2016 LOUISIANA SEAT BELT AND MOTORCYCLE HELMET OBSERVATION SURVEY RESULTS

-FINAL REPORT-

LHSC Project No. 2017-20-10

STATE OF LOUISIANA
John Bel Edwards, Governor

LOUISIANA HIGHWAY SAFETY COMMISSION
Katara A. Williams, Ph.D., Executive Director

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Prepared for:

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INTRODUCTION AND BACKGROUND

This report documents Louisiana's annual Statewide Seat Belt and Motorcycle Helmet Use Survey. The Louisiana Highway Safety Commission (LHSC) is responsible for the State of Louisiana's Highway Safety Program. Occupant protection is among several significant program areas for which LHSC is responsible. A portion of LHSC's occupant protection program funding comes from the Federal Government, which requires administration of a statewide survey of seat belt use that must adhere to Federal Register Guidelines (Schneider, 2012).

The statewide seat belt and motorcycle helmet use survey work covered by this report was conducted by Preusser Research Group, Inc. (PRG). All of the survey work was completed in December of 2016. The results that follow provide an accurate and reliable estimate of front and rear seat belt use and motorcycle helmet use in Louisiana.

Seat Belt Law and Seat Belt Use

The Louisiana State Legislature passed the first seat belt law in 1985 and it went into effect July 1, 1986. That law was a secondary enforcement law, meaning law enforcement officers could not stop a vehicle solely for a seat belt law violation. The law was changed to a primary enforcement law almost ten years later, in 1995, with the intention of allowing police to stop violators for the sole reason of not wearing a seat belt. However, in 1998, courts ruled that the wording of the bill did not allow violation of the law to be considered a primary offense. It was not until August 15, 1999 that a revised primary enforcement law became effective in Louisiana (McKenzie, III, 2011). An amendment was made to the law in 2008 that included rear seat passengers. According to the current Louisiana seat belt law, if a person is being transported by a motor vehicle, no matter the seating position, a proper restraint should be used. In August of 2016, a fine increase for non-compliance went into effect. First offense for not wearing a belt rose from $25 to $50. Second and subsequent violations increased to $75.

Seat belt use rates in Louisiana have fluctuated over the past 15 years. From 1999 to 2002, statewide seat belt use rates increased very little from 67.0% to 68.6%. Louisiana first participated in the national *Click It or Ticket* campaign in 2003 and a 5-point increase in the statewide use rate (73.8%) was measured that year (Schneider, 2004). Statewide seat belt use rates increased over the next two years peaking at 77.7% in June 2005. In 2006, statewide measurements of seat belt use were down 2.9 points to 74.8% (U.S. Department of Transportation, National Highway Traffic Safety Administration, July 2011). It should be noted that Louisiana sustained serious damage from Hurricane Katrina in 2005. The property damage and displacement of many of the State's residents could have had an effect on seat belt use rates. Use rates climbed back to the peak level seen in 2005 by 2011. By 2015, the annual survey measured seat belt use at 85.9% (Elliott, 2015).

Helmet Law and Helmet Use

Louisiana has enacted and repealed motorcycle helmet laws several times. Louisiana first adopted an all-rider motorcycle helmet law in 1968, amended it in 1976 to require helmet use only by riders under the age of 18, and reenacted a universal helmet law in 1982. In 1999, the State amended that law to require helmet use only by motorcyclists under 18 and riders over 18 who did not have a minimum of $10,000 in medical insurance coverage. In 2004, Louisiana reinstated its universal helmet law that required all motorcyclists, including riders and passengers, to wear helmets all the time (Gilbert, Chaudhary, Solomon, Preusser, & Cosgrove, 2004).

Helmet use rates in Louisiana have changed dramatically with changes in the helmet law. In the years 1993-1999, when the mandatory helmet law was in effect, motorcycle helmet use ranged from 96.7% to 100%. Helmet use measured almost 45 points lower (51.8%) the year after the mandatory law was amended. Helmet use rates remained low, 46.4% to 58.6%, during the five years that the law did not require mandatory use for all riders (2000-2004). After reinstatement of the universal helmet law in 2004, motorcycle helmet use increased dramatically from 57.7% (2004) to 99.3% (2005) and has remained near 99% every year since (Elliott, 2015).

Statewide Survey Statistician

Dr. Helmut Schneider has developed all of the National Highway Traffic Safety Administration (NHTSA) approved seat belt survey designs used in the State of Louisiana, including the designs PRG, Inc. has followed the years it has conducted the annual statewide survey. Dr. Schneider is a professor in the E. J. Ourso College of Business, Associate Dean of Research and Economic Development, Ourso Family Distinguished Professor, and Director of the Highway Safety Research Group at Louisiana State University. Dr. Schneider received his degree in Operations Management and Statistics in 1978 and has taught statistics for 33 years including statistical sampling. He has published over 50 articles in peer reviewed journals and written two books. He has more than 20 years of experience in working with crash data and has analyzed Louisiana's statewide seat belt survey results since 2003 (McKenzie, III, 2011).

PRG planned and implemented Louisiana's 2016 seat belt survey using Dr. Schneider's most recent redesign as a guide. The redesign is compliant with NHTSA's Uniform Criteria for State Observational Surveys of Seat Belt Use. [1]

[1]National Highway Traffic Safety Administration. (2011) Uniform Criteria for State Observational Surveys of Seat Belt Use. 23 CFR Part 1340, Docket No. NHTSA-2010-0002, RIN 2127-AK41, Federal Register Vol. 76 No. 63, April 1, 2011, Rules and Regulations, pp. 18042 – 18059.

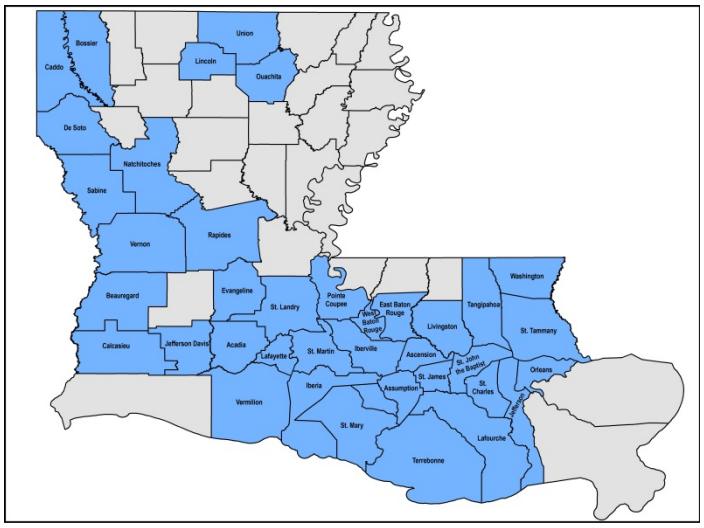
METHODOLOGY

Survey Design and Site Selection

Louisiana's 2016 Statewide Seat Belt and Motorcycle Helmet Use Survey was a replication of the 2013 statewide survey design. In 2013, the statewide survey was redesigned by Dr. Helmut Schneider and included 54 fewer sites than the 2012 design (from 390 sites in 2012 to 336 sites in 2013). The 2013 redesign was approved by NHTSA and proved to be both efficient and reliable.

Dr. Schneider used crash-related fatality data from 2006-2009 in selecting the parishes included in the 2013 redesign. According to the Fatality Analysis Reporting System (FARS), 38 of 64 parishes account for 86% of the passenger vehicle occupant crash-related fatalities in Louisiana. These 38 parishes (Figure 1) were selected to be included in the survey (Schneider, 2013).

Figure 1.
Parishes Included in Statewide Seat Belt Survey



The 2013 redesign divides the sampling frame into eight regions, the parishes within these regions, and the highway types. Dr. Schneider used a 2010 TIGER file and a road file from the Louisiana Department of Transportation & Development (DOTD) to identify parish road segments. The selected road segments were classified into three strata: Interstates, U.S. & State routes, and Local roads. A site number reflecting the region, parish, and road type stratum was assigned to each road segment. Rural roads were excluded from the parishes that were not within Metropolitan Statistical Areas as well as other non-public roads, unnamed roads, unpaved roads, vehicular trails, access ramps, cul-de-sacs, traffic circles, and service drives. Probability sampling using vehicle miles traveled (VMT) in regions, parishes, and road segments was used to determine site locations for Interstates and U.S. & State highways. Local road segments were designated using simple random sampling (Schneider, 2013).

The 2012 redesign used the number of crashes on local roads as a substitute for VMT but after implementation and analysis of the 2012 survey, it was determined that crash counts on local roads should not be used as a reliable method of local road site selection due to misspellings of road names on crash reports (Schneider, 2013). As a result, the 2013 design used random sampling instead of VMT to select local road segments. This change in local road site selection resulted in the relocation of several local road sites that were used in the 2012 survey. The majority of Interstate and U.S. and State road sites used in 2013, 2014, 2015 and 2016 remain consistent with the 2012 survey.

PRG used road segment information to pinpoint each site. The exact observation locations (i.e., where data collectors stood to observe vehicles) were selected by trained observers the first time the site was used for observation (either in 2012 or 2013). Observers created a site map upon the initial visit in order to replicate exact observation locations from year to year. The site maps used to complete the 2013 survey were used in 2016 to replicate methodology.

Scheduling

Observation sites were organized into clusters of two to seven sites based on geographical proximity. Each cluster was randomly assigned a single day of week for observation. The first site to be surveyed in each cluster was also randomly assigned. A time efficient route, starting with the randomly selected first site, was developed to determine the order of the remaining sites in the cluster.

Observers were given a schedule and mapped route for each cluster. The schedule specified site order, and day of week to conduct observations as well as 2013 start times, name of road segment and location to observe, and direction of traffic to observe for each site. The schedules followed in 2013 were replicated in the 2016 survey, in so far as possible.

Observations were prescheduled for all days of the week during daylight hours between 7:00 a.m. and 6:00 p.m. Observers were provided with a time frame to use as a guide to schedule sites throughout the day. Depending on the number of sites in a cluster, the time from 7 a.m. to 6 p.m. was divided into nearly equal-length time periods. For example, for five-site days, time of day was specified as one of five time periods, such as 7:00 – 9:00 a.m., 9:00 – 11:00 a.m., 11:00 a.m. – 2:00 p.m., 2:00 – 4:00 p.m., and 4:00 – 6:00 p.m. Also, for six-site days, time of day was specified as one of six time periods, such as 7:00 – 8:45 a.m., 8:45 – 10:30 a.m., 10:30 a.m. – 12:15 p.m., 12:15 – 2:30 p.m., 2:30 – 4:15 p.m., and 4:15 – 6:00 p.m. Exact timing of the periods was subject to adjustment, but ultimately resulted in approximately an equal number of sites being observed throughout the individual 7 a.m. – 6 p.m. time frames. In all cases, each survey period lasted exactly one hour and was required to take place entirely within the broader allowable time period. Time of day and day of week have remained consistent from survey year to survey year, with a small number of exceptions.

Observers

Observers were hired and trained exclusively by PRG. All have conducted seat belt observations for PRG in previous surveys, and all were trained to the specific requirements for the Louisiana survey though most observers remained consistent from 2013. Prior to any data collection, procedures specific to the Louisiana survey were explained to observers in a training session. Observers participated in hours of supervised street-side practice prior to conducting observations in the field. Additionally, observers were trained how to handle themselves in conditions, such as bad weather or temporary traffic impediments, which can require observation rescheduling and what to do to reschedule sites.

Data collectors documented details of each site location upon arrival using a Site Map Form (see Appendix A). Site maps include information about where to stand to make observations, the direction of traffic flow to observe, a point of reference, and any prominent landmarks (names of intersecting roadways, traffic lights, nearby buildings, etc.). Observers used site maps created in 2013 to pinpoint exactly where to stand and conduct observations for the 2016 survey. Data collectors observed 60 minutes at each location.

Observation Site Details

For the previous two surveys, each location for data observation was tentatively selected based on detailed maps and available on-line information such as satellite images and ground-level photos. When convenient, potential site locations were visited in advance. The complete road segments were also described by map details such as road name or number and segment length.

Preference was given to observation points where traffic appeared to naturally slow or stop. For street locations, and assuming they represent segments with generally equivalent traffic along the entire segment, a suitable observation point closest to the latitude and longitude mapped pinpoint was sought but any location along the segment where accurate observations could be made was accepted. Preferred locations were those that are near intersections which may cause vehicles to slow, increasing the time for observation and improving data completeness and accuracy. However, observation sites were not confined to intersections only. In some cases, traffic was observed at or near exit ramps for limited access highway segments at a point where traffic slowed enough to allow reliable and accurate observations to be made. The same locations defined in 2013 were reused for the 2016 measurement.

Data Collection Procedures

Motorcycles and passenger vehicles with a gross vehicle weight up to 10,000 pounds were included in the survey. Passenger vehicle drivers, right front seat passengers (excluding children in child safety seats), rear seat passengers 13 years of age and older, as well as motorcycle operators and passengers, were observed for seat belt use or helmet use. Observers noted vehicle type (Car, Truck, SUV, Van, Motorcycle), sex of drivers and passengers, race (White, Black, Hispanic, other) of drivers and passengers, and belt use on the data collection form. A copy of the data collection form can be found in Appendix A.

Observers initialed their sheets and recorded pertinent site information on the data collection form including site number and exact roadway location, date, day of week, time, weather condition, and direction of traffic flow. Each one-page form includes space to record information on 25 vehicles. When more than 25 observations were made at a site, additional sheets were used and all sheets for the observation site-period were fastened together. When qualified passengers were present, data was recorded even if "Unknown"; passenger fields in the data form are left blank only if no qualified passenger is present.

Observers were instructed to reschedule data collection at the same site for the same time of day and day of week if data could not be collected at a site due to a temporary problem such as bad weather or a traffic impediment. If the site could not be used due to a more permanent factor such as construction, an adjoining road segment was used.

Quality Control

As noted above, PRG has had extensive experience in training seat belt use observers. All observers, whether or not new to the task, received training which included both classroom instruction and field (road-side) practice. Trained observers also served as Quality Control Monitors (QCMs) and conducted random, unannounced checks with other trained observers in the field. QCMs conducted inquiries for approximately 5% of total sites and ensured that observers were in place and making observations during the scheduled observation period. No QCM was assigned to a site that he or she was observing.

All observation data were reviewed when received and no anomalies were found suggesting the data does not reflect anything other than proper on-site seat belt use observations. Some cues to the contrary would include repeating patterns within the observation data, unusual proportions of vehicle type, driver or passenger sex, presence of passengers, seat belt use, excessive unknown seat belt use, or very high or low total numbers of observations. Some variation in these values is normal, of course. If any suspicious data patterns had been noted, PRG would have followed up to verify whether or not observations were done properly. Invalid data would be replaced in such cases. Again, no problems were detected and, thus, corrective actions were not necessary for these survey iterations.

Building a Data Set

Observation data were keypunched by PRG staff into the Statistical Package for the Social Sciences (SPSS) software. A thorough check of the data indicated minimal coding or key-punch errors, all of which were corrected pre-analysis. The data set was then forwarded to Dr. Schneider for analyses and the calculation of weighted rates and results.

RESULTS

Sample Characteristics

Data collectors observed seat belt and motorcycle helmet use at 336 sites in 38 parishes divided into 8 regions across the State. Table 1 delineates the site distribution by region. The eight regions represent the following areas: New Orleans, Baton Rouge, Houma, Lafayette, Lake Charles, Alexandria, Shreveport, and Monroe.

TABLE 1.
Number of Observation Sites by Region, 2016

Region	Sites per the Design	Sites Completed
1-New Orleans	62	62
2-Baton Rouge	86	86
3-Houma	32	32
4-Lafayette	54	54
5-Lake Charles	25	25
6-Alexandria	16	16
7-Shreveport	46	46
8-Monroe	15	15
State Total	**336**	**336**

There were no sites in the 2016 survey that resulted in zero belt use observations and no sites were compromised to the point that an alternative site needed to be used.

Seat belt use information was recorded for 58,872 front seat occupants over the eight regions. The distribution of those occupants by region, including occupant type, is displayed in Table 2. The observed number of vehicles increased by 3.1 percent from 2015 to 2016. Table 3, which follows, represents the distribution of observed vehicle types by region. There were fewer cars (-1.6%), fewer trucks (-2.4%), fewer vans (-0.6%) but more SUVs (4.5%) in the 2016 sample compared to 2015.

TABLE 2.
Number of Louisiana Front Seat Occupants Recorded by Region, 2016

Region	Drivers	Passengers	Total
1-New Orleans	9306	1988	11,294
2-Baton Rouge	13550	3261	16,811
3-Houma	5331	1283	6,614
4-Lafayette	6800	1527	8,327
5-Lake Charles	2381	703	3,084
6-Alexandria	1885	545	2,430
7-Shreveport	6618	1423	8,041
8-Monroe	1792	479	2,271
LA Total	47,663	11,209	58,872

TABLE 3.
Distribution of Vehicle Type* by Region, 2016

Region	%Car	%Truck	%SUV	%Van
1-New Orleans	41.4%	31.6%	21.4%	5.5%
2-Baton Rouge	41.9%	27.0%	26.7%	4.4%
3-Houma	38.3%	25.8%	31.6%	4.3%
4-Lafayette	42.0%	20.9%	32.8%	4.4%
5-Lake Charles	31.5%	29.7%	34.1%	4.7%
6-Alexandria	32.4%	26.7%	35.9%	5.0%
7-Shreveport	40.6%	26.1%	28.6%	4.7%
8-Monroe	37.7%	27.7%	30.4%	4.2%
LA Total	**40.2%**	**26.9%**	**28.2%**	**4.7%**

**Unknown vehicle type not included*

Information was collected on occupant sex and race/ethnicity. Tables 4 and 5 display these characteristics by region for front seat occupants. In the event a characteristic was unclear to the observer, "unsure" was recorded on the data form. The 2016 sample had 1.9 percent fewer male occupants than the 2015 sample. There were also 0.7 percent fewer Hispanics, 0.8 percent fewer White but 0.7 percent more Black occupants observed in 2016 compared to 2015.

TABLE 4.
Distribution of Occupant Sex* by Region, 2016

Region	%Males	%Females
1-New Orleans	54.9%	45.1%
2-Baton Rouge	52.0%	48.0%
3-Houma	55.7%	44.3%
4-Lafayette	53.3%	46.7%
5-Lake Charles	53.2%	46.8%
6-Alexandria	52.9%	47.1%
7-Shreveport	53.9%	46.1%
8-Monroe	52.3%	47.7%
LA Total	**53.5%**	**46.5%**

**Unsure sex not included*

TABLE 5.
Distribution of Occupant Race/Ethnicity* by Region, 2016

Region	%White	%Black	%Hispanic	%Other
1-New Orleans	64.2%	28.1%	4.8%	2.6%
2-Baton Rouge	62.5%	30.7%	3.0%	2.2%
3-Houma	65.1%	24.1%	9.1%	1.7%
4-Lafayette	74.2%	21.7%	2.0%	1.9%
5-Lake Charles	85.8%	11.3%	1.6%	1.2%
6-Alexandria	75.6%	18.8%	2.5%	1.3%
7-Shreveport	65.8%	30.2%	3.2%	0.7%
8-Monroe	72.7%	26.6%	0.3%	0.4%
LA Total	**67.4%**	**26.5%**	**3.7%**	**1.8%**

**Unsure race/ethnicity not included*

Occupant Seat Belt Use Estimates and Descriptive Results - Based on Weighted Calculations

The 2016 Louisiana seat belt use rate, for drivers and front seat passengers combined, is 87.8 percent, with a standard error of 0.50 percent. This 2016 weighted estimate represents Louisiana's highest recorded statewide measurement to date, up 1.9 percentage points from 2015 (85.9%). Table 6 shows use rate estimates by region, with respective standard sample error. Usage varied from a low of 80.8 percent in the Alexandria area to a high of 91.6 percent in the Houma area. These estimates and the descriptive rates for front seat occupants that follow are based on weighted results. New Orleans, Lafayette and Lake Charles regions have rates noticeably higher than in 2015. Compared to 2015, the New Orleans region had an increase of 4.2 percentage points, Lake Charles had an increase of 6.0 percentage points and the Lafayette region had an increase of 3.9 percentage points. All three increases were statistically significant at an alpha level (α) of 0.05, while the changes in all other regions where not statistically significant.

TABLE 6.

Front Seat Occupant Seat Belt Use Estimates by Region, 2016

Region	Estimate	STD Error
1-New Orleans	86.6%	1.1%
2-Baton Rouge	84.0%	1.2%
3-Houma	91.6%	1.5%
4-Lafayette	86.4%	1.2%
5-Lake Charles	91.7%	1.7%
6-Alexandria	80.8%	3.6%
7-Shreveport	91.1%	1.0%
8-Monroe	83.2%	3.0%
LA total	**87.8%**	**0.5%**

Table 7 examines overall occupant belt use weighted by roadway type and shows that belt use was highest on Interstates (89.1%), the same percentage as in 2015. U.S. & State routes had a belt use rate of 86.2 percent which was 1.1 percentage point lower than in 2015. But this difference was not statistically significant at the $\alpha < 0.05$ level. Belt usage on Local Roads, usually found within neighborhoods in city limits, was 88.1% in 2016, an increase of 2.6 percentage points from 2015. This increase was statistically significant at $\alpha < 0.05$ level.

TABLE 7.
Louisiana Front Seat Occupant Belt Use Estimates by Road Type, 2016

Road Type	Estimate	STD Error
Interstate	89.1%	0.4%
U.S. & State	86.2%	0.7%
Local Road	88.1%	0.6%

Louisiana has traditionally examined seat belt use rates by Louisiana State Police Troop area designations. Table 8 shows use rates per Troop area, along with the standard error. Use rate estimates by Troop ranged from 81.0 percent in Troop E to 93.6 percent in Troop C. Troops B, D and I had statistically significant increases in belt use compared to 2015, ranging from 3.9 percentage points in Troop I and 5.6 percentage points in Troop B, to 6.0 percentage points in Troop D.

TABLE 8.
Louisiana Front Seat Occupant Belt Use Estimates by Troop, 2016

Troop	Estimate	STD Error
A	84.4%	1.3%
B	85.8%	1.3%
C	93.6%	1.7%
D	91.7%	1.7%
E	81.0%	3.5%
F	83.4%	2.9%
G	91.2%	1.0%
I	86.4%	1.2%
L	88.0%	1.6%

Table 9 presents belt use estimates for drivers, passengers, and all front seat occupants by parish. The parish use rates presented here, although weighted, should be interpreted with caution. The overall survey design was not intended to provide single parish rates but rather one single, statewide use rate. There is larger variance and standard error at the parish levels due to the lower sample sizes.

TABLE 9.
Louisiana Driver & Front Seat Passenger Seat Belt Use Estimates by Parish, 2016

Parish	Driver	STD Error	Passenger	STD Error	All Front Seat	STD Error
Acadia	87.5%	1.2%	87.4%	2.8%	87.5%	1.1%
Ascension	87.9%	0.8%	89.8%	1.6%	88.2%	0.7%
Assumption	81.6%	3.9%	100.0%	0.0%	83.9%	3.5%
Beauregard	90.8%	2.4%	91.3%	4.2%	91.0%	2.1%
Bossier	86.9%	0.8%	87.2%	1.7%	87.0%	0.7%
Caddo	89.0%	0.5%	88.8%	1.1%	88.9%	0.5%
Calcasieu	93.8%	0.5%	92.2%	1.1%	93.4%	0.5%
De Soto	92.3%	1.5%	90.8%	3.6%	92.1%	1.4%
East Baton Rouge	88.9%	0.4%	90.5%	0.7%	89.2%	0.3%
Evangeline	88.1%	2.8%	87.9%	5.7%	88.0%	2.5%

Parish	Driver	STD Error	Passenger	STD Error	All Front Seat	STD Error
Iberia	83.8%	2.0%	84.9%	4.2%	84.0%	1.8%
Iberville	87.2%	2.0%	86.7%	3.7%	87.1%	1.7%
Jefferson	88.7%	0.6%	87.7%	1.3%	88.5%	0.5%
Jefferson Davis	94.2%	1.7%	90.5%	4.5%	93.5%	1.6%
Lafayette	88.7%	0.6%	90.3%	1.2%	89.0%	0.5%
Lafourche	93.7%	0.7%	96.6%	1.0%	94.3%	0.6%
Lincoln	87.6%	1.6%	95.5%	2.5%	88.7%	1.4%
Livingston	85.9%	1.0%	85.5%	2.1%	85.8%	0.9%
Natchitoches	85.1%	2.0%	87.3%	3.9%	85.5%	1.8%
Orleans	89.9%	0.5%	91.0%	1.1%	90.1%	0.5%
Ouachita	85.8%	0.9%	92.4%	1.3%	87.1%	0.7%
Pointe Coupee	91.0%	1.8%	96.6%	2.0%	92.4%	1.4%
Rapides	82.1%	1.0%	81.7%	2.0%	82.0%	0.9%
Sabine	83.1%	2.5%	98.0%	2.0%	85.9%	2.1%
St. Charles	92.7%	0.7%	94.7%	1.1%	93.0%	0.6%
St. James	78.9%	2.8%	84.5%	4.8%	80.1%	2.4%
St. John	82.3%	2.1%	81.4%	4.6%	82.2%	1.9%
St. Landry	89.0%	0.9%	89.8%	1.6%	89.2%	0.8%
St. Martin	92.1%	1.2%	91.8%	2.4%	92.1%	1.1%
St. Mary	82.5%	2.9%	80.0%	6.0%	82.0%	2.6%
St. Tammany	86.4%	0.7%	86.3%	1.4%	86.4%	0.6%
Tangipahoa	82.4%	0.9%	82.0%	2.3%	82.3%	0.9%
Terrebonne	95.4%	0.5%	96.9%	0.8%	95.7%	0.4%
Union	72.9%	3.5%	82.9%	4.2%	76.2%	2.7%
Vermillion	90.2%	1.0%	85.2%	2.7%	89.4%	0.9%
Vernon	86.9%	1.5%	85.1%	3.1%	86.6%	1.3%
Washington	76.9%	2.9%	76.2%	9.3%	76.9%	2.8%
West Baton Rouge	81.7%	1.4%	88.0%	2.5%	82.9%	1.3%

The 2016 survey also captured occupant gender and race/ethnicity characteristics along with vehicle type. Table 10 provides both driver and passenger use rate estimates for these occupant types. While belt use among male occupants increased by a statistically significant 2.6 percentage points from 2015, usage still lagged behind female occupants (84.7% vs. 91.2%). Furthermore, male passengers were less likely to be belted compared to male drivers (79.6% vs. 84.8%).

Front seat occupant belt use rates among African Americans measured lower than other races or ethnicities (82.6% vs. 89.7% for Whites, 91.6% for Hispanics and 87.4% all other ethnicities). Examination of occupant belt use by vehicle type showed rates among pickup truck occupants lagging behind the use rates of occupants in other vehicle types; the lowest subgroup being drivers in pickup trucks with a use rate of 82.2 percent.

TABLE 10.
Louisiana Front Seat Belt Use Estimates by Sex, Race, and Vehicle Type, 2016

	% Use Rate					
	Driver		Passenger		All Front Seat	
	Estimate	STD Error	Estimate	STD Error	Estimate	STD Error
Sex						
Male	84.8%	0.8%	79.6%	2.2%	84.7%	0.8%
Female	91.0%	0.7%	83.8%	1.9%	91.2%	0.6%
Race						
White	89.6%	0.6%	90.4%	1.2%	89.7%	0.6%
African-American/Black	82.1%	1.1%	84.7%	2.0%	82.6%	1.1%
Hispanic	91.4%	1.9%	92.4%	1.0%	91.6%	2.6%
Other	93.4%	3.1%	90.7%	2.3%	87.4%	6.5%
Vehicle Type						
Car	88.9%	0.8%	88.4%	1.6%	88.8%	0.7%
Pick-up	82.2%	1.2%	86.1%	2.2%	82.9%	1.1%
SUV	90.3%	1.0%	91.3%	1.7%	90.5%	0.9%
Van	93.5%	1.9%	87.6%	4.3%	92.1%	1.9%

A regional breakdown of occupant belt use by vehicle type, shown below in Table 11, found a fairly consistent pattern of lower observed belt use among occupants in pickup trucks, in all regions except Lake Charles which had a seat belt use of 92.8 percent for pick-up truck occupants.

As with previous tables, it is important to note the larger standard errors associated with occupant usage estimates at these levels, in some cases due to the lower sample sizes and higher variances. Data breakdowns presented here should also be carefully interpreted.

TABLE 11.
Louisiana Front Seat Belt Use Estimates by Region and Vehicle Type, 2016

Region	CAR	STD Error	PICKUP	STD Error	SUV	STD Error	VAN	STD Error
1-New Orleans	85.8%	1.7%	80.2%	2.7%	90.4%	1.8%	92.7%	3.2%
2-Baton Rouge	83.0%	1.8%	80.6%	2.2%	89.3%	2.0%	86.2%	6.3%
3-Houma	95.5%	1.7%	81.7%	4.3%	94.9%	2.5%	99.0%	0.7%
4-Lafayette	87.6%	1.8%	83.0%	2.5%	87.3%	2.5%	94.1%	3.7%
5-Lake Charles	92.5%	3.1%	92.8%	2.3%	92.2%	3.1%	72.4%	15.1%
6-Alexandria	85.5%	4.6%	71.1%	7.7%	82.5%	7.4%	93.7%	3.2%
7-Shreveport	93.9%	1.4%	85.4%	2.2%	94.2%	1.6%	92.6%	3.8%
8-Monroe	84.9%	4.3%	80.4%	6.4%	79.8%	6.1%	99.1%	0.8%
LA total	**87.1%**	**0.81%**	**80.3%**	**1.3%**	**89.7%**	**1.0%**	**86.3%**	**2.4%**

Rear Seat Belt Use

The estimation of rear seat belt use in Louisiana began in response to Regular Session 2008, Senate Resolution No. 165 by Senator Walsworth.[2] A total of 523 rear seat occupants were observed in the 2016 survey, excluding 28 unknown belt use. Table 12 presents the distribution of rear seat observations by vehicle type.

TABLE 12.
Number of Rear Seat Observations by Vehicle Type, 2016

Auto	Pickup	SUV	Van	Total
306	96	77	44	523

[2] Senate Resolution No. 165 (2008) directed the Louisiana Highway Safety Commission to study the need for all occupants of a motor vehicle thirteen years of age and older to wear a seat belt. An amendment to Louisiana's seat belt law was made during the 2009 regular session of the Louisiana Legislature. The amendment expanded the State's primary seat belt law to include rear seat occupants 13 years of age and older and went into effect August 15, 2009 (McKenzie, III, 2011). Prior to the law change, in 2008, rear seat belt use among rear seat passengers was estimated. The 2010 statewide survey was the first full-scale Louisiana statewide survey to cover both front and rear seat passengers. Statewide surveys in 2011, 2013, 2014 and 2015 also include rear seat occupants.

Unweighted estimates of belt use for rear seat occupants, thirteen years of age or older, are presented in Table 13. The estimates presented in the table below display use rates by survey year and vehicle type. The use rate in 2016 is estimated to be 68.8 percent, which is a slight decrease from the 68.6 percent use rate from 2015.

TABLE 13.
Louisiana Rear Passenger Seat Belt Use Rate, 2008-2011 & 2013-2016

	Auto	Pickup	SUV	Van	Total
Rear Seat 2008	27.3%	12.5%	31.3%	29.4%	27.2%
Rear Seat 2010	50.0%	47.8%	77.2%	90.7%	58.4%
Rear Seat 2011	46.0%	40.3%	71.4%	93.6%	53.8%
Rear Seat 2013	50.9%	47.0%	67.1%	62.3%	54.8%
Rear Seat 2014	48.8%	42.4%	69.3%	77.4%	54.9%
Rear Seat 2015	67.9%	55.1%	80.5%	79.2%	68.9%
Rear Seat 2016	70.9%	45.8%	80.5%	84.1%	68.8%

Unweighted estimates of rear seat occupant use in 2016 by region are shown below in Table 14.

TABLE 14.
Louisiana Rear Passenger Seat Belt Use Rate by Region, 2016

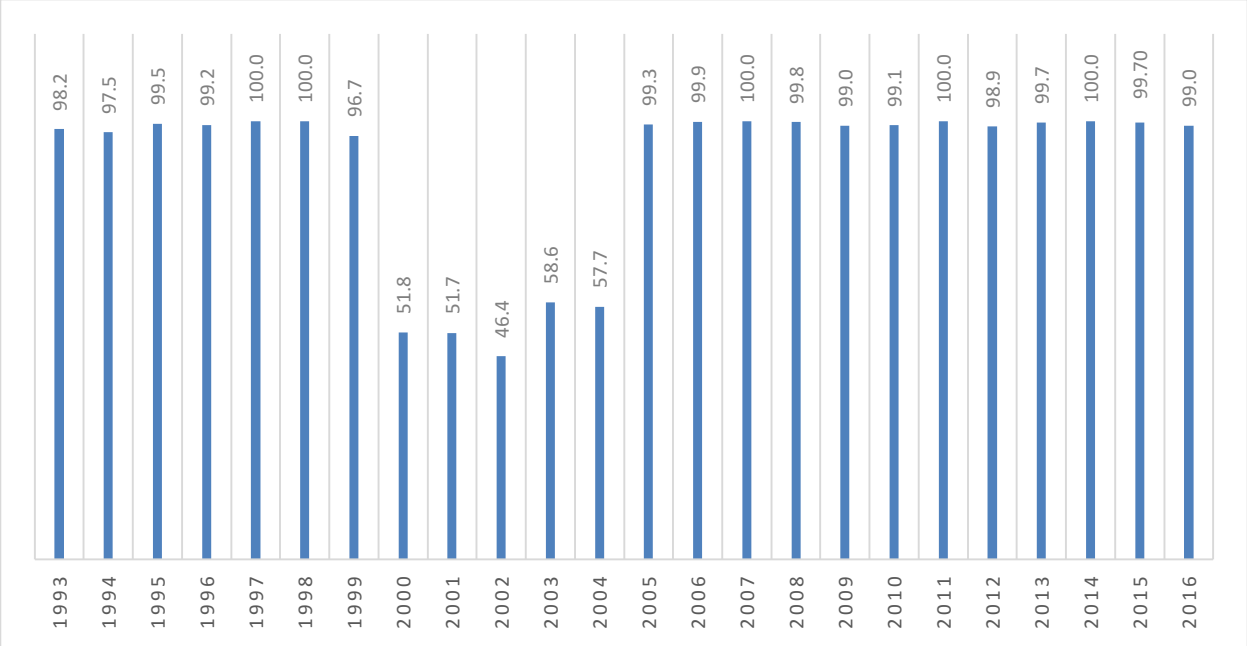
Region	Estimate*	STD Error
1-New Orleans	72.0%	5.0%
2-Baton Rouge	69.4%	4.4%
3-Houma	70.4%	6.2%
4-Lafayette	60.3%	4.1%
5-Lake Charles	81.8%	6.7%
6-Alexandria	29.4%	11.1%
7-Shreveport	75.0%	5.8%
8-Monroe	93.1%	4.7%
LA total	**68.8%**	**2.0%**

**Unweighted*

Motorcycle Helmet Use

Observed helmet use in Louisiana consistently measured at high levels from 1993 to 1999. However, soon after the 1999 measurement, the Louisiana legislature modified the then existing mandatory helmet law, providing exemption to those riders who could provide proof of adequate medical coverage. In the following year (2000), the recorded helmet use rate fell significantly and remained comparatively low until the year following the reinstatement of the law (2005). In 2016, surveyors recorded information on 101 motorcycles, including 92 operators and 9 passengers. The helmet use estimate, which includes both operators and passengers, is 99.0 percent. This rate is in line with helmet use rates measured after the reinstatement of the mandatory helmet law in August of 2004. Figure 2 presents a trend graph of helmet use over time.

Figure 2.
Motorcycle Helmet Use Rates in Louisiana, 1993-2016



CONCLUSION

Louisiana achieved an all-time high in front seat belt use for 2016. The reported rate of 87.8 percent is a statistically significant increase of 1.9 percentage points from the 2015 use rate of 85.9 percent. Seat belt use in Louisiana shows an upward trend, increasing 13.3 percentage points since 2009 (Figure 3). The 2016 survey was conducted in December, six months later than usually conducted and four months after the implementation of the fine increase for not wearing a seat belt. The research presented here cannot say what led to the increase in 2016.

The estimate of rear seat belt use was level with the 2015 rate, namely 68.8 percent which was only 0.03 percentage points below the level in 2015. This difference was not statistically significant. The 2016 survey measured large increases in front seat belt use across the Lake Charles, New Orleans and Lafayette regions. For the second year in a row, all regions of Louisiana had a seat belt use rate above 80 percent (Figure 4).

Helmet use rates in Louisiana have changed dramatically with changes in the helmet law. The average helmet use rate in Louisiana for motorcyclists and passengers following the reinstatement of the universal helmet law in 2004 is 99.5 percent (2005-2016). In the Louisiana 2016 Statewide Survey, 99.0 percent of motorcyclists observed were wearing a helmet.

Figure 3.
Louisiana Seat Belt Weighted Use Rates, 1999-2016

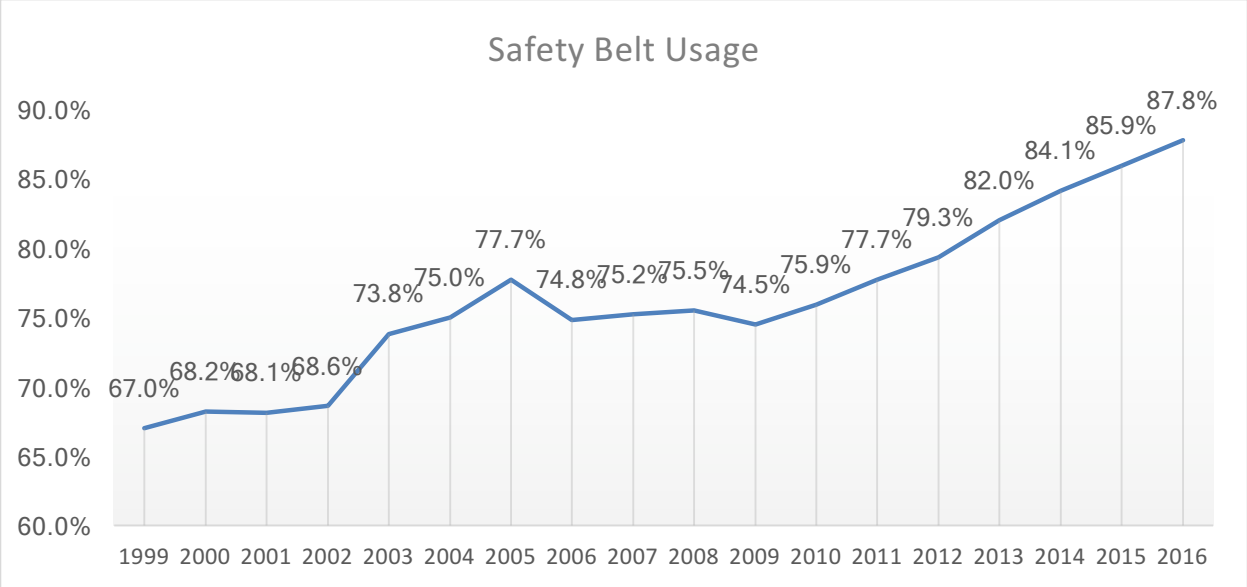
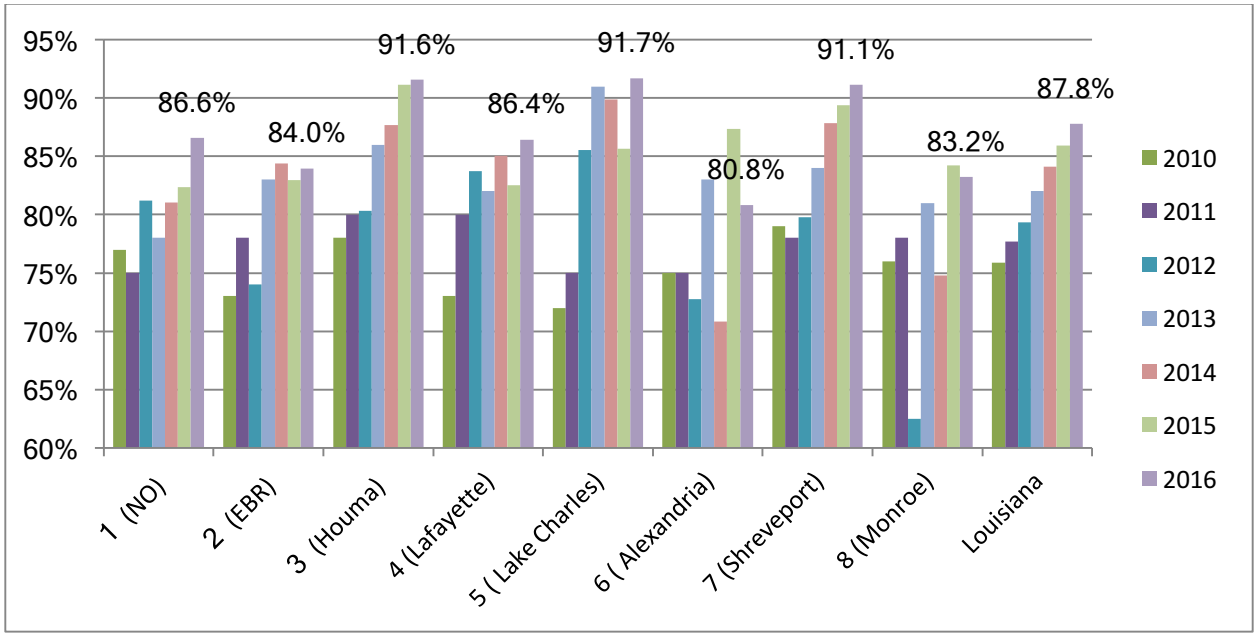


Figure 4.
Louisiana Seat Belt Weighted Use Rates by Region, 1999-2016



REFERENCES

Elliott, K. R. (2015). *2015 Louisiana Seat Belt and Motorcycle Helmet Use Observation Survey Results.*

Gilbert, H., Chaudhary, N., Solomon, M., Preusser, D., & Cosgrove, L. (2004). *Evaluation of the Reinstatement of the Universal Helmet Law in Louisiana.*

McKenzie, III, L. S. (2011). *Louisiana Safety Restraint (Front and Rear Seat Safety Belt) Use Observation Survey 2011 Results.* Baton Rouge, LA: Applied Technology Research Corporation.

Schneider, H. (2004). *2004 Occupant Protection Evaluation Report.* Louisiana State University, Baton Rouge, LA.

Schneider, H. (2012). *Seat Belt Use Survey Design For Louisiana - Sampling, Data Collection and Estimation Plan 2012.*

Schneider, H. (2013). *Seat Belt Use Survey Design for Louisiana - Sampling, Data Collection and Estimation Plan 2013.*

U.S. Department of Transportation, National highway Traffic Safety Administration. (April 2009). *Traffic Safety Facts - Seat Belt Use in 2008 - Use Rates in the States and Territories.* Washington, DC: NHTSA's National Center for Statistics and Analysis.

U.S. Department of Transportation, National Highway Traffic Safety Administration. (July 2011). *Traffic Safety Facts - Seat Belt Use in 2010 - Use Rates in the States and Territories.* Washington, DC: NHTSA's National Center for Statistics and Analysis.

Appendix A

Copy of:

Seat Belt/Helmet Use Observation Data Form

Seat Belt/Helmet Use Observation Data Form

SITE NUMBER:_____ SITE:_____ OBSERVER INITIALS:_____

DIRECTION OF TRAFFIC FLOW: N S E W

CHECK ONE: _____DAYTIME _____NIGHTTME

DATE: _____-_____-_____ DAY OF WEEK:_____

START TIME:_____AM / PM (Observation period will last exactly 60 minutes)

WEATHER CONDITIONS

1. Clear/Sunny
2. Light Rain
3. Cloudy
4. Fog
5. Wet (Not Raining)

	VEHICLE		DRIVER		PASSENGER			REAR SEAT
Veh. #	**Veh. Type** C=Car T=Truck S=SUV V=Van M=Motorcycle	**Sex** M=Male F=Female U=Unsure	**Race** W=White B=Black H=Hispanic O=Other U=Unsure	**Belt/ Helmet Use** + = Yes - = No U = Unsure	**Sex** M=Male F=Female U=Unsure	**Race** W=White B=Black H=Hispanic O=Other U=Unsure	**Belt/ Helmet Use** + = Yes - = No U = Unsure	**Sex/Race/Use** (13+ years old) Example: M W +
1								
2								
3								
4								
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Seat Belt Observation Data Form (back)

Location:_____

(Street) (Cross Street or other landmark)

Site #: _____

Notes:

Diagram: