

2026 Safety Belt Usage Survey in Kentucky

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Research Report

KTC-27-09

2026 Safety Belt Usage Survey in Kentucky

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A special thanks to KTC's student data collectors:

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Chapter 1 Introduction and Background

The use of safety belts is a proven means of reducing injuries to motor vehicle occupants involved in traffic crashes. Promoting and supporting safety belt usage is a top priority for transportation safety officials across the country. For years, there have been various methods used in efforts to increase safety belt usage. Past efforts have included public information campaigns, local and statewide legislation, and enforcement of the legislation.

In order to evaluate the effectiveness of these efforts, statewide observational surveys are conducted. The first observational surveys were conducted in Kentucky in 1982 in tandem with a law that was passed by the 1982 Kentucky General Assembly that mandated a “restraint system” for children 40 inches or less in height. Annual surveys have been conducted ever since. In the first several years of the survey, seatbelt usage increased quickly, from four percent in 1982 to 42 percent in 1993. In 1994, Kentucky included mandatory seatbelt usage as a secondary enforcement law, meaning that law enforcement officials may penalize a vehicle occupant for not wearing a seatbelt if the driver is already being penalized for a separate infraction. In 2006, the seatbelt law became mandatory via primary enforcement, in which law enforcement officials may conduct traffic stops and write citations for lack of seatbelt usage without other infractions. Primary enforcement also coincided with a continuing increase in seatbelt usage. Examples of the increasing rates are 60 percent in 2000, 72 percent in 2007, and 86 percent in 2014. Usage rates have leveled off in more recent years. Still, collecting and understanding the safety belt data is a critical part of pursuing progress within the realm of transportation safety.

Historically, this survey has included child safety seat presence, motorcycle helmet usage, and bicycle helmet usage as well as safety belt usage. Due to a variety of reasons, including relatively steady rates and difficulty collecting data, those aspects have since been removed from the study.

This study involved collecting and evaluating data from across the state to establish the safety belt usage rate in Kentucky for 2026. The effort supports the National Highway Traffic Safety Administration (NHTSA) seat belt safety initiatives. The survey began immediately after completion of the annual “Click It or Ticket” campaigns, lasted for ten weeks, and involved collecting data at 150 sites across 15 counties. Data from the individual sites were weighted and summarized into a statewide percentage. The resulting usage rate is presented in a variety of ways, considering attributes such as roadway functional classification, county, motor vehicle type, and amount of traffic. Kentucky’s rate from 2026 is valuable knowledge in itself but becomes more useful when compared to those determined from previous surveys, which are included in the report. The 2026 survey and subsequent report represent continued documentation of the effect associated with safety belt legislation, related education campaigns, and general public attitude.

Chapter 2 Survey Methodology

New survey sites were selected in 2023, as is required every five years. The survey design follows what has been done in recent years and is in accordance with NHTSA's Federal Register, Vol. 76, No. 63, Subpart B. The approach is considered a complex multistage sampling design. This chapter details the full process, from selecting counties to identifying data collection sites.

2.1 Selection of Counties and Number of Sites in Each County

- The number of highway fatalities was summarized for each of Kentucky's 120 counties for the five-year period of 2016 through 2020. The source of the data was NHTSA's Fatality Analysis Reporting System (FARS), which provides yearly crash summaries. The occupant fatality totals were sorted, and those counties with fatality rates in the lowest 15th percentile were excluded from consideration. The result was a sample of 75 counties that were considered as eligible survey counties.
- While the number of data collection sites has varied in the past, all survey methodologies have resulted in a standard error of approximately one percent. Since 2013, the survey has comprised 150 sites in 15 counties. This is roughly 20 percent of the eligible counties.
- To ensure a geographically representative sample of counties across Kentucky, the selection methodology involved randomly selecting a county in each of the 12 Transportation Cabinet highway districts. The districts have similar numbers of counties and provide a good distribution across the state. Three of the districts include the major urban areas in the state. Two counties were selected in each of these three urban districts, which resulted in the selection of a total of 15 counties.
- The only exception to the random selection was the automatic selection of Jefferson and Fayette Counties (in two of the urban districts). This was done because these counties (which contain Louisville and Lexington) have much higher vehicle miles traveled than any other county. Any meaningful statewide sample must include these counties because they are the largest urban centers in Kentucky.
- The objective was to identify 150 data collection sites in the 15 selected counties. Based on the results from past data collection, this number of sites would easily meet the 2.5 percentage point standard error criterion. Additional data would be collected if the standard error exceeded 2.5 percent.
- Past experience has shown that the number of vehicles observed varies dramatically by the site (depending on the average daily traffic [ADT] at the site). It is expected that there will be at least 50 observations made at every site. The total statewide sample size should be over 50,000.

- The number of sites selected in each county was based on the vehicle miles traveled (VMT) in each county. In past survey designs, it was stated that the number of sites in each county was “roughly proportional” to its VMT and clusters were formed based on “intuitive cutoff points”. For this survey design, further statistical rigor was introduced at this step: a k-means cluster analysis was performed on the county VMTs. This selects the optimal number of groupings. In this case, five clusters were identified. A cluster can include one or several counties.
- Using a linear Diophantine equation, each cluster is assigned a number of data collection sites. Solutions were constrained to multiples of three, and ensured that the total number of sites in the state was 150.
- Counties with lower VMT have fewer assigned data collection sites than counties with higher VMT. The number of sites in a county varies from six to 24.
- Table 2.1 lists the counties selected. The numbers of fatalities and VMT are given for each county. The five clusters of counties are delineated, and the number of sites in each county is noted.

Table 2.1 Selected Counties

County	Highway District	VMT (x1000)	VMT Cluster	Number of Sites
Pendleton	6	105774	1	6
Wolfe	10	107970	1	6
McCreary	8	159942	1	6
Harlan	11	198372	1	6
Larue	4	212646	1	6
Greenup	9	298290	1	6
Jessamine	7	388692	2	9
Floyd	12	402234	2	9
Marshall	1	500688	2	9
Franklin	5	525576	2	9
Barren	3	604266	2	9
Christian	2	1009062	3	12
Kenton	6	1431792	3	12
Fayette	7	2845284	4	21
Jefferson	5	6866526	5	24

- Figure 2.1 shows the location of the districts and counties across the state. These counties will be used from 2023 through 2027, in accordance with NHTSA requirements. This map includes the mini-survey locations as well (see Section 3.3 for more information.)

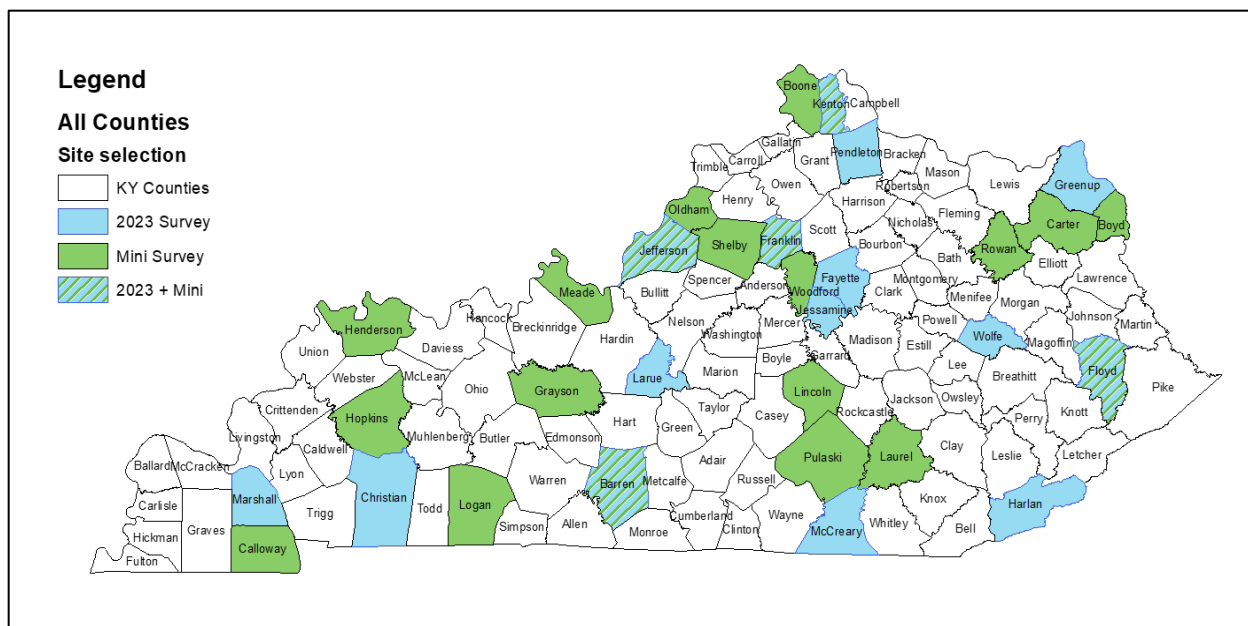


Figure 2.1 Map of Selected Counties in Kentucky

2.2 Assign Sites by Highway Type

- After the counties and the total numbers of data collection sites in each county were determined, the next step was to assign the number of sites by highway type. Sites within a county were selected using a complex stratified random sampling, treating the counties as the stratum and road class as the stratification unit.
- The following three roadway types (road class stratum) were used:
 1. limited access; primary
 2. arterials; secondary
 3. local; tertiary
- Using the primary/secondary/tertiary classification system to stratify the roads within each county, the appropriate number of segments were selected within each group for the selected counties.
- Within a county, the candidate sites were subset into (at most) three functional classes: “primary”, “secondary”, and “tertiary”. Adjustments are made if a functional class did not have any roads in the county. (In six of the 15 selected counties, there were no roads in the “limited access” category so no primary road segments were included.)
- The number of sites was then divided up proportional to the total VMT for a roadway type relative to the overall county VMT. After rounding to the closest integer, if the sum of the number of sites did not equal the number of sites stated in the table, one site could be added or subtracted accordingly.

- R was employed for the county and site selection process. The R code is provided in Appendix G.
- Using the criteria as noted, the following data (Table 2.2) presents the number of sites by county and highway type. Of the 150 sites, there are 46 sites on limited-access roadways, 66 sites on arterials, and 38 sites on tertiary roads.

Table 2.2 Number of Sites in Each County by Road Class

Stratum: County	Total Number of Sites Allocated	County VMT (x1000)	Stratification Unit: Road Class	Population (DVMT)	Sample Count
Barren	9	604266	Primary	500346	3
			Secondary	433439	3
			Tertiary	357983	3
Christian	12	1009062	Primary	1319052	6
			Secondary	823310	4
			Tertiary	327696	2
Fayette	21	2845284	Primary	2941893	9
			Secondary	3052968	9
			Tertiary	809307	3
Floyd	9	402234	Primary	0	0
			Secondary	678149	6
			Tertiary	362911	3
Franklin	9	525576	Primary	577855	4
			Secondary	686795	4
			Tertiary	122045	1
Greenup	6	298290	Primary	0	0
			Secondary	538447	5
			Tertiary	171954	1
Harlan	6	198372	Primary	0	0
			Secondary	347930	4
			Tertiary	195996	2
Jefferson	24	6866526	Primary	9444963	13
			Secondary	6862556	9
			Tertiary	1422504	2
Jessamine	9	388692	Primary	0	0
			Secondary	683020	7
			Tertiary	188980	2
Kenton	12	1431792	Primary	2260467	7
			Secondary	907075	3
			Tertiary	550094	2
Larue	6	212646	Primary	161769	2
			Secondary	205444	3
			Tertiary	81110	1
Marshall	9	500688	Primary	648000	4

Stratum: County	Total Number of Sites Allocated	County VMT (x1000)	Stratification Unit: Road Class	Population (DVMT)	Sample Count
			Secondary	355044	3
			Tertiary	251450	2
			Primary	0	0
McCreary	6	159942	Secondary	182092	4
			Tertiary	114095	2
			Primary	0	0
Pendleton	6	105774	Secondary	144036	4
			Tertiary	82068	2
			Primary	116825	2
Wolfe	6	107970	Secondary	62979	2
			Tertiary	62209	2
			Primary	0	0

2.3 Selection of Data Collection Sites

- After the counties and number of sites (by roadway type) in each county were selected, the next portion of the methodology involved: a) randomly selecting roadway segments in each roadway type and b) selecting specific sites within each segment.
- The road segment database employed KYTC's "All Roads" network file. The Kentucky All Roads file includes all public roads and is updated weekly. Within the dataset, some allowed exclusions were made, namely rural local roads, nonpublic roads, and the like. Using ArcGIS, the All Roads file was combined with Functional Classification data and Traffic Counts data. For each segment, Daily Vehicle Miles Traveled (DVMT) was used as the Measure of Size (MOS).
- Using the primary/secondary/tertiary classification system to stratify the roads within each county, the appropriate number of segments were selected within each group for the selected counties. Appendix B provides a map of site locations by highway type.
- The segment length (in terms of VMT) was factored into the selection process, with longer sections having a higher probability of selection than shorter sections.
- Within a functional class, the sampling weights for the road segments are determined by dividing each road segment's DVMT by the total DVMT for that functional class within that county. Then road segments were selected by sampling without replacement according to these sampling weights.
- The probability of selection (POS) was the probability of selecting a site from a functional class multiplied by the sampling weight used when drawing sites from within a county.

- Within the selected segment, observation points were identified. The segments were inspected either remotely, using online imagery, or through a site visit. Site selection ensured that the observers could obtain data safely and effectively. Often, this meant positioning the observer(s) at an intersection or overpass so they have an unobstructed view of traffic while not being too close to it.
- If applicable, the number of approaches (by direction of travel) and lanes on the approaches on the specified road were identified at each site. The approach and lane used to collect data were randomly selected.
- Appendix A (Table A1) contains a list of the 150 data collection sites. The county and road name or number are given along with a reference to locate the observation site. The highway where the data is to be collected is identified. Each site's VMT and the county VMT are given. The probability of selection for each site is provided.
- For each roadway type within a county, one additional segment was selected to serve as the "Alternate." These alternates were utilized if no appropriate data collection observation point could be found within the original segment or if an identified observation site was unavailable for a substantial period of time (i.e. construction work). The list of available alternates is provided in Table A2 of Appendix A.
- Following the initial survey site selections in 2023, road construction projects have necessitated the use of nine alternate data collection locations. To remain consistent, alternate sites will continue to be used through 2027.

2.4 Data Collection Procedure

- Sites were clustered together for observation to maximize efficiency (and minimize time and travel costs). Sites in relatively close proximity to one another were designated data collection clusters. However, if there were multiple sites along the same road, care was taken to put them in different clusters to allow for a range in data observation days/times. Each cluster was assigned a random day for data collection. Within the cluster, data collectors could choose the order of sites to optimize their travel route that day.
- Data were collected for one hour at each site with either one or two data collectors (depending on the number of directions of travel included). One hour was required if the data were gathered by one data collector in one direction of travel, whereas one half hour was needed if there were two data collectors in separate directions of travel. There is a reasonable assumption that, for sites where one observer is used, the observed vehicles in one direction on a specific route in one hour will equal the number of vehicles on both directions on that route in a half hour. Sites requiring only one observer are divided roadways, low-volume roads, T-intersections, or roads with

limited observation viewpoints. On roads with higher traffic volumes, an equal distribution of traffic flow in each direction cannot be assumed; therefore, two observers were used, with one observing each direction. The use of a variable observation period (as described) does not affect the probability of selection.

- Data collection was scheduled to occur between June 2 and August 13. Data collection guidelines stated that data would be collected between 8 am and 6 pm on weekdays. The schedule included rush hour and non-rush hour observations. Start times were staggered to ensure the surveys captured a representative number of sites for each day of the week and time of day.
- Data were collected through direct observation. Appendix C contains the form used to collect and record data. Data were collected using paper forms. The form allows data collectors to record information such as the site number and the date and time of data collection. For drivers and front seat passengers, the categories are:
 1. Safety belt used (shoulder belt is in front of shoulder),
 2. Safety belt not used (shoulder belt not in front of shoulder), and
 3. Unknown (cannot be determined if belt is used).
- The ratio of the total number of recorded unknown values of belt use to the total number of drivers and passengers observed must not exceed 10 percent. Additional data were collected if the nonresponse threshold was surpassed.
- The following vehicle types (both in-state and out-of-state vehicles) were included in the data collection:
 1. Passenger car (PC)
 2. Pickup (PU)
 3. Van
 4. Sport utility vehicle (SUV)
- Before starting data collection, data collectors were provided training on the data collection procedure. The classroom training included:
 1. An overview of the survey and project background
 2. Data clusters and scheduling observations
 3. How to collect data through direct observation and use of the data form
 4. Data input for analysis

After the classroom portion of the training, the data collectors conducted trial surveys at locations representative of the three roadway types included in the survey. The project manager was present during these trial surveys to provide guidance. The trial survey results were evaluated to ensure that the data collectors provided consistent and accurate data compared to each other and compared to the project manager.

- Drivers received no indication that the data collectors were conducting a safety belt survey. At intersections, data were collected for vehicles either stopped or moving slowly enough to observe. At overpasses on limited access highways, an observation position was chosen to allow for an unobstructed view of the vehicle's front seat.
- For high volume locations, randomized selection was achieved by recording data for the next vehicle in view after recording the previous data. At low volume locations, data for the driver and outboard front seat passenger were obtained for all vehicles so there was no need for a random selection.
- A quality control monitor conducted random visits to collect data at at least ten of the data collection sites. There were six data collectors and one quality control monitor. The objective was that data were compared for at least two sites for each data collector.

2.5 Usage Rate Calculations

The following paragraphs summarize the calculation used to estimate the statewide seat belt usage rate. Seat belt usage rates were calculated using formulas based on the proportion of the state's total vehicle miles traveled (VMT) represented by the site. The seat belt usage rate calculations followed a four-step process.

- First, estimated rates were calculated for each of the road strata within each county. Observed usage rates for all sites within each stratum-county combination were combined through simple averaging, as shown in the following formula (1). (Since the sites' original probability of being included in the sample was proportional to their VMT, averaging their usage rates makes use of that sampling probability to reflect their different VMTs).

$$p_{i(j)k} = \sum_{l=1}^{n_{i(j)k}} p_{i(j)kl} / n_{i(j)k} \quad (\text{Eq.1})$$

where $i(j)$ = county i within category j (category 1 = one randomly selected county, category 2 = the two districts in which one county was random and one county was forced, and category 3 = two randomly selected counties); k = road functional class stratum; l = site within stratum and county; $n_{i(j)k}$ = number of sites within the stratum-county combination; and $p_{i(j)kl}$ = the observed seat belt use rate at site $i(j)kl$ = $B_{i(j)kl} / O_{i(j)kl}$ (where $B_{i(j)kl}$ = total number of belted occupants (drivers and outboard front-seat passengers) observed at the site and $O_{i(j)kl}$ = total number of occupants (excluding unknown usage) whose belt use was observed at the site).

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

$$p_{i(j)} = \frac{\sum_k VMT_{i(j)k} p_{i(j)k}}{\sum_k VMT_{i(j)k}} \quad (\text{Eq. 2})$$

where $VMT_{i(j)k}$ = VMT of all roads in stratum k in county $i(j)$, and $p_{i(j)k}$ = seat belt use rate for stratum k in county $i(j)$.

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

$$p_j = \frac{\sum_i VMT_{i(j)} W_{i(j)} p_{i(j)}}{\sum_k VMT_{i(j)} W_{i(j)}} \quad (\text{Eq. 3})$$

where $VMT_{i(j)}$ = total VMT for county i in category j and $W_{i(j)}$ = the inverse of the probability of the county's selection: where j is one of the three following categories:

One county randomly selected from district (j = 1)

Highway Districts 1,2,3,4,8,9,10,11, and 12

$$W_{i(1)} = \frac{\sum_{L=1}^{x_m} VMT_{L(1)}}{VMT_{i(1)}} \quad (\text{Eq. 4})$$

where m = county i 's district, x_m = the number of counties in District m , L is the L^{th} county in District m , $VMT_{L(1)}$ = the VMT in county L , $VMT_{i(1)}$ = the VMT in county i .

One county randomly selected from district and one county certainly selected (j = 2)

Highway Districts 5 and 7

$$W_{i(2)} = \frac{\sum_{L=1}^{y_m} VMT_{L(2)}}{VMT_{i(2)}} \quad (\text{Eq. 5})$$

where m = county i 's district, y_m = the number of counties in district m excluding the certain county, L is the L^{th} county in district m , $VMT_{L(2)}$ = the VMT in county L , $VMT_{i(2)}$ = the VMT in county i .

Or for certainty counties:

$$W_{i(2)} = 1$$

Two counties randomly selected from district (j = 3)

Highway District 6 only

$$W_{i(3)} = \frac{\sum_{L=1}^{11} VMT_{L(3)}}{2 \times VMT_{i(3)}} \quad (\text{Eq. 6})$$

where L is the Lth county in District 6, VMT_{L(3)} = the VMT in county L, VMT_{i(3)} = the VMT in county i.

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

$$p = \frac{\sum_{j=1}^3 VMT_j p_j}{\sum_{j=1}^3 VMT_j} \quad (\text{Eq. 7})$$

The result is a combination of the individual site seat belt usage rates weighted to reflect each site's importance in the total state VMT.

Estimates of subgroups of occupants, such as drivers or passengers and vehicle type (passenger car, pickup, etc.) were calculated using the same procedure.

2.6 Nonresponsive Judgement

- Based on data collection protocol and past experience, including the provision for using alternate observation sites, road segments with non-zero eligible volume and zero observations conducted should not occur. Nevertheless, if eligible vehicles passed an eligible site or an alternate eligible site during the observation time, but no usable data were collected for some reason, this site would be considered a non-responding site. The weight for a non-responding site was distributed over other sites in the same road type in the same primary sampling unit (PSU).

Let:

$$\pi_{gchi} = \pi_{gc} \pi_{hi|gc}$$

be the road segment selection probability, and

$$w_{gchi} = \frac{1}{\pi_{gchi}}$$

be the road segment weight.

The non-responding site nonresponse adjustment factor:

$$f_{gch} = \frac{\sum_{all\ i} w_{gchi}}{\sum_{responding\ i} w_{gchi}}$$

would be multiplied to all weights of non-missing road segments in the same road type of the same county, and the missing road segments would be dropped from the analysis file. However, if there were no vehicles passing the site during the selected observation time (60 minutes) this was treated as an empty block at this site. Accordingly, the site would not be considered as a non-responding site and would not require non-response adjustment.

2.7 Imputation

No imputation was done on missing data.

2.8 Standard Error Calculation

- The standard error of the overall seat belt use rate was calculated using the following procedure. Standard error of estimate values was estimated through a delete-1 jackknife approach, based on the general formula:

$$\hat{\sigma}_{\hat{p}} = \left[\frac{n-1}{n} \sum_{i=1}^n (\hat{p}_{(i)} - \hat{p})^2 \right]^{1/2} \quad (\text{Eq. 8})$$

where $\hat{\sigma}_{\hat{p}}$ = standard deviation (standard error) of the estimated statewide seat belt use proportion $\hat{p}$ (equivalent to p in the notation of formulas 1-3; n = the number of sites (i.e., 150); and $\hat{p}_{(i)}$ = the estimated statewide belt use proportion with site i excluded from the calculation.

The relative error rate (i.e., $\hat{\sigma}_{\hat{p}}/\hat{p}$) was also calculated, as well as the approximate 95% confidence interval (i.e., $\hat{p} \pm 1.96\hat{\sigma}_{\hat{p}}$). These values were reported for the overall statewide seatbelt usage rate.

Chapter 3 Results

3.1 2026 Statewide Survey

- Table 3.1 summarizes usage rates for all front seat occupants (drivers and passengers) for the various types of highways and road classifications. The overall statewide usage rate in 2026, using the data collected at 150 sites and the described weighting procedure, was 85.22 percent.
- The true overall safety belt usage rate in Kentucky for 2026 is between 84.17 percent and 86.26 percent, with 95 percent confidence. This includes a standard error of 0.532 percent, which yields a margin of error of 1.04 percent.
- The sample size of all front seat occupants was 84,898.
- This year's data reflects a 3.30 percent decrease compared to 88.52 percent last year.
- The statewide rate for drivers was 84.9 percent while the rate for front seat passengers was 86.9 percent. Compared to 2025, drivers' usage decreased by 3.5 percent, while passengers' usage rate decreased by 1.9 percent.
- Rates varied depending on road classification. The average usage rate was 89.2 percent on limited access (primary) roads, 85.0 percent on arterial (secondary) roads, and 79.8 percent on local (tertiary) roads.

Table 3.1 Usage Rate for Front-Seat Occupants (By Road Class)

ROAD CLASSIFICATION	OCCUPANT TYPE		
	Drivers	Passengers	All Occupants
Limited Access	88.8	91.7	89.2
Arterials	85.0	84.3	85.0
Locals	79.5	82.4	79.8
All Roads	84.9	86.9	85.2

- Appendices D and E provide summaries of the data collected (by site). For each site, the usage rate and sample size are given for all front seat occupants, drivers, and front seat passengers. The relative error and confidence interval are given for the "all front seat occupants" category. The percent unknown is given for each site. Also included are the site type (original or alternate), date observed, and site sample weight (inverse of probability of selection).
- There was a wide range of usage rates among the survey sites. The three lowest usage rates were 39.2 percent at a rural local road in Floyd County, 58.5 at a local road in Christian County, and 59.6

percent at a secondary road in Harlan County. The three highest usage rates were all at sites in Fayette County: 93.4 percent on a secondary road, 93.1 percent on I-75, and 93.0 percent on a secondary road.

- There were 33 sites that had a usage rate of 90 percent or more. Meanwhile, there were 38 sites that had a usage rate less than 80 percent.
- The average unknown rate among all 150 sites was 2.7 percent. The highest unknown rate at any one site was 10 percent at a secondary Road in Pendleton County.
- A substantial difference in usage rate (for all front seat occupants) was noted when vehicle type and road class were considered (see Table 3.2). The rate varied by vehicle type— from a low of 64.5 percent for pickup trucks on local roads to a high of 92.0 percent for SUVs on limited access roads.
- Examining all vehicle usage rates according to road class revealed that rates ranged from 79.8 percent on local roads to 89.2 percent on limited access highways.
- All vehicles followed the usual trend of exhibiting the lowest usage rate on local roads and highest rate on limited access highways.
- For each road classification, the lowest usage rate was for pickups. Pickups exhibit the greatest range of usage rates depending on road classification, from 64.5 percent usage on local roads to 81.9 percent usage on limited access roads.

Table 3.2 Usage Rate for Front-Seat Occupants (By Road Class and Vehicle Type)

ROAD CLASSIFICATION	VEHICLE TYPE				
	Passenger Car	Pickup	Van	SUV	All Vehicles
Limited Access	88.9	81.9	88.4	92.0	89.2
Arterials	85.1	74.1	84.4	89.3	85.0
Locals	81.5	64.5	81.3	86.3	79.8
All Roads	85.6	75.0	85.0	89.5	85.2

- Table 3.3 summarizes usage rate by county. The rate varied from a high of 90.5 percent in Kenton County to a low of 68.8 percent in Harlan County. This survey is the first time since 2014 that an individual county has had a usage rate less than 70 percent.
- The rate exceeded 90 percent in only Kenton County. Last year, four counties had usage rates above 90 percent.

- The rate was less than 80 percent in four counties: Floyd, Harlan, McCreary, and Pendleton. Notably, these four counties lack any limited-access mileage, which may contribute to lower usage rates.

Table 3.3 Usage Rate for Front-Seat Occupants (By County)

COUNTY	OCCUPANT TYPE		
	Drivers	Passengers	All Occupants
Barren	84.3	85.5	84.6
Christian	82.5	82.0	82.3
Fayette	89.6	90.0	89.8
Floyd	74.2	74.2	74.2
Franklin	88.7	88.3	88.8
Greenup	81.6	80.5	81.1
Harlan	67.8	73.3	68.8
Jefferson	86.3	88.0	86.5
Jessamine	86.0	89.3	86.2
Kenton	90.2	91.9	90.5
Larue	84.6	88.4	85.4
Marshall	82.5	85.7	83.1
McCreary	74.2	81.3	75.4
Pendleton	76.5	87.1	78.4
Wolfe	80.0	85.1	80.3
All Counties	84.9	86.9	85.2

- Usage rates by county and vehicle type are presented in Table 3.4. These rates ranged from a high of 94.0 percent for SUVs in Larue County to a low of 56.1 percent for pickup trucks in Harlan County.
- All vehicle types showed a decrease in usage rate compared to last year.
- Historically, SUVs have the highest usage rate and pickup trucks have the lowest usage rate. This is reflected in this year's survey as well: 89.5 percent of SUV occupants wore a safety belt and 75.0 percent of pickup truck occupants wore a safety belt.
- The usage rate for pickup trucks was less than 80 percent in twelve counties, compared to eight such counties in last year's survey. Four counties had pickup usage rates below 70 percent; they

were Floyd County (63.3 percent), Harlan County (56.1 percent), McCreary County (62.4 percent), and Pendleton County (61.6 percent).

Table 3.4 Usage Rate for Front-Seat Occupants (By County and Vehicle Type)

COUNTY	VEHICLE TYPE				All Vehicles
	Passenger Car	Pickup	Van	SUV	
Barren	86.7	74.2	84.3	89.3	84.6
Christian	82.7	75.5	88.3	85.3	82.3
Fayette	89.8	82.3	88.2	92.3	89.8
Floyd	77.4	63.3	75.4	80.8	74.2
Franklin	88.7	81.5	91.4	91.4	88.8
Greenup	83.9	70.4	71.3	87.9	81.1
Harlan	71.2	56.1	82.0	74.9	68.8
Jefferson	86.1	75.8	85.6	90.5	86.5
Jessamine	88.7	74.5	86.0	90.5	86.2
Kenton	90.5	80.2	89.3	93.9	90.5
Larue	82.7	74.1	89.8	94.0	85.4
Marshall	83.1	73.5	79.2	89.2	83.1
McCreary	76.6	62.4	68.0	83.3	75.4
Pendleton	87.9	61.6	80.2	84.1	78.4
Wolfe	79.4	70.8	88.7	85.9	80.3
All	85.6	75.0	85.0	89.5	85.2

- The current survey counties will be used from 2023 through 2027. Over the five years, it can be useful to track the usage rates of individual counties. Table 3.5 shows the overall usage rate in each county in 2023, 2024, 2025, and 2026.
- This table offers more insight about specific communities. From 2025 to 2026, usage rates decreased in fourteen of the fifteen counties. Looking at all four years, it is interesting to note that individual counties' trends do not necessarily reflect the statewide usage rate trends.

Table 3.5 Usage Rate By County (By Year)

COUNTY	YEAR			
	2023	2024	2025	2026
Barren	87.4	88.2	86.2	84.6
Christian	89.3	84.5	88.9	82.3
Fayette	93.5	90.8	92.7	89.8
Floyd	79.0	70.7	76.9	74.2
Franklin	93.5	90.8	91.1	88.8
Greenup	80.4	87.9	84.2	81.1
Harlan	80.4	76.7	78.7	68.8
Jefferson	90.5	89.8	89.7	86.5
Jessamine	88.8	88.3	90.2	86.2
Kenton	93.0	90.4	93.5	90.5
Larue	87.8	83.4	84.8	85.4
Marshall	90.5	88.7	89.2	83.1
McCreary	81.4	81.8	79.1	75.4
Pendleton	86.1	83.3	79.9	78.4
Wolfe	84.1	77.5	84.2	80.3
All Counties	89.4	87.8	88.5	85.2

3.2 Safety Belt Trends

While the data collection procedure has changed several times and redesigns occur every five years to ensure a fair sample, it is still valuable to compare the 2025 usage rate to past years. As shown in Table 3.5, statewide rates have dramatically increased from four percent in 1982 to 90 percent in 2018. Generally, Kentucky's usage rate has hovered between 85 and 90 percent for the past decade.

Table 3.5 Trend in Statewide Safety Belt Usage Rates (Percent Wearing Seatbelts)

YEAR	All Front Seat Occupants	Drivers	Children*
1982	**	4	15
1983	**	6	24
1984	**	7	30
1985	9	9	29
1986	13	13	30
1988	20	21	48
1989	25	26	49
1990	33	32	57
1991	39	39	57
1992	40	41	62
1993	42	42	61
1994	58	58	72
1995	54	54	66
1996	55	55	79
1997	54	54	82
1998	54	54	80
1999	59	59	89
2000	60	60	87
2001	62	62	89
2002	62	62	93
2003	66	65	95
2004	66	66	96
2005	67	67	94
2006	67	68	94
2007	72	72	98
2008	73.3	74	98
2009	79.7	80	99
2010	80.3	81	96
2011	82.2	83	97
2012	83.7	84	98
2013	85.0	85	**
2014	86.1	86.7	**
2015	86.7	86.7	**
2016	86.5	86.7	**
2017	86.8	87.2	**
2018	90.0	90.4	**
2019	89.7	90.1	**
2020	**	**	**
2021	89.8	89.7	**
2022	86.7	86.3	**
2023	89.4	89.4	**
2024	87.8	87.7	**
2025	88.5	88.4	**
2026	85.2	84.9	**

*Children under 4 years of age using either safety seat or safety belt. **Data not obtained.

- Figure 3.1 presents the preceding data in graph format. As illustrated, the increase in usage rates has slowed and remains just under 90 percent.

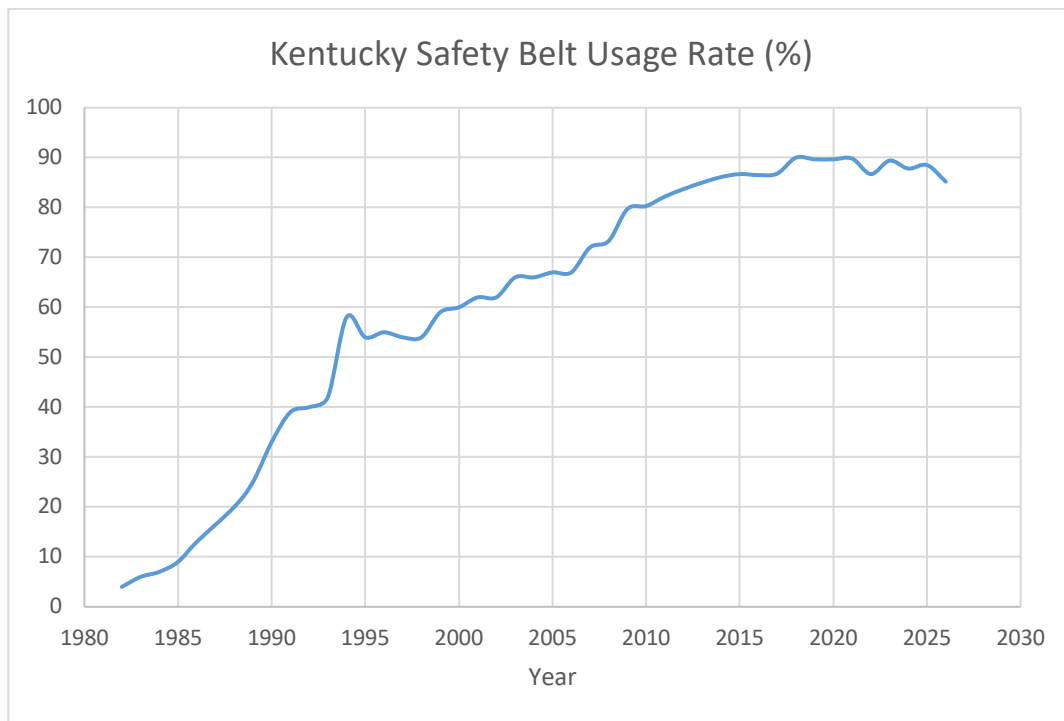


Figure 3.1 Trends in Seatbelt Usage (1984–2025)

3.3 Mini Survey

- Survey locations have often changed due to modifications of the data collection procedure and survey redesigns. In order to provide a consistent baseline by which to evaluate the data, mini-surveys have been performed in tandem with the main survey. For the past several years, mini-surveys have collected data at 21 sites (selected from the 200 sites for the survey first used prior to the change in sites made in 2009). The 21 sites represented seven road functional classifications and three regions of the state.
- This mini-survey was conducted in 2026 to enable a comparison of identical sites over an extended number of years.
- The usage rate at the mini-survey locations in 2026 was 86.2 percent. This is a 2.9 percent decrease from 89.1 percent in 2024. This decrease in rate shows consistency with the official statewide survey results.
- Compared to last year’s mini-survey, usage rates decreased at sixteen locations, stayed the same at two locations, and increased at three locations.
- Figure 3.2 shows the trends in safety belt usage across the regular survey and mini-survey since it began in 2009. The mini-survey has been very consistent with the main survey over the years.

- Appendix F contains the results for the mini-survey sites for the last eleven years since 2014.

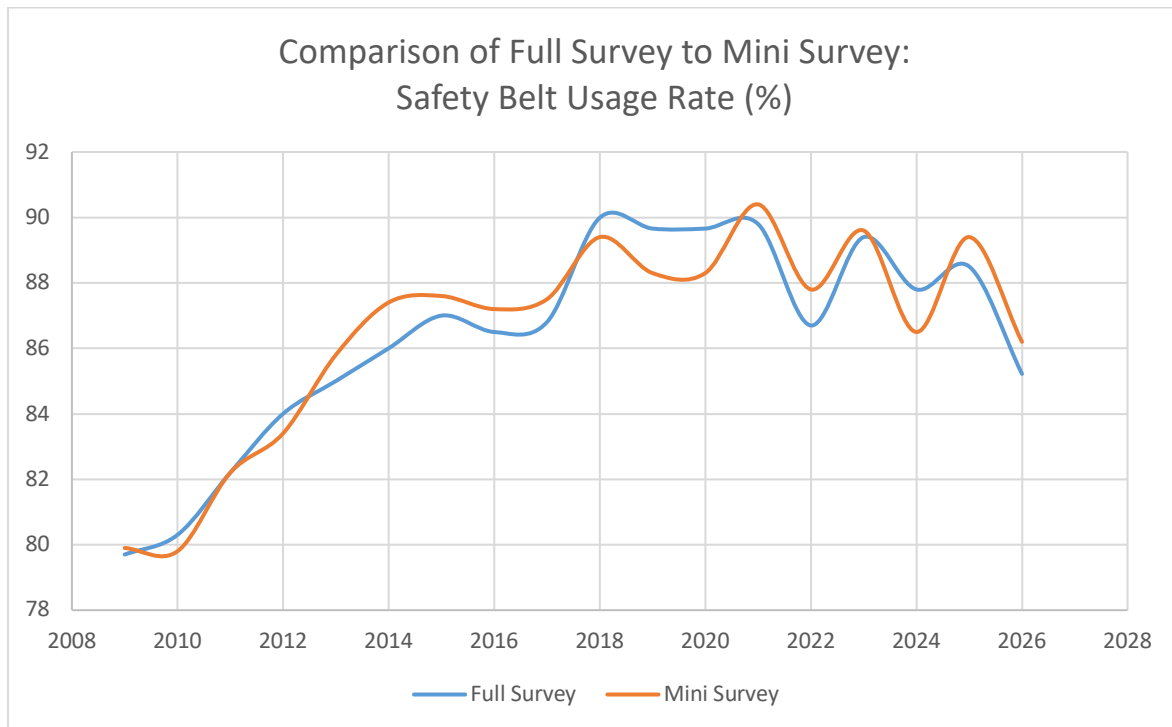


Figure 3.2 Safety Belt Usage Rates According to the Full Survey and Mini Survey

Chapter 4 Conclusions and Recommendations

- The data show that the level of safety belt usage in 2026 (85.22 percent) decreased by 3.30 percent from 2025 (88.52 percent).
- The highest usage rate since the surveys began was 90.0 percent in 2018, but the surveys illustrate a gradual flattening of the curve or “regression toward the mean.”
- A change in approach may be needed if a continued rise in seatbelt usage is the state’s objective. Such changes may be focused on stronger enforcement of safety belt laws and/or increased education in targeted areas.
- Safety belt usage varies by county and vehicle type. Focusing on this variability indicates locations where more emphasis would be beneficial.
- Data shows that the lowest usage rates are for pickups. The exemption for safety belt use for occupants of farm vehicles should be changed. Education campaigns focused on pickup drivers in rural areas should be considered.
- Data collectors have experienced some challenges with observations due to an increasing prevalence of tinted windows and windshields. Policymakers should consider enforcement measures of current regulations that limit aftermarket window tinting, as it is likely to reduce data quality.
- Modifying the driver point system so that a driver receives points when they are cited for failure to use a safety belt should be considered. This could aid enforcement.
- Consideration should be given to increasing the dollar amount drivers are fined when cited for failure to wear a safety belt.

Appendix A Data Collection Sites

Table A1 Data Collection Sites

Site	District	County	Road Class	Road Surveyed	Reference	Segment VMT	County Eligible VMT	Probability of Selection
1	3	Barren	primary	I-65	Mammoth Cave Rd	146471.787	500346.058	0.219555722
2	3	Barren	primary	CUMBERLAND PARKWAY	Beckton Rd	37374.273	500346.058	0.056022635
3	3	Barren	primary	CUMBERLAND PARKWAY	Veterans Outer Loop	18494.163	500346.058	0.027722058
4	3	Barren	secondary	HAPPY VALLEY RD	Paddock Way	783.246	433439.32	0.001355287
5	3	Barren	secondary	HAPPY VALLEY RD	Buena Vista Estates	749.558	433439.32	0.001296995
6	3	Barren	secondary	N JACKSON HWY	Horton Ridge Rd	5233.371	433439.32	0.009055543
7	3	Barren	tertiary	GLENVIEW DR	Adairland Ct	702.16	357982.584	0.001471077
8	3	Barren	tertiary	PARK CITY BON AYR RD	Mayhew Rd	643.08	357982.584	0.0013473
9	3	Barren	tertiary	LOUISVILLE RD	Mammoth Cave Ave	183.414	357982.584	0.000384266
10	2	Christian	primary	I-169	Grapevine Rd	31173.084	1319052.364	0.017724704
11	2	Christian	primary	I-24	Newstead Rd	59984.506	1319052.364	0.034106591
12	2	Christian	primary	I-24	Cox Mill Rd	119400.928	1319052.364	0.067890175
13	2	Christian	primary	I-24	Millers Mill Rd	80486.924	1319052.364	0.045764061
14	2	Christian	primary	I-169	KY 800	7177.308	1319052.364	0.004080946
15	2	Christian	primary	I-24	Carter Rd	113754.78	1319052.364	0.064679832
16	2	Christian	secondary	COUNTRY CLUB LN	Forbes Dr	150.84	823309.554	9.16059E-05
17	2	Christian	secondary	PEMBROKE RD	Duffy St	3401.2	823309.554	0.002065566
18	2	Christian	secondary	FORT CAMPBELL BLVD	Hopkinsville Towne Center	1443	823309.554	0.000876341
19	2	Christian	secondary	CADIZ RD	Green Hill Memorial Gardens	2412.816	823309.554	0.001465315
20	2	Christian	tertiary	GLASS AVE	North Elm St	490.25	327696.214	0.000374013
21	2	Christian	tertiary	CROFTON-FRUIT HILL RD	Macedonia Loop	256.452	327696.214	0.000195648
22	7	Fayette	primary	I-64	North Cleveland Rd	215612.45	2941892.627	0.659613486
23	7	Fayette	primary	I-64	Haley Rd	70969.248	2941892.627	0.217113033
24	7	Fayette	primary	I-75	Old Richmond Rd	61019.715	2941892.627	0.186674874
25	7	Fayette	primary	I-75	US-25	15295.784	2941892.627	0.046793705
26	7	Fayette	primary	I-75	Athens Walnut Hill Rd	307393.844	2941892.627	0.940396183
27	7	Fayette	primary	I-75	Todds Rd	205546.1	2941892.627	0.628817953
28	7	Fayette	primary	I-75	Bryan Station Rd	142037.632	2941892.627	0.434529349
29	7	Fayette	primary	I-75	Georgetown Rd	86351.232	2941892.627	0.264170446
30	7	Fayette	primary	W NEW CIRCLE RD	Old Frankfort Pike	85279.6	2941892.627	0.260892051

Site	District	County	Road Class	Road Surveyed	Reference	Segment VMT	County Eligible VMT	Probability of Selection
31	7	Fayette	secondary	MAN O WAR BLVD	Buckhorn Dr	5304	3052967.619	0.015635934
32	7	Fayette	secondary	E NEW CIRCLE RD	Winchester Rd	11615.892	3052967.619	0.034243084
33	7	Fayette	secondary	NICHOLASVILLE RD	Marketplace Dr	5121.2	3052967.619	0.015097048
34	7	Fayette	secondary	NICHOLASVILLE RD	Arcadia Park	3763.8	3052967.619	0.011095499
35	7	Fayette	secondary	NICHOLASVILLE RD	Cooper Dr/Waller Ave	1698.3	3052967.619	0.005006506
36	7	Fayette	secondary	PARIS PIKE	La Troienne Way	1970.072	3052967.619	0.005807676
37	7	Fayette	secondary	VERSAILLES RD	Old Versailles Rd	14364.218	3052967.619	0.042345016
38	7	Fayette	secondary	WINCHESTER RD	Executive Dr	2566.8	3052967.619	0.007566802
39	7	Fayette	secondary	W MAIN ST	Clyde St	3062.043	3052967.619	0.009026754
40	7	Fayette	tertiary	CHINOE RD	Alumni Dr	925.708	809306.895	0.003431484
41	7	Fayette	tertiary	OLD HIGBEE MILL RD	Clemens Dr	852.048	809306.895	0.003158436
42	7	Fayette	tertiary	RUSSELL CAVE RD	Iron Works Pike	1681.01	809306.895	0.006231295
43	12	Floyd	secondary	KY-80	Maple St	4209.427	678149.371	0.00931084
44	12	Floyd	secondary	KY-80	Reynolds Ln/River Bottom Rd	1929.068	678149.371	0.00426691
45	12	Floyd	secondary	KY-80	Old Hunter Branch Rd	1867.502	678149.371	0.004130732
46	12	Floyd	secondary	US-23	Harold Church of Christ	4414.12	678149.371	0.009763601
47	12	Floyd	secondary	US-23	Rose Dr	16196.07	678149.371	0.035824121
48	12	Floyd	secondary	US-23	University Dr	4763.55	678149.371	0.010536506
49	12	Floyd	tertiary	KY-306	Lighthouse Temple Church	375.816	362910.699	0.00077667
50	12	Floyd	tertiary	KY-404	Blue River Rd	435.812	362910.699	0.00090066
51	12	Floyd	tertiary	KY-550	Old Schoolhouse Rd	805.94	362910.699	0.001665575
52	5	Franklin	primary	I-64	Hickory Ridge Rd	14144.343	577854.878	0.019581862
53	5	Franklin	primary	I-64	US-127	127148.528	577854.878	0.176028318
54	5	Franklin	primary	I-64	Hanly Ln	104512.056	577854.878	0.144689693
55	5	Franklin	primary	I-64	Duckers Rd	93474.018	577854.878	0.129408295
56	5	Franklin	secondary	EAST WEST CONNECTOR RD	Collins Ln	4953.138	686794.973	0.005769568
57	5	Franklin	secondary	EAST WEST CONNECTOR RD	Galbraith Rd	13984.722	686794.973	0.016289836
58	5	Franklin	secondary	US-127 S	Leonardwood Dr/Westridge Dr	3587	686794.973	0.004178248
59	5	Franklin	secondary	GEORGETOWN RD	Woodlake Rd	2677.128	686794.973	0.003118401
60	5	Franklin	tertiary	EVERGREEN RD	Bridgeport Christian Church	1009.47	122045.0838	0.001654258

Site	District	County	Road Class	Road Surveyed	Reference	Segment VMT	County Eligible VMT	Probability of Selection
Site	District	County	Road Class	Road Surveyed	Reference	Segment VMT	County Eligible VMT	Probability of Selection
61	9	Greenup	secondary	KY-10	East Tygarts Rd	682.52	538446.9686	0.001584464
62	9	Greenup	secondary	US-23	Ashland Dr	5489.634	538446.9686	0.012744138
63	9	Greenup	secondary	US-23	Chinns Brg	5728.89	538446.9686	0.013299569
64	9	Greenup	secondary	US-23	Grays Branch Rd	4078.62	538446.9686	0.009468481
65	9	Greenup	secondary	US-23	Antique Loop	2431.542	538446.9686	0.005644804
66	9	Greenup	tertiary	COUNTRY CLUB DR	Princess Dr	830.705	171954.4796	0.00120774
67	11	Harlan	secondary	KY-160	Red Barn Mini Market	752.402	347930.145	0.001236955
68	11	Harlan	secondary	US-119 S	Carpet Mart	6854.25	347930.145	0.011268443
69	11	Harlan	secondary	US-119 N	KY-522/Ross Dr	1226.67	347930.145	0.002016655
70	11	Harlan	secondary	US-119 N	Lakey Branch Rd	2957.084	347930.145	0.00486147
71	11	Harlan	tertiary	KY-38	Dartmont Rd	1199.156	195996.001	0.001749825
72	11	Harlan	tertiary	KY-215	Hubbard Ln	188.305	195996.001	0.000274777
73	5	Jefferson	primary	I-64	Breckenridge Ln	89372.76	9444962.556	0.123012227
74	5	Jefferson	primary	I-64	Blankenbaker Parkway	23070.8	9444962.556	0.031754536
75	5	Jefferson	primary	I-64	S. English Station Rd	104576.4	9444962.556	0.143938443
76	5	Jefferson	primary	I-65	KY-1065	87704.66	9444962.556	0.120716263
77	5	Jefferson	primary	I-65	Hutcherson Dr	162505.63	9444962.556	0.017205534
78	5	Jefferson	primary	I-65	S Park Rd	29490.62	9444962.556	0.003122365
79	5	Jefferson	primary	I-71	Lime Kiln Ln	92151.954	9444962.556	0.126837496
80	5	Jefferson	primary	I-264	Brownsboro Rd	36279.225	9444962.556	0.049934547
81	5	Jefferson	primary	I-265	Smyrna Parkway	98944.674	9444962.556	0.136186963
82	5	Jefferson	primary	I-265	Pennsylvania Run Rd	89360.04	9444962.556	0.122994719
83	5	Jefferson	primary	I-265	Wolf Pen Branch Rd	13497.165	9444962.556	0.018577432
84	5	Jefferson	primary	I-265	Old Henry Rd	20356.38	9444962.556	0.028018421
85	5	Jefferson	primary	I-265	Greyling Dr	103294.08	9444962.556	0.142173464
86	5	Jefferson	secondary	TAYLORSVILLE RD	Stone Lakes Dr	1599.99	6862555.918	0.00209833
87	5	Jefferson	secondary	TAYLORSVILLE RD	Jeffersontown Christian Church	5623.538	6862555.918	0.007375072
88	5	Jefferson	secondary	WESTPORT RD	Murphy Ln	5685.594	6862555.918	0.007456456
89	5	Jefferson	secondary	S HURSTBOURNE PKWY	Watterson Trail	6452.856	6862555.918	0.008462693

Site	District	County	Road Class	Road Surveyed	Reference	Segment VMT	County Eligible VMT	Probability of Selection
90	5	Jefferson	secondary	BRECKENRIDGE LN	Dutchmans Ln	8282.91	6862555.918	0.010862744
91	5	Jefferson	secondary	SHEPHERDSVILLE RD	Rangeland Rd	10714.756	6862555.918	0.014052025
92	5	Jefferson	secondary	DIXIE HWY	Crums Ln	7701.76	6862555.918	0.010100587
93	5	Jefferson	secondary	WINKLER AVE	S Third St	878.815	6862555.918	0.001152535
94	5	Jefferson	secondary	EASTERN PKWY	Ellsworth Ave	1926.48	6862555.918	0.002526511
95	5	Jefferson	tertiary	NELSON MILLER PKY	Park View Court	542.087	1422503.821	0.000762159
96	5	Jefferson	tertiary	GOLDSMITH LN	Belmont Rd	569.669	1422503.821	0.000800938
97	7	Jessamine	secondary	WILMORE RD	April Highway	4128.574	683019.502	0.004696648
98	7	Jessamine	secondary	US-27	S Main St	6604.328	683019.502	0.007513055
99	7	Jessamine	secondary	US-27	Etter Dr	7564.377	683019.502	0.008605202
100	7	Jessamine	secondary	US-27	Arts Rental Equipment	10407.106	683019.502	0.011839078
101	7	Jessamine	secondary	LEXINGTON RD	Kohls Dr/Commerce Dr	3826.6	683019.502	0.004353123
102	7	Jessamine	secondary	N MAIN ST	Village Parkway	5916.152	683019.502	0.006730189
103	7	Jessamine	secondary	HARRODSBURG RD	Almahurst Ln/Stonegate Dr	2272.14	683019.502	0.002584777
104	7	Jessamine	tertiary	LINDEN LN	S Third St	68.15	188979.9918	8.00577E-05
105	7	Jessamine	tertiary	ASHGROVE RD	Spurlock Ln	916.12	188979.9918	0.001076191
106	6	Kenton	primary	I-75	Eads Rd	167762.672	2260467.297	0.172997322
107	6	Kenton	primary	I-75	Buttermilk Pike	15403.248	2260467.297	0.015883871
108	6	Kenton	primary	I-75	Dixie Highway	104621.125	2260467.297	0.107885588
109	6	Kenton	primary	I-75	Kyles Ln	42320.425	2260467.297	0.043640937
110	6	Kenton	primary	I-275	KY-3076	109962.039	2260467.297	0.113393152
111	6	Kenton	primary	I-275	Taylor Mill Rd	53627.312	2260467.297	0.055300629
112	6	Kenton	primary	I-275	Turkey Foot Rd	24393.81	2260467.297	0.025154963
113	6	Kenton	secondary	MADISON PIKE	Roselawn Court	3313.284	907075.2461	0.003649059
114	6	Kenton	secondary	MADISON PIKE	McCullum Pike	6816.514	907075.2461	0.007507313
115	6	Kenton	secondary	TURKEYFOOT RD	Spring Valley Dr	3810.614	907075.2461	0.004196789
116	6	Kenton	tertiary	RIVER RD	Welcome to City of Bromley sign	12653.783	550093.8887	0.015319966
117	6	Kenton	tertiary	DIXIE HWY	Bracht-Piner Rd	702.96	550093.8887	0.000851075
118	4	Larue	primary	I-65	Uptown Talley Rd	34396.383	54956.846	0.062587986
120	4	Larue	secondary	NEW JACKSON HWY	Thomas Ln	224.546	205443.751	0.000327894
121	4	Larue	secondary	NEW JACKSON HWY	Charlie Ragland Rd	3274.194	205443.751	0.004781154

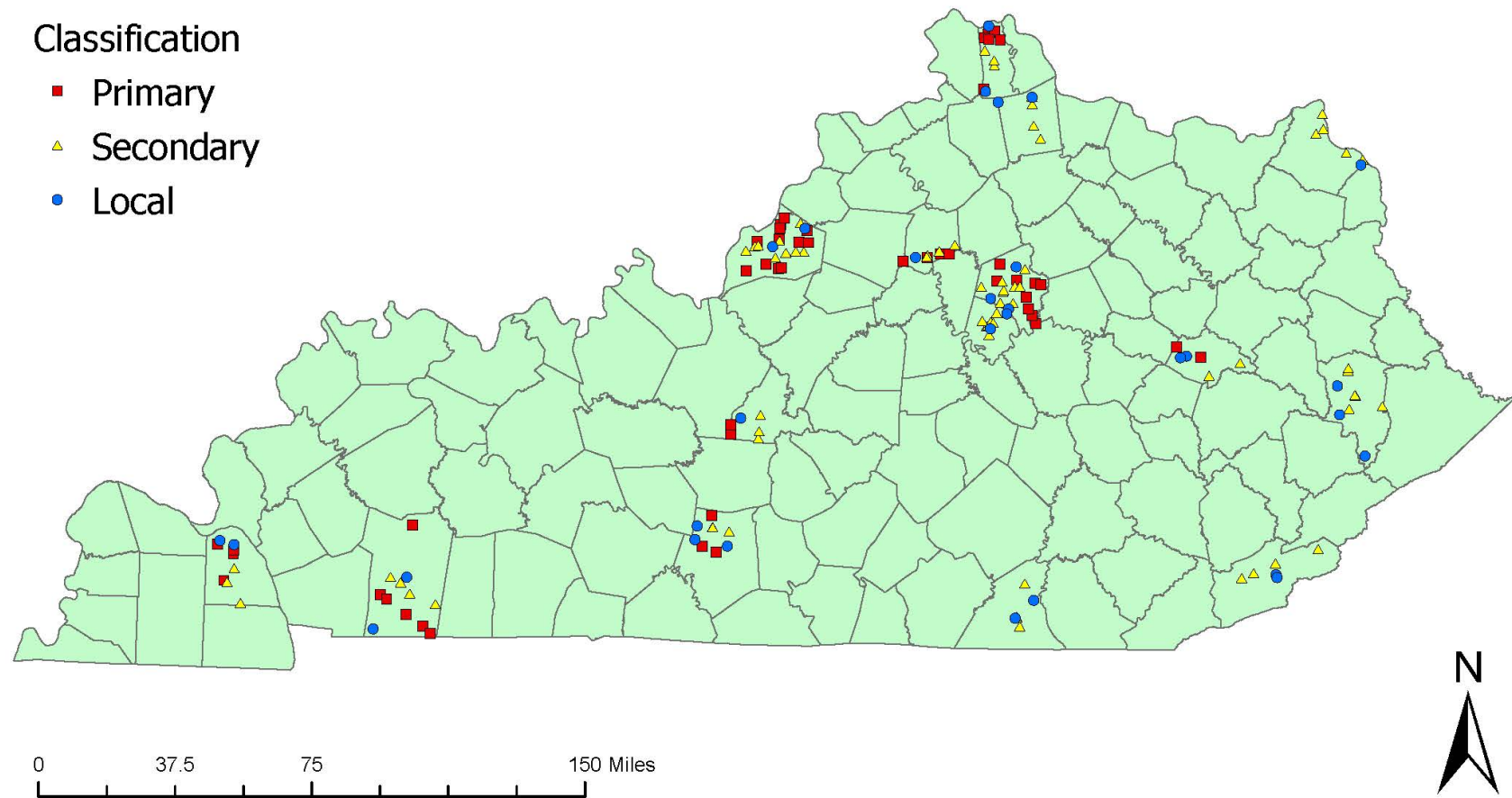
Site	District	County	Road Class	Road Surveyed	Reference	Segment VMT	County Eligible VMT	Probability of Selection
122	4	Larue	secondary	LINCOLN FARM RD	Earl Jones Rd	2035.405	205443.751	0.002972208
123	4	Larue	tertiary	SONORA RD	Siberia Rd	897.768	81109.594	0.001106858
124	1	Marshall	primary	I-24	Mt Moriah Rd	144189.76	648000	0.178012049
125	1	Marshall	primary	I-69	Jackson School Rd	26973.51851	648000	0.03330064
126	1	Marshall	primary	I-69	Palma Rd	32602.40653	648000	0.040249885
127	1	Marshall	primary	I-69	Lakeview Church Rd	16308.25701	648000	0.020133651
128	1	Marshall	secondary	US-641 S	Lee Brick & Block	3512.886	355043.943	0.005936537
129	1	Marshall	secondary	US-641 N	Marco St	1362.771	355043.943	0.00230299
130	1	Marshall	secondary	US-641 S	Mayfield Highway	3633.519	355043.943	0.006140399
131	1	Marshall	tertiary	OAK PARK BLVD	I-24	7771.610512	251449.6127	0.012362891
132	1	Marshall	tertiary	US-62	Holly Hills Ln/Eaves Ln	877.66	251449.6127	0.00139616
133	8	McCreary	secondary	CUMBERLAND FALLS RD	Pleasant Knob Church Rd	487.86	182092.435	0.001789698
134	8	McCreary	secondary	US-27	McCreary Reservoir	11533.104	182092.435	0.042308806
135	8	McCreary	secondary	US-27	Williamsburg St	2317.7	182092.435	0.008502405
136	8	McCreary	secondary	US-27	Cora Cooper Rd	2126.207	182092.435	0.007799919
137	8	McCreary	tertiary	KY-92	Pleasant Run Church Rd	491.732	114095.356	0.001439484
138	8	McCreary	tertiary	KY-1651	Old Bailey Rd	439.74	114095.356	0.001287284
139	6	Pendleton	secondary	US-27	Old 3L Highway	2869.44	144035.592	0.026535761
140	6	Pendleton	secondary	US-27	KY-330	194.856	144035.592	0.001801973
141	6	Pendleton	secondary	US-27	Charles Dr	2492.276	144035.592	0.023047856
142	6	Pendleton	secondary	US-27	Lock Rd	2102.386	144035.592	0.019442265
143	6	Pendleton	tertiary	KY-177	US-27	1451.99	82068.18308	0.011783194
144	6	Pendleton	tertiary	KY-491	Carters Chapel Rd	1392.752	82068.18308	0.011302466
145	10	Wolfe	primary	BTC MOUNTAIN PKWY	KY-15	8628.609	116824.579	0.029543814
146	10	Wolfe	primary	BTC MOUNTAIN PKWY	KY-746	12280.488	116824.579	0.042047617
147	10	Wolfe	secondary	KY-15	Hunting Fork Rd	5658.408	62978.809	0.035938488
148	10	Wolfe	secondary	KY-11	Bob Adams Rd	491.732	62978.809	0.001439484
149	10	Wolfe	tertiary	KY-715	Big Andy Ridge Rd	737.721	62209.36704	0.008075260
150	10	Wolfe	tertiary	KY-715	Tar Ridge Rd	1381.728	62209.36704	0.008884373

Table A2 Alternate Data Collection Sites

Site	County	Road Class	Observation Location
151	Barren	primary	I-65 @ N Toohey Ridge Road
152	Barren	secondary	Scottsville Road @ Liquor Lodge
153	Barren	tertiary	N Race St @ Clements Ave
154	Christian	primary	Pennyrile Pkwy @ KY 800
155	Christian	secondary	Fort Campbell Blvd @ Legion Dr/Segler Dr
156	Christian	tertiary	Crofton-Fruit Hill Road @ Macedonia Loop
157	Fayette	primary	W New Circle Rd @ Georgetown Rd
158	Fayette	secondary	Cooper Dr @ University Dr
159	Fayette	tertiary	Chone Dr @ Alumni Dr
160	Floyd	secondary	US-23 @ service road just North of Stonewall Road
161	Floyd	tertiary	KY-122 @ 20026 KY-122
162	Franklin	primary	I-64 @ Duckers Road
163	Franklin	secondary	Lawrenceburg Rd @ Louisville Road
164	Franklin	tertiary	Cedar Road @ Hamilton Ln
165	Greenup	secondary	Industrial Parkway @ East Park Dr
166	Greenup	tertiary	KY-01 @ Hopewell Rd/Martin Rd
167	Harlan	secondary	US Highway 421 @ Chevrolet Camp Road
168	Harlan	tertiary	KY-215 @ Britton Creek Road
169	Jefferson	primary	I-65 @ Hindman Richardson connector
170	Jefferson	secondary	Bardstown Road @ Wrocklage Ave
171	Jefferson	tertiary	Cooper Chapel Road @ McNeely Lake Park North Entrance
172	Jessamine	secondary	Lexington Road @ Baker Ln/Groggins Ferry Road
173	Jessamine	tertiary	Union Mill Rd @ Service Road just past Johnson Road
174	Kenton	primary	I-275 @ Johns Hill Road
175	Kenton	secondary	Turkeyfoot Road @ Bethany Lutheran Church
176	Kenton	tertiary	Richardson Rd @ Fairway Park Apartments
177	Larue	secondary	Lincoln Parkway @ Commerce Parkway
178	Larue	tertiary	Sonora Road @ Tanner Road
179	Marshall	primary	I-24 @ KY-95
180	Marshall	secondary	US-641 S @ South Marshall Elementary School Road
181	Marshall	tertiary	Symsonia Highway @ New Harmony Road
182	McCreary	secondary	US-27 @ County Park Road
183	McCreary	tertiary	KY-92 @ Pleasant Run Church Rd
184	Pendleton	secondary	US-27 @ Wright Road/Menzie Bottoms Road
185	Pendleton	tertiary	KY-8 @ Ivor Road
186	Wolfe	primary	Bert T Combs Mountain Parkway @ Quillen Chapel Road
187	Wolfe	secondary	KY-11 @ Bob Adams Road
188	Wolfe	tertiary	KY-715 @ Big Andy Ridge Road

Appendix B Data Collection Site Map

Kentucky Seatbelt Data Collection Sites by Roadway Classification



Appendix C Data Collection Form

SAFETY BELT DATA COLLECTION FORM

Date: _____ Starting Time: _____ Ending Time: _____ Int #: _____

Location: _____ Sheet #: _____

Observer: _____ Comment: _____

DRIVER USAGE

Vehicle	Safety Belt	None	Unknown
PC			
PU			
VAN			
SUV			

FRONT-SEAT OCCUPANT USAGE (OVER 3 YEARS OF AGE)

Vehicle	Safety Belt	None	Unknown
PC			
PU			
VAN			
SUV			

Yes:

Total:

Percent usage:

Appendix D Summary of Data (By Site)

Table D1 Summary of Data

Site	ALL FRONT SEAT OCCUPANTS					CATEGORY			
	Sample Size	Percent Usage	Relative Error (%)	Margin of Error*	Percent Unknown	DRIVERS		FRONT SEAT PASSENGERS	
						Sample Size	Percent Usage	Sample Size	Percent Usage
1	611	88.7	1.4	2.5	0.3	514	87.9	97	92.8
2	353	89.2	1.8	3.2	1.9	314	88.5	39	94.9
3	331	90.3	1.8	3.2	1.2	257	89.1	74	94.6
4	282	83.3	2.7	4.3	2.4	229	83.0	53	84.9
5	482	81.7	2.2	3.4	0.6	429	83.4	53	67.9
6	190	85.3	3.0	5.0	7.8	159	84.3	31	90.3
7	111	74.8	5.5	8.1	0.9	95	76.8	16	62.5
8	68	83.8	5.3	8.8	5.6	53	83.0	15	86.7
9	93	79.6	5.3	8.2	1.1	77	77.9	16	87.5
10	348	80.7	2.6	4.1	4.4	284	82.0	64	75.0
11	517	86.7	1.7	2.9	1.7	389	86.6	128	86.7
12	820	88.7	1.2	2.2	2.5	580	87.9	240	90.4
13	727	87.8	1.4	2.4	3.1	584	88.0	143	86.7
14	286	88.1	2.2	3.8	4.7	233	87.6	53	90.6
15	811	92.8	1.0	1.8	0.0	627	92.7	184	93.5
16	275	79.3	3.1	4.8	7.1	242	78.1	33	87.9
17	104	80.8	4.8	7.6	1.9	88	83.0	16	68.8
18	352	83.0	2.4	3.9	2.2	301	81.7	51	90.2
19	240	80.4	3.2	5.0	2.4	214	80.4	26	80.8
20	135	71.9	5.4	7.6	4.3	113	71.7	22	72.7
21	53	58.5	11.6	13.3	8.6	39	61.5	14	50.0
22	730	89.9	1.2	2.2	0.4	630	90.2	100	88.0
23	832	89.2	1.2	2.1	1.0	682	89.6	150	87.3
24	1453	93.1	0.7	1.3	0.4	1068	92.4	385	95.1
25	1206	92.4	0.8	1.5	0.0	1056	92.2	150	93.3
26	1332	91.1	0.9	1.5	0.3	1131	90.7	201	93.0
27	1072	92.2	0.9	1.6	0.7	819	91.0	253	96.0
28	1595	91.2	0.8	1.4	0.2	1336	90.6	259	93.8
29	1118	89.0	1.1	1.8	0.2	1002	88.8	116	90.5
30	1382	89.0	0.9	1.6	0.2	1296	89.1	86	87.2
31	617	86.5	1.6	2.7	5.1	578	86.9	39	82.1
32	744	86.7	1.4	2.4	1.3	660	86.2	84	90.5
33	945	89.9	1.1	1.9	0.6	848	89.9	97	90.7
34	776	93.0	1.0	1.8	1.6	698	93.1	78	92.3
35	701	93.0	1.0	1.9	2.4	621	93.1	80	92.5
36	329	88.4	2.0	3.5	1.8	283	88.0	46	91.3
37	929	93.4	0.9	1.6	1.9	908	93.5	21	90.5
38	1017	89.0	1.1	1.9	0.0	916	89.3	101	86.1
39	424	83.7	2.1	3.5	2.1	386	83.9	38	81.6
40	269	89.2	2.1	3.7	4.9	243	89.3	26	88.5
41	224	92.9	1.9	3.4	1.3	194	92.3	30	96.7
42	212	81.6	3.3	5.2	8.2	175	81.1	37	83.8

Site	ALL FRONT SEAT OCCUPANTS					CATEGORY			
	Sample Size	Percent Usage	Relative Error (%)	Margin of Error*	Percent Unknown	DRIVERS		FRONT SEAT PAS-SENGERS	
						Sample Size	Percent Usage	Sample Size	Percent Usage
43	255	73.7	3.7	5.4	8.3	231	73.2	24	79.2
44	315	80.3	2.8	4.4	2.5	255	80.8	60	78.3
45	112	75.0	5.5	8.0	2.6	106	75.5	6	66.7
46	547	86.5	1.7	2.9	3.0	440	86.1	107	87.9
47	404	89.1	1.7	3.0	7.8	345	89.3	59	88.1
48	473	84.6	2.0	3.3	3.5	384	84.4	89	85.4
49	51	39.2	17.4	13.4	0.0	40	40.0	11	36.4
50	52	65.4	10.1	12.9	5.5	35	68.6	17	58.8
51	51	76.5	7.8	11.6	1.9	41	73.2	10	90.0
52	1310	91.0	0.9	1.6	0.2	956	90.5	354	92.4
53	882	91.3	1.0	1.9	2.1	644	91.1	238	91.6
54	1083	90.3	1.0	1.8	1.4	861	89.4	222	93.7
55	873	92.9	0.9	1.7	0.3	749	92.5	124	95.2
56	592	87.3	1.6	2.7	6.0	466	86.9	126	88.9
57	399	88.2	1.8	3.2	8.5	355	88.2	44	88.6
58	635	87.6	1.5	2.6	2.0	568	87.5	67	88.1
59	150	84.0	3.6	5.9	0.7	138	84.1	12	83.3
60	58	87.9	4.9	8.4	7.9	51	90.2	7	71.4
61	112	75.0	5.5	8.0	8.9	94	74.5	18	77.8
62	688	88.2	1.4	2.4	0.0	621	87.6	67	94.0
63	434	84.8	2.0	3.4	1.6	370	85.1	64	82.8
64	275	74.9	3.5	5.1	2.1	238	76.1	37	67.6
65	207	77.3	3.8	5.7	0.5	170	80.6	37	62.2
66	188	84.6	3.1	5.2	4.6	176	84.1	12	91.7
67	161	59.6	6.5	7.6	4.7	131	59.5	30	60.0
68	221	74.2	4.0	5.8	6.8	183	73.8	38	76.3
69	175	72.0	4.7	6.7	3.8	140	72.1	35	71.4
70	110	78.2	5.0	7.7	0.9	95	77.9	15	80.0
71	65	69.2	8.3	11.2	7.1	55	67.3	10	80.0
72	68	60.3	9.8	11.6	2.9	54	57.4	14	71.4
73	1207	90.4	0.9	1.7	0.4	1067	90.3	140	90.7
74	1375	90.2	0.9	1.6	0.7	1240	89.6	135	95.6
75	1184	92.2	0.8	1.5	0.4	1014	92.1	170	92.9
76	1591	88.2	0.9	1.6	0.9	1401	87.4	190	94.2
77	1506	85.5	1.1	1.8	1.2	1287	85.4	219	86.3
78	1075	86.1	1.2	2.1	6.4	903	84.7	172	93.6
79	1157	89.5	1.0	1.8	1.8	1026	89.0	131	93.9
80	497	89.5	1.5	2.7	1.8	435	89.4	62	90.3
81	1159	86.5	1.2	2.0	0.9	1017	85.7	142	92.3
82	1280	88.3	1.0	1.8	0.9	1146	88.0	134	91.0
83	999	90.2	1.0	1.8	0.4	910	89.9	89	93.3
84	1246	89.7	1.0	1.7	3.0	1071	90.1	175	87.4

Site	ALL FRONT SEAT OCCUPANTS					CATEGORY			
	Sample Size	Percent Usage	Relative Error (%)	Margin of Error*	Percent Unknown	DRIVERS		FRONT SEAT PAS-SENGERS	
						Sample Size	Percent Usage	Sample Size	Percent Usage
85	1063	83.9	1.3	2.2	0.7	880	83.2	183	87.4
86	669	89.8	1.3	2.3	1.0	599	89.1	70	95.7
87	793	88.0	1.3	2.3	0.0	689	88.1	104	87.5
88	488	83.0	2.0	3.3	2.0	434	82.5	54	87.0
89	658	89.8	1.3	2.3	3.5	563	89.9	95	89.5
90	1134	87.8	1.1	1.9	0.8	980	87.7	154	89.0
91	535	81.7	2.0	3.3	2.4	481	82.3	54	75.9
92	401	80.8	2.4	3.9	1.0	356	82.0	45	71.1
93	308	72.7	3.5	5.0	4.3	271	73.8	37	64.9
94	530	87.2	1.7	2.8	0.6	470	87.2	60	86.7
95	112	87.5	3.6	6.1	3.4	100	87.0	12	91.7
96	141	78.7	4.4	6.8	7.2	127	78.0	14	85.7
97	310	80.0	2.8	4.5	2.2	282	80.1	28	78.6
98	703	89.5	1.3	2.3	1.5	597	89.1	106	91.5
99	598	86.0	1.7	2.8	1.8	541	85.4	57	91.2
100	804	91.4	1.1	1.9	1.1	654	91.4	150	91.3
101	781	87.8	1.3	2.3	1.1	694	88.2	87	85.1
102	524	91.0	1.4	2.4	2.4	464	91.4	60	88.3
103	331	91.2	1.7	3.0	3.2	294	91.2	37	91.9
104	120	75.8	5.2	7.7	4.8	106	74.5	14	85.7
105	109	82.6	4.4	7.1	9.2	108	82.4	1	100.0
106	1396	92.0	0.8	1.4	0.0	1126	91.8	270	93.0
107	1612	92.9	0.7	1.3	0.1	1341	92.6	271	94.5
108	1540	90.8	0.8	1.4	0.7	1228	89.9	312	94.6
109	1590	91.9	0.7	1.3	0.7	1301	91.2	289	95.2
110	1244	90.9	0.9	1.6	2.0	1018	91.1	226	90.3
111	1535	91.3	0.8	1.4	1.3	1372	90.8	163	95.7
112	1415	92.1	0.8	1.4	0.6	1227	92.0	188	92.6
113	495	88.9	1.6	2.8	2.0	401	88.3	94	91.5
114	418	91.6	1.5	2.7	1.9	350	91.1	68	94.1
115	626	92.2	1.2	2.1	0.6	538	91.6	88	95.5
116	50	80.0	7.1	11.1	0.0	42	81.0	8	75.0
117	412	89.1	1.7	3.0	1.0	339	89.1	73	89.0
118	1309	92.8	0.8	1.4	1.1	934	92.4	375	93.9
119	990	91.7	1.0	1.7	1.4	769	91.2	221	93.7
120	135	84.4	3.7	6.1	6.9	110	82.7	25	92.0
121	126	74.6	5.2	7.6	6.0	99	74.7	27	74.1
122	299	85.6	2.4	4.0	6.6	255	85.5	44	86.4
123	70	81.4	5.7	9.1	1.4	53	79.2	17	88.2
124	858	88.0	1.3	2.2	3.1	659	88.0	199	87.9
125	160	84.4	3.4	5.6	5.9	121	80.2	39	97.4
126	481	82.5	2.1	3.4	4.0	425	81.4	56	91.1
127	433	83.4	2.1	3.5	5.9	370	81.9	63	92.1

Site	ALL FRONT SEAT OCCUPANTS					CATEGORY			
	Sample Size	Percent Usage	Relative Error (%)	Margin of Error*	Percent Unknown	DRIVERS		FRONT SEAT PAS-SENGERS	
						Sample Size	Percent Usage	Sample Size	Percent Usage
128	277	81.2	2.9	4.6	7.4	240	82.1	37	75.7
129	377	84.6	2.2	3.6	2.8	309	85.1	68	82.4
130	322	84.5	2.4	4.0	4.5	263	84.0	59	86.4
131	319	85.6	2.3	3.9	2.7	263	85.2	56	87.5
132	175	72.6	4.6	6.6	3.3	151	74.2	24	62.5
133	53	71.7	8.6	12.1	0.0	40	72.5	13	69.2
134	360	73.9	3.1	4.5	0.8	293	72.7	67	79.1
135	368	77.4	2.8	4.3	1.9	296	76.4	72	81.9
136	502	69.1	3.0	4.0	0.6	390	69.2	112	68.8
137	89	85.4	4.4	7.3	2.2	68	83.8	21	90.5
138	99	72.7	6.2	8.8	1.0	85	69.4	14	92.9
139	99	74.7	5.8	8.6	10.0	75	74.7	24	75.0
140	248	76.2	3.5	5.3	0.0	213	75.6	35	80.0
141	192	79.7	3.6	5.7	4.5	159	76.1	33	97.0
142	202	83.7	3.1	5.1	1.5	172	82.0	30	93.3
143	93	79.6	5.3	8.2	1.1	73	75.3	20	95.0
144	64	76.6	6.9	10.4	4.5	53	75.5	11	81.8
145	326	87.4	2.1	3.6	5.5	321	87.2	5	100.0
146	163	83.4	3.5	5.7	0.6	131	80.9	32	93.8
147	170	77.1	4.2	6.3	5.6	130	79.2	40	70.0
148	127	75.6	5.0	7.5	3.1	98	77.6	29	69.0
149	54	70.4	8.8	12.2	3.6	45	68.9	9	77.8
150	97	79.4	5.2	8.1	7.6	72	79.2	25	80.0

*Percent (using .95 probability)

Appendix E Summary of Data (With Sample Weights)

Table E1 Summary of Data (With Sample Weights)

Site ID	Site Type	Date Observed	Site Sample Weight	Number of Drivers	Number of Front Passengers	Number of Occupants Belted	Number of Occupants Unbelted	Number of Occupants with Unknown Belt Use
1	Original	6/23/2026	4.555	516	97	542	69	2
2	Original	6/23/2026	17.850	321	39	315	38	7
3	Original	7/29/2026	36.072	261	74	299	32	4
4	Original	7/29/2026	737.851	235	54	235	47	7
5	Original	7/6/2026	771.013	432	53	394	88	3
6	Original	6/10/2026	110.430	172	34	162	28	16
7	Original	7/6/2026	679.774	96	16	83	28	1
8	Original	7/14/2026	742.225	56	16	57	11	4
9	Original	6/23/2026	2602.365	78	16	74	19	1
10	Original	6/29/2026	56.418	299	65	281	67	16
11	Original	7/28/2026	29.320	398	128	448	69	9
12	Original	6/22/2026	14.730	600	241	727	93	21
13	Original	7/13/2026	21.851	605	145	638	89	23
14	Alternate	7/13/2026	245.041	247	53	252	34	14
15	Original	7/21/2026	15.461	627	184	753	58	0
16	Original	6/22/2026	10916.329	263	33	218	57	21
17	Original	7/21/2026	484.129	90	16	84	20	2
18	Original	7/8/2026	1141.108	309	51	292	60	8
19	Original	6/16/2026	682.447	220	26	193	47	6
20	Original	6/29/2026	2673.707	119	22	97	38	6
21	Alternate	7/13/2026	5111.229	44	14	31	22	5
22	Original	6/24/2026	1.516	633	100	656	74	3
23	Original	6/30/2026	4.606	689	151	742	90	8
24	Original	7/30/2026	5.357	1074	385	1353	100	6
25	Original	8/4/2026	21.370	1056	150	1114	92	0
26	Original	6/30/2026	1.063	1135	201	1213	119	4
27	Original	7/30/2026	1.590	827	253	988	84	8
28	Original	7/28/2026	2.301	1339	259	1454	141	3
29	Original	6/24/2026	3.785	1004	116	995	123	2
30	Original	7/28/2026	3.833	1299	86	1230	152	3

Site ID	Site Type	Date Observed	Site Sample Weight	Number of Drivers	Number of Front Passengers	Number of Occupants Belted	Number of Occupants Unbelted	Number of Occupants with Unknown Belt Use
31	Original	6/8/2026	63.955	611	39	534	83	33
32	Original	7/27/2026	29.203	670	84	645	99	10
33	Original	8/4/2026	66.238	854	97	850	95	6
34	Original	6/30/2026	90.127	710	79	722	54	13
35	Original	6/15/2026	199.740	638	80	652	49	17
36	Original	6/24/2026	172.186	289	46	291	38	6
37	Original	6/30/2026	23.616	925	22	868	61	18
38	Original	8/13/2026	132.156	916	101	905	112	0
39	Original	7/28/2026	110.782	395	38	355	69	9
40	Alternate	6/15/2026	291.419	257	26	240	29	14
41	Original	8/13/2026	316.612	197	30	208	16	3
42	Original	6/15/2026	160.480	191	40	173	39	19
43	Original	6/17/2026	107.402	254	24	188	67	23
44	Original	8/12/2026	234.362	263	60	253	62	8
45	Original	7/7/2026	242.088	109	6	84	28	3
46	Original	8/12/2026	102.421	455	109	473	74	17
47	Original	8/11/2026	27.914	379	59	360	44	34
48	Original	8/12/2026	94.908	401	89	400	73	17
49	Original	6/17/2026	1287.547	40	11	20	31	0
50	Original	6/26/2026	1110.297	38	17	34	18	3
51	Original	6/26/2026	600.393	42	10	39	12	1
52	Original	6/5/2026	51.068	958	355	1192	118	3
53	Original	7/27/2026	5.681	662	239	805	77	19
54	Original	8/13/2026	6.911	875	223	978	105	15
55	Original	7/1/2026	7.727	752	124	811	62	3
56	Original	6/5/2026	173.323	504	126	517	75	38
57	Original	6/12/2026	61.388	389	47	352	47	37
58	Original	8/13/2026	239.335	581	67	556	79	13
59	Original	7/1/2026	320.677	139	12	126	24	1
60	Original	6/5/2026	604.501	56	7	51	7	5
61	Original	6/11/2026	631.128	105	18	84	28	11

Site ID	Site Type	Date Observed	Site Sample Weight	Number of Drivers	Number of Front Passengers	Number of Occupants Belted	Number of Occupants Unbelted	Number of Occupants with Unknown Belt Use
62	Original	8/6/2026	78.467	621	67	607	81	0
63	Original	7/30/2026	75.190	377	64	368	66	7
64	Original	6/11/2026	105.614	244	37	206	69	6
65	Original	7/2/2026	177.154	171	37	160	47	1
66	Original	6/9/2026	827.993	185	12	159	29	9
67	Original	6/8/2026	808.437	139	30	96	65	8
68	Original	8/11/2026	88.743	199	38	164	57	16
69	Original	6/8/2026	495.871	147	35	126	49	7
70	Original	6/17/2026	205.699	96	15	86	24	1
71	Original	6/25/2026	571.486	60	10	45	20	5
72	Original	6/25/2026	3639.312	56	14	41	27	2
73	Original	7/14/2026	8.129	1072	140	1091	116	5
74	Original	6/10/2026	31.492	1250	135	1240	135	10
75	Original	6/10/2026	6.947	1019	170	1092	92	5
76	Original	8/12/2026	8.284	1415	190	1404	187	14
77	Alternate	6/18/2026	58.121	1306	219	1288	218	19
78	Alternate	7/2/2026	320.270	976	172	926	149	73
79	Original	7/23/2026	7.884	1047	131	1036	121	21
80	Original	7/23/2026	20.026	444	62	445	52	9
81	Original	7/9/2026	7.343	1024	145	1003	156	10
82	Original	7/15/2026	8.130	1158	134	1130	150	12
83	Original	6/10/2026	53.829	914	89	901	98	4
84	Original	7/9/2026	35.691	1109	176	1118	128	39
85	Original	8/10/2026	7.034	888	183	892	171	8
86	Original	7/23/2026	476.569	606	70	601	68	7
87	Original	8/6/2026	135.592	689	104	698	95	0
88	Original	7/23/2026	134.112	444	54	405	83	10
89	Original	8/4/2026	118.166	587	95	591	67	24
90	Original	8/12/2026	92.058	989	154	996	138	9
91	Original	7/20/2026	71.164	494	54	437	98	13
92	Original	7/14/2026	99.004	360	45	324	77	4

Site ID	Site Type	Date Observed	Site Sample Weight	Number of Drivers	Number of Front Passengers	Number of Occupants Belted	Number of Occupants Unbelted	Number of Occupants with Unknown Belt Use
93	Original	8/13/2026	867.653	285	37	224	84	14
94	Original	7/14/2026	395.803	473	60	462	68	3
95	Original	7/2/2026	1312.062	104	12	98	14	4
96	Original	6/18/2026	1248.535	138	14	111	30	11
97	Original	6/11/2026	212.918	288	29	248	62	7
98	Original	8/5/2026	133.102	608	106	629	74	11
99	Original	6/11/2026	116.209	552	57	514	84	11
100	Original	8/5/2026	84.466	663	150	735	69	9
101	Original	6/15/2026	229.720	703	87	686	95	9
102	Original	8/5/2026	148.584	477	60	477	47	13
103	Original	8/5/2026	386.881	305	37	302	29	11
104	Original	7/10/2026	12490.994	112	14	91	29	6
105	Original	7/10/2026	929.203	119	1	90	19	11
106	Original	8/3/2026	5.780	1126	270	1285	111	0
107	Original	7/9/2026	62.957	1343	271	1498	114	2
108	Original	8/3/2026	9.269	1237	314	1399	141	11
109	Original	7/24/2026	22.914	1312	290	1462	128	12
110	Original	7/7/2026	8.819	1043	227	1131	113	26
111	Alternate	7/9/2026	18.083	1392	163	1402	133	20
112	Original	7/24/2026	39.754	1235	188	1303	112	8
113	Original	7/24/2026	274.043	409	96	440	55	10
114	Original	6/18/2026	133.203	357	69	383	35	8
115	Original	8/7/2026	238.277	542	88	577	49	4
116	Original	6/18/2026	65.274	42	8	40	10	0
117	Original	8/3/2026	1174.984	343	73	367	45	4
118	Original	7/24/2026	15.978	947	377	1215	94	15
119	Original	6/5/2026	10.000	783	221	908	82	14
120	Original	8/14/2026	3049.765	120	25	114	21	10
121	Original	7/24/2026	209.155	107	27	94	32	8
122	Original	8/14/2026	336.450	276	44	256	43	21
123	Original	7/24/2026	903.458	54	17	57	13	1

Site ID	Site Type	Date Observed	Site Sample Weight	Number of Drivers	Number of Front Passengers	Number of Occupants Belted	Number of Occupants Unbelted	Number of Occupants with Unknown Belt Use
124	Original	6/29/2026	5.618	684	201	755	103	27
125	Original	7/21/2026	30.029	130	40	135	25	10
126	Original	7/21/2026	24.845	444	57	397	84	20
127	Original	6/29/2026	49.668	397	63	361	72	27
128	Original	6/16/2026	168.448	262	37	225	52	22
129	Original	6/16/2026	434.218	320	68	319	58	11
130	Original	7/8/2026	162.856	277	60	272	50	15
131	Original	7/6/2026	80.887	272	56	273	46	9
132	Original	7/6/2026	716.250	157	24	127	48	6
133	Original	6/25/2026	558.753	40	13	38	15	0
134	Original	6/12/2026	23.636	296	67	266	94	3
135	Original	7/20/2026	117.614	303	72	285	83	7
136	Original	6/12/2026	128.206	393	112	347	155	3
137	Alternate	6/25/2026	694.693	70	21	76	13	2
138	Original	7/10/2026	776.829	86	14	72	27	1
139	Original	7/1/2026	37.685	86	24	74	25	11
140	Original	8/13/2026	554.947	213	35	189	59	0
141	Original	7/1/2026	43.388	166	35	153	39	9
142	Original	6/24/2026	51.434	175	30	169	33	3
143	Original	6/24/2026	84.867	74	20	74	19	1
144	Original	6/26/2026	88.476	56	11	49	15	3
145	Original	8/10/2026	33.848	340	5	285	41	19
146	Original	7/29/2026	23.783	132	32	136	27	1
147	Original	8/10/2026	27.825	140	40	131	39	10
148	Alternate	7/16/2026	694.693	102	29	96	31	4
149	Alternate	8/10/2026	123.835	47	9	38	16	2
150	Original	6/23/2026	112.557	80	25	77	20	8
Totals				72022	12876	73379	10021	1498

Appendix F Mini Survey Data

Table F1 Data from Mini Survey

County	Town	Intersection Description	2014	2015	2016	2017	2018	2019	2021	2022	2023	2024	2025	2026
Barren	Cave City	I-65 at Exit 53	89	91	90	88	96	91	96	95	95	90	94	89
Meade	Muldraugh	US 31W at KY 1638	88	89	88	88	91	88	90	86	90	88	93	87
Grayson	Leitchfield	KY 259 at US 62	85	85	79	85	85	87	85	82	85	79	84	79
Logan	Russellville	US 68 at US 79	83	82	86	83	83	87	88	77	81	82	84	84
Hopkins	Madisonville	Pennyrile Pkwy at Exit 44	91	91	95	91	93	91	94	87	90	90	92	89
Henderson	Henderson	Us 41A at 5th St.	85	88	80	88	90	90	90	87	89	86	91	85
Calloway	Murray	KY 1637 at 16th	85	88	88	85	90	89	91	91	92	86	89	88
Shelby	Simpsonville	I-64 at Exit 28	93	95	94	93	97	93	95	92	95	89	94	91
Woodford	Versailles	US 60 at US 62	93	89	93	88	94	90	87	91	92	96	93	89
Oldham	La Grange	KY 146 at KY 329B	90	92	92	94	91	91	94	92	90	91	90	92
Franklin	Frankfort	KY 2820 at US 127	87	79	73	84	74	83	86	86	90	88	83	83
Kenton	Crescent Springs	I-75 at Exit 186	92	92	93	93	95	89	94	94	96	90	95	92
Jefferson	Louisville	US 31W at KY 841	87	87	84	88	86	86	86	82	82	80	79	81
Boone	Walton	US 42 at US 25	87	88	91	88	88	89	94	92	91	91	91	87
Boyd	Ashland	I-64 at Exit 185	90	91	85	88	91	91	87	89	91	89	86	86
Lincoln	Stanford	US 27 at US 150	86	82	87	82	88	86	87	83	85	81	87	85
Carter	Grayson	US 60 at KY 7	81	81	80	83	84	87	88	85	89	84	88	79
Floyd	Drift	KY 680 at KY 122	71	68	63	66	66	74	85	76	81	73	78	73
Rowan	Morehead	I-64 at Exit 137	89	89	83	92	95	90	93	87	89	86	90	87
Laurel	Corbin	US 25E at US 25	81	85	82	83	83	92	92	85	85	83	89	81
Pulaski	Somerset	KY 80 at KY 2296	81	85	88	84	90	84	89	84	88	74	77	83
Statewide Usage			87.4	87.6	87.2	87.5	89.4	88.3	90.4	87.8	89.6	86.5	89.1	86.2

Appendix G R Code for County and Site Selection

```

library(factoextra)
library(nlde)
library(tigris)
library(ggplot2)

setwd("/Users/derekyoung/Documents/Safety Belt Survey/FY22 Report/FY22 Updated (Revised)/")

VMT <- read.table("VMT_16_20.txt",header=T)
VMT <- VMT[order(VMT$Total,decreasing=T),]
VMT[, "VMT20"] <- VMT$DailyVMT*366
VMT[, "cumper"] <- cumsum(VMT$Total)/sum(VMT$Total)
cutoff <- min(which(VMT$cumper>=0.85))

Stage1 <- VMT[1:cutoff,]

Stage2 <- lapply(1:12, function(i) Stage1[which(Stage1$District==i),1])
names(Stage2) <- 1:12
Stage2[[5]] <- Stage2[[5]][-which(Stage2[[5]]=="Jefferson")]
Stage2[[7]] <- Stage2[[7]][-which(Stage2[[7]]=="Fayette")]

set.seed(10)
sample.23 <- c("Jefferson", "Fayette", unlist(sapply(1:12,function(i) sample(Stage2[[i]],size=ifelse(i==6,2,1)))))

Stage3 <- Stage1[VMT$County%in%sample.23,]

Stage3 <- Stage3[order(Stage3$VMT20),]

#3-5 Clusters looks appropriate
fviz_nbclust(data.frame(Stage3$VMT20), kmeans, method = "wss", k.max=8)
fviz_nbclust(data.frame(Stage3$VMT20), kmeans, method = "gap", nboot=500, k.max=8)
VMT_cluster <- kmeans(Stage3$VMT20, centers=5, iter.max=100, nstart=200)$cluster
levs <- unique(VMT_cluster)
VMT_class <- unlist(sapply(1:length(levs), function(i) rep(i, length(which(VMT_cluster==levs[i])))))
Stage3[, "VMT_class"] <- VMT_class

site.selection <- as.numeric(table(VMT_class))
de.out <- nlde(a=site.selection, n=150)
de.out.cand <- de.out$solutions[, which(apply(de.out$solutions==0, 2, sum)==0)]*site.selection

#150 sites divided by 5 clusters means we should have roughly 20-30 sites per cluster
de.out.cand <- de.out.cand[, which(apply(de.out.cand, 2, min)>=20)]
de.out.cand <- de.out.cand[, sapply(1:ncol(de.out.cand), function(i) all(mod(de.out.cand[,i],3)==0))]

#We can then look for a solution where the number of sites per county increases with the cluster
site.cand <- t(de.out.cand/site.selection)
site.inc.ind <- sapply(1:nrow(site.cand), function(i) all(sort(site.cand[i,])==site.cand[i,]))
site.cand <- site.cand[site.inc.ind,]
site.cand <- site.cand[sapply(1:nrow(site.cand), function(i) all(mod(site.cand[i,],3)==0)),]

#Solution 297600 looks good
number.sites <- data.frame(de.out.cand/site.selection)[, "sol.297600"]
Stage3[, "no.sites"] <- rep(number.sites, site.selection)

#County selection map
ky <- counties(state = "KY")
ind <- ky$NAME%in%Stage3$County
col.fill <- rep("white", 120)
col.fill[ind] <- "red"

ggplot() + geom_sf(data = ky, color="black", fill=col.fill, size=0.25) +
ggtitle("County Selection Map")

```

#Site selection process

```
setwd("/Users/derekyoung/Documents/Safety Belt Survey/FY22 Report/Road Segments (Revised)/")
```

```
file.loc <- "FINAL_Road_Segments_2023_counties_Second_Submittal.xlsx"
```

```
Barren <- read_excel(file.loc, sheet = "Barren")
```

```
Christian <- read_excel(file.loc, sheet = "Christian")
```

```
Fayette <- read_excel(file.loc, sheet = "Fayette")
```

```
Floyd <- read_excel(file.loc, sheet = "Floyd")
```

```
Franklin <- read_excel(file.loc, sheet = "Franklin")
```

```
Greenup <- read_excel(file.loc, sheet = "Greenup")
```

```
Harlan <- read_excel(file.loc, sheet = "Harlan")
```

```
Jefferson <- read_excel(file.loc, sheet = "Jefferson")
```

```
Jessamine <- read_excel(file.loc, sheet = "Jessamine")
```

```
Kenton <- read_excel(file.loc, sheet = "Kenton")
```

```
Larue <- read_excel(file.loc, sheet = "Larue")
```

```
Marshall <- read_excel(file.loc, sheet = "Marshall")
```

```
McCreary <- read_excel(file.loc, sheet = "McCreary")
```

```
Pendleton <- read_excel(file.loc, sheet = "Pendleton")
```

```
Wolfe <- read_excel(file.loc, sheet = "Wolfe")
```

#Function to apply to each county

```
roadsel.fn <- function(county,sites){  
  county <- data.frame(county)  
  total.VMT <- sum(county$DVT)  
  county$ROAD_CLASS <- as.factor(county$ROAD_CLASS)  
  road.levels <- levels(county$ROAD_CLASS)  
  county <- lapply(1:length(road.levels), function(i) county[county$ROAD_CLASS == road.levels[i],])  
  names(county) <- road.levels  
  road.levels.VMT <- sapply(1:length(county), function(i) sum(county[[i]]$DVT))  
  road.level.POS <- road.levels.VMT/total.VMT  
  sites.class <- round(sites*road.level.POS)  
  if(sum(sites.class)>sites) sites.class[which.max(sites.class)] <- sites.class[which.max(sites.class)]-1  
  if(sum(sites.class)<sites) sites.class[which.min(sites.class)] <- sites.class[which.min(sites.class)]+1  
  POS <- vector("list",length(county))  
  for(i in 1:length(POS)){  
    POS[[i]] <- county[[i]]$DVT/sum(county[[i]]$DVT)  
    county[[i]] <- cbind(county[[i]],POS=POS[[i]]*sites.class[i])  
  }  
  roadsel <- lapply(1:length(county),function(i) county[[i]][sample(1:nrow(county[[i]]),replace=FALSE,size=sites.class[i],prob=POS[[i]]),])  
  all.roadsel <- NULL  
  for(i in 1:length(roadsel)) all.roadsel <- rbind(all.roadsel,roadsel[[i]])  
  all.roadsel  
}
```

#Actual selection, followed by outputting it to Excel

```
set.seed(1)
```

```
Barren_Road <- roadsel.fn(Barren,sites=9)
```

```
Christian_Road <- roadsel.fn(Christian,sites=12)
```

```
Fayette_Road <- roadsel.fn(Fayette,sites=21)
```

```
Floyd_Road <- roadsel.fn(Floyd,sites=9)
```

```
Franklin_Road <- roadsel.fn(Franklin,sites=9)
```

```
Greenup_Road <- roadsel.fn(Greenup,sites=6)
```

```
Harlan_Road <- roadsel.fn(Harlan,sites=6)
```

```
Jefferson_Road <- roadsel.fn(Jefferson,sites=24)
```

```
Jessamine_Road <- roadsel.fn(Jessamine,sites=9)
```

```
Kenton_Road <- roadsel.fn(Kenton,sites=12)
```

```
Larue_Road <- roadsel.fn(Larue,sites=6)
```

```
Marshall_Road <- roadsel.fn(Marshall,sites=9)
```

```
McCreary_Road <- roadsel.fn(McCreary,sites=6)
```

```
Pendleton_Road <- roadsel.fn(Pendleton,sites=6)
```

```
Wolfe_Road <- roadsel.fn(Wolfe,sites=6)
```

```
out <- rbind(Barren_Road, Christian_Road, Fayette_Road, Floyd_Road, Franklin_Road,  
  Greenup_Road, Harlan_Road, Jefferson_Road, Jessamine_Road, Kenton_Road,  
  Larue_Road, Marshall_Road, McCreary_Road, Pendleton_Road, Wolfe_Road)
```

```
write_xlsx(out,"Road_Selections.xlsx")
```