Research Report
KTC-08-26/KSP1-08-2F

KENTUCKY TRANSPORTATION CENTER

2008 SAFETY BELT USAGE SURVEY IN KENTUCKY

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College of Engineering

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Continuous Improvement
In all that we do.

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2008 SAFETY BELT USAGE SURVEY IN KENTUCKY

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Commonwealth of Kentucky

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EXECUTIVE SUMMARY

The objective of this study was to establish 2008 safety belt and child safety seat usage rates in Kentucky. The 2008 survey continues to document the results after enactment of the initial "secondary enforcement" statewide mandatory safety belt law in 1994 and the subsequent change to "primary enforcement" which was enacted in 2006. Data were collected at 200 randomly selected sites spread across Kentucky. Data from the individual sites were combined into a statewide percentage considering roadway functional classification, geographic region, and vehicle miles traveled.

The data show that the usage rate in 2008 (73.3 percent) increased compared to 2007 (71.8 percent). Considering data taken after the original statewide law, this compares to 67 percent in 2006 and 2005, 66 in 2004 and 2003, 62 percent in 2002 and 2001, 60 percent in 2000, 59 percent in 1999, 54 percent in 1998, 1997 and 1995, 55 percent in 1996, and 58 percent in 1994. The current usage is substantially above the 1993 level, prior to enactment of the original statewide law, of 42 percent.

The 2008 statewide usage rate for children under the age of four was determined to be 98 percent.

Usage varies by highway functional classification. The highest rate of 82 percent was found on rural interstates with the lowest rate of 65 percent on rural local and collector roads.

Usage also varied by region of the state and by vehicle type. The lowest usage rate was found in the east region and for pickups with the highest usage in the north region and for vans. The range in usage varied from 52 percent for pickups in the east region to 81 percent for vans in the north region.

1.0 INTRODUCTION AND BACKGROUND

The use of safety belts and child safety seats has been shown to be an effective means to reduce the injuries of motor-vehicle occupants involved in a traffic crash. There have been various methods used in an attempt to increase safety belt and safety seat usage. Past efforts have included public information campaigns, both local and statewide legislation, and enforcement of the legislation. Examples of statewide enforcement and education campaigns are the “Click It or Ticket” and “Buckle Up Kentucky: It’s the Law & It’s Enforced” campaigns conducted around Memorial Day in recent years. The most recent legislation in Kentucky in this area was changing the statewide legislation requiring the use of safety belts for all vehicle occupants from secondary to primary enforcement. A statewide law including secondary enforcement was passed in 1994 with the primary enforcement law passed in 2006. The 2006 primary enforcement included an educational period with warning citations through December 2006 with citations with fines starting in January 2007.

The first legislation in this area was a law enacted by the 1982 Kentucky General Assembly requiring use of a "child restraint system" for children 40 inches or less in height. The 1988 Kentucky General Assembly strengthened this law by adding a fine. Next, prior to the statewide law, local safety belt usage laws were enacted in several jurisdictions in Kentucky. The first such local law, with an effective date of July 1990, was enacted by the Lexington-Fayette Urban County Government. Prior to the statewide law, the combined population of the counties and cities having a local ordinance represented approximately one-third of the statewide population. The original statewide law in 1994 replaced the various local ordinances.

Statewide observational surveys were first conducted in Kentucky in 1982 and have been conducted annually to document safety belt and safety seat usage. The safety belt usage rate for drivers increased each survey year from only four percent in 1982 to 58 percent in 1994 after enactment of the statewide law. The first decrease was in 1995 when usage decreased to 54 percent with the rate remaining fairly constant at 54 to 55 percent for 1996 through 1998. The rate then increased to 59 percent in 1999, 60 percent in 2000, 62 percent in 2001 and 2002, 66 percent in 2003 and 2004, 67 percent in 2005 and 2006 and 72 percent in 2007..

Statewide usage of child safety seats 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 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 such as 72 percent in 1994, 82 percent in 1997, and 98 percent in 2007. However, while usage rates are very high, studies have found problems with the proper use of child safety seats.

The objective of the survey summarized in this report was to establish statewide safety belt and child safety seat usage rates in Kentucky for 2008. These rates can be compared to those determined from previous surveys.

The 2008 statewide survey continues to document the change in usage associated with the change in the law to allow primary enforcement (enforcement with a penalty started in January 2007). The statewide survey data can also be compared to data taken before and during education and enforcement activities occurring around Memorial Day. Mini-surveys (taken at 21 of the 200 statewide sites) found the usage rate increased from a baseline of 74.6 percent in April 2008 to 75.7 percent during the enforcement portion of the "Click It or Ticket" campaign. Data collected for the statewide survey summarized in this report were taken in the weeks immediately after completion of the campaign's enforcement and publicity activities.

2.0 PROCEDURE

2.1 DATA COLLECTION PROCEDURE

The original data collection procedure used in the surveys, which started in 1982, was first modified for the 1990 survey. The site selection procedure used for the first several surveys was changed to obtain a more representative statewide sample, as well as to use a procedure that would be comparable to surveys taken in other states. The data collection form was changed along with the site selection procedure. The procedure and data collection form remained the same for the 1990 through 1998 surveys. A modification starting with the 1999 survey was that the age and sex of the driver and front seat occupants were not classified. The type of vehicle was coded instead of the age and sex information.

The data collection form first used in the 1999 survey is shown in Figure 1. This form was used for the 2008 survey. Safety belt usage is recorded for drivers as well as front-seat passengers sitting in the outboard position. These occupant positions are equipped with the combination lap belt/shoulder harness type of safety belt which enables observations to be performed more easily than positions equipped only with a lap belt. The exception is for children under four years of age with data collected for both the front and rear seats.

The type of vehicle is coded for drivers and front seat passengers. Four categories of vehicles are used. These are: passenger car (PC), pickup (PU), van, and sports utility vehicle (SUV).

For drivers and front-seat passengers (over three years of age), usage is classified as either using a harness or belt or not using a restraint. For children one to three years of age, the categories include safety seat, booster seat, harness or belt, or no restraint. For children under one year of age, the categories are either safety seat or no restraint.

Two additional types of information are obtained. Starting with the 1993 survey, the use of motorcycle helmets was noted. The 1997 survey was the first in which the use of bicycle helmets was noted.

Each data collector is provided with a training period prior to beginning data collection. As part of the training, the data collectors review the guidelines and previous reports and collect trial sets of field data. The observers then collect data simultaneously at a sample of different types of locations. The data were then reviewed by the project manager before formal data collection was started.

The quality control of the data was the responsibility of the project manager. This included a review of completed data collection forms as the survey progressed to check for any problem areas or questionable data.

The following list of guidelines for data collection was given to each observer.

1. Include the driver so the number of vehicles included in the sample will be known.

2. Data are typically collected at intersections with each observer collecting data on only one approach at the intersection.

3. Include all vehicles on the approach at low-volume locations. When taking data on a multi-lane road, generally include only vehicles in the curb or near lane unless the traffic volume and roadway geometrics allow data to be collected in the next lane.

4. If traffic volume is too high to obtain data for all vehicles, record data for the next vehicle in view after recording the previous data.

5. Obtain a random sample of vehicles independent of whether the occupants are wearing a safety belt. Do not attempt to include all vehicles having an occupant wearing a safety belt at a location where all vehicles cannot be obtained.

6. Attempt to include data for children under four years of age for any vehicle in the sample in which such a child is a passenger.

7. Only include vehicles either stopped or moving slowly or from an observation point such that the occupants can be readily observed.

8. Excluding children under four years of age, collect data only for drivers and for passengers in the right-front seat (exclude the center front and rear seating positions).

9. Do not include old vehicles not equipped with a safety belt (typically those vehicles without a head rest).

10. Collect data during daylight hours on weekdays and weekends.

11. Collect two "observer hours" of data at each site. This could be two hours for one approach or one hour for two approaches if the route has two approaches at the intersection.

12. Begin and end data collection at a specified time not considering whether the occupants of the first vehicle are using a safety belt.

13. Collect data for specified types of passenger motor vehicles (cars, pickup trucks, vans, and sport utility vehicles). Data are not collected for combination trucks.

14. Collect data for both in-state and out-of-state vehicles.

15. If a problem such as weather or road construction prevents data from being collected on the assigned day and time for a specific location, a new day and time will be randomly selected by the project manager for data collection.

16. The time period in which data are collected at specific sites are randomly assigned to the data collectors by the project manager. Data are typically collected during weekdays with occasional data collected on a weekend.

Data collection was started after June 1 which was the end of the education and enforcement activities associated with the Memorial Day holiday, and continued through the first week of August. As noted, data were collected for two hours at each location. This consisted of either two hours for one observer or one hour using two observers on different approaches for the specified route. The decision was made to collect data for an equal time period for each location rather than attempt to collect a given sample size.

2.2 DATA COLLECTION LOCATIONS

Data for the surveys collected from 1982 through 1989 were conducted at 23 sites in 19 cities. The cities were selected so that they were distributed across the state. These cities were also selected to represent a range of population categories to account for social and economic factors. In order to relate the survey results to data taken in other states and to include all types of roadways, it was necessary to expand the number of sites to include data in rural locations and for interstates. An initial change was made in 1990 and resulted in 100 sites. The distribution of the sites was based on vehicle miles traveled statewide for various categories of roads in counties with varying populations. The variables considered in the 1990 stratification process were the rural or urban designation of the road, the functional classification of the road, vehicle miles traveled, and the county population. However, a new sampling design plan was implemented in

1999 as part of a nationwide effort by the National Highway Traffic Safety Administration (NHTSA) to use a common methodology in all states to select observational sites.

As part of the sampling design plan started in 1999, the decision was made to collect data at 200 sites. It was also decided that data would typically be obtained at intersections. For interstates and parkways, data were generally taken at the intersection of a ramp with a cross road. The basis for collecting data at intersections was that it would increase accuracy since data would be collected for vehicles either stopped or moving slowly. A computer file was used to select the locations. The file is the Highway Performance Monitoring System (HPMS). Characteristics of road segments for all state maintained roads are contained in this file. In order to assure that the sampling design used an acceptable methodology, the various decisions made in the process were made with consultation with NHTSA representatives with the roadway segments containing the data collection sites selected by NHTSA.

Kentucky has 120 counties ranging in population from slightly over 2,000 to almost 700,000 (at the time of the methodology development). The NHTSA guidelines allow exclusion from the survey coverage of the least populated units (counties in Kentucky) which represent 15 percent of the state's population. This exclusion reduced the number of counties in the sample from 120 to 65. All the road segments contained in the HPMS file in the counties representing 85 percent of the population were eligible for inclusion in the survey.

Road segments were stratified into three geographical regions based on highway district. There are 12 highway districts in Kentucky. Roadways in each of the three regions were divided into seven roadway functional classification groups. This resulted in 21 stratum from which the sample was selected. The geographical regions were:

Region 1: Highway Districts 1 through 4 (represents the western portion of the state),
Region 2: Highway Districts 5 through 7 (covers the north central area of the state which includes the major population centers of Louisville, Lexington, and northern Kentucky), and
Region 3: Highway Districts 8 through 12 (includes the eastern and south central portion of the state)

There are 44 counties in Region 1, 31 in Region 2, and 45 in Region 3. The state's population is divided into 29 percent in Region 1, 46 percent in Region 2, and 25 percent in Region 3. For reporting purposes, Region 1 is referred to as the West, Region 2 as the North, and Region 3 as the East. The locations of these regions are shown in Figure 2.

The following seven functional classification categories were used:

1. rural interstate,
2. rural principal arterial,
3. rural minor arterial/major collector,
4. rural minor collector/local,
5. urban interstate/freeway,
6. urban principal arterial, and
7. urban minor arterial/collector/local.

Selections were made from roadway segments which contained either an interchange, an intersection with a stop sign, an intersection with a traffic signal, or a combination of these features. A segment could contain more than one intersection or interchange. If a segment had more than one intersection with a stop sign or signal or interchange, one intersection was randomly selected. For example, if a segment had three intersections with signals, a separate number of one, two, or three was randomly selected. The random number assigned the intersection to be selected for data collection (along the route as it was driven in its cardinal direction).

An equal probability selection (simple random sample) of the road segments was made within each of the 21 strata using the HPMS file as the source of the necessary road segment information. Following is the number of segments selected in each strata.

	Region 1	Region 2	Region 3	All
Rural Interstate	8	12	6	26
Rural Principal Arterial	12	6	12	30
Rural Minor Arterial/ Major Collector	12	10	12	34
Rural Minor Collector/Local	8	6	8	22
Urban Interstate/Freeway	6	20	2	28
Urban Principal Arterial	10	14	6	30
Urban Minor Arterial/ Collector/Local	10	14	6	30
All	66	82	52	200

For each selected road segment, information was printed from the HPMS file to be used to select a specific location for data collection. This information included the county, route, beginning and ending milepoint, the number of intersections or interchanges within the segment, and a counter showing which intersection or interchange to select if there was more than one within the segment.

A list of the 120 counties in Kentucky along with their population, the number of sites in

each county, and their region in the state is given in Appendix A. A road segment was selected in 58 counties. The largest number of segments was 20 in Jefferson County. A list of the intersections or interchanges where data was collected within each of these segments is given in Table 1. For each site, the county, route, and intersecting route (or exit number for an interstate or parkway) are given. The nearest town to the data collection site is also listed along with the geographical region and functional classification. For interstates, data were typically collected at the intersection of the ramps and the intersecting road at interchanges. The exception was for some rural interstate interchanges where there were very few exiting vehicles with data collected on the mainline at these locations.

The observation sites were randomly ordered to assist in the sequence of sites at which data were collected. When the data were collected, some of the sites were grouped based on geographical region to aid the efficiency of the data collection process.

2.3 SURVEY DATA ANALYSIS

As part of the summary of information from the HPMS file for each randomly selected roadway segment, the functional classification, region, and vehicle miles traveled for that segment were listed. The total vehicle miles for the road segments in each of the 21 stratum were also summarized and were used in the estimation process.

The survey data were input into an EXCEL spreadsheet to summarize the data and obtain the results. The results for each survey site were reviewed to determine if there were any possible problems with either the data collection or input. The computer results were checked manually if a potential problem was observed. A second set of data was collected if the data at a specific site was substantially inconsistent with other data.

Safety belt usage rates were determined for the driver and for all front-seat occupants. Rates were also obtained by vehicle type for both the driver and all front-seat occupants. For children under four years of age, usage rates were obtained for both front- and rear-seating positions, as well as for combined seating positions. Statewide rates were obtained, using an EXCEL spreadsheet analysis, by weighting the usage determined for each location by the vehicle miles traveled in the road segment.

Various usage rates were determined for each location. The rates were for drivers, front seat passengers, all front-seat occupants, and all children under four years of age (front and rear). The rate for each of the 21 stratum (based on region and functional classification categories) were determined by weighting the usage rate for each location by the proportion of the vehicle miles traveled at that location of the vehicle miles at all observational sites in the stratum.

A statewide rate was then determined using the usage rate determined for each stratum and the total vehicle miles traveled in that stratum (statewide for the counties representing 85 percent of the population). The statewide rate was the sum of the products of the usage rate for each stratum and the proportion of the vehicle miles traveled in that stratum of the total statewide vehicle miles.

A consultant was initially used to review the procedures necessary to conduct the various statistical tests. The variance, bound by the error of estimation (which is half of the 95 percent confidence interval), and relative error were calculated for the statewide usage rate for all front seat passengers. These data were also determined for each of the 21 strata, the three regions, and the seven functional classes. The software initially used in this analysis was Statistical Analysis Software (SAS) for Windows, version 8. An EXCEL spreadsheet analysis is currently used to obtain the necessary statistical tests. The relative error and confidence interval was also determined at each location for the usage rate found for all front seat occupants.

3.0 SURVEY RESULTS

Usage rates for all front seat occupants (drivers and passengers) for the various types of highways and regions of the state are summarized in Table 2. The overall statewide rate in 2008, using the data collected at 200 sites and the described weighting procedure, was 73.3 percent. The 95 percent confidence interval was 0.3 percent. The sample size of all front seat occupants was 130,335. The usage rate by region varied from 77.2 percent in Region 2 (north) to 63.4 percent in Region 3 (east) with 74.0 percent in Region 1 (west). Compared to 2007, there was an increase of 3.0 percent in the west region, 1.0 percent in the north region, and 0.6 in the east region with an overall increase of 1.5 percent in 2008.

The highest rate by the functional classification of the highway was 81.8 percent for rural interstates with the lowest 64.6 percent for rural minor collector/local roads. The relative error and confidence interval for the usage rates found for all front seat occupants (by region and highway functional classification) are given in Appendix B.

Usage rates for drivers for the various types of highways and regions of the state are summarized in Table 3. The overall statewide rate for drivers in 2008 was 73.9 percent. Drivers accounted for 79 percent of front seat occupants so they dominated the percentage determined for all front seat occupants. Usage rates for front seat passengers was 70.9 percent (Table 4).

Usage rates for children under four years of age are given in Table 5. These rates are for children in both the front and the rear seats. The usage rate for children under one year of age (99.2 percent) was slightly higher than that for children one to three years of age (97.7 percent). The usage rate for the combination of these categories, or children under four years of age, was 98 percent.

The sample size for children under four years of age was 1,265. This age category corresponds to the children for which the mandatory child restraint law would apply. The 2008 usage rate of 98 percent continues the previous high of 98 percent in 2007. This percentage was about 15 percent in 1982 before enactment of the child restraint law, increased to approximately 30 percent after enactment of the law having no penalty, and increased again to almost 50 percent in 1988 after the addition of a monetary penalty to the child restraint law.

The usage rate for children under four years of age was higher in the rear seat compared to the front seat. For children one to three years of age, the usage rate was 98 percent for the rear seat compared to 86 percent for the front seat. For children under one year old, the usage rate was 99 percent for the rear seat compared to 91 percent for the front seat. The large majority of children were sitting in the rear seat for both age groups (about 87 percent for one to three years of age and 93 percent for under one). The overall percentage of children in the rear seat of 89 percent in 2008 compares to 93 percent in 2007, 86 percent in 2006, 90 percent in 2004 and 2005, and 88 percent in 2003.

A summary of the data collected is given in Appendix C. For each of the 200 data collection sites, the usage rate and sample size are given for all front seat occupants, drivers, front-seat passengers, and children under four years of age (both front and rear seat). The relative error and confidence interval are given for the "all front seat occupant" category. Usage rates for front seat occupants ranged from 46 percent (a rural location in Adair County) to 88 percent (a rural interstate location in Hardin County and an urban interstate location in Jefferson County). There were only 17 sites which had a usage rate of under 60 percent with all but one a rural location. The one urban location was on a local road. Thirteen of these 17 locations were in the east region. There were 47 sites which had a usage rate of 80 percent or more with all except two an interstate or parkway. The highest rate found on a non-interstate or parkway was 82 percent at an urban location in Boone County.

While the data collection procedure changed in 1990 and 1999, the usage rate may still be compared to the statewide rates from past years (Table 6). The previous studies showed that statewide driver usage rates steadily increased from four percent in 1982 to 42 percent in 1993. However, the amount of the yearly increase decreased over this time period. There was a three percentage point increase in the two-year period from 1991 to 1993. The 58 percent usage in the 1994 survey showed that a dramatic 16 point increase occurred between the 1993 and 1994 data collection periods. This increase was directly related to the enactment of a statewide safety belt law. The 1995 survey showed that usage (54 percent) remained substantially higher than before enactment of the law, but there was a slight decrease from the 1994 rate immediately after enactment of the law. This level continued through 1998, before an increase to 59 percent in 1999. The increase in usage continued with 60 percent in 2000, 62 percent in 2001 and 2002, 66 percent in 2003 and 2004, and 67 percent in 2005 and 2006. The next substantial increase occurred in 2007 (to 72 percent) with this increase related to the change in July 2006 to a primary safety law (with enforcement with fines started in January 2007). There was a continued increase to 73 percent in 2008.

A substantial difference in usage rate (for all front seat occupants) was noted when vehicle type is considered (Table 7). The rate varied substantially from 79.1 percent for vans to 60.4 percent for pickup trucks. The rate for sport utility vehicles was 76.9 percent with 76.6 percent for passenger cars. It can be seen that use of safety belts is much lower in pickup trucks than any other vehicle type, and pickup trucks made up about 22 percent of the sample. The largest portion of the sample was for passenger cars with 48 percent followed by 20 percent for sport utility vehicles and 10 percent for vans.

Combining vehicle type and region shows the range in usage. The lowest usage was 51.5 percent for pickup truck in the east region with the highest 81.2 percent for vans in the north region.

Helmet use by motorcyclists was also observed. Kentucky had a statewide law requiring the use of a helmet by a motorcyclist until it was repealed starting July 1998. The results of surveys taken during the mandatory usage period had found a usage rate of over 95 percent. Data were taken in 1998 both before and after the effective date of the repeal with usage decreasing from 96 percent before to 76 percent after the repeal date.

In 1999, a sample of 452 motorcyclists resulted in a weighted statewide usage rate of 65 percent. The weighted rate for 2000 was 70 percent with a sample size of 427. The weighted rate decreased to 56 percent in 2001 with a sample size of 395, 57 percent in 2002 with a sample size of 596, 56 percent in 2003 with a sample size of 512, 58 percent in 2004 with a sample size of 631, 59 percent in 2005 with a sample size of 918, 60 percent in 2006 with a sample size of 949 and 56 percent in 2007 with a sample size of 897.

Motorcycle helmet usage was very similar in 2008 to the previous several years with a usage rate of 58 percent. The sample size was 1,244. The usage rate was highest in the north region of the state with 60 percent compared to 56 percent in the east and 55 percent in the north regions. The increase in the sample size in recent years reflects the increase in the use of motorcycles.

Bicycle helmet use was observed while the safety belt data were being collected. There were only 62 bicyclists observed in 2008 with 21 wearing a helmet (34 percent). This rate compared to 29 percent in 2007, 43 percent in 2006, 14 percent in 2005, eight percent in 2004, 19 percent in 2003, nine percent in 2002, and 18 percent in 2001. The very small sample size does not allow any conclusion about trends but does support the opinion that the usage rate has been very low.

4.0 CONCLUSIONS

Observations were taken at 200 sites across Kentucky to obtain statewide safety belt usage rates. The 2008 survey resulted in a sample size of 130,335 front seat occupants (including 103,040 drivers). The data collection procedure and site selection criteria were based on national criteria. The usage rate observed for all front seat occupants was 73.3 percent.

A "secondary enforcement" statewide safety belt law was passed in Kentucky in 1994 with a law allowing "primary enforcement" enacted in 2006. The 2006 law allowed fines starting in January 2007 after an education period from July through December 2006. The law applies to all vehicle occupants. Prior to the original 2004 statewide law, there were local ordinances passed in several cities and counties which covered approximately one-third of the statewide population. The data collected in 1994, after the effective date of the statewide law, showed that enactment of the statewide law had a dramatic effect on usage rates. The usage rate for front seat occupants increased from 42 percent in 1993 to 58 percent in 1994. It then decreased slightly to about 54 percent in 1995 through 1998. The usage rate of 59 percent in 1999 showed that the rate had increased to a level similar to that found immediately after enactment of the statewide law. There was a small increase in usage to 60 percent in 2000 with an increase to 62 percent in 2001 and 2002. The rate then increased to 66 percent in 2003 and 2004, and 67 percent in 2005 and 2006. The usage after enactment of the primary law was 72 percent in 2007 and 73 in 2008. The trend in usage rates from 1982 through 2008 is given in Table 6.

The usage rate was highest in the region of the state which included the largest population centers (Louisville, Lexington, and northern Kentucky). Usage was highest on interstates and lowest on local roads. When type of vehicle was considered, usage was highest for vans and lowest for pickup trucks.

The statewide usage rate for children under the age of four (including both the front and rear seat) was determined to be 98 percent in 2008. This compares to 98 percent in 2007, 94 percent in 2005 and 2006, 96 percent in 2004, 95 percent in 2003, 93 percent in 2002, 89 percent in 2001, and 87 percent in 2000. One reason for the very high usage for small children is that primary, rather than secondary, enforcement has applied for many years.

The motorcycle helmet law was repealed in 1998. There had been a very high compliance with the requirement to wear a helmet (over 95 percent), but the helmet usage percentage has decreased to 58 percent in 2008. This shows the large decrease in usage related to the repeal of the mandatory usage law. The percentage of a very small sample of bicyclists wearing a safety helmet was low.

5.0 RECOMMENDATIONS

The data show that the level of safety belt usage in 2008 is the highest since the start of the surveys in 1982. The rate of 73.3 percent in 2008 was an increase from the 71.8 percent rate in 2007. The large increase in 2007 compared to 67.2 percent in 2006 can be related to enactment of the primary safety belt law (with fines starting in January 2007) and related education and enforcement activities.

The statewide usage rate of 73.3 percent (with 75.6 percent at the mini-survey portion of the statewide sample) decreased from 75.7 percent at the mini-survey locations during the "Click It or Ticket" enforcement campaign around Memorial Day. The data show that knowledge of an increased possibility of receiving a ticket is required for a certain segment of the driving population to increase their use of safety belts. The first step in obtaining a meaningful increase in safety belt use was achieved by changing the law from secondary to primary enforcement. The primary enforcement law must continue to be enforced with the associated fine (along with the necessary publicity) to provide an awareness to the public that the law is being enforced.

The survey data can be used to identify areas most in need of enforcement and education. Specifically, usage was lowest in the east region of the state. Also, usage was substantially lower for occupants of pickup trucks compared to other vehicle types. The usage rate for pickups in the east region of only 52 percent shows where emphasis should be placed.

The continued low usage rate for motorcycle helmets shows the negative results of the repeal of the mandatory helmet law. This, along with an increase in motorcycle use, corresponds to a dramatic increase in the number of injuries and fatalities in motorcycle crashes in recent years. The re-enactment of a motorcycle helmet law should be considered since it would be expected to improve the helmet usage rate and reduce the number of motorcycle injuries and fatalities in traffic crashes.

Figure 1. Data Collection Form

SAFETY BELT DATA COLLECTION FORM

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

Location:_____ Sheet #:_____

Observer:_____ Comment:_____

DRIVER USAGE

Vehicle	Harness or Belt	None
PC		
PU		
VAN		
SUV		

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

Vehicle	Harness or Belt	None
PC		
PU		
VAN		
SUV		

USAGE FOR CHILDREN (1-3 YEARS OF AGE)

Position	Safety Seat	Booster Seat	Harness or Belt	None
FRONT				
REAR				

USAGE FOR INFANTS (UNDER 1 YEAR OF AGE)

Position	Safety Seat	None
FRONT		
REAR		

USAGE OF MOTORCYCLE HELMET

YES	No

USAGE OF BICYCLE HELMET

YES	No

4/1998

Figure 2. Data Collection Location Regions

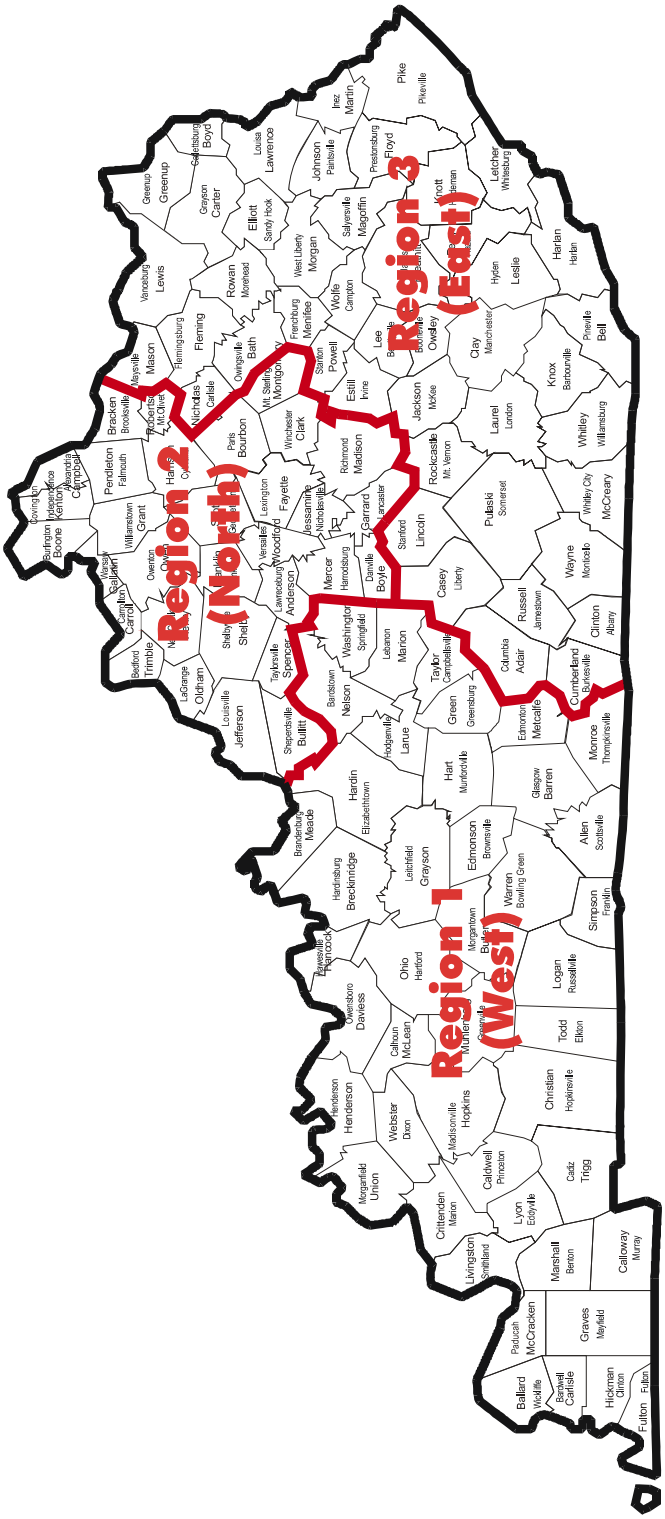

Table 1. SURVEY LOCATIONS

Site Number	Region	Functional Classification	County	Intersection Description	Nearest Town
1	West	Rural Interstate	Simpson	I-65 at Exit 6	Franklin
2	West	Rural Interstate	Christian	I-24 at Exit 86	Oak Grove
3	West	Rural Interstate	Barren	I-65 at Exit 48	Cave City
4	West	Rural Interstate	Hardin	I-65 at Exit 81	Sonora
5	West	Rural Interstate	Barren	I-65 at Exit 53	Cave City
6	West	Rural Interstate	Hardin	I-65 at Exit 102	Lebanon Junction
7	West	Rural Interstate	Marshall	I-24 at Exit 27	Lake City
8	West	Rural Interstate	Simpson	I-65 at Exit 2	Franklin
9	West	Rural Principal Arterial	Hardin	Bluegrass Parkway at I-65	Elizabethtown
10	West	Rural Principal Arterial	Marion	US 68 at KY 208	Lebanon
11	West	Rural Principal Arterial	Meade	US 31W at KY 1638	Muldraugh
12	West	Rural Principal Arterial	Warren	US 231 at KY 622	Bowling Green
13	West	Rural Principal Arterial	Hopkins	Western Kentucky Parkway at Exit 24	Dawson Springs
14	West	Rural Principal Arterial	Hopkins	Pennyrile Parkway at Exit 33	Nortonville
15	West	Rural Principal Arterial	Grayson	Western Kentucky Parkway at Exit 107	Leitchfield
16	West	Rural Principal Arterial	Marshall	Purchase Parkway at Exit 47	Draffenville
17	West	Rural Principal Arterial	Marshall	US 641 at KY 58	Benton
18	West	Rural Principal Arterial	Marshall	US 68 at US 641	Draffenville
19	West	Rural Principal Arterial	Graves	US 45 at KY 1276	Mayfield
20	West	Rural Principal Arterial	Marshall	US 641 at US 68	Draffenville
21	West	Rural Minor Arterial/Major Collector	Barren	US 31W at KY 70	Cave City
22	West	Rural Minor Arterial/Major Collector	Marion	KY 426 at US 68/KY 55	Lebanon
23	West	Rural Minor Arterial/Major Collector	Barren	US 31W at KY 90	Cave City
24	West	Rural Minor Arterial/Major Collector	McCracken	KY 286 at US 62	Bardwell
25	West	Rural Minor Arterial/Major Collector	McCracken	KY 305 at KY 358	Paducah
26	West	Rural Minor Arterial/Major Collector	Muhlenburg	KY 189 at US 62	Greenville
27	West	Rural Minor Arterial/Major Collector	Grayson	KY 259 at US 62	Leitchfield
28	West	Rural Minor Arterial/Major Collector	Muhlenburg	US 431 at KY 189	Central City
29	West	Rural Minor Arterial/Major Collector	Grayson	KY 259 at W. Lake	Leitchfield
30	West	Rural Minor Arterial/Major Collector	Breckinridge	KY 79 at KY 259	Harned
31	West	Rural Minor Arterial/Major Collector	Grayson	KY 79 at US 62	Caneyville
32	West	Rural Minor Arterial/Major Collector	Logan	US 431 at KY 663	Adairville
33	West	Rural Minor Collector/Local	Taylor	KY 3183 at KY 55	Campbellsville
34	West	Rural Minor Collector/Local	Logan	KY 1038 at KY 103	Auburn
35	West	Rural Minor Collector/Local	Henderson	KY 1299 at KY 425	Henderson
36	West	Rural Minor Collector/Local	Taylor	KY 527 at KY 3350	Campbellsville
37	West	Rural Minor Collector/Local	Logan	US 68 at US 79	Russellville
38	West	Rural Minor Collector/Local	Muhlenburg	US 62 at KY 181	Greenville
39	West	Rural Minor Collector/Local	Barren	KY 677 at KY 740	Three Springs
40	West	Rural Minor Collector/Local	Meade	KY 144 at KY 259	Rhodelia
41	West	Urban Interstate/Freeway	Hardin	Western Kentucky Parkway at US 31W	Elizabethtown
42	West	Urban Interstate/Freeway	Hardin	I-65 at Exit 94	Elizabethtown
43	West	Urban Interstate/Freeway	Christian	Pennyrile Parkway at Exit 8	Hopkinsville
44	West	Urban Interstate/Freeway	Hopkins	Pennyrile Parkway at Exit 44	Madisonville
45	West	Urban Interstate/Freeway	Daviess	US 60B at US 431	Owensboro
46	West	Urban Interstate/Freeway	Daviess	William Natcher Parkway at Exit 70	Owensboro
47	West	Urban Principal Arterial	McCracken	US 60 at I-24	Paducah
48	West	Urban Principal Arterial	Daviess	US 431 at 2nd Street	Owensboro
49	West	Urban Principal Arterial	Nelson	US 31E at KY 1430	Bardstown
50	West	Urban Principal Arterial	Barren	US 31E at US 68	Glasgow

Table 1. SURVEY LOCATIONS (continued)

Site Number	Region	Functional Classification	County	Intersection Description	Nearest Town
51	West	Urban Principal Arterial	McCracken	US 60/62 at Bridge Street	Paducah
52	West	Urban Principal Arterial	Warren	US 68/80 at KY 880	Bowling Green
53	West	Urban Principal Arterial	Warren	US 68/80 at Main Avenue	BowlingGreen
54	West	Urban Principal Arterial	Henderson	US 41A at 5th St.	Henderson
55	West	Urban Principal Arterial	Barren	US 31E at KY 90	Glasgow
56	West	Urban Principal Arterial	Hardin	US 31W at KY 1600	Elizabethtown
57	West	Urban Minor Arterial/Collector/Local	Hardin	KY 3005 at KY 1357	Elizabethtown
58	West	Urban Minor Arterial/Collector/Local	Barren	KY 63 at US 31EX	Glasgow
59	West	Urban Minor Arterial/Collector/Local	McCracken	KY 787 at US 62	Paducah
60	West	Urban Minor Arterial/Collector/Local	McCracken	KY 994 at Schneidman Road	Paducah
61	West	Urban Minor Arterial/Collector/Local	Logan	KY 3233 at US 79 & US 431 Truck Rte.	Russellville
62	West	Urban Minor Arterial/Collector/Local	Henderson	KY 136 at KY 285	Henderson
63	West	Urban Minor Arterial/Collector/Local	Calloway	KY 1327 at 16th Street	Murray
64	West	Urban Minor Arterial/Collector/Local	McCracken	US 45X (Broadway) at N.13th Street	Paducah
65	West	Urban Minor Arterial/Collector/Local	McCracken	US 45 at Clay Avenue (6th Street)	Paducah
66	West	Urban Minor Arterial/Collector/Local	McCracken	KY 994 at US 60/62	Paducah
67	North	Rural Interstate	Clark	I-64 at Rest Area	Winchester
68	North	Rural Interstate	Boone	I-75 at Exit 175	Richwood
69	North	Rural Interstate	Oldham	I-71 at Exit 22	LaGrange
70	North	Rural Interstate	Montgomery	I-64 at Exit 110	Mt. Sterling
71	North	Rural Interstate	Boone	I-75 at Exit 171	Walton
72	North	Rural Interstate	Boone	I-275 at Exit 11	Covington
73	North	Rural Interstate	Shelby	I-64 at Exit 35	Shelbyville
74	North	Rural Interstate	Franklin	I-64 at Exit 53	Frankfort
75	North	Rural Interstate	Bullitt	I-65 at Exit 121	Brooks
76	North	Rural Interstate	Shelby	I-64 at Exit 28	Simpsonville
77	North	Rural Interstate	Scott	I-64 at Exit 69	Georgetown
78	North	Rural Interstate	Oldham	I-71 at Exit 14	Brownsboro
79	North	Rural Principal Arterial	Boyle	US 150 at US 127 Bypass	Danville
80	North	Rural Principal Arterial	Woodford	US 60 at US 62	Versailles
81	North	Rural Principal Arterial	Scott	US 460 at US 62	Georgetown
82	North	Rural Principal Arterial	Woodford	Bluegrass Parkway at Exit 68	Versailles
83	North	Rural Principal Arterial	Jessamine	US 27 at US 27X	Nicholasville
84	North	Rural Principal Arterial	Bullitt	US 31E at KY 44	Mt.Washington
85	North	Rural Minor Arterial/Major Collector	Mercer	KY 33 at US 68	Pleasant Hill
86	North	Rural Minor Arterial/Major Collector	Oldham	KY 22 at KY 53	Ballardsville
87	North	Rural Minor Arterial/Major Collector	Boone	KY 14 at KY 16	Verona
88	North	Rural Minor Arterial/Major Collector	Oldham	KY 146 at KY 1817	Buckner
89	North	Rural Minor Arterial/Major Collector	Clark	KY 418 at KY 3371	Winchester
90	North	Rural Minor Arterial/Major Collector	Kenton	KY 536 at KY 177	Visalia
91	North	Rural Minor Arterial/Major Collector	Shelby	KY 44 at KY 53	Southville
92	North	Rural Minor Arterial/Major Collector	Grant	KY 467 at KY 22	Dry Ridge
93	North	Rural Minor Arterial/Major Collector	Scott	KY 32 at US 25	Georgetown
94	North	Rural Minor Arterial/Major Collector	Jefferson	US 60 at Beckley Station Road	Louisville
95	North	Rural Minor Collector/Local	Montgomery	KY 646 at KY 11	Camargo
96	North	Rural Minor Collector/Local	Montgomery	KY 1991 at KY 537	Mt. Sterling
97	North	Rural Minor Collector/Local	Boyle	KY 1273 at US 150	Danville
98	North	Rural Minor Collector/Local	Franklin	KY 2820 at US 127	Frankfort
99	North	Rural Minor Collector/Local	Campbell	KY 735 at KY 9	Mentor
100	North	Rural Minor Collector/Local	Jessamine	KY 3433 at KY 29	Wilmore

Table 1. SURVEY LOCATIONS (continued)

Site Number	Region	Functional Classification	County	Intersection Description	Nearest Town
101	North	Urban Interstate/Freeway	Jefferson	I-264 at Exit 8	Louisville
102	North	Urban Interstate/Freeway	Jefferson	I-264 at Exit 16	Louisville
103	North	Urban Interstate/Freeway	Jefferson	I-64 at Exit 5B	Louisville
104	North	Urban Interstate/Freeway	Fayette	I-64 at Exit 87	Lexington
105	North	Urban Interstate/Freeway	Jefferson	I-265 at Exit 17	Louisville
106	North	Urban Interstate/Freeway	Campbell	I-275 at Exit 77	Wilder
107	North	Urban Interstate/Freeway	Fayette	I-75 at Exit 104	Lexington
108	North	Urban Interstate/Freeway	Jefferson	I-265 at Exit 27	Louisville
109	North	Urban Interstate/Freeway	Boone	I-75 at Exit 180	Erlanger
110	North	Urban Interstate/Freeway	Kenton	I-75 at Exit 186	Crescent Springs
111	North	Urban Interstate/Freeway	Jefferson	I-64 at Exit 17	Louisville
112	North	Urban Interstate/Freeway	Clark	I-64 at Exit 96	Winchester
113	North	Urban Interstate/Freeway	Fayette	I-75 at Exit 108	Lexington
114	North	Urban Interstate/Freeway	Campbell	I-471 at Exit 2	Ft. Thomas
115	North	Urban Interstate/Freeway	Jefferson	I-264 at Exit 22	Louisville
116	North	Urban Interstate/Freeway	Kenton	I-275 at Exit 83	Erlanger
117	North	Urban Interstate/Freeway	Jefferson	I-65 at Exit 127	Louisville
118	North	Urban Interstate/Freeway	Kenton	I-75 at Exit 184	Erlanger
119	North	Urban Interstate/Freeway	Boone	I-275 at Exit 7	Hebron
120	North	Urban Interstate/Freeway	Jefferson	I-264 at Exit 5	Louisville
121	North	Urban Principal Arterial	Jefferson	US 31W at KY 841	Louisville
122	North	Urban Principal Arterial	Jefferson	US 31E at First Street	Louisville
123	North	Urban Principal Arterial	Fayette	Euclid Ave. at Upper Street (US 27)	Lexington
124	North	Urban Principal Arterial	Campbell	US 27 at KY 8 (4th Street)	Newport
125	North	Urban Principal Arterial	Scott	US 460 B at US 460	Georgetown
126	North	Urban Principal Arterial	Fayette	US 68 at Ft. Harrod Drive	Lexington
127	North	Urban Principal Arterial	Jefferson	US 150 at 7th Street	Louisville
128	North	Urban Principal Arterial	Jefferson	KY 1934 at KY 2051	Louisville
129	North	Urban Principal Arterial	Jefferson	US 31E at Tyler Lane	Louisville
130	North	Urban Principal Arterial	Jefferson	US 31W at Garrs Lane	Louisville
131	North	Urban Principal Arterial	Jefferson	US 31W at Ashby Lane	Louisville
132	North	Urban Principal Arterial	Jefferson	US 150 at Clay Avenue	Louisville
133	North	Urban Principal Arterial	Kenton	KY 16 at West 34th Street	Covington
134	North	Urban Principal Arterial	Campbell	KY 1120 at US 27	Newport
135	North	Urban Minor Arterial/Collector/Local	Woodford	US 60X at US 60	Versailles
136	North	Urban Minor Arterial/Collector/Local	Jefferson	KY 1020 at I-264	Louisville
137	North	Urban Minor Arterial/Collector/Local	Boone	KY 237 at KY 18	Burlington
138	North	Urban Minor Arterial/Collector/Local	Scott	US 62 at US 460	Georgetown
139	North	Urban Minor Arterial/Collector/Local	Bullitt	US 31EX at KY 44	Mt. Washington
140	North	Urban Minor Arterial/Collector/Local	Kenton	KY 17 at KY 16	Latonia
141	North	Urban Minor Arterial/Collector/Local	Jessamine	US 27X at Orchard Drive	Nicholasville
142	North	Urban Minor Arterial/Collector/Local	Jefferson	KY 864 at Breckinridge Street	Louisville
143	North	Urban Minor Arterial/Collector/Local	Boone	KY 3076 at Minola Pike	Florence
144	North	Urban Minor Arterial/Collector/Local	Boone	US 42 at US 25	Florence
145	North	Urban Minor Arterial/Collector/Local	Scott	KY 620 at US 25	Georgetown
146	North	Urban Minor Arterial/Collector/Local	Scott	KY 2906 at US 460	Georgetown
147	North	Urban Minor Arterial/Collector/Local	Kenton	KY 3070 at KY 16	Independence
148	North	Urban Minor Arterial/Collector/Local	Clark	US 60 at KY 89	Winchester
149	East	Rural Interstate	Whitley	I-75 at Exit 25	Williamsburg
150	East	Rural Interstate	Rockcastle	I-75 at Exit 62	Mt. Vernon

Table 1. SURVEY LOCATIONS (continued)

Site Number	Region	Functional Classification	County	Intersection Description	Nearest Town
151	East	Rural Interstate	Carter	I-64 at Exit 156	Olive Hill
152	East	Rural Interstate	Carter	I-64 at Exit 172	Grayson
153	East	Rural Interstate	Boyd	I-64 at Exit 181	Ashland
154	East	Rural Interstate	Boyd	I-64 at Exit 185	Ashland
155	East	Rural Principal Arterial	Letcher	US 119 at KY 15	Whitesburg
156	East	Rural Principal Arterial	Bell	US 25E at KY 66	Pineville
157	East	Rural Principal Arterial	Greenup	KY 8 at US 23 Truck Route	South Portsmouth
158	East	Rural Principal Arterial	Breathitt	KY 15 at KY 30	Jackson
159	East	Rural Principal Arterial	Harlan	US 421 at KY 72	Harlan
160	East	Rural Principal Arterial	Martin	KY 645 at KY 40	Inez
161	East	Rural Principal Arterial	Pike	US 460 at KY 1460	Pikeville
162	East	Rural Principal Arterial	Letcher	KY 15 at KY 15X	Whitesburg
163	East	Rural Principal Arterial	Harlan	US 119 at US 421	Harlan
164	East	Rural Principal Arterial	Knox	US 25E at KY 225/3439	Barbourville
165	East	Rural Principal Arterial	Harlan	US 119 at KY 2179	Cumberland
166	East	Rural Principal Arterial	Lincoln	US 27 at US 150	Stanford
167	East	Rural Minor Arterial/Major Collector	Greenup	KY 2 at US 23	Greenup
168	East	Rural Minor Arterial/Major Collector	Johnson	KY 172 at KY 40	Staffordsville
169	East	Rural Minor Arterial/Major Collector	Carter	KY 174 at US 60	Olive Hill
170	East	Rural Minor Arterial/Major Collector	Bell	KY 190 at US 25E	Pineville
171	East	Rural Minor Arterial/Major Collector	Letcher	KY 7 at KY 931	Isom
172	East	Rural Minor Arterial/Major Collector	Letcher	KY 317 at KY 7	Whitesburg
173	East	Rural Minor Arterial/Major Collector	Breathitt	KY 476 at KY 15	Jackson
174	East	Rural Minor Arterial/Major Collector	Carter	US 60 at KY 7	Grayson
175	East	Rural Minor Arterial/Major Collector	Lincoln	KY 618 at KY 39	Crab Orchard
176	East	Rural Minor Arterial/Major Collector	Pulaski	KY 80 at KY 837	Nancy
177	East	Rural Minor Arterial/Major Collector	Floyd	KY 1426 at KY 979	Harold
178	East	Rural Minor Arterial/Major Collector	Laurel	KY 1193 at KY 192	Baldrock
179	East	Rural Minor Collector/Local	Johnson	KY 689 at KY 172	Paintsville
180	East	Rural Minor Collector/Local	Floyd	KY 680 at KY 122	McDowell
181	East	Rural Minor Collector/Local	Whitley	KY 1481 at 204	Williamsburg
182	East	Rural Minor Collector/Local	Johnson	KY 1107 at KY 302	Van Lear
183	East	Rural Minor Collector/Local	Whitley	KY 1595 at KY 92	Siler
184	East	Rural Minor Collector/Local	Adair	KY 531 at KY 80	Columbia
185	East	Rural Minor Collector/Local	Clay	KY 638 at US 421	Manchester
186	East	Rural Minor Collector/Local	Laurel	KY 1006 at KY 192	London
187	East	Urban Interstate/Freeway	Laurel	I-75 at Exit 38	London
188	East	Urban Interstate/Freeway	Rowan	I-64 at Exit 137	Morehead
189	East	Urban Principal Arterial	Perry	KY 15 at KY 15X	Hazard
190	East	Urban Principal Arterial	Greenup	US 23 at KY 693	Flatwoods
191	East	Urban Principal Arterial	Laurel	US 25E at I-75	Corbin
192	East	Urban Principal Arterial	Boyd	US 23 at Mall Road	Ashland
193	East	Urban Principal Arterial	Boyd	US 23 at US 60	Ashland
194	East	Urban Principal Arterial	Laurel	US 25E at US 25	Corbin
195	East	Urban Minor Arterial/Collector/Local	Perry	KY 451 at KY 15X	Hazard
196	East	Urban Minor Arterial/Collector/Local	Pike	KY 1460 at KY 1426	Pikeville
197	East	Urban Minor Arterial/Collector/Local	Laurel	US 25 at KY 80	London
198	East	Urban Minor Arterial/Collector/Local	Greenup	KY 750 at KY 207	Flatwoods
199	East	Urban Minor Arterial/Collector/Local	Whitley	US 25W at KY 296	Williamsburg
200	East	Urban Minor Arterial/Collector/Local	Pulaski	KY 80 at KY 2296	Somerset

TABLE 2. USAGE RATE FOR ALL FRONT SEAT OCCUPANTS

	PERCENT USAGE			
	REGION			
FUNCTIONAL CLASSIFICATION	WEST	NORTH	EAST	ALL
Rural Interstate	84.6	81.2	80.0	81.8
Rural Principal Arterial	78.7	79.9	61.1	70.9
Rural Minor Arterial/Major Collector	66.9	73.0	58.4	65.4
Rural Minor Collector/Local	65.9	67.4	62.1	64.6
Urban Interstate/Freeway	81.5	80.2	77.5	80.3
Urban Principal Arterial	73.6	71.6	65.2	71.2
Urban Minor Arterial/Collector/Local	72.1	75.4	63.0	73.1
All	74.0	77.2	63.4	73.3

TABLE 3. USAGE RATE FOR DRIVERS

	PERCENT USAGE			
	REGION			
FUNCTIONAL CLASSIFICATION	WEST	NORTH	EAST	ALL
Rural Interstate	84.0	82.2	81.0	82.4
Rural Principal Arterial	79.5	80.7	61.8	71.6
Rural Minor Arterial/Major Collector	66.9	73.7	60.5	66.3
Rural Minor Collector/Local	66.7	67.3	63.1	65.3
Urban Interstate/Freeway	81.7	80.9	77.2	80.9
Urban Principal Arterial	72.9	72.2	66.8	71.7
Urban Minor Arterial/Collector/Local	73.5	75.8	63.5	73.7
All	74.2	77.8	64.7	73.9

TABLE 4. USAGE RATE FOR ALL FRONT SEAT PASSENGERS

	PERCENT USAGE			
	REGION			
FUNCTIONAL CLASSIFICATION	WEST	NORTH	EAST	ALL
Rural Interstate	85.9	77.8	76.2	79.5
Rural Principal Arterial	75.8	76.5	59.4	68.5
Rural Minor Arterial/Major Collector	67.0	70.2	52.2	62.6
Rural Minor Collector/Local	63.0	68.1	59.5	62.5
Urban Interstate/Freeway	80.7	77.2	78.6	77.6
Urban Principal Arterial	76.7	69.2	60.0	69.8
Urban Minor Arterial/Collector/Local	67.9	73.8	61.3	70.7
All	73.0	74.5	59.9	70.9

TABLE 5. USAGE RATE FOR CHILDREN UNDER FOUR YEARS OF AGE (FRONT AND REAR)

	PERCENT USAGE			
	REGION			
FUNCTIONAL CLASSIFICATION	WEST	NORTH	EAST	ALL
Rural Interstate	99.6	100	96.6	99.3
Rural Principal Arterial	100	100	84.5	93.0
Rural Minor Arterial/Major Collector	99.4	100	99.8	99.7
Rural Minor Collector/Local	96.5	100	100	98.6
Urban Interstate/Freeway	100	96.2	100	96.7
Urban Principal Arterial	99.3	99.7	100	99.6
Urban Minor Arterial/Collector/Local	100	96.9	97.3	97.8
All	99.3	98.1	94.7	97.7

TABLE 6. TREND IN STATEWIDE USAGE RATES

YEAR	PERCENT USING SAFETY BELTS		
	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

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

**Data not available.

TABLE 7. USAGE RATE BY TYPE OF VEHICLE (ALL FRONT SEAT OCCUPANTS)

FUNCTIONAL CLASSIFICATION	REGION			
	WEST	NORTH	EAST	ALL
Passengers Cars				
Rural Interstate	86.5	83.5	81.6	83.9
Rural Principal Arterial	83.6	82.2	64.6	74.8
Rural Minor Arterial/Major Collector	70.0	76.2	67.8	70.7
Rural Minor Collector/Local	73.1	72.3	61.5	68.2
Urban Interstate/Freeway	84.6	83.1	83.8	83.3
Urban Principal Arterial	76.3	74.9	67.1	74.2
Urban Minor Arterial/Collector/Local	76.4	77.1	66.0	75.6
All	77.8	79.9	67.6	76.6
Pickup Trucks				
Rural Interstate	71.5	69.7	64.3	69.2
Rural Principal Arterial	61.9	69.0	48.7	56.9
Rural Minor Arterial/Major Collector	55.7	58.3	47.0	53.3
Rural Minor Collector/Local	49.3	49.9	52.6	50.8
Urban Interstate/Freeway	69.2	67.1	62.8	67.3
Urban Principal Arterial	63.7	55.3	52.9	57.1
Urban Minor Arterial/Collector/Local	58.8	66.2	52.8	62.6
All	60.6	64.2	51.5	60.4
Vans				
Rural Interstate	89.5	87.3	90.2	88.3
Rural Principal Arterial	87.2	87.6	69.0	79.0
Rural Minor Arterial/Major Collector	76.9	78.6	65.4	73.2
Rural Minor Collector/Local	76.8	80.5	71.7	75.4
Urban Interstate/Freeway	81.2	80.7	80.8	80.8
Urban Principal Arterial	78.7	75.9	77.3	76.8
Urban Minor Arterial/Collector/Local	76.9	81.4	68.6	78.7
All	81.1	81.2	71.7	79.1
Sport Utility Vehicles				
Rural Interstate	89.4	84.0	86.7	85.8
Rural Principal Arterial	84.1	81.7	66.0	75.6
Rural Minor Arterial/Major Collector	71.0	80.7	61.0	69.8
Rural Minor Collector/Local	71.2	72.7	71.7	71.7
Urban Interstate/Freeway	86.8	82.3	78.3	82.7
Urban Principal Arterial	76.3	73.7	70.7	73.9
Urban Minor Arterial/Collector/Local	74.2	77.4	64.5	75.0
All	78.2	79.9	68.3	76.9

APPENDIX A

COUNTY POPULATIONS AND NUMBER OF DATA COLLECTION SITES

Table A-1. County Populations and Number of Data Collection Sites

COUNTY	POPULATION*	NUMBER OF SITES	REGION**
Adair	17,244	1	3
Allen	17,800	0	1
Anderson	19,111	0	2
Ballard	8,286	0	1
Barren	38,033	8	1
Bath	11,085	0	3
Bell	30,060	2	3
Boone	85,991	9	2
Bourbon	19,360	0	2
Boyd	49,752	4	3
Boyle	27,697	2	2
Bracken	8,279	0	2
Breathitt	16,100	2	3
Breckinridge	18,648	1	1
Bullitt	61,236	3	2
Butler	13,010	0	1
Caldwell	13,060	0	1
Calloway	34,177	1	1
Campbell	88,616	5	2
Carlisle	5,351	0	1
Carroll	10,155	0	2
Carter	26,889	4	3
Casey	15,447	0	3
Christian	72,265	2	1
Clark	33,144	4	2
Clay	24,556	1	3
Clinton	9,634	0	3
Crittenden	9,384	0	1
Cumberland	7,147	0	3
Daviess	91,545	3	1
Edmonson	11,644	0	1
Elliott	6,748	0	3
Estill	15,307	0	3
Fayette	260,512	5	2
Fleming	13,792	0	3
Floyd	42,441	2	3
Franklin	47,687	2	2
Fulton	7,752	0	1
Gallatin	7,870	0	2
Garrard	14,792	0	2
Grant	22,384	1	2

Table A-1. County Populations and Number of Data Collection Sites (continued)

COUNTY	POPULATION*	NUMBER OF SITES	REGION**
Graves	37,028	1	1
Grayson	24,053	4	1
Green	11,518	0	1
Greenup	36,891	4	3
Hancock	8,392	0	1
Hardin	94,174	7	1
Harlan	33,202	3	3
Harrison	17,983	0	2
Hart	17,445	0	1
Henderson	44,829	3	1
Henry	15,060	0	2
Hickman	5,262	0	1
Hopkins	46,519	3	1
Jackson	13,495	0	3
Jefferson	693,604	20	2
Jessamine	39,041	3	2
Johnson	23,445	3	3
Kenton	151,464	7	2
Knott	17,649	0	3
Knox	31,795	1	3
Larue	13,373	0	1
Laurel	52,715	6	3
Lawrence	15,569	0	3
Lee	7,916	0	3
Leslie	12,401	0	3
Letcher	25,277	4	3
Lewis	14,092	0	3
Lincoln	23,361	2	3
Livingston	9,804	0	1
Logan	26,573	4	1
Lyon	8,080	0	1
McCracken	65,514	9	1
McCreary	17,080	0	3
McLean	9,938	0	1
Madison	70,872	0	2
Magoffin	13,332	0	3
Marion	18,212	2	1
Marshall	30,125	5	1
Martin	12,578	1	3
Mason	16,800	0	3
Meade	26,349	2	1

Table A-1. County Populations and Number of Data Collection Sites (continued)

COUNTY	POPULATION*	NUMBER OF SITES	REGION**
Menifee	6,556	0	3
Mercer	20,817	1	2
Metcalfe	10,037	0	1
Monroe	11,756	0	1
Montgomery	22,554	3	2
Morgan	13,948	0	3
Muhlenberg	31,839	3	1
Nelson	37,477	1	1
Nicholas	6,813	0	3
Ohio	22,916	0	1
Oldham	46,178	4	2
Owen	10,547	0	2
Owsley	4,858	0	3
Pendelton	14,390	0	2
Perry	29,390	2	3
Pike	68,736	2	3
Powell	13,237	0	3
Pulaski	56,217	2	3
Robertson	2,266	0	2
Rockcastle	16,582	1	3
Rowan	22,094	1	3
Russell	16,315	0	3
Scott	33,061	7	2
Shelby	33,337	3	2
Simpson	16,405	2	1
Spencer	11,766	0	2
Taylor	22,927	2	1
Todd	11,971	0	1
Trigg	12,597	0	1
Trimble	8,125	0	2
Union	15,637	0	1
Warren	92,522	3	1
Washington	10,916	0	1
Wayne	19,923	0	3
Webster	14,120	0	1
Whitley	35,865	4	3
Wolfe	7,065	0	3
Woodford	23,208	3	2
TOTALS	4,041,769	200	

* Based on 2000 census.
** Region 1 - West; Region 2 - North; Region 3 - East

APPENDIX B

RELATIVE ERROR AND CONFIDENCE INTERVAL FOR USAGE FOR ALL FRONT SEAT PASSENGERS

TABLE B-1. RELATIVE ERROR FOR DATA FOR ALL FRONT SEAT OCCUPANTS

	RELATIVE ERROR*			
	REGION			
FUNCTIONAL CLASSIFICATION	WEST	NORTH	EAST	ALL
Rural Interstate	1.9	1.7	2.7	0.8
Rural Principal Arterial	1.7	2.7	2.3	0.9
Rural Minor Arterial/Major Collector	3.3	3.1	4.4	1.3
Rural Minor Collector/Local	3.5	4.9	3.9	2.0
Urban Interstate/Freeway	1.7	1.0	3.1	0.7
Urban Principal Arterial	2.4	1.2	2.7	0.8
Urban Minor Arterial/Collector/Local	2.3	1.8	2.9	0.9
All	0.6	0.5	1.0	0.4

* Percent (0.95 probability)

TABLE B-2. CONFIDENCE INTERVAL FOR DATA FOR ALL FRONT SEAT OCCUPANTS

	CONFIDENCE INTERVAL*			
	REGION			
FUNCTIONAL CLASSIFICATION	WEST	NORTH	EAST	ALL
Rural Interstate	1.6	1.3	2.2	0.7
Rural Principal Arterial	1.3	2.1	1.4	0.6
Rural Minor Arterial/Major Collector	2.2	2.2	2.6	0.8
Rural Minor Collector/Local	2.3	3.3	2.4	1.3
Urban Interstate/Freeway	1.4	0.8	2.4	0.5
Urban Principal Arterial	1.7	0.9	1.8	0.6
Urban Minor Arterial/Collector/Local	1.6	1.4	1.9	0.6
All	0.5	0.4	0.7	0.3

* Percentage with 0.95 probability.

APPENDIX C

SUMMARY OF DATA

TABLE C-1. SUMMARY OF DATA

	ALL FRONT SEAT OCCUPANTS				CATEGORY					
					DRIVERS		FRONT SEAT PASSENGERS		UNDER FOUR (FRONT AND REAR)	
Location Number	Sample	Percent Usage	Relative Error*	Confidence Interval*	Sample	Percent Usage	Sample	Percent Usage	Sample	Percent Usage
1	317	82	5.2	4.3	252	81	65	85	1	100
2	334	84	4.6	3.9	301	84	33	85	1	100
3	205	80	6.7	5.4	127	77	78	86	4	100
4	521	88	3.2	2.8	398	87	123	90	5	100
5	498	82	4.1	3.4	342	82	156	83	7	100
6	577	82	3.8	3.1	424	83	153	78	0	N/A
7	556	82	3.8	3.2	445	83	111	80	9	89
8	346	80	5.3	4.2	284	81	62	76	2	100
9	239	81	6.1	5.0	182	82	57	77	0	N/A
10	675	68	5.2	3.5	577	70	98	58	2	100
11	701	76	4.1	3.1	608	76	93	75	3	100
12	956	76	3.6	2.7	790	77	166	70	19	100
13	301	83	5.1	4.2	231	84	70	79	6	100
14	370	78	5.4	4.2	286	79	84	76	5	100
15	419	86	3.9	3.4	317	85	102	86	4	100
16	624	78	4.1	3.2	467	80	157	74	2	100
17	734	77	3.9	3.0	630	77	104	78	19	95
18	827	75	3.9	2.9	647	76	180	73	5	100
19	943	78	3.4	2.6	743	79	200	77	5	100
20	688	72	4.6	3.3	492	72	196	73	6	100
21	787	60	5.7	3.4	591	60	196	61	15	100
22	399	61	7.8	4.8	328	60	71	66	5	100
23	692	67	5.2	3.5	497	69	195	63	18	89
24	251	70	8.1	5.7	174	70	77	70	0	N/A
25	359	65	7.5	4.9	282	68	77	57	1	100
26	520	66	6.1	4.1	390	65	130	70	5	100
27	1,076	70	3.9	2.7	814	71	262	66	16	94
28	478	72	5.6	4.0	385	72	93	69	4	100
29	1,117	66	4.3	2.8	895	66	222	64	5	100
30	330	58	9.2	5.3	241	58	89	58	1	100
31	374	60	8.2	5.0	282	59	92	63	4	100
32	279	67	8.2	5.5	215	68	64	64	1	100
33	442	62	7.3	4.5	372	62	70	66	2	50
34	139	51	16.3	8.3	105	50	34	53	4	100
35	46	63	22.1	13.9	36	58	10	80	2	100
36	320	73	6.7	4.9	266	72	54	76	2	100
37	658	70	5.0	3.5	556	71	102	65	4	100
38	621	66	5.7	3.7	482	68	139	57	9	100
39	85	60	17.4	10.4	65	62	20	55	1	100
40	66	50	24.1	12.1	51	53	15	40	0	N/A
41	514	81	4.2	3.4	359	80	155	81	2	100
42	586	83	3.6	3.0	437	85	149	79	11	100
43	473	75	5.2	3.9	350	76	123	72	3	100
44	913	84	2.8	2.4	718	85	195	83	6	100
45	776	81	3.4	2.8	640	81	136	82	11	100
46	388	78	5.2	4.1	308	79	80	78	2	100
47	1,373	81	2.6	2.1	1,071	81	302	80	3	100
48	691	71	4.8	3.4	547	71	144	69	4	100
49	963	75	3.7	2.8	781	75	182	73	4	100
50	1,300	70	3.6	2.5	1,076	70	224	70	9	100

TABLE C-1. SUMMARY OF DATA (continued)

	ALL FRONT SEAT OCCUPANTS				CATEGORY					
					DRIVERS		FRONT SEAT PASSENGERS		UNDER FOUR (FRONT AND REAR)	
Location Number	Sample	Percent Usage	Relative Error*	Confidence Interval*	Sample	Percent Usage	Sample	Percent Usage	Sample	Percent Usage
51	1,024	72	3.8	2.8	762	73	262	69	5	100
52	953	69	4.3	2.9	774	68	179	71	4	75
53	892	71	4.2	3.0	690	71	202	70	9	100
54	1,074	73	3.6	2.6	882	72	192	79	14	100
55	851	75	3.9	2.9	712	74	139	76	1	100
56	1,073	78	3.2	2.5	883	77	190	78	5	100
57	865	78	3.5	2.8	645	80	220	73	14	100
58	555	71	5.3	3.8	475	71	80	70	17	100
59	111	73	11.3	8.3	86	78	25	56	2	100
60	541	70	5.5	3.9	425	72	116	61	4	100
61	296	64	8.6	5.5	224	64	72	61	3	100
62	475	64	6.7	4.3	357	64	118	66	6	100
63	677	72	4.7	3.4	569	72	108	69	8	100
64	557	72	5.2	3.7	388	74	169	68	3	100
65	394	69	6.7	4.6	315	70	79	63	7	100
66	560	68	5.7	3.9	420	71	140	58	7	100
67	852	81	3.3	2.7	621	81	231	78	0	N/A
68	769	81	3.4	2.8	625	81	144	79	14	100
69	456	81	4.4	3.6	358	82	98	80	5	100
70	488	78	4.7	3.7	368	78	120	78	4	100
71	888	82	3.0	2.5	669	84	219	76	1	100
72	206	82	6.5	5.3	141	81	65	83	6	100
73	689	83	3.4	2.8	542	83	147	82	5	100
74	524	80	4.3	3.4	366	81	158	77	4	100
75	931	78	3.4	2.7	791	77	140	81	4	100
76	358	82	4.9	4.0	278	82	80	80	2	100
77	395	81	4.7	3.8	331	83	64	70	3	100
78	592	81	3.9	3.2	452	84	140	72	6	100
79	992	72	3.8	2.8	784	73	208	69	11	100
80	727	79	3.7	2.9	573	80	154	76	3	100
81	355	70	6.7	4.7	299	70	56	75	7	100
82	438	82	4.3	3.6	356	83	82	78	3	100
83	973	76	3.5	2.7	737	77	236	74	2	100
84	1,016	74	3.6	2.7	803	76	213	69	4	100
85	107	73	11.6	8.4	74	73	33	73	0	N/A
86	271	73	7.3	5.3	218	73	53	70	4	100
87	305	74	6.7	4.9	229	76	76	67	0	N/A
88	558	82	3.9	3.2	457	81	101	85	9	100
89	55	67	18.4	12.4	43	72	12	50	0	N/A
90	174	62	11.6	7.2	117	65	57	56	0	N/A
91	160	66	11.1	7.3	126	65	34	71	1	100
92	596	67	5.6	3.8	461	69	135	61	6	100
93	352	69	6.9	4.8	281	74	71	52	1	100
94	872	79	3.4	2.7	733	80	139	76	8	100
95	329	61	8.7	5.3	261	61	68	62	2	100
96	39	49	32.2	15.7	29	52	10	40	1	100
97	150	64	12.0	7.7	116	66	34	59	1	100
98	175	69	9.9	6.8	133	68	42	71	1	100
99	79	72	13.7	9.9	60	72	19	74	1	100
100	333	71	6.8	4.9	255	71	78	73	6	100

TABLE C-1. SUMMARY OF DATA (continued)

Location Number	ALL FRONT SEAT OCCUPANTS Sample	Percent Usage	Relative Error*	Confidence Interval*	CATEGORY DRIVERS Sample	Percent Usage	FRONT SEAT PASSENGERS Sample	Percent Usage	UNDER FOUR (FRONT AND REAR) Sample	Percent Usage
101	744	74	4.3	3.2	629	76	115	59	8	88
102	1,274	78	2.9	2.3	1,066	80	208	70	4	100
103	1,109	88	2.2	1.9	975	88	134	87	4	100
104	525	80	4.3	3.4	442	80	83	77	4	100
105	878	80	3.3	2.7	762	80	116	78	6	100
106	724	82	3.4	2.8	577	82	147	86	6	100
107	732	80	3.6	2.9	581	80	151	83	13	100
108	1,221	81	2.7	2.2	995	81	226	82	5	100
109	895	79	3.3	2.6	680	81	215	76	15	100
110	1,091	85	2.5	2.1	901	86	190	83	19	100
111	1,156	82	2.7	2.2	962	82	194	79	8	100
112	622	76	4.4	3.4	491	78	131	66	2	100
113	721	82	3.4	2.8	557	84	164	76	1	100
114	969	81	3.0	2.5	774	81	195	81	24	100
115	1,184	81	2.7	2.2	963	83	221	72	10	100
116	841	78	3.6	2.8	669	80	172	70	12	100
117	1,159	80	2.8	2.3	943	81	216	78	4	100
118	1,528	83	2.3	1.9	1,263	83	265	81	4	100
119	587	80	4.1	3.2	465	80	122	80	8	100
120	785	69	4.6	3.2	656	70	129	66	2	50
121	1,333	71	3.4	2.4	1,020	71	313	70	18	100
122	713	72	4.5	3.3	584	74	129	67	5	100
123	561	75	4.7	3.6	440	78	121	64	0	N/A
124	592	67	5.6	3.8	464	67	128	68	8	100
125	1,035	70	4.0	2.8	804	70	231	70	7	100
126	1,244	79	2.8	2.3	1,110	79	134	84	7	100
127	1,068	67	4.2	2.8	895	68	173	63	3	100
128	564	64	6.2	4.0	434	65	130	59	14	86
129	1,209	79	2.9	2.3	1,093	79	116	77	7	100
130	1,492	60	4.2	2.5	1,283	60	209	56	2	100
131	1,097	71	3.7	2.7	830	73	267	67	26	100
132	838	70	4.4	3.1	705	71	133	65	8	100
133	1,029	66	4.4	2.9	788	68	241	61	20	100
134	497	75	5.1	3.8	392	76	105	70	14	93
135	982	79	3.2	2.5	827	80	155	75	5	100
136	925	71	4.1	2.9	738	73	187	65	9	100
137	841	79	3.5	2.8	667	78	174	81	26	96
138	460	77	5.0	3.8	378	77	82	79	2	100
139	896	67	4.6	3.1	721	65	175	73	15	100
140	595	74	4.7	3.5	500	75	95	71	9	100
141	1,122	68	4.0	2.7	936	68	186	72	11	100
142	308	63	8.6	5.4	258	65	50	52	6	83
143	451	82	4.3	3.5	389	82	62	85	2	100
144	1,086	75	3.5	2.6	861	76	225	69	19	84
145	533	68	5.9	4.0	413	68	120	68	13	100
146	418	79	4.9	3.9	339	80	79	76	6	100
147	565	77	4.5	3.5	440	78	125	74	14	100
148	982	62	4.9	3.0	753	65	229	52	10	80
149	543	79	4.3	3.4	406	81	137	75	3	100
150	585	81	3.9	3.2	445	81	140	82	6	100

TABLE C-1. SUMMARY OF DATA (continued)

Location Number	ALL FRONT SEAT OCCUPANTS Sample	Percent Usage	Relative Error*	Confidence Interval*	CATEGORY DRIVERS Sample	Percent Usage	FRONT SEAT PASSENGERS Sample	Percent Usage	UNDER FOUR (FRONT AND REAR) Sample	Percent Usage
151	239	79	6.4	5.1	213	80	26	73	5	80
152	641	79	4.0	3.2	549	80	92	73	2	100
153	426	85	4.0	3.4	350	85	76	84	3	100
154	523	80	4.3	3.4	411	80	112	79	7	100
155	924	60	5.3	3.2	684	60	240	61	10	90
156	1,021	63	4.7	3.0	790	64	231	60	7	100
157	511	73	5.3	3.8	346	75	165	69	8	88
158	852	63	5.2	3.2	639	63	213	64	5	80
159	782	54	6.5	3.5	627	56	155	45	1	100
160	465	63	7.0	4.4	346	62	119	64	3	67
161	853	71	4.3	3.0	670	71	183	72	20	95
162	1,092	65	4.3	2.8	827	65	265	65	4	100
163	950	56	5.7	3.2	716	58	234	50	2	50
164	1,106	63	4.5	2.8	811	63	295	61	26	96
165	426	48	9.9	4.7	297	51	129	43	7	71
166	843	70	4.4	3.1	677	70	166	70	8	100
167	259	65	8.9	5.8	198	65	61	66	1	100
168	372	64	7.6	4.9	280	66	92	57	5	100
169	201	53	13.0	6.9	146	53	55	53	2	100
170	208	68	9.3	6.3	161	68	47	70	5	100
171	200	51	13.6	6.9	145	52	55	47	0	N/A
172	89	47	22.0	10.4	73	49	16	38	0	N/A
173	236	56	11.4	6.3	177	55	59	56	1	100
174	1,006	67	4.4	2.9	815	68	191	63	9	89
175	104	53	18.1	9.6	77	51	27	59	1	100
176	201	63	10.6	6.7	143	69	58	48	2	100
177	382	60	8.2	4.9	296	60	86	59	5	100
178	94	74	11.8	8.8	65	74	29	76	0	N/A
179	126	60	14.2	8.5	91	60	35	60	3	100
180	429	56	8.4	4.7	333	56	96	53	7	100
181	44	50	29.5	14.8	29	55	15	40	0	N/A
182	195	68	9.7	6.6	141	69	54	65	1	100
183	146	60	13.4	8.0	105	60	41	59	2	100
184	52	46	29.4	13.5	42	45	10	50	0	N/A
185	268	56	10.7	5.9	199	59	69	45	3	100
186	877	67	4.6	3.1	632	68	245	65	11	100
187	1,114	77	3.2	2.5	857	77	257	78	12	100
188	622	81	3.8	3.1	533	81	89	84	2	100
189	1,195	61	4.5	2.8	903	63	292	54	11	100
190	1,359	68	3.6	2.5	1,055	70	304	63	11	100
191	928	68	4.4	3.0	746	68	182	64	6	100
192	1,430	77	2.8	2.2	1,114	77	316	77	19	100
193	1,376	76	3.0	2.3	1,063	80	313	62	13	100
194	1,071	70	3.9	2.8	843	70	228	70	6	100
195	1,026	57	5.3	3.0	784	59	242	50	21	90
196	607	69	5.4	3.7	474	69	133	67	11	100
197	1,355	65	3.9	2.5	1,030	65	325	67	10	100
198	602	66	5.7	3.8	454	67	148	66	16	81
199	1,036	62	4.8	3.0	767	62	269	60	2	100
200	1,213	75	3.3	2.4	901	74	312	75	2	100

* Percent (using 0.95 probability)

For more information or a complete publication list, contact us at:

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