SEAT BELT OBSERVATION STUDY
Summer 2021

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2021 EXECUTIVE SUMMARY

The 2021 Oklahoma statewide survey of safety belt use was conducted in 19 counties at 299 observation sites during June and July. This was the fifth year using a resampling of the counties and roads based on the initial observational survey design which was first used in 2012 and is fully compliant with NHTSA guidelines.

In 2021, 36,838 drivers and front-seat outboard passengers were observed. In only 88 (0.24%) cases were the surveyors unable to determine if the occupant was restrained. Overall, 84.4% of people were restrained compared to 84.7%, 85.6%, 86.9%, 86.6%, 84.4%, 86.3%, and 83.6% in the most recent previous surveys. There were significant variations in usage rates across regions of the state, by road type, by vehicle type, and by individual counties.

Estimate of Seat Belt Use in Oklahoma Summer 2021				
	Number of Observations	Weighted Estimate (PERCENT)	Standard Error (PERCENT)	Confidence Interval* (PERCENT)
Statewide	36,748	84.4	0.8	+/- 1.6
Regions				
West	11,147	85.1	0.5	+/-1.0
Northeast	19,779	85.3	0.5	+/- 1.0
Southeast	5,807	68.0	5.6	+/- 11.0
Roadway Type**				
S1100 Primary Roads	2,683	85.3	2.1	+/- 4.1
S1200 Secondary Roads	9,700	82.6	3.8	+/- 4.1
S1400 Local and Rural	24,350	84.5	0.7	+/- 1.3

* Based on a 95 percent confidence level, the actual belt use for each category shown in the table is the estimated percentage use + or – the standard error (S.E.) multiplied by 1.96. Standard errors were calculated using SPSS v25 Complex Samples Module.

** S1100 Primary Roads are generally divided, limited access highways within the interstate system. S1200 roads are main arteries in the State Highway or County Highway system. They have one or more lanes of traffic in each direction and often have a local name and a route number. S1400 Roads are paved, non-arterial streets, roads, or byways that usually have a single lane of traffic in each direction.

OKLAHOMA SEAT BELT OBSERVATION STUDY
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INTRODUCTION

In the spring of 2021, the Industrial Safety Program at the University of Central Oklahoma (UCO) contracted with the Oklahoma Highway Safety Office (OHSO) to perform the 2021 Oklahoma Seat Belt Observation Study.

The Oklahoma law requiring automobile drivers and front-seat passengers to buckle up became effective February 1, 1987. It was amended on February 1, 1989 to require drivers and front-seat passengers of pickup trucks and vans to also wear seat belts. Until the enactment of House Bill 1443 in 1997, Oklahoma's law permitted only "secondary enforcement," which meant an unbelted driver could be ticketed only after being stopped for another traffic violation. The 1997 law now permitted primary enforcement, meaning a law enforcement officer could issue a citation solely for failure to buckle up. Oklahoma has joined 31 other states, the District of Columbia, American Samoa, the North Mariana Islands, Puerto Rico, and the Virgin Islands with primary enforcement laws (Governors Highway Safety Association, 2012).

In April 2012, a survey approach was approved by NHTSA. This approach was used from 2012-2016, consistent with NHTSA guidelines. For 2017, however, NHTSA required all states to re-sample their observation sites to keep up with changing demographics, road construction, and related changes that occur over time. As a result, the 2021 survey uses this resampled set of observation locations.

The 2021 survey included 299 observation sites, resulting in 36,836 drivers and front-seat outboard passengers being observed for safety belt use. In 88 cases the surveyors were unable to determine whether or not the occupant was restrained leaving an effective sample size of 36,748 for further analysis. This report presents the results of the summer 2021 survey and makes some comparisons to recent statewide surveys.

STUDY METHODOLOGY

This section describes the process used to sample and allocate sites for observation and procedures for observation and data collection, weighting and data analysis, and observer selection and training. Survey findings are presented following the discussion of the study methodology.

Sample Design

The Oklahoma research design conforms to the requirements of the NHTSA "Uniform Criteria" and will generate annual estimates of occupant restraint use for adults and children using booster seats in the front seats of passenger vehicles. Oklahoma intends to update the sample of data collection sites every five years in order to have survey results that reflect geographic areas with more than 85% of crash-related fatalities. The sample design was provided to Oklahoma under a consultant agreement with Dr. William Bommer of California State University, Fresno. The design approach

includes a stratified systematic probability proportioned to size (PPS) sample of data collection sites and is described below:

1. All 77 counties in Oklahoma were listed in descending order of the average number of motor vehicle crash-related fatalities for the period of 2010 to 2014. Fatality Analysis Reporting System (FARS) data were used to determine the average number of crash-related fatalities per county. It was determined that 46 counties accounted for at least 85% of Oklahoma's total crash-related fatalities. These 46 counties comprise the sample frame and will be represented by a subsample of counties. (See Table 1).

2. The counties were stratified according to geographical region into three strata, and 19 counties were selected. Seven counties were selected with PPS from the stratum region 1 (Western Oklahoma); 7 counties were selected PPS from the stratum region 2 (Northeastern Oklahoma) and 5 counties were selected PPS from the stratum region 3 (Southeastern Oklahoma). This represents the first stage of sample selection (See Table 2).

3. Road segments were selected randomly and with PPS from all segments in the sampled counties. Depending on the county, a number of road segments were identified for selection: (15 counties had 15 road segments selected, the two largest counties had 30 selected road segments, and the two smallest counties had 7 selected road segments. A random, systematic sample of road segments was selected PPS to road segment length within each sampled county. This represents the first stage of sample selection since the road type was not stratified. This process resulted in the selection of 299 road segments (15 counties x 15 sites per county + 2 counties x 30 sites per county + 2 counties x 7 sites per county). Additional sites were also selected to use as alternates.

4. Based on past experience with the Oklahoma Annual Seat Belt Use Study, it is expected there will be an adequate sample size to yield an error rate of less than 2.5%. In the event there is a standard error greater than 2.5%, more data will be collected from existing sites.

5. Additional stages of selection were and will be used to determine, travel direction, lane, and vehicles to be observed, at random and with known probability, as appropriate under the NHTSA Uniform Criteria.

Table 1 – Oklahoma's Average Vehicle Crash-Related Fatalities by County 2010-2014

County	Average fatality counts for 5 years	Fatality percentage within the state	Cumulative fatality percentage
Oklahoma	77.4	11.2	11.2
Tulsa	66.6	9.6	20.8
Payne	18	2.6	23.4
Grady	16.6	2.4	25.8
Canadian	16.2	2.3	28.2

Creek	16	2.3	30.5
Cleveland	15.6	2.3	32.7
Pottawatomie	15	2.2	34.9
Comanche	14	2	36.9
Rogers	14	2	38.9
Carter	13.6	2	40.9
Mayes	13.2	1.9	42.8
Muskogee	13.2	1.9	44.7
Wagoner	13.2	1.9	46.6
Delaware	12.8	1.9	48.5
Caddo	12.4	1.8	50.3
Okmulgee	12.2	1.8	52
Lincoln	12	1.7	53.8
McCurtain	11.8	1.7	55.5
Bryan	10.8	1.6	57
McClain	10.8	1.6	58.6
Garvin	10.4	1.5	60.1
Logan	9	1.3	61.4
Osage	9	1.3	62.7
Ottawa	8.8	1.3	64
Le Flore	8.6	1.2	65.2
Pittsburg	8.6	1.2	66.5
Sequoyah	8.6	1.2	67.7
Stephens	8.6	1.2	69
Garfield	8.2	1.2	70.1
Kay	8	1.2	71.3
Custer	7.8	1.1	72.4
Cherokee	7.6	1.1	73.5
Pontotoc	7.4	1.1	74.6
Craig	7.3	1	75.6
McIntosh	7	1	76.7
Seminole	6.8	1	77.6
Noble	6	0.9	78.5
Woodward	6	0.9	79.4
Atoka	5.8	0.8	80.2
Beckham	5.8	0.8	81
Pushmataha	5.8	0.8	81.9
Murray	5.6	0.8	82.7
Washington	5.6	0.8	83.5
Marshall	5.4	0.8	84.3
Kingfisher	5.2	0.8	85
Washita	5.2	0.8	85.8
Blaine	5	0.7	86.5

Texas	5	0.7	87.2
Nowata	4.8	0.7	87.9
Love	4.6	0.7	88.6
Beaver	4.4	0.6	89.2
Choctaw	4.4	0.6	89.9
Pawnee	4.4	0.6	90.5
Roger Mills	4.4	0.6	91.1
Kiowa	4	0.6	91.7
Adair	3.8	0.5	92.3
Major	3.8	0.5	92.8
Grant	3.6	0.5	93.3
Haskell	3.6	0.5	93.9
Hughes	3.4	0.5	94.3
Okfuskee	3.4	0.5	94.8
Dewey	3.2	0.5	95.3
Ellis	3.2	0.5	95.8
Woods	3.2	0.5	96.2
Johnston	3	0.4	96.7
Cimarron	2.7	0.4	97
Harmon	2.5	0.4	97.4
Jackson	2.4	0.3	97.8
Latimer	2.4	0.3	98.1
Cotton	2.3	0.3	98.4
Jefferson	2.2	0.3	98.7
Greer	2	0.3	99
Harper	2	0.3	99.3
Alfalfa	1.6	0.2	99.6
Coal	1.6	0.2	99.8
Tillman	1.5	0.2	100

Sample Size and Precision

A standard error of less than 2.5% for the seat belt use estimates is required by the Final Rule requiring seatbelts issued by NHTSA. Since 1999, Oklahoma has conducted the Oklahoma Annual Seat Belt Use Study, and has historically obtained standard errors below this threshold. Therefore, since the current design is expected to yield a comparable sample size to previous surveys, and the sampling process is identical, the precision objective should be achieved. In the event that the precision objective is not met, additional observations will be taken starting with sites having the fewest observations. New data will be added to existing data until the desired precision is achieved.

County Selection

Table 1 lists the counties and their average number of motor vehicle crash-related fatalities for the

period 2010-2014 as reported in the Fatality Analysis Reporting System (FARS). Of these 77 counties, 46 counties accounted for 85.0% of the total fatalities and represented the first stage of sampling. Then, 46 counties were stratified into three groups according to their geographic region (Northeast, Southeast, and West). From these strata, 7 counties were selected from the larger Northeast and Southeast regions and 5 counties from the smaller Southeastern region. These 19 counties were selected PPS as the first stage of sampling.

The sampled counties, their measure of size (MOS), and probabilities of selection are shown in Table 2.

Table 2 - Population and Measure of Size and Probability of Selection, by Stratum, for County Selection

Strata	County (ID#)	County Road Miles	Region Road Miles Total	Final Probabilities of Selection
Region 1: West	Oklahoma (109)	5505.48		1.00*
	Comanche (31)	3055.98		1.00*
	Garfield (47)	2768.98		1.00*
	Canadian (17)	2630.45		0.979151*
	Cleveland (27)	2568.12		0.955949*
	Logan (83)	2074.19		0.77209*
	McClain (87)	1294.16		0.481734
	Beckham (9)	319.96		0.119101
	Caddo (15)	289.21		0.107655*
	Grady (51)	266.34		0.099142
	Carter (19)	244.5		0.091012
	Garvin (49)	240.21		0.089415
	Custer (39)	224.67		0.083631
	Woodward (153)	184.17		0.068555
	Stephens (137)	180.76		0.067286
	Kingfisher (73)	122.91		0.045752
	Murray (99)	106.19	22076.28	0.039528
Region 2: Northeast	Osage (113)	4945.47		1.00*
	Tulsa (143)	4235.3		1.00*
	Creek (37)	2828.59		1.00*
	Rogers (131)	2377.79		1.00*
	Wagoner (145)	1786.09		1.00*
	Lincoln (81)	275.36		0.263048*
	Mayes (97)	264.5		0.252674
	Noble (103)	260.13		0.248499
	Delaware (41)	228.84	18266.85	0.218608

	Payne (119)	223.26		0.213278*
	Kay (71)	221.29		0.211396
	Ottawa (115)	203.38		0.194286
	Craig (35)	159.99		0.152836
	Cherokee (21)	154.53		0.147621
	Washington (147)	102.33		0.097755
Region 3: Southeast	Pottawatomie (125)	2257.67	6785.29	1.00*
	Sequoyah (135)	1719.72		1.00*
	Le Flore (79)	352.81		0.376947
	Pittsburg (121)	305.39		0.326283
	Muskogee (101)	270.71		0.28923*
	McCurtain (89)	270.44		0.288942
	Pushmataha (127)	245.54		0.262338
	Bryan (13)	241.78		0.258321
	Seminole (133)	231.42		0.247252*
	McIntosh (91)	217.34		0.232209
	Atoka (5)	199.08		0.2127
	Okmulgee (111)	190.43		0.203458
	Pontotoc (123)	170.07		0.181705*
	Marshall (95)	112.89		0.120613

Note: * Denotes counties selected
Sampling Note: 30 sites from Tulsa and Oklahoma counties based on population, 7 sites from Seminole and Caddo. 15 sites from all other.

Within each stratum, counties were selected with probability proportional to size with the MOS being road miles. Let $g = 1,2,\ldots G$ be the first stage strata, v_{gc} be road miles for county c in stratum g, $v_g = \sum_{all\ c\ in\ g} v_{gc}$ be the total road miles for all counties in first stage stratum g. Then PSU inclusion probability is: $\pi_{gc} = n_g v_{gc}/v_g$, here n_g is the PSU sample size for first stage stratum g that was allocated. If a county was selected with certainty (i.e., its MOS was equal to or exceeded v_g/n_g), it was set aside as a certainty selection and the probabilities of selection were recalculated for the remaining counties in the stratum. This was repeated and the certainty selections were identified successively until no county's MOS was equal to or exceeded the recalculated v_g/n_g. The total road miles of the stratum were recalculated, as well as the probabilities of selection for the remaining counties, until no more counties were selected with certainty for the second stratum.

After all certainty counties were identified, a sampling interval (I) was calculated as the total (i.e., remaining) road length across all counties not selected with certainty within the region divided by the number of counties still needed to be selected within each region. A random start (RS) was selected between 0 and the calculated sampling interval (I), which determines the first county selected. Subsequent counties selected were determined by adding multiples of I to the RS until the desired number of counties was selected and/or the end of the sorted list was reached.

Road Segment Selection

After the 19 sampled counties were selected, the road segments needed to be selected. To do this, we ordered the counties by their miles of paved roads. Thirty road segments were selected PPS from the largest two counties, 15 road segments were selected with PPS from each of the next 15 sized counties, and 7 segments were selected with PPS from the smallest two counties. Oklahoma employed the Census TIGER data for the selection of road segments. Oklahoma exercised the available exclusion option and removed rural local roads in counties that are not within Metropolitan Statistical Areas (MSAs), and other non-public roads, unnamed roads, unpaved roads, vehicular trails, access ramps, cul-de-sacs, traffic circles, and service drives from the dataset.

The list of eligible road segments within each selected county was sorted by segment length to obtain an ordered list. Road segments were selected with PPS using road length as the MOS. A sampling interval (I) was calculated as the total length across all remaining road segments within the county divided by the number of road segments to select within each county (i.e. 15). A random start (RS) was selected between 0 and the calculated I, which determined the first road segment selected. Subsequent road segments selected were determined by adding multiples of I to the RS until the desired number of road segments was selected and/or the end of the sorted list was reached.

Appendix A presents the selected road segments within each county and their probabilities of selection.

Reserve Sample

In the event that an original road segment is permanently unavailable, a reserve road segment will be used. The reserve road segment sample consists of two additional road segments per original road segment selected, resulting in a reserve sample of 598 road segments. These approrporiate reserve segments were identified and selected as the road segments immediately preceding and immediately following the original road segment actually selected, and thus are implicitly stratified by segment length to correspond to the original road segment actually selected. With this in mind, for the purposes of data weighting, the reserve road segment inherits all probabilities of selection and weighting components up to and including the road segment stage of selection from the original road segment actually selected. Probabilites and weights for any subsequent stages of selection (e.g., the sampling of vehicles) will be determined by the reserve road segment itself.

Observation and Data Collection Procedures

Site Selection

Road segments were mapped according to the latitude and longitude of their midpoints. The selected road segment was identified by an intersection or interchange that occurred within or

just beyond the segment. If there was no intersection or interchange within the segment, then any point on that road could be used for observation. Data collection sites were selected so that traffic would be moving during the observation period, therefore, sites were assigned to locations within the segment that were approximately 50 yards from any controlled intersections. For interstate highways, data collection will occur on a ramp carrying traffic that is exiting the highway. The observed direction of travel was randomly selected for each road segment. The locations of the data collection sites were described on Site Assignment Sheets for each county and maps were developed to aid the Data Collectors and Quality Control (QC) Monitors in traveling to the assigned locations.

Training

Oklahoma recruited and hired Data Collectors for the survey. Oklahoma also utilized 1 QC Monitor to monitor and review the Data Collectors.

The criteria used in selecting observers and QC Monitors required that each hold a valid driver's license, and be able to maintain the assigned schedule and research protocol for the observations. Each observer was trained on the types of vehicles to count, how to record the belted/not belted occupants, and other information necessary to complete their assignment. They also were provided an observer manual with specific instructions regarding the process for collecting data as well as a troubleshooting guide. The training session provided the observers with information on: (1) identifying eligible vehicles; (2) counting procedures for limited access roads; and, (3) completing the observation record sheet.

The training session also included explicit directions on counting an improperly used shoulder belt as "not using" and determining the number of lanes to be observed when volume traffic was high. During the survey period, on-site audits were conducted to ensure compliance and quality data collection by all observers.

Data Collector and QC Monitor training was conducted at the University of Central Oklahoma (UCO) in June 2021 prior to the initiation of data collection. Training included classroom lecture and field exercises.

At the conclusion of the training, the Data Collectors and the QC Monitor were given a quiz to ensure that they understood the survey terminology, the data collection protocols, and reporting requirements.

QC Monitor training focused on their specific duties. These included conducting site visits to various Data Collectors at a minimum of 15 sites (or 5% of all sites) and reviewing the field protocol during the visit. The QC Monitor was also available during the survey to respond to questions and offer assistance to Data Collectors as needed.

Observation Periods and Quality Control

All seat belt and booster seat use observations were conducted during weekdays and weekends between 7:00 a.m. and 8:00 p.m. The schedule included rush hour (before 9:30 AM and after 3:30 PM) and non-rush hour observations. Data collection was conducted for 60 minutes at each site, and a minimum of 6 sites were scheduled each day. Start times were staggered to ensure that a representative number of weekday/weekend/ rush hour/non-rush hour sites were included.

Maps showing the location of all observation sites and Site Assignment Sheets were provided to the Data Collectors and QC Monitor. These indicated the observed road name, the crossroad included within the road segment (or nearest crossroad), and the assigned direction of travel. Sites within relatively close geographic proximity were assigned as data collection clusters. Sites within a cluster which were in close geographic proximity were visited on the same day in order to minimize travel costs.

Data Collection

All passenger vehicles, including commercial vehicles weighing less than 10,000 pounds, were eligible for observation. A cover sheet was designed to allow for documentation of descriptive site information, including: date, site location, site number, alternate site data, assigned traffic flow, number of lanes available and observed, start and end times for observations, and weather conditions. This cover sheet was completed by the Data Collector at each site.

The observation form was used to record seat belt use by drivers and front seat passengers. Additional observation forms were used when more than 40 vehicles were observed at a site. The forms were labeled as 1 of 2, and 2 of 2, etc.

The data collector observed as many lanes of traffic as he/she could comfortably monitor while obtaining data on approximately 99% of the vehicles. Only one direction of traffic was observed at any given site.

Observations were made of all drivers and right front seat occupants. This included children riding in booster seats. *The only right front seat occupants excluded from this study were child passengers who were traveling in child seats with harness straps*. The codes in Table 3 were used to record seat belt use.

Table 3 - Seat Belt Use Codes and Definitions

Code	Meaning	Definition
Y	Yes, belted	The shoulder belt is in front of the person's shoulder.
N	No, unbelted	The shoulder belt is not in front of the person's shoulder.
U	Unknown	It cannot reasonably be determined whether the driver or right front passenger is belted.
NP	No passenger	There is no right front passenger present.

According to the codes above, both a vacancy for the right front passenger or a child, restrained in a car seat with harnesses would be coded as NP since we do not observe harnessed children in this study.

Alternate Sites and Rescheduling

When a site is temporarily unavailable due to a crash, road construction, or inclement weather, data collection would be rescheduled for a similar time of day and type of week day. In the event that the site is permanently unworkable (such as being located within a gated community), then an alternate site, selected as part of the reserve sample, would be used as a permanent replacement. The two alternates for each site would be clearly identified and listed on the Site Assignment Sheet. Data Collectors would pick one of the reserve sites at random. If the selected reserve was also permanently unworkable, then the Data Collector would use the other reserve site.

Quality Control Procedures

The QC Monitor made visits to at least 5% of the data collection sites. During these visits, the QC Monitor first evaluated the Data Collector's performance from a distance (if possible), and then worked alongside the Data Collector. The QC Monitor ensured that the Data Collector was following all survey protocol including: being on time at assigned sites, completing the cover sheet and observation forms, and making accurate observations of seat belt use. The QC Monitor prepared a site visit report highlighting any problems with data collection site locations and Data Collector performance.

In the event it was discovered that a Data Collector had falsified data, the Data Collector would be replaced by a back-up Data Collector. The back-up Data Collector would revisit all sites proven to be or suspected to be falsified and recollect all data.

If the rate of unknowns exceeds 10% for any site (potentially leading to an overall nonresponse rate of 10% or more), then the Data Collector would be sent back to that site for an additional observation period.

2021 RESULTS OF THE SURVEY

During June and July of 2021, observers visited 299 sites in 19 counties. This approach was approved by the National Highway Traffic Safety Administration (NHTSA) in 2012 and a fully complaint resampling of locations to reflect current road infrastructure was approved for usage in 2017. These observers collected data for 36,836 drivers and front-seat passengers. In only 88 cases were the surveyors unable to determine whether an occupant was belted. This represented only 0.24% of the total cases and is well below the NHTSA limit of 10%.

Table 1 shows the estimates of safety belt use and confidence intervals for the state, the three regions, and roadway types (major and local). The statewide seat belt usage rate for drivers and front-seat passengers was 84.4 percent (the last most recent surveys had rates of 84.7 in 2019; 85.6% in 2018, 86.9% in 2017, 86.6% in 2016, 84.4% in 2015, 86.3% in 2014, and 83.6% in 2013). The Southeast regions showed a substantial decrease in usage compared to the last survey (from 75.2% down to 68.0%). The West region showed a small decrease (86.6% to 85.1%), whereas the Northeast region showed a small increase in usage (84.7% to 85.3%).

Drivers and passengers observed traveling on primary and local roads were more likely to be restrained (85.3 and 84.5 percent) than those observed on secondary roads (82.6%). This pattern remains the same from the previous survey that was conducted.

Table 4

Estimate of Seat Belt Use in Oklahoma Summer 2021				
	Number of Observations	Weighted Estimate (PERCENT)	Standard Error (PERCENT)	Confidence Interval* (PERCENT)
Statewide	36,748	84.4	0.8	+/- 1.6
Regions				
West	11,147	85.1	0.5	+/- 1.0
Northeast	19,779	85.3	0.5	+/- 1.0
Southeast	5,807	68.0	5.6	+/- 11.0
Roadway Type**				
S1100 Primary Roads	2,683	85.3	2.1	+/- 4.1
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S1400 Local and Rural	24,350	84.5	0.7	+/- 1.3

* Based on a 95 percent confidence level, the actual belt use for each category shown in the table is the estimated percentage use + or – the standard error (S.E.) multiplied by 1.96. Standard errors were calculated using SPSS v25 Complex Samples Module.

** S1100 Primary Roads are generally divided, limited access highways within the interstate system. S1200 roads are main arteries in the State Highway or County Highway system. They have one or more lanes of traffic in each direction and often have a local name and a route number. S1400 Roads are paved, non-arterial streets, roads, or byways that usually have a single lane of traffic in each direction.

Although the breakdown by region is useful for targeting problem areas for seat belt use, an examination of the differences among sampled counties within the regions provides further insights (Table 5). Since the variation among counties within a region can be substantial, a comparison of county data provides more specific information that can be used for targeted media campaigns and enhanced enforcement in areas where seat belt usage is lowest.

The five sampled counties with the **lowest** seat belt compliance rate for 2021 include:

	2021
Muskogee County	61.0%
Sequoyah County	62.2%
Caddo County	63.2%
Seminole County	69.9%
Pontotoc County	76.8%

On the other hand, the five sampled counties with the **highest** seat belt usage rates for 2021 include:

	2021
Cleveland County	87.9%
Payne County	87.8%
Rogers County	87.1%
Garfield County	85.8%
Tulsa County	85.5%

Table 5
Estimate of Seat Belt Use in Oklahoma by County: Summer 2021
Percent

	Weighted Combined
Regions	
Northeast	**85.3**
Payne	87.8
Rogers	87.1
Tulsa	85.5
Creek	85.0
Lincoln	83.8
Osage	80.6
Wagoner	78.7
West	**85.1**

Table 5 Estimate of Seat Belt Use in Oklahoma by County: Summer 2021 Percent	
Cleveland	87.9
Garfield	85.8
Oklahoma	85.3
Logan	84.5
Comanche	80.1
Canadian	78.4
Caddo	63.2
Southeast	**68.0**
Pottawatomie	81.5
Pontotoc	76.8
Seminole	69.9
Sequoyah	62.2
Muskogee	61.0

In addition to examining restraint usage on a regional basis, the Oklahoma survey also examines usage rates by occupant type and vehicle type. The results of these analyses are provided in Table 6.

Table 6. Seat Belt Use by Occupant and Vehicle Type in Oklahoma Summer 2021				
	Number of Observations	Weighted Estimate (PERCENT)	Standard Error (PERCENT)	Confidence Interval* (PERCENT)
Statewide	36,748	84.4	0.8	+/- 1.6
Occupant Type				
Driver	29,597	83.9	0.9	+/- 1.7
Front Seat Passenger	7,135	86.4	2.2	+/- 4.3
Vehicle Type				
Car/SUV	26,068	86.0	0.6	+/- 1.2
Pickup Truck	10,665	78.3	1.8	+/- 3.5

Table 6 shows there is a significant gap between drivers and their passengers (83.9% versus 86.4%). The direction of this gap is consistent with other recent Oklahoma surveys, but the difference was larger than the most recent previous survey. More importantly, however, Table 3 also reveals a large gap between drivers of pickup trucks and other vehicles. In fact, drivers of passenger cars and SUVs were significantly more likely to be restrained (86.0%) than were the occupants of pickup trucks (78.3%). The size of this gap decreased from the previous survey but was still larger than the historical gap.

Comparisons to Previous Surveys

Comparing overall usage rates in 2021 to previous years does provide useful comparisons. The overall usage rate in 2021 was 84.4%, which was a slight decrease from 2019 (84.7%) and from 2018 (85.6%). The 2021 usage rate continues a slight downward trend over recent surveys. This decrease can be attributed to very low usage rates in the Southeast portion of the state.

SUMMARY AND RECOMMENDATIONS

The results of the summer 2021 survey can be summarized as follows:

- The summer 2021 survey results reveal that statewide safety belt use was 84.4%. This was down from 2019 (84.7%) and from 2018 (85.6%), but not much different than the surveys from previous years (86.9 in 2017; 86.6% in 2016, 84.4% in 2015, 86.3% in 2014, and 83.6% in 2013).

- In 2021, no counties had usage rates over 90%. In comparison, 2019 saw one county over 90%, 2018 had four counties, while 2017 had three counties in the over 90% usage rate category.

- Caddo County was among the lowest usage counties for the fourth consecutive year. Besides Caddo County, three other counties were below 70%, suggesting that usage varied greatly on a county-by-county basis.

- In 2021, drivers were analyzed separately from passengers. Consistent with recent results, drivers (83.9%) were less likely to be restrained than were their passengers (86.4%). This same general pattern has held for the last five years.

- Like recent surveys, the 2021 survey separately examined pickup trucks for their usage rates. Consistent with national data and other Oklahoma data, pickup trucks showed a significantly lower rate of usage (78.3% in 2021, 76.8% in 2019, 79.8% in 2018, 81.3% in 2017, 79.0% in 2016, 78.2% in 2015, and 79.4% in 2014) than other vehicle types (86.0% in 2021, 87.0% in 2019; 87.3% in 2018, 88.7% in 2017, 89.0% in 2016, 86.8% in 2015, and 88.6% in 2014).

Two factors that have been demonstrated to play key roles in determining a state's use rate are: 1) the nature of the state's seat belt law, and 2) media campaigns conducted to raise use. An analysis

conducted for this study of the usage rates from 2010 finds that states with higher fines have higher usage rates (r = .49). The 2009 NHTSA survey found that those states with stronger belt enforcement laws (primary enforcement) continue to exhibit generally higher buckled rates than states with weaker laws (secondary enforcement) or no laws.

With respect to public education, the main theme of the national advertising campaign promoted by NHTSA has been *Click It or Ticket*. It conveys a message that it is illegal not to use safety belts, law enforcement officers are looking for nonuse, and offenders will be ticketed. The campaign is viewed as a success with safety belt use increases coincident with the advertising campaign.

A recent study assessing *Click It or Ticket* programs confirms that primary law states had substantially higher seat belt use and higher levels of enforcement than secondary states. They also noted that *Click It or Ticket* programs aimed at the general driving population and supplemented by more targeted programs directed at low use groups (e.g., occupants of pickups and rural residents) are key to increasing seat belt use. However, media programs without enforcement are not nearly as successful. Thus, enforcement is important. The more seat belt laws are enforced, the higher the seat belt use rate.

Considering the data collected as part of the 2021 observation study, the following recommendations are presented:

- Targeting specific counties and regions with low usage rates (i.e., low use counties) would likely have a positive impact on rates in those areas.

- Consider targeted initiatives to address the low usage rates among the occupants of pickup trucks. A reasonably large proportion of vehicle travel in Oklahoma takes place in pickup trucks and the usage rates of pickup truck occupants significantly lags other vehicle types. A rise in usage rates among pickup truck occupants would have significant positive impacts on the state's overall usage rate.

- Continue to encourage law enforcement agencies to *vigorously* enforce the Oklahoma mandatory Seat Belt Use Act on a consistent basis;

- Collect county-level data on enforcement of the use of seat belts to document the relationship between enforcement efforts and safety restraint use; and

- Continue to pursue a multimedia strategy for educating the public about the benefits of using seat belts and the consequences of non-compliance with the state seat belt law.

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APPENDIX A
Seatbelt Observation Sites – June/July 2021

County	Road Type	Road Name	Latitude	Longitude	Segment Length (mi)	Probability of Selection
Oklahoma	S1400	NE 63rd St	35.5366	-97.3813	0.8305	0.000151
Oklahoma	S1400	NE Grand Blvd	35.5247	-97.4694	0.5072	0.000092
Oklahoma	S1400	SE 89th St	35.3772	-97.5085	0.4187	0.000076
Oklahoma	S1400	NE 93rd St	35.5657	-97.4281	0.3553	0.000065
Oklahoma	S1400	SW 29th St	35.4352	-97.6158	0.3020	0.000055
Oklahoma	S1400	Downing St	35.5639	-97.5469	0.2635	0.000048
Oklahoma	S1400	N Macarthur Ave	35.6697	-97.6207	0.2480	0.000045
Oklahoma	S1400	N Anderson Rd	35.5037	-97.3180	0.2283	0.000041
Oklahoma	S1100	I- 40	35.4576	-97.4542	0.2090	0.000038
Oklahoma	S1100	I- 35	35.4221	-97.4877	0.1925	0.000035
Oklahoma	S1400	N Eastern Ave	35.5100	-97.4767	0.1790	0.000033
Oklahoma	S1400	N Anderson Rd	35.6485	-97.3184	0.1652	0.000030
Oklahoma	S1400	N Macarthur Blvd	35.6065	-97.6208	0.1534	0.000028
Oklahoma	S1400	Wegner Way	35.5706	-97.6512	0.1409	0.000026
Oklahoma	S1400	NE 122nd St	35.5943	-97.2086	0.1303	0.000024
Oklahoma	S1400	S Holiday Ave	35.4289	-97.4347	0.1253	0.000023
Oklahoma	S1400	NW 29th St	35.4995	-97.5488	0.1222	0.000022
Oklahoma	S1400	NW 29th St	35.4995	-97.5378	0.1139	0.000021
Oklahoma	S1400	NW Expwy Svc Rd	35.5294	-97.5737	0.1049	0.000019
Oklahoma	S1400	NE 11th St	35.4801	-97.4870	0.0966	0.000018
Oklahoma	S1400	SW 7th St	35.4580	-97.5154	0.0886	0.000016
Oklahoma	S1400	Quail Creek Rd	35.5994	-97.5776	0.0814	0.000015
Oklahoma	S1400	Briarcreek Dr	35.5704	-97.6307	0.0731	0.000013
Oklahoma	S1400	NE 4th St	35.4715	-97.4782	0.0685	0.000012
Oklahoma	S1400	N Western Ave	35.6304	-97.5317	0.0640	0.000012
Oklahoma	S1400	NE 10th St	35.4786	-97.2673	0.0597	0.000011
Oklahoma	S1400	Washington Blvd	35.4855	-97.4526	0.0547	0.000010
Oklahoma	S1400	N Meridian Ave	35.4739	-97.6011	0.0479	0.000009
Oklahoma	S1400	W Britton Rd	35.5656	-97.5339	0.0364	0.000007
Oklahoma	S1400	SE 44th St	35.4208	-97.4516	0.0199	0.000004
Comanche	S1100	I- 44	34.4891	-98.4105	1.5484	0.000507
Comanche	S1400	Trail Rd	34.6013	-98.2647	0.9847	0.000322
Comanche	S1400	Big Rock Rd	34.7363	-98.4832	0.7680	0.000251
Comanche	S1400	E Gore Blvd	34.6085	-98.2594	0.6073	0.000199
Comanche	S1200	US Hwy 277	34.7824	-98.3566	0.5019	0.000164

County	Road Type	Road Name	Latitude	Longitude	Segment Length (mi)	Probability of Selection
Comanche	S1400	Watts Rd	34.8117	-98.1913	0.4304	0.000141
Comanche	S1400	Deyo Mission Rd	34.6354	-98.5452	0.3502	0.000115
Comanche	S1200	State Hwy 65	34.6975	-98.1951	0.2789	0.000091
Comanche	S1400	NW Elm Ave	34.6203	-98.4067	0.2309	0.000076
Comanche	S1200	US Hwy 62	34.7837	-98.3872	0.1854	0.000061
Comanche	S1200	US Hwy 62	34.7938	-98.3875	0.1461	0.000048
Comanche	S1400	NW Allan-A-Dale Ln	34.6331	-98.4619	0.1116	0.000037
Comanche	S1400	SW Dr Charles W Whitlow Ave	34.5904	-98.4162	0.0877	0.000029
Comanche	S1400	NW 64th St	34.6210	-98.4712	0.0666	0.000022
Comanche	S1400	Cole Rd	34.8231	-98.2476	0.0403	0.000013
Garfield	S1400	S 66th St	36.3398	-97.7831	1.0003	0.000361
Garfield	S1400	Breckenridge Rd	36.4340	-97.7920	0.9904	0.000358
Garfield	S1200	State Hwy 164	36.2836	-97.4922	0.8576	0.000310
Garfield	S1200	State Hwy 74	36.2371	-97.5859	0.7128	0.000257
Garfield	S1200	State Hwy 164	36.2822	-97.5270	0.6122	0.000221
Garfield	S1200	US Hwy 81	36.2495	-97.8901	0.5067	0.000183
Garfield	S1200	E 0425 Rd / SR 412	36.3977	-97.7607	0.4822	0.000174
Garfield	S1200	E 0425 Rd / SR 412	36.3977	-97.5182	0.4089	0.000148
Garfield	S1200	State Hwy 132	36.3642	-98.0330	0.3369	0.000122
Garfield	S1400	N Independence Ave	36.4175	-97.8801	0.2655	0.000096
Garfield	S1200	N 4th St	36.4309	-97.8728	0.2075	0.000075
Garfield	S1200	E 0425 Rd	36.3977	-97.5940	0.1469	0.000053
Garfield	S1400	N Burdel Ln	36.3973	-97.9236	0.0998	0.000036
Garfield	S1400	W Park Ave	36.3920	-97.8834	0.0686	0.000025
Garfield	S1400	N Independence Ave	36.4197	-97.8801	0.0355	0.000013
Canadian	S1100	I- 40	35.5007	-97.9104	1.0023	0.000381
Canadian	S1400	N John Kilpatrick Tpke	35.5415	-97.6908	0.8026	0.000305
Canadian	S1400	W Hefner Rd	35.5803	-97.6834	0.6156	0.000234
Canadian	S1200	State Hwy 3	35.6484	-97.848	0.5022	0.000191
Canadian	S1200	State Hwy 3	35.6884	-97.9447	0.4421	0.000168
Canadian	S1200	State Hwy 152	35.3918	-97.9122	0.3712	0.000141
Canadian	S1200	N Piedmont Rd	35.5178	-97.7425	0.3085	0.000117
Canadian	S1100	I- 40	35.4603	-97.6868	0.2563	0.000097
Canadian	S1400	SW 89th St	35.3772	-97.6871	0.2169	0.000082
Canadian	S1400	SW 15th St	35.4497	-97.7085	0.1770	0.000067
Canadian	S1400	Left Hand Ave	35.6137	-97.9925	0.1433	0.000055
Canadian	S1200	S Mustang Rd	35.4476	-97.7246	0.1150	0.000044
Canadian	S1200	W Main St	35.5079	-97.7562	0.0883	0.000034

County	Road Type	Road Name	Latitude	Longitude	Segment Length (mi)	Probability of Selection
Canadian	S1200	State Hwy 66	35.5080	-97.8696	0.0630	0.000024
Canadian	S1400	Lewis Ave	35.6013	-98.1164	0.0384	0.000015
Cleveland	S1400	E Franklin Rd	35.2762	-97.4106	0.5154	0.000201
Cleveland	S1200	Sooner Rd	35.3447	-97.4264	0.3703	0.000144
Cleveland	S1400	Mimosa Dr	35.2371	-97.4474	0.2900	0.000113
Cleveland	S1400	York Dr	35.2909	-97.4865	0.2413	0.000094
Cleveland	S1400	Finch St	35.2380	-97.4348	0.2041	0.000079
Cleveland	S1400	Merchant Dr	35.2244	-97.4796	0.1772	0.000069
Cleveland	S1400	SW 89th St	35.3772	-97.5226	0.1532	0.000060
Cleveland	S1400	E Robinson St	35.2328	-97.4311	0.1324	0.000052
Cleveland	S1400	96th St	35.0905	-97.3004	0.1167	0.000045
Cleveland	S1400	Ed Noble Pkwy	35.2136	-97.4854	0.0998	0.000039
Cleveland	S1400	Grand View Ave	35.2448	-97.5031	0.0858	0.000033
Cleveland	S1400	Greenbriar Chase St	35.3611	-97.5498	0.0700	0.000027
Cleveland	S1400	NW 2nd St	35.3397	-97.5091	0.0571	0.000022
Cleveland	S1400	S Broadway St	35.3101	-97.4733	0.0454	0.000018
Cleveland	S1400	12th Ave NW	35.2867	-97.4591	0.0247	0.000010
Logan	S1400	S May Ave	35.8642	-97.5672	1.0104	0.000487
Logan	S1200	S Portland Ave	35.8488	-97.5851	0.8942	0.000431
Logan	S1200	US Hwy 77	36.0927	-97.3955	0.6850	0.000330
Logan	S1200	S Portland Ave	35.7587	-97.5849	0.5277	0.000254
Logan	S1200	State Hwy 33	35.8472	-97.6536	0.4716	0.000227
Logan	S1400	Thompson Trial	35.7372	-97.4555	0.3968	0.000191
Logan	S1200	State Hwy 33	35.8933	-97.3615	0.3363	0.000162
Logan	S1200	State Hwy 51	36.1162	-97.6510	0.2819	0.000136
Logan	S1200	University Ave	35.8700	-97.3132	0.2413	0.000116
Logan	S1200	N Portland Ave	36.0341	-97.5863	0.1981	0.000096
Logan	S1400	Coltrane Rd	35.8097	-97.4431	0.1614	0.000078
Logan	S1400	S Eastern Rd	35.8573	-97.4783	0.1280	0.000062
Logan	S1400	N Mid Iron Way	35.7282	-97.5026	0.0978	0.000047
Logan	S1400	S Drexel St	35.8744	-97.4124	0.0720	0.000035
Logan	S1400	NE 248th St	35.7253	-97.4312	0.0497	0.000024
Caddo	S1200	State Hwy 146	35.1824	-98.4249	0.9987	0.003453
Caddo	S1200	US Hwy 281	35.1510	-98.2497	0.6579	0.002275
Caddo	S1200	State Hwy 58	35.2907	-98.5800	0.4817	0.001666
Caddo	S1200	US Hwy 62	34.8697	-98.3794	0.3447	0.001192
Caddo	S1200	State Hwy 58	35.4000	-98.5707	0.2389	0.000826
Caddo	S1200	Hwy 9	35.0479	-98.3468	0.1453	0.000502

County	Road Type	Road Name	Latitude	Longitude	Segment Length (mi)	Probability of Selection
Caddo	S1200	US Hwy 277	34.9314	-98.1328	0.0666	0.000230
Osage	S1200	State Hwy 99	36.3459	-96.4276	1.4315	0.000289
Osage	S1200	State Hwy 20	36.4144	-96.4482	0.9982	0.000202
Osage	S1400	New Prue Rd	36.2601	-96.2383	0.7820	0.000158
Osage	S1200	State Hwy 20	36.4105	-96.4344	0.6431	0.000130
Osage	S1200	State Hwy 20	36.4859	-96.6518	0.5313	0.000107
Osage	S1200	State Hwy 11	36.5933	-96.2227	0.4555	0.000092
Osage	S1400	N Hwy 97	36.1704	-96.1106	0.3891	0.000079
Osage	S1200	US Hwy 60	36.6807	-96.5972	0.3280	0.000066
Osage	S1200	State Hwy 20	36.3717	-96.2432	0.2775	0.000056
Osage	S1400	S Lenapah Ave	36.3630	-96.0313	0.2309	0.000047
Osage	S1400	D3795 Rd	36.3768	-96.2368	0.1898	0.000038
Osage	S1400	New Prue Rd	36.2000	-96.2122	0.1507	0.000030
Osage	S1400	N 33rd West Ave	36.1736	-96.0286	0.1131	0.000023
Osage	S1400	D3740 Rd	36.6771	-96.3368	0.0782	0.000016
Osage	S1200	W Rogers Blvd	36.3686	-96.0533	0.0410	0.000008
Tulsa	S1400	N 141st E Ave	36.1994	-95.8204	1.0714	0.000253
Tulsa	S1200	E 46th St N	36.2204	-95.8399	0.7490	0.000177
Tulsa	S1400	Southwest Blvd	36.1225	-96.0071	0.5207	0.000123
Tulsa	S1400	N Garnett Rd	36.1991	-95.8511	0.4424	0.000104
Tulsa	S1200	Cherokee Expy	36.2477	-95.9347	0.3635	0.000086
Tulsa	S1400	W 59th St	36.0774	-96.0337	0.2950	0.000070
Tulsa	S1400	S Peach Ave	35.9825	-95.8087	0.2548	0.000060
Tulsa	S1200	Broken Arrow Expy	36.0627	-95.7736	0.2392	0.000056
Tulsa	S1400	W 18th Pl	36.1379	-96.1614	0.2148	0.000051
Tulsa	S1400	S Victor Ave	36.0521	-95.9652	0.1950	0.000046
Tulsa	S1400	W 41st St	36.1048	-96.2725	0.1795	0.000042
Tulsa	S1400	Union Ave	35.9139	-96.0117	0.1639	0.000039
Tulsa	S1400	E 61st St	36.0754	-95.8525	0.1499	0.000035
Tulsa	S1400	W Atlanta St	36.0297	-95.8314	0.1363	0.000032
Tulsa	S1400	S 33rd E Ave	36.1396	-95.9404	0.1271	0.000030
Tulsa	S1400	S 72nd East Ave	36.0763	-95.8959	0.1235	0.000029
Tulsa	S1400	E Admiral Blvd	36.1597	-95.9726	0.1176	0.000028
Tulsa	S1400	E 81st St	36.0464	-95.8580	0.1075	0.000025
Tulsa	S1400	E 17th St	36.1371	-95.8769	0.0979	0.000023
Tulsa	S1400	S Kalanchoe Ave	35.9714	-95.8290	0.0894	0.000021
Tulsa	S1400	E 29th St	36.1225	-95.9750	0.0817	0.000019
Tulsa	S1400	E 31st St	36.1188	-95.9230	0.0741	0.000017

County	Road Type	Road Name	Latitude	Longitude	Segment Length (mi)	Probability of Selection
Tulsa	S1400	E 81st St	36.0464	-95.8965	0.0692	0.000016
Tulsa	S1400	S 107th East Ave	36.1457	-95.8579	0.0654	0.000015
Tulsa	S1400	E Tecumseh St	36.1823	-95.9842	0.0622	0.000015
Tulsa	S1400	N Frankfort Ave	36.2161	-95.9890	0.0588	0.000014
Tulsa	S1400	E 24th St	36.1289	-95.8208	0.0549	0.000013
Tulsa	S1400	W 21st St	36.1338	-96.1716	0.0501	0.000012
Tulsa	S1400	S 66th East Ave	35.9811	-95.9038	0.0400	0.000009
Tulsa	S1400	S 129th Ave E	36.1300	-95.8333	0.0292	0.000007
Creek	S1100	I- 44	35.9957	-96.1719	0.9569	0.000338
Creek	S1400	Old Hwy 99	36.0426	-96.5753	0.5667	0.000200
Creek	S1100	I- 44	36.0580	-96.0724	0.4429	0.000157
Creek	S1400	Industrial Rd	36.0285	-96.1032	0.3623	0.000128
Creek	S1100	I- 44	35.8908	-96.3269	0.3035	0.000107
Creek	S1200	State Hwy 16	35.9664	-96.5839	0.2551	0.000090
Creek	S1200	State Hwy 97	36.0304	-96.1138	0.2216	0.000078
Creek	S1400	N3710 Rd	35.8266	-96.4051	0.1905	0.000067
Creek	S1200	State Hwy 51	36.1161	-96.5101	0.1624	0.000057
Creek	S1200	W State Hwy 66	35.9601	-96.2024	0.1378	0.000049
Creek	S1400	S 33rd West Ave	36.0719	-96.0298	0.1175	0.000042
Creek	S1400	Fox Briar Dr	36.0630	-96.0350	0.0959	0.000034
Creek	S1400	Hillside Dr	35.9898	-96.0431	0.0765	0.000027
Creek	S1200	N Mission St	36.0034	-96.0988	0.0598	0.000021
Creek	S1400	N Elm St	35.8331	-96.3933	0.0356	0.000013
Rogers	S1400	S 4060 Rd	36.5045	-95.7764	0.8152	0.000343
Rogers	S1400	S 4110 Rd	36.5061	-95.6867	0.5698	0.000240
Rogers	S1400	S Hwy 169	36.5797	-95.7046	0.4385	0.000184
Rogers	S1100	I- -44	36.1849	-95.7304	0.3464	0.000146
Rogers	S1400	E 410 Rd	36.4233	-95.5277	0.2820	0.000119
Rogers	S1400	Tiger Switch Rd	36.1825	-95.7773	0.2424	0.000102
Rogers	S1400	S 4300 Rd	36.5262	-95.3460	0.2085	0.000088
Rogers	S1400	E 450 Rd	36.3653	-95.6208	0.1768	0.000074
Rogers	S1400	E 390 Rd	36.4523	-95.4853	0.1498	0.000063
Rogers	S1400	S 4150 Rd	36.2526	-95.6149	0.1263	0.000053
Rogers	S1400	S 4240 Rd	36.1841	-95.4578	0.1089	0.000046
Rogers	S1400	B St NW	36.1530	-95.5138	0.0898	0.000038
Rogers	S1400	S Old Hwy 169	36.4315	-95.7163	0.0703	0.000030
Rogers	S1400	Carefree Dr	36.3101	-95.5229	0.0505	0.000021
Rogers	S1200	E 490 Rd	36.3072	-95.4668	0.0140	0.000006

County	Road Type	Road Name	Latitude	Longitude	Segment Length (mi)	Probability of Selection
Wagoner	S1200	S US Hwy 69	35.8783	-95.4025	0.9806	0.000549
Wagoner	S1200	Creek Tpke	36.0848	-95.7215	0.6613	0.000370
Wagoner	S1200	US Hwy 69	36.0135	-95.3688	0.5035	0.000282
Wagoner	S1400	W 90th St N	35.8720	-95.3964	0.4040	0.000226
Wagoner	S1400	Oak Grove Rd	36.1357	-95.6725	0.3254	0.000182
Wagoner	S1400	S 255th East Ave	36.0638	-95.6934	0.2627	0.000147
Wagoner	S1400	Oak Grove Rd	36.1461	-95.6726	0.2256	0.000126
Wagoner	S1200	Creek Tpke	36.0818	-95.7277	0.1867	0.000105
Wagoner	S1400	N Division St	35.9580	-95.6546	0.1534	0.000086
Wagoner	S1400	N 35th St E	35.8813	-95.3229	0.1271	0.000071
Wagoner	S1400	State Hwy 16	35.8599	-95.3413	0.1050	0.000059
Wagoner	S1400	E 710 Rd	35.9881	-95.4067	0.0838	0.000047
Wagoner	S1400	Dixieland Ave	35.8669	-95.5193	0.0694	0.000039
Wagoner	S1200	S Hwy 51	35.9754	-95.6626	0.0528	0.000030
Wagoner	S1400	E 690 Rd	36.0172	-95.3289	0.0250	0.000014
Lincoln	S1100	I- 44	35.6938	-97.0019	0.7689	0.002792
Lincoln	S1200	US Hwy 62	35.4980	-96.7581	0.5768	0.002095
Lincoln	S1200	US Hwy 177	35.7569	-97.0178	0.4718	0.001713
Lincoln	S1200	N 3320 Rd	35.6325	-97.0882	0.4017	0.001459
Lincoln	S1200	State Hwy 18	35.5168	-96.8943	0.3402	0.001235
Lincoln	S1100	I- 44	35.7528	-96.6831	0.2831	0.001028
Lincoln	S1200	State Hwy 66	35.7098	-96.8321	0.2504	0.00091
Lincoln	S1200	US Hwy 62	35.4925	-97.1224	0.2183	0.000793
Lincoln	S1200	US Hwy 377	35.5818	-96.6625	0.1904	0.000692
Lincoln	S1200	State Hwy 18	35.6361	-96.8864	0.1632	0.000593
Lincoln	S1200	State Hwy 18	35.8604	-96.8765	0.1380	0.000501
Lincoln	S1100	I- 44	35.7679	-96.6261	0.1131	0.000411
Lincoln	S1200	State Hwy 102	35.6167	-97.0882	0.0878	0.000319
Lincoln	S1200	State Hwy 99	35.8036	-96.6631	0.0671	0.000244
Lincoln	S1200	State Hwy 18	35.5129	-96.8944	0.0354	0.000129
Payne	S1200	Cimarron Tpke	36.2210	-97.0060	1.1034	0.004007
Payne	S1200	E 6th Ave	36.1161	-96.7244	0.8356	0.003035
Payne	S1200	N3330 Rd	36.2223	-97.0699	0.6795	0.002468
Payne	S1200	W Moses St	35.9822	-96.7901	0.5154	0.001872
Payne	S1200	W 6th Ave	36.1023	-97.2343	0.4594	0.001668
Payne	S1200	Cimarron Tpke	36.2253	-96.9939	0.3839	0.001394
Payne	S1200	N Little Ave	36.0414	-96.7673	0.3209	0.001165
Payne	S1200	Cimarron Tpke	36.2320	-96.9143	0.2643	0.000960

County	Road Type	Road Name	Latitude	Longitude	Segment Length (mi)	Probability of Selection
Payne	S1200	S Ripley Rd	36.0833	-96.9086	0.2165	0.000786
Payne	S1200	Perkins Rd	36.1212	-97.0514	0.1760	0.000639
Payne	S1200	N3340 Rd	36.1004	-97.0514	0.1520	0.000552
Payne	S1200	Perkins Rd	36.1024	-97.0514	0.1235	0.000448
Payne	S1200	S Ripley Rd	36.1088	-96.9081	0.0894	0.000325
Payne	S1200	Agra Rd	35.9650	-96.8735	0.0638	0.000232
Payne	S1200	W 6th Ave	36.1157	-97.0623	0.0355	0.000129
Pottawatomie	S1400	No 2 Dam Rd	35.3566	-97.0677	0.7854	0.000348
Pottawatomie	S1200	Drummond Rd	35.0767	-97.0364	0.5529	0.000245
Pottawatomie	S1200	State Hwy 99A	35.3331	-96.7808	0.4557	0.000202
Pottawatomie	S1200	State Hwy 59	35.1262	-96.7980	0.3705	0.000164
Pottawatomie	S1400	Birdie Ln	35.3736	-96.9800	0.3051	0.000135
Pottawatomie	S1400	N3485 Rd	35.2733	-96.7983	0.2576	0.000114
Pottawatomie	S1400	E w Co Rd 111	35.4056	-96.8220	0.2261	0.000100
Pottawatomie	S1200	US Hwy 177	35.0923	-96.9316	0.1905	0.000084
Pottawatomie	S1400	N Leo St	35.3413	-96.9476	0.1621	0.000072
Pottawatomie	S1400	E 1300 Rd	35.1303	-96.8005	0.1344	0.000060
Pottawatomie	S1400	W Macarthur St	35.3617	-96.9319	0.1131	0.000050
Pottawatomie	S1400	SE 89th St	35.3768	-97.1151	0.0919	0.000041
Pottawatomie	S1400	W Wall St	35.3485	-96.9267	0.0721	0.000032
Pottawatomie	S1400	E 123 Rd	35.2319	-96.9068	0.0554	0.000025
Pottawatomie	S1400	N3450 Rd	35.3015	-96.8600	0.0263	0.000012
Sequoyah	S1100	I- 40	35.3936	-94.6301	0.8403	0.000489
Sequoyah	S1400	E vening Shade Rd	35.5433	-94.9488	0.5656	0.000329
Sequoyah	S1400	Dwight Mission Rd	35.4378	-94.8851	0.4396	0.000256
Sequoyah	S1200	State Hwy 101	35.5071	-94.6941	0.3589	0.000209
Sequoyah	S1400	Lakeview Rd	35.5748	-94.8239	0.2995	0.000174
Sequoyah	S1400	Swon Rd	35.4377	-94.5312	0.2520	0.000147
Sequoyah	S1100	I- 40	35.4543	-94.8872	0.2147	0.000125
Sequoyah	S1200	Ray Fine Blvd	35.4052	-94.5189	0.1829	0.000106
Sequoyah	S1400	E 1070 Rd	35.4635	-94.7243	0.1513	0.000088
Sequoyah	S1200	N Wheeler Ave	35.5690	-94.7164	0.1267	0.000074
Sequoyah	S1400	S 4760 Rd	35.4142	-94.5489	0.1057	0.000061
Sequoyah	S1400	E 1070 Rd	35.4639	-94.9881	0.0848	0.000049
Sequoyah	S1400	N Washington St	35.4639	-94.8002	0.0669	0.000039
Sequoyah	S1200	E Shawntel Smith Blvd	35.4038	-94.5880	0.0475	0.000028
Sequoyah	S1400	Ridge Rd	35.6096	-95.0209	0.0138	0.000008
Muskogee	S1200	State Hwy 71	35.3022	-95.3206	1.5056	0.000876

County	Road Type	Road Name	Latitude	Longitude	Segment Length (mi)	Probability of Selection
Muskogee	S1100	I- 40	35.4821	-95.2139	0.7920	0.000461
Muskogee	S1200	State Hwy 10	35.6714	-95.2064	0.6610	0.000384
Muskogee	S1200	US Hwy 69	35.6384	-95.4564	0.5310	0.000309
Muskogee	S1100	I- 40	35.4826	-95.2426	0.4328	0.000252
Muskogee	S1200	State Hwy 10	35.7656	-95.1950	0.3732	0.000217
Muskogee	S1200	S 13th St E	35.5257	-95.3096	0.3150	0.000183
Muskogee	S1100	I- 40	35.4773	-95.3038	0.2611	0.000152
Muskogee	S1100	I- 40	35.4838	-95.1561	0.2320	0.000135
Muskogee	S1200	US Hwy 64	35.7853	-95.6637	0.1987	0.000116
Muskogee	S1200	US Hwy 64	35.5380	-95.3096	0.1599	0.000093
Muskogee	S1200	State Hwy 16	35.7808	-95.3398	0.1286	0.000075
Muskogee	S1200	US Hwy 62	35.7985	-95.1380	0.1008	0.000059
Muskogee	S1200	Garrison Ave	35.8079	-95.2535	0.0735	0.000043
Muskogee	S1200	N 32nd St	35.7934	-95.4020	0.0507	0.000029
Seminole	S1200	State Hwy 9	35.2466	-96.5971	0.3640	0.001573
Seminole	S1200	US Hwy 377	35.2005	-96.6748	0.3352	0.001448
Seminole	S1200	State Hwy 9a	35.1299	-96.7586	0.1155	0.000499
Seminole	S1200	N S 351	35.1099	-96.7580	0.8191	0.003539
Seminole	S1200	US Hwy 377	35.1219	-96.6789	0.8270	0.003574
Seminole	S1200	State Hwy 9	35.2319	-96.4717	0.5648	0.002441
Seminole	S1200	State Hwy 56	34.9544	-96.6301	0.3057	0.001321
Pontotoc	S1200	Chickasaw Tpke	34.6281	-96.8550	1.1721	0.006892
Pontotoc	S1200	State Hwy 3	34.6583	-96.5596	0.6001	0.003529
Pontotoc	S1200	US Hwy 377	34.8721	-96.6786	0.5008	0.002945
Pontotoc	S1200	US Hwy 377	34.7428	-96.6488	0.4057	0.002385
Pontotoc	S1200	US Hwy 377	34.8136	-96.6954	0.3497	0.002056
Pontotoc	S1200	State Hwy 19	34.7967	-96.8785	0.3043	0.001789
Pontotoc	S1200	Richardson Loop	34.7889	-96.6902	0.2589	0.001523
Pontotoc	S1200	State Hwy 48	34.8061	-96.4243	0.2226	0.001309
Pontotoc	S1200	US Hwy 377	34.8653	-96.6807	0.1933	0.001136
Pontotoc	S1200	State Hwy 1	34.7773	-96.5931	0.1663	0.000978
Pontotoc	S1200	State Hwy 1	34.7807	-96.5813	0.1328	0.000781
Pontotoc	S1200	Richardson Loop	34.7898	-96.6759	0.1109	0.000652
Pontotoc	S1200	State Hwy 3w	34.8245	-96.7742	0.0828	0.000487
Pontotoc	S1200	Cradduck Rd	34.7573	-96.6603	0.0680	0.000400
Pontotoc	S1200	US Hwy 177	34.9488	-96.9307	0.0244	0.000143