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The 2018 North Carolina Observational Survey of Seat Belt Use

Final Report

Prepared for

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EXECUTIVE SUMMARY

2018 North Carolina Seat Belt Study Results



91.3%

Combined Rate

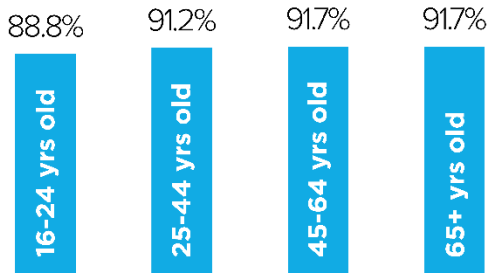
91.5%

Driver Rate

90.3%

Front Right Seat Passenger Rate

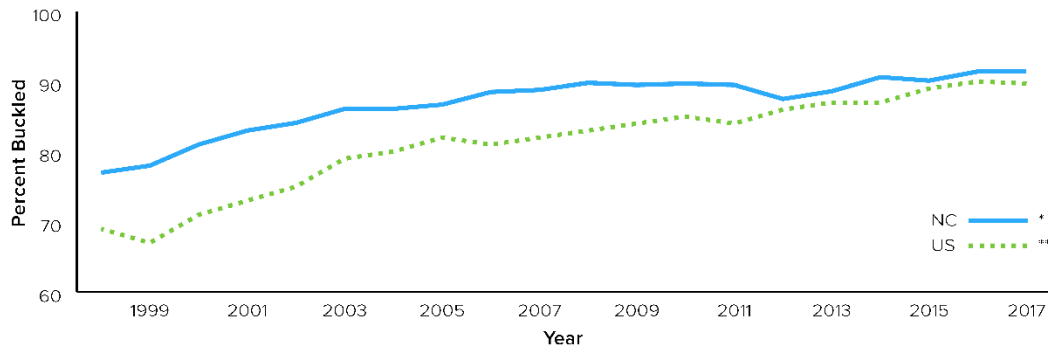
Driver Usage Rate by Age



Driver Usage Rate by Sex



Seat Belt Use Trends in North Carolina Compared to United States Overall



*Source: North Carolina Observational Study of Seat Belt Use.
**Source: National Occupant Protection Use Survey (NOPUS).

Study Details

36,212 observations were collected across 120 observation sites which includes driver and front right seat passenger seat belt use.

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INTRODUCTION

Annual seat belt use surveys are conducted in the State of North Carolina to fulfill the requirements of the National Highway Traffic Safety Administration (NHTSA). The survey is conducted in June immediately following the Governor's Highway Safety Program (GHSP)'s *Click It or Ticket* event. The *Click It or Ticket* program is an enforcement and education campaign to increase seat belt use, thus reducing injuries and deaths in motor vehicle crashes. *Click It or Ticket* began as a pilot project in North Carolina in October 1993, and has since become a national model for similar programs across the country.

According to the Uniform Criteria for State Observational Surveys of Seat Belt Use ("Uniform Criteria") Federal Final Rule,¹ States are required to reselect their road segments and observation sites at least once every five years. North Carolina was required to reselect its road segments and observation sites for 2017 according to the current survey design that was approved by NHTSA in April 2012.

This report summarizes the 2018 Seat Belt Survey results. Observations were collected in 15 counties in North Carolina stratified by three regions (Mountains, Piedmont, and Coastal). Eight observation sites were visited in each county for a total of 120 sites.

Field observers collected seat belt use data on 29,084 drivers and 7,128 front right seat passengers for a total of 36,212 observations. Seat belt use data were unknown for 96 drivers and 146 front right seat passengers resulting in a statewide combined nonresponse rate of less than 1%, well below the 10% threshold established by the Uniform Criteria.

The 2018 weighted statewide seat belt use rate is estimated at 91.3% with a standard error of 0.4%. This standard error is within the 2.5% requirement mandated by the Uniform Criteria.

ITRE will submit required documentation to NHTSA that confirms that the 2018 North Carolina Seat Belt Survey was compliant with the Uniform Criteria. This submission will describe the data collection dates, quality check information, weights, and data used to generate estimates of statewide seat belt use.

¹ <https://www.federalregister.gov/documents/2011/04/01/2011-7632/uniform-criteria-for-state-observational-surveys-of-seat-belt-use>

ORGANIZATION OF REPORT

This report provides the 2018 Seat Belt Use Survey results, including statewide seat belt use rates and a discussion of longitudinal trends. Characteristics of drivers, including by vehicle type and geographic location (e.g. region, county, and urban/rural), are also provided. Additional detailed summary tables are provided in Appendix A with results for further subgroups of interest.

2018 120-SITE RESULTS

The 2018 dataset consists of observations collected at 120 sites that were selected in accordance with the 2012 NHTSA-approved survey design. The 120 sites are located on a sample of roadways located in fifteen counties across North Carolina.

Table 1-1 presents the overall results of the 120-site sample of the June 2018 North Carolina Seat Belt Survey. Within the 120-site sample, the June 2018 weighted statewide seat belt use rate for drivers (D) is 91.5%, compared with 91.6% of drivers who were observed using seat belts in the June 2017 survey. This is not a statistically significant difference. The June 2018 weighted statewide use rate for right front seat passengers (RF) is 90.3%, which is not statistically significantly different from the 2017 June weighted statewide use rate for RF of 91.0%. The June 2018 weighted statewide use rate for drivers and front right seat passengers combined (D+RF) is 91.3% (95% CI=90.5%, 92.1%), which is not statistically significantly different from the 2017 June weighted statewide combined use rate of 91.4% (95% CI=90.6%, 92.2%).

Table 1-1. North Carolina Seat Belt Use Rates, Unweighted and Weighted: 120-Site June 2018 Survey

| Category | Unweighted | Weighted | | Sample Size |
|---------------------------------|------------|-------------|------|-------------|
| | Use % | Use % | SE % | |
| Overall Use Rates | | | | |
| Driver | 92.6 | 91.5 | 0.4 | 29,084 |
| Passenger | 91.4 | 90.3 | 1.0 | 7,128 |
| Combined | 92.3 | 91.3 | 0.4 | 36,212 |
| Driver Use Rates | | | | |
| Urban/Rural | | | | |
| Urban | 92.9 | 91.9 | 0.4 | 23,407 |
| Rural | 91.4 | 90.3 | 0.7 | 5,677 |
| Region | | | | |
| Mountain | 92.4 | 91.7 | 0.8 | 8,614 |
| Piedmont | 91.9 | 91.7 | 0.6 | 8,987 |
| Coast | 93.2 | 91.0 | 0.6 | 11,483 |
| Vehicle Type | | | | |
| Car | 93.0 | 91.9 | 0.5 | 12,663 |
| Van | 89.8 | 89.4 | 1.3 | 648 |
| Minivan | 94.7 | 92.6 | 1.1 | 1,409 |
| Pickup Truck | 89.3 | 87.5 | 0.9 | 5,093 |
| Sport-Utility Vehicle | 95.1 | 94.6 | 0.5 | 7,973 |
| Other | 85.1 | 82.4 | 2.6 | 1,295 |
| Sex of Driver | | | | |
| Male | 90.9 | 89.4 | 0.9 | 6,500 |
| Female | 94.9 | 93.6 | 0.7 | 4,701 |
| Race/Ethnicity of Driver | | | | |
| White | 93.3 | 91.8 | 1.0 | 7,921 |
| Black | 89.5 | 88.3 | 1.4 | 2,520 |
| Hispanic | 94.3 | 94.4 | 2.0 | 454 |
| Native American | 93.8 | 91.5 | 9.7 | 16 |
| Asian | 96.3 | 94.9 | 2.3 | 188 |
| Age of Driver | | | | |
| 16–24 | 91.2 | 88.8 | 3.3 | 571 |
| 25–44 | 92.0 | 91.2 | 0.9 | 7,165 |
| 45–64 | 93.9 | 91.7 | 1.0 | 2,968 |
| 65+ | 93.8 | 91.7 | 2.3 | 422 |
| Cell Use | | | | |
| Talk | 3.5 | 3.3 | 0.5 | 393 |
| Text | 4.4 | 5.1 | 1.1 | 495 |

Several trends from past surveys are present in the June 2018 120-site survey results. These include:

- higher combined seat belt use rates among drivers and passengers of sport utility vehicles (94.5%), minivans (91.7%), and cars (91.7%), but generally lower use rates for drivers and passengers of pickup trucks (87.3%) and vans (88.2%);
- higher combined seat belt use rates for women (93.5%) than for men (89.3%); and
- lower seat belt use rate for drivers under 25 (88.8%).

The following tables further describe seat belt use trends across North Carolina. Table 1-2 shows driver (D), right front seat passenger (RF), and driver and right front seat passenger combined (D+RF) belt-use rates by county for this survey year. The observed combined (D+RF) seat belt use rates in June exceeded 90% in 12 of the 15 counties surveyed in the study. The county with the lowest combined seat belt use rate was Catawba (87.2%) county. Seat belt use rates were also lower than 90% in Robeson (89.5%) and Durham (88.4%) counties.

Table 1-2. North Carolina Seat Belt Use Rates by County, Weighted: 120-Site June 2018 Survey, 15 Counties Total

| County | Driver (D) | Passenger (RF) | Combined (D+RF) | Sample Size |
|---------------|-------------------|-----------------------|------------------------|--------------------|
| Alamance | 92.9 | 95.6 | 93.4 | 2,075 |
| Buncombe | 95.1 | 94.4 | 95.0 | 1,777 |
| Catawba | 88.0 | 84.8 | 87.2 | 2,703 |
| Cleveland | 90.7 | 89.8 | 90.5 | 2,669 |
| Columbus | 92.2 | 91.3 | 92.0 | 2,975 |
| Durham | 88.1 | 89.8 | 88.4 | 2,472 |
| Forsyth | 92.3 | 90.9 | 92.1 | 1,800 |
| Guilford | 91.0 | 90.9 | 91.0 | 1,826 |
| Mecklenburg | 91.9 | 94.7 | 92.3 | 2,385 |
| Nash | 90.4 | 91.3 | 90.6 | 3,422 |
| Pender | 91.3 | 91.3 | 91.3 | 4,066 |
| Robeson | 88.9 | 91.1 | 89.5 | 1,923 |
| Sampson | 92.0 | 90.4 | 91.6 | 2,352 |
| Wake | 92.6 | 86.3 | 91.4 | 2,664 |
| Wilkes | 96.2 | 93.7 | 95.8 | 1,103 |

Table 1-3 provides weighted D, RF, and D+RF seat belt use estimates for each year since 2010. Seat belt use rates increased over the 9-year period for all groups. Seat belt use for drivers increased from 90.4% in 2010 to 91.5% in 2018. Seat belt use for right front seat passengers increased from 86.7% in 2010 to 90.3% in 2018, and the combined rate increased from 89.7% in 2010 to 91.3% in 2018. For the first time in 2016, there was an observed seat belt use of over 90% for both drivers and right front seat passengers resulting in a combined statewide seat belt use rate of 91.7% for the 120-site sample and 91.4% for the 200 total sites included in the study. The rate for the 200-site sample is the same combined statewide seat belt use rate observed for 2017.

Table 1-4 provides longitudinal data on observed seat belt use overall (D+RF) in North Carolina compared to the United States as a whole for the period 2002-2018. This table shows the upward trend of the combined seat belt use rate in North Carolina from 84% in 2002 to over 91% in 2018. This table also shows that the seat belt use rate in North Carolina has been consistently between five and ten percentage points higher (until 2012 when the difference is typically one or two percentage points) than the national rate, with the national rate increasing from 75% in 2002 to 90% in 2017.

Table 1-5 presents longitudinal data on observed seat belt use overall (D+RF) and driver seat belt use by region, vehicle type, and sex, age, and race/ethnicity of drivers. A general consistency of several trends can be seen across the surveys from 2010 through June 2018. It appears that overall seat belt use has plateaued over the past several years. The small variation in estimates can likely be attributed to the natural variance that occurs when selecting and observing a sample.

Table 1-3. Observed Seat Belt Use in North Carolina (%) for June, Weighted

| Survey Periods | Driver (D) | Passenger (RF) | Combined (D+RF) |
|-----------------------|-------------------|-----------------------|------------------------|
| 2010 ^a | 90.4 | 86.7 | 89.7 |
| 2011 ^b | 90.8 | 84.8 | 89.5 |
| 2012 ^b | 88.0 | 85.7 | 87.5 |
| 2013 ^b | 89.6 | 84.9 | 88.6 |
| 2014 ^b | 90.9 | 89.7 | 90.6 |
| 2015 ^b | 89.8 | 90.3 | 89.9 |
| 2016 ^b | 92.1 | 90.4 | 91.7 |
| 2017 ^b | 91.6 | 91.0 | 91.4 |
| 2018 ^b | 91.5 | 90.3 | 91.3 |

^a This survey was conducted at 121 sites.

^b This survey was conducted at 120 sites.

Table 1-4. Seat Belt Use Trends in North Carolina (%), Weighted, Compared to United States Overall

| | June | | | | | | | | | | | | | | | | |
|---------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Overall (D+RF) Use Rates | 2002¹ | 2003¹ | 2004¹ | 2005¹ | 2006¹ | 2007¹ | 2008¹ | 2009¹ | 2010¹ | 2011² | 2012² | 2013² | 2014² | 2015² | 2016² | 2017² | 2018² |
| North Carolina | 84.1 | 86.1 | 86.1 | 86.7 | 88.5 | 88.8 | 89.8 | 89.5 | 89.7 | 89.5 | 87.5 | 88.6 | 90.6 | 89.9 | 91.7 | 91.4 | 91.3 |
| United States* | 75 | 79 | 80 | 82 | 81 | 82 | 83 | 84 | 85 | 84 | 86 | 87 | 87 | 89 | 90 | 90 | ** |

¹ This survey was conducted at 121 sites for North Carolina.

² This survey was conducted at 120 sites for North Carolina.

* Nationwide rates provided by NHTSA's National Occupant Protection Use Survey (NOPUS).

** Data not yet available.

Note: Rounded estimates are available for North Carolina for the years 1998 (77%), 1999 (78%), 2000 (81%), and 2001 (83%). Comparable national data are also available for 1998 (69%), 1999 (67%), 2000 (71%), and 2001 (73%).

Table 1-5. Seat Belt Use Trends in North Carolina (%), Weighted

| | June | | | | | | | | |
|---------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| | 2010 ¹ | 2011 ² | 2012 ² | 2013 ² | 2014 ² | 2015 ² | 2016 ² | 2017 ² | 2018 ² |
| Overall (D+RF) Use Rates | 89.7 | 89.5 | 87.5 | 88.6 | 90.6 | 89.9 | 91.7 | 91.4 | 91.3 |
| Region | | | | | | | | | |
| Mountain | 89.5 | 91.6 | 90.3 | 90.3 | 93.1 | 90.0 | 93.4 | 92.4* | 91.7* |
| Piedmont | 91.1 | 91.5 | 87.4 | 88.2 | 89.8 | 91.9 | 92.2 | 91.9* | 91.7* |
| Coast | 88.8 | 87.1 | 84.6 | 87.5 | 90.0 | 88.0 | 90.5 | 89.5* | 91.0* |
| Vehicle Type | | | | | | | | | |
| Car | 91.4 | 92.2 | 90.6 | 90.3 | 91.6 | 90.2 | 92.3 | 92.9* | 91.9* |
| Van | 79.9 | 80.9 | 77.3 | 83.8 | 86.8 | 85.7 | 90.3 | 86.4* | 89.4* |
| Minivan | 94.5 | 94.4 | 92.7 | 93.9 | 94.4 | 94.7 | 95.9 | 96.4* | 92.6* |
| Pickup Truck | 84.1 | 86.1 | 82.0 | 84.5 | 86.7 | 86.3 | 88.8 | 86.6* | 87.5* |
| Sport-Utility Vehicle | 91.6 | 91.8 | 91.0 | 92.8 | 94.1 | 92.0 | 93.8 | 93.5* | 94.6* |
| Sex of Driver | | | | | | | | | |
| Male | 87.8 | 89.5 | 85.5 | 87.9 | 89.2 | 87.8 | 91.1 | 88.8* | 89.4* |
| Female | 93.5 | 93.2 | 92.3 | 92.4 | 93.1 | 93.0 | 95.1 | 94.1* | 93.6* |
| Age of Driver | | | | | | | | | |
| 16-24 | 86.6 | 88.0 | 89.4 | 85.5 | 89.1 | 80.9 | 88.1 | 89.9* | 88.8* |
| 25-64 | 90.1 | 90.9 | 88.3 | 90.2 | 90.6 | 90.8 | 93.1 | 91.2* | 91.3* |
| 65+ | 96.8 | 93.6 | 88.2 | 95.2 | 95.2 | 89.7 | 93.7 | 90.7* | 91.7* |
| Race /Ethnicity | | | | | | | | | |
| White | 90.3 | 91.3 | 89.2 | 91.0 | 91.8 | 90.3 | 93.1 | 91.4* | 91.8* |
| Black | 89.6 | 89.1 | 85.8 | 85.7 | 88.0 | 89.2 | 91.7 | 89.5* | 88.3* |
| Hispanic | 95.4 | 93.5 | 89.6 | 86.5 | 91.2 | 90.4 | 93.6 | 91.2* | 94.4* |

¹ This survey was conducted at 121 sites.

² This survey was conducted at 120 sites.

* Rates represent driver seat belt use.

DISCUSSION AND CONCLUSIONS

The June 2018 Seat Belt Use Study provides updated estimates of statewide seatbelt use for drivers and front right seat passengers in North Carolina. The study also provides seat belt use rates for the counties included in the sample, for subgroups defined by driver and passenger characteristics, and by vehicle type. Tables and trends in this report are based on weighted seat belt use rates. The weighted rates are the best estimators of seat belt use for the entire state and for the reported subgroups. Additional summary tables are provided in Appendix A with further results for subgroups of interest.

In addition to gathering data on seat belt use, the 2018 Seat Belt Use Survey continued to assess statewide use of cell phones while driving. The 2018 Seat Belt Use Survey was the fifth statewide survey in North Carolina to assess the use of cell phones to talk and text while driving. The weighted rate of talking on a cell phone while driving decreased from 2017 to 2018, while the weighted rate of texting on a cell phone remained the same from 2017 to 2018 for the 120-site NHTSA samples; the rate of talking on a cell phone while driving decreased from 4.2% in 2017 to 3.3% in 2018, and the rate of texting in North Carolina was the same from 2017 to 2018 at 5.1%.

It should be noted that it is difficult to accurately assess cell phone use while driving since a driver can use a cell phone at different times during a trip. Recent data suggests that cell phone use rates for talking while driving are higher than those observed in this study (3.8% for 2015; 3.3% for 2016), while cell phone use rates for texting while driving are lower than those observed in this study (2.2% for 2015; 2.1% for 2016).^{2,3}

² https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/driver_electronic_device_use_in_2015_0.pdf

³ <https://crashstats.nhtsa.dot.gov/Api/Public/Publication/812426>

APPENDIX A: DETAILED TABLES FROM THE 2018 NC SEAT BELT SURVEY 120-SITE RESULTS

Table A-1. 2018 Seat Belt Use by Time Period, Weighted

| Time Period | Percent Seat Belt Use (Standard Error) | | |
|------------------|---|----------------|-------------------|
| | Driver (D) | Passenger (RF) | Combined (D + RF) |
| Weekday Rush | 91.7 (0.7) | 88.8 (2.0) | 91.3 (0.6) |
| Weekday Non-Rush | 91.8 (0.6) | 90.1 (1.2) | 91.6 (0.5) |
| Weekend | 90.8 (0.8) | 91.6 (1.4) | 90.1 (0.8) |

Table A-2. 2018 Driver Seat Belt Use for Race by Sex, Weighted

| Race | Percent Seat Belt Use (Standard Error) | |
|-------|--|---------------|
| | Male | Female |
| White | 90.3 (1.2) | 93.8 (1.0) |
| Black | 85.1 (2.1) | 91.6 (1.5) |

Table A-3. 2018 Driver Seat Belt Use for Vehicle Type by Sex, Weighted

| Vehicle Type | Percent Seat Belt Use (Standard Error) | |
|-----------------------|--|---------------|
| | Male | Female |
| Car | 90.8 (1.1) | 92.9 (1.1) |
| Minivan | 93.0 (3.0) | 93.3 (2.5) |
| Pickup Truck | 86.5 (1.4) | 87.9 (3.6) |
| Sport-Utility Vehicle | 91.7 (1.8) | 95.6 (0.6) |

Table A-4. 2018 Driver Seat Belt Use for Vehicle Type by Area Type, Weighted

| Vehicle Type | Percent Seat Belt Use (Standard Error) | |
|-----------------------|--|---------------|
| | Urban | Rural |
| Car | 91.5 (0.6) | 93.4 (1.0) |
| Minivan | 93.9 (1.0) | 88.8 (2.1) |
| Pickup Truck | 88.9 (1.1) | 84.6 (0.8) |
| Sport-Utility Vehicle | 95.0 (0.5) | 93.3 (1.0) |

Table A-5 2018 Driver Seat Belt Use for Vehicle Type by Region, Weighted

| Vehicle Type | Percent Seat Belt Use (Standard Error) | | |
|-----------------------|--|---------------|---------------|
| | Mountain | Piedmont | Coast |
| Car | 91.5 (0.7) | 91.2 (1.0) | 93.8 (0.9) |
| Minivan | 93.7 (2.6) | 93.8 (1.3) | 89.1 (1.7) |
| Pickup Truck | 89.2 (2.2) | 87.3 (1.5) | 86.5 (1.5) |
| Sport-Utility Vehicle | 93.9 (0.7) | 95.7 (0.6) | 93.8 (1.1) |

Table A-6. 2018 Driver Cell Use by Driver Age, Weighted

| Age of Driver | Number of Observations | Percent Cell Phone Use (Standard Error) | |
|---------------|------------------------|---|--------------|
| | | Talk | Text |
| 16-24 | 559 | 3.9 (1.6) | 8.7 (2.1) |
| 25-44 | 7,146 | 4.1 (0.7) | 6.3 (1.2) |
| 45-64 | 2,953 | 2.0 (0.4) | 2.3 (0.7) |
| 65+ | 418 | 0.7 (0.3) | 1.2 (0.5) |