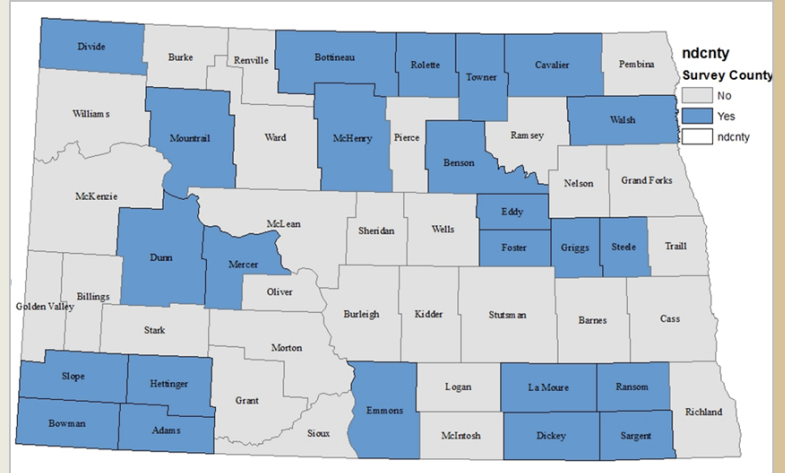


# Seat Belt Use on North Dakota Rural Roads

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 67% 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

A total of 5,994 driver seat belt observations were collected at 142 sites across 24 rural counties. From 2009 to 2013 highway use increased from 55.2% to 68.9%, and town use from 35.6% to 45.0%. In addition to statewide media efforts, local programs focusing on education and high visibility seat belt enforcement (such as the Click it Or Ticket campaign), individual agency campaigns, and multi-agency enforcement efforts, have likely played a role in these increases. The observed seat belt use rate for driv-

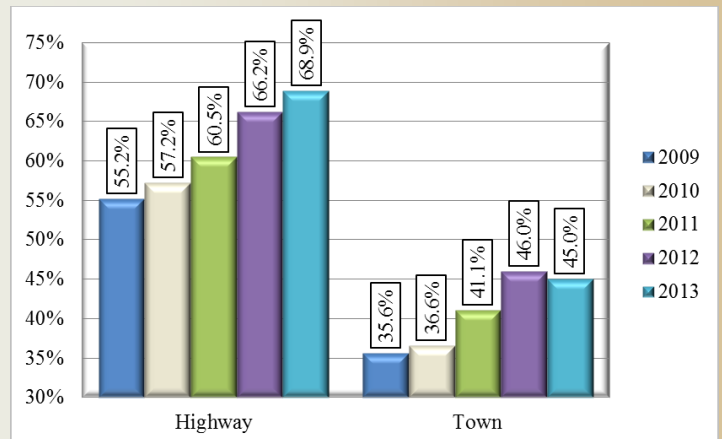


Figure 1: Driver Seat Belt Use by Road Type: 2009-2013

ers on rural highways, 68.9%, is significantly higher than the use rate in rural towns at 45.0% (Figure 1).

Comparing driver use rates by gender for road type, the female use on rural highways was at 78.6% compared to 65.0% for males (Figure 2). In rural towns, the use rates are 54.7% for female drivers and only 37.8% for males. While seat belt use did increase for male drivers on rural highway, drivers' seat belt use in other categories decreased in 2013.

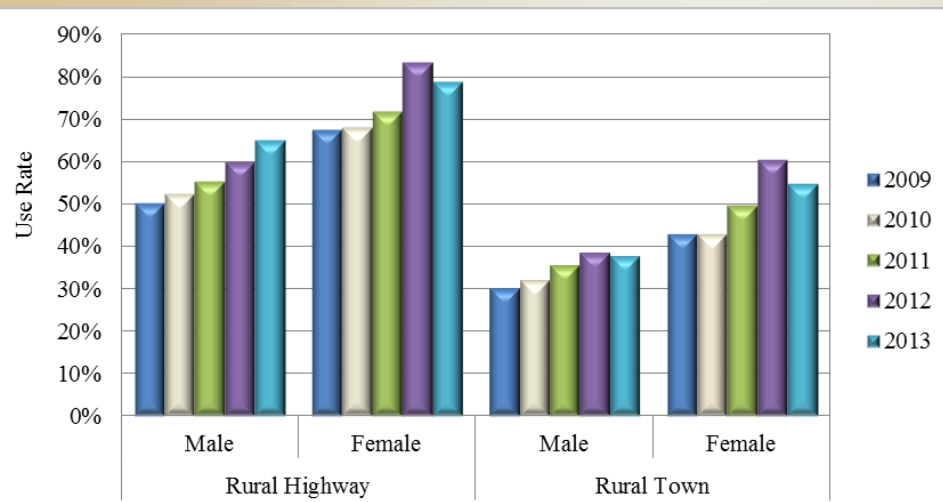


Figure 2: Driver Seat Belt Use Gender and Road Type: 2009-2013

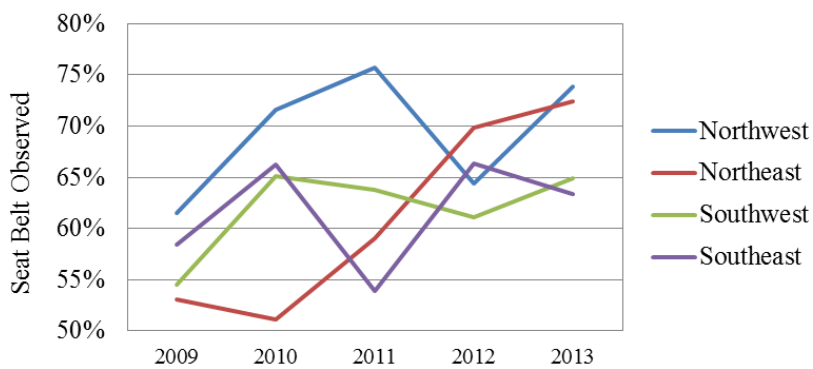


Figure 3: Highway Driver Seat Belt Use by Region: 2009-2013

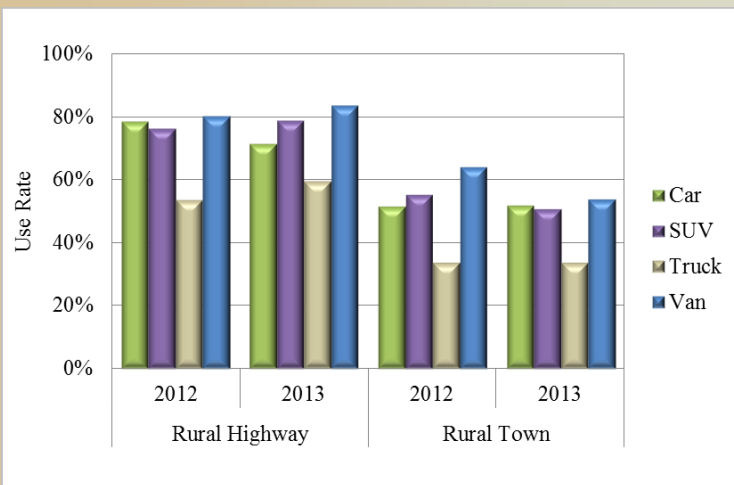


Figure 4: Driver Seat Belt Use by Vehicle Type and Road : 2012 and 2013

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 62.2% of cases, while neither were belted in 23.8% of cases. (Figure 5).

## CONCLUSION

Rural roads account for 67% of annual travel and nearly 89% of fatal crashes and 71% 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 varies considerably by road type. Highway seat belt use increased from 66.2% in 2012 to 68.9% in 2013. Since 2009, the survey has measured a 13.7 percentage point increase in rural highway seat belt use. Rates in rural towns decreased from 46.0% in 2012 to 45.0% in 2013, but have also measured an increase since 2009 - 9.4 percentage points. Observed rates for counties ranged from 51.3% to 84.5% on highways and 23.4% to 61.1% 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, continued assessment of programs to increase local seat belt enforcement or awareness on rural roads is recognized.

A shift is found in use by region. Drivers in the Northwest increased seat belt use in 2013 to 73.9% after dipping in 2012. This region again moved to the top in seat belt use on rural highways. The Northeast rate of 72.4% shows a continued increased use trend considering previous years. The lowest use among regions was reported for the Southeast at 63.4%, followed by the Southwest at 64.9%. All but the Southeastern region saw increases in highway seatbelt use from 2012 to 2013 (Figure 3).

A significant variation in seat belt use is found across passenger vehicle types on rural roads. In 2013, driver seat belt use in cars on rural highways was 71.5% compared to 59.4% for pickup truck drivers (Figure 4). Use by pickup drivers did increase 5.9 percentage points compared to 2012 while use by car drivers declined 7.0 percentage points. Sport utility vehicle and van drivers also had higher observed use rates at 78.8% and 83.5%, respectively.

Passenger seat belt use was 79.3% on rural highways - an increase over 2012 rates of 75.5%. Rural town passenger use registered a decrease in 2013 - 55.3% - down from 58.6% in 2012. As with driver observations, gender was a significant characteristic in passenger seat belt use. Female passenger use rose from 73.1% to 74.6% and male passenger belt use increased from 67.0% to 68.7% (2012 and 2013 respectively).

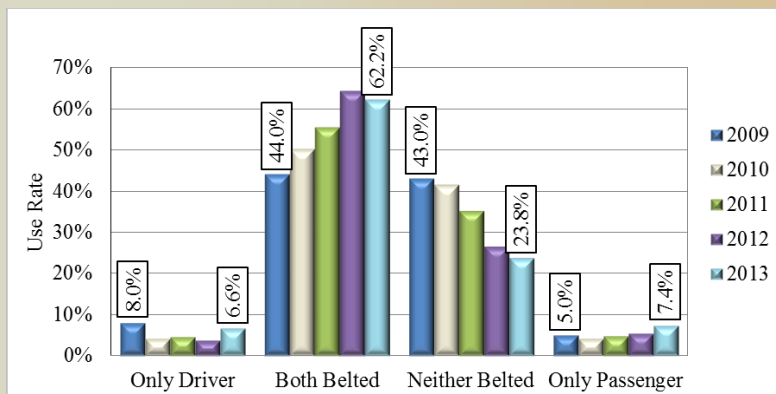


Figure 5: Seat Belt Use in Passenger Observation Cases : 2009-2013

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