



2025

WEST VIRGINIA OBSERVATIONAL SEAT BELT SURVEY REPORT

prepared for | West Virginia Governor's Highway Safety Program prepared by | Cambridge Systematics, Inc.



2025 West Virginia Observational Seat Belt Survey Report

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Executive Summary

West Virginia has adopted the long-term goal of achieving zero traffic fatalities, with an interim goal of reducing fatalities by one-half by 2030, using the 2006-2010 five-year average as a baseline. According to the National Highway Traffic Safety Administration (NHTSA) Fatality Analysis Reporting System (FARS), the average percentage of known unrestrained fatalities in West Virginia was 46.2 percent from 2018 to 2022, and the average from 2019 to 2023 was 46.8 percent. To reach the State’s target of zero traffic fatalities, increasing seat belt use remains a critical priority.

This report presents findings from West Virginia’s 2025 observational seat belt survey, conducted between May 27th and June 11th, covering both weekdays and weekends. The report documents the statewide seat belt use rate and identifies the primary sources of variation in seat belt use, allowing the Governor’s Highway Safety Program (GHSP) and its stakeholders to develop and revise countermeasures to address unrestrained vehicle occupants.

Observers recorded seat belt information for 21,534 drivers and 5,442 onboard front-seat passengers, totaling 27,124 observations. Seat belt use could not be recorded for 148 observations, resulting in a statewide unweighted nonresponse rate of 0.55 percent for the 2025 survey, compared to 0.34 percent for the State’s 2024 survey. An observational seat belt survey was not conducted in 2020 due to the COVID-19 pandemic; therefore, charts and tables in this report do not include data for 2020.

The 2025 seat belt rate in West Virginia remains strong, exceeding 90 percent, with an observed rate of 91.64 percent. For readability, Figure ES.1 rounds rates to the nearest tenth. The rate has a standard error of 0.02 percent (relative standard error = 0.02 percent), well within the NHTSA standard requirement of 2.5 percent. This represents a slight decrease from the 2024 observed seat belt use rate of 91.98 percent. Across the 14 counties where observations occurred, seat belt use rates in 2025 ranged from 72.8 percent and 98.0 percent.

Figure ES.1 West Virginia Observed Seat Belt Use Rates
2015 to 2025



Source: <https://cdan.nhtsa.gov/stsi.htm#> and 2025 observational seat belt survey.

Section 1 of this report discusses the sampling procedures and methods used to obtain an estimate of the seat belt use rate in West Virginia. It also describes the procedures for the selection of counties, stratification of roadways, and identification of observation sites. Section 2 presents the results, beginning with the statewide seat belt use rate and multi-year trends, followed by a summary of the characteristics of occupants, vehicles, and observation sites. The report concludes with an analysis of selected characteristics of vehicle occupants and observation sites. The information provided by this report will help to identify the conditions under which seat belts are more or less likely to be used, allowing safety stakeholders across the State to strengthen their strategies for addressing unrestrained vehicle occupants.

Acknowledgments

Cambridge Systematics, Inc. (CS) began a partnership with the GHSP in 2018 to aid in the selection of new survey sites. CS was also involved in the development of this report. The 2025 West Virginia Observational Seat Belt Survey Report would not have been possible without the administration and support of the GHSP staff. Specifically, CS would like to thank Jack McNeely, Director, and Amy Boggs, Division Manager for their assistance in compiling the survey data, overseeing the observers, and managing the day-to-day operations of the project.

1.0 Methodology

In 2011, NHTSA issued new Uniform Criteria for State Observational Surveys of Seat Belt Use in Federal Register Vol. 76, No. 63 (April 1, 2011, Rules and Regulations, pages 18042–18059). This report represents West Virginia’s fulfillment of the NHTSA requirement to submit a study and data collection protocol for an annual State survey to estimate passenger vehicle occupant restraint use. The current methodology is fully compliant with the Uniform Criteria and was used to implement West Virginia’s 2023 seat belt survey which will remain in effect through 2027.

The present survey design and methodology is identical to the 2018 selection process and is updated to meet NHTSA’s current requirements. The surveyors selected the sample using a multistage, stratified cluster sampling procedure, to reflect the most recent roadway network conditions. West Virginia is divided into 55 counties, and 32 of the counties account for 85 percent of all passenger vehicle fatalities between 2016 and 2020. The present survey draws observation sites from an updated selection of 14 counties. Surveyors selected a total of 116 observation sites, resulting in 4 to 12 sites per county during the survey period in May and June. Surveyors used the same methodology approved by NHTSA for the 2023 survey and the methodology is valid through 2027 unless otherwise noted.

The 2023 observation survey design involved a five-step process, which included:

1. The selection of counties based on vehicle occupant fatalities and regions of the State.
2. The stratification of roads based on functional use classes.
3. The selection of specific road segments within each stratum and county.
4. The development of seat belt use estimation procedures and computations.
5. The establishment of data collection and quality procedures consistent with NHTSA requirements.

1.1 County Selection

Surveyors identified a total of 32 counties as having the most passenger vehicle occupant fatalities. These counties accounted for 85 percent of all fatalities during the time period studied. Of the 32 counties, 14 were selected for inclusion in the 2023 observation survey to represent all three regions of the State. The selection procedure involved dividing the State into three geographic regions, then allocating the number of counties by region based on the number of qualified counties in the region, and within each region making probability-proportional-to-size (PPS) selections with the odds of selection proportional to the county’s total roadway length. Appendix A shows the selected counties and identified regions of the State on the map.

Roadway Stratification and Definitions

The 2023 survey design identified 116 total observation sites across 14 counties in the State. A large number of observation sites were necessary to meet NHTSA’s requirement of having a standard error no greater than 2.5 percent. The surveyors determined the 116 sites by the mix of counties and road type distributions within counties. Consistent with NHTSA guidelines, the 2023 survey excluded rural local roads in non-Metropolitan Statistical Area (MSA) counties. Road strata include Primary Roadways, Secondary Roadways, and Local Roads (excluding rural local roads in non-MSA counties).

Each of the 14 counties has road segments in at least one of the road strata. The survey used six segments in Primary Roadways Strata, four segments in Secondary Roadways Strata, and two segments in Local Roads Strata (excluding rural local roads in non-MSA counties).

Roadway Segment and Site Selection

The surveyors used an approach to identify specific roadway segments that involved a PPS procedure, with lengths of roadways defined as the “size.” Segments were randomly drawn from county-stratum populations of road segments, with the probability of drawing any segment proportional to its portion of the total roadway lengths within the county-stratum. Sampling called for selecting twice the number of road segments required, retaining the order of selection, to provide for the necessary sample and an equal number of alternates, or “spare” segments. Surveyors selected and distributed a total of five certainty segments among the 116 primary and alternate segments across the roadway functional strata.

Prior to actual data collection, surveyors selected specific locations for data observations based on visits to the locations, maps, and/or online road-level images. The direction of travel to be observed was randomly selected for each segment and/or site. Sites were selected for unobstructed vehicle visibility and appropriate observer placement relative to travel direction. Efforts also were made to select observation sites where traffic naturally slows to improve accuracy. When specific site locations were unusable or not able to provide a clear view of belt use, observers chose alternate locations within the road segment where they could more effectively observe the same traffic stream. Surveyors documented details and reasons for changing locations; Appendix B provides a complete list of selected primary road segments.

Seat Belt Rate and Standard Error Calculations

Surveyors calculated seat belt use rates using formulas based on the proportion of the State’s total roadway length “represented” by the site. Seat belt use rate calculations followed a four-step process. First, estimated rates were calculated for each road type stratum within each county. The general formula for combining observed belt use rates from observation sites on individual segments, for a single county-stratum, is shown in formula (1).

This formula is used when the county-stratum contains certainty segments; the contribution of each segment to the overall county-stratum rate is proportional to the “size” of the segment’s contribution to the entire county-stratum traffic (i.e., its roadway length, adjusted by the inverse of the probability of the segment’s being selected into the sample).

$$p_{i(j)k} = \frac{\sum_l S_{i(j)k} W_{i(j)k} p_{i(j)k}}{\sum_l S_{i(j)k} W_{i(j)k}} \quad (1)$$

Where $i(j)$ = county i within region j , k = stratum, l = site within stratum and county, $S_{i(j)k}$ = roadway length for segment l in county-stratum $i(j)k$, and $p_{i(j)k}$ = the observed seat belt use rate at site $i(j)k = BS_{i(j)k}/O_{i(j)k}$ where $B_{i(j)k}$ = total number of belted occupants (drivers and outboard front seat passengers) observed at site, $O_{i(j)k}$ = total number of occupants with known belt use observed at site; and $W_{i(j)k}$ = the inverse of the probability of segment l ’s selection, as described above: (certainty segments) $W_{i(j)k} = 1.00$ or (random segments).

$$W_{i(j)k} = \frac{\sum_{m=1}^N S_{i(j)klm}}{n * S_{i(j)k}}$$

Where N = total number of segments in county-stratum $i(j)k$ excluding the certainty segments and n = number of segments to be randomly selected excluding certainty segments. In the case where there were no certainty segments in the county-stratum, formula (1) reduces to the simple formula (1a):

$$p_{i(j)k} = \frac{\sum_{l=1}^{n_{i(j)k}} p_{i(j)kl}}{n_{i(j)k}} \quad (1a)$$

Where $i(j)$ = county i within region j , k = stratum, l = site within stratum and county, $n_{i(j)k}$ = number of sites within the stratum-county combination, and $p_{i(j)k}$ = the observed seat belt use rate at site $i(j)kl$ = $BS_{i(j)kl}/O_{i(j)kl}$ where $B_{i(j)kl}$ = total number of belted occupants (drivers and outboard front seat passengers) observed at site, $O_{i(j)kl}$ = total number of occupants with known belt use observed at site.

Second, a county-by-county seat belt use rate, $p_{i(j)k}$, was obtained by combining county-stratum seat belt use rates across strata within counties, weighted by the stratum's relative contribution to total county roadway length:

$$p_{i(j)} = \frac{\sum_k S_{i(j)k} p_{i(j)k}}{\sum_k S_{i(j)k}} \quad (2)$$

Where $S_{i(j)k}$ = roadway length for all roads in stratum k in county $i(j)$, $p_{i(j)k}$ = the observed seat belt use rate for stratum k in county $i(j)$.

In the third step, category-weighted seat belt use rates for each region of counties were obtained by combining and weighting the rates from the sampled counties in each region by their roadway length and probabilities of being selected:

$$p_j = \frac{\sum_i S_{i(j)} W_{i(j)} p_{i(j)}}{\sum_i S_{i(j)} W_{i(j)}} \quad (3)$$

Where $S_{i(j)k}$ = roadway length for all roads k in county i and region j , $W_{i(j)}$ = the inverse of the probability of the county's selection: $W_{i(j)} = 1$ for certainty counties; and:

$$W_{i(j)} = \frac{\sum_{l=1}^{N(j)} S_{i(j)l}}{n_{i(j)} * S_{i(j)}}$$

Where $N(j)$ = the number of high-fatality counties in region j and $n_{i(j)}$ = the number of those counties selected.

Finally, the statewide seat belt use proportion was calculated by combining the category proportions weighted by their proportion of statewide roadway length:

$$p = \frac{\sum_{j=1}^3 S_j p_j}{\sum_{j=1}^3 S_j} \quad (4)$$

The result was a combination of the individual site seat belt use rates weighted to reflect each site's importance in total State roadway length.

Standard error of estimate values was estimated through a jackknife approach, based on the general formula:

$$\hat{\sigma}_{\hat{p}} = \left[\frac{1}{n * (n - 1)} \sum_{i=1}^n (\hat{p}_i - \hat{p})^2 \right]^{1/2}$$

Where $\hat{\sigma}_{\hat{p}}$ = standard deviation (standard error) of the estimated statewide seat belt use proportion \hat{p} (equivalent to p in the notation of formulas 1–4), n = the number of sites, i.e., 116, and \hat{p}_i = the estimated statewide seat belt use proportion with site i excluded from the calculation. The relative error rate was calculated, as well as the 95 percent confidence interval, i.e., $\hat{p} \pm 1.96\hat{\sigma}_{\hat{p}}$. These values are reported for the overall statewide seat belt use rate.

1.2 Procedures

Specific data collection procedures were established prior to the initiation of data collection, guided by the updated 2011 Uniform Criteria for State Observational Surveys of Seat Belt Use established by NHTSA.

Observers

The seat belt survey observers were hired under the direction of the GHSP. These observers performed all field data collection. Prior to any data collection, all observers received approximately one day of training by CS staff in 2018 after the current methodology used was approved by NHTSA. The observers received classroom instruction and several hours in the field practicing observation. Before observers conducted the observations in 2025, GHSP provided a refresher training. The observer staff remained mostly the same as the previous year. The observers were provided with a revised PowerPoint presentation from 2018 to serve as a refresher for adherence to the observation procedures found in the Uniform Criteria for State Observational Surveys of Seat Belt Use (23 CFR § 1340.7). The staff developed training to adhere to the observation procedures found in the Uniform Criteria for State Observational Surveys of Seat Belt Use (23 Code of Federal Regulations [CFR] § 1340.7). The topics covered in this training were:

- Review of requirements and purpose of the observational seat belt survey.
- Review of observation procedures and survey data to be collected.
- Discussion of survey scenarios.
- Review of survey application.
- Review of survey dates and submission process.

Observation protocols dictate that all survey data must be collected through direct observation, surveys must occur at the selected observation sites, surveys must occur on the day and time indicated, and observations should last exactly one hour for each survey site. If the observation point was on a heavily traveled roadway making it difficult for the observer to note every vehicle, a reference point on the roadway in the appropriate lane should be chosen. That same reference point then would be used for the remainder of the observations.

The safety of the observers was a priority and covered in the training as well. All observers were to wear a reflective vest and stand in a location that would not impede traffic. Observers were advised that if construction or weather conditions, such as heavy rain or fog, were present that it was permissible, after notifying GHSP, to reschedule or request an alternate site for the same day and time.

Lastly, per 23 CFR § 1340.7, observer quality control was overseen by GHSP monitors who reviewed the time and locations of the observers in the field in comparison to the scheduled surveys via the survey application that reports date, time, and location of each observational survey conducted.

Observation Schedule

Using the survey sites approved by NHTSA in March of 2023, the GHSP established the observation schedule for 2025. Observations were scheduled and conducted between May 27 and June 11, 2025, during the hours of 7:00 a.m. and 6:00 p.m. Exact timing of the observation periods was subject to adjustment so that the resulting number of sites being observed throughout the chosen timeframe were approximately equal. Whenever possible, three to five sites within relative proximity to each other were scheduled for observation on any day. The days of the week assigned were balanced to similar counties to ensure all days of the week have similar clusters. The first site in any cluster to be observed each day was randomly selected, and the additional sites were assigned in an order that provided balance by type of site and time of day while minimizing travel distance and time.

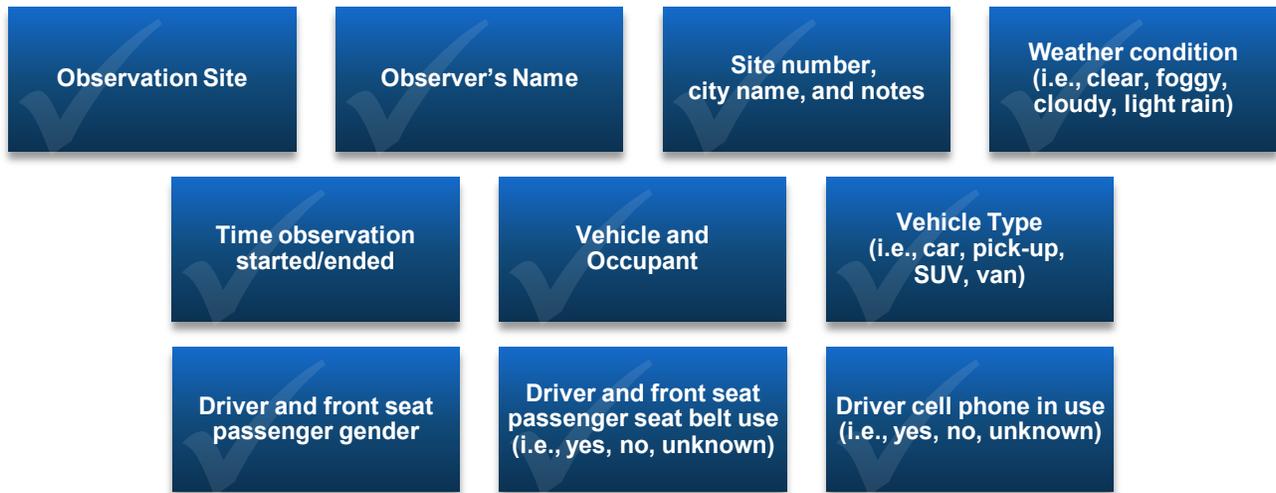
***Data collected
during weekdays
and weekends***



Data Collection Application

To improve not only the timeliness of the observed seat belt use rate results, but also the uniformity and accuracy of the data collected, observers used a survey application (App) on tablet computers. The survey App (see Appendix C) was specifically tailored for West Virginia's observers and did not materially change between its use in the 2018 survey and the 2025 survey. CS worked with the App developer to provide them with all the specific 2023 survey site information. The observers were able to select their survey site from a list; the App provided a map overview of the area to conduct the survey and, if applicable, the survey direction. Information collected on the survey App included information on the specific observation site and vehicle and occupant information (Appendix C).

Figure 1.2 Data Collected from Observational Surveys



2.0 Results

This section presents the results of the analysis of 27,124 driver and occupant observations collected in 2025. Surveyors made an extensive effort to summarize the characteristics of occupants, vehicles, and observation sites.

Table 2.1 provides the overall seat belt use rate based on the weighted sample of observations. In addition, this section presents the weighted belt use rate by county, roadway type, gender, vehicle type, cell phone use, and the observed seat belt use of both drivers and front seat passengers.

The analysis begins with a description of the sample, including the number of known and unknown occupants, their seat belt use, and the nonresponse rate for the survey. This information is followed by a brief analysis of the total sample of drivers and passengers by county.

Table 2.1 Seat Belt Use Rate

STATISTIC	VALUES	NOTES
WV Statewide Seat Belt Use Rate	91.64%	
Standard Error	0.02%	<2.50%
Relative Error Rate	0.02%	(0.0002 / 0.9164)
95 Percent Confidence Interval Upper Bound	91.67%	0.9164 + 1.96*0.0002
95 Percent Confidence Interval Lower Bound	91.60%	0.9164 - 1.96*0.0002

Table 2.2 summarizes the number of occupants using and not using seat belts, along with the statewide nonresponse rate. Observers were able to ascertain seat belt use for 27,124 occupants, including 21,673 drivers and 5,451 front-seat passengers in 2025. However, observers were unable to record seat belt use for 148 observations. This resulted in a statewide weighted nonresponse rate of 0.83 percent for the 2025 survey, well within the 2.5 percent threshold of acceptability.

Table 2.2 Statewide Seat Belt Use and Nonresponse Rate

STATISTIC	VALUES	NOTES
Total Occupants with Unknown Seat Belt Status	148	
Total Occupants Observed	27,124	
Sample Nonresponse Rate	0.55%	< 2.5%
Statewide Nonresponse Rate (Weighted)	0.83%	< 2.5%

Table 2.3 displays the total number and percentage of observed front seat occupants. As shown, a total of 21,673 drivers and 5,451 outboard front seat passengers were observed. These observations were compiled across 116 observation sites across 14 counties. Four counties had observation counts that exceeded 10 percent of all observations, Cabell (13.6 percent), Greenbrier (10.9 percent), Raleigh (14.6 percent), and Putnam (13.2 percent). These four counties collectively account for over half of all observations in the state (52.3 percent).

Table 2.3 Observed Rate by County

COUNTY	DRIVERS		PASSENGERS		TOTAL	
	N	%	N	%	N	%
Braxton	1,170	5.4%	325	6.0%	1,495	5.5%
Cabell	2,990	13.8%	707	13.0%	3,697	13.6%
Greenbrier	2,198	10.1%	748	13.7%	2,946	10.9%
Harrison	2,189	10.1%	494	9.1%	2,683	9.9%
Jefferson	1,665	7.7%	495	9.1%	2,160	8.0%
Lewis	1,257	5.8%	325	6.0%	1,582	5.8%
Lincoln	583	2.7%	106	1.9%	689	2.5%
Mason	857	4.0%	238	4.4%	1,095	4.0%
McDowell	259	1.2%	74	1.4%	333	1.2%
Morgan	878	4.1%	209	3.8%	1,087	4.0%
Putnam	2,995	13.8%	592	10.9%	3,587	13.2%
Raleigh	3,253	15.0%	698	12.8%	3,951	14.6%
Randolph	616	2.8%	110	2.0%	726	2.7%
Upshur	763	3.5%	330	6.1%	1,093	4.0%
Total	21,673	100.0%	5,451	100.0%	27,124	100.0%

Historically, over time, West Virginia has seen its weighted seat belt use rate climb. In 1992, the usage rate was at 32 percent and climbed to 49.5 percent in 2000. The 91.64 percent seat belt use rate achieved in 2025 represents a slight decline from the 2024 statewide rate of 91.98 percent. However, it remains strong, consistently above 90 percent. Figure 2.1 shows the linear trend over the last 10 years continues to move upwards, indicating the overall observed seat belt use rate continues to improve despite some historical year-over-year downturns.

Figure 2.3 Observed Seat Belt Use Rates 2015 to 2025



Source: <https://cdan.nhtsa.gov/stsi.htm#> and 2025 observational seat belt survey.

The percent weighted seat belt use rate for all vehicle occupants by county for 2025 is shown in Figure 2.2. Four counties had weighted seat belt use rates above 95 percent, including Braxton, Harrison, Raleigh and Upshur. Lincoln County recorded the lowest seat belt use rate at 72.8 percent. The county had a low seat belt use rate due in large part to a local route observation site with very low use rate (50 percent). Among the 14 counties where observations were conducted, 12 counties had a seat belt use rate above 90 percent, accounting for approximately 96 percent of the total observations.

Figure 2.4 Weighted Seat Belt Use Rate by County 2025

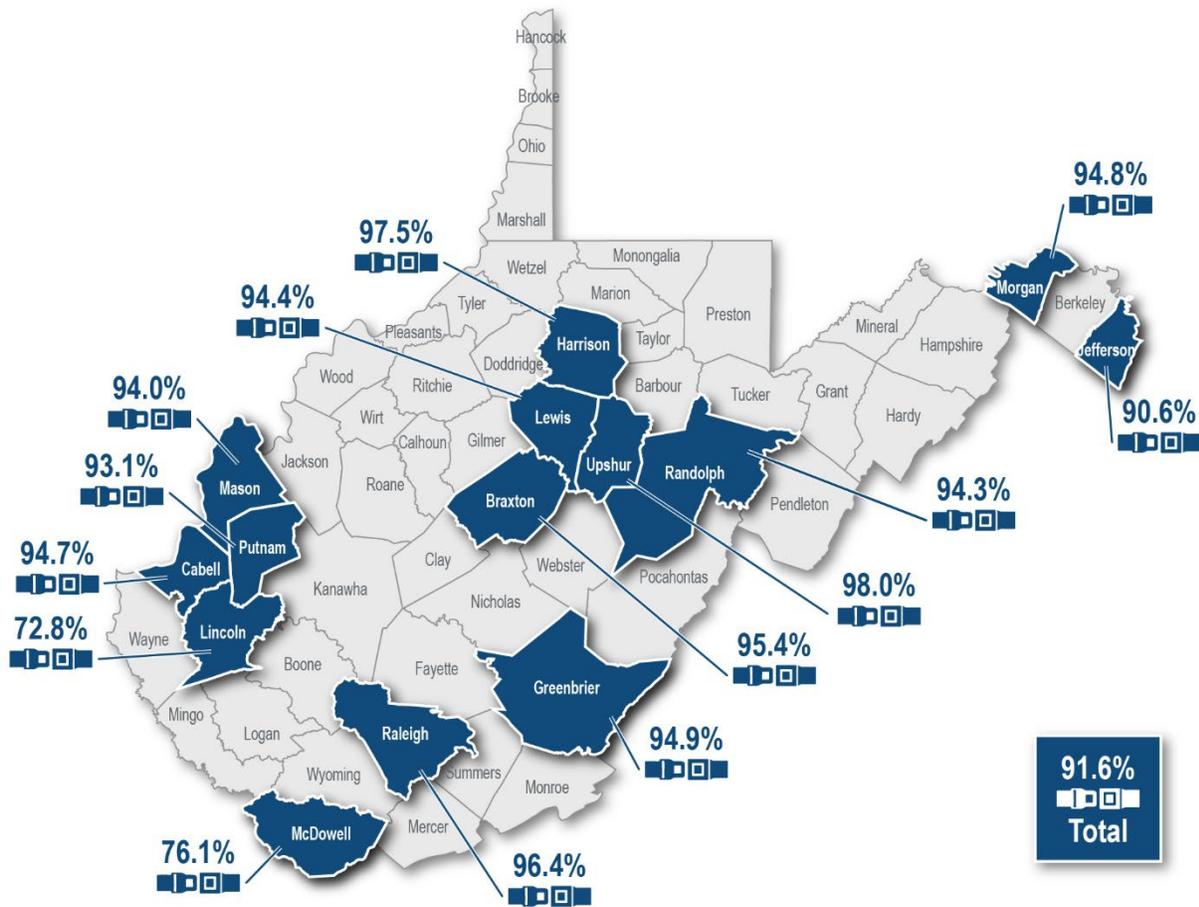


Table 2.4 displays the weighted seat belt use rate by county for 2021 to 2025. However, since new survey sites were selected in 2023, counties of the 2023 selection are shown and only the matching eight counties are included back to 2021. Of these eight counties with historical trends, five counties (Harrison, Lewis, McDowell, Putnam, and Raleigh) had a higher observed rate in 2025 than 2021.

Table 2.4 Select County Observed Seat Belt Rates (2018 Selection)
2021–2025

COUNTY	2021	2022	2023	2024	2025
Berkeley	83.9%	96.3%			
Boone	83.5%	85.9%			
Braxton	96.9%	97.2%	94.3%	97.0%	95.4%
Greenbrier	95.9%	98.7%	94.9%	95.6%	94.9%
Harrison	85.7%	99.2%	96.8%	97.0%	97.5%
Jackson	90.4%	83.9%			
Lewis	92.7%	99.4%	96.6%	97.6%	94.4%
McDowell	73.8%	84.0%	78.8%	79.6%	76.1%
Mingo	85.6%	85.7%			
Monongalia	95.5%	96.2%			
Pendleton	89.6%	90.9%			
Putnam	87.6%	89.0%	92.4%	79.0%	93.1%
Raleigh	89.0%	95.3%	96.1%	99.3%	96.4%
Randolph	88.0%	97.3%	97.4%	97.9%	94.3%
Total	88.1%	92.5%	93.0%	92.0%	91.6%

Table 2.5 shows the survey results for the 14 counties selected in 2023. Notably, there was a nearly 14-point gain in Harrison County from 2021 to 2022. This change falls outside the deviation that would be expected over the 2021 to 2022 period, but generally post-COVID trends were unpredictably dynamic. While only eight counties were consistent between the 2021 and 2025 selection, all saw reasonably stable or increased seat belt use rates.

Table 2.5 County Weighted Seat Belt Rates (2023 Selection)
2021–2025

COUNTY	2021	2022	2023	2024	2025
Braxton	96.9%	97.2%	94.3%	97.0%	95.4%
Cabell			92.1%	95.2%	94.7%
Greenbrier	95.9%	98.7%	94.9%	95.6%	94.9%
Harrison	85.7%	99.2%	96.8%	97.0%	97.5%
Jefferson			97.4%	93.5%	90.6%
Lewis	92.7%	99.4%	96.6%	97.6%	94.4%
Lincoln			82.5%	79.3%	72.8%
Mason			95.9%	92.8%	94.0%
McDowell			78.8%	79.6%	76.1%

COUNTY	2021	2022	2023	2024	2025
Morgan			93.6%	92.4%	94.8%
Putnam	87.6%	89.0%	92.4%	79.0%	93.1%
Raleigh	89.0%	95.3%	96.1%	99.3%	96.4%
Randolph	88.0%	97.3%	97.4%	97.9%	94.3%
Upshur			97.2%	96.0%	98.0%
Total	88.1%	92.5%	93.0%	92.0%	91.6%

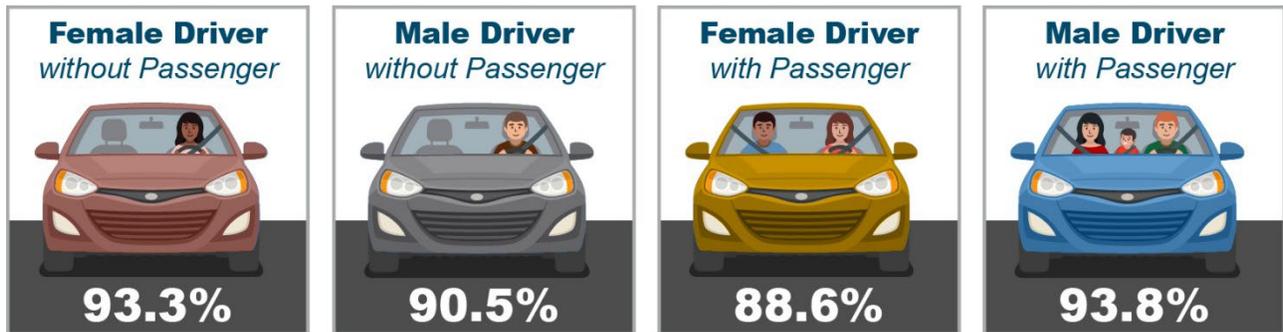
2.1 Characteristics of Belted Drivers and Passengers

This section analyzes various characteristics of drivers and passengers, and their relationships with seat belt use, to identify variations by occupant, site characteristics, and vehicle type. The goal is to highlight the conditions under which seat belts are more or less likely to be used in the State, thereby informing appropriate countermeasures in education and enforcement.

When segmenting the data by seat belt use rate for drivers with or without a passenger in the front outboard passenger seat, several notable patterns emerge:

- **2021 survey:** Male drivers had an 11.2-point higher seat belt use rate when accompanied by a passenger compared to driving alone, while female drivers had a 2.8-point increase.
- **2022 survey:** The gap narrowed, with male drivers showing a 4.8-point higher seat belt rate with a passenger than driving alone, and female drivers had a 1.9-point higher seat belt rate with a passenger than without.
- **2023 survey:** The differences were smaller for males (+2.3 points) but more pronounced for females (+4.0 points).
- **2024 survey:** This trend reversed, with both male and female drivers less likely to be belted when accompanied by a passenger—an anomaly relative to prior years.
- **2025 survey:** The established pattern largely returned. Male drivers again exhibited higher seat belt use when accompanied (+3.3 points), while female drivers without a passenger had a 4.7-point higher use rate, continuing the reversal first seen in 2024.

Figure 2.5 2025 Weighted Seat Belt Use Rate for Drivers with Passenger Versus Without



Across most counties, male drivers were less likely to use seat belts compared to female drivers (Table 2.6). This finding is consistent with previous observational surveys in West Virginia over the past several years. Overall, however, male drivers (91.6 percent) were slightly more likely to be observed wearing a seat belt in comparison to female drivers (91.5 percent). This is a flip in the historical observations where, in 2024, the gap between male and female was 2.6 points in the direction of females being more likely to be observed wearing seatbelts. Also, a flip in the traditional trend, Table 2.7 shows that male passengers were more likely to use a seat belt (92.0 percent) compared to female passengers (90.5 percent). It is notable that both male and female drivers and passengers exceeded 90.0 percent seat belt use share.

Table 2.6 shows the distribution of the driver’s seat belt use by gender and county in 2025. Across the 14 counties studied, the belt use rate for males (91.6 percent) was higher than females (91.5 percent). Despite this, females had a higher seat belt rate in 10 of the 14 counties. Only in Cabell, Jefferson, Lincoln, and Putnum Counties did females have a lower seat belt rate than males. Lincon and Putnam counties had a gender disparity in excess of 10-points at 13 and 21 points, respectively. Though this gap has been growing since 2023 among these two counties, it is not likely a worsening trend but rather a statistical anomaly; though, 2026 survey results should be monitored for this discrepancy.

Table 2.6 Driver Belt Use Rates by Gender and County

	DRIVERS		
	MALE %	FEMALE %	TOTAL %
Braxton	93.1%	98.4%	94.9%
Cabell	97.1%	91.8%	94.7%
Greenbrier	93.4%	98.2%	94.9%
Harrison	96.8%	98.3%	97.2%
Jefferson	88.3%	84.3%	87.1%
Lewis	93.3%	98.6%	94.6%
Lincoln	84.7%	71.7%	74.3%
Mason	91.4%	97.7%	93.6%
McDowell	74.3%	81.7%	76.6%
Morgan	91.0%	97.1%	93.5%
Putnam	98.9%	78.0%	95.3%
Raleigh	95.0%	98.0%	96.5%

	DRIVERS		
	MALE %	FEMALE %	TOTAL %
Randolph	91.5%	99.5%	94.6%
Upshur	96.9%	99.0%	97.5%
Total	91.6%	91.5%	91.6%

Table 2.7 presents seat belt use among passengers by gender and county. Similar to the driver results, the analysis reveals gender-related patterns in passenger seat belt use.

Across the 14 counties studied, male passengers had a higher seat belt use rate (92.0 percent) than female passengers (90.5 percent) based on the algorithm used for all sites in the same county and same road stratum weight a reversal from 2024, when female passengers had higher usage rates.

The largest disparity occurred in Putnam County, where male passengers were recorded using seat belts 98.2 percent of the time, compared to 56.3 percent for female passengers—a 41.9-point gap. While this difference appears substantial, it is likely influenced by sampling factors. Specifically, the survey methodology applies higher weights to local roads, yet only a small number of passengers were observed in Putnam County on local roads. This limited sample size may have amplified the disparity. Only in 5 of the 14 counties did male passenger seat belt use exceed female use, with 4 of these counties located in Region 1. This should be interpreted cautiously, as it may reflect sampling weight effects rather than true behavioral differences.

Table 2.7 Passenger Belt Use Rates by Gender and County

	PASSENGERS		
	MALE %	FEMALE %	TOTAL %
Braxton	97.7%	97.0%	97.6%
Cabell	98.9%	92.4%	94.6%
Greenbrier	88.8%	97.7%	95.3%
Harrison	97.9%	99.8%	99.0%
Jefferson	98.2%	99.3%	98.9%
Lewis	85.8%	97.1%	92.2%
Lincoln	85.6%	76.7%	65.9%
Mason	83.8%	99.7%	95.3%
McDowell	66.4%	75.4%	73.8%
Morgan	99.7%	99.9%	99.8%
Putnam	98.2%	56.3%	70.4%
Raleigh	99.5%	91.2%	95.7%
Randolph	91.7%	93.0%	91.7%
Upshur	97.5%	99.3%	98.9%
Total	92.0%	90.5%	90.3%

West Virginia saw its lowest seat belt use rate in pickup trucks (86.4 percent), followed by SUVs (92.5 percent), vans (93.5 percent), and cars (93.8 percent). Geographically, the Northern region of the State saw the highest seat belt use rate (95.6 percent), followed by the Eastern Panhandle region (92.7 percent), with

the lowest use rate coming from the Southern region of the State (88.0 percent). These results are similar to those of last year’s study (2024) and the study from 2023. A map of the State’s regions can be found in Appendix A. When analyzing roadway functional class, local roadways had the lowest observed seat belt rate at 90.0 percent, followed by secondary roadways at 92.1 percent. Primary roadways had the highest rate, at 95.7 percent, consistent with the 2023 and 2024 results. Notably, all roadway functional classifications exceeded 90 percent seat belt use rates.

Table 2.8 Seat Belt Use Rate for Drivers and Passengers by Vehicle Type and Site Characteristics

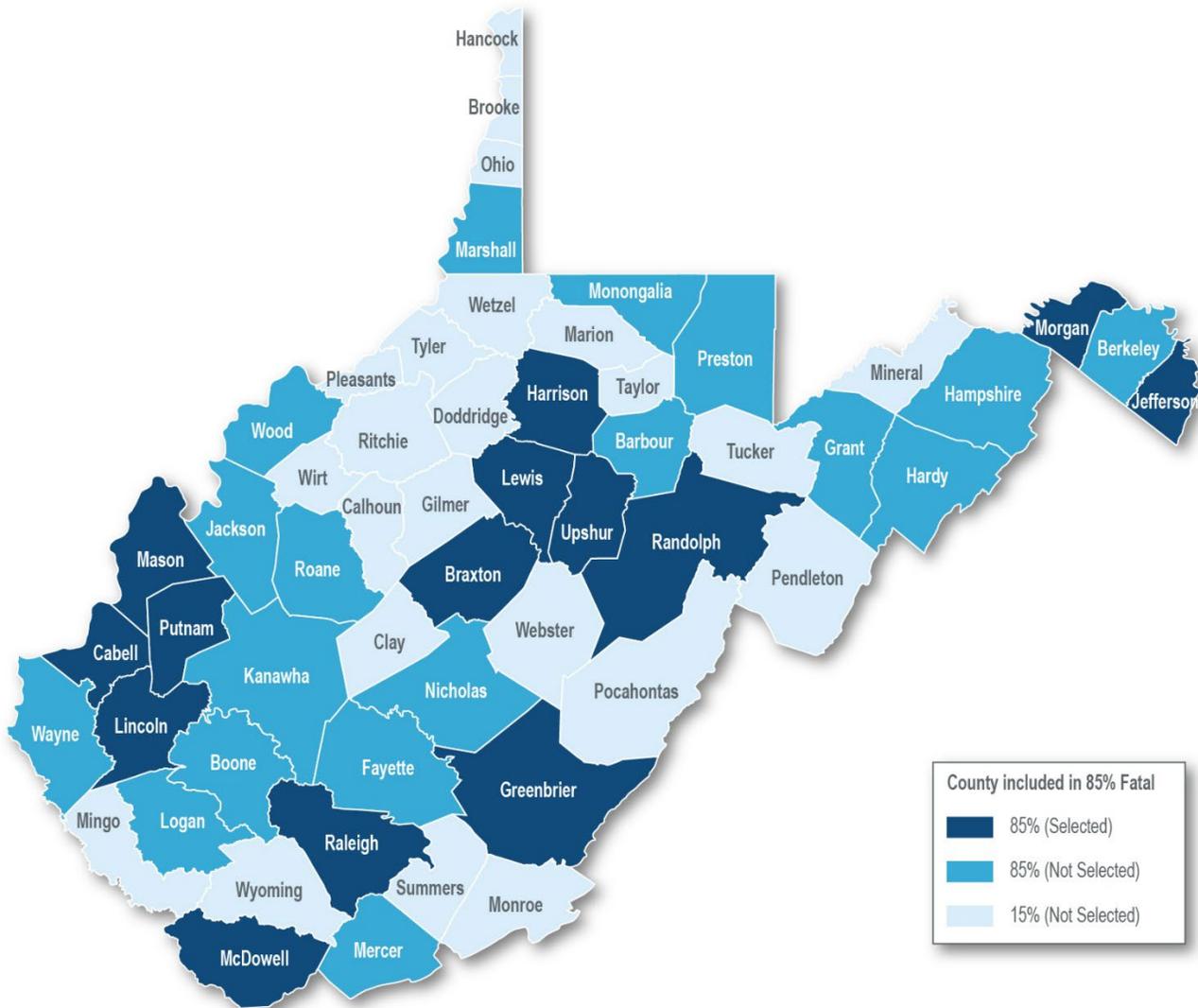
VEHICLE TYPE AND SITE CHARACTERISTICS	DRIVER	PASSENGER	TOTAL
Vehicle Type			
Car	93.2%	96.6%	93.8%
Pickup Truck	86.9%	88.6%	86.4%
Van	93.1%	96.8%	93.5%
SUV	92.2%	93.7%	92.5%
Region			
Eastern Panhandle	90.3%	99.4%	92.7%
North	95.4%	95.8%	95.6%
South	88.9%	82.9%	88.0%
Functional Class			
Primary	95.6%	96.3%	95.7%
Secondary	92.0%	92.5%	92.1%
Local	90.3%	87.0%	90.0%

Cell phone use while driving is one form of distracted driving. The seat belt observers also were able to capture observed cell phone use during the survey of those drivers using hand-held cell phones. The table below shows the number of observations of driver cell phone use and no cell phone use and breaks it down by gender and whether a seat belt was in use. Males had an observed cell phone use of 2.2 percent, whereas females had a higher observed use of 3.0 percent. Among drivers observed using a cell phone, 56.8% were male, while 43.2% were female. Additionally, 92.5% of drivers using a cell phone were wearing a seat belt, compared to 95.0% of drivers who were not using a cell phone. This could suggest a correlation between belted drivers and being less likely to use a cell phone while driving, which has been observed in previous years.

Table 2.9 Observed Cell Phone Use by Gender and Seat Belt Use

	CELL PHONE USE		NO CELL PHONE USE	
	NUMBER	PERCENT	NUMBER	PERCENT
Gender				
Male Driver	304 (2.2% of all male drivers)	56.8%	13,459	64.1%
Female Driver	231 (3.0% of all female drivers)	43.2%	7,543	35.9%
Seat Belt Use				
Use	495	92.5%	19,946	95.0%
No Use	40	7.5%	1,051	5.0%

Appendix A Seat Belt Observational Counties and Regions



Appendix B Seat Belt Observational Survey Site List

SITE ID	SITE TYPE	DATE OBSERVED	SAMPLE WEIGHT	NUMBER OF DRIVERS	NUMBER OF FRONT PASSENGERS	NUMBER OF OCCUPANTS ¹ BELTED	NUMBER OF OCCUPANTS UNBELTED	NUMBER OF OCCUPANTS WITH UNKNOWN BELT USE
1	Original	6/2/2025	195.9564274	235	74	294	15	0
2	Original	6/2/2025	60.89874885	29	5	32	2	0
3	Original	6/8/2025	37.94752263	41	7	42	5	1
4	Original	6/2/2025	34.33292677	258	50	302	6	0
5	Original	6/8/2025	46.79573242	178	92	263	5	2
6	Original	6/8/2025	104.6254887	30	8	34	3	1
7	Original	6/2/2025	83.38969712	13	4	15	2	0
8	Original	6/2/2025	97.01485109	350	74	423	1	0
9	Original	6/8/2025	118.8783971	8	2	10	0	0
10	Original	6/8/2025	400.7510877	28	9	34	1	2
11	Original	6/1/2025	48.71925934	93	34	113	11	1
12	Original	6/6/2025	535.2243165	275	60	309	21	5
13	Original	6/2/2025	10.78064635	303	42	331	14	0
14	Original	6/1/2025	16.43338823	170	52	212	7	2
15	Original	6/6/2025	73.94961085	266	78	311	32	1
16	Original	6/2/2025	22.69966833	240	54	266	28	0
17	Original	6/6/2025	20.95914984	454	122	547	26	3
18	Original	6/2/2025	458.5011944	470	86	512	44	0
19	Original	6/1/2025	43.30379815	359	99	428	27	3
20	Original	6/6/2025	41.1505315	272	69	311	30	0
21	Original	6/2/2025	2393.127703	69	9	74	4	0
22	Original	6/1/2025	5684.699291	19	2	19	1	1
23	Original	6/9/2025	15.02642364	234	30	256	8	0
24	Original	6/2/2025	29.28744827	171	44	207	8	0
25	Original	6/2/2025	53.86705472	212	28	234	6	0
26	Original	5/31/2025	22.83646007	457	214	665	6	0
27	Original	5/31/2025	22.11341068	150	45	188	7	0
28	Original	5/31/2025	39.43405413	467	232	686	13	0
29	Original	6/2/2025	853.6494067	18	2	19	1	0
30	Original	5/31/2025	337.8260025	88	40	117	11	0
31	Original	5/31/2025	906.7408018	303	99	373	29	0
32	Original	6/2/2025	52.57852473	98	14	107	5	0
33	Original	6/3/2025	558.9788664	134	20	149	5	0

SITE ID	SITE TYPE	DATE OBSERVED	SAMPLE WEIGHT	NUMBER OF DRIVERS	NUMBER OF FRONT PASSENGERS	NUMBER OF OCCUPANTS ¹ BELTED	NUMBER OF OCCUPANTS UNBELTED	NUMBER OF OCCUPANTS WITH UNKNOWN BELT USE
34	Original	5/29/2025	30.45702406	255	64	312	5	2
35	Original	5/29/2025	43.4503916	28	5	33	0	0
36	Original	5/29/2025	33.123556	394	96	483	7	0
37	Original	6/3/2025	33.41574168	181	48	220	8	1
38	Original	5/29/2025	18.96670035	233	42	270	5	0
39	Original	5/29/2025	310.9369491	239	35	268	6	0
40	Original	6/3/2025	210.2922716	245	49	284	10	0
41	Original	6/3/2025	465.8961893	182	33	209	6	0
42	Original	6/3/2025	72.60691844	298	102	391	9	0
43	Original	6/1/2025	11.48978261	104	43	134	12	1
44	Original	5/30/2025	10.72853306	72	27	92	6	1
45	Original	5/30/2025	21.88368349	97	23	110	9	1
46	Original	5/30/2025	14.07645263	102	22	104	19	1
47	Original	6/1/2025	14.85136257	84	33	97	16	4
48	Original	6/1/2025	3.488506515	47	14	50	7	4
49	Original	5/30/2025	34.76682081	195	22	192	24	1
50	Original	5/31/2025	363.2157598	178	57	200	32	3
51	Original	5/31/2025	88.229718	95	28	110	12	1
52	Original	6/1/2025	685.8462661	666	217	827	56	0
53	Original	5/31/2025	728.9352297	19	8	22	5	0
54	Original	5/31/2025	3605.572051	6	1	7	0	0
55	Original	6/6/2025	8.184947767	49	4	50	2	1
56	Original	5/31/2025	53.0863417	105	39	137	7	0
57	Original	5/31/2025	37.24591211	49	23	68	3	1
58	Original	5/31/2025	28.35346222	105	26	122	6	3
59	Original	6/6/2025	4.066083095	13	5	17	1	0
60	Original	6/6/2025	6.896019428	454	117	565	5	1
61	Original	6/6/2025	37.87959928	135	22	139	16	2
62	Original	5/31/2025	227.6250028	84	27	103	7	1
63	Original	5/31/2025	260.5972796	43	13	54	2	0
64	Original	6/6/2025	353.9821505	220	49	251	17	1
65	Original	5/28/2025	719.4532903	59	13	63	9	0
66	Original	5/30/2025	229.1065587	149	28	153	16	8
67	Original	5/28/2025	130.2891788	213	35	212	32	3
68	Original	5/28/2025	108.2630155	51	3	44	8	2

SITE ID	SITE TYPE	DATE OBSERVED	SAMPLE WEIGHT	NUMBER OF DRIVERS	NUMBER OF FRONT PASSENGERS	NUMBER OF OCCUPANTS ¹ BELTED	NUMBER OF OCCUPANTS UNBELTED	NUMBER OF OCCUPANTS WITH UNKNOWN BELT USE
69	Original	5/30/2025	330.0919732	13	3	8	8	0
70	Original	5/30/2025	264.6671452	98	24	108	8	5
71	Original	5/29/2025	174.8482841	43	14	39	17	1
72	Original	5/29/2025	320.4090778	58	14	56	14	1
73	Original	5/29/2025	719.5819402	127	36	138	25	0
74	Original	5/29/2025	237.0728389	31	10	28	12	1
75	Original	5/31/2025	109.2376466	33	7	35	4	1
76	Original	5/31/2025	209.5423842	214	33	232	14	1
77	Original	5/31/2025	93.9091008	260	77	323	13	1
78	Original	5/31/2025	3451.559604	350	121	450	20	1
79	Original	6/3/2025	66.8101227	344	63	373	23	11
80	Original	6/2/2025	485.4152616	157	49	196	6	3
81	Original	6/2/2025	25.86542665	87	32	112	6	1
82	Original	6/2/2025	196.3331486	52	14	63	2	1
83	Original	6/3/2025	418.0663179	58	18	72	4	0
84	Original	6/3/2025	616.3109402	180	33	195	11	7
85	Original	5/29/2025	13.41230106	523	150	627	33	13
86	Original	5/29/2025	12.42833201	521	102	555	61	7
87	Original	5/27/2025	18.62641562	392	75	452	13	2
88	Original	6/11/2025	25.64277389	145	23	158	9	1
89	Original	6/11/2025	23.07991276	133	23	146	9	1
90	Original	6/4/2025	58.33467318	456	61	492	21	4
91	Original	5/29/2025	231.5053769	151	39	164	22	4
92	Original	6/4/2025	35.86192863	96	13	107	1	1
93	Original	5/27/2025	53.79682324	130	16	134	11	1
94	Original	5/27/2025	553.0141789	436	87	509	12	2
95	Original	5/29/2025	2885.644783	11	3	12	2	0
96	Original	5/27/2025	1364.37114	1	0	1	0	0
97	Original	6/1/2025	130.5563237	457	127	584	0	0
98	Original	6/1/2025	39.37387119	449	94	543	0	0
99	Original	5/29/2025	60.39972088	285	79	362	1	0
100	Original	6/1/2025	160.3226461	471	66	535	2	0
101	Original	5/29/2025	138.3297619	265	87	346	6	0
102	Original	5/29/2025	122.206824	253	29	276	5	0
103	Original	5/29/2025	206.9952513	224	59	277	6	0

SITE ID	SITE TYPE	DATE OBSERVED	SAMPLE WEIGHT	NUMBER OF DRIVERS	NUMBER OF FRONT PASSENGERS	NUMBER OF OCCUPANTS ¹ BELTED	NUMBER OF OCCUPANTS UNBELTED	NUMBER OF OCCUPANTS WITH UNKNOWN BELT USE
104	Original	5/30/2025	452.5408631	244	48	275	17	0
105	Original	5/30/2025	142.4885108	86	15	96	5	0
106	Original	5/30/2025	126.1758151	219	48	255	12	0
107	Original	5/30/2025	3262.18082	45	11	52	4	0
108	Original	6/1/2025	3833.033079	255	35	289	1	0
109	Original	5/29/2025	57.05588572	121	15	129	6	1
110	Original	5/29/2025	33.91695113	70	9	73	6	0
111	Original	5/29/2025	33.0675239	80	33	109	4	0
112	Original	5/29/2025	327.7963074	345	53	368	28	2
113	Original	6/1/2025	48.42695075	166	75	236	5	0
114	Original	6/1/2025	50.14197877	51	26	76	1	0
115	Original	6/1/2025	344.5322152	251	102	343	10	0
116	Original	6/1/2025	44.56608907	295	127	414	8	0
Total				21,673	5,451	25,699	1,277	139

¹ Occupants refer to both drivers and passengers.

Appendix C Observational Survey Collection Form

WVGHSP

Step 1: Pre-Survey | **Step 2: Survey** | Step 3: Post-Survey | Step 4: Finished

Exit | 59:30 | Pause

Vehicle Type | **Driver** | **Passenger**

Vehicle Type	Gender	Seat Belt	Cell Phone in Use	Gender	Seat Belt
Car	Male	Yes	Yes	Male	Yes
Truck	Female	No	No	Female	No
Van	Unknown	Unknown	Unknown	Unknown	Unknown
SUV	Unknown	Unknown	Unknown	Unknown	Unknown

2 | Clear Selections | Next Vehicle