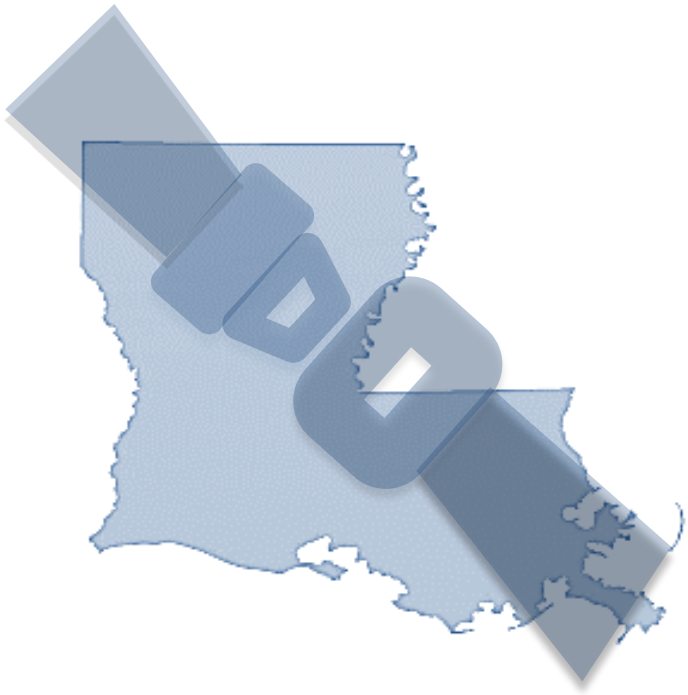
2021 LOUISIANA SEAT BELT OBSERVATION SURVEY RESULTS
LHSC Project No. 2022-20-10



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EXECUTIVE SUMMARY

Background

This report documents Louisiana's annual Statewide Seat Belt 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).

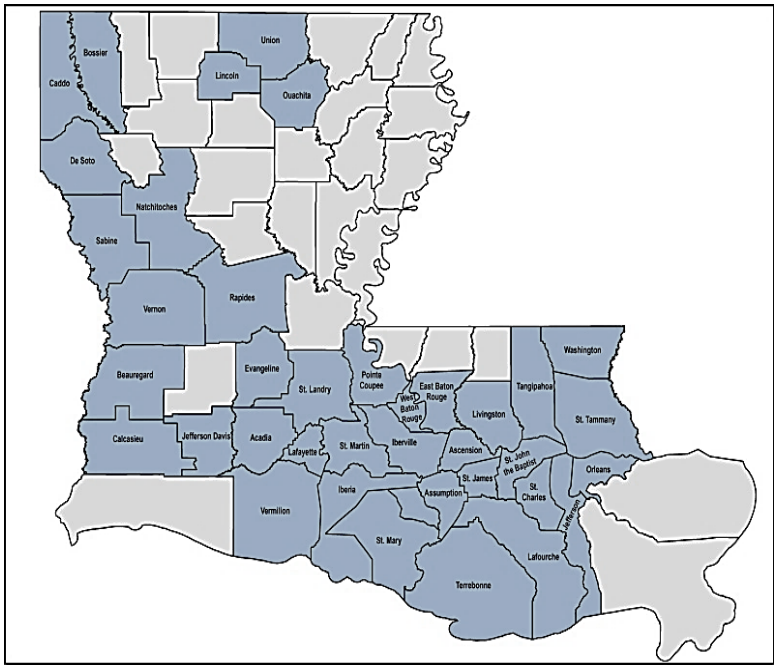
The report that follows provides results from the 2021 statewide observational survey. The survey followed National Highway Traffic Safety Administration (NHTSA) procedures that determine the outboard, front-seat occupant belt use rate. Rear-seat belt usage was measured as well. Preusser Research Group, Inc. (PRG) conducted the survey with the support and help of scientist and statistician, Helmut Schneider, Ph.D., of Louisiana State University.

Methodology

NHTSA requires that statewide surveys are updated every five years to include newly sampled survey sites based on the most recent traffic fatality counts. Dr. Schneider complied with NHTSA's requirements, and in 2017, selected 334 sites across 38 parishes. These sites were first used for the 2017 statewide survey and have remained functional in all statewide surveys up to, and including, this current 2021 survey. The sites randomly represent all the traffic on various types of roadways around the state.

Observations were randomly scheduled for all days of the week during daylight hours, between 7:00 a.m. and 6:00 p.m. One-hour observations took place at each site. PRG observers recorded information on vehicle type, driver sex, driver race, and driver seat belt use. Observers also recorded information on passenger sex, race, and belt use when an outboard passenger was present in the front seat of the vehicle. The survey effort took place in November and December of 2021.

Parishes Included in Statewide Seat Belt Survey



Results

Louisiana's statewide belt usage rate for 2021 is 85.7%. The 2021 survey was conducted at the end of the year unlike most statewide surveys in years past. The 2021 statewide use rate is 1.8 percentage points below the most recent rate of 87.5% measured in June 2019, and 2.1 percentage points below the historic high measured in December 2016 (87.8%). The decline from 2019 to 2021 is statistically significant (at $p = 0.05$).

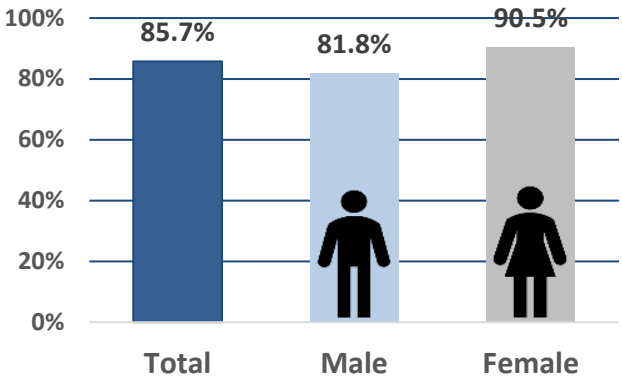
The 2021 survey included additional information such as: occupant sex, race/ethnicity, and vehicle type. The figure to the right shows that belt use among male occupants was 8.6 percentage points lower compared to female usage (81.8% vs. 90.5%), which is slightly higher than the gap of 7.4 percentage points in 2019.

Belt usage has historically differed by occupant race/ethnicity. Most notably, Black occupants are less likely to wear a seat belt compared to other races/ethnicities. This has been the case for each year of this survey.

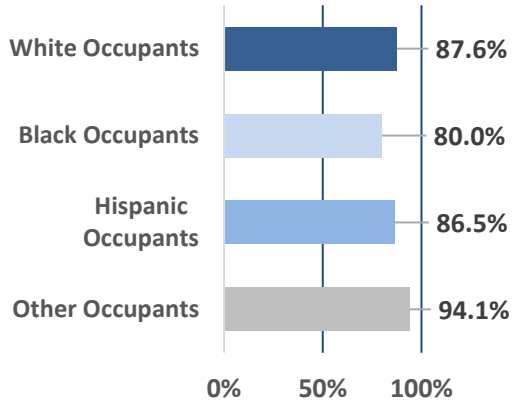
LHSC directed resources in the recent past towards improving minority belt use while working to improve overall belt usage. The gap in usage between Black occupants and the other races/ethnicities has increased in 2021 compared to 2019. Please note that Hispanic and Other/Unknown occupant usage rates have large swings from year-to-year, largely due to small sample sizes.

Vehicle type also makes a difference in belt usage (see figure on next page). Operators and passengers in pickup trucks use seat belts less often than occupants in other vehicle types. A large portion of the sample (over one-quarter) from year-to-year includes pickup trucks and that drags the overall statewide average downward. This has been the case every year of the survey. Belt use has not changed much in all vehicle types over the past five years and the wide gap in usage between occupants in pickup trucks and other vehicle types remains largely unchanged. There was, however, a statistically significant drop (-3.2 percentage points) in seat belt use among car occupants in 2021.

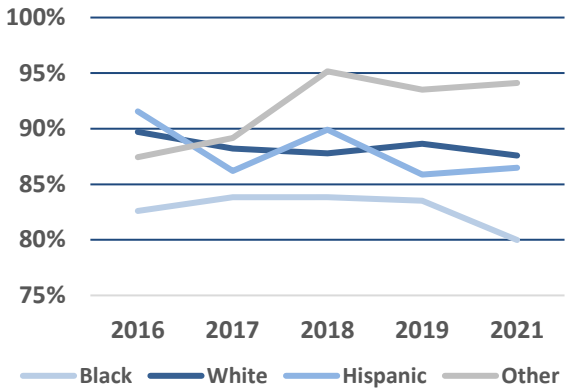
2021 Seat Belt Use Rate by Occupant Sex



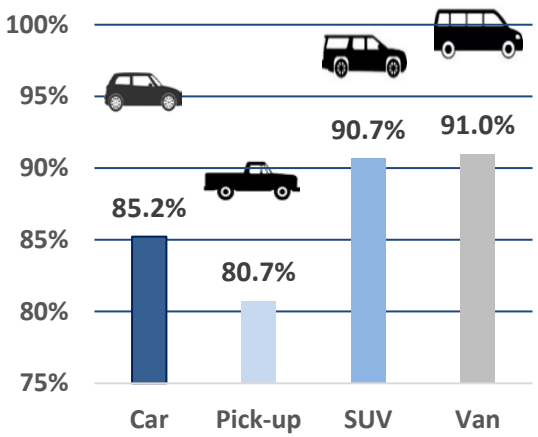
2021 Seat Belt Use Rate by Race/Ethnicity



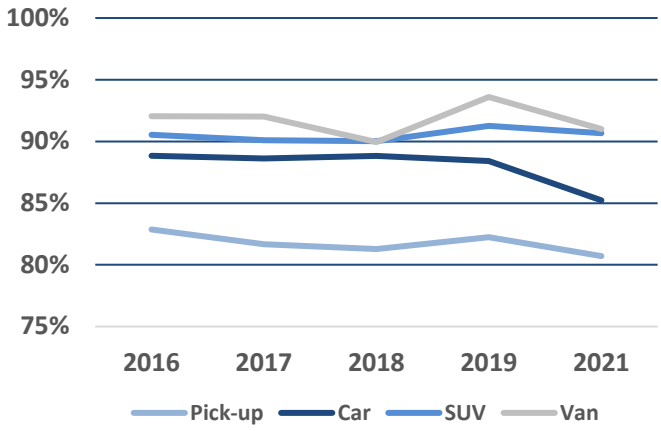
Seat Belt Usage by Race/Ethnicity: 2016-2021



2021 Seat Belt Use Rate by Vehicle Type



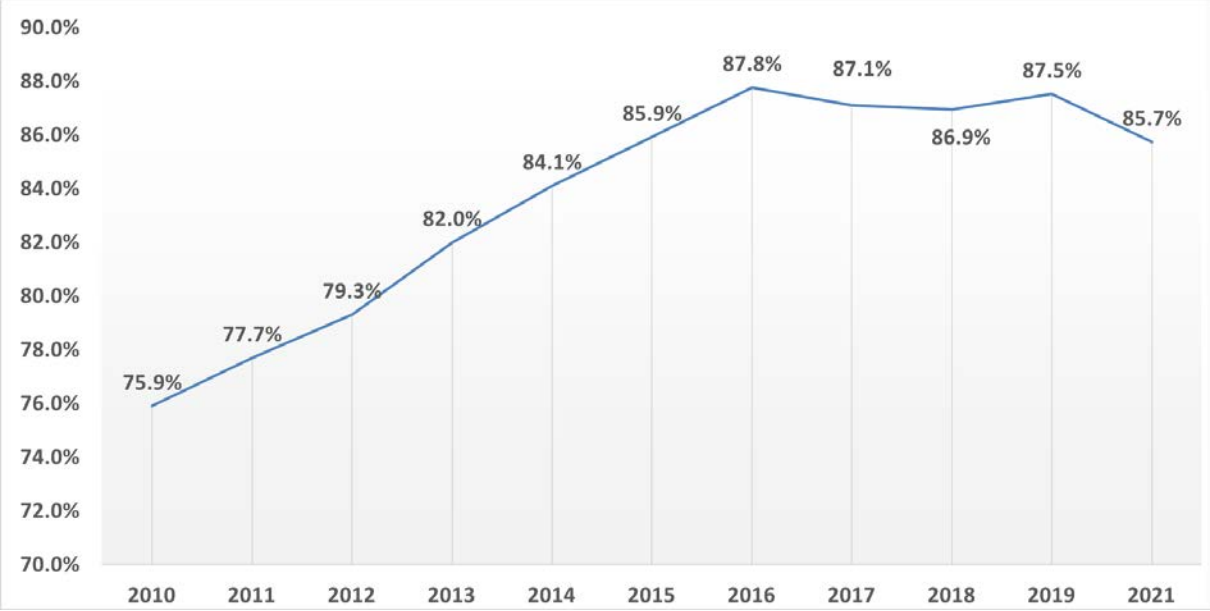
Seat Belt Usage by Vehicle Type: 2016-2021



Conclusion

Louisiana's front-seat belt use rate for 2021 is 85.7%. The difference in rate was statistically significant from the rates determined for the years 2016 to 2019. Seat belt usage on Louisiana roadways, which had generally shown an upward trend of around one percentage point annually between 2010 and 2016, plateaued between 2016 and 2019, and dropped in 2021 to a level not observed since 2015.

Louisiana Seat Belt Weighted Use Rates, 2010-2021



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BACKGROUND

Introduction

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). This report documents Louisiana's 2021 Statewide Seat Belt Use Survey effort.

The statewide seat belt survey covered by this report was conducted by Preusser Research Group, Inc. (PRG), under contract with the LHSC. All the survey work was completed in late November and December of 2021. The results that follow provide an accurate and reliable estimate of outboard front-seat belt usage in the State of Louisiana in 2021, and results are directly comparable to previous surveys.

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 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). The law was amended in 2008 to include 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.

Seat belt use rates in Louisiana have fluctuated over the past couple of decades since the primary law was passed. From 1999 to 2002, statewide seat belt use rates increased very little from 67.0 to 68.6 percent. 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 percent in June 2005. In 2006, the statewide measurement result decreased 2.9 percentage points to 74.8 percent (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 influenced seat belt use rates. Use rates climbed back to the peak level seen in 2005 by 2011. By 2016, the annual survey measured seat belt use at an all-time high of 87.8 percent (Preusser Research Group, Inc., 2016). The annual rate has remained in the same statistical range until the 2021 measure. No survey was conducted in 2020 due to the Covid-19 pandemic. The most recent prior survey was conducted in June of 2019.

Statewide Survey Statistician

Dr. Helmut Schneider has developed all the seat belt survey designs approved by the National Highway Traffic Safety Administration (NHTSA) to be used in the State of Louisiana, including the designs PRG, Inc. has used when 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, and an Ourso Family Distinguished Professor at Louisiana State University. Dr. Schneider received his degree in Operations Management and Statistics in 1978 and has taught statistics and statistical sampling for 33 years. 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).

Preusser Research Group, Inc. (PRG) planned and implemented Louisiana's 2021 seat belt survey using Dr. Schneider's most recent resample as a guide. Every five years, NHTSA requires that statewide surveys include newly sampled survey sites based on the most recent traffic fatality counts. Dr. Schneider complied with NHTSA's requirements and PRG carried out the survey effort. The 2017 resample and the survey effort in 2021 are 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

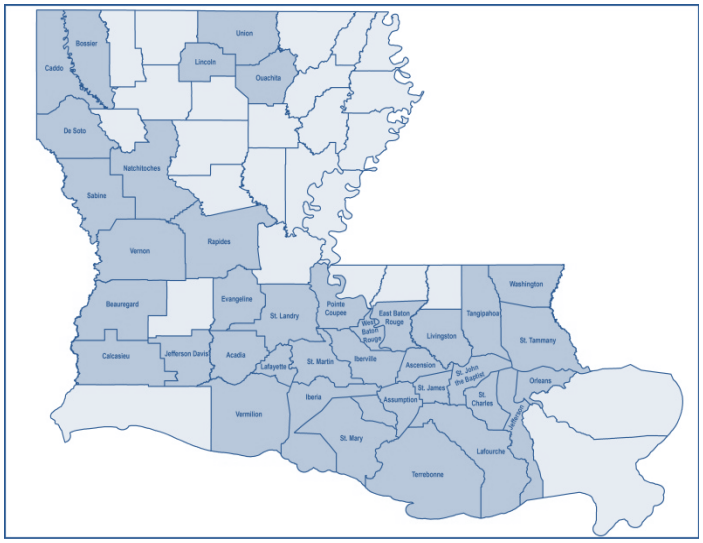
Survey Design and Site Selection

Louisiana's 2021 Statewide Seat Belt Survey was the fourth survey iteration using observation site locations first resampled in 2017[2]. This resample was in response to a NHTSA requirement that new sites be selected every five years. As such, every survey from 2017 to 2021 used the same set of sites.

The 2021 survey is rooted in a 2012 design developed by Dr. Helmut Schneider. The 2012 design included 390 observation sites and was approved by NHTSA. The number of observation sites dropped to 336 in 2013 and that change was accepted by NHTSA, as it proved to be both efficient and reliable. The 2017 resample used updated vehicle miles traveled (VMT), numbers of fatalities, and road inventory to determine the number and location of observation sites. The current resample includes 334 sites, two fewer than the 2013 sample. The current sample of observation sites was approved for use by NHTSA in the spring of 2017.

Dr. Schneider used crash-related fatality data from 2010-2014 to select the parishes included in the 2017 resample. According to the Fatality Analysis Reporting System (FARS), 38 of 64 parishes account for 85% of crash-related fatalities in Louisiana. These 38 parishes selected for inclusion in the 2017 resample were identical to those represented in the 2013 design (Schneider, 2013).

Figure 1.
Parishes Included in Statewide Seat Belt Survey



The 2013 design divided the sampling frame into eight statewide regions, the parishes within these regions, and highway types. Dr. Schneider used a 2015 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 types: Interstates, US and State routes, and Local roads. A site number reflecting the region, parish, and highway type was assigned to each road segment. Rural roads were excluded from the sample in 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 US and State routes. Local road segments were designated using sampling proportional to the road length.

PRG used specific road segment information provided by Dr. Schneider to pinpoint observation site locations in 2013, and this was done again in 2017 for the newly selected sites (Schneider, 2013). Trained observers selected the exact observation locations (i.e., where data collectors stood to observe

[2] No survey was conducted in 2020 due to the Covid-19 pandemic.

vehicles) upon initial site visits during the survey period. Observers created a site map upon the completion of each observation to ensure replication of exact observation locations from year to year.

Scheduling

Observation sites were organized into clusters of four to six 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 a mapped-out route for each cluster. The schedule specified site order, day of week to conduct observations, start times, name of road segment, location to observe, and direction of traffic to observe for each site.

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 7:00 a.m. to 6:00 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 times were subject to adjustment but resulted in approximately an equal number of sites being observed throughout the individual 7:00 a.m. – 6:00 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.

Observers

Observers were hired and trained exclusively by PRG. All had 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 preceding years. Prior to any data collection, procedures specific to the Louisiana survey were explained to observers in a training session. Observers also participated in hours of supervised street-side practice prior to conducting observations in the field. Additionally, observers were trained on procedures to follow in conditions such as bad weather or temporary traffic impediments which may require rescheduling of sites. Seven observers operated individually, and one quality control monitor was utilized.

Data collectors revisited the Site Map forms created the previous year, which documented details of each new site location upon initial arrival (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.). Site maps ensure the survey and its data can be accurately reproduced year to year.

Observation Site Details

Most locations for data observation were tentatively selected based on available on-line mapping 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, representing segments with generally equivalent traffic throughout, 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 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.

Data Collection Procedures

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), and rear-seat passengers 13 years of age and older were observed for seat belt use. Observers noted vehicle type (Car, Truck, SUV, Van), sex of drivers and passengers, race/ethnicity (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 recorded pertinent site information on the data collection form including site number, exact roadway location, observer's initials, date, day of week, time, weather condition, and direction of traffic flow. Each one-page form included 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 were 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, a pre-selected alternate road segment was used.

Quality Control

PRG has extensive experience in training seat belt use observers. All observers received training that included both classroom instruction and field (roadside) practice. An additional trained observer also served as a Quality Control Monitor (QCM) and conducted random, unannounced visits to other trained observers in the field. The QCM conducted checks at approximately 5 percent of total sites and ensured that observers were in place and making observations during the scheduled observation period.

All observation data were reviewed when received and no anomalies were found, suggesting the data did not reflect anything other than proper on-site seat belt use observations. Some cues to the contrary would have included 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 observations were done properly. Invalid data would have been replaced in such cases. Again, no problems were detected and thus, corrective actions were not necessary for this survey iteration.

Building a Data Set

Observation data were keypunched by PRG staff into Excel spreadsheets. PRG applied the Statistical Package for the Social Sciences (SPSS) software to run frequencies and correlations to identify any outliers or coding errors. A thorough check of the data indicated only 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 use at 334 sites across 38 parishes, divided into eight regions across the State. Table 1 allocates 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, 2021

Region	Sites per the Design	Sites Completed
1-New Orleans	65	65
2-Baton Rouge	78	78
3-Houma	26	26
4-Lafayette	44	44
5-Lake Charles	24	24*
6-Alexandria	23	23
7-Shreveport	49	49
8-Monroe	25	25
State Total	**334**	**334**

**One (1) observation period yield zero vehicles*

Seat belt use information was recorded for 67,968 front-seat occupants over the eight regions. Only one of the sites in the 2021 survey resulted in zero belt use observations (no vehicles passed the observer during the scheduled observation hour), and the overall percentage of unknown belt use was 0.2%. The distribution of those occupants by region, including occupant type (driver or passenger), is shown on the next page (Table 2). The observed number of vehicles increased by 24.6% from 2019 to 2021. Some of this is likely due to observer changes in some areas. Part of it could be due to seasonal changes or heightened traffic post-pandemic. Table 3 presents the distribution of observed passenger vehicle types by region.

The relative distribution of vehicle type changed slightly from 2019 to 2021. While there was a lower percentage of cars (-5.5 percentage points) and Vans (-0.2 percentage points) there was an increase in SUVs (+1.2 percentage points) and a higher percentage of pickup trucks (+4.5 percentage points) in the 2021 sample compared to 2019. It should be noted that the distribution of vehicle types in 2021 differs somewhat from the previous years PRG conducted surveys (2012-2019), most of which were conducted in the late May – mid June time frame. Though the 2016 survey took place at the end of the year, like the 2021 survey, the vehicle distribution this year differs from that survey as well. The percentage of pickup trucks in the 2021 observed sample was the highest of all surveys over the past nine years.

TABLE 2.
Number of Louisiana Front-Seat Occupants Recorded by Region, 2021*

Region	Drivers	Passengers	Total
1-New Orleans	12,843	2,685	15,528
2-Baton Rouge	14,760	3,484	18,244
3-Houma	5,498	1,034	6,532
4-Lafayette	5,785	1,584	7,369
5-Lake Charles	1,833	363	2,196
6-Alexandria	4,753	875	5,628
7-Shreveport	5,650	1,316	6,966
8-Monroe	4,517	988	5,505
LA Total	55,639	12,329	67,968

**Unknown usage not included*

TABLE 3.
Distribution of Vehicle Type by Region, 2021*

Region	% Car	% Pickup	% SUV	% Van
1-New Orleans	33.0%	39.5%	21.6%	5.9%
2-Baton Rouge	37.4%	29.3%	29.6%	3.7%
3-Houma	29.1%	28.5%	37.1%	5.3%
4-Lafayette	38.5%	22.6%	35.5%	3.4%
5-Lake Charles	23.8%	33.0%	37.7%	5.5%
6-Alexandria	38.1%	26.0%	32.0%	3.9%
7-Shreveport	36.4%	32.8%	27.5%	3.3%
8-Monroe	34.4%	30.2%	31.3%	4.1%
LA Total	34.9%	31.2%	29.5%	4.4%

**Unknown vehicle type not included*

Observers recorded occupant sex and race/ethnicity. Tables 4 and 5 display these characteristics by region for all front-seat occupants. If a characteristic was unclear to the observer, "unknown" was recorded on the data form. There were no significant differences in the gender distribution between the 2019 and 2021 surveys.

TABLE 4.
Distribution of Occupant Sex by Region, 2021

Region	% Males	% Females	% Unknown
1-New Orleans	52.8%	47.1%	0.02%
2-Baton Rouge	53.9%	46.1%	0.01%
3-Houma	59.5%	40.5%	0.02%
4-Lafayette	55.8%	44.2%	0.01%
5-Lake Charles	53.9%	46.0%	0.05%
6-Alexandria	52.5%	47.5%	0.00%
7-Shreveport	50.8%	48.9%	0.30%
8-Monroe	52.3%	47.7%	0.02%
LA Total	53.8%	46.1%	0.04%

Regarding race/ethnicity, the 2021 sample included a smaller proportion of White occupants (-4.0 percentage points), a larger proportion of Black occupants (+2.1 percentage points), and a larger proportion of Hispanic occupants (+1.6 percentage points) compared to 2019.

TABLE 5.
Distribution of Occupant Race/Ethnicity by Region, 2021

Region	% White Occupants	% Black Occupants	% Hispanic Occupants	% Other Occupants	% Unknown
1-New Orleans	58.3%	32.1%	6.8%	2.7%	0.00%
2-Baton Rouge	65.6%	28.7%	3.6%	2.2%	0.00%
3-Houma	64.5%	24.9%	8.8%	1.8%	0.02%
4-Lafayette	69.6%	25.4%	2.9%	2.1%	0.01%
5-Lake Charles	86.2%	9.4%	1.5%	2.9%	0.05%
6-Alexandria	75.0%	16.0%	7.2%	1.8%	0.00%
7-Shreveport	67.7%	28.5%	3.3%	0.4%	0.04%
8-Monroe	75.0%	22.6%	1.2%	1.2%	0.02%
LA Total	66.7%	26.6%	4.8%	2.0%	0.01%

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

The 2021 Louisiana seat belt use rate, for drivers and front-seat passengers combined, is 85.7% with a standard error of 0.4%. The 2021 weighted estimate is 1.8 percentage points lower than the 2019 estimate of 87.5%. The observed decrease is statistically significant (*p = 0.05*). Table 6 shows use rate estimates by region with respective standard sampling error. Usage varied from a low of 78.9% in the Alexandria region to a high of 89.1% in the Monroe region. These estimates and the descriptive rates for front-seat occupants that follow are based on weighted results. The Lafayette and Alexandria regions had statistically significant lower seat belt use rates in 2021 compared to 2019. No other regions had a statistically significant change (at *p = 0.05*) in seat belt use from 2019 to 2021.

TABLE 6.
Front-Seat Occupant Seat Belt Use Estimates by Region, 2021

Region	Estimate	STD Error	Diff 2019-2021
1-New Orleans	88.1%	0.4%	-0.6%
2-Baton Rouge	83.2%	1.0%	-2.9%
3-Houma	87.5%	0.7%	-2.2%
4-Lafayette	86.6%	1.1%	-4.5%*
5-Lake Charles	87.0%	1.8%	-0.5%
6-Alexandria	78.9%	0.9%	-4.5%*
7-Shreveport	84.6%	0.9%	-0.3%
8-Monroe	89.1%	1.3%	-1.3%
LA total	85.7%	0.4%	-1.8%*

**Statistically significant at p = 0.05*

Table 7 examines overall occupant belt use weighted by roadway type and shows that belt use continues to be highest on Interstates (88.8%). There was a small observed decrease of 0.5 percentage points compared with 2019, but this difference was not statistically significant (*p = 0.05*). US and state routes had a belt use rate of 85.8%, 1.2 percentage points lower than in 2019. This difference is statistically significant (at *p = 0.05*). Belt usage on Local roadways, usually found within neighborhoods in city limits, was 84.8 % in 2021, a decrease of 3.0 percentage points from 2019. However, this decrease was not statistically significant (at *p = 0.05*) due to the larger standard error.

TABLE 7.
Louisiana Front-Seat Occupant Belt Use Estimates by Road Type, 2021

Road Type	Estimate	STD Error	Diff 2019-2021
Interstate	88.8%	0.3%	-0.5%
US & State	85.8%	0.2%	-1.2%
Local Road	84.8%	1.0%	-3.0%

Louisiana has traditionally examined seat belt use rates by the nine Louisiana State Police Troop area designations. The main difference between the regions and Troop areas is that regions 1 and 2 are split into three troops, A, B and L. All other regions/troops cover only slightly different parishes. Table 8 shows use rates per Troop area, along with the standard error. Use rate estimates by Troop area ranged from 76.3% in Troop E to 89.6% in Troop F. Compared to 2019, only Troops E and I had statistically significant (*p = 0.05*) decreases in belt use of 4.3 and 1.8 percentage points, respectively. No other troop had a statistically significant (*p = 0.05*) change from 2019.

TABLE 8.
Louisiana Front-Seat Occupant Belt Use Estimates by Troop Area, 2021

Troop	Estimate	STD Error	Diff 2021-2019
A-Baton Rouge	86.5%	0.6%	-1.4
B-New Orleans	86.7%	0.4%	-2.7
C-Houma	88.2%	0.9%	-2.1
D-Calcasieu	87.0%	1.8%	-2.2
E-Natchitoches	76.3%	0.9%	-4.3*
F-Monroe	89.6%	1.2%	4.4
G-Shreveport	85.9%	1.3%	1.3
I-Lafayette	86.6%	1.1%	-1.8*
L-Hammond	82.1%	1.9%	-8.7

**Statistically significant at p = 0.05*

Table 9 (on the following page) presents estimates for all front-seat occupants by parish for the four surveys using the revised 2017 design, namely, 2017, 2018, 2019 and 2021. The rows are sorted by the 4-year belt use average. The parish use rates should be interpreted with caution. The overall survey design was not intended to provide single parish belt use rates, but rather one single, statewide use rate. There is larger variance and standard error with respect to occupant usage at the parish levels due to the lower sample sizes. The table displays the parish use rate for 2021 and each of the previous three surveys, along with a four-survey average. Some parishes have consistently high use rates (Beauregard, Lafourche, Pointe Coupee, and St. Charles) while others have consistently low use rates (Sabine, De Soto and Assumption).

TABLE 9.
Louisiana Front-Seat Occupant Seat Belt Use Estimates by Parish, 2017 to 2021

Parish	OCCUPANT USE 2021	OCCUPANT USE 2019	OCCUPANT USE 2018	OCCUPANT USE 2017	4-Year Average
Beauregard	96.0%	95.4%	93.2%	96.2%	95.1%
Lafourche	91.9%	93.0%	94.1%	94.4%	93.3%
Pointe Coupee	93.6%	92.4%	91.6%	91.9%	92.4%
St. Charles	90.3%	91.5%	94.3%	93.4%	92.3%
St. Tammany	91.6%	91.8%	93.3%	92.2%	92.2%
Acadia	90.4%	95.6%	89.8%	92.7%	92.2%
Terrebonne	88.4%	93.6%	91.3%	91.3%	91.1%
Jefferson Davis	87.9%	90.8%	93.8%	88.7%	90.3%
St. Martin	91.5%	90.7%	88.7%	87.2%	89.9%
St. Mary	83.4%	89.7%	90.7%	91.9%	89.0%
Lincoln	91.9%	92.4%	83.2%	89.2%	89.0%
Vermilion	81.2%	90.8%	93.0%	89.2%	88.4%
East Baton Rouge	87.6%	87.9%	89.6%	88.5%	88.4%
Lafayette	86.5%	92.0%	88.8%	87.5%	88.3%
Jefferson	86.6%	88.4%	88.3%	89.7%	88.1%
Calcasieu	86.2%	86.9%	88.3%	92.0%	88.1%
Orleans	86.6%	85.6%	91.9%	88.8%	88.0%
West Baton Rouge	91.2%	91.4%	90.3%	81.1%	87.9%
Ouachita	89.3%	90.7%	85.3%	87.1%	87.8%
Ascension	86.8%	89.0%	88.2%	85.7%	87.5%
St. Landry	87.3%	94.4%	86.6%	79.8%	87.2%
Bossier	88.9%	85.6%	85.1%	85.7%	86.1%
Caddo	84.3%	86.9%	85.0%	85.6%	85.5%
Washington	82.5%	82.3%	95.5%	79.3%	85.4%
Union	79.5%	84.2%	91.1%	80.0%	84.1%
Iberia	87.9%	78.0%	79.8%	91.4%	83.8%
Evangeline	79.0%	82.8%	85.6%	85.2%	83.3%
Vernon	78.7%	82.3%	85.0%	87.1%	83.1%
St. James	80.1%	84.9%	86.4%	80.6%	83.0%
Natchitoches	80.0%	79.4%	84.6%	87.5%	82.7%
St. John	83.2%	83.0%	83.0%	79.3%	82.0%
Rapides	79.0%	84.0%	79.6%	80.5%	80.8%
Livingston	79.0%	81.4%	81.6%	80.1%	80.4%
Tangipahoa	72.7%	83.5%	86.2%	82.6%	79.5%
De Soto	74.3%	78.3%	76.5%	81.2%	77.7%
Assumption	76.7%	80.1%	75.8%	77.4%	77.7%
Iberville	83.6%	78.2%	72.7%	71.6%	76.6%
Sabine	64.5%	74.7%	73.7%	83.6%	73.4%

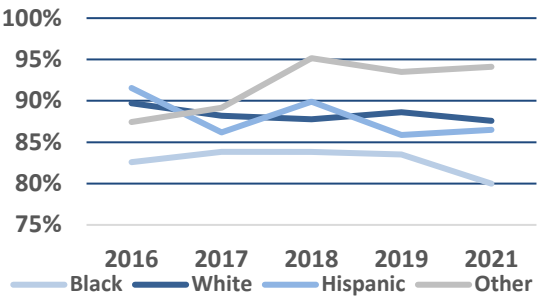
The 2021 survey also captured occupant gender and race/ethnicity characteristics along with vehicle type. Table 10 provides both driver and passenger use rate estimates for these occupant types. The table shows that male occupant belt usage continues to lag behind female occupant usage (81.8% vs. 90.5%) and male passengers were less likely to be belted compared to male drivers (81.9% vs. 90.1%). The percentage point range in Table 10 indicates the wide range of belt use due to gender, race, and vehicle type. The gap in belt use between male and female, as well as between White and Black, occupants widened in 2021 compared to 2019.

TABLE 10.
Louisiana Front-Seat Belt Use Estimates by Sex, Race, and Vehicle Type, 2021

	% Use Rate					
	Driver		Passenger		All Front Seat	
	Estimate	STD Error	Estimate	STD Error	Estimate	STD Error
Occupant Sex						
Male	81.9%	0.5%	81.8%	1.2%	81.8%	0.5%
Female	90.1%	0.5%	91.6%	0.6%	90.5%	0.4%
Range	**8.2%**		**9.8%**		**8.7%**	
Occupant Race						
White	87.1%	0.5%	90.0%	0.8%	87.6%	0.4%
Black	79.9%	0.7%	80.4%	1.5%	80.0%	0.8%
Hispanic	85.7%	1.2%	89.5%	2.1%	86.5%	1.2%
Other	93.5%	0.8%	96.5%	1.0%	94.1%	0.8%
Range (W/B/H)	**7.2%**		**9.6%**		**7.6%**	
Vehicle Type						
Car	84.7%	0.7%	87.5%	1.3%	85.2%	0.7%
Pick-up	80.4%	0.8%	82.2%	1.7%	80.7%	0.8%
SUV	90.3%	0.6%	92.2%	1.0%	90.7%	0.6%
Van	91.2%	1.2%	90.3%	2.3%	91.0%	1.0%
Range	**10.8%**		**10.0%**		**10.3%**	

Usage among Black occupants measured lower compared to other races/ethnicities (80.0% for Black occupants vs. 87.6% for White occupants vs. 86.5% for Hispanic occupants). The group of "Other" occupants is too small a sample size to include in a comparison. The range of 7.6 percentage points is between the maximum and minimum of the three race groups, White, Black, and Hispanic. Figure 2 shows the trend of belt use by race between 2016 and 2021. While there was a

FIGURE 2.
Seat Belt Usage by Race/Ethnicity: 2016-2021

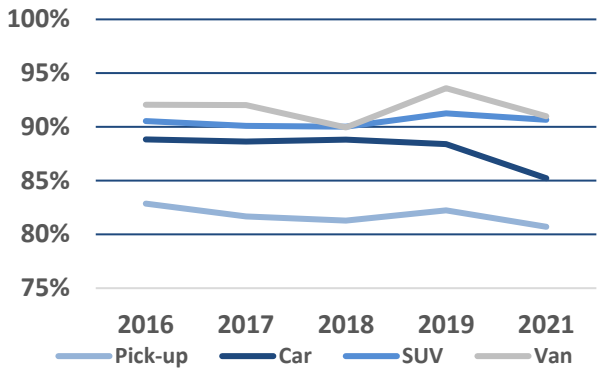


slight increase in usage among Black occupants from 2016 to 2017 (1.2 percentage points), there was a decline of 3.5 percentage points from 2019 to 2021. The change from 2019 to 2021 was statistically significant (*p = 0.001*), suggesting the gap in belt use between Black and White occupants has increased. Note that Hispanic and Other occupant usage rates have some large year-to-year swings due to small sample sizes.

Vehicle type also made a difference in belt usage. Occupants in pickup trucks used seat belts less often than occupants in other vehicle types. A sizeable portion of the sample includes occupants in pickups, thus dragging the overall statewide average downward. That has been the case every year of this survey (Figure 3). Belt use rates by vehicle type in 2021 were not statistically different from rates in 2019, except for cars, which had a statistically significant decline of 3.2 percentage points (*p = 0.001*). Vans had a decline of 2.6 percentage points, but the van sample size is relatively small and thus large variations are observed from year to year.

FIGURE 3.

Seat Belt Usage by Vehicle Type: 2016-2021



A regional breakdown of occupant belt use by vehicle type (Table 11) shows a fairly consistent pattern of lower observed belt use among occupants in pickup trucks compared to the *average* of all other vehicle occupants with respect to region. Differences in usage rates between pickup trucks and the average of other vehicles range from +4.9 percentage points in the Lake Charles Region (the only region to show higher usage among pickup occupants) to -14.1 percentage points in the Baton Rouge Region. The average gap in belt use between pickup truck occupants and other vehicle occupants for Louisiana was -8.3 percentage points. However, 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 lower sample sizes and higher variances. As such, data breakdowns presented here should be carefully interpreted.

TABLE 11.
Louisiana Front-Seat Belt Use Estimates by Region and Vehicle Type, 2021

Region	CAR	STD Error	PICKUP	STD Error	SUV	STD Error	VAN	STD Error	AVG* Diff PKUP
1-New Orleans	87.0%	0.7%	81.4%	1.0%	92.4%	0.5%	92.0%	1.2%	-9.0%
2-Baton Rouge	85.0%	1.7%	74.6%	2.3%	89.2%	1.5%	92.1%	1.2%	-14.1%
3-Houma	87.3%	1.4%	85.1%	1.2%	91.1%	1.2%	88.5%	2.9%	-3.9%
4-Lafayette	84.3%	2.0%	84.4%	1.7%	92.8%	1.2%	91.8%	3.8%	-5.2%
5-Lake Charles	85.6%	3.4%	89.1%	2.5%	86.0%	3.6%	81.2%	6.7%	4.9%
6-Alexandria	83.4%	1.3%	69.9%	1.9%	83.8%	1.2%	84.0%	2.7%	-13.9%
7-Shreveport	84.0%	1.4%	79.5%	1.9%	89.0%	1.5%	91.7%	2.2%	-8.8%
8-Monroe	86.8%	2.7%	83.7%	2.8%	95.8%	1.3%	98.1%	0.7%	-9.9%
LA total	85.2%	0.7%	80.7%	0.8%	90.7%	0.6%	91.0%	1.0%	-8.3%

**Differences of belt usage rate* between *pickup trucks and the average of all other vehicles*

Rear-Seat Belt Use

Louisiana began collecting rear-seat passenger data in response to Regular Session 2008, Senate Resolution No. 165 by Senator Walsworth.[3] A total of 699 rear-seat occupants were observed in the 2021 survey. Table 12 presents the distribution of rear-seat observations by vehicle type.

TABLE 12.
Number of Rear-Seat Observations by Vehicle Type, 2021

CAR	PICKUP	SUV	VAN	TOTAL
271	153	194	81	699

Unweighted estimates of belt use for rear-seat occupants, thirteen years of age or older, are presented in Table 13. The estimates presented display use rates by survey year and vehicle type. The use rate in 2021 is estimated to be 60.9%, which is a statistically significant decrease of 7.2 percentage points from 2019 ($p = 0.05$).

TABLE 13.
Louisiana Rear Passenger Seat Belt Use Rate, 2008-2011 & 2013-2019 & 2021

	CAR	PICKUP	SUV	VAN	TOTAL
2008	27.3%	12.5%	31.3%	29.4%	27.2%
2010	50.0%	47.8%	77.2%	90.7%	58.4%
2011	46.0%	40.3%	71.4%	93.6%	53.8%
2013	50.8%	47.0%	67.1%	62.3%	54.8%
2014	48.8%	42.4%	69.3%	77.4%	54.9%
2015	67.9%	55.1%	80.5%	79.2%	68.9%
2016	70.9%	45.8%	80.5%	84.1%	68.8%
2017	65.8%	50.0%	71.2%	77.8%	65.6%
2018	62.0%	57.6%	73.9%	89.5%	65.5%
2019	62.5%	62.2%	81.9%	76.8%	68.1%
2021	56.5%	51.0%	70.6%	71.6%	60.9%

[3] 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 safety 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 and in 2013-2019 also include rear-seat occupants.

CONCLUSION

The State of Louisiana's statewide seat belt use rate for 2021 is 85.7%. The 2021 survey was conducted in December, rather than mid-year like most statewide surveys in years past, and the rate represents a 1.8 percentage decrease from the 2019 survey. This decrease is statistically significant, indicating that seat belt usage in Louisiana, which had been about 87% for the past five surveys 2016-2019, has dropped over the past two years.

The proportion of pickup truck occupants in the 2021 survey was 5.5 percentage points higher than in the 2019 survey, and higher than in any of the past surveys PRG has conducted (since 2012). Lower usage among pickup truck occupants has a downward pull on the overall statewide rate. In other words, the higher the prevalence of pickup trucks in the sample, the stronger the downward pull on the overall use rate. Conversely, fewer pickup trucks have less of a pull, as evidenced by the highest rate measured to date (87.8%) in the December 2016 survey.

It is also worth noting that usage rates among Black occupants went down in 2021, reversing the upward trend seen in recent years. Also, the long-standing gap between Black and White occupant belt use, which had decreased from previous surveys to 5.1 percentage points in 2019, increased to 7.6% in 2021. Additionally, the percentage of Black occupants in the 2021 sample was 2.1 percentage points higher than in 2019; higher than in any other year since before 2012. Lower usage among Black occupants has a downward pull on the statewide rate, and the higher proportion of Black occupants in the sample leads to a greater overall usage rate decline.

That said, overall seat belt use in Louisiana generally shows an upward trend over time with about one percentage point increase per year on average (Figure 4), increasing almost 10 percentage points since 2010.

Figure 4.
Louisiana Seat Belt Weighted Use Rates, 2010-2021

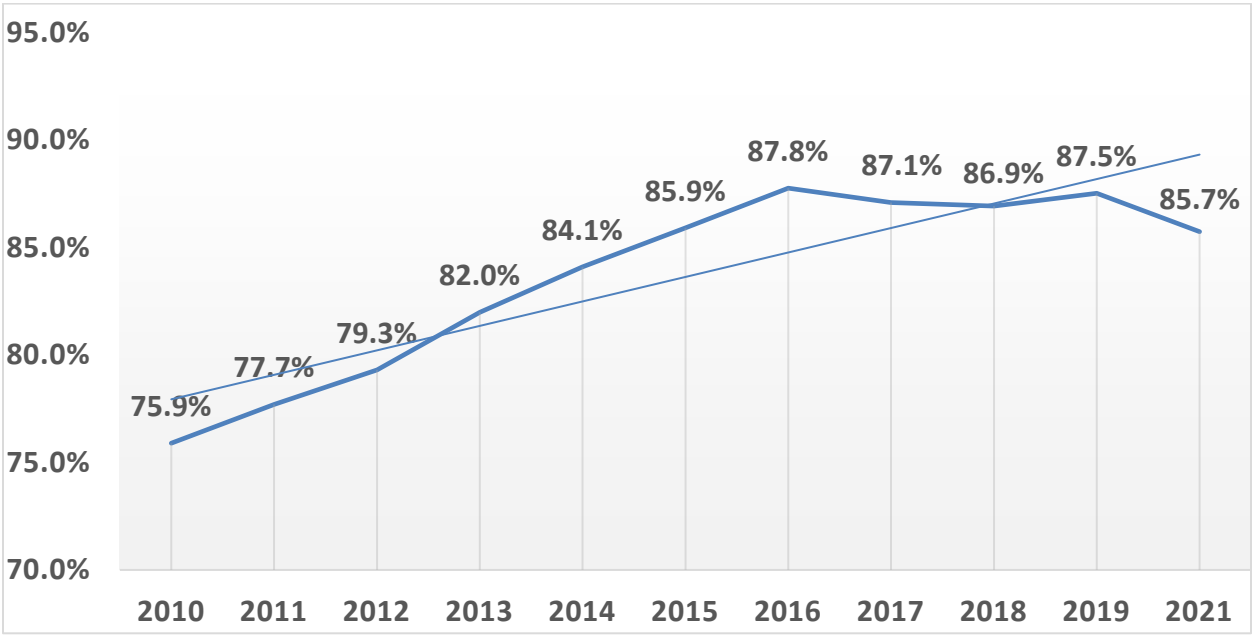
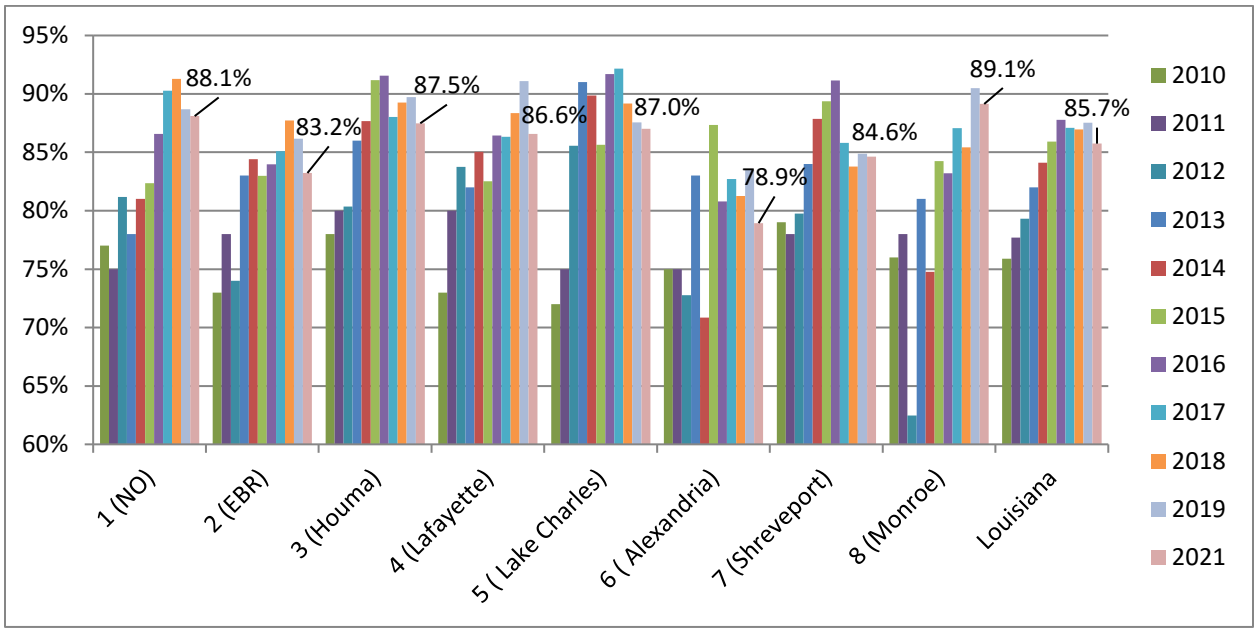


Figure 5, below, shows the trend in usage by region over the past 11 measures. Numbers displayed are 2021 regional averages. While every region in the State of Louisiana has seen usage improve since 2010, many regions have seen a decline in seat belt use over the past couple of years. The Lafayette and Monroe regions have had the most consistent upward trend over the past five years, while all other regions have had a decline from their peaks over the past few surveys. The Alexandria region has a consistently lower seat belt use than the other 7 regions.

Figure 5.
Louisiana Seat Belt Weighted Use Rates by Region, 2010-2021



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Appendix A

Copy of:

Seat Belt Use Observation Data Form

Seat Belt 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	**Sex** M=Male F=Female U=Unsure	**Race** W=White B=Black H=Hispanic O=Other U=Unsure	**Belt Use** + = Yes - = No U = Unsure	**Sex** M=Male F=Female U=Unsure	**Race** W=White B=Black H=Hispanic O=Other U=Unsure	**Belt Use** + = Yes - = No U = Unsure	**Sex/Race/Use** (13+ years old) Example: M W +
1								
2								
3								
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Seat Belt Observation Data Form (back)

Location:_____

(Street) **(Cross Street or other landmark)**

Site #: _____

Notes:

Diagram: