Final Report

June 2023
Missouri Statewide
Seat Belt Usage Survey

Submitted To:

Missouri Department
of Transportation

Highway Safety and
Traffic Division

MoDOT

Submitted by: LaGena Spence, Missouri Safety Center
University of Central Missouri

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EXECUTIVE SUMMARY

The underlying rationale of this survey is based upon the *Uniform Criteria for State Observational Surveys of Seat Belt Use* published in the **Federal Register** (vol. 76, no. 63, Friday, April 1, 2011, pp 18056-18059) by the National Highway Traffic Safety Administration (NHTSA) of the U. S. Department of Transportation and is in compliance with the subsequent *Final Rule* (effective May 2, 2011). The Uniform Criteria were revised in an effort to standardize the requirements for the statewide observing and reporting of seat belt use for drivers and right front-seat passengers. These new requirements contain numerous changes to include county selection based upon fatality-based criterion, the use of a weighted calculation, a change in the standard error from 5.0 percent to 2.5 percent, the involvement of a qualified statistician, and every five years, a reselection of observation sites using the most recent traffic fatality counts.

The following report documents the 2023 results of Missouri's annual statewide seat belt use survey. The principal objective is to establish a seat belt usage rate of drivers and right front-seat passengers from which strategies targeting educational and enforcement occupant protection programs can be developed. Missouri's sampling plan also addresses the need for a statewide seat belt usage rate required by NHTSA.

Missouri's observational survey of seat belt usage took place June 5th through June 18th, 2023. The Highway Safety and Traffic Division of Missouri Department of Transportation (MoDOT) contracted with the Missouri Safety Center located at the University of Central Missouri to help develop, implement, and analyze the 2023 observational survey with the statistical expertise being provided by Judi D. Reine, MA, Director of Institutional Research at State Fair Community College.

Based upon a total of 111,101 vehicle occupants observed, the 2023 seat belt use rate on Missouri roadways was found to be 87.0%, with a standard error of 0.2217. Of these 111,101 occupants, seat belt use could not be determined for 193 drivers and 98 right front-seat passengers, therefore, the non-response or unknown use rate for the total 291 occupants was 0.26% and does not exceed the 10.0% requirement established by NHTSA.

Results from Missouri's initial statewide seat belt use survey remain included within this report to display the belt use since 1998. However, comparisons between the years of 1998-2012, 2013-2017, 2018-2022, and 2023 should be made with caution, as these four groups of years represent four distinct survey methodologies and site samples. Table 1 indicates the weighted results of observations from 1998 through 2023.

Table 1: Observations and Usage Rate by Year, 1998-2023*

Year	Usage Rate	Vehicles Observed	Total Observation (Driver& Passenger)
2023	87.0%	88,924	111,101
2022	88.9%	96,342	122,607
2021	88.0%	101,464	129,114
2020	86.1%	92,800	116,224
2019	87.7%	93,100	119,413
2018	87.1%	104,510	135,646
2017	84.0%	91,850	115,902
2016	81.4%	96,705	123,678
2015	79.9%	91,463	118,081
2014	78.82%	90,015	117,297
2013	80.07%	82,128	108,096
2012	79.39%	92,860	119,474
2011	78.95%	97,646	127,720
2010	76.03%	96,160	126,419
2009	77.18%	94,799	122,962
2008	75.78%	88,980	116,274
2007	77.16%	87,543	114,432
2006	75.18%	90,345	117,901
2005	77.41%	82,051	105,233
2004	75.88%	85,066	111,966
2003	72.93%	83,781	109,619
2002	69.37%	75,412	99,099
2001	67.91%	73,603	97,544
2000	67.72%	70,230	92,000
1999	60.8%	74,058	95,538
1998	60.4%	74,930	97,233

* Weighted Data

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METHODOLOGY

According to NHTSA's Uniform Criteria, at least once every five years, all States are required to reselect their observation sites using the most recent traffic fatality counts. Missouri was required to reselect observation sites for the 2023-2027 survey years. The fatality data from the five-year period 2016-2020 were used for this purpose and were obtained from MoDOT. This reselection process resulted in changes to the survey design and observation sites.

Rationale for Changing the Sampling Design

- The 1998 seat belt use survey was done as the base line; then each survey after and up through the 2012 seat belt use survey was conducted as a replication of the former. All were probability-based surveys with the data collection locations representative of 85 percent of the State's population and were, at that time, in compliance with the guidelines recommended by NHTSA.

- In compliance with the Uniform Criteria, a new survey design was implemented in Missouri beginning with the 2013 statewide survey. In addition to the new design, Missouri elected to depict the usage rate for each of Missouri's seven transportation districts, requiring at least 4 counties be included from each district. This approach was used through 2017.

- Per the Uniform Criteria, Missouri reselected road segments and observation sites for the next five-year period starting with the 2018 survey. In addition to the new road segment and site selection, Missouri removed the requirement that each district be represented by at least 4 counties. This approach was used through 2022.

- For the 2023 survey, and complying with the Uniform Criteria, the Missouri survey was evaluated and new road segments and observation sites were selected. In previous surveys, roadways were identified in four different functional classifications; Interstate, Freeway/Expressway, Arterial, and Collector. For the 2023 survey Missouri added the Local functional roadway classification. The 2023-2027 survey design was approved by NHTSA on May 1, 2023.

County Selection

The State of Missouri is comprised of 114 counties and the City of St. Louis. For the purpose of this study the City of St. Louis and the County of St. Louis have been combined and have been counted as a single county. A total of 62 counties account for 85 percent of the total fatalities from 2016-2020 and these represent the primary sampling unit (PSU). The fatality data are reported by county, in descending order of magnitude, in *Appendix A, Vehicle Occupant Fatalities by County, 2016-2020.* They are also highlighted on the Missouri map, *Appendix B, Top Counties with 85% of Vehicle Occupant Fatalities, 2016-2020.*

The Vehicle Miles Traveled (VMT) – both Daily (DVMT) and Annual – were obtained from MoDOT for each of the 62 counties comprising the top 85% of the vehicle occupant fatalities for 2016-2020. In addition, the percent of the Total Yearly VMT was computed for each of the 62 counties based upon the Annual VMT for each county as compared with the grand total VMT (189,680,465 miles) for the group of 62 counties.

The final selection of 28 counties was made utilizing Microsoft Excel and Visual Basic for Applications to create a macro that would perform the random selection. This weighted the counties such that a county with high annual VMT would have more opportunities for selection than a county with low annual VMT. The resultant 28 counties may be found on the Missouri map, *Appendix C, Random Selection of Counties for Sampling, 2016-2020.*

Roadway Classification and Segment Selection

Roadway Segment Pool: The individual roadway segments to be used as observation sites were selected from MODOT's Transportation Management System (TMS). The TMS is updated annually and includes all federal, state, and local roads throughout the state. Pursuant to the guidelines in NHTSA's *Final Rule* (effective May 2, 2011), the following road types were excluded from this study: non-public roads, unnamed roads, unpaved roads, vehicular trails, access ramps, cul-d-sacs, traffic circles, and service drives. Four roadway types (Interstate, Freeway/Expressway, Arterial, and Collector) within each of the 28 survey counties were divided into roadway segments, each of which begins and ends at an "at grade" intersection where traffic could potentially change. There are eight Metropolitan Statistical Areas (MSA) in Missouri. These include: St. Louis, Kansas City, Springfield, Columbia, Joplin, Jefferson City, St. Joseph, and Cape Girardeau. Each MSA could cover multiple counties. For counties with an MSA, local roads are included in the study. Local roads in counties with no MSAs are excluded as allowed in 23 CFR Part 1340.5(a)(2)(iii).

Selection of Observation Sites: A total of 20 observation sites (roadway segments) per county were selected. Each functional road classification was sampled in proportion to the percentage of road classification VMT within each county. For example, if 40 percent of the VMT in the county were Interstates, then 40 percent of the sampled sites were randomly selected from the Interstate pool.

Each road segment had an opportunity to be selected based on its corresponding Functional Class and VMT – if the VMT was very small, the opportunity for selection was minimal. *Appendix D, County VMT by Functional Road Type (State System Only),* reports the Annual VMT, Percent of Annual VMT, Number of Road Segments to be Sampled, Available Segments, The Probability of Selection by Segment, and the Number of Alternate Segments Selected.

DATA COLLECTION

Observers and Quality Control Monitors

Forty observers were hired and trained by the Missouri Safety Center. All but three of the observers were experienced data collectors who had conducted seat belt observations in past surveys. The three newly hired observers received additional and individual training from the Missouri Safety Center.

All observers and quality control monitors were trained in the appropriate procedures of Missouri's survey. Data collection protocols, scheduling, site locations, field protocols and reporting requirements were all topics covered during the training. Additionally, observers were instructed on how to proceed in conditions of bad weather or temporary traffic impediments, as well as, if an observation site needed to be abandoned due to construction activities, safety concerns, or some other legitimate reason.

The Quality Control Monitors were given additional training that focused on their specific duties. These duties included verifying that the observers were at the appropriate observation site during the assigned time and ensuring that the observers were following field protocol and helping if needed. Six Quality Control monitors were utilized to conduct random unannounced visits to 96 of the total 560 observation sites. This represents a 17.0 percent monitoring rate which is well above the 5 percent rate required by NHTSA.

Observation and Survey Protocols

Observation sites were geographically organized into clusters of 3, 4, or 5 sites to facilitate a reasonable driving time between locations. Each cluster was randomly assigned a single day of the week for the observation to take place. The sites within the cluster were then randomly assigned an observation period-of-time.

Two observers were required to work together at each observational road segment; one to articulate the observations for each vehicle while the other would record the observations. Each observer was given a survey schedule and a detailed map of road segment locations for their respective observational counties. The survey schedule specified the site (segment) number (both primary and alternate), weekday, start time, survey route, start crossroad, end crossroad, and functional class-road type. Using the identified, start crossroad and end crossroad listed on the survey schedule, the observer was to use their best judgment to select the safest location to conduct the survey within the specified road segment. Observers recorded data from one lane (outermost or far-right lane) and one direction of travel per survey location. The observations were conducted on all days of the week during daylight hours between 7:00 a.m. and 6:00 p.m. Observations started at the predetermined assigned time and continued for exactly 45-minutes.

Observations for use, non-use or unknown use of seat belts were recorded for all drivers and front-seat outboard passengers including children riding in booster seats (excluding children in child safety seats). If there was no passenger in the right front-seat of an observed vehicle then the passenger field was left blank on the data collection form. Passenger cars, van/minivans, sport utility/crossover vehicles, pickup trucks and commercial vehicles weighing less than 10,000 pounds were all qualifying vehicles for the survey and were eligible for observation, regardless of the license state. In all prior observational surveys only one additional data element, that of driver gender, was collected and recorded. However, as part of the 2023 observational survey driver cell phone use was also collected and recorded. All these data were recorded on the *Site Summary Form (Appendix E) and Observation Form (Appendix F)*.

Alternate Site Selection

Observers were instructed on how to proceed in conditions of bad weather or temporary traffic impediments, as well as, if an observation site needed to be abandoned due to construction activities, safety concerns, or some other legitimate reason.

Alternate sites were selected in the counties of Boone, Buchanan, Butler, Camden, Christian, Greene, and Lafayette. Alternate site selections are noted in *Appendix G* included with this report.

RESULTS

Weighted vs. Un-weighted Estimations

Information recorded using the *Site Summary* and *Observation Forms* represent each vehicle observed. This information is considered to be raw or **un-weighted** data. While it might appear that using such information is the most direct and easiest to understand, it is often misleading when one considers that the observations on some road segments included every vehicle during the specified time period while significantly fewer vehicles were counted on other road segments. That is, all vehicles were counted on most two-lane roads, but it will not be true of multi-lane roadways where the observers included only those vehicles in the outer most right-hand lane and/or, if the traffic was heavy, recorded perhaps every third vehicle. NHTSA requires the estimations of seat belt use to be calculated using weighted data; this was done in Missouri using the specifications described in the approved observational plan. Each of the following sections will be identified as containing either weighted or un-weighted data.

STATEWIDE RESULTS

Observers recorded data from 560 sites within the 28 Missouri counties on 111,101 vehicle occupants of whom 88,924 were drivers and 22,177 were outboard front-seat passengers; of these, belt use was unknown for 291 vehicle occupants.

Weighted Data

Tables 2-3 and Figure 1 show only weighted data and include the relative weights of the DVMT; however, they do exclude the unknowns (291vehicle occupants).

The overall belt use rate for drivers and passengers combined is 87.0 percent (95 Percent Confidence Interval 86.8% - 87.2%). Table 2 shows the 2023 Seat Belt Use in Missouri.

Table 2: Seat Belt Use in Missouri*

Belt Use	Frequency	Percent	Standard Error of Percent
Belted	93,436	87.0	0.2217
Non-Belted	17,374	13.0	0.2217
Total	110,810	100.0	

* Weighted Data

Figure 1 shows the weighted seat belt use rates by county. The range of percent is from a low of 53.2 percent in Douglas County to a high of 97.8 percent in Montgomery County.

Figure 1: Belt Use by County*
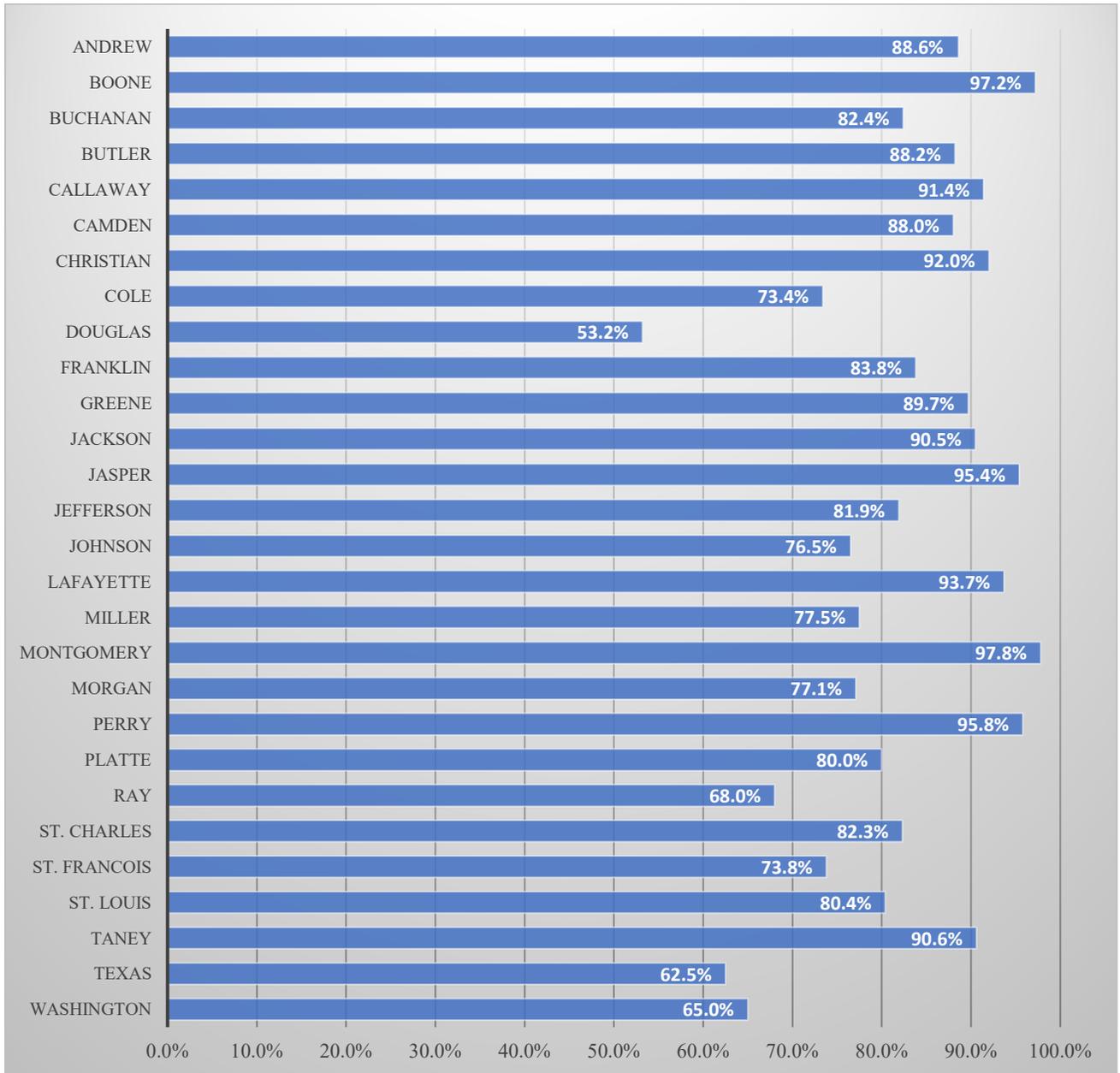
* Weighted Data

Table 3 shows the overall vehicle occupant seat belt use by roadway type. Roadways are stratified using the five functional roadway classifications of MoDOT. The roadway type Local had the highest seat belt use whereas the roadway type Collector had the lowest, at 93.8 and 58.2 percent respectively.

Table 3: Belt Use by Roadway Type*

Roadway Type	Percent Belted
Arterial	70.9
Collector	58.2
Freeway/Expressway	88.9
Interstate	91.2
Local	93.8

* Weighted Data

The five functional roadway classifications identified by the Missouri Department of Transportation:

Arterial – Arterials provide high level mobility while at the same time allowing many at-grade intersections. Entrances to local land are typically permitted wherever safe to do so. Arterials provide connections between other classifications and are typically spaced at intervals consistent with population density, to be within reasonable distances of all developed areas.

Collector – Collector routes gather traffic from local roads and trip generating locations, in order to funnel them to arterial routes. Collectors generally connect neighborhoods, or other regions of local roads, to arterial networks. As such, they do not normally serve through traffic.

Freeway/Expressway – Freeways and expressways are physically similar to interstates but are not in the official interstate system. Opposing traffic flows are physically separated by medians or barriers. Access to freeways is generally the same as interstates, fully controlled to allow access only via interchanges, while expressways allow limited, at-grade intersections. The emphasis is to provide high levels of mobility with limited access to local lands.

Interstate – The interstate system is a network of highways limited to those officially designated by the Secretary of Transportation. Interstates have full control of access, allowing access only via interchanges and prohibiting at-grade intersections. Their opposing traffic flows are physically separated by medians or barriers. Interstates offer high levels of mobility while linking major urban areas.

Local – Are any road not classified as an arterial or collector. Local roads accept traffic from collector streets and distribute the traffic through subdivisions, neighborhoods and business areas to individual homes, apartments, business sites, and industrial sites. They are not intended for use in long-distance travel, except at the origination or termination of a trip.

Un-weighted Data

Tables 4-11 and Figures 2-3 show only raw or un-weighted data and do not include the relative weights of the DVMT; they do include the unknowns, 291 vehicle occupants. These numbers are not directly comparable to the weighted estimates.

Table 4 exhibits the un-weighted estimates of seat belt use by drivers (83.0%), passengers (88.4%), and overall (84.1%).

Table 4: Belt Use by Vehicle Occupant**

Vehicle Occupant	Belted		Non-Belted		Unknown	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Drivers	73,830	83.0	14,901	16.8	193	0.2
Passengers	19,606	88.4	2,473	11.2	98	0.4
Overall	93,436	84.1	17,374	15.6	291	0.3

** Un-weighted Data

Figure 2 distributes the un-weighted seat belt usage rates by county. Usage varied from a low of 52.8 percent in Douglas County to a high of 96.0 percent in Montgomery County.

Figure 2: Belt Use by County**
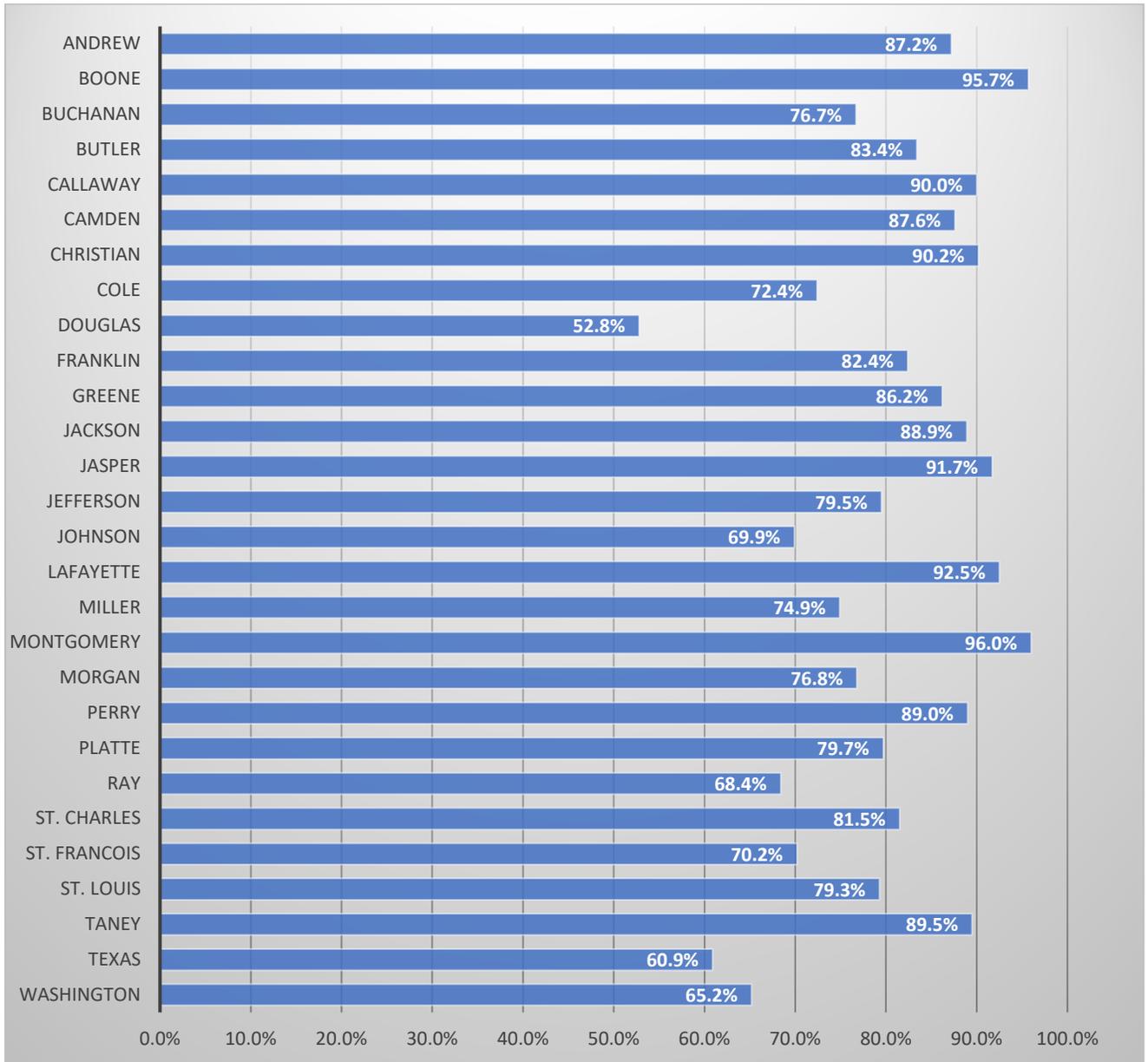
* Un-weighted data

Driver and Passenger seat belt use by roadway classification is displayed in Table 5 and shows that belt use was highest on Interstate (89.0%). The lowest usage was recorded for the Collector (74.9%) classification.

Table 5: Driver & Passenger Belt Use by Roadway Classification**

Roadway Type	Belted		Non-Belted		Unknown		Overall Percent based upon a total of 111,101 observed	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Arterial	21,535	77.3	6,250	22.4	81	0.3	27,866	25.1
Collector	3,203	74.9	1,048	24.5	24	0.6	4,275	3.8
Freeway / Expressway	26,778	84.7	4,689	14.8	164	0.5	31,631	28.5
Interstate	37,808	89.1	4,607	10.9	14	0.1	42,429	38.2
Local	4,112	83.9	780	15.9	8	0.2	4,900	4.4

** Un-weighted data

Drivers of Sport Utility/Crossover vehicles exhibited the highest seat belt use rate among vehicle types at 88.7 percent, while drivers of pickup trucks exhibited the lowest use rate at 72.9 percent. Table 6 shows seat belt use by drivers for vehicle type.

Table 6: Driver Belt Use by Vehicle Type**

Vehicle Type	Belted		Non-Belted		Unknown		Overall Percent based upon a total of 88,924 observed	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Passenger Cars	21,556	83.5	4,196	16.3	53	0.2	25,805	29.0
Sport Utility/Crossover	30,356	88.7	3,806	11.1	64	0.2	34,226	38.5
Pickup Trucks	15,912	72.9	5,845	26.8	68	0.3	21,825	24.5
Van/Minivan	6,006	85.0	1,054	14.9	8	0.1	7,068	8.0

** Un-weighted data

One additional data element collected during the survey was that of Driver Gender. Table 7 provides the seat belt use estimation by driver gender. In 2023, female drivers show a higher seat belt use rate than males, 88.9 and 79.6 percent respectively.

Table 7: Driver Belt Use by Gender**

Gender	Belted		Non-Belted		Unknown		Overall Percent based upon a total of 88,924 observed	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Female	29,183	88.9	3,595	10.9	68	0.2	32,846	36.9
Male	44,647	79.6	11,306	20.2	125	0.2	56,078	63.1

**Un-weighted Data

Figure 3 shows the breakdown of male and female driver's seat belt use by vehicle type. Female drivers had higher rates of seat belt use among all vehicle types in 2023, ranging from 80.4 percent in pickup trucks to 90.9 percent in SUV's. Males used seat belts only 72.1 percent in pickup trucks and 86.4 percent in SUV's.

Figure 3: Driver Belt Use by Gender by Vehicle**

	Passenger Cars	Sport Utility/SUV	Pickup Trucks	Van/Minivan
Males	81.0%	86.4%	72.1%	82.3%
Females	86.9%	90.9%	80.4%	89.9%

**Un-weighted Data

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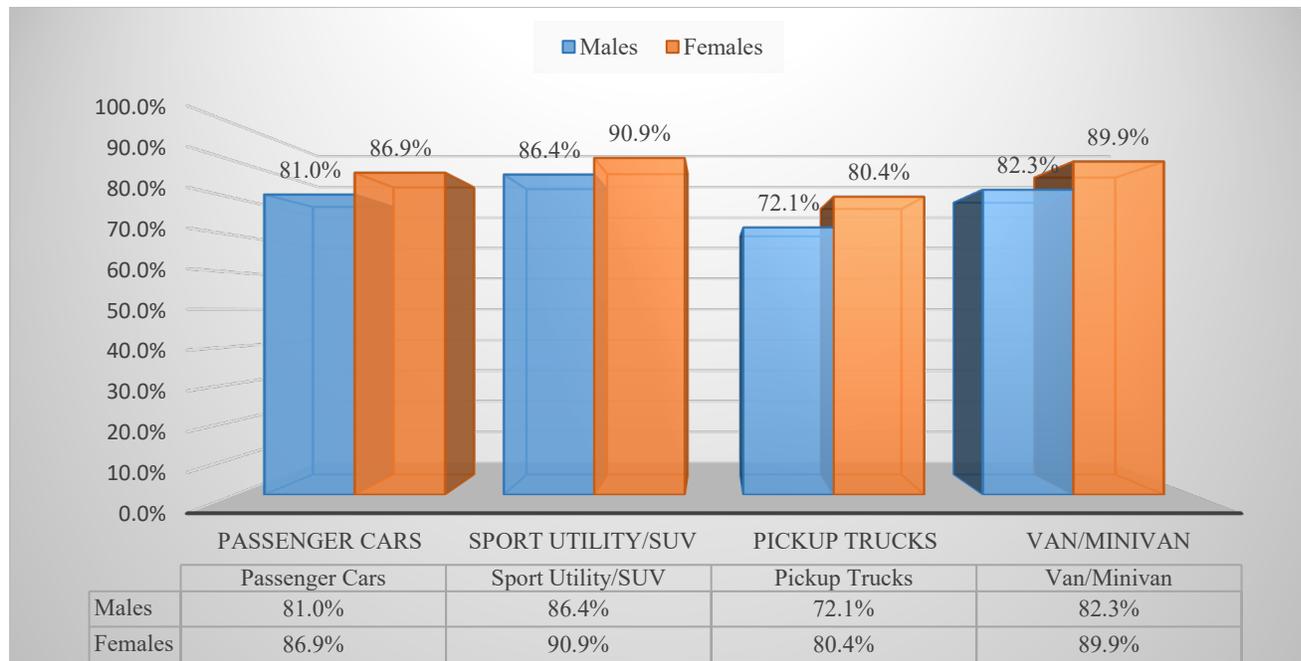
The 2023 survey was scheduled and conducted over a fourteen-day period (June 5th through 18th), between the hours of 7:00 am and 6:00 pm. Table 8 shows that of the 111,101 observations of both drivers and passengers Saturday had the highest number of observations at 19,328.

Table 8: Driver & Passenger Belt Use by Day of the Week**

Day of the Week	Belted		Non-Belted		Unknown		Overall Percent based upon a total of 111,101 observed	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Monday	8,043	82.5	1,685	17.3	20	0.2	9,748	8.8
Tuesday	12,588	82.9	2,577	17.0	20	0.1	15,185	13.7
Wednesday	14,120	85.7	2,329	14.1	39	0.2	16,488	14.8
Thursday	14,350	82.9	2,947	17.0	15	0.1	17,312	15.6
Friday	15,754	83.1	3,140	16.6	64	0.3	18,958	17.0
Saturday	16,310	84.4	2,941	15.2	77	0.4	19,328	17.4
Sunday	12,271	87.1	1,755	12.5	56	0.4	14,082	12.7

** Un-weighted Data

Tables 9, 10 and 11 display the frequency of vehicles observed by direction of traffic flow, time of day, and conditions of the road.

Table 9: Frequency, Vehicles Observed by Direction of Traffic Flow**

Flow	Frequency	Percent	Cumulative Frequency	Cumulative Percent
East	26,558	29.8	26,558	29.8
North	17,618	19.8	44,176	49.6
South	17,927	20.2	62,103	69.8
West	26,821	30.2	88,924	100.0

**Un-weighted Data

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Table 10: Frequency, Vehicles Observed by Time of Day**

Time	Frequency	Percent	Cumulative Frequency	Cumulative Percent
7:00 am	6,690	7.5	6,690	7.5
8:00 am	6,345	7.1	13,035	14.6
9:00 am	6,674	7.5	19,709	22.1
10:00 am	8,548	9.6	28,257	31.7
11:00 am	8,971	10.1	37,228	41.8
12:00 pm	7,325	8.3	44,553	50.1
1:00 pm	5,963	6.7	50,516	56.8
2:00 pm	9,226	10.4	59,742	67.2
3:00 pm	9,883	11.1	69,625	78.3
4:00 pm	11,512	12.9	81,137	91.2
5:00 pm	7,787	8.8	88,924	100.0

**Un-weighted Data

Table 11: Frequency, Vehicles Observed by Road Conditions**

Condition	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Dry	78,071	89.5	78,071	89.5
Wet	8,131	9.3	86,202	98.8
Fog	776	0.9	86,978	99.7
Other	220	0.3	87,198	100.0

**Un-weighted Data   Frequency Missing =1,726

Cell Phone Use

Tables 12-16 and Figure 4 show only driver raw or un-weighted data and do not include the relative weights of the DVMT; they do include the driver unknowns (193).

A total of 88,924 drivers were observed during the 2023 survey with 4,711 (5.3%) of drivers observed to be using a handheld cell phone either talking or typing; this represents roughly one-in-eighteen drivers. Table 12 exhibits the estimates of drivers observed to be using a handheld cell phone.

Table 12: Driver Cell Phone Use**

Vehicle Occupant	No Cell Phone Use		Cell Phone Use	
	Frequency	Percent	Frequency	Percent
Drivers	84,213	94.7	4,711	5.3

** Un-weighted Data

Table 13 exhibits the un-weighted estimates of driver cell phone use by seat belt use.

Table 13: Driver Cell Phone Use by Seat Belt Use**

Drivers	Belted		Non-Belted		Unknown	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
No Cell Phone Use	70,072	94.9	13,986	93.9	155	80.3
Cell Phone Use-	3,758	5.1	915	6.1	38	19.7

** Un-weighted Data

Figure 4 distributes the driver un-weighted cell phone usage rates by county. Usage varied from a low of 1.9 percent in Perry County to a high of 11.6 percent in Camden County.

Figure 4: Driver Cell Phone Use by County**
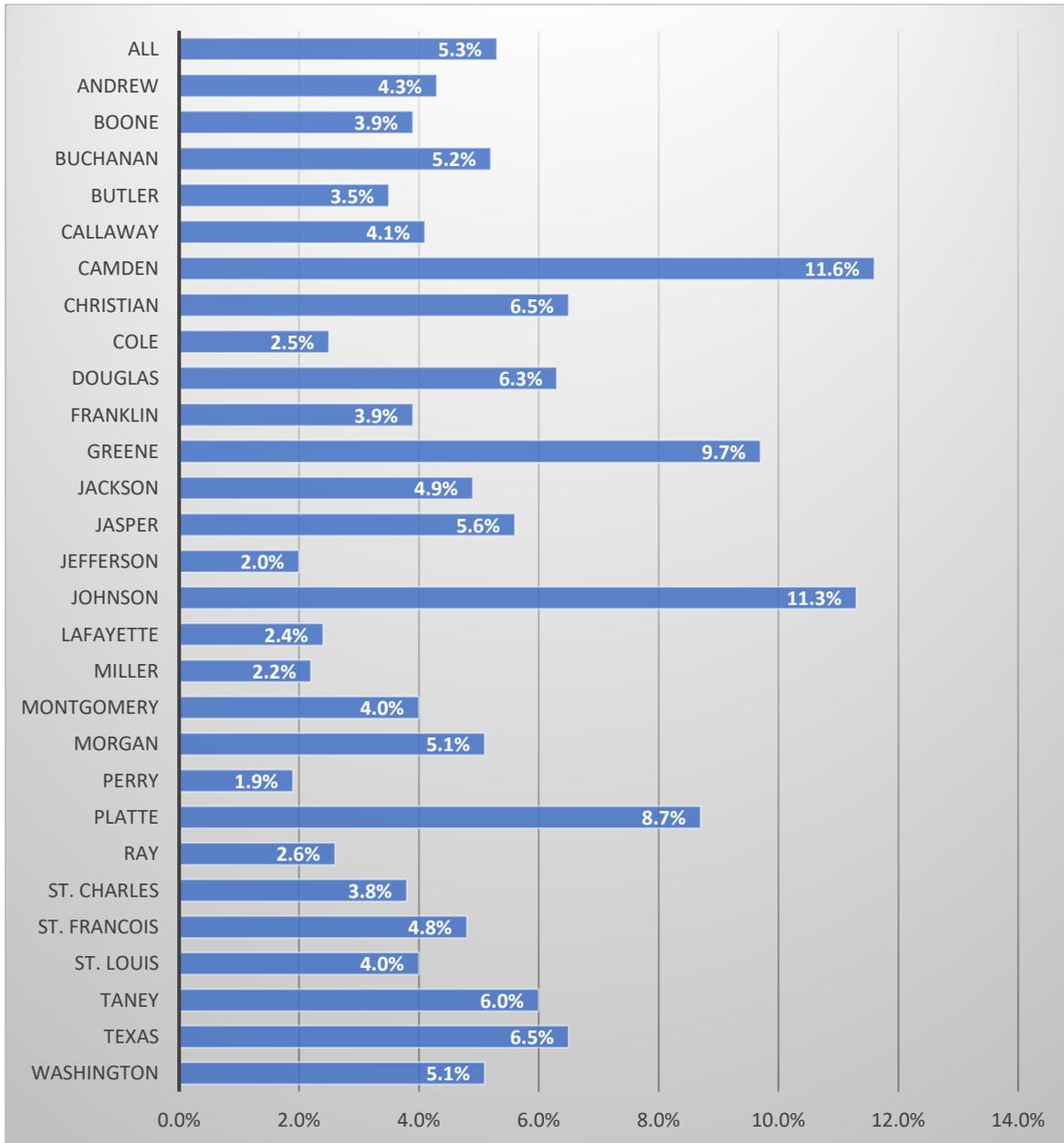
* Un-weighted data

Driver cell phone use by roadway classification is displayed in Table 14 and shows that cell phone use was highest on Freeway/Expressway (6.5%). The lowest usage was recorded for the Interstate classification (4.3%).

Table 14: Driver Cell Phone Use by Roadway Classification**

Roadway Type	No Cell Phone Use		Cell Phone Use	
	Freq.	Percent	Freq.	Percent
Arterial	21,489	94.6	1,236	5.4
Collector	3,262	94.7	183	5.3
Freeway / Expressway	23,902	93.5	1,655	6.5
Interstate	31,837	95.7	1,417	4.3
Local	3,723	94.4	220	5.6

** Un-weighted data

Drivers of Van/Minivan exhibited the highest cell phone use rate among vehicle types at 5.9 percent. Table 15 shows cell phone use by drivers for vehicle type.

Table 15: Driver Cell Phone Use by Vehicle Type**

Vehicle Type	No Cell Phone Use		Cell Phone Use	
	Freq.	Percent	Freq.	Percent
Passenger Cars	24,469	94.8	1,336	5.2
Sport Utility/Crossover	32,454	94.8	1,772	5.2
Pickup Trucks	20,638	94.6	1,187	5.4
Van/Minivan	6,652	94.1	416	5.9

** Un-weighted data

Table 16 provides the cell phone use estimation by driver gender. In 2023, female drivers show a higher cell phone use rate than males, 6.2 and 4.8 percent respectively.

Table 16: Driver Cell Phone Use by Gender**

Gender	No Cell Phone Use		Cell Phone Use	
	Freq.	Percent	Freq.	Percent
Female	30,826	93.8	2,020	6.2
Male	53,387	95.2	2,691	4.8

**Un-weighted Data

Table 17 displays the frequency of cell phone use observed by time of the day.

Table 17: Frequency, Cell Phone Use Observed by Time of Day**

Time	Frequency	Percent	Cumulative Frequency	Cumulative Percent
7:00 am	436	9.3	436	9.3
8:00 am	387	8.2	823	17.5
9:00 am	389	8.3	1,212	25.8
10:00 am	306	6.5	1,518	32.3
11:00 am	466	9.9	1,984	42.2
12:00 pm	370	7.8	2,354	50.0
1:00 pm	295	6.3	2,649	56.3
2:00 pm	407	8.6	3,056	64.9
3:00 pm	533	11.3	3,589	76.2
4:00 pm	602	12.8	4,191	89.0
5:00 pm	520	11.0	4,711	100.0

**Un-weighted Data

APPENDICES

A.   Vehicle Occupant Fatalities by County, 2016-2020

B.   Top Counties with 85% of Vehicle Occupant Fatalities, 2016-2020 (Map)

C.   Random Selection of Counties for Sampling, 2016-2020 (Map)

D.   County VMT by Functional Road Type, (2019 Data)

E.   Site Summary Form

F.   Observational Form

G.   Alternate Site Selection - 2023

Vehicle Occupant Fatalities by County
2016 – 2020
Sorted by Decreasing Fatalities

County	2016-2020 Fatalities	5-year avg. Fatalities	% of Contribution	Cumulative % of Contribution
ST. LOUIS (CITY & COUNTY)	468	93.6	13.91%	13.9%
JACKSON	342	68.4	10.16%	24.1%
JEFFERSON	128	25.6	3.80%	27.9%
ST. CHARLES	107	21.4	3.18%	31.1%
GREENE	101	20.2	3.00%	34.1%
FRANKLIN	82	16.4	2.44%	36.5%
JASPER	62	12.4	1.84%	38.3%
CLAY	59	11.8	1.75%	40.1%
BOONE	53	10.6	1.58%	41.7%
NEWTON	53	10.6	1.58%	43.2%
PHELPS	50	10	1.49%	44.7%
CASS	49	9.8	1.46%	46.2%
CHRISTIAN	48	9.6	1.43%	47.6%
PLATTE	46	9.2	1.37%	49.0%
CAMDEN	45	9	1.34%	50.3%
CAPE GIRARDEAU	40	8	1.19%	51.5%
TANEY	40	8	1.19%	52.7%
JOHNSON	39	7.8	1.16%	53.8%
LINCOLN	39	7.8	1.16%	55.0%
LAWRENCE	38	7.6	1.13%	56.1%
BARRY	37	7.4	1.10%	57.2%
CALLAWAY	36	7.2	1.07%	58.3%
HOWELL	36	7.2	1.07%	59.4%
DUNKLIN	35	7	1.04%	60.4%
BUTLER	33	6.6	0.98%	61.4%
LACLEDE	33	6.6	0.98%	62.4%
MCDONALD	32	6.4	0.95%	63.3%
NEW MADRID	32	6.4	0.95%	64.3%
ST. FRANCOIS	32	6.4	0.95%	65.2%
COLE	31	6.2	0.92%	66.2%
MILLER	30	6	0.89%	67.0%
PETTIS	29	5.8	0.86%	67.9%
WEBSTER	27	5.4	0.80%	68.7%
BUCHANAN	25	5	0.74%	69.5%
DOUGLAS	25	5	0.74%	70.2%
LAFAYETTE	25	5	0.74%	70.9%
PULASKI	25	5	0.74%	71.7%
STODDARD	25	5	0.74%	72.4%

Vehicle Occupant Fatalities by County
2016 – 2020
Sorted by Decreasing Fatalities

County	2016-2020 Fatalities	5-year avg. Fatalities	% of Contribution	Cumulative % of Contribution
RAY	23	4.6	0.68%	73.1%
WASHINGTON	23	4.6	0.68%	73.8%
ANDREW	22	4.4	0.65%	74.4%
PEMISCOT	22	4.4	0.65%	75.1%
SCOTT	22	4.4	0.65%	75.8%
STONE	22	4.4	0.65%	76.4%
POLK	21	4.2	0.62%	77.0%
CRAWFORD	20	4	0.59%	77.6%
MORGAN	20	4	0.59%	78.2%
TEXAS	20	4	0.59%	78.8%
DEKALB	19	3.8	0.56%	79.4%
HENRY	19	3.8	0.56%	79.9%
AUDRAIN	18	3.6	0.53%	80.5%
COOPER	18	3.6	0.53%	81.0%
DALLAS	18	3.6	0.53%	81.5%
GASCONADE	18	3.6	0.53%	82.1%
OZARK	18	3.6	0.53%	82.6%
CARROLL	17	3.4	0.51%	83.1%
MONTGOMERY	17	3.4	0.51%	83.6%
OREGON	17	3.4	0.51%	84.1%
PERRY	17	3.4	0.51%	84.6%
ADAIR	16	3.2	0.48%	85.1%
MARION	16	3.2	0.48%	85.6%
STE. GENEVIEVE	16	3.2	0.48%	86.1%
The counties listed above had 85% of the Missouri fatalities Counties with the remaining 15% of fatalities are listed below.				
HOWARD	15	3	0.45%	86.5%
MARIES	15	3	0.45%	87.0%
RANDOLPH	15	3	0.45%	87.4%
WARREN	15	3	0.45%	87.8%
BENTON	14	2.8	0.42%	88.3%
DAVIESS	14	2.8	0.42%	88.7%
DENT	14	2.8	0.42%	89.1%
RALLS	14	2.8	0.42%	89.5%
RIPLEY	14	2.8	0.42%	89.9%
BATES	13	2.6	0.39%	90.3%
IRON	12	2.4	0.36%	90.7%
MISSISSIPPI	12	2.4	0.36%	91.0%
REYNOLDS	12	2.4	0.36%	91.4%
SALINE	12	2.4	0.36%	91.7%
VERNON	12	2.4	0.36%	92.1%
HICKORY	11	2.2	0.33%	92.4%
MACON	11	2.2	0.33%	92.7%
NODAWAY	11	2.2	0.33%	93.1%

Vehicle Occupant Fatalities by County
2016 - 2020
Sorted by Decreasing Fatalities

County	2016-2020 Fatalities	5-year avg. Fatalities	% of Contribution	Cumulative % of Contribution
SHANNON	11	2.2	0.33%	93.4%
CARTER	10	2	0.30%	93.7%
CLINTON	10	2	0.30%	94.0%
MADISON	10	2	0.30%	94.3%
WAYNE	10	2	0.30%	94.6%
CALDWELL	9	1.8	0.27%	94.9%
CEDAR	9	1.8	0.27%	95.1%
CLARK	9	1.8	0.27%	95.4%
DADE	9	1.8	0.27%	95.7%
HARRISON	9	1.8	0.27%	95.9%
LINN	9	1.8	0.27%	96.2%
LIVINGSTON	9	1.8	0.27%	96.5%
MONITEAU	9	1.8	0.27%	96.7%
SULLIVAN	9	1.8	0.27%	97.0%
BOLLINGER	8	1.6	0.24%	97.2%
OSAGE	8	1.6	0.24%	97.5%
SCOTLAND	8	1.6	0.24%	97.7%
PIKE	7	1.4	0.21%	97.9%
ST. CLAIR	7	1.4	0.21%	98.1%
WRIGHT	7	1.4	0.21%	98.3%
MONROE	6	1.2	0.18%	98.5%
ATCHISON	5	1	0.15%	98.7%
BARTON	5	1	0.15%	98.8%
GRUNDY	5	1	0.15%	99.0%
HOLT	5	1	0.15%	99.1%
MERCER	5	1	0.15%	99.3%
SCHUYLER	5	1	0.15%	99.4%
CHARITON	4	0.8	0.12%	99.5%
PUTNAM	4	0.8	0.12%	99.6%
SHELBY	4	0.8	0.12%	99.8%
LEWIS	3	0.6	0.09%	99.9%
KNOX	2	0.4	0.06%	99.9%
WORTH	2	0.4	0.06%	100.0%
GENTRY	1	0.2	0.03%	100.0%
Total	3365	673	100.00%	

Includes drivers and passengers of passenger cars, station wagons, SUVs, vans (eight or less with driver), pick-ups and single-unit trucks with three or more axles.

MAP 1

Top Counties with 85% of Vehicle Occupant Fatalities
2016 - 2020

Notes:
-Includes drivers and passengers of passenger cars, station wagons, SUVs, vans (eight or less with driver), pick-ups and single-unit trucks with three or more axles.

Counties with 85% of Fatalities

Missouri Department of Transportation
Transportation Planning
1-888-ASK-MODOT
WWW.MODOT.ORG
September 2, 2022

MoDOT

Document Path: Z:\MapProjects\TSray_shank\Top_85th_Percentile_Counties_Veh_Occ_Fatalities.mxd

MAP 2

Random Selection of Counties for Sampling
2016 - 2020

Notes:
- Counties were selected from the Counties previously identified as containing 85% of Vehicle Occupant Fatalities.
- The probability that a county would be selected was weighted towards the Annual VMT for that county.
- Additional details regarding the random selection process can be found in the report.

Random Selection (28 Counties + St. Louis City)

Missouri Department of Transportation
Transportation Planning
1-888-ASK-MODOT
WWW.MODOT.ORG
September 2, 2022

Document Path: Z:\MapProjects\TS\ray_shenk\survey_counties_safety_belt.mxd

County VMT by Functional Road Type (State System Only)

Notes:
- County VMT obtained from MoDOT Datazone tool (2019 Data)
- Arterial Annual VMT includes Major and Minor Arterials
- Collector Annual VMT includes Major and Minor Collectors
- Yellow highlighted cells were manually adjusted by +/- 1 to account for rounding errors or to cap the sample segments to the maximum available in order to achieve a total of 20 road segments to sample per county
- Red highlighted cells have no available segments to use as alternate segments

County	Functional Classification	Annual VMT	% of Annual VMT	# of Segments to Sample	Available Segments	Prob. Of Selection	Alternate Segments
ANDREW	INTERSTATE	355,058	46.31%	9	16	56.25%	3
	FREEWAY/EXPRESSWAY	156,712	20.44%	4	24	16.67%	3
	ARTERIAL	152,924	19.94%	4	36	11.11%	3
	COLLECTOR	102,059	13.31%	3	132	2.27%	3
	Totals	766,753	100.00%	20	208	9.62%	-
BOONE	INTERSTATE	1,023,770	25.20%	5	26	19.23%	3
	FREEWAY/EXPRESSWAY	1,267,664	31.21%	6	50	12.00%	3
	ARTERIAL	1,239,614	30.52%	6	311	1.93%	3
	COLLECTOR	531,248	13.08%	3	407	0.74%	3
	Totals	4,062,296	100.00%	20	794	2.52%	-
BUCHANAN	INTERSTATE	773,116	37.06%	7	46	15.22%	3
	FREEWAY/EXPRESSWAY	239,228	11.47%	3	26	11.54%	3
	ARTERIAL	760,190	36.44%	7	248	2.82%	3
	COLLECTOR	313,527	15.03%	3	312	0.96%	3
	Totals	2,086,061	100.00%	20	632	3.16%	-
BUTLER	INTERSTATE	-	0.00%	0	0	0.00%	-
	FREEWAY/EXPRESSWAY	526,015	42.29%	8	39	20.51%	3
	ARTERIAL	435,768	35.04%	7	125	5.60%	3
	COLLECTOR	281,921	22.67%	5	201	2.49%	3
	Totals	1,243,704	100.00%	20	365	5.48%	-
CALLAWAY	INTERSTATE	985,619	45.45%	9	12	75.00%	3
	FREEWAY/EXPRESSWAY	735,528	33.92%	7	43	16.28%	3
	ARTERIAL	178,249	8.22%	2	91	2.20%	3
	COLLECTOR	269,312	12.42%	2	218	0.92%	3
	Totals	2,168,708	100.00%	20	364	5.49%	-
CAMDEN	INTERSTATE	-	0.00%	0	0	0.00%	-
	FREEWAY/EXPRESSWAY	407,148	32.44%	7	20	35.00%	3
	ARTERIAL	580,791	46.27%	9	80	11.25%	3
	COLLECTOR	267,291	21.29%	4	110	3.64%	3
	Totals	1,255,230	100.00%	20	210	9.52%	-
CHRISTIAN	INTERSTATE	-	0.00%	0	0	0.00%	-
	FREEWAY/EXPRESSWAY	791,222	45.67%	9	21	42.86%	3
	ARTERIAL	689,688	39.81%	8	102	7.84%	3
	COLLECTOR	251,574	14.52%	3	127	2.36%	3
	Totals	1,732,484	100.00%	20	250	8.00%	-
COLE	INTERSTATE	-	0.00%	0	0	0.00%	-
	FREEWAY/EXPRESSWAY	1,078,331	56.51%	11	70	15.71%	3
	ARTERIAL	522,780	27.40%	6	215	2.79%	3
	COLLECTOR	307,103	16.09%	3	181	1.66%	3
	Totals	1,908,214	100.00%	20	466	4.29%	-

County VMT by Functional Road Type (State System Only)

County	Functional Classification	Annual VMT	% of Annual VMT	# of Segments to Sample	Available Segments	Prob. Of Selection	Alternate Segments
DOUGLAS	INTERSTATE	-	0.00%	0	0	0.00%	-
	FREEWAY/EXPRESSWAY	-	0.00%	0	0	0.00%	-
	ARTERIAL	154,000	56.19%	11	56	19.64%	3
	COLLECTOR	120,076	43.81%	9	172	5.23%	3
	Totals	274,076	100.00%	20	228	8.77%	-
FRANKLIN	INTERSTATE	1,299,537	40.43%	8	32	25.00%	3
	FREEWAY/EXPRESSWAY	-	0.00%	0	0	0.00%	-
	ARTERIAL	1,353,157	42.09%	8	238	3.36%	3
	COLLECTOR	561,968	17.48%	4	416	0.96%	3
	Totals	3,214,662	100.00%	20	686	2.92%	-
GREENE	INTERSTATE	1,211,687	16.68%	3	27	11.11%	3
	FREEWAY/EXPRESSWAY	3,077,561	42.37%	8	152	5.26%	3
	ARTERIAL	2,160,108	29.74%	7	408	1.72%	3
	COLLECTOR	814,654	11.21%	2	428	0.47%	3
	Totals	7,264,010	100.00%	20	1015	1.97%	-
JACKSON	INTERSTATE	7,134,376	42.27%	8	145	5.52%	3
	FREEWAY/EXPRESSWAY	2,711,338	16.06%	3	102	2.94%	3
	ARTERIAL	5,966,101	35.35%	7	1050	0.67%	3
	COLLECTOR	1,066,725	6.32%	2	545	0.37%	3
	Totals	16,878,540	100.00%	20	1842	1.09%	-
JASPER	INTERSTATE	1,030,035	34.20%	7	38	18.42%	3
	FREEWAY/EXPRESSWAY	232,212	7.71%	2	20	10.00%	3
	ARTERIAL	1,296,464	43.05%	8	422	1.90%	3
	COLLECTOR	452,791	15.04%	3	338	0.89%	3
	Totals	3,011,502	100.00%	20	818	2.44%	-
JEFFERSON	INTERSTATE	1,737,353	33.27%	7	22	31.82%	3
	FREEWAY/EXPRESSWAY	1,072,571	20.54%	4	31	12.90%	3
	ARTERIAL	1,642,823	31.46%	6	236	2.54%	3
	COLLECTOR	769,034	14.73%	3	499	0.60%	3
	Totals	5,221,781	100.00%	20	788	2.54%	-
JOHNSON	INTERSTATE	-	0.00%	0	0	0.00%	-
	FREEWAY/EXPRESSWAY	661,559	50.26%	10	32	31.25%	3
	ARTERIAL	368,810	28.02%	6	153	3.92%	3
	COLLECTOR	285,791	21.71%	4	213	1.88%	3
	Totals	1,316,160	100.00%	20	398	5.03%	-
LAFAYETTE	INTERSTATE	947,555	65.60%	13	17	76.47%	3
	FREEWAY/EXPRESSWAY	-	0.00%	0	0	0.00%	-
	ARTERIAL	260,392	18.03%	4	78	5.13%	3
	COLLECTOR	236,511	16.37%	3	174	1.72%	3
	Totals	1,444,458	100.00%	20	269	7.43%	-
MILLER	INTERSTATE	-	0.00%	0	0	0.00%	-
	FREEWAY/EXPRESSWAY	367,548	44.19%	8	22	36.36%	3
	ARTERIAL	273,885	32.93%	7	79	8.86%	3
	COLLECTOR	190,316	22.88%	5	118	4.24%	3
	Totals	831,749	100.00%	20	219	9.13%	-
MONTGOMERY	INTERSTATE	763,370	78.25%	10	10	100.00%	0
	FREEWAY/EXPRESSWAY	-	0.00%	0	0	0.00%	-
	ARTERIAL	153,754	15.76%	7	47	14.89%	3
	COLLECTOR	58,415	5.99%	3	96	3.13%	3
	Totals	975,539	100.00%	20	153	13.07%	-

County VMT by Functional Road Type (State System Only)

County	Functional Classification	Annual VMT	% of Annual VMT	# of Segments to Sample	Available Segments	Prob. Of Selection	Alternate Segments
MORGAN	INTERSTATE	-	0.00%	0	0	0.00%	-
	FREEWAY/EXPRESSWAY	-	0.00%	0	0	0.00%	-
	ARTERIAL	387,089	72.95%	15	78	19.23%	3
	COLLECTOR	143,500	27.05%	5	99	5.05%	3
	Totals	530,589	100.00%	20	177	11.30%	-
PERRY	INTERSTATE	313,355	47.79%	8	8	100.00%	0
	FREEWAY/EXPRESSWAY	-	0.00%	0	0	0.00%	-
	ARTERIAL	180,129	27.47%	6	62	9.68%	3
	COLLECTOR	162,159	24.73%	6	159	3.77%	3
	Totals	655,643	100.00%	20	229	8.73%	-
PLATTE	INTERSTATE	2,120,119	60.30%	12	61	19.67%	3
	FREEWAY/EXPRESSWAY	342,741	9.75%	2	26	7.69%	3
	ARTERIAL	770,258	21.91%	4	159	2.52%	3
	COLLECTOR	282,583	8.04%	2	172	1.16%	3
	Totals	3,515,701	100.00%	20	418	4.78%	-
RAY	INTERSTATE	-	0.00%	0	0	0.00%	-
	FREEWAY/EXPRESSWAY	-	0.00%	0	0	0.00%	-
	ARTERIAL	237,483	57.13%	11	99	11.11%	3
	COLLECTOR	178,240	42.87%	9	157	5.73%	3
	Totals	415,723	100.00%	20	256	7.81%	-
ST. CHARLES	INTERSTATE	3,556,941	38.91%	8	52	15.38%	3
	FREEWAY/EXPRESSWAY	1,683,579	18.42%	3	48	6.25%	3
	ARTERIAL	2,627,922	28.75%	6	333	1.80%	3
	COLLECTOR	1,272,395	13.92%	3	503	0.60%	3
	Totals	9,140,837	100.00%	20	936	2.14%	-
ST. FRANCOIS	INTERSTATE	-	0.00%	0	0	0.00%	-
	FREEWAY/EXPRESSWAY	682,685	52.18%	10	34	29.41%	3
	ARTERIAL	345,291	26.39%	5	184	2.72%	3
	COLLECTOR	280,387	21.43%	5	197	2.54%	3
	Totals	1,308,363	100.00%	20	415	4.82%	-
ST. LOUIS CITY & COUNTY	INTERSTATE	18,168,178	53.67%	11	290	3.79%	3
	FREEWAY/EXPRESSWAY	2,190,326	6.47%	1	76	1.32%	3
	ARTERIAL	10,370,136	30.63%	6	1494	0.40%	3
	COLLECTOR	3,122,224	9.22%	2	1526	0.13%	3
	Totals	33,850,864	100.00%	20	3386	0.59%	-
TANEY	INTERSTATE	-	0.00%	0	0	0.00%	-
	FREEWAY/EXPRESSWAY	602,371	38.22%	8	24	33.33%	3
	ARTERIAL	577,741	36.66%	7	84	8.33%	3
	COLLECTOR	396,042	25.13%	5	134	3.73%	3
	Totals	1,576,154	100.00%	20	242	8.26%	-
TEXAS	INTERSTATE	-	0.00%	0	0	0.00%	-
	FREEWAY/EXPRESSWAY	182,164	25.52%	5	12	41.67%	3
	ARTERIAL	378,610	53.03%	11	112	9.82%	3
	COLLECTOR	153,164	21.45%	4	200	2.00%	3
	Totals	713,938	100.00%	20	324	6.17%	-
WASHINGTON	INTERSTATE	-	0.00%	0	0	0.00%	-
	FREEWAY/EXPRESSWAY	-	0.00%	0	0	0.00%	-
	ARTERIAL	322,076	66.98%	13	44	29.55%	3
	COLLECTOR	158,811	33.02%	7	97	7.22%	3
	Totals	480,887	100.00%	20	141	14.18%	-

Statewide Seat Belt Survey
Site Summary Form

Observer: _____   County: _____

Date: _____   Time: Start _____ End _____

Road Condition: O   O   O   O

                  Dry   Wet Fog Other: _____

Observation Point (be specific): _____
_____
_____

Major Distractions: _____

PLEASE COMPLETE ALL INFORMATION ABOVE THIS LINE

County

O	01-Andrew
O	02-Boone
O	03-Buchanan
O	04-Butler
O	05-Callaway
O	06-Camden
O	07-Christian
O	08-Cole
O	09-Douglas
O	10-Franklin
O	11-Greene
O	12-Jackson
O	13-Jasper
O	14-Jefferson
O	15-Johnson
O	16-Lafayette
O	17-Miller
O	18-Montgomery
O	19-Morgn
O	20-Perry
O	21-Platte
O	22-Ray
O	23-St. Charles
O	24-St. Francois
O	25-St. Louis
O	26-Taney
O	27-Texas
O	28-Washington

Traffic Flow

O	North
O	East
O	South
O	West

Site Type

O	Primary
O	Alternate

Start Time

O	7:00 AM
O	8:00 AM
O	9:00 AM
O	10:00 AM
O	11:00 AM
O	12:00 PM
O	1:00 PM
O	2:00 PM
O	3:00 PM
O	4:00 PM
O	5:00 PM

Day of the Week

O	Sunday
O	Monday
O	Tuesday
O	Wednesday
O	Thursday
O	Friday
O	Saturday

Road Segment

O	1	O	19
O	2	O	20
O	3	O	21
O	4	O	22
O	5	O	23
O	6	O	24
O	7	O	25
O	8	O	26
O	9	O	27
O	10	O	28
O	11	O	29
O	12	O	30
O	13	O	31
O	14	O	32
O	15	O	33
O	16	O	34
O	17	O	35
O	18		

Road Type

O	Interstate (I)
O	Freeway/Expressway (F/E)
O	Arterial (A)
O	Collector (C)
O	Local (L)

APPENDIX F

County: O O 0   Road Segment: O O 0   Date: O O 0

                  O O 1   O O 1   O O 1

_____   O O 2   _____   O O 2   _____   O O 2

Observer: O O 3   O O 3   O O 3

                  O O 4   O O 4   O O 4

_____   O O 5   O O 5   O O 5

                  O O 6   O O 6   O O 6

                  O O 7   O O 7   O O 7

Page:_____ of _____   O O 8   O O 8   O O 8

                  O O 9   O O 9   O O 9

	Vehicle Type				Distracted	Driver Belted			Driver Gender		Passenger Belted		
	Car	Truck	Minivan/ Van	SUV Crossover/	Yes	Yes	No	Un-known	M	F	Yes	No	Un-known
1.	O	O	O	O	O	O	O	O	O	O	O	O	O
2.	O	O	O	O	O	O	O	O	O	O	O	O	O
3.	O	O	O	O	O	O	O	O	O	O	O	O	O
4.	O	O	O	O	O	O	O	O	O	O	O	O	O
5.	O	O	O	O	O	O	O	O	O	O	O	O	O
6.	O	O	O	O	O	O	O	O	O	O	O	O	O
7.	O	O	O	O	O	O	O	O	O	O	O	O	O
8.	O	O	O	O	O	O	O	O	O	O	O	O	O
9.	O	O	O	O	O	O	O	O	O	O	O	O	O
10.	O	O	O	O	O	O	O	O	O	O	O	O	O
11.	O	O	O	O	O	O	O	O	O	O	O	O	O
12.	O	O	O	O	O	O	O	O	O	O	O	O	O
13.	O	O	O	O	O	O	O	O	O	O	O	O	O
14.	O	O	O	O	O	O	O	O	O	O	O	O	O
15.	O	O	O	O	O	O	O	O	O	O	O	O	O
16.	O	O	O	O	O	O	O	O	O	O	O	O	O
17.	O	O	O	O	O	O	O	O	O	O	O	O	O
18.	O	O	O	O	O	O	O	O	O	O	O	O	O
19.	O	O	O	O	O	O	O	O	O	O	O	O	O
20.	O	O	O	O	O	O	O	O	O	O	O	O	O

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County	Primary Site	Alternate Site Used	Reason for Using Alternate
APPENDIX G			
Alternate Site Selection - 2023			
Boone	25	27	Road Blocked
Buchanan	21	26	Road Blocked - Bridge Work
	23	27	Road Blocked - Bridge Work
Butler	26	27	There was no safe location at primary site for traffic observation
Camden	6	12	There was no safe location at primary site for traffic observation
	25	28	There was no safe location at primary site for traffic observation
	26	27	There was no safe location at primary site for traffic observation
Christian	17	22	There was no safe location at primary site for traffic observation
	19	23	There was no safe location at primary site for traffic observation
	29	30	There was no safe location at primary site for traffic observation
Greene	3	7	Road Closure
Lafayette	2	5	There was no safe location at primary site for traffic observation