



# Kentucky 2020-2024

## Strategic Highway Safety Plan





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# SHSP Opening Letter





## Governors Executive Committee on Highway Safety

- XX,**  
Commissioner, Department of Vehicle Regulation,  
*Kentucky Transportation Cabinet*
- XX,**  
Division Administrator,  
*Federal Highway Administration*
- XX,**  
Executive Director,  
*Kentucky Association of Police Chiefs*
- XX,**  
Manager, Traffic & Safety Program,  
*Kentucky Transportation Center, University of Kentucky*
- XX,**  
Executive Director,  
*Kentucky Board of Emergency Medical Services*
- XX,**  
Division Administrator,  
*Federal Motor Carrier Safety Administration*
- XX,**  
Innovation Engineer,  
*Kentucky Transportation Cabinet*
- XX,**  
Traffic Safety Resource Prosecutor,  
*Office of Attorney General*
- XX,**  
Executive Director,  
*Insurance Institute of Kentucky*
- XX,**  
Lieutenant, Commercial Vehicle Enforcement,  
*Kentucky State Police*
- XX,**  
State Highway Engineer,  
*Kentucky Transportation Cabinet*
- XX,**  
Director, Division of Maintenance,  
*Kentucky Transportation Cabinet*
- XX,**  
Executive Director, Office of Public Affairs,  
*Kentucky Transportation Cabinet*
- XX,**  
Director, Division of Traffic Operations,  
*Kentucky Transportation Cabinet*  
President,









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STRATEGIC HIGHWAY  
SAFETY PLAN  
**2020-2024**

Each date highlighted in yellow represents a day for the year 2018 in which there were no fatalities on Kentucky's highways.

2018

JANUARY							FEBRUARY								
1	2	3	4	5	6			1	2	3					
7	8	9	10	11	12	13	4	5	6	7	8	9	10		
14	15	16	17	18	19	20	11	12	13	14	15	16	17		
21	22	23	24	25	26	27	18	19	20	21	22	23	24		
28	29	30	31				25	26	27	28					
MARCH							APRIL								
			1	2	3		1	2	3	4	5	6	7		
4	5	6	7	8	9	10	8	9	10	11	12	13	14		
11	12	13	14	15	16	17	15	16	17	18	19	20	21		
18	19	20	21	22	23	24	22	23	24	25	26	27	28		
25	26	27	28	29	30	31	29	30							
MAY							JUNE								
			1	2	3	4	5				1	2			
6	7	8	9	10	11	12	3	4	5	6	7	8	9		
13	14	15	16	17	18	19	10	11	12	13	14	15	16		
20	21	22	23	24	25	26	17	18	19	20	21	22	23		
27	28	29	30	31			24	25	26	27	28	29	30		
JULY							AUGUST								
1	2	3	4	5	6	7				1	2	3	4		
8	9	10	11	12	13	14	5	6	7	8	9	10	11		
15	16	17	18	19	20	21	12	13	14	15	16	17	18		
22	23	24	25	26	27	28	19	20	21	22	23	24	25		
29	30	31					26	27	28	29	30	31			
SEPTEMBER							OCTOBER								
						1	1	2	3	4	5	6			
2	3	4	5	6	7	8	7	8	9	10	11	12	13		
9	10	11	12	13	14	15	14	15	16	17	18	19	20		
16	17	18	19	20	21	22	21	22	23	24	25	26	27		
23	24	25	26	27	28	29	28	29	30	31					
30															
NOVEMBER							DECEMBER								
						1	2	3							1
4	5	6	7	8	9	10	2	3	4	5	6	7	8		
11	12	13	14	15	16	17	9	10	11	12	13	14	15		
18	19	20	21	22	23	24	16	17	18	19	20	21	22		
25	26	27	28	29	30		23	24	25	26	27	28	29		
							30	31							



# Prevention: A New Approach

Have you ever felt helpless to address something important because it seemed too big or too challenging? Heard about the dreams or aspirations of others and dismissed them as impossible? The elimination of serious injuries and deaths due to crashes on our roadways is something that many believe is too big to tackle, and so often serious crashes and their results are accepted as just a part of life. This can lead to documents like this one examining yesterday's numbers related to highway safety and focusing on "reducing" or "moving toward zero" instead of focusing on people and prioritizing the task at hand – **preventing serious injuries and deaths** – from this very moment forward. When each of us uses the transportation system – whether driving a car or riding a motorcycle, walking or cycling, driving a truck or taking a bus – isn't our goal for each trip one that is free from crashes, injuries and fatalities? If this is the goal for each individual trip how could our overall goal be different?

While we can't turn back time and reduce yesterday's outcomes, **everyone** who uses our transportation system can contribute to the prevention of these serious outcomes going forward – and ultimately that's what it's going to take. When the clock struck midnight yesterday that day ended and a new day began – a day where it was possible that **TODAY** could be a day where **Zero** people in Kentucky died from being involved in a traffic crash. That is what this calendar represents – 2018 days where no traffic crashes in Kentucky resulted in lost life. 62 days in 2018 – **approximately one out of every six days** – ended with no crash in Kentucky resulting in a death. Every day has such potential!

A successful future is one where:

**Zero** lives are lost, **Zero** families are shattered, and **Zero** trips result in injury or death – isn't that the only realistic goal?

This will require many efforts: preventing crashes in the first place by educating drivers about safe behaviors; law enforcement agencies enforcing traffic safety laws; reducing the severity of those crashes that do occur through infrastructure improvements; providing timely, well-equipped emergency medical services (EMS) for those who need them; and through the passage of legislation focused on safer transportation.

Our goal for this plan is for everyone who reads it to understand how they can contribute to a Kentucky where **Zero** isn't a dream, it is the reality – every trip, every time.

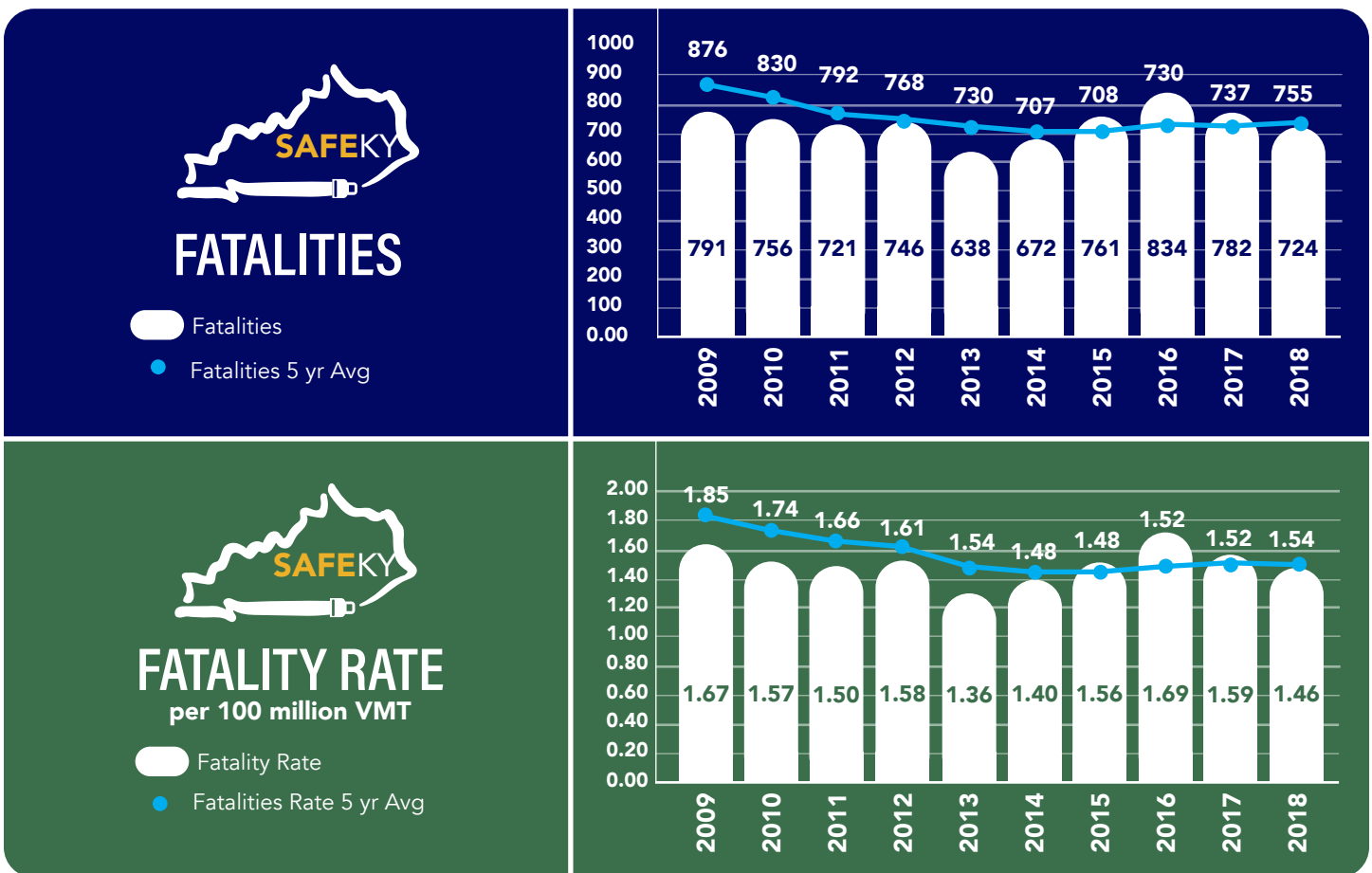


## Performance Measures

Kentucky's SHSP is a performance-based plan that is consistent with the safety performance measures established by the United States Department of Transportation (USDOT). These safety performance measures use crash fatality and serious injury data to establish a framework for monitoring progress. The annual safety performance measures represent all public roads and are reported as five-year rolling averages for the following measures:

<b>Fatalities</b>	The number of persons killed in crashes on all public roads in a calendar year.
<b>Fatality Rate</b>	The number of persons killed in crashes per 100 million vehicle miles traveled (VMT) in a calendar year.
<b>Serious Injuries</b>	The number of persons seriously injured in crashes on all public roads in a calendar year.
<b>Serious Injury Rate</b>	The number of persons seriously injured in crashes per 100 million VMT in a calendar year.
<b>Non-motorized Fatalities &amp; Serious Injuries</b>	The number of pedestrians and bicyclists killed or seriously injured in crashes involving a motor vehicle on all public roads in a calendar year.

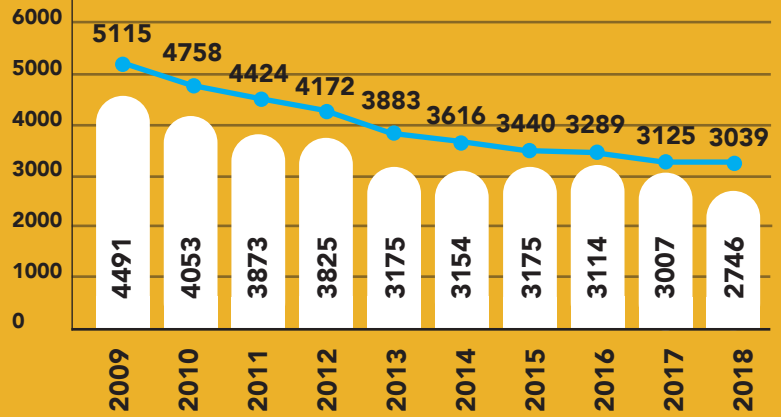
The Kentucky Transportation Cabinet (KYTC) establishes annual targets for each of these five performance measures. Programs and projects across the 4 'E's - Education, EMS, Enforcement, and Engineering - aimed at improving upon these five performance measures are included in the Highway Safety Plan (HSP) and the Highway Safety Improvement Program (HSIP) annual report, both of which fall under the umbrella of this overarching Kentucky SHSP.





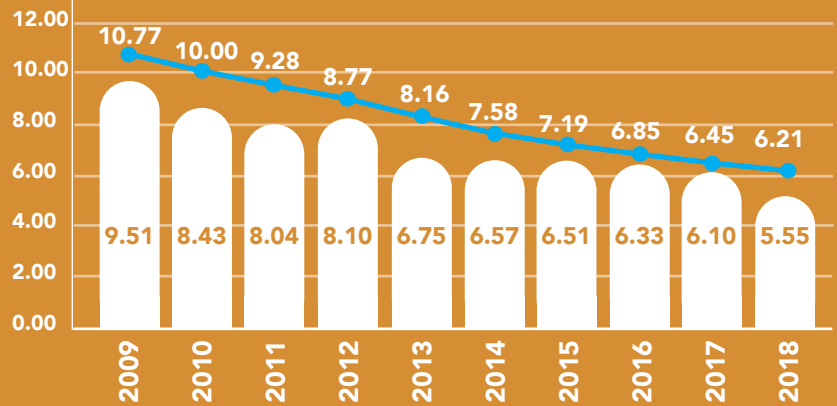
## SERIOUS INJURIES

- Serious Injuries
- Serious Injuries 5 yr Avg



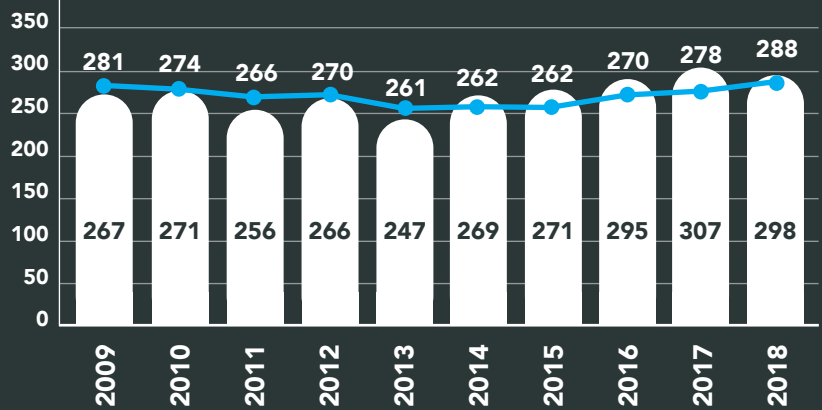
## SERIOUS INJURY RATE per 100 million VMT

- Serious Injury Rate
- Serious Injury Rate 5 yr Avg



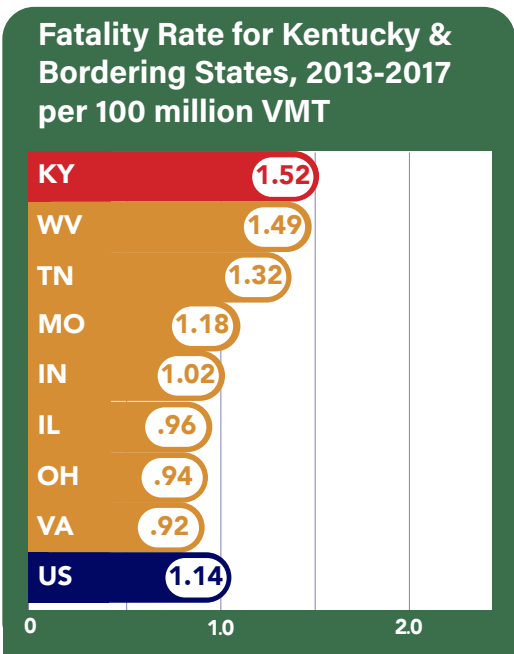
## NON-MOTORIZED FATALITIES & SERIOUS INJURIES

- Fatality + Serious Injuries
- Fatality + Serious Injury Rate 5 yr Avg.



UP TO **200** Lives Could Be Saved Each Year If Everyone Buckled Up!

Traffic safety in Kentucky is a serious problem. Each year, crashes on Kentucky highways result in over 700 deaths and more than 35,000 injuries. While improvements in safety culture, infrastructure, and vehicle technology have produced a safer system than in previous decades, overall reduction in fatalities and serious injuries has slowed. To significantly reduce these life-changing tragedies, the highway safety community - all of us - must focus our efforts and invest time and resources where they are most effective.



Kentucky trails surrounding states - as well as the national average - in progress toward zero fatalities and serious injuries. Yes, most crashes are caused by human error... mistakes, carelessness, or poor decisions. However, serious injuries and deaths are too high of a price to pay for these mistakes and decisions, and something can be done about it. Most crash types are completely preventable. To do this, safety culture, infrastructure, and vehicle safety technology must adapt to address various forms of distraction and impairment and accelerate the reduction in other types of crashes.

In this SHSP, we ask: How many fatal crashes must be prevented to arrive at zero? The answer, of course, is all of them. To set the course toward achieving this, we have set this SHSP's target to prevent enough tragedies on Kentucky roadways such that the annual number of deaths falls at or below 500 by 2024. It is the objective of this plan to enable this magnitude of prevention and set an aggressive trajectory towards zero. Implementation of this plan is urgent. The safety community must be bold, innovative and ambitious.

This plan outlines strategic and crosscutting opportunities to prevent deaths and serious injuries on our roadways.

The Governor's Executive Committee on Highway Safety (GECHS) oversees and spurs efforts to improve highway safety, but safety is everyone's responsibility—agencies, manufacturers, educators, and drivers. This Committee is an executive-level, multi-agency group of highway safety advocates from varying backgrounds who serve with "one voice" on Kentucky highway safety issues. Responsibility for coordinating Kentucky's highway safety improvement strategies resides in the Kentucky Office of Highway Safety (KOHS) in the KYTC.

The KOHS and other state agencies have spearheaded numerous projects in education, EMS, enforcement, and engineering in order to prevent serious injuries and fatalities on Kentucky's highways. Task forces representing each of the six Emphasis Areas are responsible for monitoring implementation of strategies and tracking progress toward measurable goals that prevent crash fatalities and serious injuries.

Action Plans will track which strategies are successfully implemented and will establish a framework for monitoring highway safety improvements that result from implementation of the strategies.

## Six highly focused emphasis areas will be addressed:



### Aggressive Driving

Driving behavior characterized by speeding, disregarding traffic control, following too closely, weaving in traffic, failure to yield the right of way, or improper passing.



### Distracted Driving

Driving behavior characterized by cell phone usage, distraction, or inattention.



### Impaired Driving

Driving while under the influence of alcohol or drugs.



### Occupant Protection

Failure to use seat belt or child restraint while driving or riding in a vehicle.



### Roadway Departure

A crash type that results from a vehicle leaving its lane to the left or right.



### Vulnerable Road Users

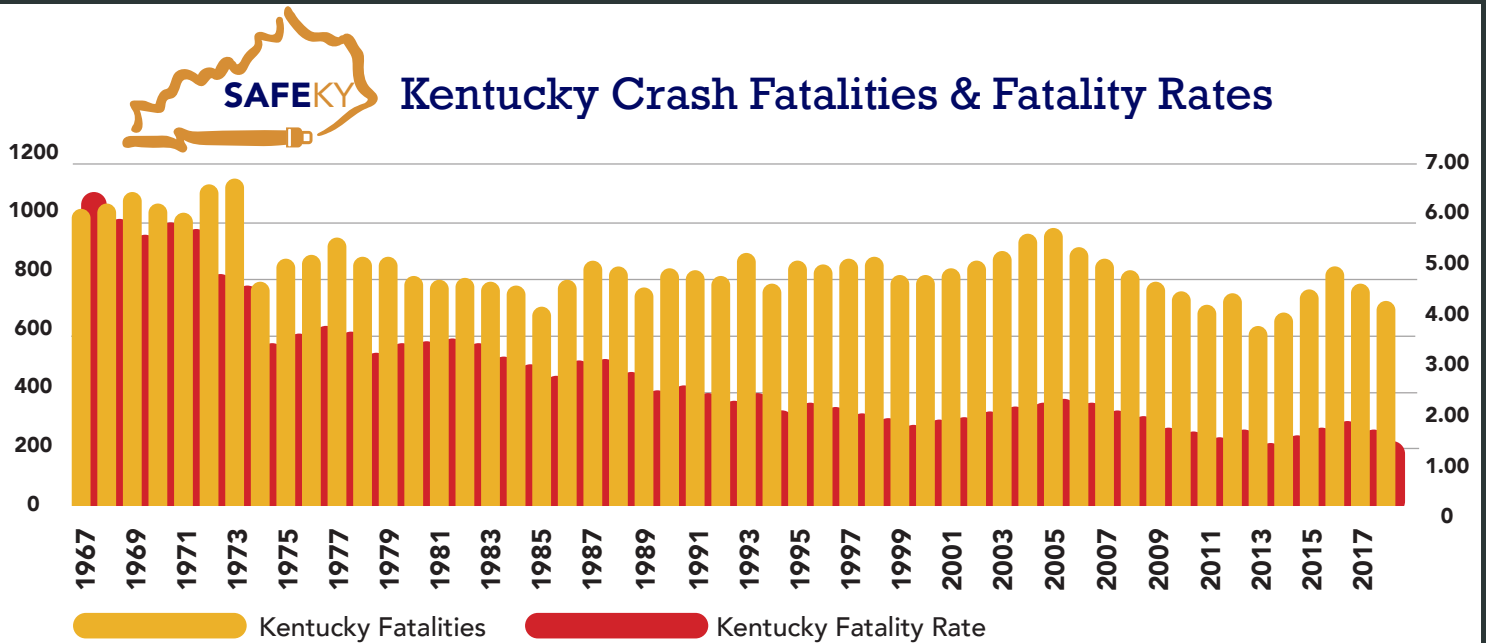
Crashes involving pedestrians, bicycles, motorcycles, electric scooters, or other vehicles besides cars and trucks.



# Background & Crash Data Overview

## FATALITIES AND SERIOUS INJURIES

Highway safety in Kentucky has considerably improved over the last 50+ years. The Commonwealth reached a milestone low of 638 crash fatalities in 2013, which was just over half the average total experienced in the early 1970s. The crash fatality rate over this time, calculated as the number of fatalities per one-hundred million VMT, demonstrates even better improvement. The crash fatality rate of 1.36 in 2013 was the lowest ever recorded and over four-and-a-half times lower than the crash fatality rate of 6.18 in 1967.



While 2013 was a milestone year for highway safety, the following years were unable to match this success. In 2016, the state experienced 834 fatalities, which was the highest total in ten years. Crash fatalities and fatality rates began declining again after 2016 but have yet to attain the lower level experienced in 2013. Kentucky's data mirror the recent national trends, which also experienced an all-time low number of fatalities in 2013 before climbing afterward.

Another measure of highway safety is the total number of serious injuries resulting from crashes. The annual numbers for serious injuries in Kentucky have shown improvement over the last ten years, falling from 4,491 in 2009 to 2,746 in 2018. The serious injury rate has similarly demonstrated a consistent decline over this time period, falling from 10.77 to 6.21 per 100 million VMT.

**80%** of Crashes  
Involve Some Form of Distraction

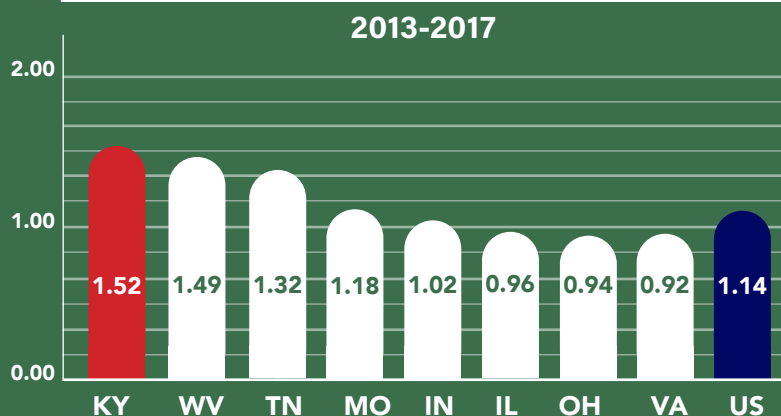
# Benchmarks

## NATIONALLY

The long-term crash fatality trends in Kentucky largely mirror the national trends. From 1967 to 2018, Kentucky's proportion of nationwide fatal crashes averaged 1.98 percent. By and large, over the years as fatality totals rose and fell nationally, they also rose and fell in Kentucky. However, since 2000, Kentucky has not experienced the same levels of safety improvements that have been seen in the country at large. From 1967 to 1999, Kentucky's average annual share of crash fatalities averaged 1.89 percent of the national totals; however since 2000,

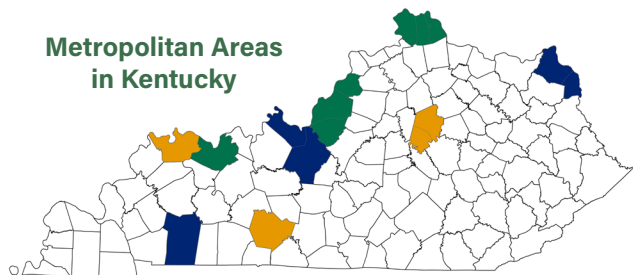
Kentucky's average annual share has risen to 2.13 percent. A similar pattern is also evident in the crash fatality rates. From 1967 to 1999, Kentucky's annual fatality rate was on average 11 percent higher than the national rate; however since 2000 Kentucky's annual rate has risen to 34 percent higher than the national rate. Additionally, Kentucky's fatality rate was higher than all bordering states.

### Fatality Rate for Kentucky & Bordering States



From 2013 to 2017, Kentucky had the 5th highest fatality rate among the 50 states in the U.S.

### Metropolitan Areas in Kentucky



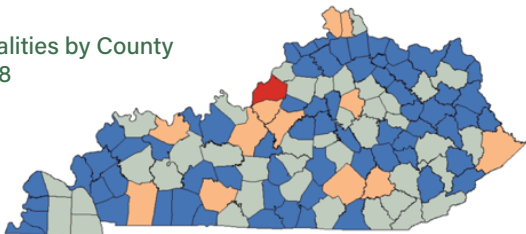
### WITHIN KENTUCKY

Urbanized areas in Kentucky are included as part of nine Metropolitan Planning Organizations (MPOs), which are defined as areas having a population of at least 50,000.

Urban counties had the highest number of fatalities. When considering fatalities per 100,000 county population, the pattern is more distributed. Many of the higher crash fatality rates are in rural counties, where the population is much smaller.

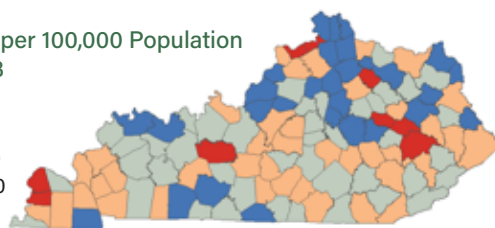
Total Fatalities by County 2014-2018

- 0-24
- 25-55
- 56-171
- 446



Fatalities per 100,000 Population 2014-2018

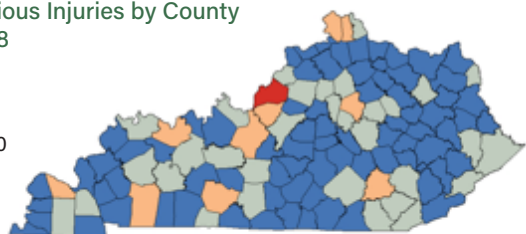
- 0-76
- 77-121
- 122-179
- 180-320



A similar pattern holds for total number of serious injuries by county and serious injures per 100,000 county population.

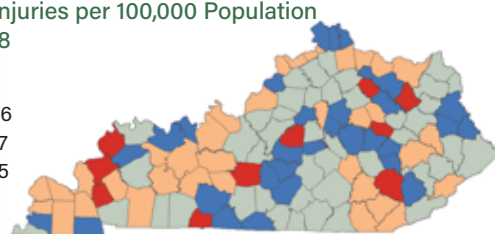
Total Serious Injuries by County 2014-2018

- 3-98
- 99-242
- 243-790
- 3108



Serious Injuries per 100,000 Population 2014-2018

- 88-263
- 264-386
- 387-537
- 538-785



# Urban and Rural

In Kentucky, more than half of the driving occurs in rural areas. From 2013 to 2017, 54.3 percent of the VMT were rural, ranking Kentucky as the 12th highest state in the U.S. in terms of percent rural VMT. This is significant because in Kentucky, as in all other U.S. states, the rate and severity of rural crashes tend to be worse than for urban crashes. At least four factors contribute to higher crash rates and severity in rural areas.

The first factor involves human behavior. In Kentucky, seat belt usage is lower in rural areas, which increases the likelihood of a serious injury or fatality in the event of a crash.

The second factor involves the vehicle size. Rural areas experience more crash fatalities involving large trucks, SUVs, and pickup trucks than urban areas.

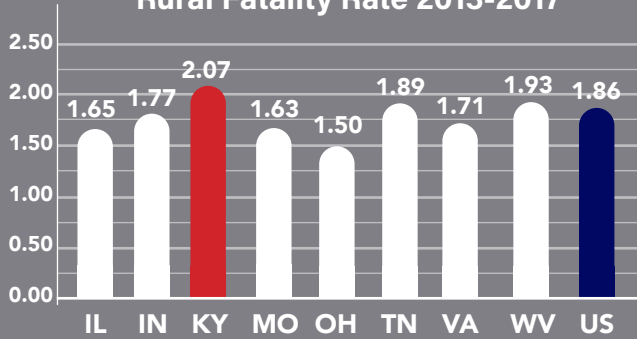
The third factor pertains to the roadway environment. The largest share of rural VMT occur on two-lane highways where the speed limit is set at 55 mph and only a painted centerline stripe divides the opposing lanes. In this environment, roadway departure crashes can be severe, particularly if a vehicle crosses the centerline as a result of distracted, impaired, aggressive, or drowsy driving. In areas of the state with rugged or mountainous terrain, such as eastern Kentucky, rural roadway departure crashes involving the vehicle going off the side of the road are also likely to be more severe.

The fourth factor involves emergency response and medical care for those injured in a crash. The EMS response time to a crash in a rural area is inherently going to be higher because of the distance involved. In addition, transport of those injured in a crash to a trauma center may take longer because hospitals are more dispersed in rural areas. In some cases, crash victims need to be airlifted by helicopter to major trauma centers in urban areas. The higher EMS response time for crash victims in rural areas increases the likelihood of a serious injury becoming a fatality.

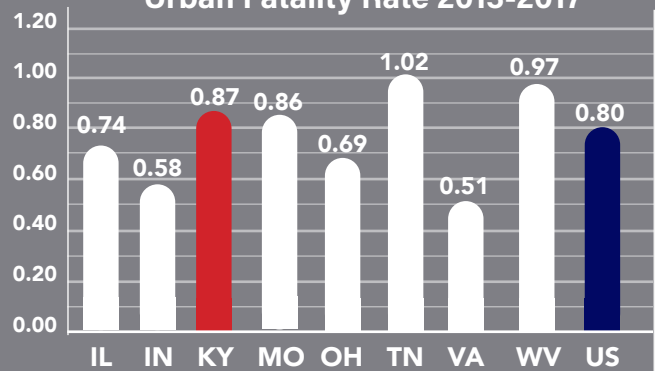
The dynamics of these factors are evident when analyzing crash statistics. From 2013 to 2017, the rural fatality rate (calculated as the number of crash fatalities per hundred million VMT) was nearly two and a half times higher than the urban fatality rate. Kentucky's rural fatality rate also compared unfavorably to both the national average and bordering states. Over the same time period, Kentucky had the 12th worst rural fatality rate in the U.S. and ranked worst among all bordering states.

The urban crash fatality rate in Kentucky was lower than the rural rate. Still, Kentucky's urban crash fatality rate was higher than the national average and all but two bordering states.

**Rural Fatality Rate 2013-2017**



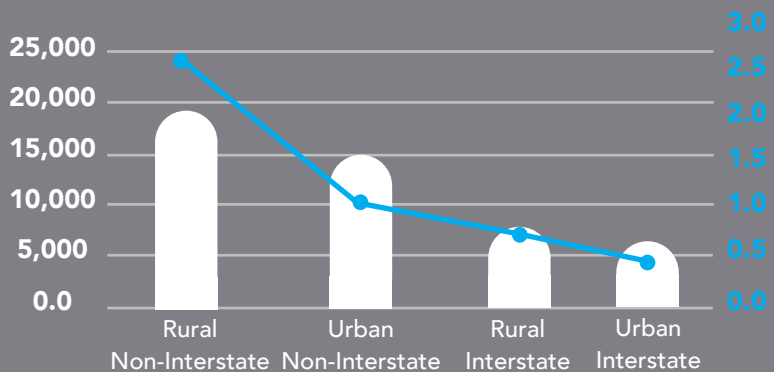
**Urban Fatality Rate 2013-2017**



## Type of Roadway

In Kentucky, more traffic is carried on non-interstates than interstates. In particular, rural non-interstates have the highest annual VMT. These roads also have the highest fatality rate by a considerable margin. From 2009 to 2017, the fatality rate for rural non-interstates was 2.6, which was higher than urban non-interstates (1.0), rural interstates (0.7), and urban interstates (0.4).

**VMT (in millions) & Fatality Rates by Road Type 2009-2017**



○ VMT — Fatality Rate



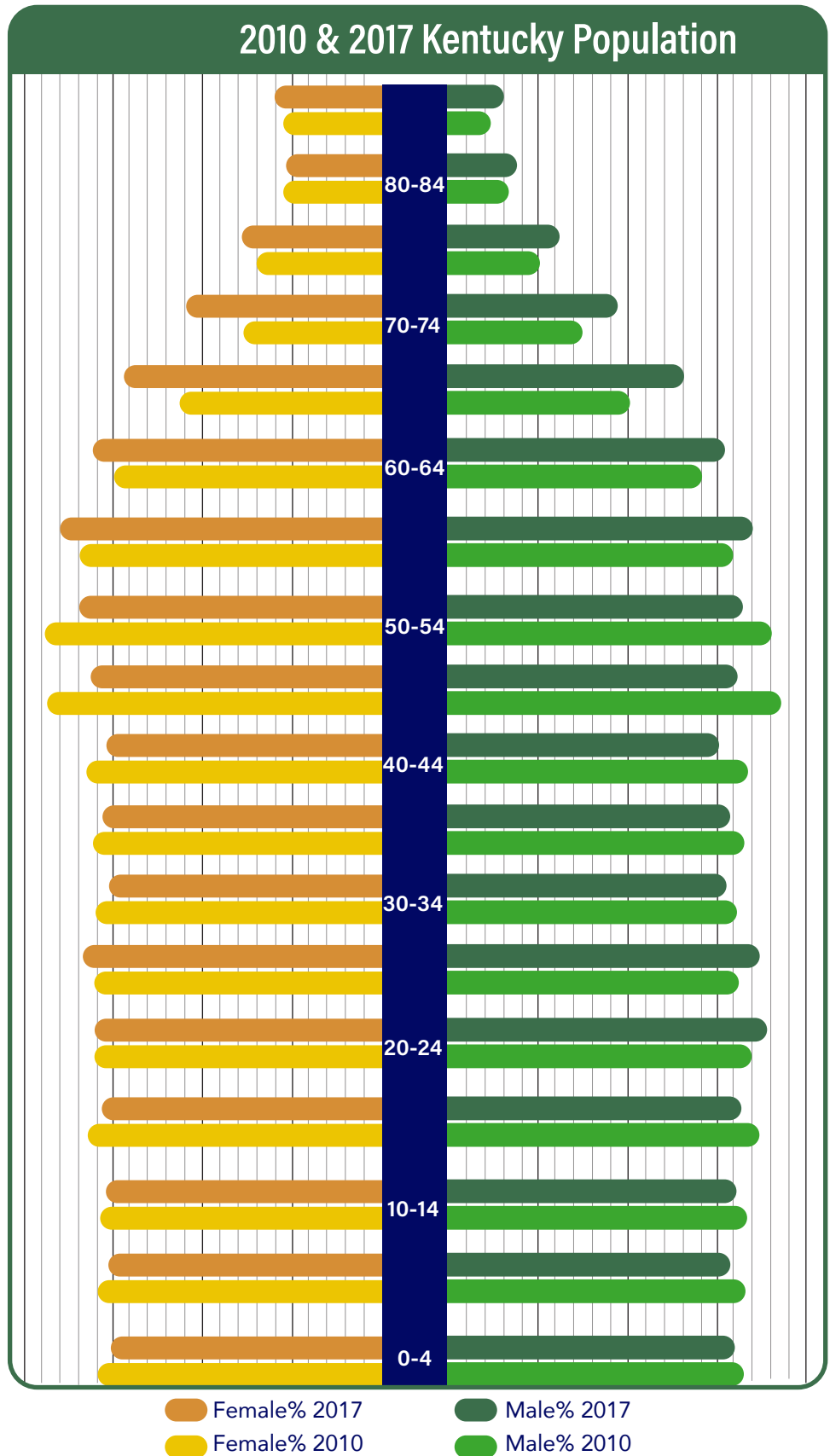
# Other Trends Impacting Highway Safety

## DEMOGRAPHICS

From 2010 to 2017, Kentucky's population grew by 2.6 percent. Nearly all of this population growth occurred in urbanized areas, whereas the overall rural population declined over this time period.

The average age of Kentuckians is increasing. More and more Kentuckians of the Baby Boomer generation, which represents the largest age cohort in Kentucky, are aged 60 or older. Meanwhile, birth rates are continuing to decline, contributing to an ever larger share of the population being older.

For highway safety, this means Kentucky can expect to have a larger share of older drivers in the driving population (ages 65 and up), and a smaller share of younger drivers (aged 16 to 20) in the coming years.



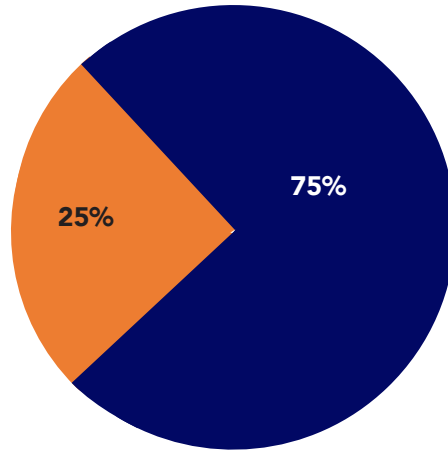


## TIME OF DAY

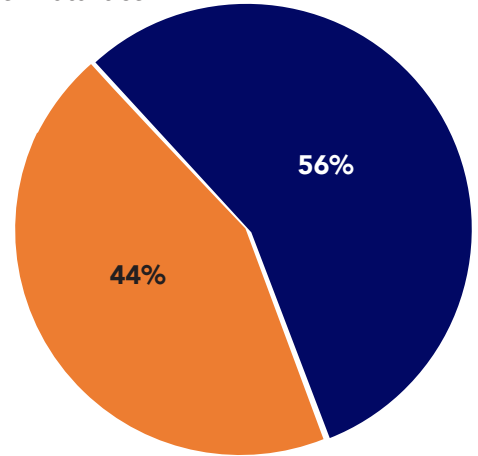
While most driving (approximately 75% of VMT) occurs during daylight hours, nearly half of all fatal crashes occur at night.

- Daylight
- Darkness

% VMT



% Crash Fatalities

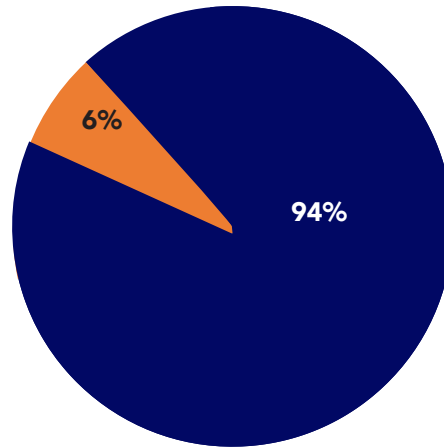


## WEATHER CONDITIONS

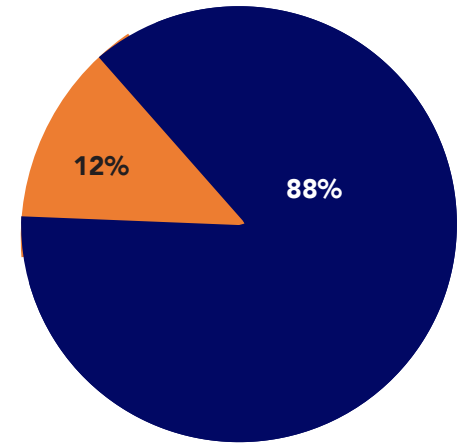
Weather conditions may also play a role in traffic safety. From 2014 to 2018, approximately 6% of the hours in Kentucky featured some sort of precipitation. However, during the same time period 12% of fatal crashes occurred in wet weather.

- Dry
- Precipitation

% of Hours in Kentucky



% Crash Fatalities



## External Factors Impacting Traffic and Safety

### Technology Can Be Distracting:

↑ **96%**  
of U.S. adults own a Cell Phone

↑ **81%**  
of U.S. adults own a Smart Phone

↑ **72%** of U.S. adults use Social Media

Source: Pew Research Center (2019)

## Kentuckians' Commute:

↑ **82%**  
Drive Alone (up 1%)

↓ **10%**  
Carpool (down 1%)

↑ **1%** Walk

↓ **<1%** Bicycle



↓ **1%** Public Transport

↑ **3%** Work at Home

**23** min  
Average Commute

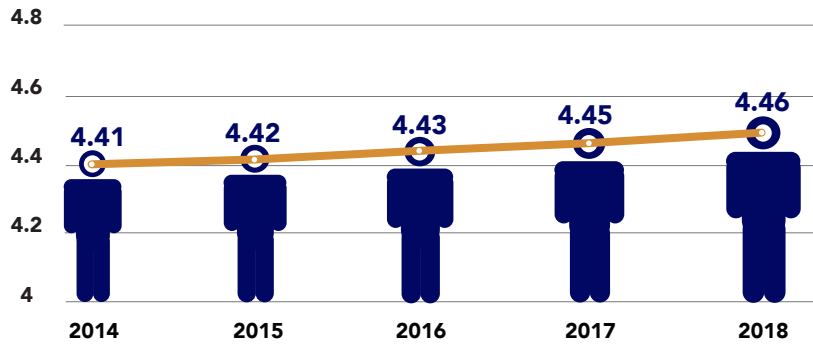
Source: Census Transportation Planning Package (2012-2016) compared to (2006-2010)

## External Factors Impacting Traffic and Safety (cont.)

### Kentucky's 2018 Population (in millions):

**↑ 4,468**  
Up 1% since 2014

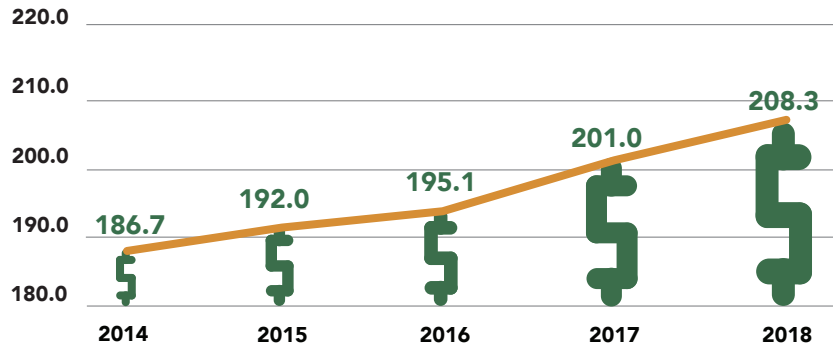
Source: U.S. Census Bureau (2019)



### Kentucky's 2018 Gross Domestic Product (GDP) (in billions):

**↑ 208.3**  
Up 11% since 2014

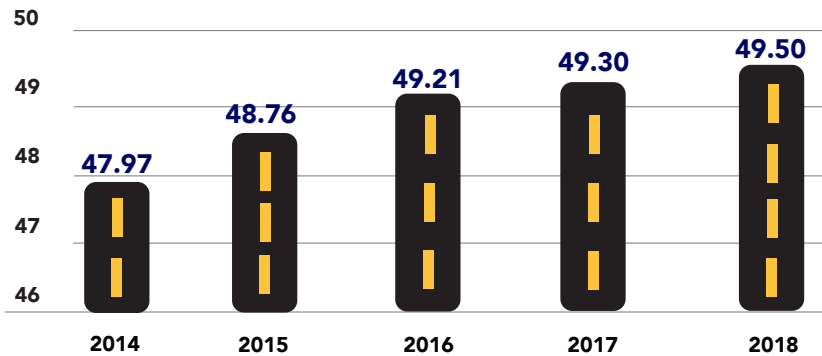
Source: U.S. Department of Commerce (2019)



### Kentucky's 2018 Vehicle Miles Traveled (VMT) (in billions):

**↑ 49.5**  
Up 3% since 2014

Source: Kentucky Transportation Cabinet (2019)



**\$578 Billion**

Worth of freight is moved on Kentucky's transportation system each year

**↑ 65%**

expected increase in freight value moved by trucks on KY highways from 2016 to 2045 (inflation-adjusted dollars)

Source: TRIP (2019)



## UPDATE PROCESS

Updating Kentucky's SHSP is a continual process that evolves as strategies are implemented and evaluated. A data-informed approach has been used to identify opportunities for safety improvements on all highways in Kentucky. This approach will be used to identify emphasis areas where opportunities exist to prevent serious outcomes and reduce severities, as well as effective strategies to implement.



## History of the Kentucky SHSP

Kentucky's first SHSP was published in 2006 and described methods for accomplishing highway safety goals in 10 strategic areas: Aggressive Driving, Commercial Vehicle Safety, Drive Smart Safety Corridors, Impaired Driving, Incident Management, Roadway Departure, Occupant Protection, Young Drivers, Traffic Records, and Legislative Issues. During the time period of this plan's implementation, Kentucky passed significant laws to improve highway safety: in 2006 the Kentucky legislature approved a primary seat belt law, a graduated driver's license law, and two quick clearance bills to improve incident management. Additionally, in 2010 Kentucky passed a bill banning texting while driving. Since the 2006 passage of the primary seat belt law, Kentucky's observed seat belt usage rate has improved from 67.2 percent to 89.9 percent in 2018.

Three emphasis areas were added to the SHSP in 2011, while three others were removed. The 2011-2014 Plan adopted measurable highway safety improvement goals and identified performance measures to track and monitor implementation of strategies.

The 2015-2019 Plan included 11 emphasis areas, with Young Drivers being grouped with Mature Drivers to comprise a High Risk Drivers emphasis area, and Bicyclists being grouped with Pedestrians to comprise a Non-Motorized Users emphasis area. The 2015-2019 Plan further refined Kentucky's targets and goals by adopting the Toward Zero Deaths vision and establishing a goal of reducing fatalities and serious injuries by 50 percent over a 15-year period.

## What is different about this SHSP

While the process used to complete this version of Kentucky's SHSP shares aspects in common with the previous plans, the current approach differs in several ways: improved focus, benchmarking, data-informed decision making, and highlighting opportune efforts.

First, recognizing that SHSPs often contain a large number of emphasis areas, strategies and actions, more focus was desired in this plan. To facilitate this focus, emphasis areas were identified by analyzing state data to determine the areas with most potential for improvement (initially, those with the largest numbers of fatal and serious injury crashes). Emphasis areas were also identified by survey of other state programs, focusing on those with the greatest potential for improvement, as well as those where proven countermeasures were most available. Next, strategies were identified using an interdisciplinary focus group approach, as well as review of plans from other Kentucky safety programs and other states' plans. From these activities, it became clear that a single strategy often held potential for reducing crashes across several emphasis areas. Thus, it was possible to limit the number of strategies to those cross-cutting several emphasis areas without sacrificing the overall potential for improvement.

A second difference between this and previous SHSPs is the use of surrounding states as benchmarks to identify areas where Kentucky may be lagging behind its neighbors—areas that could hold the most promise for crash reductions in the Commonwealth.

Third, while this SHSP is necessarily and rightly data-driven, data can be limited in its ability to identify all contributing causes of crashes. Therefore, focus is amplified on those crash types that are underrepresented, such as distracted driving, and/or those anticipated to be a growing area of concern in the future, such as drugs and polytox. As statistical challenges may mask crash causes and the proper identification of countermeasures, this plan encourages the continuous improvement in data quality and analytical methods.

Lastly, while this plan is more focused than previous plans, this is not intended to discourage efforts to improve safety that may not necessarily fit cleanly within the emphasis areas and key strategies identified. To facilitate diverse and opportune efforts, this plan provides a "pick list" of proven strategies and actions that may be taken by agencies, clubs, not-for-profits, institutes, and/or individuals with limited time and resources who wish to contribute to the prevention of serious injuries and deaths in Kentucky.

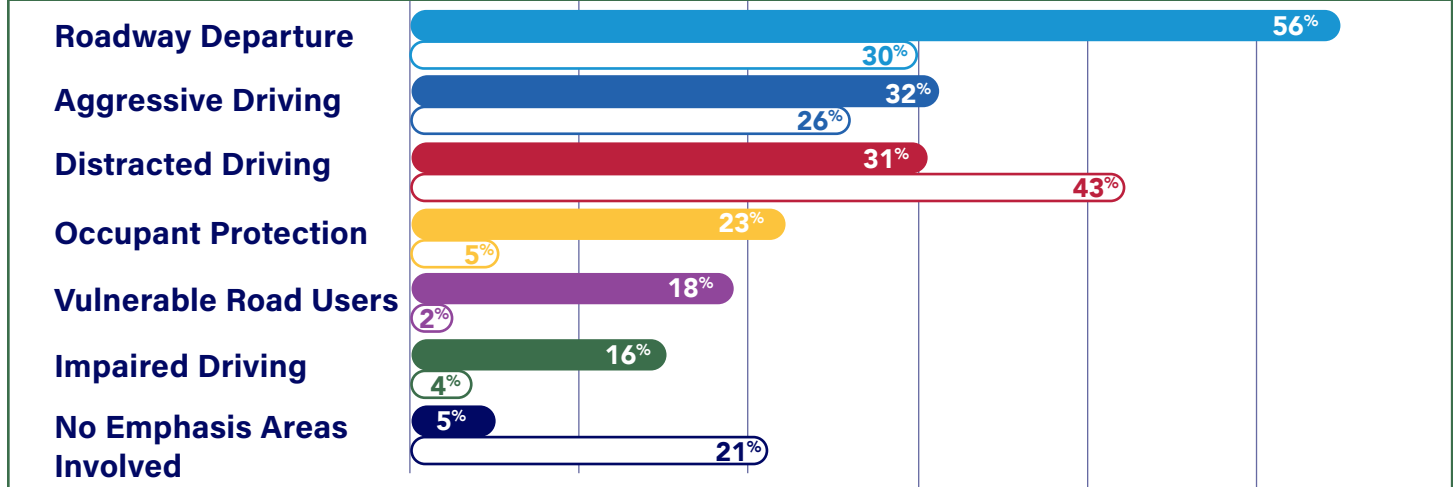
# How this SHSP was Developed

## Emphasis Area Selection

For this SHSP, a comprehensive analysis of crash data was conducted to identify trends, patterns, and opportunities. Crash analysis included fatalities, serious injuries, fatal and serious injury rates, location of crashes, roadway features, behavioral factors, drivers, vehicle types, and non-motorized roadway users. Within this analysis, Kentucky's data for these categories were compared to bordering states and the national average to situate Kentucky's highway safety performance. Data for each of the emphasis areas from the 2015-2019 Plan were updated and analyzed. Particular attention was given to relationships within the emphasis area data to stress the complexity and interconnectedness of crashes in terms of roadway attributes, human behavior, and roadway users.

Results from the data analysis led to the selection of six emphasis areas for the 2020-2024 SHSP:

## Percent of All Fatalities and Serious Injuries by Emphasis Area 2014-2018



The chart above shows the percentage of all crashes (hollow bars) and crash fatalities + serious injuries (solid bars) from 2014 to 2018 for which each of the emphasis areas were involved.

At 56 percent, Roadway Departure accounted for the highest number of fatalities and serious injuries, despite only being involved in 30 percent of all crashes. Aggressive Driving was the second most involved factor at 32 percent of all fatalities and serious injuries and 26 percent of all crashes. Distracted Driving had the highest involvement of all crashes at 43 percent and was involved in 31 percent of all fatalities and serious injuries.

The other three emphasis areas - Occupant Protection, Vulnerable Road Users, and Impaired Driving - were each involved in less than 5 percent of all crashes. However, their involvement in fatalities and serious injuries was much higher, at 23 percent, 18 percent, and 16 percent, respectively. Only 5 percent of fatalities and serious injuries did not involve one of the six emphasis areas. Overall, 21 percent of all crashes did not involve an emphasis area.



## SHSP Workshops

After selection of the Emphasis Areas, a series of facilitated workshops were held at KYTC to generate strategies and countermeasures to be considered for inclusion. For the workshops, stakeholders from a variety of backgrounds with a shared interest in highway safety were invited to attend. Stakeholders representing all four 'E's - Education, EMS, Enforcement, and Engineering - participated. For stakeholders who were unable to attend, follow-up opportunities were provided to gather their input through written comments. Additional strategies and countermeasures were generated at the September 2019 GECHS meeting.

Review and analysis of the of the ideas and comments generated from the workshops resulted in a focused and prioritized set of strategies that are cross-cutting in nature, i.e., they address more than one emphasis area, and are identified for their potential to improve highway safety. In this plan, the strategies are listed separately rather than within the emphasis areas in order to reinforce the need to work collaboratively across emphasis areas to significantly improve highway safety.



## Additional Safety Performance Special Rules

Federal provisions enacted by the Moving Ahead for Progress in the 21st Century (MAP-21) Act and carried through the Fixing America's Surface Transportation (FAST) Act identify special considerations to be given to improving safety on rural roads and the safety of older drivers and pedestrians. Two special rules with accompanying performance measures were created for states to monitor their progress in these areas.

### High Risk Rural Road Safety

MAP-21 legislation redefined and created a special rule for High Risk Rural Roads (HRRR). States are required to provide a definition for HRRRs in the SHSP and monitor safety performance within this class. The special rule applies when fatality rates (per VMT) of HRRRs, measured as 5-year rolling averages, are found to be on the increase.

As part of the Highway Safety Improvement Program's (HSIP) prioritization of safety improvement projects, HRRRs are included in the problem identification process. Consistent with guidance for implementing HSIP, HRRRs in Kentucky are defined as roadways having a functional classification of rural major collector, rural minor collector, or rural local access, that either have a speed limit of 50 mph or greater (Kentucky's rural roadways most at risk for fatal roadway departure crashes), or have been identified as having a higher than average fatal and serious injury crash risk through a data-driven process.

Based on the most recent comparison periods of 5-year rolling averages, fatality rates for crashes on Kentucky's HRRRs have not increased; therefore, the special funding rule for those classes of roads is not applicable. Nevertheless, rural road safety remains a priority for HSIP. As a requirement of HSIP, funded projects are required to be consistent and aligned with the emphasis areas and strategies identified in the Kentucky SHSP.

### Older Drivers and Older Pedestrians

The second special rule associated with selection and funding of HSIP projects is related to older drivers and pedestrians. This rule requires states to track the rate (per capita) of traffic fatalities and serious injuries combined for drivers and pedestrians aged 65 and older. The rule applies when the rate, measured as a 5-year rolling average, is found to have increased over the prior two years.

This rule also does not apply, as Kentucky did not experience an increase in per capita fatality and serious injury rates for older drivers and pedestrians when comparing the most recent period of 5-year rolling averages. However, this SHSP does include provisions for improving highway safety for older drivers and pedestrians. The Vulnerable Users emphasis area includes all pedestrians and identifies strategies for preventing fatalities and serious injuries. Additionally, strategies directed both specifically and more broadly at improving highway safety for older drivers are included.

# Implementation & Evaluation

## Highway Safety Relationship Structure

### The Team:



### WHY?

This plan sets very aggressive goals toward preventing fatal and serious injury crashes. The implementation of these strategies is urgent in order to attain those goals and have Kentuckians, and visitors to the Commonwealth, arrive safely at their destination.

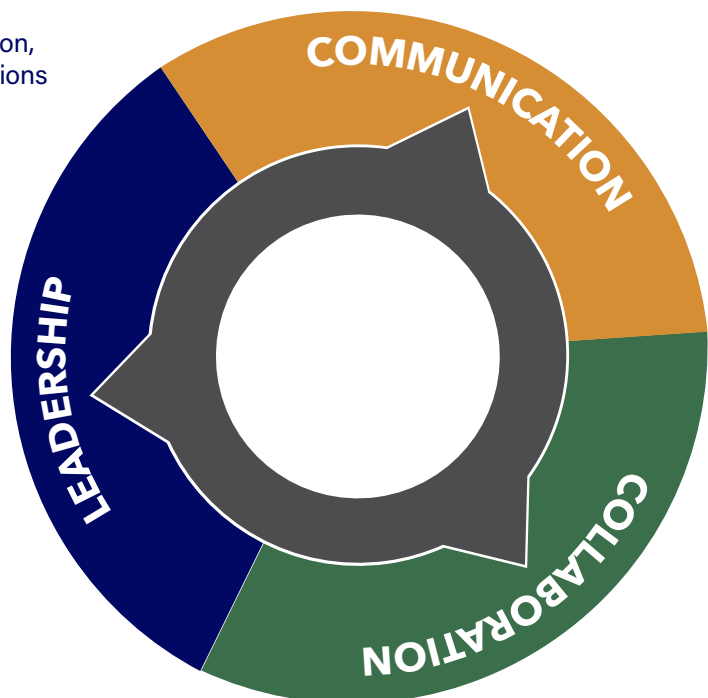
### HOW?

Successful implementation of this SHSP will result in actions that save lives and prevent serious injuries. To achieve this, a comprehensive statewide highway safety program is necessary to guide implementation of safety strategies on Kentucky's highways. In Kentucky, this program is administered by the GECHS, the KOHS, and emphasis area task forces. Each of these are unified in their commitment to:

**Leadership:** Bold, ambitious and innovative leadership is essential to achieving the goals set forth in this plan. Leaders are responsible for influencing policy direction, setting priorities, and defining performance expectations for those responsible for its implementation.

**Communication:** Developing and delivering a consistent and impactful message is an effective way to spread awareness and promote ownership of a transportation-safety culture.

**Collaboration:** Establishing a broad-based SHSP coalition promotes shared responsibility among agencies and individuals. It also leverages resources and enables combinations of strategies and countermeasures that more effectively and efficiently improve safety. Finally, it broadens the areas of expertise involved in highway safety. Each of the 4Es provide necessary knowledge and can offer meaningful approaches. All working together can break down a "siloeed" mindset to produce a coordinated, comprehensive approach to safety.





## Governor's Executive Committee on Highway Safety (GECHS)

GECHS was established to combat the epidemic of fatalities and injuries occurring on Kentucky's highways. The Committee is an executive level, multi-agency group of highway safety advocates from varying backgrounds that serve with "one voice" on Kentucky highway safety issues. It has the responsibility to create and implement an integrated and strategic highway safety management program that is data-driven and performance-based. The Executive Committee also coordinates the development and implementation of goals and supporting actions, facilitates the acquisition of needed resources, and provides additional support as needed.



KOHS is responsible for the day-to-day operations of Kentucky's highway safety programs. Housed within the KYTC, KOHS supports effective and collaborative partnerships to advance highway safety awareness, education, and enforcement in an effort to prevent lives from being lost on Kentucky roadways. The KOHS works specifically to save lives by preventing severe highway crashes through relevant, data-driven, outcome-based approaches and effective program delivery. KOHS staff members serve to support highway safety efforts in program management, traffic records, impaired driving, and occupant protection.



## Highway Safety Improvement Program

HSIP is a core federal-aid program with the purpose of achieving a significant reduction in traffic fatalities and serious injuries on all public roads. Under the requirements of the FAST Act, states are required to administer the HSIP with a data-driven, strategic, and performance-focused approach to improving highway safety, primarily through the implementation of infrastructure-related highway safety improvements. Kentucky's HSIP funding is approximately \$41 million annually, and the program is administered by KYTC's Division of Traffic Operations.

As one of the primary mechanisms for addressing the engineering side of highway safety, the focus of Kentucky's HSIP is on the users of our highway network. By seeking to eliminate and reduce severe outcomes along our state's highways, the HSIP not only supports the SHSP by improving highway safety, but also KYTC's mission by enhancing the quality of life in Kentucky.

Traditionally, HSIP has focused on the implementation of highway projects with engineering countermeasures that are consistent with Kentucky's SHSP and that improve a hazardous road location and/or address a highway safety issue. When it comes to project selection, HSIP staff utilize a data-driven approach incorporating Highway Safety Manual methodologies to identify improvements and prioritize investments on highway sections with the greatest potential for a reduction in crash numbers and crash severity. More recently, HSIP staff has expanded their efforts beyond project lettings to include the propagation of highway safety culture and in all phases of project development and delivery across the Commonwealth.



## Emphasis Area Task Forces

Individual task forces for each of the six SHSP emphasis areas are formed by the GECHS to address specific concerns for reducing fatalities and serious injuries on Kentucky's highways. The KOHS provides support and data analysis expertise to the emphasis area task forces for identification and prioritization of new strategies. Emphasis area task forces are multi-disciplinary in nature, being comprised of stakeholders with varying types of relevant expertise. Emphasis area task forces are responsible for developing, implementing, and monitoring the effectiveness of highway safety strategies in coordination with the SHSP.



## Technical Leadership Council

The SHSP Technical Leadership Council is comprised of leadership from each of the emphasis area task forces. The Council serves as a liaison between the GECHS and the emphasis area task forces to coordinate efforts that are cross-cutting, potentially benefitting multiple aspects of highway safety. The Council is responsible for translating the mission and vision of the GECHS into strategies and actions to be implemented by the emphasis area task forces.

### Action Plans

Emphasis area action plans are created to formalize and communicate the strategies of the emphasis area task forces. Effective action plans include the list of strategies, the related actions to implement these strategies, the person or agency responsible, the resources involved, and the timeframe. These will be used to monitor progress toward fulfilling the SHSP.

Action plans for two emphasis areas were developed in 2019 and will carry forward through this SHSP:

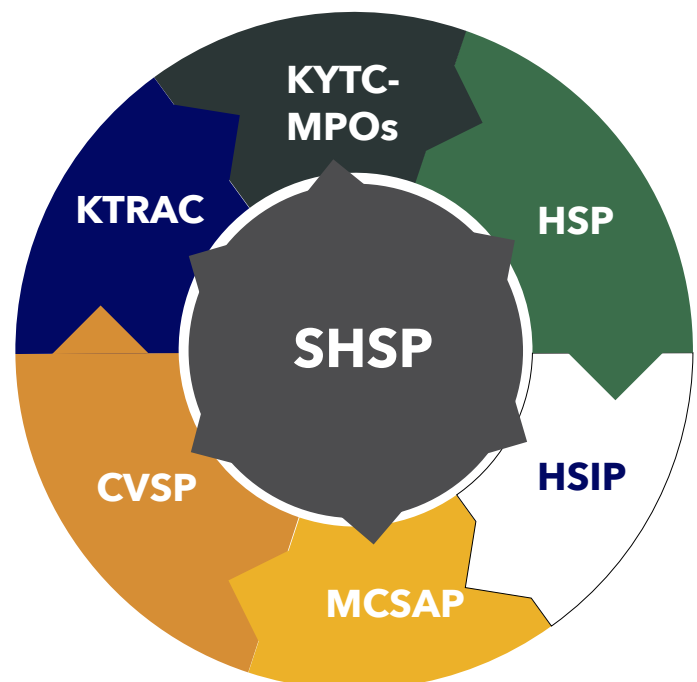
- **Occupant Protection:** The occupant protection plan provides a comprehensive strategy to prevent deaths and serious injuries that result from people not utilizing proper restraints. The plan increases public awareness and addresses behavior modification to improve the observed seat belt usage rate in Kentucky.
- **Impaired Driving:** The impaired driving plan identifies strategies and directs actions toward the prevention of the serious consequences that result from impaired driving, including collisions, serious injuries, and most importantly fatalities. The plan's strategies are oriented toward prevention, criminal justice approaches, communication and education, alcohol and drug misuse, and program evaluation.

Action plans for the remaining four emphasis areas will be developed by the emphasis area task forces beginning in 2020.

## Integration with Other Kentucky State Plans, Programs, and Funding

The Kentucky SHSP is the state's comprehensive transportation safety plan. The SHSP serves as the coordinating document for other plans and programs that involve highway safety.

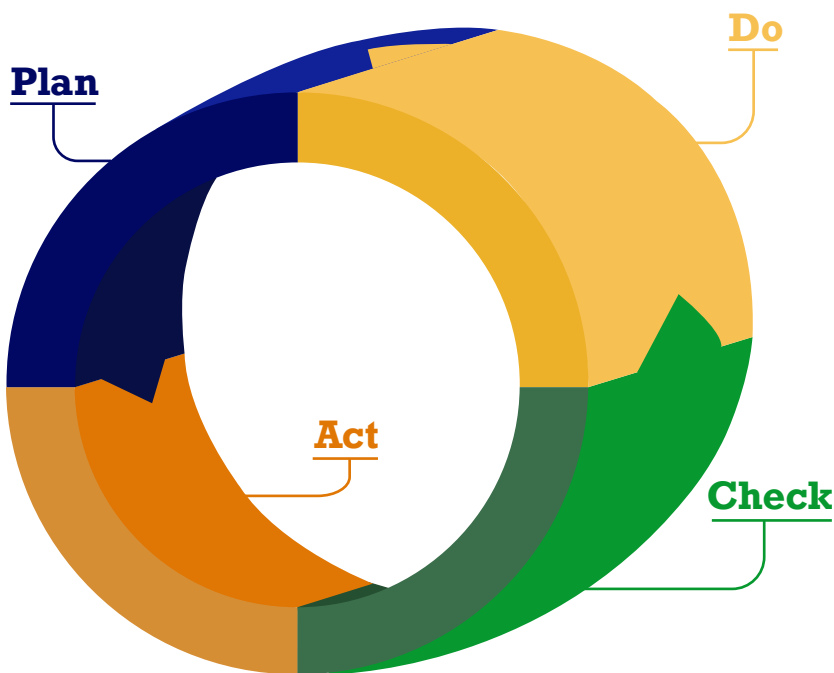
- **Federal Highway Administration (FHWA) - Highway Safety Improvement Program (HSIP)**
- **National Highway Traffic Safety Administration (NHTSA) - Highway Safety Plan (HSP)**
- **Federal Motor Carrier Safety Administration (FMCSA) - Motor Carrier Safety Assistance Program (MCSAP)**
- **FMCSA - Commercial Vehicle Safety Plan (CVSP)**
- **Kentucky Traffic Records Assessment Committee (KTRAC) - Strategic Plan for Data Improvement**
- **KYTC Statewide and Metropolitan Planning Organizations (MPO) Long Range Transportation Plans**
- **Kentucky Freight Plan**



## Funding

Funding from the previous sources will be used to implement the strategies and programs contained in this plan. In addition, recommendations from the Kentucky SHSP are expected to influence the priorities set in the aforementioned plans. Importantly, funding and resources must be leveraged across agencies and jurisdictional boundaries, making every agency have a meaningful role in implementing the SHSP.

## Monitoring and Evaluation



Continued evaluation provides guidance in the prioritization of safety resources, helps identify those efforts that are most effective as well as where potential course corrections are needed, and strengthens multidisciplinary cooperation as stakeholders work together to achieve a common goal. As Kentucky's SHSP is considered a living document, regular reviews will be conducted to ensure that the plan is current and on track. Efforts intended to further the goals of this SHSP, especially those funded through one of the agencies listed, will be monitored through post-project evaluations done to measure their effectiveness and their contribution to the overall improvement of highway safety.

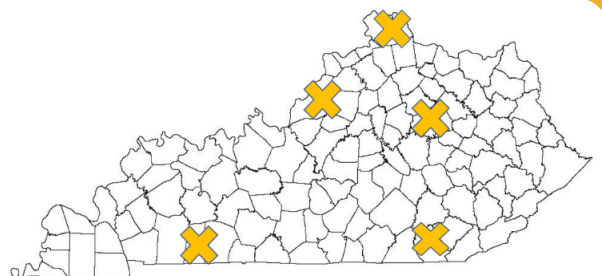
Specific targets are set within each emphasis area and an annual update will be prepared and presented to the GECHS to track performance. Monitoring and tracking of progress will help determine whether strategies should be redirected or selected for increased attention.

Statewide crash data will be updated each year to assess the performance of crash-linked emphasis areas relative to Kentucky's overall objective. Data on fatalities and serious injuries will be compiled and evaluated with an eye toward the stated performance measures.

Emphasis area task forces will meet at least twice per year to review the status of implemented strategies. They will use evaluation results to adjust their action plans and specific goals, identify challenges or barriers to further progress, and provide updates on applicable performance measures related to the strategies. The technical leadership council, under the direction of the GECHS, will periodically solicit feedback from the safety community to assess ongoing implementation efforts and will formally report each year to the Executive Committee on each emphasis area and the status of strategy implementation.

# 7,425 Highway Fatalities In The Past 10 Years

That's roughly equivalent to the ENTIRE POPULATION of Mt. Sterling, Corbin, Highland Heights, Middletown or Russellville





## Traffic Records

Kentucky has been a national leader when it comes to highway safety data. Continuing that trend will ensure that time and money spent on preventing serious injuries and fatalities will be investments, and not merely expenditures. Traffic records data inform each decision that is made. The better the data quality is, the better it can be understood and communicated to ensure better outcomes for those who travel Kentucky's transportation system.

Traffic records are used in safety programs to identify opportunities for improvement, support initiation of countermeasures, and verify effectiveness of programs or specific countermeasures. The quality of traffic records are monitored according to their Timeliness, Accuracy, Completeness, Uniformity, Integration, and Accessibility.

The Kentucky Traffic Records Assessment Committee (KTRAC) was formed to enhance the effectiveness and application of traffic records. More than 40 members serve on the committee, including officials from federal, state and local agencies who gather, analyze, and use traffic records data. KTRAC also includes members from local and state police departments and transportation and injury research groups at the University of Kentucky. KTRAC pursues highway safety improvement by augmenting access to (and the accuracy of) traffic records data, which in turn can be used to increase road safety. KTRAC conducts traffic records assessment in cooperation with NHTSA, FHWA, KYTC, and the Kentucky Transportation Center (KTC).





KTC works with liaison officials from the core agencies responsible for the collection and maintenance of traffic records databases:

1. Collision reporting and analysis (CRASH)—the repository for law enforcement crash reports.
2. Vehicle—the vehicle registration system.
3. Driver—the repository for information on licensed drivers and their histories.
4. Roadway—the database that stores information on local roads and the state highway system.
5. Citation and Adjudication—a repository containing the records of traffic citations, arrests, and final disposition of charges.
6. EMS and Injury Surveillance—The component repositories for data on motor-vehicle related injuries and fatalities.



# Emphasis Areas

Kentucky has selected six Emphasis Areas for the 2020-2024 SHSP:



## Aggressive Driving

*Driving behavior characterized by speeding, disregarding traffic control, following too closely, weaving in traffic, failure to yield the right of way, or improper passing.*



## Distracted Driving

*Driving behavior characterized by cell phone usage, distraction, or inattention.*



## Impaired Driving

*Driving while under the influence of alcohol or drugs.*



## Occupant Protection

*Failure to use seat belt or child restraint while driving or riding in a vehicle.*



## Roadway Departure

*A crash type that results from a vehicle leaving its lane to the left or right.*



## Vulnerable Road Users

*Crashes involving pedestrians, bicycles, motorcycles, electric scooters, or other vehicles besides cars and trucks.*

Focus and opportunity guided the selection of the current emphasis areas. To identify and select these areas, data were collected from several sources. First, crash data was used to identify candidate areas by frequency. Next, national sources for effective countermeasures were consulted. Those emphasis areas with more effective countermeasures were given more weight in the selection process. Also considered in the selection process was the likely underrepresentation of crash factors in some areas (drug use and distracted driving). Next, a focus group of Kentucky safety stakeholders was convened to identify strategies in each of four highly ranked emphasis areas. Two additional highly rated emphasis areas were selected as they already have recently developed strategic action plans. One additional area (vulnerable road users) was selected due to the likelihood of future growth in crashes due to demographic and technology change.

## Data-Informed Process

It is recognized that while the data presented does provide a thorough analysis of crash statistics, it does not necessarily present a complete picture of Kentucky highway safety attributes. Some elements go unreported or underreported in the data due to a variety of factors.

Impaired Driving is one example. Presence of and impairment from alcohol is fairly straightforward to detect through field sobriety tests, breathalyzers, and blood alcohol level testing. Detecting presence of and impairment from drugs, however, is a more complicated endeavor. It is understood that crashes involving Impaired Driving are likely more frequent than is reported in this data due to the difficulty of testing for drug impairment.

A second example involves Distracted Driving. As cell phones have become nearly ubiquitous, more and more drivers are using their phones while driving to read or compose texts, for social media, for news updates, for navigation, for music and audio, and for phone calls. Crashes involving this type of behavior may not always show up in the data, as it may be unknown or difficult to prove that distracted driving was a causal factor in a given crash. Anecdotal evidence suggests that Distracted Driving is an even bigger challenge than the data reveals.

For these reasons, this SHSP is stated to be Data-Informed, rather than Data-Driven. The existing data is still the most important factor in analyzing crash statistics and safety performance. However it must also be remembered that the data can only tell so much, and other considerations should also be included.





## Additional Considerations



### Intersections

An intersection is an area of roadway where vehicles meet, cross or converge. From 2014 to 2018, 27 percent of all crashes and 16 percent of fatal crashes occurred at Kentucky intersections. For the majority of severe intersection crashes, emphasis areas from this SHSP are involved, particularly Aggressive Driving (i.e., speeding, running a red light, pulling out into oncoming traffic), Distracted Driving, or Impaired Driving. In addition, crashes involving Vulnerable Road Users (e.g., Pedestrians and Motorcyclists) frequently occur at Intersections. Strategies to prevent Intersection crashes will be included through this SHSP's implementation, particularly as those strategies overlap with the SHSP's emphasis areas.



### Mature Drivers

Mature Drivers are defined as those aged 65 years and older. Demographic trends suggest that a larger share of Kentucky's driving population will consist of mature drivers in the coming years, as the Baby Boomer cohort advances in age. From 2014 to 2018, 17 percent of all crashes and 21 percent of fatal crashes in Kentucky involved mature drivers. The majority of severe crashes involving mature drivers also involve emphasis areas included in this SHSP, such as Roadway Departure (56 percent), Aggressive Driving (34 percent), Occupant Protection (33 percent), and Distracted Driving (30 percent). Strategies to prevent mature driver involved crashes will be included through implementation of this SHSP in combination with these overlapping emphasis areas.



## Emphasis Area



# AGGRESSIVE DRIVING



### Overview

Aggressive driving is generally defined as actions by drivers that result in adverse safety effects for themselves and other drivers and contribute to crashes. Aggressive Driving includes:

- Speeding
- Failure to yield right of way
- Following too closely
- Disregarding traffic control (e.g., stop signs, red lights)
- Weaving in traffic

From 2014 to 2018, aggressive driving was involved in 1,167 fatalities on highways in Kentucky, accounting for 31 percent of all traffic fatalities.

### Opportunities

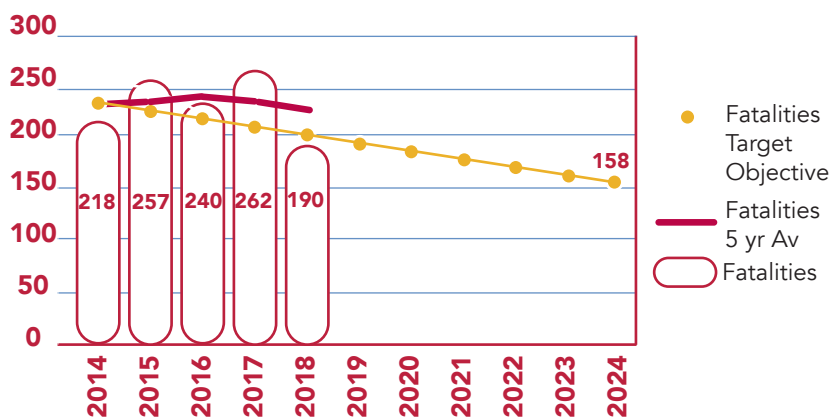
There are many ways to prevent aggressive driving behaviors, including driver education that highlights the impacts of aggressive driving, focused enforcement of related traffic laws, and consideration of roadway design features targeting these behaviors.

This SHSP includes multiple strategies for combatting aggressive driving in Kentucky, including:

- Supporting legislative opportunities to curb aggressive driving, such as automated enforcement in school and work zones.
- Performing saturation highway patrols in aggressive driving problem areas.
- Developing and providing education programs focused on speed related outcomes.



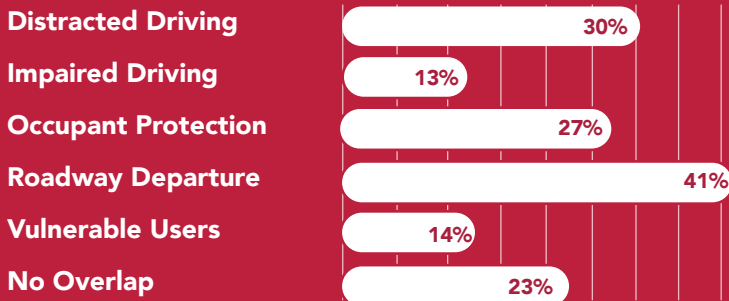
### AGGRESSIVE DRIVING Goal & Objective



Kentucky has identified Aggressive Driving as an emphasis area due to the severity of the problem and opportunity for improvement. A goal of this SHSP is to identify and implement strategies that prevent future aggressive driving-related fatalities and serious injuries.

To measure progress toward this goal, an objective has been set to prevent future aggressive driving-related fatalities such that the annual total will fall at or below 158 by December 31, 2024.

## AGGRESSIVE DRIVING: Overlap with other Areas (% Fatalities + Serious Injuries 2014-2018)



**41%**

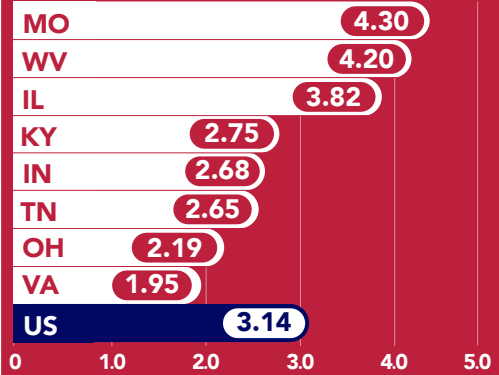
of Aggressive Driving fatalities & serious injuries occurred in crashes where Roadway Departure was also a factor.

The Driver was Male in

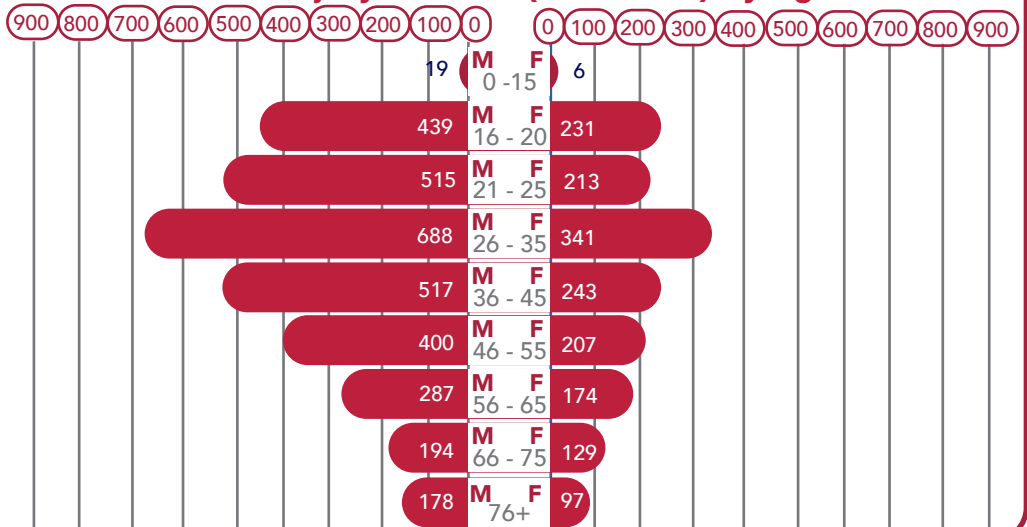
**66%**

of fatal & serious injury crashes involving Aggressive Driving.

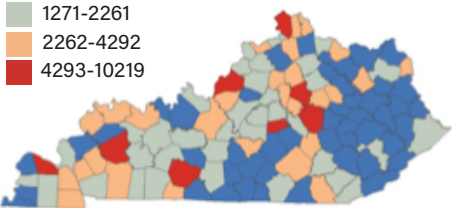
## Speeding Involved Crashes Fatality Rate for KY & Bordering States 2013-17



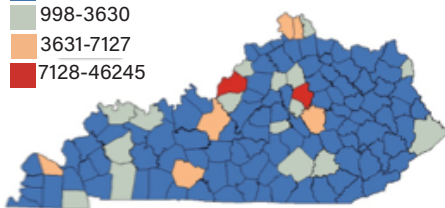
## Aggressive Driving: Fatal & Serious Injury Crashes (2014-2018) By Age & Gender



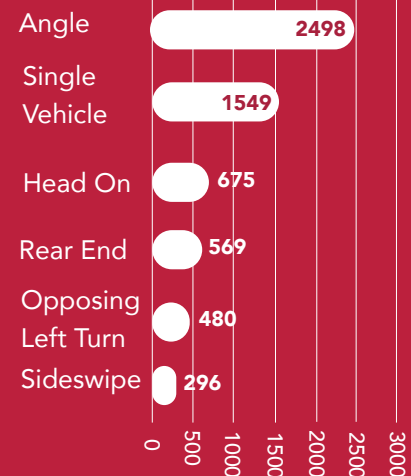
## Aggressive Driving Crashes per 100K Population 2014-2018



## Total Aggressive Driving Crashes by County 2014-2018



## Aggressive Driving: Fatalities & Serious Injuries by Crash Type



**31%** of crash fatalities in Kentucky involved **Aggressive Driving.**

## Emphasis Area

# DISTRACTED DRIVING



### Overview

Driving is a complex behavior that demands constant attention to the road. The three main types of distracted driving involve drivers removing:

1. Their eyes from the road
2. Their hands from the wheel
3. Their minds from the task of driving

Distracted driving is a mounting concern, as modern technology contributes to all three types of distraction. The risk of a crash escalates when drivers send texts, make or receive calls on their cell phones, or interact with social media

while driving. When operating a vehicle all of these activities can distract a driver from the task at hand, increasing the likelihood of a fatal crash.

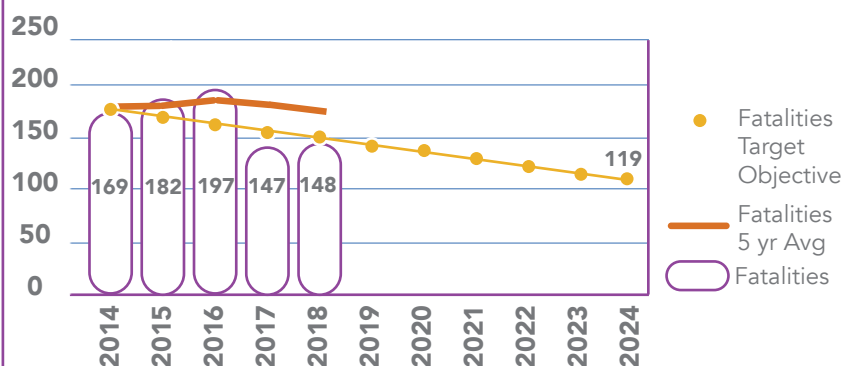
Of the 3,733 highway fatalities in Kentucky between 2014 and 2018, 843 involved distracted driving—22 percent of all deaths. These numbers likely understate the problem, as it can be difficult to identify and/or prove distraction as a contributing factor to a crash.

### Opportunities

Attitudes toward the usage of cell phones while driving must be changed in order to prevent the negative outcomes associated with distracted driving. To that end, this SHSP includes multiple strategies for combatting distracted driving in Kentucky, including:

- Supporting legislative action to ban handheld devices while driving.
- Developing media campaigns that emphasize “Buckle up, phone down.”
- Implementing intersection design improvements to increase the visibility of signals, signage, and delineation.

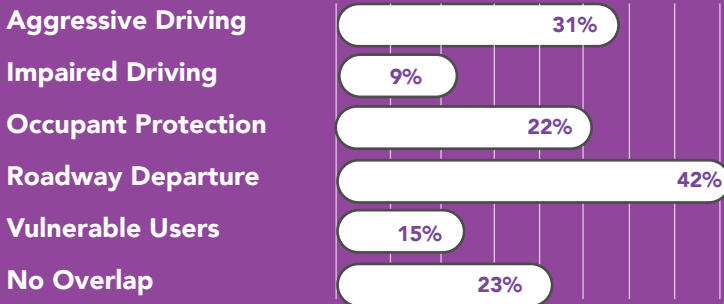
### DISTRACTED DRIVING Goal & Objective



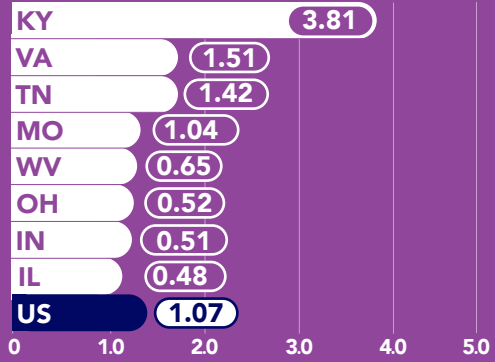
Kentucky has identified Distracted Driving as an emphasis area due to the severity of the problem and opportunity for improvement. A goal of this SHSP is to identify and implement strategies that prevent future distracted driving-related fatalities and serious injuries.

To measure progress toward this goal, an objective has been set to prevent future distracted driving-related fatalities such that the annual total will fall at or below 119 by December 31, 2024.

## DISTRACTED DRIVING: Overlap with other Areas (% Fatalities + Serious Injuries 2014-2018)



## Distracted Driving Crashes Fatality Rate for KY & Bordering States 2013-17



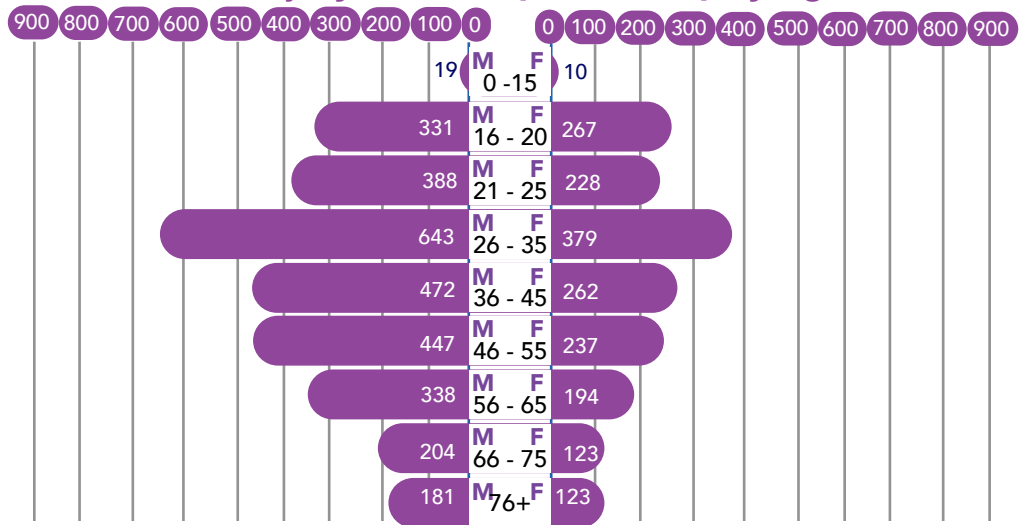
**42%**

of Distracted Driving fatalities & serious injuries occurred in crashes where Roadway Departure was also a factor.

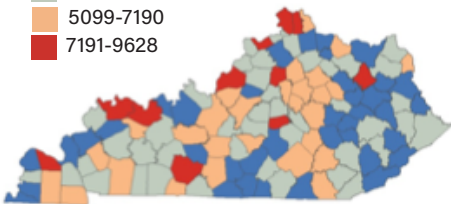
The Driver was Male in  
**62%**

of fatal & serious injury crashes involving Distracted Driving.

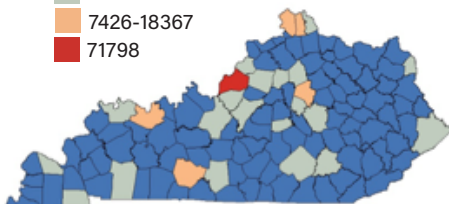
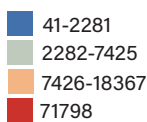
## Distracted Driving: Fatal & Serious Injury Crashes (2014-2018) By Age & Gender



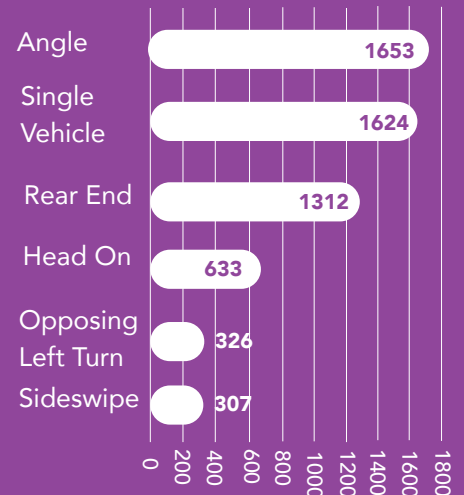
Distracted Driving Crashes per 100K Population 2014-2018



Total Distracted Driving Crashes by County 2014-2018



## Distracted Driving: Fatalities & Serious Injuries by Crash Type



**BUCKLE UP** **PHONE DOWN**

*Be safe, Kentucky.*



## Emphasis Area



# IMPAIRED DRIVING

### Overview

Impaired Driving is defined as driving a motor vehicle while under the influence of alcohol, illicit drugs, and/or prescription medications. Alcohol impairment is measured by blood alcohol concentration (BAC). As the BAC level goes up in the human body, it produces effects such as loss of judgment, altered mood, decline in visual functions, and deteriorating reaction times. In Kentucky, the statutory level of per se BAC impairment is 0.08, although functional impairment can occur at a much lower BAC level.

Kentucky has been tremendously impacted by overprescribed prescription drugs and is in the throes of an opioid crisis. Moreover, the use of marijuana and methamphetamines, among other illicit drugs, has continued to plague the Commonwealth. Despite increased training, law enforcement struggles with detection of drug and polysubstance-impaired drivers.

From 2014 to 2018, impaired driving was involved in 723 fatalities on highways in Kentucky, accounting for 19 percent of all traffic fatalities. These impaired driving numbers are likely underreported in the data due to difficulties and inconsistencies in drug usage detection.



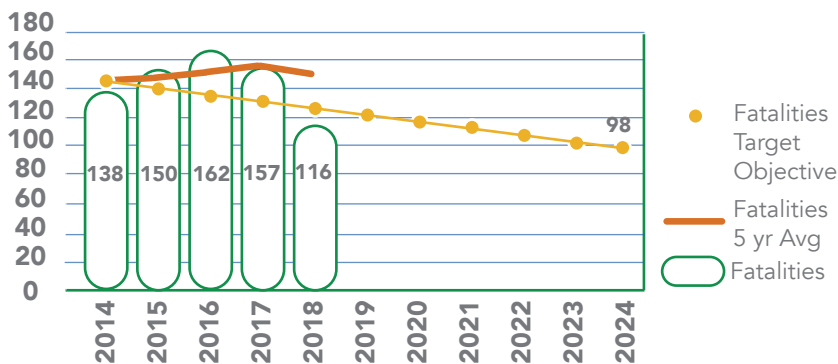
### Opportunities

Impaired Driving is 100 percent preventable. This SHSP includes multiple strategies for preventing impaired driving in Kentucky, including:

- Publicizing victim impacts in partnerships with victim advocacy organizations and survivor advocates.
- Performing targeted impaired driving enforcement campaigns, e.g., KSP's "Nighthawk."
- Continuing programs to train and certify Drug Recognition Experts (DREs), and providing Advanced Roadside Impaired Driving Enforcement (ARIDE) courses.
- Initiating and continuing programs, such as Lethal Weapon training and the Cops in Court program, that educate and train DUI focused prosecutors and law enforcement throughout the Commonwealth.



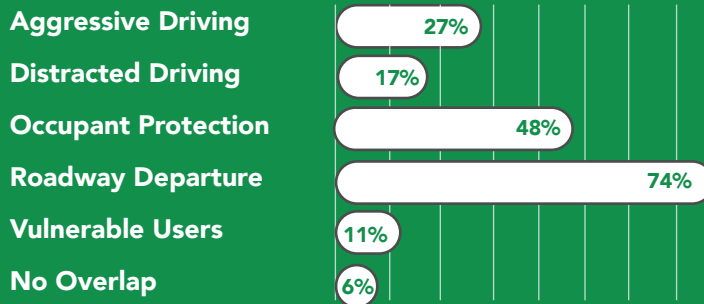
### IMPAIRED DRIVING Goal & Objective



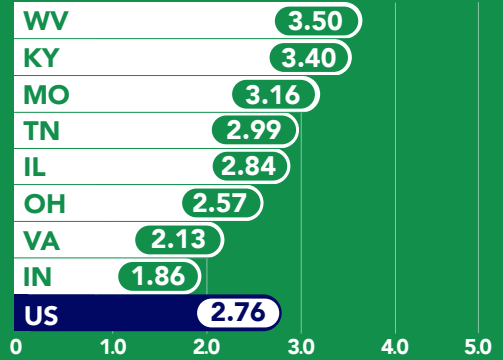
Kentucky has identified Impaired Driving as an emphasis area due to the severity of the problem and opportunity for improvement. A goal of this SHSP is to identify and implement strategies that prevent future impaired driving-related fatalities and serious injuries.

To measure progress toward this goal, an objective has been set to prevent future impaired driving-related fatalities such that the annual total will fall at or below 98 by December 31, 2024.

## IMPAIRED DRIVING: Overlap with other Areas (% Fatalities + Serious Injuries 2014-2018)



## Driver with Positive BAC Crashes Fatality Rate for KY & Bordering States 2013-17



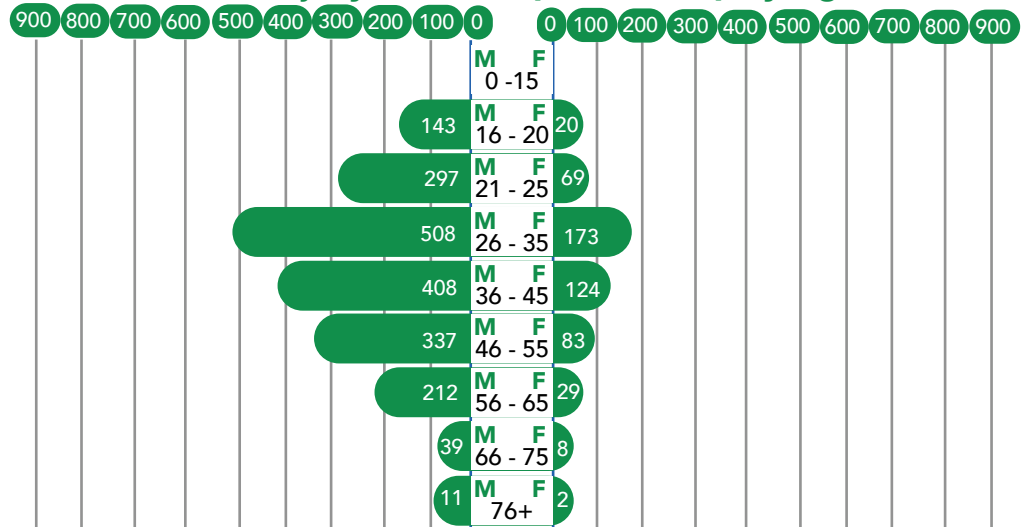
**74%**

of Impaired Driving fatalities & serious injuries occurred in crashes where Roadway Departure was also a factor.

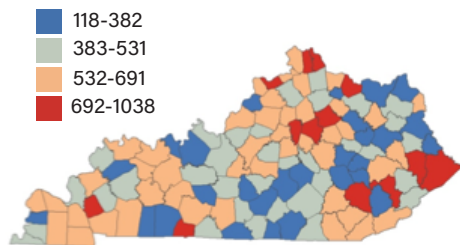
The Driver was Male in  
**79%**

of Fatal & Serious injury crashes involving Impaired Driving.

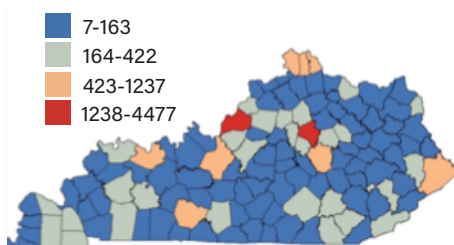
## Impaired Driving: Fatal & Serious Injury Crashes (2014-2018) By Age & Gender



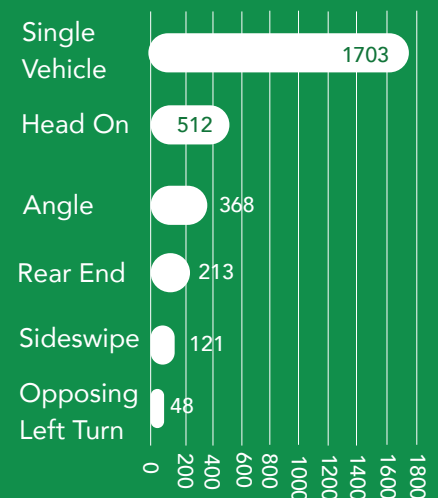
Impaired Driving Crashes per 100K Population 2014-2018



Total Impaired Driving Crashes by County 2014-2018



## Impaired Driving: Fatalities & Serious Injuries by Crash Type





# OCCUPANT PROTECTION



## Overview

Occupant protection includes the use of any protective device, such as a seat belt, child safety seat, or booster seat, which prevents death and/or injury in motor vehicle crashes. Seat belt usage reduces the risk of a fatal injury to front seat passengers by an estimated 45 percent. The simplest thing – it takes less than 2 seconds to buckle up – can prevent so many tragedies on Kentucky highways.

In 2018, 10.01 percent of Kentucky drivers were not wearing seat belts when in their vehicles. Yet a full 46 percent of vehicle occupants killed on Kentucky roadways were not wearing seat belts.

## Opportunities

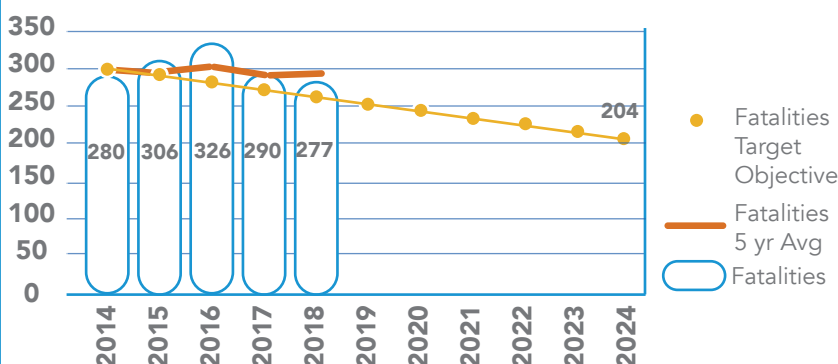
Kentucky has made significant progress in its effort to increase seat belt usage. Between 2006, the year Kentucky enacted a primary seat belt law, and 2018, the observed seat belt usage rate rose from 67 percent to nearly 90 percent. Opportunities remain to continue this upward trend, including:

- Developing high visibility media and enforcement campaigns centered on “Click It or Ticket.”
- Working with local agencies to perform and promote child safety seat checkups.
- Promoting traffic safety education through programs and outreach at schools, clinics, and community events.

its effort to increase seat belt usage. Between 2006, the year Kentucky enacted a primary seat belt law, and 2018, the observed seat belt usage rate rose from 67 percent to nearly 90 percent. Opportunities remain to continue this upward trend, including:



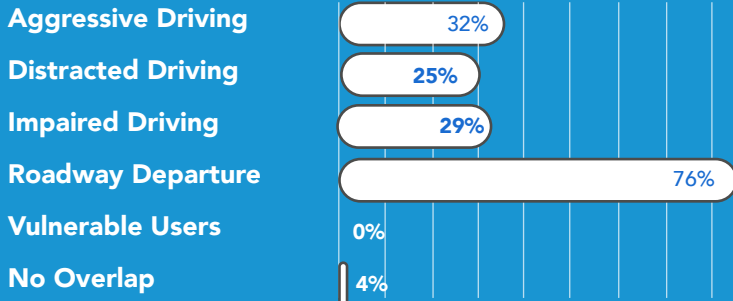
## OCCUPANT PROTECTION Goal & Objective



Kentucky has identified Occupant Protection as an emphasis area due to the severity of the problem and opportunity for improvement. A goal of this SHSP is to identify and implement strategies that prevent future occupant protection-related fatalities and serious injuries.

To measure progress toward this goal, an objective has been set to prevent future occupant protection-related fatalities such that the annual total will fall at or below 204 by December 31, 2024.

## Occupant Protection: Overlap with other Areas (% Fatalities + Serious Injuries 2014-2018)



**76%**

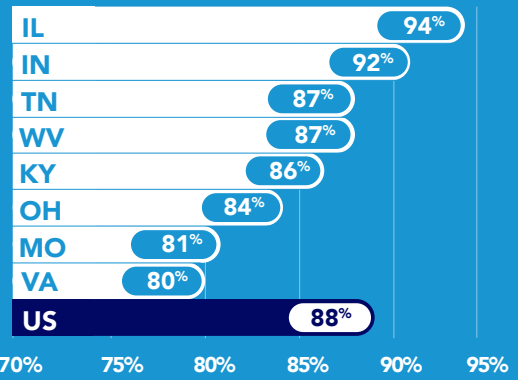
of Occupant Protection involved fatalities and serious injuries occurred in crashes where Roadway Departure was also a factor.

Male drivers & passengers comprised

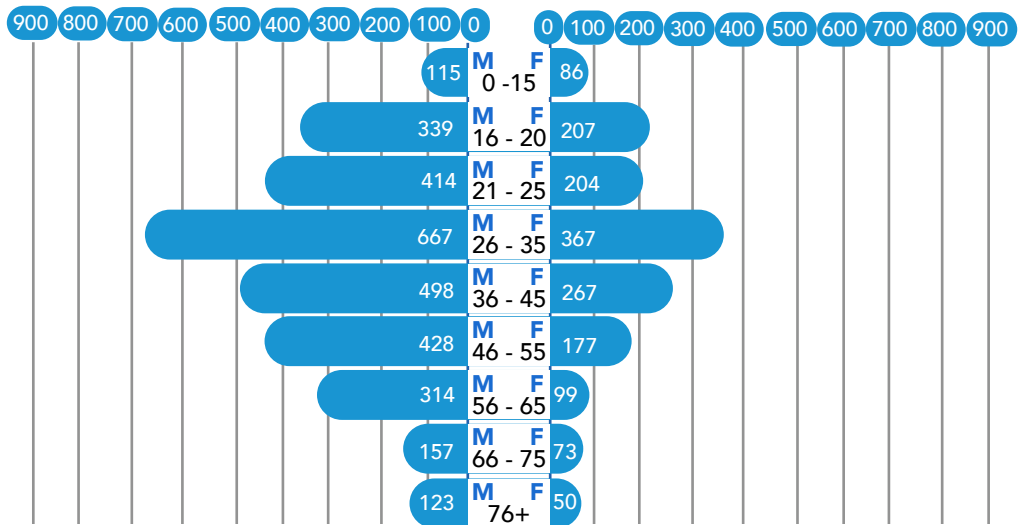
**67%**

of Occupant Protection involved fatalities & serious injuries.

## Average Seatbelt Usage: 2013-17

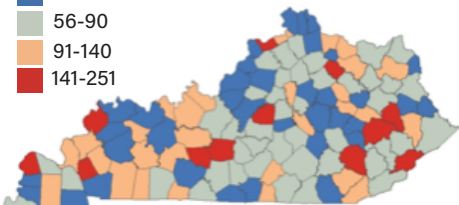


## Occupant Protection: Fatalities & Serious Injuries (2014-2018) By Age & Gender



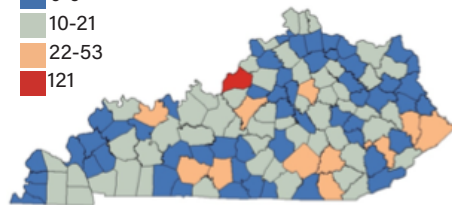
Occupant Protection Crashes per 100K Population 2014-2018

- 0-55
- 56-90
- 91-140
- 141-251

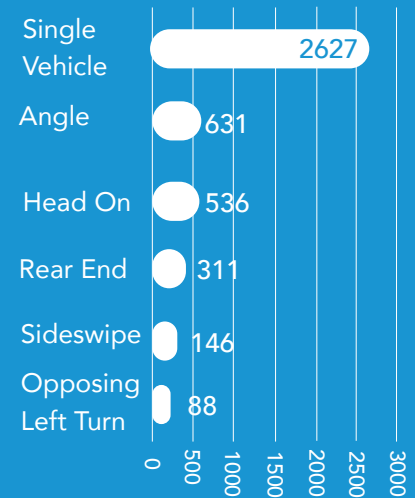


Total Occupant Protection Driving Crashes by County 2014-2018

- 0-9
- 10-21
- 22-53
- 121



## Distracted Driving: Fatalities & Serious Injuries by Crash Type



**BUCKLE UP** **PHONE DOWN**

*Be safe, Kentucky.*



## Emphasis Area



# ROADWAY DEPARTURE



### Overview

Roadway departure is defined as a crash that occurs after a vehicle crosses an edge line or a center line, or otherwise leaves the traveled way. Roadway departure crashes can result in some of the most severe outcomes due to the inherent danger of the event.

The need to prevent fatalities from roadway departure is imperative. From 2014 to 2018, 2,415 fatalities involved roadway departure—64 percent of all traffic fatalities in Kentucky.

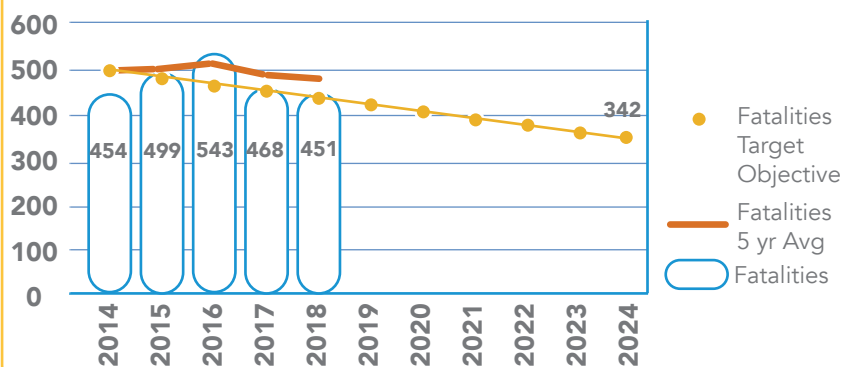
### Opportunities

This SHSP includes measures to prevent roadway departure crashes, including:

- Keeping the vehicle on the road by improving pavement friction, enhancing delineation along horizontal curves, alerting drivers with rumble strips, and improving nighttime visibility.
- Providing for safe recovery with clear zones, wider shoulders, and pavement drop-offs.
- Curbing driving behaviors, including aggressive, distracted, and impaired driving, that contribute to cars straying from the roadway.



### ROADWAY DEPARTURE Goal & Objective

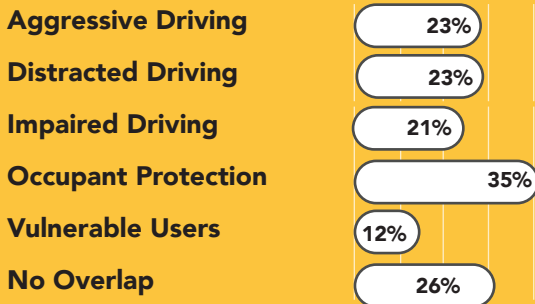


Kentucky has identified Roadway Departure as an emphasis area due to the severity of the problem and opportunity for improvement. A goal of this SHSP is to identify and implement strategies that prevent future roadway departure-related fatalities and serious injuries.

To measure progress toward this goal, an objective has been set to prevent future roadway departure-related fatalities such that the annual total will fall at or below 342 by December 31, 2024.



## ROADWAY DEPARTURE: Overlap with other Areas (% Fatalities + Serious Injuries 2014-2018)



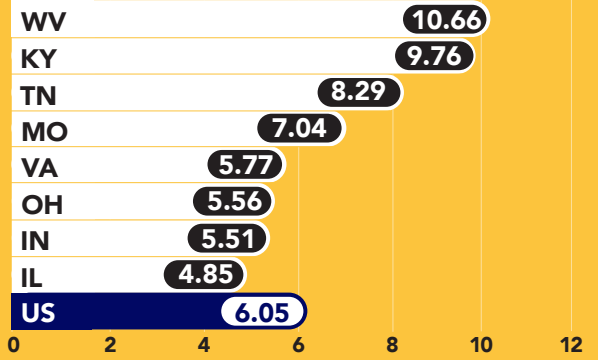
**35%**

of Roadway Departure fatalities & serious injuries occurred in crashes where Occupant Protection was also a factor.

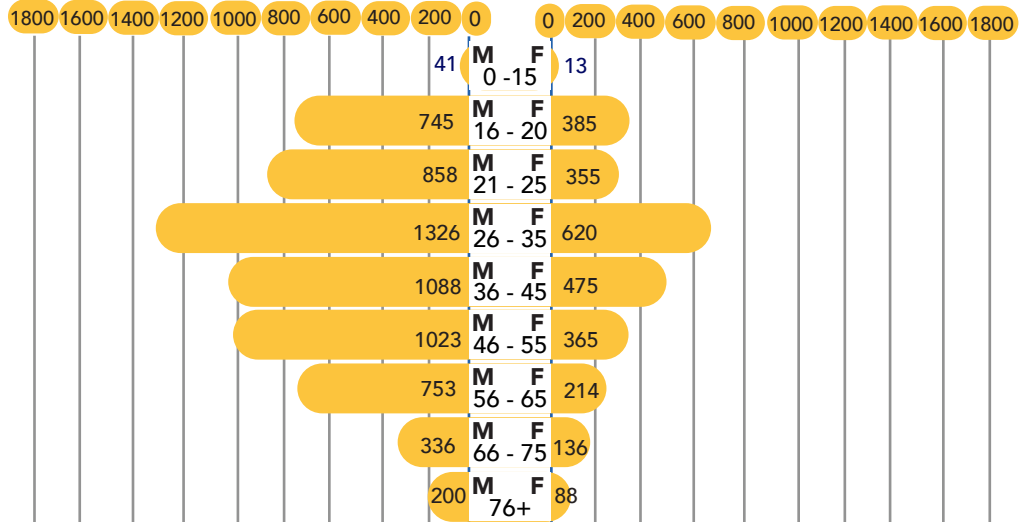
The Driver was Male in  
**71%**

of fatal & serious injury crashes involving Roadway Departure.

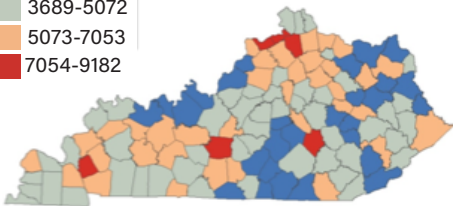
## Roadway Departure Crashes Fatality Rate for KY & Bordering States 2013-17



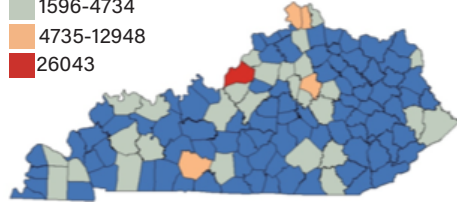
## Roadway Departure: Fatal & Serious Injury Crashes (2014-2018) By Age & Gender



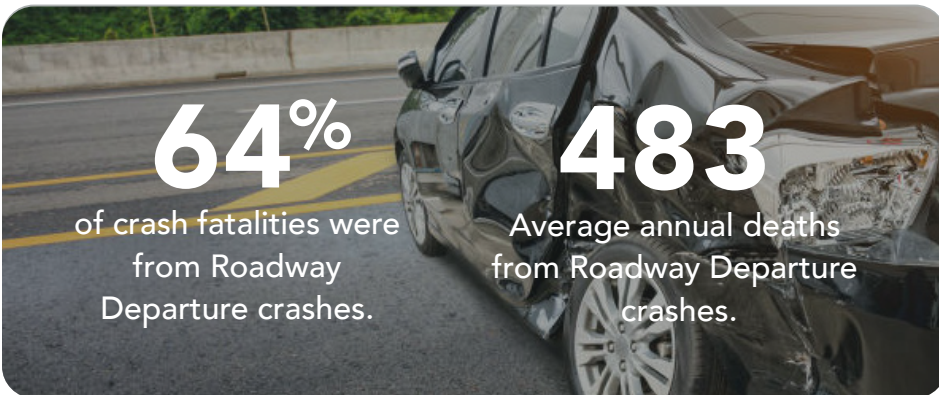
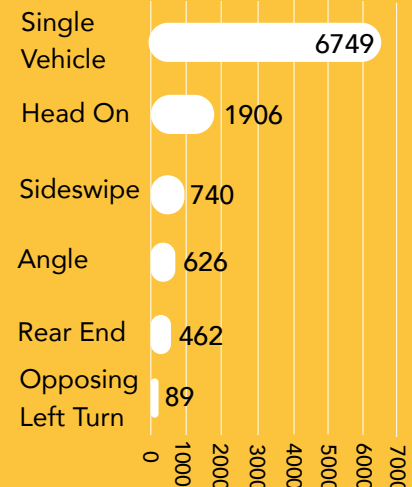
## Roadway Departure Crashes per 100K Population 2014-2018



## Total Roadway Departure Crashes by County 2014-2018



## Roadway Departure: Fatalities & Serious Injuries by Crash Type



**64%**

of crash fatalities were from Roadway Departure crashes.

**483**

Average annual deaths from Roadway Departure crashes.

# Emphasis Area



## VULNERABLE ROAD USERS



### Overview

For this SHSP, Vulnerable Roadway Users encompasses all non-motorized roadway users, such as pedestrians and bicyclists, in addition to motorcyclists, moped riders, and electric scooter riders. These varying types of roadway users are combined into one group here for the fact that all are at a significantly heightened risk of severe injury or death in the event of a collision with a motor vehicle.

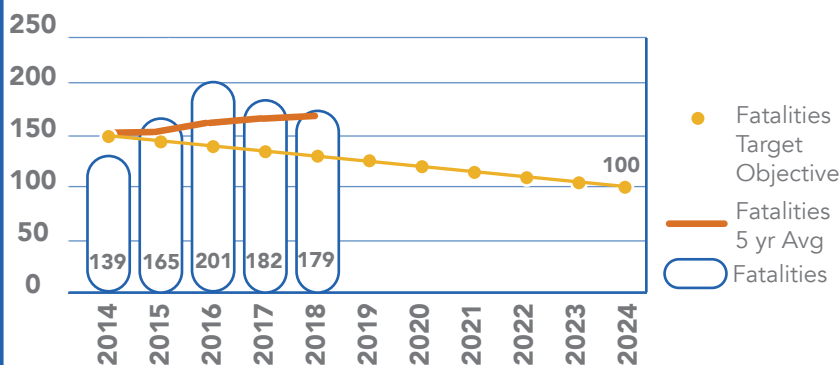
From 2014 to 2018, there were 866 fatalities involving vulnerable roadway users in Kentucky, which accounted for 23 percent of all highway fatalities. Of these 866 fatalities, 449 (52 percent) were motorcyclists, 378 (44 percent) were pedestrians, and 39 (5 percent) were bicyclists.

### Opportunities

This SHSP includes strategies to improve the safety of Kentucky's vulnerable roadway users, including:

- Installing Pedestrian Refuge Islands at busy intersections.
- Developing media campaigns to promote and educate on motorcycle safety.
- Developing Road Diets for corridors that feature large numbers of non-motorized road users.

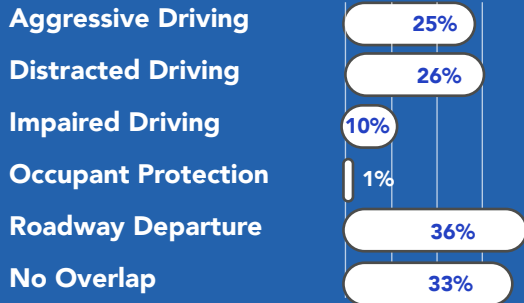
### VULNERABLE ROAD USERS Goal & Objective



Kentucky has identified Vulnerable Road Users as an emphasis area due to the severity of the problem and opportunity for improvement. A goal of this SHSP is to identify and implement strategies that prevent future vulnerable road user fatalities and serious injuries.

To measure progress toward this goal, an objective has been set to prevent future vulnerable road user fatalities such that the annual total will fall at or below 100 by December 31, 2024.

## VULNERABLE ROAD USERS: Overlap with other Areas (% Fatalities + Serious Injuries 2014-2018)



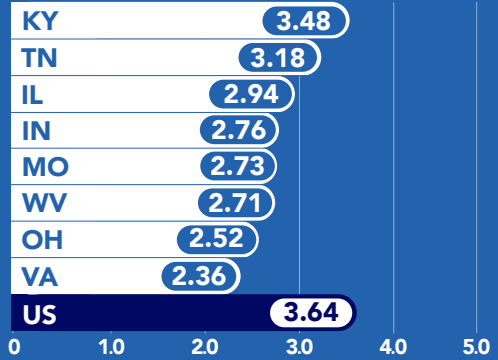
**36%**

of Vulnerable Road User fatalities & serious injuries occurred in crashes where Roadway Departure was also a factor.

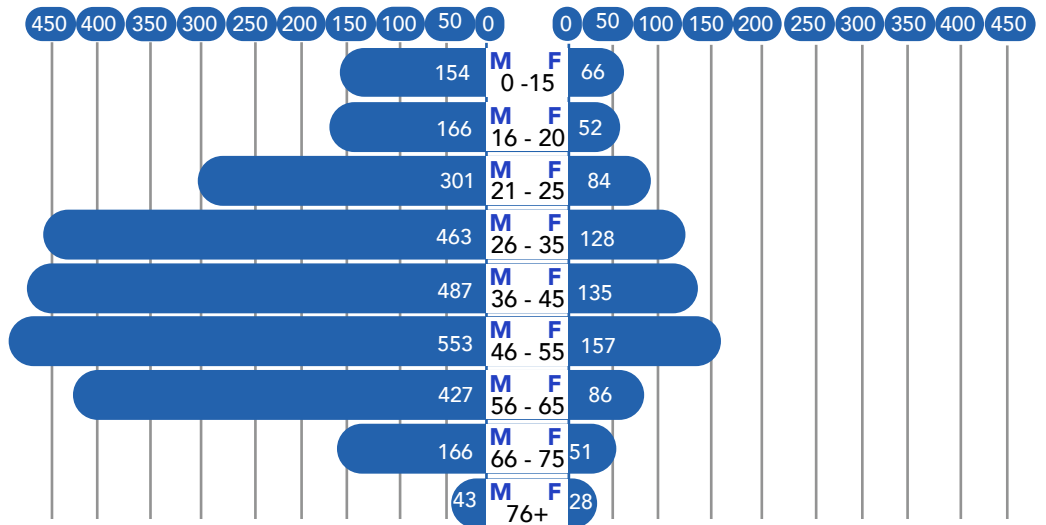
Men Comprised  
**78%**

of all Vulnerable Road User fatalities & serious injuries.

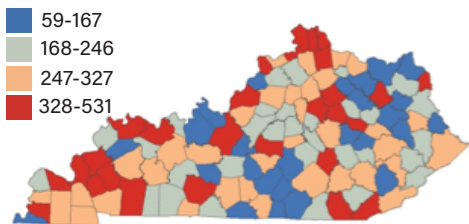
## Pedestrian + Bicyclist + Motorcyclist Crashes Fatality Rate for KY & Bordering States 2013-17



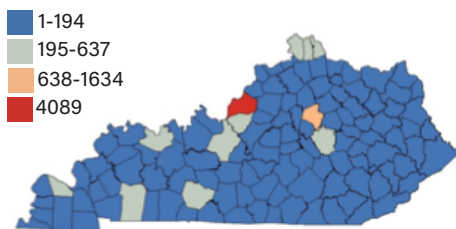
## Vulnerable Road Users: Fatalities & Serious Injuries (2014-2018) By Age & Gender



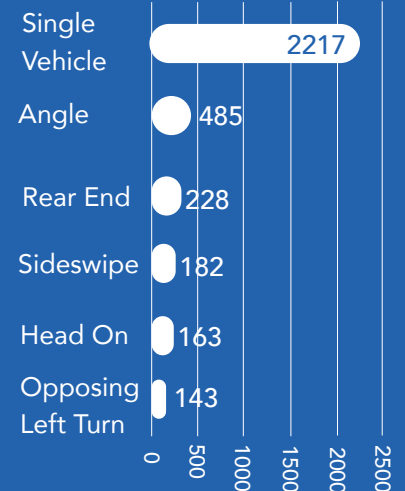
Crashes with Vulnerable Road Users per 100K Population 2014-2018



Total Vulnerable Road Users Crashes by County 2014-2018



## Vulnerable Road Users: Fatalities & Serious Injuries by Crash Type



**23%**

of all crash fatalities were Vulnerable Road Users.

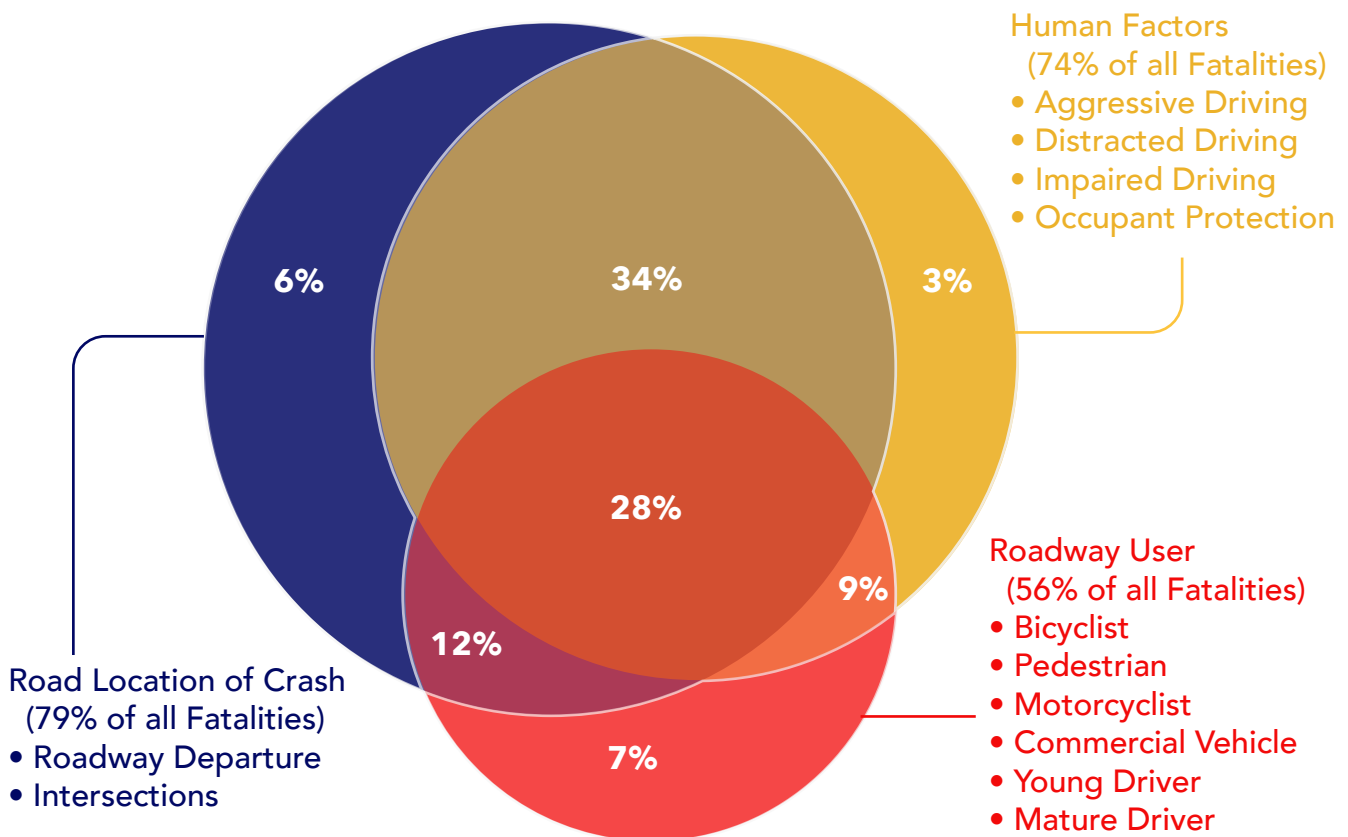






























## Strategies

Crashes are rarely caused by a single contributing factor. Commonly, it is a combination of factors which collectively lead to a crash outcome. The graphic below shows the interconnectivity of three different types of contributing factors over five years of fatal crashes (not to scale).
















































This plan, rather than focusing on individual emphasis areas and their derivative strategies, outlines more broadly implementable strategies which are known to be effective and can be applied to multiple emphasis areas. The categories into which the strategies are organized are education, EMS, enforcement, engineering, and legislation. Within each category are specific strategies which can be employed to affect the safety improvements Kentucky hopes to see over the next five years.








































Following are selected strategies by type that will be implemented through this SHSP. A full listing of SHSP strategies is included in Appendix I.





























EDUCATION STRATEGIES	Roadway Departure	Aggressive Driving	Distracted Driving	Impaired Driving	Occupant Protection	Vulnerable Road Users
<ul style="list-style-type: none"> <li>Publicize victim impacts</li> <li>Support drivers education in schools</li> <li>Judicial Outreach Liaison</li> </ul>						
<b>EMS STRATEGIES</b>						
<ul style="list-style-type: none"> <li>Support Quick Clearance</li> <li>Conduct an EMS assessment</li> </ul>						
<b>ENFORCEMENT STRATEGIES</b>						
<ul style="list-style-type: none"> <li>High visibility enforcement: "Nighthawk"</li> <li>Advanced Roadside Impaired Driving Enforcement (ARIDE)</li> <li>Drug Evaluation and Classification (DEC) Program: DRE Certification</li> </ul>						
<b>ENGINEERING STRATEGIES</b>						
<ul style="list-style-type: none"> <li>Rural road corridor improvements in partnership with local agencies</li> <li>Pedestrian Refuge Islands at intersections</li> <li>Access management</li> </ul>						
<b>LEGISLATIVE STRATEGIES</b>						
<ul style="list-style-type: none"> <li>Develop fines/penalties proportional to safety impact</li> <li>Including list of drugs and impairing substances to KY's per se DUI law</li> <li>Statutory approval for work zone automated enforcement</li> </ul>						

# Appendix I: All SHSP Strategies

EDUCATION STRATEGIES	Roadway Departure	Aggressive Driving	Distracted Driving	Impaired Driving	Occupant Protection	Vulnerable Road Users
Publicize victim impacts						
Support drivers' education in high school						
Education programs focused on speed related outcomes						
Judicial outreach liaison						
MADD - "Power of Parents" - Train additional facilitators to perform outreach to parents across the community						
Media campaigns: "Buckle Up, Phone Down"						
Educate law enforcement: Lifesavers Conference						
Education programs focused on overcorrection						
Partnerships – e.g., AARP, AAA						
Education programs focused on roadway departure						
Maintain, coordinate and continue to support the efforts of student groups						
Public service announcements that stigmatize/vilify distracted driving						
Public service announcements: Do Not Disturb						
Education programs focused on pedestrian safety						































































<b>EDUCATION STRATEGIES</b>	Roadway Departure	Aggressive Driving	Distracted Driving	Impaired Driving	Occupant Protection	Vulnerable Road Users
Media Campaigns: "Click It or Ticket"						
Media Campaigns: "Local Heroes"						
Educate first responders: "Buckle Up for Kids" training						
Educate law enforcement: "Below 100"						
Media Campaigns: Sports marketing						
Memo board messaging						
Support for ride sharing to prevent impaired driving						
Mandate completion of a Rules Clinic upon license renewal						
Media campaigns to promote and educate on motorcycle safety						
Promote traffic safety education through programs and outreach at schools, clinics, and community events						
Work with local agencies to perform and promote child safety seat checkups						
<b>ENGINEERING STRATEGIES</b>	Roadway Departure	Aggressive Driving	Distracted Driving	Impaired Driving	Occupant Protection	Vulnerable Road Users
Rural roads: Corridor improvements in partnership with HSIP and local agencies						
Safe Transportation for Every Pedestrian (STEP): Pedestrian refuge islands						
Rural roads: Use CRASH data to identify top 40 corridors to deliver increased messaging and enforcement						

ENGINEERING STRATEGIES	Roadway Departure	Aggressive Driving	Distracted Driving	Impaired Driving	Occupant Protection	Vulnerable Road Users
Access management						
Improve skid resistance						
Improve superelevation during resurfacing						
Turn lane improvements, such as providing turn lanes, offset left- or right-turn lanes						
Innovative intersections, such as roundabouts and RCUTs						
Dynamic/variable speed limits – e.g., in work zones						
Enhanced reflective signage; Enhanced striping and pavement						
STEP: Improve visibility of intersection markings and devices						
STEP: Road diets						
Continued upgrades to, and installation of, roadside barrier systems, such as guardrails and median barriers						
Continue the Safety Circuit Rider Program						
Local road safety plans						
Provide for safe recovery with clear zones, wider shoulders, and pavement						
STEP: Rectangular rapid flashing beacons						
Additional truck rest areas						

<b>ENGINEERING STRATEGIES</b>	Roadway Departure	Aggressive Driving	Distracted Driving	Impaired Driving	Occupant Protection	Vulnerable Road Users
Bike/pedestrian plan						
Edge and center line rumble strips						
Enhanced curve signage						
Continued installation of horizontal alignment signing						
STEP: Implement leading pedestrian intervals						
More sidewalks; separate facilities for bikes and pedestrians						
Reflective signal backplates						
Continue use of Safety Edge during resurfacing						
STEP: Improve street lightings						
Radar speed enforcement signs						
<b>ENFORCEMENT STRATEGIES</b>	Roadway Departure	Aggressive Driving	Distracted Driving	Impaired Driving	Occupant Protection	Vulnerable Road Users
High visibility enforcement: "Night-hawk"						
Advanced Roadside Impaired Driving Enforcement (ARIDE)						
Drug Evaluation and Classification (DEC) Program: Drug recognition expert (DRE) trained to detect impairment by substances other than alcohol						



ENFORCEMENT STRATEGIES	Roadway Departure	Aggressive Driving	Distracted Driving	Impaired Driving	Occupant Protection	Vulnerable Road Users
Saturation patrols						
Initiate and continue Lethal Weapon training and the Cops in Court program.						
Increase enforcement in high crash areas						
High visibility enforcement: "Click It or Ticket"						
High visibility enforcement: "Drive Sober or Get Pulled Over"						
Data mining for targeted enforcement and mitigation – cell phone data						
Sobriety checkpoints						
Support and fund recruitment/retention of enforcement personnel						
Increase traffic enforcement in high crime areas						
"Operation Zero Tolerance": Prevent the sale of alcohol to underage people						
EMS STRATEGIES	Roadway Departure	Aggressive Driving	Distracted Driving	Impaired Driving	Occupant Protection	Vulnerable Road Users
Support Quick clearance						
Conduct an EMS assessment						

LEGISLATIVE STRATEGIES	Roadway Departure	Aggressive Driving	Distracted Driving	Impaired Driving	Occupant Protection	Vulnerable Road Users
Develop fines/penalties proportional to safety impact						
Further enforcement of KY's per se DUI law; List of drugs and impairing substances in addition to alcohol'						
Work zone automated speed enforcement						
Enhanced penalties for high BAC						
No probation for DUI offenders						
Ban handheld devices while driving						
Engage the Traffic Safety Resource Prosecutor (TSRP) to seek improvements to KRS 189.125 and subsections						
Increased penalties for distracted driving						
Incentivize non-aggressive driving						
Require mature driver retesting – skills and vision						
Crash rating requirements for helmets						
Regulate scooters						
Incentivize vehicle technology, e.g., lane departure warning						
Educate Kentucky's lawmakers about statutory opportunities to reduce serious injuries and fatalities						



# Appendix II

## GLOSSARY

*AAA: American Automobile Association*  
*AARP: American Association of Retired Persons*  
*ARIDE: Advanced Roadside Impaired Driving Enforcement*  
*BAC: Blood Alcohol Concentration*  
*CMV: Commercial Vehicle*  
*CRASH: Collision Reporting and Analysis Database*  
*CVSP: Commercial Vehicle Safety Plan*  
*DEC: Drug Evaluation and Classification Program*  
*DRE: Drug Recognition Expert*  
*DUI: Driving Under the Influence of drugs and/or alcohol*  
*EMS: Emergency Medical Services*  
*FAST: Fixing America's Surface Transportation Act*  
*FHWA: Federal Highways Administration*  
*FMCSA: Federal Motor Carrier Safety Administration*  
*GDP: Gross Domestic Product*  
*GECHS: Governor's Executive Committee on Highway Safety*  
*GPS: Global Positioning System*  
*HRRR: High Risk Rural Roads*  
*HSIP: Highway Safety Improvement Program*  
*HSP: Highway Safety Plan*  
*KACP: Kentucky Association of Chiefs of Police*  
*KBEMS: Kentucky Board of Emergency Medical Services*  
*KIPRC: Kentucky Injury Prevention Research Center*  
*KOHS: Kentucky Office of Highway Safety*  
*KSA: Kentucky Sheriffs' Association*  
*KSP: Kentucky State Police*  
*KTA: Kentucky Trucking Association*  
*KTC: Kentucky Transportation Center*  
*KTRAC: Kentucky Traffic Records Assessment Committee*  
*KYTC: Kentucky Transportation Cabinet*  
*MADD: Mothers Against Drunk Driving*  
*MAP-21: Moving Ahead for Progress in the 21st Century Act*  
*MCSAP: Motor Carrier Safety Assistance Program*  
*MPO: Metropolitan Planning Organization*  
*NHTSA: National Highway Traffic Safety Administration*  
*SHE: State Highway Engineer*  
*SHSP: Strategic Highway Safety Plan*  
*STEP: Safe Transportation for Every Pedestrian*  
*TSRP: Traffic Safety Resource Prosecutor*  
*USDOT: United States Department of Transportation*  
*VMT: Vehicle Miles Travelled*



# Appendix III: Kentucky Emphasis Areas over Time

SHSP Emphasis Area	SHSP YEARS			
	2006-2010	2011-2014	2015-2019	2020-2024
Aggressive Driving	Dark Grey	Gold	Red	Dark Blue
Bicyclists*	White	White	Red	Dark Blue
CMV Safety	Dark Grey	Gold	Red	White
Distracted Driving	White	Gold	Red	Dark Blue
Drive Smart KY Corridors	Dark Grey	White	White	White
Impaired Driving	Dark Grey	Gold	Red	Dark Blue
Incident Management	Dark Grey	Gold	Red	White
Intersections	White	Gold	Red	White
Legislative Issues	Dark Grey	White	White	White
Mature Drivers	White	White	Red	White
Motorcycles*	White	Gold	Red	Dark Blue
Occupant Protection	Dark Grey	Gold	Red	Dark Blue
Pedestrians*	White	White	Red	Dark Blue
Roadway/Lane Departure	Dark Grey	Gold	Red	Dark Blue
Traffic Records	Dark Grey	White	White	White
Young Drivers	Dark Grey	Gold	Red	White

The Kentucky Transportation Cabinet wishes to thank the SHSP Study Advisory Committee for their role in guiding this document, The Kentucky Transportation Center for their assistance in developing this document, and in particular: **Reginald Souleyrette**, Program Manager Education and Planning, **Benjamin Blandford**, Senior Research Scientist Traffic & Safety, **Tony Fields**, Research Engineer Traffic & Safety, & **Michael Mabe**, Graphic Designer Special Projects & Initiatives.

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The Kentucky Transportation Cabinet  
Frankfort, KY

