

2018 Safety Belt Usage Survey in Kentucky



**Kentucky Transportation Center
Research Report
KTC-18-18/KSP1-17-1F**

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Addendum (May 2019)

This version of KTC-18-18/KSP1-17-1F supersedes an earlier version that was originally published on UKnowledge in September 2018. Several issues were identified with the initial submission and they have been corrected in this version. Key updates and corrections include:

- Revising the final percentage of seatbelt users,
- Truncating — instead of rounding — the final percentage,
- Editing to ensure table values and text values align,
- Updating raw data to correct errors found with the original data entry,
- Deleting an extra table that had been included twice, and
- Removing one of the original authors (Ronald E. Langley).

Research Report
KTC-18-18/KSP1-17-1F

2018 SAFETY BELT USAGE SURVEY IN KENTUCKY

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1.0 INTRODUCTION AND BACKGROUND

The use of safety belts and child safety seats is a proven means of reducing injuries to motor vehicle occupants involved in traffic crashes. There have been various methods used in efforts to increase safety belt and safety seat usage. Past efforts have included public information campaigns, local and statewide legislation, and enforcement of the legislation.

The most recent safety belt legislation in Kentucky involved changing the requirement for the use of safety belts for all vehicle occupants from secondary to primary enforcement. A statewide law providing secondary enforcement was enacted in 1994, with the primary enforcement law passed in 2006. The first legislation in this area in Kentucky was a law enacted by the 1982 Kentucky General Assembly that required the use of a “child restraint system” for children 40 inches or less in height. Prior to the statewide safety belt law, there were local safety belt usage laws in several jurisdictions in Kentucky. The first local safety belt law, that became effective July 1990, was enacted by the Lexington-Fayette Urban County Government.

The first statewide observational surveys were conducted in Kentucky in 1982 and have been conducted annually to document safety belt and safety seat usage. Following the enactment of the statewide secondary law, safety belt usage among drivers increased each survey year, from four percent in 1982 to 58 percent in 1994. The rate has steadily climbed since 1994. Examples of the increasing rates are 60 percent in 2000, 66 percent in 2004, 73 percent in 2008, and 86 percent in 2014.

Statewide usage of child safety seats (CSS) or safety belts for children under four years of age increased from about 15 percent in 1982, before enactment of the mandatory child restraint law, to about 30 percent for 1984 through 1986. After a financial penalty was added to the law, this percentage increased to almost 50 percent in 1988. There has been a continued increase in usage, with rates of reaching 98 percent in recent years. However, while usage rates are very high, studies have found problems with the proper use of child safety seats.

The survey methodology used to collect data has been revised slightly a few times. For several years, the statewide belt use survey was based on 200 observation sites in 58 counties taken in the weeks immediately after completing the annual “Click It or Ticket” (CIOT) campaigns. Enforcement and publicity activities related to this campaign typically finish around Memorial Day. Mini-surveys (taken at 21 of the 200 statewide sites) were taken prior to the CIOT, in April, and during the enforcement phase of the CIOT. The relatively large number of sites scattered in so many counties made data collection time-consuming. In 2009, the number of counties for data collection was reduced for the sake of efficiency. The most recent survey design (recreated and implemented for the first time with the 2018 survey) collected data at 150 sites in 15 counties.

The National Highway Traffic Safety Administration (NHTSA) has issued new Uniform Criteria for State Observational Surveys of Seat Belt Use. The final rule was published in Federal

Register Volume 76, Number 63. The revised methodology is described in detail in the following section of this report. This methodology was developed using the research team's experience of collecting safety belt usage rates over the past 30 years in Kentucky along with the guidelines contained in the final rule. The new methodology was implemented beginning with the 2018 statewide survey.

The objective of the survey summarized in this report was to establish a statewide safety belt usage rate in Kentucky for 2018. This rate can be compared to those determined from previous surveys. The 2018 statewide survey documents the continued increase in usage associated with the change in the law to allow primary enforcement and related education and enforcement.

2.0 SURVEY METHODOLOGY

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 2010 through 2014. The source of the data was Kentucky's crash database (Collision Report Analysis for Safer Highways (CRASH)). The county totals were sorted and those in the lowest 15th percentile were identified and excluded from consideration. The result was a sample of 77 counties that were considered as potential survey counties.
- Prior to 2013, researchers compiled data from 160 sites in 18 counties. The past data collection has resulted in a standard error of approximately one percent. Based on past experience, the decision was made to sample 20 percent of the 77 counties, which required the identification of 15 counties at 150 sites for data collection. This change was enacted with the 2013 survey and continues with the new 2018 survey.
- The method selected to ensure a geographically representative sample of counties across Kentucky was to randomly select 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.
- One county from each rural highway district and two counties from the three urban highway districts were randomly selected. 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 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 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. Based on previous surveys, there would be no sites with zero observations and 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. Seven categories of VMT were determined, with the number of sites in a county varying from six to 20. The number of sites in each county is proportional to that county's VMT. The counties with the most sites are Jefferson (20 sites) and Fayette (16 sites) as they have a much higher VMT than other counties.
- Table 1 lists the counties selected. The numbers of fatalities and vehicle miles traveled are given for each county. The six groupings of counties (based on VMT) are shown, and the number of sites in each county noted.

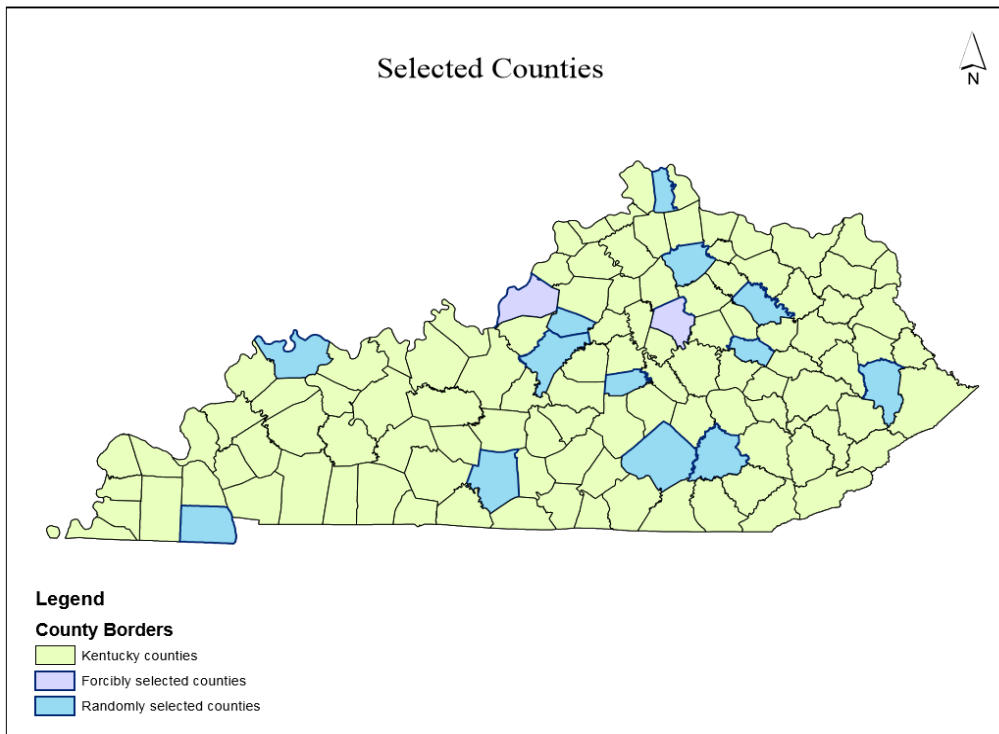
Table 1. Selected Counties

County	Number of Fatalities (2010-2014)	Percent of Statewide Fatalities	Highway District	VMT (x1,000)	Population	VMT Group	Number of Sites
Spencer	20	0.6	5	136,875	17,061	1	6
Harrison	27	0.7	6	143,445	18,846	1	6
Powell	20	0.6	10	172,280	12,613	1	6
Bath	17	0.5	9	182,135	11,591	1	6
Boyle	26	0.7	7	266,450	28,432	2	8
Calloway	42	1.2	1	325,580	37,191	2	8
Floyd	49	1.4	12	438,365	39,451	2	8
Nelson	42	1.2	4	495,670	43,437	2	8
Henderson	28	0.8	2	510,270	46,250	3	10
Barren	59	1.6	3	574,510	42,173	3	10
Pulaski	48	1.3	8	704,085	63,063	4	12
Laurel	67	1.9	11	938,780	58,849	4	12
Kenton	43	1.2	6	1,507,085	159,720	5	14
Fayette	127	3.5	7	3,038,625	295,803	6	16
Jefferson	365	10.1	6	7,313,505	741,096	7	20

- The following list sorts selected counties by highway district. The three urban districts have two counties each and the other nine districts have one county each.

<u>District Number</u>	<u>County</u>	<u>Number of Sites</u>
1	Calloway	8
2	Henderson	10
3	Barren	10
4	Nelson	8
5	Jefferson	20
	Spencer	6
6	Harrison	6
	Kenton	14
7	Boyle	8
	Fayette	16
8	Pulaski	12
9	Bath	6
10	Powell	6
11	Laurel	12
12	Floyd	8

- The following map shows the location of the districts and counties across the state.



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 (in each county). The following three roadway types (road class stratum) were used:

1. limited access; primary
2. arterials; secondary
3. local

The survey sites in each county were partitioned among the three highway types based on the VMT for each highway type in that county. In five of the 15 counties, there were no roads in the “limited access” category. Therefore, since there was no VMT and no chance of selection, no road segments for this category were included for these seven counties.

- The numbers of sites were adjusted so that data were collected on at least one road in each road stratum class — as long as the county had a road in each class
- Using the criteria as noted, the following data (Table 2) present 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 local roads.

The number of sites in each of the three road classes was determined based on the vehicle miles traveled in each road class. The adjusted number was derived based on the distribution using vehicle miles traveled to ensure that the proper number of sites was provided in each county.

Table 2 **Number of Sites in each County by Roadway Class**

County	Sites Allocated	County VMT	Road Class Stratum	Road Class VMT	Number of Sites if Allocated by VMT	Adjusted Number of Sites	Adjusted Total
Barren	10	1,295,546.57	1	477,600.58	3.68	4	10
			2	421,277.70	3.25	3	
			3	396,904.46	3.06	3	
Bath	6	419,571.82	1	251,211.38	3.59	3	6
			2	35,489.11	0.51	1	
			3	132,871.31	1.90	2	
Boyle	8	634,025.67	1	0	0.00	0	8
			2	476,737.48	6.02	6	
			3	157,288.2	1.98	2	
Calloway	8	685,686.76	1	0	0.00	0	8
			2	380,819.83	4.44	4	
			3	304,866.92	3.56	4	
Fayette	16	6,953,205.55	1	2,801,260.56	6.44	7	16
			2	2,753,762.22	6.34	7	
			3	1,039,477.26	2.39	2	
Floyd	8	1,088,469.03	1	0	0.00	0	8
			2	683,760.42	5.02	5	
			3	404,708.60	2.97	3	
Harrison	6	282,009.08	1	0	0.00	0	6
			2	199,062.2	4.24	4	
			3	111,386.8	2.37	2	
Henderson	10	1,215,962.69	1	357,914.74	2.94	3	10
			2	635,720.17	5.23	5	
			3	222,327.76	1.83	2	
Jefferson	20	17,144,887.20	1	8,654,640.06	10.10	10	20
			2	6,831,426.52	7.97	8	
			3	1,658,820.60	1.94	2	
Kenton	14	3,813,647.07	1	2,192,346.29	8.05	8	14
			2	788,788.57	2.90	3	
			3	756,715.49	2.78	3	
Laurel	12	2,234,033.34	1	996,953.21	5.36	5	12
			2	691,206.99	3.71	4	
			3	602,346.08	3.23	3	
Nelson	8	1,149,251.58	1	328,794.65	2.29	2	8
			2	529,677.87	3.69	4	
			3	290,779.04	2.02	2	
Powell	6	400,626.72	1	229,383.74	3.43	3	6
			2	60,491.68	0.91	1	
			3	110,751.28	1.66	2	
Pulaski	12	1,610,216.16	1	107,180.14	0.79	1	12
			2	965,178.51	7.19	7	
			3	537,857.49	4.00	4	
Spencer	6	289,857.02	1	0	0.00	0	6
			2	171,667.31	3.55	4	
			3	118,189.70	2.45	2	
Totals	150	39,216,996.26	1	16,397,285.35	46.67	46	150
			2	15,625,066.58	64.97	66	
			3	6,845,290.22	38.14	38	
			-	38,867,642.15	149.78	150	

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. A file containing all roads in the state (including both state maintained and locally maintained) was used to randomly select roadway segments. The source of the road segment data was the Kentucky Transportation Center (KYTC) file. This file is updated annually and contains data for all public roadways. No exclusions were made.
- The segments were divided into the three highway type categories as previously noted. Segments were randomly selected (by highway type). Segment length (in terms of VMT) was factored into the selection process, with longer sections having a higher probability of selection than shorter sections. The number of randomly selected segments for each highway type category in each county was more than required (see Table 2) to compensate for segments where there were no appropriate data collection sites.
- The randomly selected segments were inspected either remotely, using online imagery, or through a site visit. The necessary numbers of data collection sites (shown in Table 2) were identified for each county and highway type (using the randomly selected segments). Site selection ensured that the observers could obtain data safely and effectively.
- Appendix A 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 sites VMT and the county VMT are given. The probability of selection for each site is provided.
- At least one alternative site was identified for each highway type in each county in the event data could not be obtained at one of the identified sites. If a site was temporarily unavailable, the data collection was rescheduled for a similar day and time. If a site was unavailable for a substantial period of time, the alternative site was used, with data collected at a similar day and time. To remain consistent, the alternate site would replace the discarded site in future surveys. Alternate sites are compiled in Table 2 of Appendix A.
- Appendix C provides a map of site locations by highway type.
- 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.
- Data collectors were positioned at a location to ensure their safety while collecting data.

2.4 DATA COLLECTION PROCEDURE

- Observation times for the 150 sites were randomly assigned (with consideration of grouping sites in counties). Sites in relatively close proximity to one another were designated data collection clusters. The first site within each cluster was assigned a random day and time for completion. Next, all other sites within a cluster were assigned a random time on the same day to maximize efficiency (and minimize time and travel costs).
- 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 data were gathered by one data collector on one direction of travel, whereas ½ hour was needed if there were two data collectors on 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 ½ hour. Sites requiring only one observer are low-volume roads or T-intersections. 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 1 and August 7. Data collection guidelines stated that data would be collected between 7 am and 6 pm, with all days of the week eligible. 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 was collected through direct observation. Appendix B contains the form used to collect and record data. Data was 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 presence or absence of a passenger in the right front seat is shown by comparing the total number of drivers and passengers in the sample size. Observation for any right seat passenger was obtained for all vehicles. The number of vehicles at a site with only a driver can be calculated by subtracting the total number of front seat passengers from the total number of vehicles observed. 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) (including commercial vehicles under 10,000 pounds)
 2. Pickup (PU)
 3. Van
 4. Sport utility vehicle (SUV)

Separate data for motorcycles and bicycles had been collected to compare data in years past. However, it was determined a couple of weeks into the 2018 survey that this data would no longer be collected.

- Before starting data collection, data collectors were provided training on the data collection procedure. The training included:
 1. An overview of the project
 2. Description of the data collection form and procedure
 3. Scheduling procedures
 4. Identification of survey sites (and alternatives)
 5. Data input.

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 trial survey results were evaluated to ensure that the data collectors provided consistent and accurate data.

- Times and locations were assigned, with data collected using the previously described form. Drivers received no indication that the data collectors were conducting a safety belt survey. 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. For each vehicle, the usage for the driver and any outboard front seat passenger was noted. At intersections, data were collected for vehicles either stopped or moving slowly. At overpasses on limited access highways, an observation position was chosen to allow for an unobstructed view of the vehicle's front seat.

- A quality control monitor conducted random, unannounced visits to collect data at a minimum of 15 of the data collection sites. It was anticipated that there would be approximately three to four data collectors with a couple of quality control monitors. The objective was that data was 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 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 of the 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).

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

where $i(j)$ = county i within category j (category 1 = the 2 certain-selection counties, Jefferson and Fayette Counties, and category 2 = the 13 random-selection 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:

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

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:

$$P_j = \frac{\sum_i VMT_{i(j)} W_{i(j)} P_{i(j)}}{\sum_i VMT_{i(j)} W_{i(j)}} \quad (3)$$

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

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

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

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

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

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

where L is the L^{th} 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:

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

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 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 jackknife approach, based on the general formula:

$$\hat{\sigma}_{\hat{p}} = \left[\frac{n-1}{n} \sum_{i=1}^n (\hat{p}_i - \hat{p})^2 \right]^{1/2} \quad (5)$$

where $\hat{\sigma}_{\hat{p}}$ = standard deviation (standard error) of the estimated statewide seat belt use proportion \hat{p} (equivalent to p in the notation of formulas 1-4); n = the number of sites (i.e., 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 95% confidence interval, i.e., $\hat{p} \pm 1.96\hat{\sigma}_{\hat{p}}$. These values were reported for the overall statewide seatbelt use rate.

3.0 SURVEY RESULTS

- Table 3 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 2018, using the data collected at 150 sites and the described weighting procedure, was 89.9988920 percent. Rounding to two decimal places, it is 90.00 percent. Truncating to two decimal places, it is 89.99 percent. No matter how it is reported, this is an increase from 86.8 percent in 2017. The 95 percent confidence interval is approximately 0.56 percent (89.44 to 90.56). Standard error is 0.29 percent.
- The sample size of all front seat occupants was approximately 95,739. The statewide rate for drivers was 90.4 percent with a rate of 88.1 percent for front seat passengers.

TABLE 3. USAGE RATE FOR FRONT-SEAT OCCUPANTS (BY ROAD CLASS)

ROAD CLASSIFICATION	PERCENT USAGE BY TYPE		
	DRIVERS	PASSENGERS	ALL
Limited Access	94.9	91.3	94.2
Arterials	89.7	88.6	89.5
Locals	84.7	82.5	84.3
All	90.4	88.1	90.0

- 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, the site type (original or alternate), date observed, and site sample weight are provided.
- Usage rates ranged from 63.4 percent (a rural, local location in Pulaski County) to 97.0 percent (a limited access highway in Kenton County). There were 62 sites that had a usage rate of 90 percent or more, with 38 on a limited access road and 22 on an arterial and two on a local road. The highest rate found on a non-limited access road was 95.5 percent at a high-volume urban arterial in Fayette County.
- The highest unknown rate at any site was 7.1 percent. Only four sites had unknown usage rates exceeding five percent. Total nonresponse rate of seat belt use is 0.55% percent.
- A substantial difference in usage rate (for all front seat occupants) was noted when vehicle type and road class were considered (Table 4). The rate varied by vehicle type from a low of 71.7 percent for pickup trucks on local roads to 96.4 percent for SUVs on limited access roads.
- For each vehicle type, the lowest usage rate was on local roads, while the highest rate was on limited access highways.
- Examining usage rates according to road class revealed that rates ranged from 84.3 percent on local roads to 94.2 percent on limited access highways.
- The lowest usage was 71.7 percent for pickups on local roads.

- The highest usage rate was 96.4 percent for SUVs on limited access highways.
- For each road classification, the lowest usage rate was for pickups. For limited access roads, the only vehicle type with a usage rate less than 90 percent was pickups.

TABLE 4. USAGE RATE FOR FRONT-SEAT OCCUPANTS (BY ROAD CLASS AND VEHICLE TYPE)
PERCENT USAGE BY VEHICLE TYPE

ROAD CLASSIFICATION	PERCENT USAGE BY VEHICLE TYPE				
	PC	PU	VAN	SUV	ALL
Limited Access	95.3	87.2	93.1	96.4	94.2
Arterials	91.2	79.8	91.1	93.2	89.5
Locals	88.7	71.7	84.1	89.1	84.3
All	92.4	80.5	90.5	93.4	90.0

PC – passenger car
 PU – pickup
 VAN – van
 SUV – sport utility vehicle

- Table 5 summarizes usage rate by county. The rate varied from a high of 92.8 percent in Jefferson County to a low of 79.6 percent in Harrison County. The rate exceeded 90 percent in three counties and was less than 80 percent in one county.
- Pulaski County had the second lowest usage rate (82.1 percent), while Powell County had the third lowest rate (83.9 percent). Compared to previous years, these three lowest-performers (Harrison, Pulaski, and Powell Counties) were more spread out over the state and only one had a usage rate under 80 percent.
- The new selection method in 2018 produced new counties than the ones used in previous years, making direct county comparisons difficult. However, five counties were reused and therefore could be compared. For those five counties (Fayette, Harrison, Henderson, Jefferson, and Kenton), usage rates increased in four of them, including all three forcibly-selected counties in the urban districts.

TABLE 5. USAGE RATE FOR FRONT-SEAT OCCUPANTS (BY COUNTY)

COUNTY	PERCENT USAGE BY TYPE		
	DRIVERS	PASSENGERS	ALL
BARREN	87.8	87.8	87.8
BATH	85.8	84.4	85.6
POWELL	84.2	83.0	83.9
SPENCER	86.7	83.0	86.5
FAYETTE	92.8	90.3	92.4
JEFFERSON	93.3	90.3	92.8
KENTON	91.9	89.8	91.7
LAUREL	89.6	86.0	88.6
PULASKI	82.3	82.5	82.1
BOYLE	86.0	84.8	85.9
CALLOWAY	86.0	87.0	86.3
FLOYD	85.5	79.8	84.5
HARRISON	80.6	75.9	79.6
HENDERSON	85.4	89.3	86.2
NELSON	87.3	87.2	87.1
All	90.4	88.1	90.0

- Usage rates by county and vehicle type are presented in Table 6. These rates ranged from a high of 95.4 percent for SUVs in Jefferson County to a low of 59.2 percent for pickup trucks in Harrison County. The usage rate for pickup trucks was less than 70 percent in two counties.

TABLE 6. USAGE RATE FOR FRONT-SEAT OCCUPANTS (BY COUNTY AND VEHICLE TYPE)
 PERCENT USAGE BY VEHICLE TYPE

COUNTY	PC	PU	VAN	SUV	ALL
BARREN	91.7	79.0	91.1	90.7	87.8
BATH	91.1	73.0	91.0	91.8	85.6
POWELL	87.7	72.0	88.8	87.2	83.9
SPENCER	93.6	76.3	87.0	89.0	86.5
FAYETTE	94.1	85.9	90.3	93.9	92.4
JEFFERSON	93.6	84.2	92.6	95.4	92.8
KENTON	92.2	83.4	91.8	93.7	91.7
LAUREL	92.0	80.1	92.1	91.3	88.6
PULASKI	86.9	66.0	79.9	90.6	82.1
BOYLE	91.7	76.4	90.4	88.7	85.9
CALLOWAY	89.5	75.6	87.1	92.3	86.3
FLOYD	88.4	70.6	77.2	93.0	84.5
HARRISON	90.4	59.2	89.2	88.1	79.6
HENDERSON	88.7	72.4	93.4	93.5	86.2
NELSON	90.4	77.5	86.3	92.8	87.1
All	92.4	80.5	90.5	93.4	90.0

- While the data collection procedure has changed several times, 2018 usage rates can still be judiciously compared to the statewide rates from past years (Table 7). Statewide rates have dramatically increased from four percent in 1982 to just under 90 percent in 2018. Increased usage over the years is related to a combination of changes in safety belt legislation and increased enforcement and education.

TABLE 7. TREND IN STATEWIDE USAGE RATES

PERCENT USING SAFETY BELTS			
YEAR	ALL FRONT SEAT OCCUPANTS	DRIVERS	CHILDREN UNDER FOUR YEARS OF AGE*
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	74	98
2009	80	80	99
2010	80	81	96
2011	82	83	97
2012	84	84	98
2013	85	85	**
2014	86	87	**
2015	87	87	**
2016	87	87	**
2017	87	87	**
2018	90	90	**

*Children using either safety seat or safety belt. Children seated in front or rear seat.

**Data not obtained.

- Survey locations have changed due to modifications of the data collection procedure (in 1990, 1999, 2009, 2013, and 2018). In order to provide a consistent baseline by which to evaluate the data, mini-surveys have been performed in tandem with the main one. 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 2018 to enable a comparison of identical sites over an extended number of years. Appendix F contains the results for the mini-survey sites for the eight years of 2011 through 2018. The usage rate at the mini-survey locations in 2018 was 89.4 percent. This shows consistency with the official 2018 data: the statewide rate in 2018 for the mini-survey locations increased 1.9 percent compared to 2017 (which was close to the increase found for the official survey). Usage rates increased at thirteen locations, decreased at three locations, and five remained the same.

4.0 CONCLUSIONS AND RECOMMENDATIONS

- The data show that the level of safety belt usage in 2018 (89.99 percent) improved from 2017 (86.8 percent).. The usage rate in 2018 is the highest since surveys began in 1982. The progressive increases in usage rates observed since 1982 can be related to the enactment and enforcement of safety belt laws along with increased education. However, the increase has only been three percent in the past five years. Large annual increases can no longer be reasonably expected.
- The data support maintaining the education and enforcement efforts of the primary safety belt law. 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.
- 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

Appendix A- Table 1. Data Collection Sites

Site	County	Road Type	Road Surveyed	Reference	VMT	County VMT	Probability of Selection
1	Barren	Primary	I-65	Fairview Church Rd	38856.99	477600.6	0.0814
2	Barren	Primary	I-65	Mammoth Cave Rd	146182.73	477600.6	0.306
3	Barren	Primary	Louie B Nunn Pkwy	New Bowling Green Rd	18850.49	477600.6	0.039
4	Barren	Primary	Louie B Nunn Pkwy	KY-1519	33654.70	477600.6	0.070
5	Barren	Secondary	Scottsville Rd	Scottsville Rd	2945.85	421277.7	0.0069
6	Barren	Secondary	Scottsville Rd	U-Haul Dealer	2724.21	421277.7	0.0065
7	Barren	Secondary	N Jackson Hwy	Horton Rigdon Rd	3632.25	421277.7	0.0086
8	Barren	Local Road	Roseville Rd	Smith Cemetary Rd	707.84	396904.5	0.0018
9	Barren	Local Road	S Dixie Hwy	Whitney Woods Dr	523.57	396904.5	0.0013
10	Barren	Local Road	N Dixie Hwy	Caldwell St	1341.09	396904.5	0.0034
11	Bath	Primary	I-64	Break in Hwy	57444.12	251211.4	0.2287
12	Bath	Primary	I-64	KY-36	6152.06	251211.4	0.0245
13	Bath	Primary	I-64	Exit 123 (Ramp)	22634.75	251211.4	0.090
14	Bath	Local Road	KY 11	Old Hwy 11	381.30	35489.11	0.011
15	Bath	Local Road	KY 36	Ky-36	1892.10	132871.3	0.0142
16	Bath	Local Road	US-60	Wyoming Rd	521.62	132871.3	0.0039
17	Boyle	Secondary	Lexington Rd	Lexington Rd	5954.96	476737.5	0.0125
18	Boyle	Secondary	Hustonville Rd	Lisa Ave	2842.60	476737.5	0.0059
19	Boyle	Secondary	Hustonville Rd	Baughman Ave	1868.24	476737.5	0.0039
20	Boyle	Secondary	S Danville Byp	N Stewarts Ln	4352.29	476737.5	0.0091
21	Boyle	Secondary	Perryville Rd	Beech St	5425.55	476737.5	0.0114
22	Boyle	Secondary	S Danville Byp	Commerce St	1939.33	476737.5	0.0041
23	Boyle	Local Road	Simpson Ln	Simpson Ln	696.21	157288.2	0.0044
24	Boyle	Local Road	W Shelby St	S Lucas St	1022.23	157288.2	0.0065
25	Calloway	Secondary	State Highway 80 E	State Highway 80	881.52	380819.8	0.0023
26	Calloway	Secondary	State Highway 80 E	State Highway 80	844.16	380819.8	0.0022
27	Calloway	Secondary	N 12 th St	Lowes Dr	8958.89	380819.8	0.0235
28	Calloway	Secondary	US Highway 641 N	Wild Rose Salon	8018.75	380819.8	0.0210
29	Calloway	Local Road	Sycamore St	S 11 th St	553.41	304866.9	0.0018
30	Calloway	Local Road	State Route 94 W	J W Williams Ln	713.26	304866.9	0.0023
31	Calloway	Local Road	State Route 121 N	Cook Store Trail	959.14	304866.9	0.0031
32	Calloway	Local Road	Chestnut St	N Cherry St	533.99	304866.9	0.0018
33	Fayette	Primary	I-64	Haley Rd (Overpass)	184822.60	2801260	0.0659
34	Fayette	Primary	I-75	Old Richmond Rd (Overpass)	295045.92	2801260	0.1053
35	Fayette	Primary	I-75	Russel Cave Rd (Overpass)	152458.05	2801260	0.0544

Appendix A- Table 1. Data Collection Sites (continued)

Site	County	Road Type	Road Surveyed	Reference	VMT	County VMT	Probability of Selection
36	Fayette	Primary	I-75	Georgetown Rd (Overpass)	72503.30	2801260	0.0259
37	Fayette	Primary	I-75	Ironworks Pike (Overpass)	20751.79	2801260	0.0074
38	Fayette	Primary	W New Circle Rd	Georgetown St	62928.67	2801260	0.0225
39	Fayette	Primary	E New Circle Rd	Alumni Dr (Overpass)	15101.73	2801260	0.0054
40	Fayette	Secondary	N Limestone	Rand Ave	636.22	2753762	0.00023
41	Fayette	Secondary	Clays Mill Rd	Beth Ln	1504.99	2753762	0.00055
42	Fayette	Secondary	Man O' War Blvd	Lyon Dr	6489.49	2753762	0.00236
43	Fayette	Secondary	Mason Headley Rd	Tazwell Dr	835.57	2753762	0.00030
44	Fayette	Secondary	Tates Creek Rd	Lansdowne Dr	1508.92	2753762	0.00055
45	Fayette	Secondary	Tates Creek Rd	Albany Rd	1988.99	2753762	0.00072
46	Fayette	Secondary	Paris Pike	Johnson Rd	10162.61	2753762	0.00369
47	Fayette	Local Road	Wrenn Ct	W Main St	1818.93	1039477	0.00036
48	Fayette	Local Road	Armstrong Rd	Kenesaw Dr	2690.47	1039477	0.00259
49	Floyd	Secondary	036 KY-80	Judge Dr	4185.77	683760.4	0.00612
50	Floyd	Secondary	036 KY-80	CR 1224	5679.14	683760.4	0.00830
51	Floyd	Secondary	036 KY-23	School St	3715.89	683760.4	0.00543
52	Floyd	Secondary	036 KY-23	Branhams Ct	3909.54	683760.4	0.00572
53	Floyd	Secondary	036 KY-23	KY-1428	14347.53	683760.4	0.02098
54	Floyd	Local Road	036 KY-680	Tackett Branch Rd	217.24	404708.6	0.00054
55	Floyd	Local Road	036 KY-680	KY-979	2328.03	404708.6	0.00575
56	Floyd	Local Road	036 KY-1428	Old Abbott Mountain Rd	1307.28	404708.6	0.00323
57	Harrison	Secondary	KY Highway 36 E	Culpepper Dr	2035.09	199062.2	0.01022
58	Harrison	Secondary	KY Highway 36 W	Hendricks Ln	3361.70	199062.2	0.01689
59	Harrison	Secondary	US Highway 62 W	Grays Run Pike	1895.14	199062.2	0.00952
60	Harrison	Secondary	US Highway 62 W	Wornall Ln	7878.79	199062.2	0.0396
61	Harrison	Local Road	N Church St	Reynolds Ave	185.12	111386.8	0.00166
62	Harrison	Local Road	KY Highway 32 W	Lowery Ln	551.32	111386.8	0.00495
63	Henderson	Primary	Audobon Pkwy	KY-812 (Overpass)	33451.10	357914.7	0.0935
64	Henderson	Primary	Audobon Pkwy	Alves Ferry Rd (Overpass)	17474.66	357914.7	0.0488
65	Henderson	Primary	Edward T Breathitt Pkwy	KY-425 (Overpass)	7824.50	357914.7	0.0219
66	Henderson	Secondary	Airline Rd	Sam Ball Way	2326.64	635720.2	0.00366
67	Henderson	Secondary	US-41 N	Racetrack Rd	3856.10	635720.2	0.00607
68	Henderson	Secondary	US-60 W	6 th St	851.62	635720.2	0.00134
69	Henderson	Secondary	US-60W	Corydon Geneva Rd	6896.60	635720.2	0.01085
70	Henderson	Secondary	US-60 E	KY_414	1847.16	635720.2	0.0029
71	Henderson	Local Road	South Water St	Dixon St	37.64	222327.8	0.00017
72	Henderson	Local Road	KY-136 W	KY-266	1328.32	222327.8	0.0060

Appendix A- Table 1. Data Collection Sites (continued)

Site	County	Road Type	Road Surveyed	Reference	VMT	County VMT	Probability of Selection
73	Jefferson	Primary	I-64	Clark Memorial Bridge (Overpass)	14842.11	8654640	0.0017
74	Jefferson	Primary	I-64	Payne St (Overpass)	37213.40	8654640	0.0043
75	Jefferson	Primary	I-64	Henry Watterson Expy (Ramp)	88248.92	8654640	0.0102
76	Jefferson	Primary	I-64	Gilliland Rd (Overpass)	251990.56	8654640	0.0291
77	Jefferson	Primary	I-65	Gene Snyder Fwy (Overpass)	49622.19	8654640	0.0057
78	Jefferson	Primary	I-65	Crittenden Dr (Ramp)	51133.08	8654640	0.0059
79	Jefferson	Primary	I-264	Bardstown Rd (Ramp)	88238.47	8654640	0.0102
80	Jefferson	Primary	I-264	Breckenridge Ln (Overpass)	64826.24	8654640	0.0075
81	Jefferson	Primary	I-264	Westport Rd (Ramp)	13745.03	8654640	0.0016
82	Jefferson	Primary	I-265	Old Headly Rd (Overpass)	182342.91	8654640	0.0211
83	Jefferson	Secondary	Lower Hunters Trce	Upper Hunters Trce	2054.96	6831426	0.0003
84	Jefferson	Secondary	Six Mile Ln	S Hurstbourne Pkwy	1796.25	6831426	0.00026
85	Jefferson	Secondary	Newburg Rd	Tartan Way	4800.58	6831426	0.0007
86	Jefferson	Secondary	Billtown Rd	Mary Dell Ln	3609.67	6831426	0.00053
87	Jefferson	Secondary	Shepherdsville Rd	Rangeland Rd	10117.00	6831426	0.0015
88	Jefferson	Secondary	Dixie Hwy	Dixie Beach Rd	9369.71	6831426	0.0014
89	Jefferson	Secondary	Shelbyville Rd	Ten Pile Ln	3530.20	6831426	0.0005
90	Jefferson	Secondary	E Broadway	S Preston St	2075.09	6831426	0.0003
91	Jefferson	Local Road	St Matthews Ave	Westport Rd (Ramp)	1260.39	1658820	0.00076
92	Jefferson	Local Road	Ormond Rd	Chenoweth Ln	461.59	1658820	0.00028
93	Kenton	Primary	I-75	Weigh Station	164573.79	2192346	0.0751
94	Kenton	Primary	I-75	Commonwealth Ave (Ramp)	87747.62	2192346	0.040
95	Kenton	Primary	I-75	I-275 (Ramp)	62064.88	2192346	0.0283
96	Kenton	Primary	I-75	Buttermilk Pike (Overpass)	51533.66	2192346	0.0235
97	Kenton	Primary	I-75	Dixie Hwy (Overpass)	50514.12	2192346	0.023
98	Kenton	Primary	I-275	Taylor Mill Rd (Overpass)	69352.61	2192346	0.0316
99	Kenton	Primary	I-275	Turkeyfoot Rd (Overpass)	117457.13	2192346	0.0536
100	Kenton	Primary	I-275	I-75 (Ramp)	59111.16	2192346	0.0269
101	Kenton	Secondary	Taylor Mill Rd	Mills Rd	1150.86	788788.6	0.0014
102	Kenton	Secondary	Dixie Hwy	Highland Ave	625.48	788788.6	0.0008
103	Kenton	Secondary	Dixie Hwy	Kyle's Ln	2819.10	788788.6	0.0036
104	Kenton	Local Road	Mohawk Ln	Senour Rd	940.78	756715.5	0.0012
105	Kenton	Local Road	Barrington Rd	Dixie Hwy	185.46	756715.5	0.0009

Appendix A- Table 1. Data Collection Sites (continued)

Site	County	Road Type	Road Surveyed	Reference	VMT	County VMT	Probability of Selection
106	Kenton	Local Road	Madison Pike	Parking lot off Madison Pike	3715.92	756715.5	0.0049
107	Laurel	Primary	I-75	Keavy Rd	30390.94	996953.2	0.030
108	Laurel	Primary	I-75	E State Hwy 552	107019.07	996953.2	0.1073
109	Laurel	Primary	I-75	KY-192	194457.11	996953.2	0.195
110	Laurel	Primary	I-75	West Hal Rogers Pkwy	107576.60	996953.2	0.1079
111	Laurel	Primary	I-75	N Laurel Rd	151318.79	996953.2	0.152
112	Laurel	Secondary	Hal Rogers Pkwy	KY-192	1360.12	691206.9	0.0020
113	Laurel	Secondary	Russell Dyche Memorial Hwy	Warren Cemetery Rd	6930.69	691206.9	0.0100
114	Laurel	Secondary	S US Highway 25	Victory Community Church of Corbin	2537.49	691206.9	0.0037
115	Laurel	Secondary	S US Highway 25	Fariston Rd	4188.78	691206.9	0.0061
116	Laurel	Local Road	W Laurel Rd	Dogwood Trail	3835.29	602346.1	0.0064
117	Laurel	Local Road	Keavy Rd	Maple Grove School Rd	1805.77	602346.1	0.0030
118	Laurel	Local Road	Cherry Ave	Super Car Wash Center	758.63	602346.1	0.0013
119	Nelson	Primary	Martha Layne Collins-Bluegrass Pkwy	KY-55	18157.02	328794.6	0.0552
120	Nelson	Primary	Martha Layne Collins-Bluegrass Pkwy	Old Tunnel Mill Rd	7256.39	328794.6	0.0221
121	Nelson	Secondary	John Rowan Blvd	Ben Frye Ave	17263.30	529677.9	0.0326
122	Nelson	Secondary	New Shepherdsville Rd	Samuels Loop	13839.06	529677.9	0.0261
123	Nelson	Secondary	New Haven Rd	Culverton Schoolhouse Rd	4899.54	529677.9	0.0093
124	Nelson	Secondary	North Third St	E Stephen Foster Ave (Roundabout)	859.86	529677.9	0.0016
125	Nelson	Local Road	Stonehouse Rd	Stonefield Way	194.16	290779.0	0.0007
126	Nelson	Local Road	Woodlawn Rd	Cr-1522	382.36	290779.0	0.0013
127	Powell	Primary	Bert T Combs-Mountain Pkwy	Bert T Combs Mountain Pkwy (Ramp)	32029.25	229383.7	0.1396
128	Powell	Primary	Bert T Combs-Mountain Pkwy	Campton Rd	19471.23	229383.7	0.0849
129	Powell	Primary	Bert T Combs-Mountain Pkwy	Campton Rd	8309.66	229383.7	0.0362
130	Powell	Secondary	Stanton Rd	Hatton Creek Rd	5381.65	60491.68	0.0890
131	Powell	Local Road	E College Ave	Ewen St	1097.36	110751.3	0.0099
132	Powell	Local Road	Irvine Rd	Powell Rd	630.02	110751.3	0.0057
133	Pulaski	Primary	Louie B Nunn Pkwy	KY-914	25871.91	107180.1	0.2414
134	Pulaski	Secondary	KY-80	N Main St	2310.47	965178.5	0.0024
135	Pulaski	Secondary	KY-90	Old Hwy 90 Loop 2 Rd	1069.96	965178.5	0.0011
136	Pulaski	Secondary	KY-1247	George Harrison Rd	1815.62	965178.5	0.002
137	Pulaski	Secondary	US-27	Cr-1281J	1677.53	965178.5	0.0017

Appendix A- Table 1. Data Collection Sites (continued)

Site	County	Road Type	Road Surveyed	Reference	VMT	County VMT	Probability of Selection
138	Pulaski	Secondary	US-27	Ky-1247	5074.87	965178.5	0.0017
139	Pulaski	Secondary	US-27	W Langdon Rd	2531.78	965178.5	0.0053
140	Pulaski	Secondary	US-27	Rosemill Ln	1869.94	965178.5	0.0026
141	Pulaski	Local Road	Meadow Point Dr	State Branch Rd	950.45	537857.5	0.0019
142	Pulaski	Local Road	Nixon St	Govers Ln	105.74	537857.5	0.0002
143	Pulaski	Local Road	KY-39	Ly-635	1288.44	537857.5	0.0024
144	Pulaski	Local Road	KY-80	Cainst Store Cemetary Road	1405.14	537857.5	0.0026
145	Spencer	Secondary	Mt. Washington Rd	Hardesty Ridge Rd	1398.63	171667.3	0.0081
146	Spencer	Secondary	Taylorville Rd	Ashaldn Meadows Dr	4734.46	171667.3	0.0276
147	Spencer	Secondary	Taylorville Rd	Goebel Rd	540.64	171667.3	0.0031
148	Spencer	Secondary	Taylorville Rd	Hochstrasser Ln	10644.4	171667.3	0.062
149	Spencer	Local Road	Little Mount Rd	KY-3200	1446.82	118189.7	0.0122
150	Spencer	Local Road	Elk Creek Rd	Essex Way	198.79	118189.7	0.0017

Appendix A- Table 2. Alternate Data Collection Sites

Site	Road Class	County	Road Surveyed	Reference
151	Primary	Barren	Cumberland Pkwy	E Main St (Overpass)
152	Secondary	Barren	Scottsville Rd	W Mathews Mill Rd
153	Local Road	Barren	Mammoth Cave Rd	Harper's Ridgetop Market
154	Primary	Bath	I-64	Break in Hwy
155	Secondary	Bath	KY-11	KY-1198
156	Local Road	Bath	KY-1198	KY-11
157	Secondary	Boyle	E Lexington Ave	Bowlarama Lanes
158	Local Road	Boyle	Shakertown Rd	Coffee Tree Dr
159	Secondary	Calloway	Main St	N 13 th St
160	Local Road	Calloway	Pottertown Rd	KY-94
161	Primary	Fayette	W New Circle Rd	Old Frankfort Pike (Overpass)
162	Secondary	Fayette	Clays Mill Rd	Fairfield Dr
163	Local Road	Fayette	Greendale Rd	Buck Ln
164	Secondary	Floyd	036 US-23	Rose Dr
165	Local Road	Floyd	036 KY-122	Rite Aid
166	Secondary	Harrison	KY Highway 36 W	US-27 C
167	Local Road	Harrison	E Bridge St	Webster Ave
168	Primary	Henderson	Pennyrile Pkwy	KY-416
169	Secondary	Henderson	US-41 North	Thorntons Gas
170	Local Road	Henderson	KY-416 W	2 nd St
171	Primary	Jefferson	Gene Snyder Freeway	Greyling Dr
172	Secondary	Jefferson	Blue Lick Rd	Ripple Creek Dr
173	Local Road	Jefferson	Central Ave	Lindbergh Dr
174	Primary	Kenton	I-75	Kyles Ln
175	Secondary	Kenton	Commonwealth Ave	Elm St
176	Local Road	Kenton	Fowler Creek Rd	Cox Rd
177	Primary	Laurel	I-75	KY-909 (Overpass)
178	Secondary	Laurel	N Main St	W 5 th St
179	Local Road	Laurel	N Laurel Rd	KY-3434
180	Primary	Nelson	Bluegrass Pkwy	US-31 E (Overpass)
181	Secondary	Nelson	New Sheperdsville Rd	KY-221
182	Local Road	Nelson	Solitude Rd	US-31 E
183	Primary	Powell	Bert Combs Mtn Pkwy	KY-1184 (Overpass)
184	Secondary	Powell	W College Ave	Cr-1264
185	Local Road	Powell	11 th St	10 th Ave
186	Primary	Pulaski	Cumberland Pkwy	KY-80 (Overpass)
187	Secondary	Pulaski	Main St	E French Ave
188	Local Road	Pulaski	KY-192	Grundy Rd
189	Secondary	Spencer	Taylorsville Rd	Little Mt Rd
190	Local Road	Spencer	Bloomfield Rd	KY-1066

Appendix B.

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			

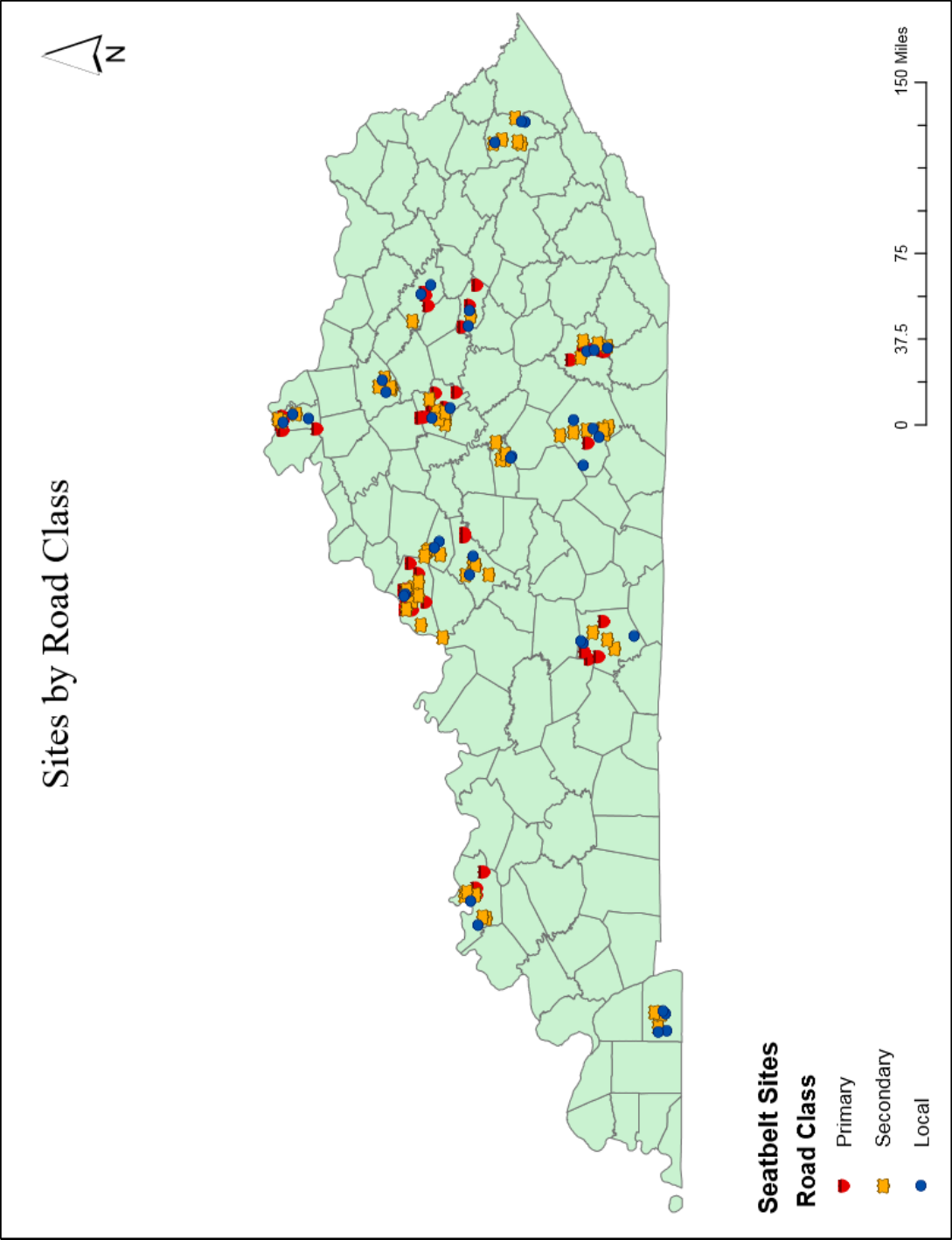
Yes:

Total:

Percent usage:

Appendix C.

Data Collection Site Map



Appendix D.

Summary of Data (by Site)

APPENDIX D. SUMMARY OF DATA

ALL FRONT SEAT OCCUPANTS						CATEGORY			
Location Number	Sample	Percent Usage	Relative Error*	Confidence Interval*	Percent Unknown	DRIVERS		FRONT SEAT PASSENGERS	
						Sample	Percent Usage	Sample	Percent Usage
1	1120	94.6	1.4	1.3	1.2	747	94.6	373	94.4
2	1087	95.5	1.3	1.2	1.0	705	95.9	382	94.8
3	350	90.9	3.3	3.0	2.2	258	91.1	92	90.2
4	196	89.8	4.7	4.2	0.0	140	90.0	56	89.3
5	158	88.0	5.8	5.1	1.9	124	87.9	34	88.2
6	510	84.9	3.7	3.1	0.8	399	84.7	111	85.6
7	145	88.3	5.9	5.2	2.7	103	88.3	42	88.1
8	86	76.7	11.6	8.9	0.0	64	76.6	22	77.3
9	381	87.7	3.8	3.3	1.0	281	87.5	100	88.0
10	519	83.4	3.8	3.2	1.3	391	83.1	128	84.4
11	595	93.3	2.2	2.0	2.0	496	93.8	99	90.9
12	588	94.7	1.9	1.8	0.2	415	95.2	173	93.6
13	713	93.8	1.9	1.8	1.7	530	93.2	183	95.6
14	129	83.7	7.6	6.4	3.0	95	81.1	34	91.2
15	56	73.2	15.8	11.6	0.0	43	74.4	13	69.2
16	119	67.2	12.5	8.4	0.0	98	68.4	21	61.9
17	367	90.7	3.3	3.0	2.4	309	92.2	58	82.8
18	900	87.6	2.5	2.2	0.3	691	86.5	209	90.9
19	932	92.0	1.9	1.7	0.9	770	92.3	162	90.1
20	610	92.1	2.3	2.1	0.7	490	92.0	120	92.5
21	290	90.0	3.8	3.5	1.7	236	89.8	54	90.7
22	541	86.0	3.4	2.9	1.1	457	87.1	84	79.8
23	15	73.3	30.5	22.4	0.0	12	75.0	3	66.7
24	195	75.4	8.0	6.0	0.0	150	72.7	45	84.4
25	170	88.8	5.3	4.7	1.7	141	89.4	29	86.2
26	142	86.6	6.5	5.6	3.4	107	87.9	35	82.9
27	1024	93.1	1.7	1.6	0.7	813	93.4	211	91.9
28	383	89.0	3.5	3.1	4.7	306	88.6	77	90.9
29	271	86.7	4.7	4.0	2.9	218	86.7	53	86.8
30	107	86.9	7.4	6.4	3.6	79	84.8	28	92.9
31	130	77.7	9.2	7.2	5.1	100	77.0	30	80.0
32	296	78.0	6.0	4.7	4.5	248	77.0	48	83.3
33	858	95.1	1.5	1.4	0.3	638	94.5	220	96.8
34	2203	93.8	1.1	1.0	0.2	1584	94.9	619	91.0
35	1549	95.8	1.0	1.0	0.0	1159	96.8	390	92.8
36	1260	95.0	1.3	1.2	0.2	855	95.6	405	93.8
37	1221	93.6	1.5	1.4	0.3	861	93.6	360	93.6
38	1003	90.3	2.0	1.8	0.8	812	90.3	191	90.6
39	1144	92.2	1.7	1.6	0.0	936	91.7	208	94.7
40	314	87.3	4.2	3.7	0.0	256	87.5	58	86.2
41	574	92.2	2.4	2.2	0.5	471	91.7	103	94.2

42	617	92.7	2.2	2.1	1.3	492	92.9	125	92.0
43	375	91.5	3.1	2.8	0.3	301	91.4	74	91.9
44	900	93.1	1.8	1.7	0.0	756	93.9	144	88.9
45	790	94.3	1.7	1.6	0.5	682	94.0	108	96.3
46	513	95.5	1.9	1.8	0.0	405	96.5	108	91.7
47	276	89.9	4.0	3.6	0.7	237	90.3	39	87.2
48	224	88.4	4.7	4.2	0.4	194	91.2	30	70.0
49	402	87.3	3.7	3.3	1.2	301	88.0	101	85.1
50	259	84.9	5.1	4.4	5.1	225	84.9	34	85.3
51	271	87.1	4.6	4.0	0.0	246	89.0	25	68.0
52	730	91.1	2.3	2.1	2.0	580	91.7	150	88.7
53	580	89.7	2.8	2.5	2.0	432	90.3	148	87.8
54	189	77.8	7.6	5.9	0.0	140	80.0	49	71.4
55	111	75.7	10.5	8.0	0.0	85	76.5	26	73.1
56	211	82.0	6.3	5.2	4.5	159	83.0	52	78.8
57	178	83.7	6.5	5.4	1.7	131	84.0	47	83.0
58	104	81.7	9.1	7.4	0.0	80	83.8	24	75.0
59	249	81.1	6.0	4.9	2.0	197	81.7	52	78.8
60	259	88.4	4.4	3.9	1.9	207	92.3	52	73.1
61	60	73.3	15.3	11.2	0.0	49	73.5	11	72.7
62	62	71.0	15.9	11.3	0.0	47	70.2	15	73.3
63	200	82.0	6.5	5.3	0.0	152	80.9	48	85.4
64	209	89.5	4.6	4.2	0.9	172	89.5	37	89.2
65	325	92.6	3.1	2.8	0.6	267	92.9	58	91.4
66	180	88.3	5.3	4.7	0.0	167	88.0	13	92.3
67	1107	90.8	1.9	1.7	0.0	852	91.0	255	90.2
68	217	80.6	6.5	5.3	2.3	174	79.9	43	83.7
69	259	89.6	4.2	3.7	3.4	202	88.1	57	94.7
70	309	87.4	4.2	3.7	1.6	258	88.0	51	84.3
71	62	75.8	14.1	10.7	1.6	51	74.5	11	81.8
72	63	84.1	10.7	9.0	1.6	49	79.6	14	100.0
73	2703	96.4	0.7	0.7	0.0	2316	97.1	387	92.2
74	1305	94.4	1.3	1.2	0.0	1115	94.0	190	96.8
75	2008	94.5	1.1	1.0	0.0	1523	95.7	485	90.7
76	1833	96.6	0.9	0.8	0.0	1391	97.2	442	94.6
77	2105	94.9	1.0	0.9	0.0	1606	95.7	499	92.2
78	3249	96.0	0.7	0.7	0.0	2793	97.2	456	88.8
79	3277	95.5	0.7	0.7	0.3	2729	96.5	548	90.3
80	3056	95.2	0.8	0.8	0.1	2476	96.2	580	91.0
81	2453	94.6	0.9	0.9	0.0	1990	96.0	463	88.8
82	1722	94.5	1.1	1.1	0.1	1385	95.8	337	89.3
83	661	88.0	2.8	2.5	1.5	553	87.7	108	89.8
84	490	91.4	2.7	2.5	1.2	414	91.1	76	93.4
85	743	93.8	1.8	1.7	0.7	628	93.9	115	93.0
86	515	86.6	3.4	2.9	0.0	426	86.2	89	88.8
87	620	88.7	2.8	2.5	1.0	509	89.0	111	87.4
88	448	89.1	3.2	2.9	3.0	368	89.7	80	86.3
89	1368	94.6	1.3	1.2	0.0	1171	95.0	197	91.9
90	713	88.8	2.6	2.3	0.0	602	89.7	111	83.8
91	314	91.7	3.3	3.0	0.9	260	91.5	54	92.6

92	261	89.3	4.2	3.8	1.9	220	90.5	41	82.9
93	587	88.4	2.9	2.6	2.3	500	91.2	87	72.4
94	2528	96.4	0.8	0.7	0.0	2058	97.3	470	92.6
95	1194	85.8	2.3	2.0	1.5	881	85.0	313	87.9
96	1849	96.1	0.9	0.9	0.1	1339	96.0	510	96.3
97	1934	93.4	1.2	1.1	0.0	1637	96.1	297	78.5
98	697	96.6	1.4	1.4	0.0	598	96.8	99	94.9
99	1645	94.3	1.2	1.1	0.0	1376	94.9	269	91.4
100	1246	97.0	1.0	0.9	0.2	1099	97.4	147	94.6
101	376	87.8	3.8	3.3	0.0	305	87.2	71	90.1
102	642	94.5	1.9	1.8	0.0	556	94.2	86	96.5
103	622	91.6	2.4	2.2	0.0	551	92.0	71	88.7
104	112	84.8	7.8	6.6	4.3	98	83.7	14	92.9
105	236	90.7	4.1	3.7	0.0	179	87.7	57	100.0
106	171	84.8	6.3	5.4	7.1	140	85.7	31	80.6
107	1450	93.7	1.3	1.3	0.0	971	94.0	479	92.9
108	1669	96.3	0.9	0.9	0.1	1113	97.4	556	94.1
109	1489	96.2	1.0	1.0	0.1	926	96.1	563	96.4
110	1223	94.8	1.3	1.2	0.0	752	96.1	471	92.6
111	1162	93.5	1.5	1.4	0.3	770	94.7	392	91.1
112	308	83.1	5.0	4.2	1.6	232	85.8	76	75.0
113	307	93.8	2.9	2.7	3.2	241	94.6	66	90.9
114	301	90.7	3.6	3.3	2.6	248	90.3	53	92.5
115	404	82.4	4.5	3.7	0.5	308	83.4	96	79.2
116	230	79.1	6.6	5.3	0.4	183	82.5	47	66.0
117	56	80.4	12.9	10.4	0.0	50	80.0	6	83.3
118	234	79.1	6.6	5.2	0.4	173	79.8	61	77.0
119	264	85.2	5.0	4.3	0.4	198	86.9	66	80.3
120	180	96.1	2.9	2.8	0.0	127	96.9	53	94.3
121	464	88.6	3.3	2.9	0.6	390	88.2	74	90.5
122	252	90.5	4.0	3.6	2.7	220	90.5	32	90.6
123	131	85.5	7.1	6.0	3.7	105	84.8	26	88.5
124	425	85.2	4.0	3.4	0.2	342	84.5	83	88.0
125	52	80.8	13.3	10.7	3.7	46	80.4	6	83.3
126	167	84.4	6.5	5.5	0.0	138	84.8	29	82.8
127	410	86.8	3.8	3.3	0.0	262	86.6	148	87.2
128	599	90.3	2.6	2.4	0.0	391	90.5	208	89.9
129	397	91.7	3.0	2.7	0.8	264	91.7	133	91.7
130	198	76.8	7.7	5.9	0.0	156	77.6	42	73.8
131	356	74.2	6.1	4.5	0.8	268	75.7	88	69.3
132	265	77.7	6.4	5.0	0.0	203	77.3	62	79.0
133	210	85.2	5.6	4.8	0.5	146	86.3	64	82.8
134	776	88.4	2.5	2.3	0.0	619	88.5	157	87.9
135	471	85.1	3.8	3.2	1.1	354	85.9	117	82.9
136	266	78.6	6.3	4.9	0.0	190	76.8	76	82.9
137	286	79.7	5.8	4.7	0.0	209	80.9	77	76.6
138	733	83.9	3.2	2.7	0.0	534	85.6	199	79.4
139	333	84.7	4.6	3.9	3.2	262	82.1	71	94.4
140	245	87.8	4.7	4.1	0.4	179	87.7	66	87.9
141	51	82.4	12.7	10.5	0.0	39	87.2	12	66.7

142	195	87.2	5.4	4.7	0.5	153	87.6	42	85.7
143	98	79.6	10.0	8.0	0.0	85	77.6	13	92.3
144	93	63.4	15.4	9.8	0.0	73	61.6	20	70.0
145	72	84.7	9.8	8.3	5.3	66	86.4	6	66.7
146	303	87.5	4.3	3.7	0.7	256	87.5	47	87.2
147	264	88.6	4.3	3.8	0.4	235	89.4	29	82.8
148	325	90.8	3.5	3.1	0.0	286	91.3	39	87.2
149	225	84.9	5.5	4.7	0.9	186	85.5	39	82.1
150	50	84.0	12.1	10.2	3.8	40	82.5	10	90.0

*Percent (using .95 probability)

Appendix E.

Summary of Data (with sample weights)

APPENDIX E. 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	6/14/2018	0.14	747	373	1059	61	14
2	Original	7/3/2018	0.14	705	382	1038	49	11
3	Original	6/14/2018	0.14	258	92	318	32	8
4	Original	6/14/2018	0.14	140	56	176	20	0
5	Original	6/26/2018	0.07	124	34	139	19	3
6	Original	7/26/2018	0.07	399	111	433	77	4
7	Original	6/26/2018	0.07	103	42	128	17	4
8	Original	6/25/2018	0.00	64	22	66	20	0
9	Original	7/2/2018	0.00	281	100	334	47	4
10	Original	6/25/2018	0.00	391	128	433	86	7
11	Original	7/2/2018	0.05	496	99	555	40	12
12	Original	7/2/2018	0.05	415	173	557	31	1
13	Original	6/14/2018	0.05	530	183	669	44	12
14	Original	6/14/2018	0.01	95	34	108	21	4
15	Original	8/7/2018	0.00	43	13	41	15	0
16	Original	8/7/2018	0.00	98	21	80	39	0
17	Original	6/22/2018	0.02	309	58	333	34	9
18	Original	6/21/2018	0.02	691	209	788	112	3
19	Original	7/16/2018	0.02	770	162	857	75	8
20	Original	6/21/2018	0.02	490	120	562	48	4
21	Original	6/21/2018	0.02	236	54	261	29	5
22	Original	7/16/2018	0.02	457	84	465	76	6
23	Original	6/22/2018	0.00	12	3	11	4	0
24	Original	6/22/2018	0.00	150	45	147	48	0
25	Original	7/10/2018	0.03	141	29	151	19	3
26	Original	7/23/2018	0.03	107	35	123	19	5
27	Original	7/10/2018	0.03	813	211	953	71	7
28	Original	7/23/2018	0.03	306	77	341	42	19
29	Original	7/10/2018	0.00	218	53	235	36	8
30	Original	7/23/2018	0.00	79	28	93	14	4
31	Original	7/11/2018	0.00	100	30	101	29	7
32	Original	7/11/2018	0.00	248	48	231	65	14
33	Original	6/19/2018	1.45	638	220	816	42	3
34	Original	6/15/2018	1.45	1584	619	2066	137	5
35	Original	6/1/2018	1.45	1159	390	1484	65	0
36	Original	6/18/2018	1.45	855	405	1197	63	2
37	Original	6/8/2018	1.45	861	360	1143	78	4

38	Original	6/18/2018	1.45	812	191	906	97	8
39	Original	6/8/2018	1.45	936	208	1055	89	0
40	Original	6/20/2018	0.63	256	58	274	40	0
41	Original	6/8/2018	0.63	471	103	529	45	3
42	Original	7/2/2018	0.63	492	125	572	45	8
43	Original	7/2/2018	0.63	301	74	343	32	1
44	Original	6/1/2018	0.63	756	144	838	62	0
45	Original	6/8/2018	0.63	682	108	745	45	4
46	Original	6/1/2018	0.63	405	108	490	23	0
47	Original	7/11/2018	0.00	237	39	248	28	2
48	Original	6/19/2018	0.00	194	30	198	26	1
49	Original	6/27/2018	0.07	301	101	351	51	5
50	Original	6/28/2018	0.07	225	34	220	39	14
51	Original	7/9/2018	0.07	246	25	236	35	0
52	Original	6/27/2018	0.07	580	150	665	65	15
53	Original	6/27/2018	0.07	432	148	520	60	12
54	Original	7/9/2018	0.00	140	49	147	42	0
55	Original	6/28/2018	0.00	85	26	84	27	0
56	Original	6/28/2018	0.00	159	52	173	38	10
57	Original	6/29/2018	0.01	131	47	149	29	3
58	Original	7/11/2018	0.01	80	24	85	19	0
59	Original	6/29/2018	0.01	197	52	202	47	5
60	Original	7/11/2018	0.01	207	52	229	30	5
61	Original	8/3/2018	0.00	49	11	44	16	0
62	Original	7/11/2018	0.00	47	15	44	18	0
63	Original	7/26/2018	0.13	152	48	164	36	0
64	Original	7/17/2018	0.13	172	37	187	22	2
65	Original	6/28/2018	0.13	267	58	301	24	2
66	Original	7/13/2018	0.06	167	13	159	21	0
67	Original	7/31/2018	0.06	852	255	1005	102	0
68	Original	7/17/2018	0.06	174	43	175	42	5
69	Original	7/12/2018	0.06	202	57	232	27	9
70	Original	7/17/2018	0.06	258	51	270	39	5
71	Original	7/13/2018	0.00	51	11	47	15	1
72	Original	7/12/2018	0.00	49	14	53	10	1
73	Original	7/9/2018	6.52	2316	387	2605	98	0
74	Original	6/4/2018	6.52	1115	190	1232	73	0
75	Original	7/6/2018	6.52	1523	485	1897	111	0
76	Original	7/20/2018	6.52	1391	442	1770	63	0
77	Original	7/9/2018	6.52	1606	499	1997	108	1
78	Original	7/9/2018	6.52	2793	456	3120	129	1
79	Original	7/9/2018	6.52	2729	548	3129	148	9
80	Original	6/20/2018	6.52	2476	580	2910	146	2

81	Original	7/6/2018	6.52	1990	463	2321	132	0
82	Original	6/20/2018	6.52	1385	337	1628	94	2
83	Original	6/20/2018	2.86	553	108	582	79	10
84	Original	6/20/2018	2.86	414	76	448	42	6
85	Original	7/9/2018	2.86	628	115	697	46	5
86	Original	6/4/2018	2.86	426	89	446	69	0
87	Original	7/9/2018	2.86	509	111	550	70	6
88	Original	6/20/2018	2.86	368	80	399	49	14
89	Original	8/3/2018	2.86	1171	197	1294	74	0
90	Original	6/4/2018	2.86	602	111	633	80	0
91	Original	7/6/2018	0.00	260	54	288	26	3
92	Original	7/6/2018	0.00	220	41	233	28	5
93	Original	8/1/2018	0.64	500	87	519	68	14
94	Original	6/22/2018	0.64	2058	470	2437	91	0
95	Original	7/19/2018	0.64	881	313	1024	170	18
96	Original	7/6/2018	0.64	1339	510	1777	72	1
97	Original	6/5/2018	0.64	1637	297	1806	128	0
98	Original	7/20/2018	0.64	598	99	673	24	0
99	Original	6/5/2018	0.64	1376	269	1552	93	0
100	Original	6/22/2018	0.64	1099	147	1209	37	2
101	Original	8/1/2018	0.27	305	71	330	46	0
102	Original	7/6/2018	0.27	556	86	607	35	0
103	Original	6/5/2018	0.27	551	71	570	52	0
104	Original	7/18/2018	0.00	98	14	95	17	5
105	Original	8/1/2018	0.00	179	57	214	22	0
106	Original	8/1/2018	0.00	140	31	145	26	13
107	Original	7/19/2018	0.33	971	479	1358	92	0
108	Original	7/23/2018	0.33	1113	556	1607	62	1
109	Original	7/19/2018	0.33	926	563	1433	56	1
110	Original	7/23/2018	0.33	752	471	1159	64	0
111	Original	6/11/2018	0.33	770	392	1086	76	3
112	Original	7/19/2018	0.13	232	76	256	52	5
113	Original	6/27/2018	0.13	241	66	288	19	10
114	Original	6/27/2018	0.13	248	53	273	28	8
115	Original	6/18/2018	0.13	308	96	333	71	2
116	Original	6/18/2018	0.00	183	47	182	48	1
117	Original	6/27/2018	0.00	50	6	45	11	0
118	Original	6/18/2018	0.00	173	61	185	49	1
119	Original	7/24/2018	0.21	198	66	225	39	1
120	Original	6/26/2018	0.21	127	53	173	7	0
121	Original	6/26/2018	0.07	390	74	411	53	3
122	Original	6/26/2018	0.07	220	32	228	24	7
123	Original	6/29/2018	0.07	105	26	112	19	5

124	Original	6/26/2018	0.07	342	83	362	63	1
125	Original	6/29/2018	0.00	46	6	42	10	2
126	Original	8/2/2018	0.00	138	29	141	26	0
127	Original	8/6/2018	0.04	262	148	356	54	0
128	Original	6/15/2018	0.04	391	208	541	58	0
129	Original	6/15/2018	0.04	264	133	364	33	3
130	Original	6/20/2018	0.02	156	42	152	46	0
131	Original	6/15/2018	0.00	268	88	264	92	3
132	Original	6/20/2018	0.00	203	62	206	59	0
133	Original	6/11/2018	0.13	146	64	179	31	1
134	Original	7/25/2018	0.07	619	157	686	90	0
135	Original	7/25/2018	0.07	354	117	401	70	5
136	Original	8/2/2018	0.07	190	76	209	57	0
137	Original	7/12/2018	0.07	209	77	228	58	0
138	Original	7/25/2018	0.07	534	199	615	118	0
139	Original	7/23/2018	0.07	262	71	282	51	11
140	Original	7/25/2018	0.07	179	66	215	30	1
141	Original	7/25/2018	0.00	39	12	42	9	0
142	Original	7/25/2018	0.00	153	42	170	25	1
143	Original	7/25/2018	0.00	85	13	78	20	0
144	Original	8/2/2018	0.00	73	20	59	34	0
145	Original	6/15/2018	0.01	66	6	61	11	4
146	Original	6/15/2018	0.01	256	47	265	38	2
147	Original	7/24/2018	0.01	235	29	234	30	1
148	Original	7/25/2018	0.01	286	39	295	30	0
149	Original	7/24/2018	0.00	186	39	191	34	2
150	Original	8/6/2018	0.00	40	10	42	8	2
Totals				74659	20555	87603	7611	525

Appendix F.

Mini-Survey Data

County	Intersection Description	2011	2012	2013	2014	2015	2016	2017	2018
Barren	I-65 at Exit 53	89	91	91	89	91	90	88	96
Meade	US 31W at KY 1638	82	85	88	88	89	88	88	91
Grayson	KY 259 at US 62	81	81	84	85	85	79	85	85
Logan	US 68 at US 79	81	79	84	83	82	86	83	83
Hopkins	Pennyrile Parkway at Exit 44	87	87	87	91	91	95	91	93
Henderson	Us 41A at 5th St.	83	84	85	85	88	80	88	90
Calloway	KY 1637 at 16th	79	82	82	85	88	88	85	90
Shelby	I-64 at Exit 28	86	89	88	93	95	94	93	97
Woodford	US 60 at US 62	89	84	94	93	89	93	88	94
Oldham	KY 146 at KY 329B	89	89	88	90	92	92	94	91
Franklin	KY 2820 at US 127	75	80	87	87	79	73	84	74
Kenton	I-75 at Exit 186	88	88	91	92	92	93	93	95
Jefferson	US 31W at KY 841	79	78	85	87	87	84	88	86
Boone	US 42 at US 25	84	87	86	87	88	91	88	88
Boyd	I-64 at Exit 185	85	86	84	90	91	85	88	91
Lincoln	US 27 at US 150	77	80	86	86	82	87	82	88
Carter	US 60 at KY 7	72	78	80	81	81	80	83	84
Floyd	KY 680 at KY 122	60	60	70	71	68	63	66	66
Rowan	I-64 at Exit 137	84	86	84	89	89	83	92	95
Laurel	US 25E at US 25	79	79	79	81	85	82	83	83
Pulaski	KY 80 at KY 2296	76	84	79	81	85	88	84	90
		82.2	83.4	85.8	87.4	87.6	87.2	87.5	89.4