 | N | 1.061596 |
| 6 | State Hwy 1806 | -100.479733 | 45.796725 | N | 0.9968 |
| 7 | US Hwy 12 | -101.896796 | 45.934691 | E | 0.944626 |
| 8 | US Hwy 12 | -101.191423 | 45.920239 | E | 0.921158 |
| 9 | State Hwy 1806 | -100.479323 | 45.825258 | S | 0.866219 |
| 10 | US Hwy 12 | -100.550761 | 45.560948 | E | 0.795394 |
| 11 | State Hwy 20 | -100.566303 | 45.52481 | N | 0.712288 |
| 12 | US Hwy 12 | -101.604299 | 45.927439 | E | 0.656735 |
| 13 | US Hwy 12 | -100.509408 | 45.561393 | E | 0.607807 |
| 14 | US Hwy 12 | -101.850979 | 45.932714 | E | 0.554255 |
| 15 | State Hwy 65 | -101.343661 | 45.685844 | N | 0.49313 |
| 16 | US Hwy 12 | -100.773446 | 45.787259 | N | 0.436926 |
| 17 | State Hwy 20 | -100.579506 | 45.497457 | N | 0.36362 |
| 18 | US Hwy 12 | -101.64177 | 45.932368 | W | 0.299971 |
| 19 | State Hwy 1806 | -100.527342 | 45.63764 | N | 0.181743 |
| 20 | State Hwy 63 | -100.813246 | 45.687537 | S | 0.072446 |

## CUSTER COUNTY

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | State Hwy 40 E | -103.041873 | 43.787961 | E | 2.072713 |
| 2 | State Hwy 40 E | -103.076779 | 43.804095 | E | 1.752638 |
| 3 | State Hwy 40 | -102.894343 | 43.691094 | N | 1.55952 |
| 4 | State Hwy 89 | -103.588418 | 43.598068 | S | 1.306153 |
| 5 | US Hwy 16 | -103.359977 | 43.761617 | E | 1.11231 |
| 6 | US Hwy 16 | -103.639093 | 43.836384 | S | 0.9591 |
| 7 | State Hwy 40 E | -102.904081 | 43.719273 | N | 0.82782 |
| 8 | US Hwy 385 | -103.524664 | 43.603855 | N | 0.749683 |
| 9 | Mt Rushmore Rd | -103.846981 | 43.731147 | S | 0.640103 |
| 10 | State Hwy 89 | -103.684993 | 43.491293 | S | 0.580324 |
| 11 | State Hwy 87 | -103.446392 | 43.801362 | W | 0.529306 |
| 12 | Mt Rushmore Rd | -103.711245 | 43.7361 | E | 0.464782 |
| 13 | State Hwy 40 E | -102.94226 | 43.740146 | W | 0.383741 |
| 14 | State Hwy 40 E | -103.002454 | 43.761303 | E | 0.30993 |
| 15 | State Hwy 89 | -103.65109 | 43.556884 | S | 0.250165 |
| 16 | S Dakota Hwy 40 | -103.29611 | 43.855789 | W | 0.206548 |
| 17 | US Hwy 385 | -103.60484 | 43.716041 | S | 0.160916 |
| 18 | State Hwy 87 | -103.47807 | 43.636626 | W | 0.119401 |
| 19 | US Hwy 385 | -103.569197 | 43.608818 | E | 0.079104 |
| 20 | Mt Rushmore Rd | -103.671847 | 43.734483 | E | 0.024343 |

## HARDING COUNTY

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | State Hwy 20 | -103.422523 | 45.559779 | E | 2.897667 |
| 2 | State Hwy 20 | -103.273992 | 45.545268 | E | 2.478218 |
| 3 | State Hwy 20 | -103.685869 | 45.588957 | W | 1.971313 |
| 4 | State Hwy 79 | -103.005879 | 45.557043 | S | 1.855378 |
| 5 | State Hwy 79 | -103.187574 | 45.279672 | N | 1.622916 |
| 6 | US Hwy 85 | -103.54555 | 45.438325 | N | 1.33293 |
| 7 | State Hwy 79 | -102.984213 | 45.825834 | N | 1.201049 |
| 8 | State Hwy 79 | -102.963334 | 45.885312 | N | 1.015955 |
| 9 | US Hwy 85 | -103.55665 | 45.388768 | N | 0.955438 |
| 10 | State Hwy 20 | -103.919233 | 45.555678 | W | 0.896214 |
| 11 | State Hwy 20 | -103.98823 | 45.548916 | W | 0.8396 |
| 12 | US Hwy 85 | -103.376991 | 45.9154 | N | 0.783481 |
| 13 | US Hwy 85 | -103.537659 | 45.624143 | S | 0.705345 |
| 14 | State Hwy 79 | -102.991903 | 45.714844 | N | 0.633921 |
| 15 | US Hwy 85 | -103.54865 | 45.249887 | N | 0.552468 |
| 16 | State Hwy 79 | -102.98421 | 45.813576 | S | 0.492015 |
| 17 | State Hwy 20 | -103.147264 | 45.53743 | W | 0.423217 |
| 18 | US Hwy 85 | -103.396982 | 45.785068 | S | 0.349544 |
| 19 | US Hwy 85 | -103.549059 | 45.370753 | S | 0.229225 |
| 20 | State Hwy 79 | -102.960058 | 45.944489 | S | 0.077354 |

## HUGHES COUNTY

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | State Hwy 34 | -99.875874 | 44.273293 | W | 2.862937 |
| 2 | 214th St | -99.703158 | 44.279956 | W | 1.772471 |
| 3 | 198th St | -100.012399 | 44.512272 | W | 1.378853 |
| 4 | US Hwy 14 | -100.179509 | 44.444943 | S | 1.144872 |
| 5 | 197th St | -99.694099 | 44.526791 | W | 0.939388 |
| 6 | 197th St | -99.89643 | 44.527013 | E | 0.931139 |
| 7 | State Hwy 1804 | -100.3485 | 44.403178 | S | 0.798938 |
| 8 | State Hwy 204 | -100.393413 | 44.455182 | E | 0.686034 |
| 9 | 305th Ave | -100.067785 | 44.509284 | S | 0.637451 |
| 10 | US Hwy 14 | -100.083057 | 44.495091 | N | 0.583026 |
| 11 | US Hwy 14 | -100.338508 | 44.388122 | S | 0.516488 |
| 12 | 197th St | -99.810125 | 44.526945 | E | 0.466993 |
| 13 | 197th St | -99.841588 | 44.527046 | W | 0.404145 |
| 14 | State Hwy 1804 | -100.35012 | 44.413649 | N | 0.340953 |
| 15 | State Hwy 1804 | -100.416831 | 44.492329 | S | 0.262723 |
| 16 | State Hwy 34 | -100.22441 | 44.339056 | W | 0.220793 |
| 17 | US Hwy 14 | -100.299812 | 44.400238 | E | 0.165573 |
| 18 | State Hwy 34 | -100.126126 | 44.329717 | W | 0.12363 |
| 19 | E Sioux Ave | -100.349219 | 44.364159 | N | 0.077619 |
| 20 | E Sioux Ave | -100.352064 | 44.365793 | N | 0.045568 |

## LAWRENCE COUNTY

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | I- 90 | -103.702793 | 44.487191 | E | 1.57221 |
| 2 | I- 90 | -103.784779 | 44.475369 | E | 1.068125 |
| 3 | I- 90 | -103.975104 | 44.546623 | E | 0.825699 |
| 4 | I- 90 | -103.989834 | 44.54642 | W | 0.566426 |
| 5 | I- 90 | -103.803347 | 44.4766 | E | 0.374183 |
| 6 | I- 90 | -103.811435 | 44.477242 | E | 0.293128 |
| 7 | I- 90 | -103.879719 | 44.521289 | E | 0.148868 |
| 8 | US Hwy 385 | -103.721107 | 44.334879 | S | 2.154752 |
| 9 | US Hwy 14 Alt | -103.634562 | 44.388799 | E | 1.301671 |
| 10 | US Hwy 14 Alt | -103.576434 | 44.401999 | N | 0.916712 |
| 11 | S Dakota Hwy 34 | -103.694401 | 44.522116 | S | 0.806931 |
| 12 | S Dakota Hwy 34 | -103.670367 | 44.497759 | N | 0.726028 |
| 13 | Spearfish Canyon Hwy | -103.912708 | 44.384074 | N | 0.623837 |
| 14 | US Hwy 14 Alt | -103.666128 | 44.389462 | W | 0.480602 |
| 15 | US Hwy 14 Alt | -103.871279 | 44.304892 | N | 0.405385 |
| 16 | US Hwy 85 | -103.859572 | 44.54925 | S | 0.31646 |
| 17 | US Hwy 385 | -103.570168 | 44.141893 | N | 0.226701 |
| 18 | US Hwy 14 Alt | -103.799085 | 44.316408 | S | 0.170558 |
| 19 | S Dakota Hwy 34 | -103.76962 | 44.594554 | S | 0.11676 |
| 20 | Sherman St | -103.729179 | 44.375422 | S | 0.063571 |

## LINCOLN COUNTY

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | I- 29 | -96.796196 | 43.36485 | N | 0.766211 |
| 2 | 479th Ave | -96.628656 | 43.2509 | S | 0.346855 |
| 3 | 484th Ave | -96.529632 | 43.163328 | N | 1.000616 |
| 4 | 483rd Ave | -96.549432 | 43.381622 | S | 0.854236 |
| 5 | 289th St | -96.601683 | 43.199453 | S | 0.680658 |
| 6 | 477th Ave | -96.668559 | 43.427218 | S | 0.5779 |
| 7 | 466th Ave | -96.885593 | 43.23254 | N | 0.505339 |
| 8 | 272nd St | -96.88105 | 43.446599 | E | 0.467144 |
| 9 | 281st St | -96.782576 | 43.315856 | N | 0.421479 |
| 10 | 482nd Ave | -96.569133 | 43.399759 | E | 0.370429 |
| 11 | 464th Ave | -96.92426 | 43.216765 | N | 0.324943 |
| 12 | S Grand Arbor Ct | -96.745101 | 43.478149 | E | 0.284872 |
| 13 | 287th St | -96.841783 | 43.228886 | E | 0.246557 |
| 14 | 477th Ave | -96.668664 | 43.452433 | E | 0.209867 |
| 15 | W Wicklow Ln | -96.744085 | 43.489084 | N | 0.175461 |
| 16 | 466th Ave | -96.885123 | 43.18756 | S | 0.141103 |
| 17 | Spur Ave | -96.480027 | 43.096654 | S | 0.109966 |
| 18 | S Pine St | -96.886383 | 43.352912 | N | 0.079598 |
| 19 | Harris St | -96.459633 | 43.13229 | E | 0.061179 |
| 20 | 473rd Ave | -96.747489 | 43.49562 | N | 0.0386 |

## MEADE COUNTY

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | I- 90 | -103.558854 | 44.425562 | E | 0.979528 |
| 2 | State Hwy 73 | -102.044897 | 44.986761 | S | 1.030656 |
| 3 | 206th St | -103.41146 | 44.426134 | N | 0.426964 |
| 4 | Smithville Rd | -102.452739 | 44.26979 | E | 2.605253 |
| 5 | New Underwood Rd | -102.822114 | 44.485482 | W | 1.542754 |
| 6 | Vista Pl | -102.257519 | 44.459054 | S | 1.25997 |
| 7 | Brushy Creek Rd | -102.130172 | 44.849237 | E | 1.064164 |
| 8 | Reef Pl | -102.50212 | 44.582938 | S | 0.966341 |
| 9 | New Underwood Rd | -102.829507 | 44.234618 | N | 0.889851 |
| 10 | Chalk Butte Rd | -102.763562 | 44.604617 | S | 0.790674 |
| 11 | New Underwood Rd | -102.79217 | 44.421277 | S | 0.7223 |
| 12 | Ball Field Rd | -102.608475 | 44.517377 | N | 0.632831 |
| 13 | Dalzell Rd | -102.453854 | 44.313197 | W | 0.550549 |
| 14 | New Underwood Rd | -102.828937 | 44.323243 | S | 0.482896 |
| 15 | 165th Ave | -102.758357 | 44.209118 | S | 0.421456 |
| 16 | 129th Pl | -103.467915 | 44.486353 | W | 0.350643 |
| 17 | Ricard Rd | -103.272082 | 44.237983 | S | 0.275282 |
| 18 | Hermit Rd | -102.652086 | 44.81949 | W | 0.213476 |
| 19 | 220th St | -103.270599 | 44.213131 | W | 0.135099 |
| 20 | Main St S | -102.038423 | 45.020657 | N | 0.071195 |

## MINNEHAHA COUNTY

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | I- 90 | -96.748739 | 43.611136 | W | 0.366093 |
| 2 | 475th Ave | -96.709717 | 43.807389 | S | 0.419523 |
| 3 | 462nd Ave | -96.970215 | 43.63791 | S | 1.005405 |
| 4 | 250th St | -97.079586 | 43.761424 | E | 0.941819 |
| 5 | 487th Ave | -96.472499 | 43.536554 | N | 0.83262 |
| 6 | 472nd Ave | -96.771483 | 43.683594 | N | 0.708438 |
| 7 | 262nd St | -96.943997 | 43.587172 | E | 0.588846 |
| 8 | 458th Ave | -97.049438 | 43.797382 | N | 0.50388 |
| 9 | 463rd Ave | -96.950293 | 43.575619 | N | 0.459549 |
| 10 | Jasper St | -96.673621 | 43.825745 | E | 0.386318 |
| 11 | 253rd St | -96.887211 | 43.717685 | W | 0.316262 |
| 12 | S Main Ave | -96.727509 | 43.520311 | S | 0.250466 |
| 13 | W 46th St | -96.804254 | 43.512456 | W | 0.205153 |
| 14 | 486th Ave | -96.491653 | 43.65853 | S | 0.165563 |
| 15 | S Ogorman Dr | -96.759833 | 43.5158 | S | 0.131539 |
| 16 | S Purdue Ave | -96.825803 | 43.515597 | S | 0.107217 |
| 17 | S Clover Ave | -96.665175 | 43.526771 | S | 0.08381 |
| 18 | E 3rd St | -96.719231 | 43.55514 | W | 0.066377 |
| 19 | W 31st St | -96.73436 | 43.524106 | E | 0.057866 |
| 20 | E 38th St | -96.717128 | 43.518033 | E | 0.033573 |

## PENNINGTON COUNTY

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | I- 90 | -102.494337 | 44.089795 | W | 0.849619 |
| 2 | Sn 44 | -102.424834 | 43.729922 | S | 1.125499 |
| 3 | E North St | -103.187483 | 44.089903 | S | 0.215402 |
| 4 | FS Rd 301 1-B | -103.881814 | 43.921456 | S | 2.31786 |
| 5 | Big Foote Rd | -102.067662 | 44.049586 | S | 1.587918 |
| 6 | S Castle Creek Rd | -103.837284 | 44.007136 | S | 1.190619 |
| 7 | Higgins Rd | -102.517116 | 43.8577 | E | 0.99611 |
| 8 | 169th Ave | -102.668627 | 44.131519 | S | 0.880096 |
| 9 | Cedar Butte Rd | -102.277802 | 44.110337 | E | 0.748175 |
| 10 | 235th St | -102.052488 | 43.994649 | N | 0.637528 |
| 11 | 195th Ave | -102.147772 | 44.236541 | S | 0.520937 |
| 12 | Soholt Draw | -103.841508 | 44.03425 | E | 0.443729 |
| 13 | Custer Limestone Rd | -103.952413 | 43.876947 | E | 0.359907 |
| 14 | Haddock Dr | -103.409366 | 44.061034 | S | 0.285155 |
| 15 | Clarkson Rd | -103.319171 | 43.998776 | S | 0.227436 |
| 16 | St Charles St | -103.222167 | 44.069548 | E | 0.175911 |
| 17 | 173rd Ave | -102.586137 | 44.02035 | S | 0.132832 |
| 18 | E Chicago St | -103.194393 | 44.083899 | E | 0.099582 |
| 19 | West Blvd N | -103.236115 | 44.077536 | N | 0.072722 |
| 20 | Swede Ln | -103.271931 | 44.125318 | S | 0.046536 |

## ROBERTS COUNTY

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | I- 29 | -97.032842 | 45.391085 | S | 1.241149 |
| 2 | I- 29 | -97.04892 | 45.375718 | S | 0.876855 |
| 3 | I- 29 | -97.052028 | 45.303332 | N | 0.595546 |
| 4 | I- 29 | -96.989361 | 45.467249 | S | 0.414495 |
| 5 | I- 29 | -96.936198 | 45.737791 | S | 0.253593 |
| 6 | I- 29 | -96.989411 | 45.544419 | N | 0.084748 |
| 7 | 478th Ave | -96.62597 | 45.885424 | N | 1.004897 |
| 8 | 106th St | -96.886112 | 45.848824 | W | 0.946227 |
| 9 | 478th Ave | -96.618645 | 45.928601 | N | 0.923936 |
| 10 | 106th St | -97.054273 | 45.848827 | E | 0.776692 |
| 11 | State Hwy 109 | -96.508924 | 45.355577 | N | 0.69524 |
| 12 | 119th St | -97.067476 | 45.660107 | E | 0.574803 |
| 13 | 459th Ave | -97.020974 | 45.811159 | S | 0.506956 |
| 14 | 105th St | -96.683468 | 45.863679 | W | 0.475169 |
| 15 | 467th Ave | -96.862072 | 45.372553 | N | 0.433555 |
| 16 | 136th St | -96.805272 | 45.413033 | W | 0.363334 |
| 17 | US Hwy 12 | -97.20943 | 45.335649 | W | 0.293502 |
| 18 | 105th St | -96.790071 | 45.863509 | W | 0.227036 |
| 19 | 459th Ave | -97.021053 | 45.806297 | N | 0.164657 |
| 20 | State Hwy 127 | -96.866252 | 45.849455 | E | 0.086001 |

**SHANNON COUNTY**

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | US Hwy 18 | -102.276556 | 43.047132 | W | 1.306231 |
| 2 | US Hwy 18 | -102.86665 | 43.188343 | W | 1.036355 |
| 3 | US Hwy 18 | -102.347508 | 43.046586 | W | 0.940724 |
| 4 | US Hwy 18 | -102.846697 | 43.188303 | W | 0.858012 |
| 5 | US Hwy 18 | -102.146987 | 43.109183 | S | 0.839121 |
| 6 | US Hwy 18 | -102.404454 | 43.046497 | W | 0.719701 |
| 7 | US Hwy 18 | -102.970654 | 43.188399 | W | 0.578463 |
| 8 | US Hwy 18 | -102.228396 | 43.046552 | W | 0.529314 |
| 9 | US Hwy 18 | -102.587257 | 43.083338 | S | 0.475903 |
| 10 | US Hwy 18 | -102.475286 | 43.03327 | W | 0.397979 |
| 11 | US Hwy 18 | -102.82165 | 43.189164 | E | 0.359724 |
| 12 | US Hwy 18 | -102.70466 | 43.170968 | N | 0.307706 |
| 13 | US Hwy 18 | -102.701413 | 43.167597 | N | 0.250257 |
| 14 | US Hwy 18 | -102.74725 | 43.18798 | E | 0.223083 |
| 15 | US Hwy 18 | -102.516773 | 43.027172 | W | 0.194428 |
| 16 | US Hwy 18 | -102.583872 | 43.079054 | S | 0.153982 |
| 17 | US Hwy 18 | -102.545673 | 43.02733 | W | 0.13047 |
| 18 | US Hwy 18 | -102.568452 | 43.064463 | N | 0.108266 |
| 19 | White Clay Rd | -102.55447 | 43.010212 | S | 0.066337 |
| 20 | US Hwy 18 | -102.486372 | 43.031855 | W | 0.024286 |

## UNION COUNTY

| Site | Location | Longitude | Latitude | Direction | Segment Length |
|---|---|---|---|---|---|
| 1 | I- 29 | -96.781446 | 42.774955 | S | 0.740731 |
| 2 | 479th Ave | -96.626372 | 42.899179 | S | 0.620276 |
| 3 | River Rd | -96.519453 | 42.984558 | S | 1.307015 |
| 4 | 480th Ave | -96.606999 | 42.916234 | E | 1.006861 |
| 5 | 471st Ave | -96.785484 | 42.946294 | N | 1.000784 |
| 6 | 328th St | -96.556936 | 42.633914 | N | 0.964963 |
| 7 | 306th St | -96.617393 | 42.952473 | W | 0.93755 |
| 8 | 320th St | -96.757319 | 42.749902 | N | 0.866302 |
| 9 | 322nd St | -96.794372 | 42.721103 | E | 0.758175 |
| 10 | 329th St | -96.574042 | 42.619696 | S | 0.679306 |
| 11 | 298th St | -96.701078 | 43.069269 | N | 0.571377 |
| 12 | 298th St | -96.72052 | 43.069335 | E | 0.506603 |
| 13 | Military Rd | -96.492303 | 42.536395 | N | 0.476832 |
| 14 | 474th Ave | -96.726648 | 42.985706 | E | 0.448479 |
| 15 | 302nd St | -96.777634 | 43.011171 | E | 0.388669 |
| 16 | 302nd St | -96.690414 | 43.011305 | E | 0.305261 |
| 17 | 478th Ave | -96.645979 | 42.889454 | W | 0.244338 |
| 18 | 477th Ave | -96.663421 | 42.7348 | W | 0.187734 |
| 19 | Leneve St | -96.482527 | 42.530513 | S | 0.107367 |
| 20 | W Wood Ln | -96.522318 | 42.548066 | E | 0.061521 |

# Appendix B: Code Book

**Variable Information**

| Variable | Type | Label |
|---|---|---|
| CASENO | Number | Overall Case Number |
| CTYIDNBR | Number | County ID Number |
| CTYNAME | Text | County Name |
| CTY_SEL_PROB | Number | County Probability of Selection |
| DESCRIP | Text | Description |
| DIR | Text | Direction of Traffic |
| DIR_SEL_PROB | Number | Direction Probability of Selection |
| DIV_ROAD | Text | Number of Lanes |
| DRGENDER | Text | Driver Gender |
| DRPROT | Text | Driver Protection |
| ENDTIME | Date/Time | End of Observations at this Site |
| FIRSTNAME | Text | Observer First Name |
| HWYNBR | Text | Highway Number |
| ID | Number | Overall Site ID |
| LANE_SEL_PROB | Number | Lane Probability of Selection |
| LASTNAME | Text | Observer Last Name |
| LATITUDE | Number | Latitude |
| LONGITUDE | Number | Longitude |
| MAPID | Text | MAP ID |
| NOPUS_Year | Number | Year of NOPUS Data |
| OBSDATE | Date/Time | Date of Observations at this Site |
| OBSID | Number | Observer ID |
| OBSNBR | Number | Site Observation Number |
| PASSGENDER | Text | Passenger Gender |
| PASSPROT | Text | Passenger Protection |
| RDTYPE | Text | Road Type |
| REGION | Text | Region of the State |
| SEGLEN_MI | Number | Segment Length in Miles |
| SITEDESCNBR | Number | County Site Decsription Number |
| SITE_SEL_PROB | Number | Site Probability of Selection |
| STRATUM | Text | East or West |
| STTIME | Date/Time | Start of Obsverations at this Site |
| TOTLEN | Number | Total County Segment Length |
| Variable | Data Type | Description |
| VEHTYPE | Text | Vehicle Type |

## Variable Values

| County | | |
|---|---|---|
| **Value** | **Label** | **Region** |
| 1 | Beadle | 1 |
| 2 | Brookings | 1 |
| 3 | Brown | 1 |
| 4 | Codington | 1 |
| 5 | Corson | 2 |
| 6 | Custer | 2 |
| 7 | Harding | 2 |
| 8 | Hughes | 2 |
| 9 | Lawrence | 2 |
| 10 | Lincoln | 1 |
| 11 | Meade | 2 |
| 12 | Minnehaha | 1 |
| 13 | Pennington | 2 |
| 14 | Roberts | 1 |
| 15 | Shannon | 2 |
| 16 | Union | 1 |

| | **Value** | **Label** |
|---|---|---|
| **Region** | 1 | East |
| | 2 | West |
| **Roadway** | 1 | Primary |
| | 2 | Secondary |
| | 3 | Local |
| **Weekday** | 1 | Sunday |
| | 2 | Monday |
| | 3 | Tuesday |
| | 4 | Wednesday |
| | 5 | Thursday |
| | 6 | Friday |
| | 7 | Saturday |

## Appendix C: Frequencies

**South Dakota Statewide Survey, June 2015**

Estimated Seat Belt Use (***Weighted*** Percent) Comparison by County - 2012 to 2015

| Annual Seat Belt Use by County | | | | | | |
|---|---|---|---|---|---|---|
| **Weighted Seat Belt Rate** | **2012** | **2013** | **2014** | **2015** | **Average** | **Percentage Point Change: Current Yr vs Avg** |
| **State Total** | **66.5%** | **68.7%** | **68.9%** | **73.6%** | **69.4%** | **4.1** |
| Beadle | 64.2% | 68.1% | 74.2% | 73.2% | 69.9% | 3.3 |
| Brookings | 82.6% | 72.4% | 83.6% | 82.6% | 80.3% | 2.3 |
| Brown | 91.7% | 85.1% | 63.8% | 76.3% | 79.2% | -2.9 |
| Codington | 70.8% | 82.1% | 57.7% | 83.5% | 73.5% | 9.9 |
| Corson | 47.1% | 67.8% | 64.4% | 62.5% | 60.4% | 2.0 |
| Custer | 67.9% | 64.0% | 72.9% | 72.8% | 69.4% | 3.4 |
| Harding | 78.8% | 49.3% | 50.4% | 73.3% | 63.0% | 10.3 |
| Hughes | 48.4% | 59.9% | 58.7% | 49.4% | 54.1% | -4.7 |
| Lawrence | 67.8% | 81.5% | 83.6% | 86.6% | 79.9% | 6.7 |
| Lincoln | 64.1% | 68.2% | 68.4% | 75.9% | 69.2% | 6.7 |
| Meade | 58.1% | 56.2% | 58.2% | 57.6% | 57.5% | 0.1 |
| Minnehaha | 64.3% | 65.2% | 78.1% | 74.8% | 70.6% | 4.1 |
| Pennington | 65.1% | 67.9% | 66.4% | 73.0% | 68.1% | 4.9 |
| Roberts | 82.7% | 87.6% | 89.3% | 86.1% | 86.4% | -0.3 |
| Shannon | 62.3% | 33.4% | 43.6% | 64.7% | 51.0% | 13.7 |
| Union | 67.6% | 85.6% | 79.9% | 77.0% | 77.5% | -0.5 |

**South Dakota Statewide Survey, June 2015**

Estimated Seat Belt Use (Percent) and Unweighted Frequencies for Vehicle Occupants

| Occupant | Status | Estimate Percent | Unweighted Frequency | | |
|---|---|---|---|---|---|
| ***Drivers*** | Belted | 74.3% | | | |
| | Not Belted | 25.7% | | | |
| | Total | 100.0% | 20,923 | | |
| | | | | Ratio | 2.7 |
| ***Passengers*** | Belted | 80.5% | | | |
| | Not Belted | 19.5% | | | |
| | Total | 100.0% | 7,740 | | |
| | | | | | |
| ***All Occupants*** | Belted | 76.0% | | | |
| | Not Belted | 24.0% | | | |
| | Total | 100.0% | 28,663 | | |

**South Dakota Statewide Survey, June 2015**

Seat Belt Use by Region

| Region of State | | | | |
|---|---|---|---|---|
| **Occupant** | **Status** | **East** | **West** | **Total** |
| ***Drivers*** | Belted | 80.0% | 69.6% | 74.3% |
| | Not Belted | 20.0% | 30.4% | 25.7% |
| | Count | 9,413 | 11,510 | 20,923 |
| | | | | |
| ***Passengers*** | Belted | 86.0% | 76.7% | 80.5% |
| | Not Belted | 14.0% | 23.3% | 19.5% |
| | Count | 3,112 | 4,628 | 7,740 |
| | | | | |
| ***All Occupants*** | Belted | 81.5% | 71.6% | 76.0% |
| | Not Belted | 18.5% | 28.4% | 24.0% |
| | Count | 12,525 | 16,138 | 28,663 |

## South Dakota Statewide Survey, June 2015

Seat Belt Use by County

| Note: Based on unweighted percentages | | County | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Occupants** | **Status** | **Beadle** | **Brookings** | **Brown** | **Codington** | **Corson** | **Custer** | **Harding** | **Hughes** | **Lawrence** | **Lincoln** | **Meade** | **Minnehaha** | **Pennington** | **Roberts** | **Shannon** | **Union** | **Total** |
| | | | | | | | | | | | | | | | | | | |
| **Drivers** | Belted | **74.4%** | **78.3%** | **75.5%** | **88.3%** | **65.3%** | **69.3%** | **73.8%** | **52.9%** | **83.2%** | **73.8%** | **60.5%** | **70.2%** | **68.4%** | **86.2%** | **68.4%** | **81.3%** | **74.3%** |
| | Not Belted | 25.6% | 21.7% | 24.5% | 11.7% | 34.7% | 30.7% | 26.2% | 47.1% | 16.8% | 26.2% | 39.5% | 29.8% | 31.6% | 13.8% | 31.6% | 18.7% | 25.7% |
| | Count | 1045 | 1362 | 1151 | 2325 | 499 | 1417 | 397 | 1449 | 2886 | 1464 | 1065 | 467 | 1656 | 1208 | 2141 | 391 | 20923 |
| | % of Sample | 3.6% | 4.8% | 4.0% | 8.1% | 1.7% | 4.9% | 1.4% | 5.1% | 10.1% | 5.1% | 3.7% | 1.6% | 5.8% | 4.2% | 7.5% | 1.4% | 73.0% |
| | | | | | | | | | | | | | | | | | | |
| **Passengers** | Belted | **82.5%** | **87.4%** | **91.3%** | **89.9%** | **70.7%** | **74.6%** | **85.5%** | **64.9%** | **92.6%** | **73.3%** | **66.3%** | **68.9%** | **79.8%** | **91.5%** | **64.3%** | **81.0%** | **80.5%** |
| | Not Belted | 17.5% | 12.6% | 8.7% | 10.1% | 29.3% | 25.4% | 14.5% | 35.1% | 7.4% | 26.7% | 33.7% | 31.1% | 20.2% | 8.5% | 35.7% | 19.0% | 19.5% |
| | Count | 435 | 421 | 321 | 941 | 242 | 638 | 83 | 348 | 1342 | 438 | 285 | 61 | 568 | 437 | 1122 | 58 | 7740 |
| | % of Sample | 1.5% | 1.5% | 1.1% | 3.3% | 0.8% | 2.2% | 0.3% | 1.2% | 4.7% | 1.5% | 1.0% | 0.2% | 2.0% | 1.5% | 3.9% | 0.2% | 27.0% |
| | | | | | | | | | | | | | | | | | | |
| **All Occupants** | Belted | **76.8%** | **80.5%** | **78.9%** | **88.8%** | **67.1%** | **70.9%** | **75.8%** | **55.3%** | **86.2%** | **73.7%** | **61.7%** | **70.1%** | **71.3%** | **87.6%** | **67.0%** | **81.3%** | **76.0%** |
| | Not Belted | 23.2% | 19.5% | 21.1% | 11.2% | 32.9% | 29.1% | 24.2% | 44.7% | 13.8% | 26.3% | 38.3% | 29.9% | 28.7% | 12.4% | 33.0% | 18.7% | 24.0% |
| | Count | 1480 | 1783 | 1472 | 3266 | 741 | 2055 | 480 | 1797 | 4228 | 1902 | 1350 | 528 | 2224 | 1645 | 3263 | 449 | 28663 |
| | % of Sample | 5.2% | 6.2% | 5.1% | 11.4% | 2.6% | 7.2% | 1.7% | 6.3% | 14.8% | 6.6% | 4.7% | 1.8% | 7.8% | 5.7% | 11.4% | 1.6% | 100.0% |

**South Dakota Statewide Survey, June 2015**

Seat Belt Use by Gender

| Occupant | Status | Gender | | | Total |
|---|---|---|---|---|---|
| | | **Male** | **Female** | **Unknown** | |
| ***Drivers*** | Belted | 71.7% | 78.8% | 81.3% | 74.3% |
| | Not Belted | 28.3% | 21.2% | 18.8% | 25.7% |
| | Count | 13,440 | 7,451 | 32 | 20,923 |
| | | | | | |
| ***Passengers*** | Belted | 72.7% | 84.0% | 91.4% | 80.5% |
| | Not Belted | 27.3% | 16.0% | 8.6% | 19.5% |
| | Count | 2,477 | 5,228 | 35 | 7,740 |
| | | | | | |
| ***All Occupants*** | Belted | 71.9% | 81.0% | 86.6% | 76.0% |
| | Not Belted | 28.1% | 19.0% | 13.4% | 24.0% |
| | Count | 15,917 | 12,679 | 67 | 28,663 |

**South Dakota Statewide Survey, June 2015**

Male Seat Belt Use

| | | Vehicle Type | | | | |
|---|---|---|---|---|---|---|
| **Occupant** | **Status** | **Car** | **SUV** | **Van** | **Pickup** | **Total** |
| | | | | | | |
| ***Male Drivers*** | Belted | 72.9% | 77.9% | 80.9% | 66.0% | 71.7% |
| | Not Belted | 27.1% | 22.1% | 19.1% | 34.0% | 28.3% |
| | Count | 3,842 | 2,818 | 1,160 | 5,620 | 13,440 |
| | | | | | | |
| ***Male Passengers*** | Belted | 73.9% | 78.4% | 78.6% | 66.5% | 72.7% |
| | Not Belted | 26.1% | 21.6% | 21.4% | 33.5% | 27.3% |
| | Count | 659 | 615 | 262 | 941 | 2,477 |
| | | | | | | |
| ***All Male Occupants*** | Belted | 73.1% | 77.9% | 80.5% | 66.1% | 71.9% |
| | Not Belted | 26.9% | 22.1% | 19.5% | 33.9% | 28.1% |
| | Count | 4,501 | 3,433 | 1,422 | 6,561 | 15,917 |

**South Dakota Statewide Survey, June 2015**

Female Seat Belt Use Rate

| | | Vehicle Type | | | | |
|---|---|---|---|---|---|---|
| **Occupant** | **Status** | **Car** | **SUV** | **Van** | **Pickup** | **Total** |
| | | | | | | |
| ***Female Drivers*** | Belted | 76.2% | 82.7% | 82.7% | 73.7% | 78.8% |
| | Not Belted | 23.8% | 17.3% | 17.3% | 26.3% | 21.2% |
| | Count | 3,164 | 2,516 | 867 | 904 | 7,451 |
| | | | | | | |
| ***Female Passengers*** | Belted | 80.1% | 86.9% | 89.8% | 82.9% | 84.0% |
| | Not Belted | 19.9% | 13.1% | 10.2% | 17.1% | 16.0% |
| | Count | 1,820 | 1,526 | 733 | 1,149 | 5,228 |
| | | | | | | |
| ***All Female Occupants*** | Belted | 77.6% | 84.3% | 85.9% | 78.8% | 81.0% |
| | Not Belted | 22.4% | 15.7% | 14.1% | 21.2% | 19.0% |
| | Count | 4,984 | 4,042 | 1,600 | 2,053 | 12,679 |

## Appendix D: Survey Instrument

**Seat Belt Survey Form** **Page # _____ of_____**

**Date** _____ **Start Time:** _____ **AM/PM** **End Time** _____**AM/PM**

**County**_____ **Observer Name:**_____

**Site Location Description (including city/town where applicable):** _____

**Site ID Number:** _____ **(if applicable)**

**Traffic Type Being Observed:** ❑ Town/City ❑ Highway/County Road (outside of town/city) ❑ Interstate

| Obs | Vehicle Type | | | | | Driver | | | | | Passenger | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Gender | | Protection | | | Gender | | Protection | | |
| 1 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 2 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 3 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 4 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 5 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 6 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 7 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 8 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 9 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 10 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 11 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 12 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 13 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 14 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 15 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 16 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 17 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 18 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 19 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 20 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 21 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 22 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 23 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 24 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 25 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 26 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 27 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 28 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 29 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |
| 30 | Car | Trck | SUV | Van | Mcycl | M | F | Y | N | DK | M | F | Y | N | DK |

M=Male; F=Female; DK = Do Not Know

## Appendix E: Seat Belt Use Rates with Site and County Weights

**Beadle County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| **Site** | **Site Weight** | **County Weight** | **Total Belted** | **Total Occupants** | **Seat Belt Rate** |
| 1 | 0.16364 | 0.29495 | 38 | 44 | 86.4% |
| 2 | 0.15464 | 0.29495 | 39 | 59 | 66.1% |
| 3 | 0.14926 | 0.29495 | 51 | 57 | 89.5% |
| 4 | 0.13587 | 0.29495 | 70 | 88 | 79.5% |
| 5 | 0.12151 | 0.29495 | 29 | 34 | 85.3% |
| 6 | 0.10707 | 0.29495 | 48 | 61 | 78.7% |
| 7 | 0.09152 | 0.29495 | 52 | 66 | 78.8% |
| 8 | 0.08133 | 0.29495 | 44 | 52 | 84.6% |
| 9 | 0.07747 | 0.29495 | 34 | 40 | 85.0% |
| 10 | 0.07118 | 0.29495 | 72 | 76 | 94.7% |
| 11 | 0.06241 | 0.29495 | 55 | 66 | 83.3% |
| 12 | 0.05482 | 0.29495 | 37 | 49 | 75.5% |
| 13 | 0.04851 | 0.29495 | 72 | 95 | 75.8% |
| 14 | 0.04008 | 0.29495 | 52 | 82 | 63.4% |
| 15 | 0.03249 | 0.29495 | 67 | 92 | 72.8% |
| 16 | 0.02551 | 0.29495 | 44 | 82 | 53.7% |
| 17 | 0.01967 | 0.29495 | 115 | 123 | 93.5% |
| 18 | 0.01399 | 0.29495 | 88 | 115 | 76.5% |
| 19 | 0.01109 | 0.29495 | 49 | 95 | 51.6% |
| 20 | 0.00274 | 0.29495 | 80 | 104 | 76.9% |

**Brookings County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| Site | Site Weight | County Weight | Total Belted | Total Occupants | Seat Belt Rate |
| 1 | 0.15295 | 0.57693 | 233 | 272 | 85.7% |
| 2 | 0.10065 | 0.57693 | 146 | 193 | 75.6% |
| 3 | 0.05877 | 0.57693 | 217 | 252 | 86.1% |
| 4 | 0.00345 | 0.57693 | 180 | 213 | 84.5% |
| 5 | 0.16039 | 0.57693 | 38 | 42 | 90.5% |
| 6 | 0.15982 | 0.57693 | 27 | 34 | 79.4% |
| 7 | 0.15097 | 0.57693 | 18 | 22 | 81.8% |
| 8 | 0.15040 | 0.57693 | 33 | 39 | 84.6% |
| 9 | 0.14275 | 0.57693 | 24 | 29 | 82.8% |
| 10 | 0.12707 | 0.57693 | 34 | 43 | 79.1% |
| 11 | 0.12058 | 0.57693 | 51 | 58 | 87.9% |
| 12 | 0.09670 | 0.57693 | 16 | 16 | 100.0% |
| 13 | 0.07848 | 0.57693 | 78 | 102 | 76.5% |
| 14 | 0.07417 | 0.57693 | 17 | 25 | 68.0% |
| 15 | 0.06185 | 0.57693 | 45 | 63 | 71.4% |
| 16 | 0.05420 | 0.57693 | 42 | 74 | 56.8% |
| 17 | 0.04068 | 0.57693 | 31 | 38 | 81.6% |
| 18 | 0.02797 | 0.57693 | 36 | 46 | 78.3% |
| 19 | 0.01594 | 0.57693 | 81 | 119 | 68.1% |
| 20 | 0.00741 | 0.57693 | 88 | 103 | 85.4% |

**Brown County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| **Site** | **Site Weight** | **County Weight** | **Total Belted** | **Total Occupants** | **Seat Belt Rate** |
| 1 | 0.09504 | 0.68386 | 41 | 54 | 75.9% |
| 2 | 0.09470 | 0.68386 | 63 | 82 | 76.8% |
| 3 | 0.09461 | 0.68386 | 3 | 9 | 33.3% |
| 4 | 0.09447 | 0.68386 | 83 | 113 | 73.5% |
| 5 | 0.09439 | 0.68386 | 68 | 84 | 81.0% |
| 6 | 0.09382 | 0.68386 | 41 | 46 | 89.1% |
| 7 | 0.08926 | 0.68386 | 33 | 44 | 75.0% |
| 8 | 0.08879 | 0.68386 | 53 | 82 | 64.6% |
| 9 | 0.08329 | 0.68386 | 55 | 66 | 83.3% |
| 10 | 0.07564 | 0.68386 | 53 | 67 | 79.1% |
| 11 | 0.06617 | 0.68386 | 170 | 227 | 74.9% |
| 12 | 0.05481 | 0.68386 | 15 | 18 | 83.3% |
| 13 | 0.04821 | 0.68386 | 12 | 22 | 54.5% |
| 14 | 0.04476 | 0.68386 | 31 | 38 | 81.6% |
| 15 | 0.04124 | 0.68386 | 47 | 59 | 79.7% |
| 16 | 0.03540 | 0.68386 | 187 | 200 | 93.5% |
| 17 | 0.02527 | 0.68386 | 30 | 37 | 81.1% |
| 18 | 0.01780 | 0.68386 | 97 | 121 | 80.2% |
| 19 | 0.00896 | 0.68386 | 32 | 39 | 82.1% |
| 20 | 0.00031 | 0.68386 | 48 | 64 | 75.0% |

**Codington County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| Site | Site Weight | County Weight | Total Belted | Total Occupants | Seat Belt Rate |
| 1 | 0.16405 | 0.55268 | 333 | 334 | 99.7% |
| 2 | 0.10168 | 0.55268 | 284 | 286 | 99.3% |
| 3 | 0.07355 | 0.55268 | 159 | 200 | 79.5% |
| 4 | 0.03211 | 0.55268 | 176 | 179 | 98.3% |
| 5 | 0.17572 | 0.55268 | 60 | 64 | 93.8% |
| 6 | 0.15681 | 0.55268 | 13 | 16 | 81.3% |
| 7 | 0.14630 | 0.55268 | 81 | 85 | 95.3% |
| 8 | 0.13315 | 0.55268 | 46 | 46 | 100.0% |
| 9 | 0.11644 | 0.55268 | 154 | 163 | 94.5% |
| 10 | 0.09969 | 0.55268 | 192 | 230 | 83.5% |
| 11 | 0.08580 | 0.55268 | 58 | 61 | 95.1% |
| 12 | 0.07707 | 0.55268 | 98 | 102 | 96.1% |
| 13 | 0.06819 | 0.55268 | 93 | 107 | 86.9% |
| 14 | 0.05662 | 0.55268 | 61 | 66 | 92.4% |
| 15 | 0.05040 | 0.55268 | 69 | 71 | 97.2% |
| 16 | 0.03953 | 0.55268 | 71 | 76 | 93.4% |
| 17 | 0.03101 | 0.55268 | 305 | 334 | 91.3% |
| 18 | 0.02214 | 0.55268 | 374 | 498 | 75.1% |
| 19 | 0.01534 | 0.55268 | 110 | 124 | 88.7% |
| 20 | 0.01015 | 0.55268 | 163 | 224 | 72.8% |

**Corson County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| **Site** | **Site Weight** | **County Weight** | **Total Belted** | **Total Occupants** | **Seat Belt Rate** |
| 1 | 0.29813 | 0.19204 | 3 | 4 | 75.0% |
| 2 | 0.16741 | 0.19204 | 5 | 6 | 83.3% |
| 3 | 0.13639 | 0.19204 | 22 | 31 | 71.0% |
| 4 | 0.10974 | 0.19204 | 45 | 84 | 53.6% |
| 5 | 0.09770 | 0.19204 | 2 | 5 | 40.0% |
| 6 | 0.09174 | 0.19204 | 9 | 15 | 60.0% |
| 7 | 0.08693 | 0.19204 | 19 | 23 | 82.6% |
| 8 | 0.08477 | 0.19204 | 14 | 20 | 70.0% |
| 9 | 0.07972 | 0.19204 | 5 | 14 | 35.7% |
| 10 | 0.07320 | 0.19204 | 76 | 111 | 68.5% |
| 11 | 0.06555 | 0.19204 | 47 | 62 | 75.8% |
| 12 | 0.06044 | 0.19204 | 15 | 19 | 78.9% |
| 13 | 0.05594 | 0.19204 | 94 | 152 | 61.8% |
| 14 | 0.05101 | 0.19204 | 32 | 38 | 84.2% |
| 15 | 0.04538 | 0.19204 | 6 | 8 | 75.0% |
| 16 | 0.04021 | 0.19204 | 44 | 53 | 83.0% |
| 17 | 0.03346 | 0.19204 | 19 | 30 | 63.3% |
| 18 | 0.02761 | 0.19204 | 10 | 13 | 76.9% |
| 19 | 0.01673 | 0.19204 | 25 | 35 | 71.4% |
| 20 | 0.00667 | 0.19204 | 5 | 18 | 27.8% |

**Custer County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| Site | Site Weight | County Weight | Total Belted | Total Occupants | Seat Belt Rate |
| 1 | 0.20253 | 0.51261 | 20 | 27 | 74.1% |
| 2 | 0.17126 | 0.51261 | 54 | 69 | 78.3% |
| 3 | 0.15239 | 0.51261 | 68 | 113 | 60.2% |
| 4 | 0.12763 | 0.51261 | 19 | 32 | 59.4% |
| 5 | 0.10869 | 0.51261 | 114 | 171 | 66.7% |
| 6 | 0.09372 | 0.51261 | 328 | 442 | 74.2% |
| 7 | 0.08089 | 0.51261 | 67 | 119 | 56.3% |
| 8 | 0.07325 | 0.51261 | 77 | 106 | 72.6% |
| 9 | 0.06255 | 0.51261 | 73 | 87 | 83.9% |
| 10 | 0.05671 | 0.51261 | 26 | 38 | 68.4% |
| 11 | 0.05172 | 0.51261 | 91 | 116 | 78.4% |
| 12 | 0.04542 | 0.51261 | 76 | 103 | 73.8% |
| 13 | 0.03750 | 0.51261 | 44 | 71 | 62.0% |
| 14 | 0.03028 | 0.51261 | 43 | 57 | 75.4% |
| 15 | 0.02444 | 0.51261 | 49 | 65 | 75.4% |
| 16 | 0.02018 | 0.51261 | 39 | 50 | 78.0% |
| 17 | 0.01572 | 0.51261 | 77 | 115 | 67.0% |
| 18 | 0.01167 | 0.51261 | 25 | 26 | 96.2% |
| 19 | 0.00773 | 0.51261 | 46 | 88 | 52.3% |
| 20 | 0.00238 | 0.51261 | 122 | 160 | 76.3% |

**Harding County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| **Site** | **Site Weight** | **County Weight** | **Total Belted** | **Total Occupants** | **Seat Belt Rate** |
| 1 | 0.36363 | 0.15327 | 4 | 6 | 66.7% |
| 2 | 0.31099 | 0.15327 | 3 | 5 | 60.0% |
| 3 | 0.24738 | 0.15327 | 3 | 3 | 100.0% |
| 4 | 0.23283 | 0.15327 | 7 | 10 | 70.0% |
| 5 | 0.20366 | 0.15327 | 13 | 17 | 76.5% |
| 6 | 0.16727 | 0.15327 | 31 | 37 | 83.8% |
| 7 | 0.15072 | 0.15327 | 12 | 19 | 63.2% |
| 8 | 0.12749 | 0.15327 | 10 | 15 | 66.7% |
| 9 | 0.11990 | 0.15327 | 35 | 40 | 87.5% |
| 10 | 0.11247 | 0.15327 | 2 | 3 | 66.7% |
| 11 | 0.10536 | 0.15327 | 2 | 2 | 100.0% |
| 12 | 0.09832 | 0.15327 | 23 | 29 | 79.3% |
| 13 | 0.08851 | 0.15327 | 56 | 66 | 84.8% |
| 14 | 0.07955 | 0.15327 | 4 | 5 | 80.0% |
| 15 | 0.06933 | 0.15327 | 36 | 49 | 73.5% |
| 16 | 0.06174 | 0.15327 | 7 | 10 | 70.0% |
| 17 | 0.05311 | 0.15327 | 4 | 4 | 100.0% |
| 18 | 0.04386 | 0.15327 | 44 | 56 | 78.6% |
| 19 | 0.02877 | 0.15327 | 63 | 98 | 64.3% |
| 20 | 0.00971 | 0.15327 | 5 | 6 | 83.3% |

**Hughes County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| **Site** | **Site Weight** | **County Weight** | **Total Belted** | **Total Occupants** | **Seat Belt Rate** |
| 1 | 0.59821 | 0.44826 | 32 | 42 | 76.2% |
| 2 | 0.37036 | 0.44826 | 19 | 37 | 51.4% |
| 3 | 0.28811 | 0.44826 | 31 | 49 | 63.3% |
| 4 | 0.23922 | 0.44826 | 76 | 114 | 66.7% |
| 5 | 0.19629 | 0.44826 | 27 | 39 | 69.2% |
| 6 | 0.19456 | 0.44826 | 32 | 51 | 62.7% |
| 7 | 0.16694 | 0.44826 | 57 | 100 | 57.0% |
| 8 | 0.14335 | 0.44826 | 20 | 40 | 50.0% |
| 9 | 0.13320 | 0.44826 | 41 | 73 | 56.2% |
| 10 | 0.12182 | 0.44826 | 42 | 71 | 59.2% |
| 11 | 0.10792 | 0.44826 | 65 | 141 | 46.1% |
| 12 | 0.09758 | 0.44826 | 42 | 55 | 76.4% |
| 13 | 0.08445 | 0.44826 | 29 | 51 | 56.9% |
| 14 | 0.07124 | 0.44826 | 99 | 174 | 56.9% |
| 15 | 0.05490 | 0.44826 | 24 | 51 | 47.1% |
| 16 | 0.04613 | 0.44826 | 52 | 88 | 59.1% |
| 17 | 0.03460 | 0.44826 | 67 | 99 | 67.7% |
| 18 | 0.02583 | 0.44826 | 7 | 23 | 30.4% |
| 19 | 0.01622 | 0.44826 | 116 | 232 | 50.0% |
| 20 | 0.00952 | 0.44826 | 115 | 267 | 43.1% |

**Lawrence County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| **Site** | **Site Weight** | **County Weight** | **Total Belted** | **Total Occupants** | **Seat Belt Rate** |
| 1 | 0.19649 | 1.00000 | 336 | 401 | 83.8% |
| 2 | 0.13349 | 1.00000 | 362 | 433 | 83.6% |
| 3 | 0.10320 | 1.00000 | 247 | 271 | 91.1% |
| 4 | 0.07079 | 1.00000 | 266 | 281 | 94.7% |
| 5 | 0.04677 | 1.00000 | 298 | 358 | 83.2% |
| 6 | 0.03663 | 1.00000 | 212 | 247 | 85.8% |
| 7 | 0.01861 | 1.00000 | 322 | 340 | 94.7% |
| 8 | 0.26930 | 1.00000 | 152 | 161 | 94.4% |
| 9 | 0.16268 | 1.00000 | 196 | 233 | 84.1% |
| 10 | 0.11457 | 1.00000 | 134 | 165 | 81.2% |
| 11 | 0.10085 | 1.00000 | 70 | 96 | 72.9% |
| 12 | 0.09074 | 1.00000 | 63 | 93 | 67.7% |
| 13 | 0.07797 | 1.00000 | 87 | 92 | 94.6% |
| 14 | 0.06007 | 1.00000 | 172 | 197 | 87.3% |
| 15 | 0.05066 | 1.00000 | 68 | 77 | 88.3% |
| 16 | 0.03955 | 1.00000 | 146 | 189 | 77.2% |
| 17 | 0.02833 | 1.00000 | 188 | 193 | 97.4% |
| 18 | 0.02132 | 1.00000 | 43 | 47 | 91.5% |
| 19 | 0.01459 | 1.00000 | 80 | 94 | 85.1% |
| 20 | 0.00795 | 1.00000 | 201 | 260 | 77.3% |

**Lincoln County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| **Site** | **Site Weight** | **County Weight** | **Total Belted** | **Total Occupants** | **Seat Belt Rate** |
| 1 | 0.01098 | 1.00000 | 343 | 457 | 75.1% |
| 2 | 0.00497 | 1.00000 | 25 | 34 | 73.5% |
| 3 | 0.01434 | 1.00000 | 18 | 21 | 85.7% |
| 4 | 0.01224 | 1.00000 | 3 | 4 | 75.0% |
| 5 | 0.00975 | 1.00000 | 1 | 7 | 14.3% |
| 6 | 0.00828 | 1.00000 | 4 | 4 | 100.0% |
| 7 | 0.00724 | 1.00000 | 1 | 3 | 33.3% |
| 8 | 0.00669 | 1.00000 | 33 | 51 | 64.7% |
| 9 | 0.00604 | 1.00000 | 12 | 17 | 70.6% |
| 10 | 0.00531 | 1.00000 | 7 | 7 | 100.0% |
| 11 | 0.00466 | 1.00000 | | 0 | |
| 12 | 0.00408 | 1.00000 | 0 | 3 | 0.0% |
| 13 | 0.00353 | 1.00000 | 355 | 492 | 72.2% |
| 14 | 0.00301 | 1.00000 | 0 | 2 | 0.0% |
| 15 | 0.00251 | 1.00000 | 248 | 335 | 74.0% |
| 16 | 0.00202 | 1.00000 | 12 | 14 | 85.7% |
| 17 | 0.00158 | 1.00000 | 7 | 10 | 70.0% |
| 18 | 0.00114 | 1.00000 | 35 | 61 | 57.4% |
| 19 | 0.00088 | 1.00000 | 7 | 15 | 46.7% |
| 20 | 0.00055 | 1.00000 | 291 | 365 | 79.7% |

**Meade County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| Site | Site Weight | County Weight | Total Belted | Total Occupants | Seat Belt Rate |
| 1 | 0.01172 | 1.00000 | 297 | 417 | 71.2% |
| 2 | 0.01233 | 1.00000 | 23 | 38 | 60.5% |
| 3 | 0.00511 | 1.00000 | 14 | 23 | 60.9% |
| 4 | 0.03117 | 1.00000 | 3 | 5 | 60.0% |
| 5 | 0.01846 | 1.00000 | 3 | 4 | 75.0% |
| 6 | 0.01508 | 1.00000 | 6 | 9 | 66.7% |
| 7 | 0.01273 | 1.00000 | 59 | 117 | 50.4% |
| 8 | 0.01156 | 1.00000 | 2 | 7 | 28.6% |
| 9 | 0.01065 | 1.00000 | 7 | 11 | 63.6% |
| 10 | 0.00946 | 1.00000 | 7 | 25 | 28.0% |
| 11 | 0.00864 | 1.00000 | 9 | 18 | 50.0% |
| 12 | 0.00757 | 1.00000 | 285 | 423 | 67.4% |
| 13 | 0.00659 | 1.00000 | 2 | 4 | 50.0% |
| 14 | 0.00578 | 1.00000 | 14 | 26 | 53.8% |
| 15 | 0.00504 | 1.00000 | 20 | 45 | 44.4% |
| 16 | 0.00420 | 1.00000 | 34 | 70 | 48.6% |
| 17 | 0.00329 | 1.00000 | 16 | 24 | 66.7% |
| 18 | 0.00255 | 1.00000 | 27 | 62 | 43.5% |
| 19 | 0.00162 | 1.00000 | 3 | 8 | 37.5% |
| 20 | 0.00085 | 1.00000 | 2 | 14 | 14.3% |

**Minnehaha County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| **Site** | **Site Weight** | **County Weight** | **Total Belted** | **Total Occupants** | **Seat Belt Rate** |
| 1 | 0.00304 | 1.00000 | 103 | 157 | 65.6% |
| 2 | 0.00348 | 1.00000 | 3 | 8 | 37.5% |
| 3 | 0.00835 | 1.00000 | 4 | 7 | 57.1% |
| 4 | 0.00782 | 1.00000 | 59 | 87 | 67.8% |
| 5 | 0.00692 | 1.00000 | 1 | 2 | 50.0% |
| 6 | 0.00588 | 1.00000 | 0 | 1 | 0.0% |
| 7 | 0.00489 | 1.00000 | 10 | 12 | 83.3% |
| 8 | 0.00419 | 1.00000 | 5 | 6 | 83.3% |
| 9 | 0.00382 | 1.00000 | 6 | 10 | 60.0% |
| 10 | 0.00321 | 1.00000 | 3 | 8 | 37.5% |
| 11 | 0.00263 | 1.00000 | 59 | 73 | 80.8% |
| 12 | 0.00208 | 1.00000 | 20 | 30 | 66.7% |
| 13 | 0.00170 | 1.00000 | 12 | 18 | 66.7% |
| 14 | 0.00138 | 1.00000 | 1 | 1 | 100.0% |
| 15 | 0.00109 | 1.00000 | 18 | 22 | 81.8% |
| 16 | 0.00089 | 1.00000 | 21 | 29 | 72.4% |
| 17 | 0.00070 | 1.00000 | 1 | 1 | 100.0% |
| 18 | 0.00055 | 1.00000 | 11 | 16 | 68.8% |
| 19 | 0.00048 | 1.00000 | 15 | 22 | 68.2% |
| 20 | 0.00028 | 1.00000 | 18 | 18 | 100.0% |

**Pennington County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| Site | Site Weight | County Weight | Total Belted | Total Occupants | Seat Belt Rate |
| 1 | 0.00656 | 1.00000 | 454 | 473 | 96.0% |
| 2 | 0.00869 | 1.00000 | 22 | 29 | 75.9% |
| 3 | 0.00166 | 1.00000 | 352 | 445 | 79.1% |
| 4 | 0.01790 | 1.00000 | 67 | 165 | 40.6% |
| 5 | 0.01226 | 1.00000 | 6 | 6 | 100.0% |
| 6 | 0.00919 | 1.00000 | 10 | 12 | 83.3% |
| 7 | 0.00769 | 1.00000 | 270 | 482 | 56.0% |
| 8 | 0.00680 | 1.00000 | 3 | 8 | 37.5% |
| 9 | 0.00578 | 1.00000 | 3 | 3 | 100.0% |
| 10 | 0.00492 | 1.00000 | 1 | 2 | 50.0% |
| 11 | 0.00402 | 1.00000 | 50 | 72 | 69.4% |
| 12 | 0.00343 | 1.00000 | 63 | 107 | 58.9% |
| 13 | 0.00278 | 1.00000 | 14 | 18 | 77.8% |
| 14 | 0.00220 | 1.00000 | 17 | 24 | 70.8% |
| 15 | 0.00176 | 1.00000 | 3 | 3 | 100.0% |
| 16 | 0.00136 | 1.00000 | 15 | 30 | 50.0% |
| 17 | 0.00103 | 1.00000 | 0 | 3 | 0.0% |
| 18 | 0.00077 | 1.00000 | 16 | 41 | 39.0% |
| 19 | 0.00056 | 1.00000 | 195 | 261 | 74.7% |
| 20 | 0.00036 | 1.00000 | 24 | 40 | 60.0% |

**Roberts County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| Site | Site Weight | County Weight | Total Belted | Total Occupants | Seat Belt Rate |
| 1 | 0.14728 | 0.36470 | 263 | 283 | 92.9% |
| 2 | 0.10405 | 0.36470 | 212 | 240 | 88.3% |
| 3 | 0.07067 | 0.36470 | 185 | 202 | 91.6% |
| 4 | 0.04919 | 0.36470 | 192 | 221 | 86.9% |
| 5 | 0.03009 | 0.36470 | 105 | 117 | 89.7% |
| 6 | 0.01006 | 0.36470 | 174 | 203 | 85.7% |
| 7 | 0.11925 | 0.36470 | 7 | 9 | 77.8% |
| 8 | 0.11228 | 0.36470 | 24 | 30 | 80.0% |
| 9 | 0.10964 | 0.36470 | 9 | 9 | 100.0% |
| 10 | 0.09217 | 0.36470 | 15 | 16 | 93.8% |
| 11 | 0.08250 | 0.36470 | 17 | 19 | 89.5% |
| 12 | 0.06821 | 0.36470 | 54 | 71 | 76.1% |
| 13 | 0.06016 | 0.36470 | 12 | 15 | 80.0% |
| 14 | 0.05639 | 0.36470 | 31 | 38 | 81.6% |
| 15 | 0.05145 | 0.36470 | 8 | 11 | 72.7% |
| 16 | 0.04311 | 0.36470 | 34 | 41 | 82.9% |
| 17 | 0.03483 | 0.36470 | 23 | 27 | 85.2% |
| 18 | 0.02694 | 0.36470 | 28 | 35 | 80.0% |
| 19 | 0.01954 | 0.36470 | 17 | 21 | 81.0% |
| 20 | 0.01021 | 0.36470 | 31 | 37 | 83.8% |

**Shannon County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| **Site** | **Site Weight** | **County Weight** | **Total Belted** | **Total Occupants** | **Seat Belt Rate** |
| 1 | 0.44522 | 0.32952 | 88 | 122 | 72.1% |
| 2 | 0.35323 | 0.32952 | 71 | 102 | 69.6% |
| 3 | 0.32064 | 0.32952 | 73 | 111 | 65.8% |
| 4 | 0.29245 | 0.32952 | 46 | 72 | 63.9% |
| 5 | 0.28601 | 0.32952 | 68 | 89 | 76.4% |
| 6 | 0.24531 | 0.32952 | 46 | 62 | 74.2% |
| 7 | 0.19717 | 0.32952 | 68 | 90 | 75.6% |
| 8 | 0.18041 | 0.32952 | 107 | 178 | 60.1% |
| 9 | 0.16221 | 0.32952 | 105 | 149 | 70.5% |
| 10 | 0.13565 | 0.32952 | 145 | 194 | 74.7% |
| 11 | 0.12261 | 0.32952 | 59 | 80 | 73.8% |
| 12 | 0.10488 | 0.32952 | 142 | 189 | 75.1% |
| 13 | 0.08530 | 0.32952 | 40 | 54 | 74.1% |
| 14 | 0.07604 | 0.32952 | 101 | 138 | 73.2% |
| 15 | 0.06627 | 0.32952 | 131 | 218 | 60.1% |
| 16 | 0.05248 | 0.32952 | 103 | 158 | 65.2% |
| 17 | 0.04447 | 0.32952 | 250 | 396 | 63.1% |
| 18 | 0.03690 | 0.32952 | 124 | 183 | 67.8% |
| 19 | 0.02261 | 0.32952 | 266 | 446 | 59.6% |
| 20 | 0.00828 | 0.32952 | 153 | 232 | 65.9% |

**Union County**

**June, 2015**

| Site Rates with Weights | | | | | |
|---|---|---|---|---|---|
| **Site** | **Site Weight** | **County Weight** | **Total Belted** | **Total Occupants** | **Seat Belt Rate** |
| 1 | 0.01562 | 0.62805 | 51 | 51 | 100.0% |
| 2 | 0.01308 | 0.62805 | 5 | 7 | 71.4% |
| 3 | 0.02756 | 0.62805 | 3 | 5 | 60.0% |
| 4 | 0.02123 | 0.62805 | 0 | 2 | 0.0% |
| 5 | 0.02110 | 0.62805 | 1 | 2 | 50.0% |
| 6 | 0.02035 | 0.62805 | 76 | 98 | 77.6% |
| 7 | 0.01977 | 0.62805 | 148 | 159 | 93.1% |
| 8 | 0.01827 | 0.62805 | | 0 | |
| 9 | 0.01599 | 0.62805 | 15 | 28 | 53.6% |
| 10 | 0.01432 | 0.62805 | 3 | 8 | 37.5% |
| 11 | 0.01205 | 0.62805 | 0 | 2 | 0.0% |
| 12 | 0.01068 | 0.62805 | 2 | 4 | 50.0% |
| 13 | 0.01006 | 0.62805 | 26 | 35 | 74.3% |
| 14 | 0.00946 | 0.62805 | 0 | 2 | 0.0% |
| 15 | 0.00820 | 0.62805 | 9 | 11 | 81.8% |
| 16 | 0.00644 | 0.62805 | 9 | 13 | 69.2% |
| 17 | 0.00515 | 0.62805 | 10 | 11 | 90.9% |
| 18 | 0.00396 | 0.62805 | 3 | 5 | 60.0% |
| 19 | 0.00226 | 0.62805 | 4 | 4 | 100.0% |
| 20 | 0.00130 | 0.62805 | 0 | 2 | 0.0% |

# Appendix F: Roadway Classifications

**Roadway Type Classifications**

| Code | Name | Definition |
|---|---|---|
| S1100 | Primary Road | Primary roads 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 some toll highways. |
| S1200 | Secondary Road | Secondary roads 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. |
| S1400 | Local Neighborhood Road, Rural Road, City Street | Generally paved non-arterial streets, roads, or byways that usually have a single lane of traffic in each direction. Roads in this feature class may be privately or publicly maintained. Scenic park roads would be included in this feature class, as would (depending on the region of the country) some unpaved roads. |