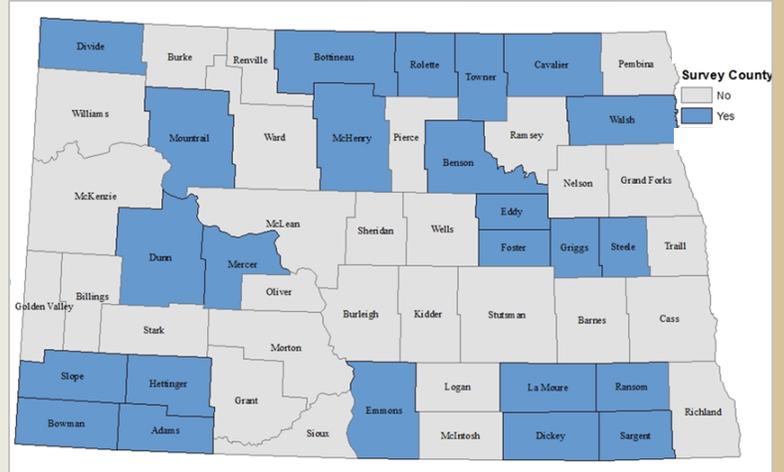


Seat Belt Use on North Dakota Rural Roads

North Dakota's rural roads provide vital social and commercial links for a widely dispersed population. The safety of these roadways is paramount in managing traffic assets to enhance the state's livability. Approximately three-quarters of the state's travel, in vehicle miles, takes place on rural roads. From a safety perspective, this poses an inherent challenge because the risk for serious injury and death on rural roads is relatively high compared to the risk on urban roads. This study is a continuation of efforts to measure seat belt usage for all occupants on rural roads in North Dakota.

A direct observation survey method was used for this study. The sampling was based on rural county populations and geographic representation of counties across four quadrants of the state. Within the sample counties (indicated in blue on map), sites selected for observation are based on local traffic knowledge, because annual vehicle miles traveled, or traffic density, is not available for local roads.



RESULTS

The observed seat belt use rate for drivers on rural highways was 67.2%. This use rate is significantly different than the use rate in rural towns at 43.0%. Rural highway seat belt driver use rates had increased in the previous six years before dipping in 2015. Use in towns has ranged from 35.6% to 46.0%. Comparing the 2013-2015 three year average to the previous three year average, highway use increased to 69.3% from 61.3%, and use in town to 42.4% from 41.2%. The percentage point increase of 8.0

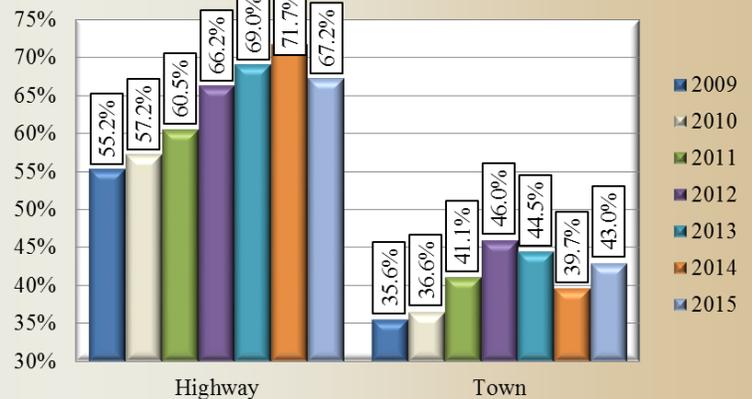


Figure 1: Driver Seat Belt Use by Road Type: 2009-2015

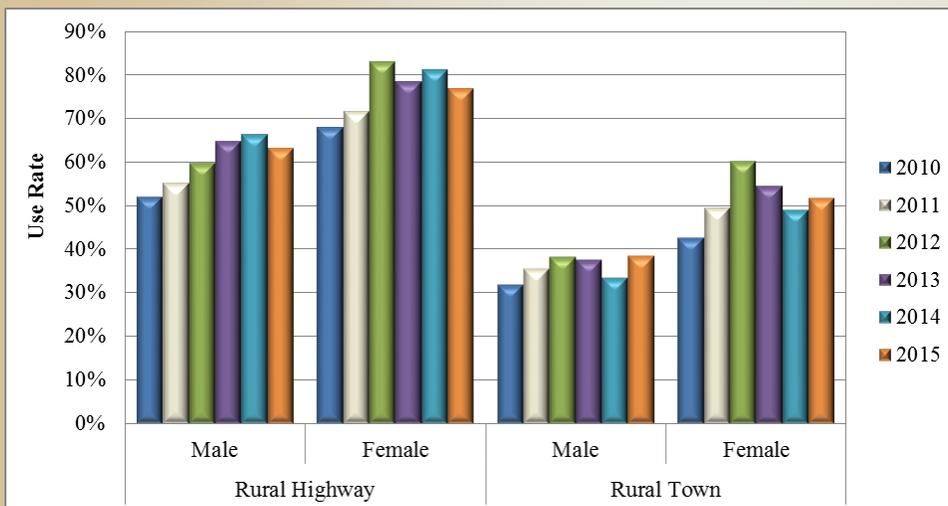


Figure 2: Driver Seat Belt Use Gender and Road Type: 2009-2015

for highway use is a 13% increase and the 1.2 percentage point increase translates to a 3% rise in town use.

Gender driver use rates by road type shows seat belt use increased for both female and male drivers in towns, while use on rural highways decreased. Female use on rural highways was 76.9% compared to 63.2% for males. In rural towns, the use rates are 51.8% for female drivers and 38.6% for males.

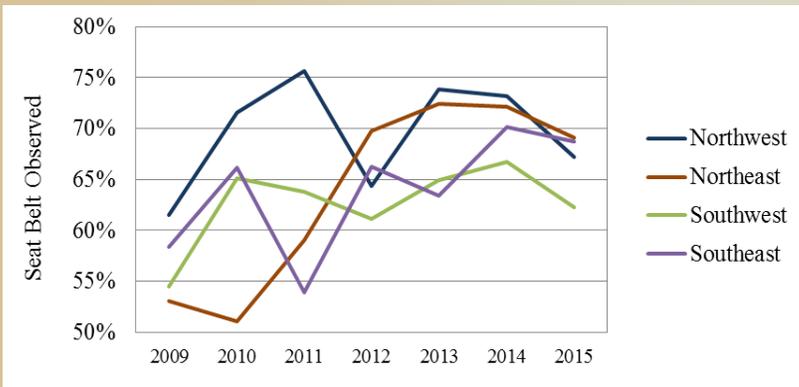


Figure 3: Highway Driver Seat Belt Use by Region: 2009-2015

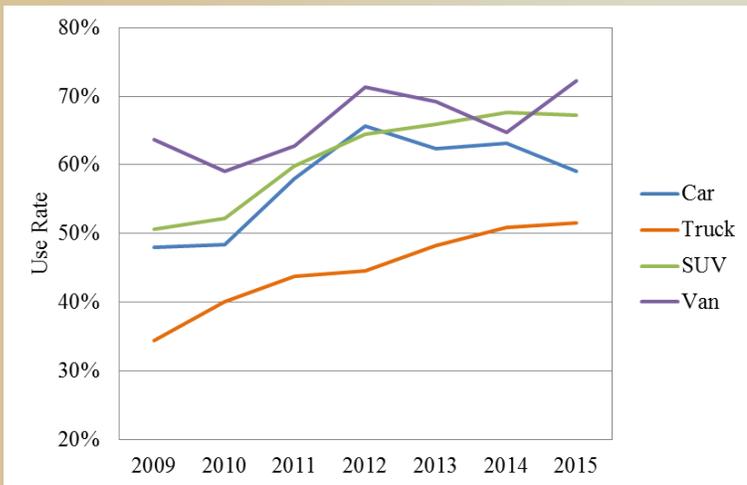


Figure 4: Driver Seat Belt Use by Vehicle Type and Road : 2009-2015

Results also continue to show a relationship between driver and passenger seat belt use. Where observations were collected in shared seat belt behavior, both were belted in 64.8% of cases, while neither were belted in 22.1% of cases. (Figure 5).

CONCLUSION

Rural roads account for 75% of annual travel and nearly 82% of fatal crashes and 89% of serious injury crashes. Seat belt use on the state's rural roads was found to be significantly less than the commonly reported statewide seat belt use rate.

Similar to previous findings, seat belt use varied considerably by road type. Rural highway seat belt driver use rates had increased in the previous six years before dipping in 2015, 71.7% and 67.2%, respectively. However, between 2013 and 2015 there was an 8.0 percentage point increase in rural highway seat belt use compared to the previous three-year average. Rates in rural towns increased from 39.7% in 2014 to 43.0% in 2015. Observed rates by county, using three-year averages, ranged from 55.7% to 82.0% on highways and 22.2% to 63.9% in towns.

The relative risk and significant difference in use rates between rural highways and towns should continue to be considered in research related to rural seat belt use. In addition, results indicate a need for continued assessment of programs to increase local seat belt enforcement or awareness on rural roads.

Seat belt use by drivers in all regions declined in 2015. The eastern regions are slightly above the northwest in seat belt use. These regions were similar with use rates of around 68%. Among all regions, the northwest had the largest percentage decline in seat belt use, 8.1%. The decline may be related to a change in the driver group composition associated with declining oil industry activity. The southwest had a smaller change with a 2.4% decline in use (Figure 3).

A significant variation in seat belt use is found across passenger vehicle types on rural roads. In 2015, driver seat belt use in vans on rural roads was 72.3% compared to 51.6% for pickup truck drivers (Figure 4). Use by pickup drivers increased slightly compared to 2014 while use by car drivers declined 4.0 percentage points. Sport utility vehicle drivers also had a slightly lower observed use rate in 2015 at 67.2%. Seat belt use by van drivers increased by 7.6 percentage points in 2015 compared to 2014.

Passenger seat belt use was 79.7% on rural highways - a slight decrease over 2014 rates of 80.5%. Rural town passenger use registered an increase in 2015 - 59.7% up from 53% in 2014. As with driver observations, gender was a significant characteristic in passenger seat belt use. Rural town female passenger use rose slightly from 66.2% to 69.9% and male passenger belt use increased from 47.2% to 53.6% from the previous three-year average and 2015 respectively.

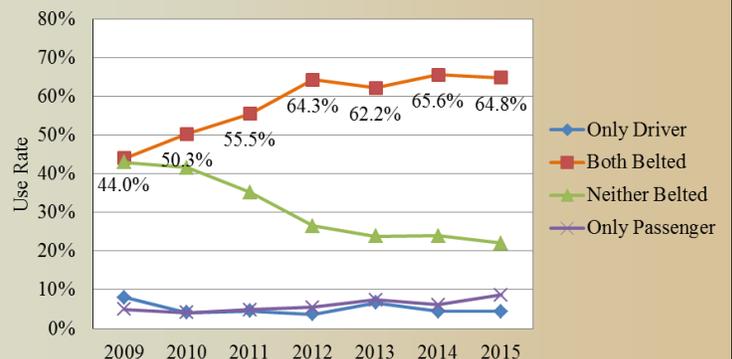


Figure 5: Seat Belt Use in Passenger Observation Cases : 2009-2015

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