KENTUCKY 2025–2029
STRATEGIC HIGHWAY SAFETY PLAN

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LETTER FROM THE GOVERNOR

COMMONWEALTH OF KENTUCKY
OFFICE OF THE GOVERNOR

Andy Beshear
GOVERNOR

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The safety of all who travel in and through our Commonwealth is a top priority. When anyone uses the transportation system – whether driving a car or riding a motorcycle, walking or cycling, driving a truck or taking a bus – our goal is for everyone to arrive safely at their destination, every trip, every time. Our mission for the 2025-2029 Strategic Highway Safety Plan is a simple one: to enhance the lives of those who use Kentucky's transportation system by preventing crashes that result in deaths and serious injuries. The Commonwealth's Strategic Highway Safety Plan is our roadmap to the future of transportation safety, and provides a clear roadmap for the safest journey through Kentucky. This 2025-2029 Plan expands on emphasis areas such as Motorcycles, Older Drivers, and Commercial Vehicles, which are existing and/or growing concerns.

This plan outlines clear strategies, goals, objectives and opportunities for the next five years to prevent transportation related deaths and injuries. Cooperation and collaboration are critical to our success in many areas and highway safety is no different. This expanded plan represents the collaboration of many stakeholders from both the public and private sectors, and it encourages member organizations which make up highway safety's "Four Es" - Education, Emergency Management, Enforcement, and Engineering to lead by example and work together to deliver timely, actionable solutions to the Commonwealth's most pressing highway safety challenges.

I appreciate all who will work to implement this plan, as well as those who contributed to it. That list includes my representative for highway safety, Transportation Cabinet Secretary Jim Gray, the Governor's Executive Committee on Highway Safety. It also includes all of our partners, such as safety advocates, local governments, law enforcement and first responders throughout Kentucky, the National Highway Traffic Safety Administration, Federal Highway Administration, Federal Motor Carrier Safety Administration, the Kentucky Transportation Center at the University of Kentucky, and the Kentucky Transportation Cabinet. This plan is our roadmap, but ultimately highway safety is everyone's responsibility – drivers, public agencies, manufacturers, and educators. Together, we can continue to move Kentucky forward in a positive direction, one safe trip at a time.

Sincerely,

Andy Beshear
Governor

MISSION/VISION/GOAL

PREFACE: THIS SHSP, SUBMITTED ON BEHALF OF THE GOVERNOR'S EXECUTIVE COMMITTEE ON HIGHWAY SAFETY, SERVES AS THE GUIDING DOCUMENT TO COORDINATE THE HIGHWAY SAFETY IMPROVEMENT ACTIVITIES OF STATE, FEDERAL, AND LOCAL AGENCIES, IN ADDITION TO ALL HIGHWAY SAFETY ADVOCATES IN KENTUCKY.

MISSION: TO PROVIDE A SAFE, EFFICIENT, ENVIRONMENTALLY SOUND AND FISCALLY RESPONSIBLE TRANSPORTATION SYSTEM THAT DELIVERS ECONOMIC OPPORTUNITY AND ENHANCES THE QUALITY OF LIFE IN KENTUCKY.

VISION: THROUGH THE COORDINATED AND BOLD EFFORTS OF ALL STAKEHOLDERS, IMPROVE HIGHWAY SAFETY IN KENTUCKY SUCH THAT THOSE TRAVELLING ON ROADS IN THE COMMONWEALTH – EVERY PERSON, EVERY TRIP - ARRIVE AT THEIR DESTINATION UNHARMED.

GOAL: THROUGH IMPLEMENTATION OF THIS SHSP, PREVENT SERIOUS CRASHES ON KENTUCKY'S HIGHWAYS SUCH THAT THE ANNUAL NUMBER OF DEATHS FALLS AT OR BELOW 500 BY THE YEAR 2029. THE ULTIMATE GOAL IS ZERO DEATHS AND SERIOUS INJURIES FROM CRASHES.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Kentucky's 2025–2029 Strategic Highway Safety Plan (SHSP) establishes the Commonwealth's approach to promoting highway safety and preventing future deaths and serious injuries to all users on Kentucky roadways. Over the last five years (2019–2023), 3,863 people have lost their lives, and 14,159 people have suffered serious injuries as a result of vehicle collisions. Highway Safety isn't about numbers, it's about people and each of these tragedies are felt deeply in our families and communities, and the consequences manifest across our society and economy.

While the ultimate goal for highway safety is zero people to lose their lives in transportation crashes, this SHSP sets an aggressive interim goal of preventing enough deaths on Kentucky highways such that the annual total will be at or below 500 by the year 2029. Meeting this goal will require the collaboration, dedication, and innovation of safety stakeholders throughout the Commonwealth.

Kentucky has adopted a Safe System Approach that recognizes humans make mistakes and bad decisions, and sometimes these can lead to crashes on our roads. However, deaths and serious injuries are too high of a price to pay for these mistakes, and our transportation systems (infrastructure/engineering components, behavioral programs, marketing, enforcement partnerships, public health outreach, etc.) can be improved to reduce the likelihood of such severe consequences. Responsibility for making these improvements is shared by everyone who uses, designs, and benefits from the transportation system.

The 2025–2029 SHSP uses a data-informed approach in collaboration with highway safety stakeholders statewide to identify predominant factors and trends associated with severe crashes. Nine Emphasis Areas have been determined based on the urgency of the problem and the opportunities for improvement:

- **AGGRESSIVE DRIVING**
- **DISTRACTED DRIVING**
- **IMPAIRED DRIVING**
- **OCCUPANT PROTECTION**
- **ROADWAY DEPARTURE**
- **VULNERABLE ROAD USERS**
- **MOTORCYCLISTS**
- **COMMERCIAL MOTOR VEHICLES**
- **OLDER DRIVERS**

Strategies and countermeasures for each of these Emphasis Areas are situated within a Safe System Approach that emphasizes the need for redundancy and cross-disciplinary action. These are further organized according to the 4 'E's: Education, Emergency Medical Services, Enforcement, and Engineering. While the strategies are organized by logical headings, it is important to resist siloing of the actions. There are excellent opportunities to contribute from across the stakeholder spectrum in many of these efforts in order to create further cross disciplinary dialogue and partnering opportunities.

Implementation of this SHSP is led by The Governor's Executive Committee on Highway Safety (GECHS). 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 challenges and opportunities. The Kentucky Office of Highway Safety (KOHS) in the Kentucky Transportation Cabinet (KYTC) is responsible for communicating, coordinating and often leading the highway safety improvement strategies included in this SHSP.

Highway safety poses a serious public health challenge that must be addressed. It is the intent of this SHSP that everyone who reads it can understand how they can contribute in concert to a safer Commonwealth.

SAVING LIVES THROUGH THE SAFE SYSTEM APPROACH

Sometimes it is challenging to put highway safety in perspective with everything that competes for a person's attention. Often, when people think about highway safety, the way that it's viewed is comparative based on observed history. How many deaths and serious injuries resulted from crashes last year? In the last 10? Those are helpful observations, because the past helps us understand what opportunities are before us to improve highway safety in the future... but what if we looked at highway safety more broadly or even through a different lens?

For instance, did you know that in 2022 more Kentucky citizens died from injuries sustained in a motor vehicle crash on a public road than nearly any other source? In fact, for Kentuckians, motor vehicle traffic crashes are consistently within the top three leading causes of injury related death – all the way through their life, in every age group. Motor vehicle traffic crashes are either the first or second leading cause of inpatient hospitalizations from age 15 and up, depending on age group. That's all transportation system users, not just vehicle occupants. All of that to say that improving safety is URGENT – for everyone – all users, all modes, all walks of life, all situations! We're working hard to make progress, together. From the beginning of 2020 through 2024 there were 280 days where no one lost their life from a transportation crash – on average that's roughly one day per week for five years. We can, and do, make a difference, together – each of these days and each person not impacted by a severe outcome is significant!

No matter how you choose to look at it there is a tremendous opportunity to work together to prevent deaths and serious injuries related to transportation in Kentucky. That's what this plan is about – partnering with everyone to prevent as many deaths and serious injuries as possible. Humans are vulnerable and when mistakes are made, our goal is for there to be layers of protection for users so the consequences are not severe. When a crash does occur, it needs to be survivable for everyone involved, regardless of how they're traveling and that means reducing energy in crashes, whether by reducing impact speeds, angles or removing conflicts all together. For every person lost, to their family, friends and loved ones, even that one is one too many and that's why zero is always our ultimate goal.

A good plan is like a roadmap – the journey is the safest when the roadmap is the clearest. For the most progress to be made, we will need more than excellent safety programs – we'll need programs and projects that are excellent at enabling safer mobility! This plan has been intentionally developed implementing the Safe System Approach, with the intent to reduce people's exposure to severe crashes, the likelihood of those crashes occurring and when a crash does happen the severity of consequences to any of the people involved. Together we'll work to inform everyone of opportunities to work collaboratively, involving everyone in the Commonwealth from policy makers to system users in proactively creating and implementing lifesaving programs and projects as well as being intentional about making the most of every opportunity presented.

To save lives and prevent serious injuries, we're calling on YOU – because we all know that the best and brightest future for Kentucky is one where we are all safer, together!

KENTUCKY'S SHSP APPROACH

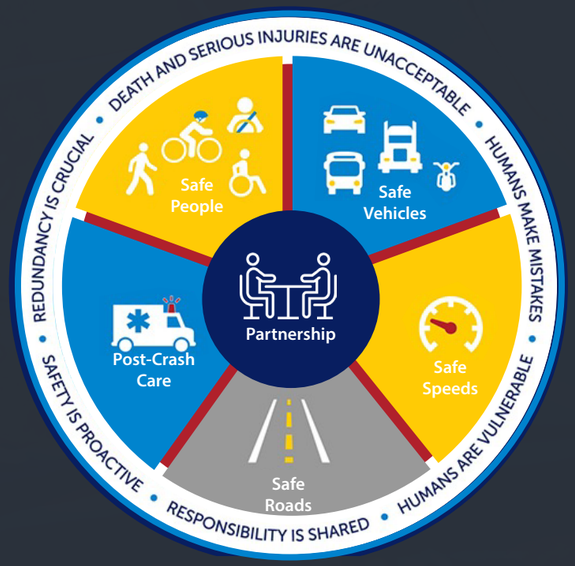
Kentucky has adopted a Safe System Approach in line with the United States Department of Transportation (USDOT) and its National Road Safety Strategy. The goal is to improve safety and eliminate all deaths and serious injuries on our roadways. This approach has proven effective around the globe to mitigate risks to people across the transportation system and works by building and reinforcing multiple layers of protection to eliminate crashes with severe outcomes. The Safe System Approach has six guiding principles:

- **DEATHS AND SERIOUS INJURIES ARE UNACCEPTABLE.**
- **HUMANS MAKE MISTAKES.**
- **HUMANS ARE VULNERABLE.**
- **SAFETY IS PROACTIVE.**
- **REDUNDANCY IS CRUCIAL.**
- **RESPONSIBILITY IS SHARED. PARTNERSHIPS ARE ESSENTIAL.**

The objective of the Safe System Approach is to improve safety and minimize crash severity by focusing on roadway users, vehicle safety, roads, speeds, and post-crash care. Improving all five of these elements creates desirable redundancy that enhances safety for all roadway users.

- **SAFER PEOPLE:** The Safe System Approach emphasizes better protections for all road users and better decisions by those using the system – safety is a shared responsibility. This includes motor vehicle drivers and occupants, as well as more vulnerable road users such as pedestrians, bicyclists, and motorcyclists.
- **SAFER VEHICLES:** Vehicle technologies are designed to minimize the occurrence and severity of collisions. The most basic vehicle technology – the seatbelt – is an easy and effective way to reduce the likelihood of death or severe injury. More advanced technologies, including ADAS such as moving object detection (MOV), blind spot monitoring, adaptive cruise, AEB and connected and automated vehicles (CAVs) demonstrate potential for future safety improvements.
- **SAFER SPEEDS:** The human body can only withstand so much force without suffering serious injury or worse. Moderating vehicle speeds is an effective way to improve safety by reducing the potential force in a crash, allowing for more driver reaction time pre-incident, and improving visibility. Neighborhood streets, downtowns, school zones, and work zones are areas where prudent speeds are especially helpful in providing safer roads. In rural areas, safer speeds reduce kinetic energy and provide safer travel for vehicle occupants.

SAFE SYSTEM APPROACH



- **SAFER ROADS:** Roads can be designed to better accommodate the mistakes and bad decisions that humans make and reduce the likelihood of a severe crash. This includes improvements that prevent vehicles from departing the roadway, intersection improvements that reduce the number of conflict points, and systemic roadway improvements that improve safety performance.
- **POST-CRASH CARE:** In the event of a crash, effective and efficient post-crash care is required to minimize the severity of injury outcomes. Quick clearance also reduces the likelihood of secondary collisions occurring. In rural areas, improving response times to provide care within the "golden hour" is particularly important in saving lives and improving health outcomes.

There is no single solution for eliminating deaths and serious injuries on our roadways, and no one person or agency can do it alone. Rather it takes partnerships, coordinated and multifaceted efforts across agencies and disciplines.

Kentucky fully embraces the Safe System Approach to highway safety in this plan. KYTC has a SAFERoads initiative that is a partnership across the entire Cabinet to better communicate opportunities for safety improvement. Each SHSP emphasis area is given consideration for how it fits within a safer system, both from a conceptual standpoint and in terms of implementation. Strategies and countermeasures are also situated within the Safe System Approach to emphasize the multiplicative safety improvements that result from redundant efforts.

CLOVERLEAF AND DIAMOND INTERCHANGE	COMPLETE STREETS	CONTINUOUS FLOW INTERSECTION	CONTINUOUS GREEN T INTERSECTION	DEDICATED LEFT AND RIGHT TURN LANES	DELINEATORS
DOUBLE CROSSOVER DIAMOND IINTERCHANGE	JUGHANDLE	MEDIANS AND PEDESTRIAN REFUGE AREAS	MINI ROUNDABOUTS	RESTRICTED CROSSING U-TURN (RCUT)	ROADWAY RECONFIGURATION
ROUNDABOUTS	SINGLE-POINT URBAN INTERCHANGE	TRAFFIC SIGNALS	TURBO ROUNDABOUTS	FLASHING YELLOW ARROWS	

PERFORMANCE MEASURES

While highway safety is about people and not statistics, it is important to measure outcomes in order to proactively approach opportunities for improvement and to meet federal reporting requirements. To monitor highway safety progress for all roads in Kentucky, five performance measures are tracked annually:

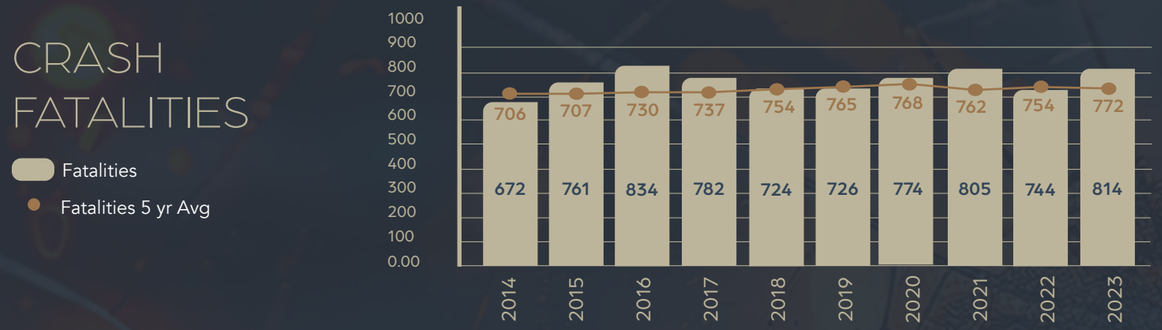
- **FATALITIES**
- **SERIOUS INJURIES**
- **FATALITY RATE**
- **SERIOUS INJURY RATE**
- **NON-MOTORIZED FATALITIES & SERIOUS INJURIES**

FATALITIES AND SERIOUS INJURIES

Data for fatalities and serious injuries come from the Kentucky CRASH database, which is the central repository for all police collision reports and crash-related data. Five-year rolling averages, which are calculated as the average total of each respective year plus its preceding four years, are also provided. Five-year rolling averages provide a more generalized view of data trends that smooth any data anomalies or outliers that may occur from year to year.

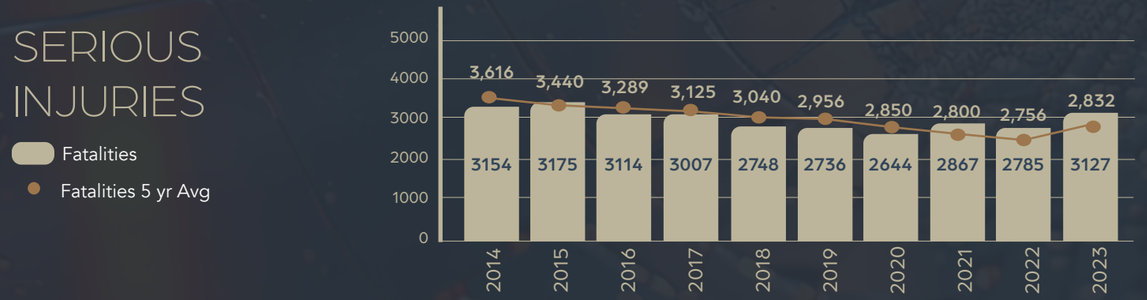
Deaths on Kentucky roadways due to motor vehicle collisions continues to be an urgent problem for the Commonwealth. The average annual number of deaths has increased over the last ten years, with 814 fatalities in the most recent year of 2023. The average of 772 deaths from 2019 to 2023 marks the highest five-year rolling average since 2011.

CRASH FATALITIES



Serious injuries from motor vehicle collisions also continute to be an urgent problem. After many years of progress toward preventing serious injuries on Kentucky roadways, the most recent crash data shows this trending the wrong direction as well. The five-year rolling average of 2,756 serious injuries in 2022 rose to 2,832 in 2023, marking the first such five-year rolling average increase in more than 50 years.

SERIOUS INJURIES

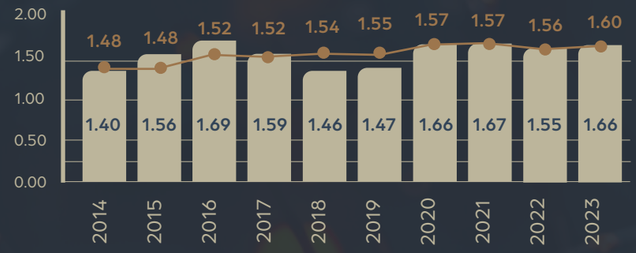


FATAL AND SERIOUS INJURY RATES

In addition to the overall numbers of fatalities and serious injuries, annual rates for each are monitored. Rates are calculated as the number of fatalities or serious injuries divided by the annual number of vehicle miles traveled (VMT, in hundreds of millions), as reported by KYTC through the Highway Performance Monitoring System (HPMS). Rates provide a consistent approach to monitoring highway safety in that they account for both the total numbers of fatalities and serious injuries as well as the total amount of driving that actually occur each year.

Kentucky's crash fatality rate in 2023 was 1.66, and its five-year rolling average rate was 1.6. These rates have remained consistent in the Commonwealth over the past fifteen years, with peaks and valleys also occurring in the data over this period.

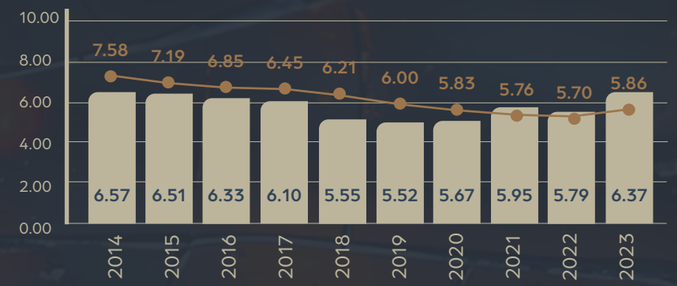
CRASH FATALITY RATE



Kentucky's serious injury rate in 2023 was 6.37 and it's five-year rolling average was 5.86. The slight increase in the five-year rolling rate from 2022 to 2023 marked the reversal of a decades long decline in the serious injury rate.

SERIOUS INJURY RATE

PER 100 MILLION VMT

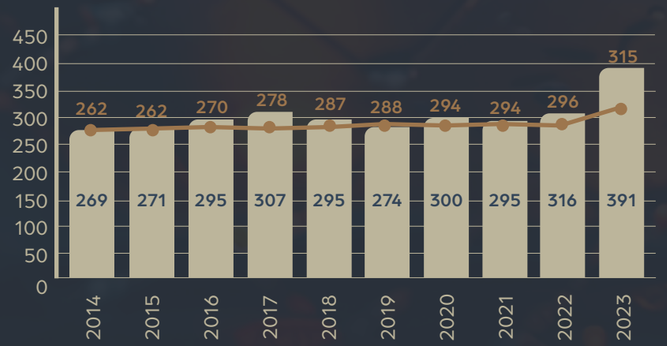


NON-MOTORIZED FATALITIES AND SERIOUS INJURIES

As a fifth performance measure, Kentucky monitors the total number of fatalities and serious injuries that result from crashes involving non-motorized roadway users. Non-motorized users, are identified from the CRASH database as pedestrians and bicyclists.

The 315 non-motorized fatalities and serious injuries in 2023 stand out as an alarming increase compared to prior years. Of this total, 138 were fatalities (122 pedestrian and 16 bicyclist) and 253 were serious injuries (217 pedestrian and 36 bicyclist). Kentucky is committed to improving safety for non-motorized users and includes Vulnerable Road Users (similarly defined as pedestrians and bicyclists) as an emphasis area in this 2025-2029 SHSP. In addition, a Vulnerable Road User Assessment was completed in 2024" to "a Vulnerable Road User Assessment was updated in 2025

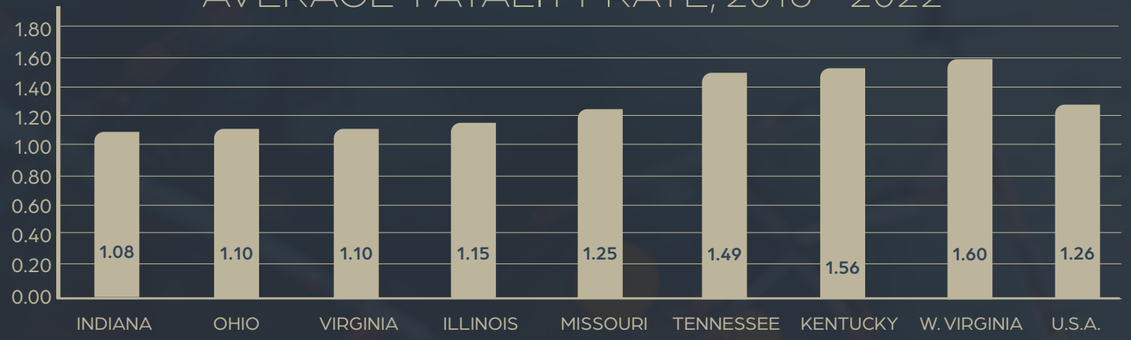
NON-MOTORIZED FATALITIES & SERIOUS INJURIES



SAFETY BENCHMARKS

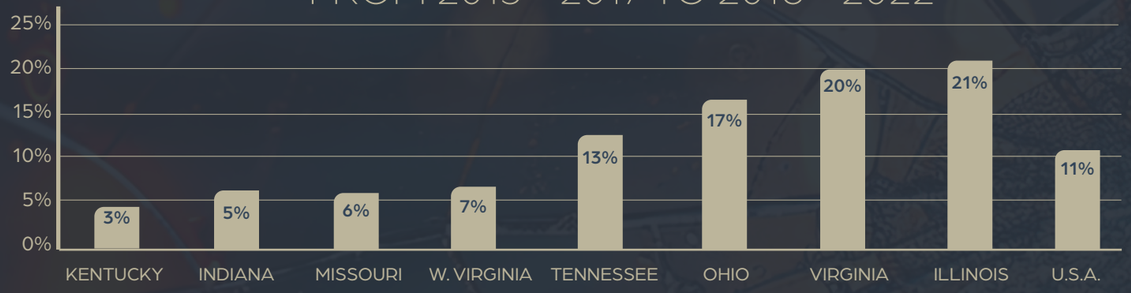
Over the years 2018 to 2022, Kentucky's average crash fatality rate was 1.56, which was the 9th highest out of all 50 U.S. states. Compared to its neighbor bordering states, Kentucky's fatality rate was 2nd highest and considerably higher than the U.S. average rate of 1.26.

AVERAGE FATALITY RATE, 2018 – 2022



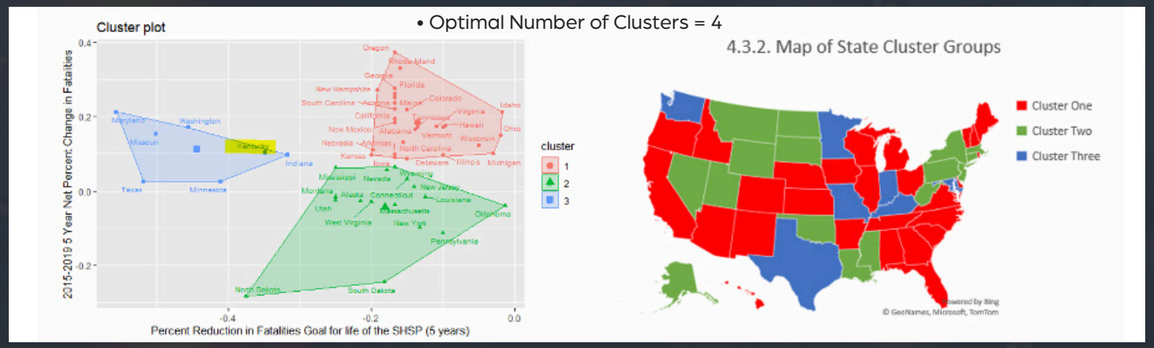
However, Kentucky's crash fatality rate compares better to neighboring states when considering recent trends. Over the last ten years, fatality rates across the U.S. have been on the rise. The fatality rate rose by 11 percent nationally when comparing the five-year average of 2013-2017 to 2018-2022. In Kentucky, this increase was by only 3 percent, which was lower than all neighboring states.

% INCREASE IN FATALITY RATE FROM 2013 – 2017 TO 2018 – 2022



Kentucky has investigated the safety plans of other states and performed an analysis of state similarities including safety performance and goals, urban/rural characteristics, road type, restraint usage, and emphasis areas. These comparisons allow Kentucky to benefit from what works well in similar states.

SHSP GOAL (% CHANGE IN FATALITIES) ACTUAL NET % CHANGE IN FATALITLES

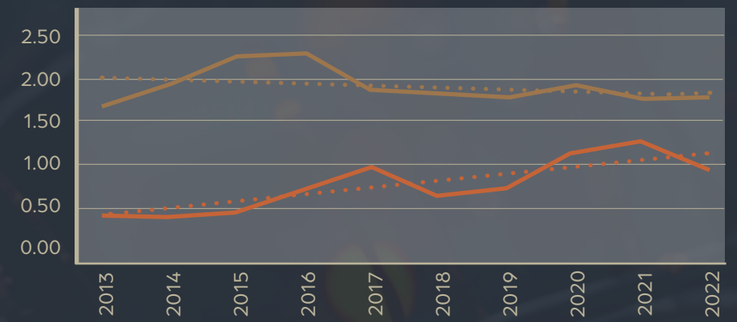


WHERE FATALITIES AND SERIOUS INJURIES OCCUR

RURAL AND URBAN FATALITY RATES

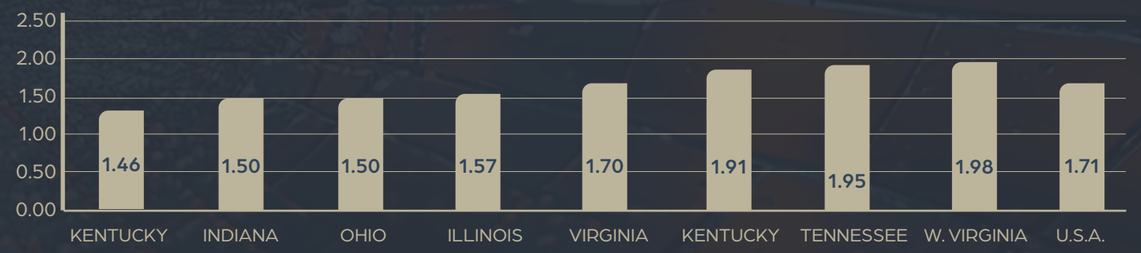
Kentucky has a higher fatality rate from crashes occurring in rural areas compared to urban areas, though that gap appears to be getting smaller. In 2022 the rural fatality rate (deaths per one-hundred million vehicle miles traveled) was 1.91 and the urban rate was 1.16. Over the last ten years, however, rural fatality rates have been on a slight decline while urban fatality rates are climbing.

KENTUCKY RURAL & URBAN FATALITY RATES

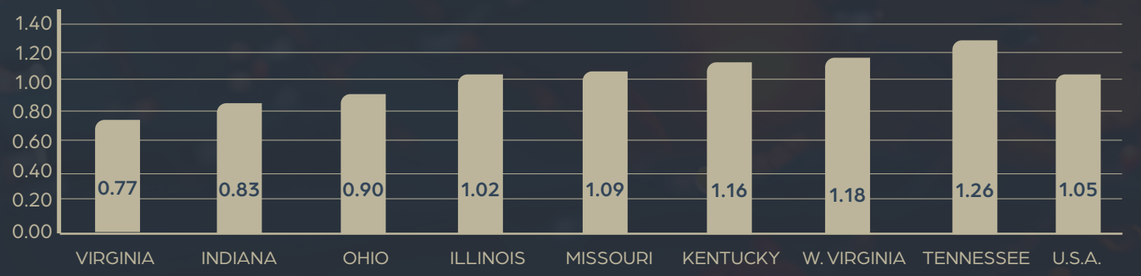


Several factors contribute to fatality rates being higher in rural areas. People are generally traveling longer distances at higher speeds, and while crashes occur less frequently in rural areas, crash types and outcomes are often more severe. Many rural roads have speed limits of 55 miles per hour but lack a median to divide traffic or shoulders to help prevent roadway departure crashes. In this environment, bad decisions such as not wearing a seatbelt, driving impaired, or speeding, lead to a higher percentage of crashes resulting in fatalities. Remote locales also mean longer response times for emergency medical services in the event of a severe crash. Compared to other states, Kentucky has the 14th highest rural fatality rate and the 11th highest urban fatality rate.

RURAL FATALITY RATE, 2018 – 2022



URBAN FATALITY RATE, 2018 – 2022



FUNCTIONAL CLASSIFICATION

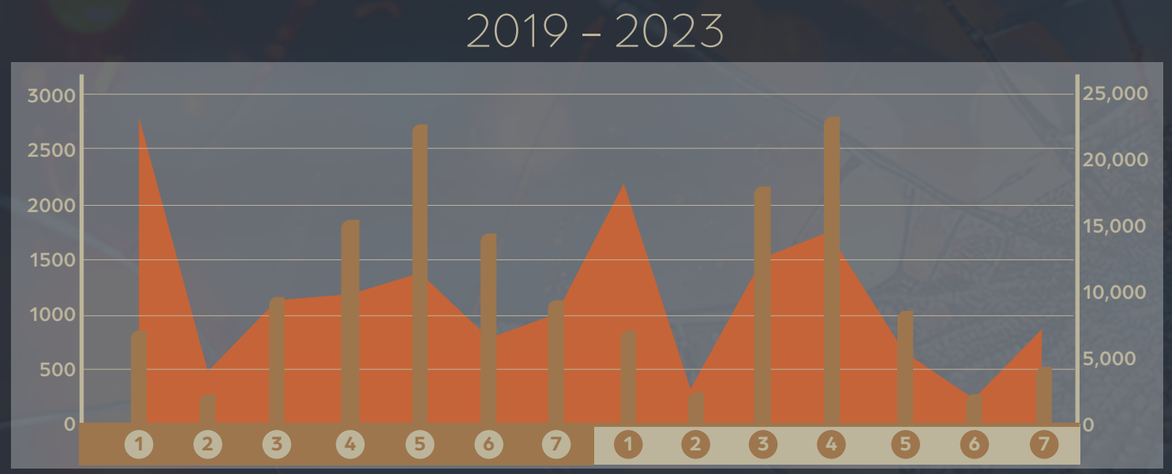
Not all roads are created equally, and the safety performance of road types differs as well. Road types vary according to speed limit, lane widths, presence and widths of medians and/or shoulders, traffic volumes, terrain, etc. Functional classification is a system developed to make sense of these differences by grouping roads into classes according to the character of the service they provide and the importance of the road to the overall transportation system.

For example, interstates have a functional classification of 1 and are generally designed to handle the highest traffic volumes in the system. These types of roads allow for higher volumes and speeds by restricting access with design features such as interchanges (instead of intersections) that reduce the number of conflict points between vehicles and by not allowing driveways or non-motorized users.

As the functional classification goes up, the intended traffic volumes tend to go down. Local roads have the highest functional classification of 7 and are generally designed for minimal traffic volumes and speeds. Local roads may include all types of non-motorized uses, driveways, and intersections.

The functional classification of roads can be further differentiated according to whether the road is in an urban or rural area, such that there is an urban functional classification of 1–7 as well as a rural functional classification of 1–7 for a total of fourteen functional classes.

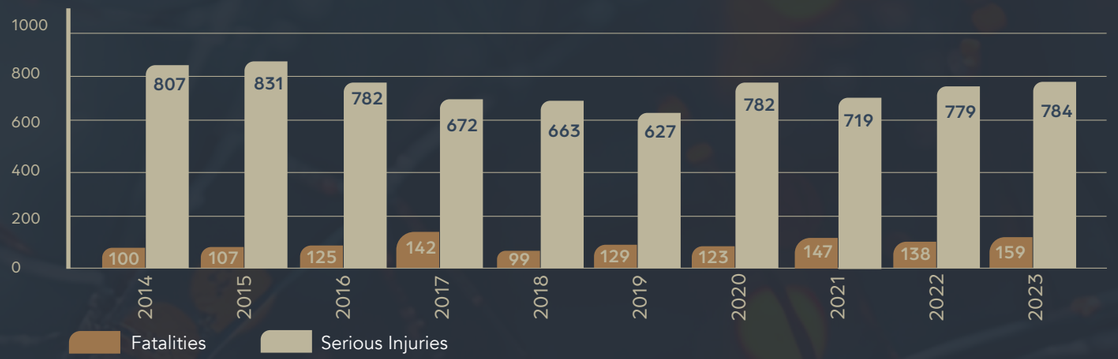
An examination of Kentucky crash fatalities and serious injuries by functional classification yields insights into the safety performance of different types of roads. The figure below shows each of the fourteen functional classes, first rural 1–7 and then urban 1–7. For each of the classes, the blue line indicates the average daily volume of traffic (2019–2023) of all Kentucky roads within this classification. The green bars indicate the total number of fatalities and serious injuries (2019–2023) that occurred in Kentucky on roads within these classes.



The figure shows that interstates in both rural and urban areas have the highest volumes of traffic, but not the highest totals of fatalities and serious injuries. Rather these occur most frequently on arterials and collectors. These types of roads tend to have high traffic volumes and speeds without some of the protective roadway design factors that restrict access and reduce conflict points between vehicles and people.

INTERSECTIONS

Within roadways, intersections present a conflict point between moving vehicles and people which can have severe consequences. From 2019 – 2023, 24 percent of all Kentucky crash fatalities and serious injuries resulted from collisions that occurred in intersections . In 2023, intersection crashes accounted for 159 deaths and 784 serious injuries, which was the highest number of deaths from intersection crashes since 2001. Intersection crashes often involve human error. From 2019 – 2023, 70 percent of fatalities and serious injuries from intersection crashes also involved either aggressive driving or distracted driving. Additionally, 30% of Vulnerable Road User deaths and serious injuries occurred at intersections.

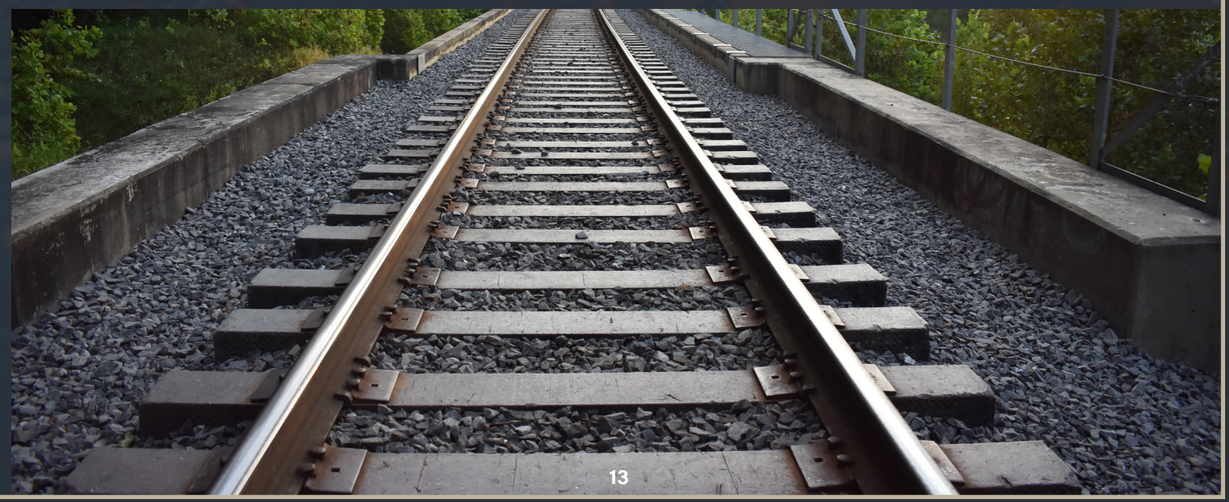


The Intersection Control Evaluation (ICE) initiative represents KYTC's continuing efforts to make the best-informed decisions when developing projects which include the potential to impact intersections, utilizing a data-driven approach through a performance-based framework. The policy informs decisions by looking at impacts for all users of a given facility to determine what types of intersections would provide the best value throughout the life of the project (such as roundabouts, reduced conflict U-turns, positive offset turn lanes, continuous flow intersections, etc.).

RAILROAD HIGHWAY GRADE CROSSINGS

The rail highway grade crossing is a unique intersection of two very different modes of travel. Disparities in size, weight, perception and speed as well as the constraint of trains to one dimension travel makes the grade crossing particularly problematic. Quality of surface is an important aspect affecting both the safety and the performance of at-grade crossings. Poor rideability (bumpiness) for highway vehicles may increase the risk of collisions with trains, fixed objects or other highway traffic. Steep grades and short vertical transitions in crossing profiles increase the likelihood of low-profile vehicles becoming stuck, and possibly struck by oncoming trains. Further, the US DOT Railroad-Highway Grade Crossing Handbook suggests that rough surfaces could distract a driver's attention from oncoming trains and that the unevenness of the crossing could result in a driver losing control of their vehicle resulting in a crash.

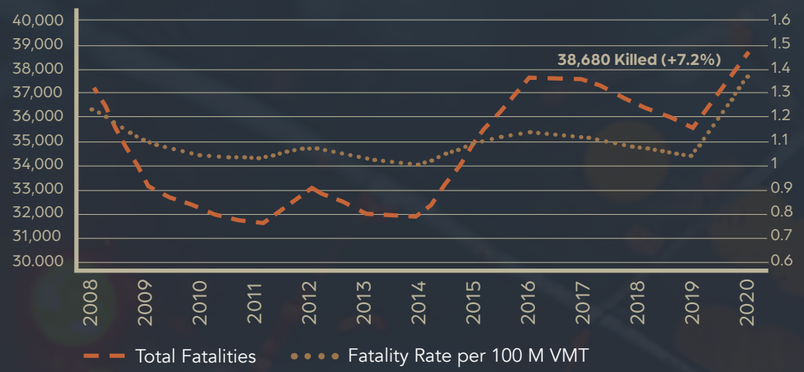
While crashes at rail-highway crossings have diminished over recent decades, the problem continues. From 2019 to 2023 there were 197 rail-highway crossing crashes in Kentucky. With state's roadway network featuring over 2,200 public at-grade crossings, continued improvements are needed to protect the Commonwealth's citizens.



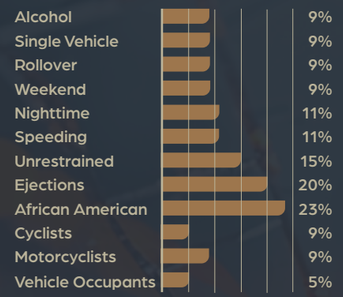
SOCIETAL FACTORS

Highway safety took a turn for the worse in 2020, both in Kentucky and in the United States at large. The years preceding 2020 had demonstrated a steady decline in crash deaths. In Kentucky, the first two months of 2020 continued the trend with historic lows in fatalities. These trends came to an abrupt end with the COVID-19 pandemic.
Crash Fatalities in the United States (source: Governors Highway Safety Association, GHSA)

CRASH FATALITIES IN THE UNITED STATES
(source: Governors Highway Safety Association, GHSA)



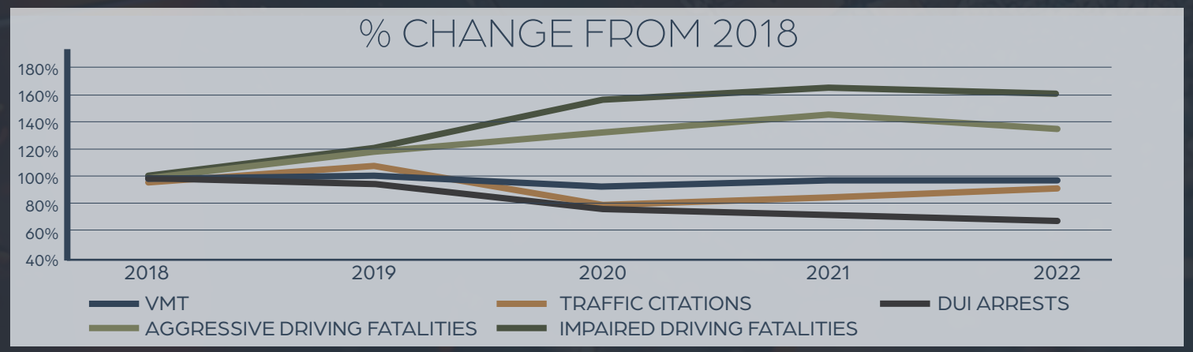
Increases in Major & Notable Crash Categories



EFFECTS OF THE PANDEMIC

The COVID-19 pandemic affected highway safety in unpredictable ways. Beginning in March 2020, schools, businesses, and gathering places reduced hours, altered operating procedures, or shut down completely in an effort to slow the virus' spread through the population. For transportation, this meant a drop in the number of registered vehicles, licensed drivers, and vehicle miles traveled in 2020 and into 2021. The pandemic also affected law enforcement, with the number of traffic citations being issued from 2020 onward dropping considerably.

The pandemic, unfortunately, did not lead to better driving habits. With law enforcement presence diminished and fewer vehicles on the road overall, the numbers of deaths and serious injuries from crashes went up. This was particularly true for crashes involving aggressive driving and/or impaired driving. Kentucky had 276 aggressive driving related fatalities and 193 impaired driving related fatalities in 2021, both of which marked a significant increase over recent years.



The increase in speeding and impaired driving and the decrease in enforcement during the pandemic can also be detected by looking at the overall average speed. Across all Kentucky roadways – both rural and urban – average speed measured an increase during the initial COVID-19 period that continued into subsequent years. These increased speeds contribute to the rising numbers of aggressive driving related fatalities and serious injuries.

ENFORCEMENT CHALLENGES

The COVID-19 pandemic and its potential longer-term impact on driving behaviors such as speeding and red-light running is one of several challenges facing Kentucky law enforcement. During the pandemic, some enforcement agencies needed to prioritize other activities besides traffic enforcement, leading to a decrease in citations issued. The pandemic also disrupted police training academies, leading to a decline in new recruits. This was compounded by officers leaving the police force in the wake of civil unrest and public dissatisfaction with policing. Agencies across the Commonwealth have had to contend with manpower shortages and lower morale due to the difficult circumstances.

In addition, a 2021 Kentucky Supreme Court ruling altered the way Kentucky's DUI statute is applied and enforced. The ruling allows drivers suspected of impaired driving to refuse a blood alcohol concentration (BAC) test without facing enhanced criminal penalties. Only a warrant can compel a BAC test. The ruling also prohibits a BAC test refusal from being used as evidence of guilt during trial. This ruling presents additional obstacles for law enforcement in obtaining evidence of DUI needed for a successful conviction. Accurate BAC testing is time sensitive, in that Kentucky law requires a BAC test to be given within two hours. Given that many DUI arrests occur late at night while most people are asleep, obtaining a signed warrant and getting the BAC test performed by a licensed phlebotomist within the two hours can be challenging. To address the challenge, programs such as the Law Enforcement Phlebotomy Training Program have already been created and implemented to improve law enforcement's ability to conduct BAC testing in the event of a DUI arrest. Kentucky is committed to meeting and overcoming these, and any additional, challenges to improving highway safety.

UPDATE PROCESS

Kentucky's SHSP is a 'living document' that requires continual communication, analysis, and evaluation through a data-informed approach. This approach is used to identify areas of need and support efforts to implement strategies that prevent deaths and serious injuries on Kentucky roadways.

HISTORY OF THE KENTUCKY SHSP

- Kentucky's first SHSP was published in 2006 and identified ten 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. Following adoption of the plan, 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. In 2010 Kentucky passed a bill banning texting while driving.

- 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.

- The 2020–2024 Plan reoriented the focus toward the prevention of deaths and serious injuries on Kentucky roadways. It included only six emphasis areas to sharpen the focus toward safety improvements that were most needed and demonstrated the greatest potential for preventing deaths and serious injuries. The plan set an aggressive goal of 500 or fewer deaths per year on Kentucky roadways by 2024. While the goal was not met, this 2025 Plan embodies the same aggressive spirit, adds important new emphasis areas, and carries forward the goal of 500 or fewer deaths per year by 2029, with the ultimate goal being zero deaths and serious injuries on Kentucky highways.

STEERING COMMITTEE COLLABORATION AND STAKEHOLDER ENGAGEMENT

Overall vision and direction for the SHSP is provided by the Governor's Executive Committee on Highway Safety (GECHS). Additionally, a SHSP steering committee was formed to guide the development of this update. The steering committee included members from the Kentucky Transportation Cabinet (KYTC) (including the Kentucky Office of Highway Safety, the Highway Safety Improvement Program, State Highway Engineer's office, Division of Planning), Kentucky State Police, Federal Highway Administration (FHWA), and the University of Kentucky Transportation Center (KTC).

Stakeholder engagement is critical to achieving SHSP goals and objectives. Stakeholder engagement has continued through implementation of the 2020 SHSP and up through the development of this 2025 update. During the pandemic, a series of webinars centered on each Emphasis Area were held to promote the plan and communicate the opportunities for improvement. Each webinar had around 100 attendees, and recordings were made and published through KOHS. A series of workshops were subsequently held to generate ideas and discuss barriers and opportunities for implementing highway safety strategies. Individual task force meetings were later held for each emphasis area to continue the dialogue and highlight successes.

Specific to this update, an in-person stakeholder engagement workshop was held at KYTC and involved highway safety stakeholders representing numerous modes, disciplines, and approaches. Additional outreach was performed to reach individuals and agencies who were unable to attend the larger stakeholder engagement session. Results from all these engagement activities are included in this SHSP update.

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 and the Bipartisan Infrastructure Law (BIL) identify special considerations to be given to improving safety on rural roads, improving the safety of older drivers and pedestrians, and improving the safety of vulnerable road users. Three special rules with accompanying performance measures were created for states to monitor their progress in these areas.

HIGH RISK RURAL ROADS (HRRR)

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. The HRRR Special Rule applies if the fatality rate on such roads increased over the most recent two-year period for which data is available. As of the publishing of this report, the rates did not increase and Kentucky is not subject to the HRRR Special Rule.

OLDER DRIVERS AND PEDESTRIANS

A second special rule relates to the safety of 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 most recent two years. Analysis of Kentucky crash data reveals that the five-year rolling rates from 2022 to 2023 did increase in Kentucky for the first time since this rule has been tracked.

Year	Older driver fatalities and serious injuries	Older pedestrian fatalities and serious injuries	Kentucky population 65+	Rate older driver & pedestrian fatalities + serious injuries per capita	Rate 5-year rolling average
2018	313	34	729,357	0.48	
2019	354	28	750,347	0.51	
2020	290	31	753,539	0.43	
2021	351	27	769,297	0.49	
2022	395	39	786,208	0.55	0.49
2023	416	46	806,757	0.57	0.51

A secondary analysis of the crash data shows that the increase is attributable to rising numbers of both driver and pedestrian fatalities and injuries resulting from older driver involved crashes. Driver fatalities and serious injuries increased by 33 percent from 2018 to 2023, and pedestrian fatalities and serious injuries increased by 35 percent. Because the rate increase is attributable to both older drivers and older pedestrians, Kentucky will implement strategies to improve the safety of both.

VULNERABLE ROAD USERS (VRU) SAFETY SPECIAL RULE

A third special rule pertains to VRU crashes and applies if the total annual fatalities of vulnerable road users account for 15 percent or more. Kentucky crash data triggered the VRU special rule for the years 2022 (15 percent) and 2023 (17 percent). In response, at least 15 percent of HSIP funding apportioned to Kentucky will be obligated toward vulnerable road user safety improvements. In addition, VRU is included as an Emphasis Area in the 2025 Kentucky SHSP.

YEAR	ALL	PEDESTRIAN	BICYCLIST	%PED/BIKE
2022	744	96	14	**15%**
2023	814	122	16	**17%**

VRU ASSESSMENT

A Vulnerable Road User Assessment was completed in 2025 and serves as a supplement to this SHSP update. The assessment situates Kentucky's efforts to improve pedestrian and bicyclist safety within the Safe Systems approach and recognizes the importance of redundancy within highway safety improvements. The assessment analyzes crash data from 2019–2023 to identify trends and highlight locations where VRU crashes are most common, including individual road segments. The assessment also identifies additional VRU safety activities being implemented throughout the Commonwealth, including:

- **COMPLETE STREETS, ROADS, AND HIGHWAYS MANUAL**
- **KENTUCKY PEDESTRIAN AND BICYCLIST SAFETY PROGRAM ASSESSMENT**
- **STATEWIDE BICYCLE AND PEDESTRIAN MASTER PLAN**
- **KYTC AMERICANS WITH DISABILITIES ACT TRANSITION PLAN**
- **VISION ZERO LOUISVILLE SAFETY PLAN**
- **LEXINGTON SAFETY ACTION PLAN**
- **LEXINGTON COMPLETE STREETS POLICY**
- **SHIFT SCORING COMPONENT FOR PEDESTRIAN AND BICYCLE IMPROVEMENTS**
- **KENTUCKY VRU DASHBOARD**
- **JEFFERSON COUNTY VRU TASKFORCE (Lexington is currently conducting VRU assessments using the model that KYTC championed in Louisville)**

EMPHASIS AREAS

EMPHASIS AREAS

EMPHASIS AREA SELECTION

Focus and opportunity guided the selection of the SHSP emphasis areas to improve safety for all users. A comprehensive analysis of crash data was conducted to identify trends, patterns, and opportunities for improvement. Crash analysis included fatalities, serious injuries, fatal and serious injury rates, location of crashes, mode of travel, roadway features, behavioral factors, driver characteristics, 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 safety performance.

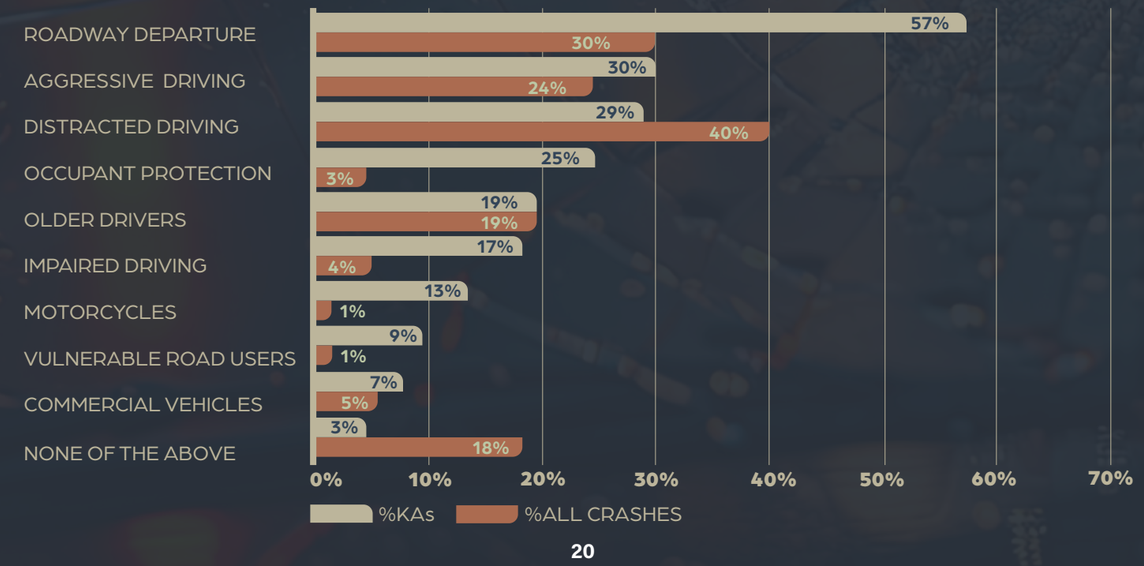
While the data analysis provides a thorough examination of crash statistics, it does not necessarily present a complete picture of Kentucky highway safety attributes. Some elements go unreported or underreported in the data due to a variety of factors. For this reason, Kentucky has chosen a data informed approach that incorporates statistical analysis while also acknowledging the importance of the stakeholder community's knowledge and experience .

Results from the analysis led to the selection of nine emphasis areas for the 2025–2029 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.
- **OLDER DRIVERS:** Crashes involving drivers aged 65 and above.
- **MOTORCYCLISTS:** Severe crashes involving motorcycles or other similar vehicles with engine capacity exceeding 50 cubic centimeters (cc).
- **VULNERABLE ROAD USERS:** Severe crashes involving pedestrians and bicyclists..
- **COMMERCIAL VEHICLES:** Severe crashes involving vehicles with a registered weight of 10,000 pounds or more.
- **ROADWAY DEPARTURE:** A severe crash that results from a vehicle leaving its lane to the left or right.

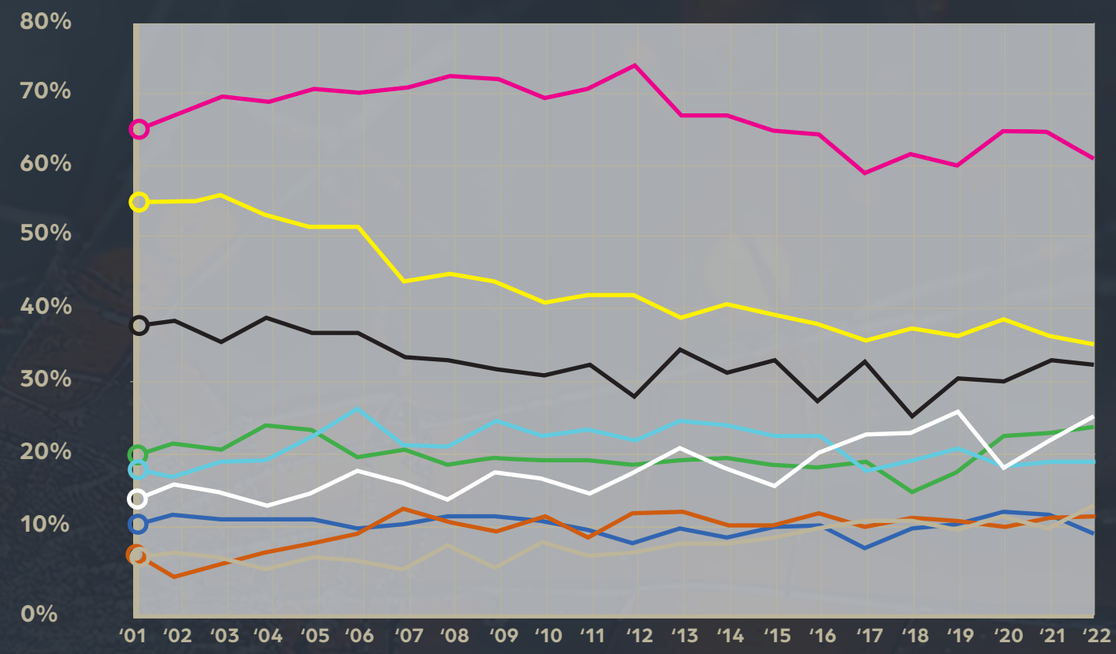
The chart shows the percentage of crash fatalities + serious injuries (peach) and all crashes (orange) and from 2019 to 2023 for which each of the emphasis areas were involved. At 57 percent, Roadway Departure accounted for the highest number of fatalities and serious injuries, despite only being a factor in only 30 percent of all crashes. Aggressive Driving was the second most involved factor at 30 percent of all fatalities and serious injuries and 24 percent of all crashes. Distracted Driving had the highest involvement of all crashes at 40 percent and was involved in 29 percent of all fatalities and serious injuries. The other three emphasis areas – Occupant Protection, Older Drivers, 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 25 percent, 19 percent, and 17 percent, respectively. Only 3 percent of fatalities and serious injuries did not involve one of the nine emphasis areas. Overall, only 18 percent of all crashes did not involve an emphasis area.

PERCENT CRASHES BY EMPHASIS AREA 2019-2023



The emphasis area data can also be examined longitudinally. Since 2001, roadway departure has factored in the highest percentage of crash fatalities of all the emphasis areas. Occupant protection has consistently been the second highest, though its contribution has declined considerably from 56 percent in 2001 to 36 percent in 2022. Three of the emphasis areas with the lowest percentages at the bottom of the chart – Older Drivers, Vulnerable Road Users, and Motorcyclists - have also demonstrated the highest increase in share of fatalities.

PERCENT OF KY CRASH FATALITIES



ROADWAY DEPARTURE
OCCUPANT PROTECTION
AGGRESSIVE DRIVING
IMPAIRED DRIVING
DISTRACTED DRIVERS
OLDER DRIVERS
COMMERCIAL VEHICLES
MOTORCYCLES
VULNERABLE ROAD USERS

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** (In any crash where speed is a factor, the severity is likely higher) – speeding, especially excessive speeding has to be eliminated to reduce crash severity
- **Failure to yield right of way**
- **Following too closely**
- **Disregarding traffic control** (e.g. stop signs, traffic signals/red light running) – T-bone intersection crashes are especially severe
- **Weaving in traffic**

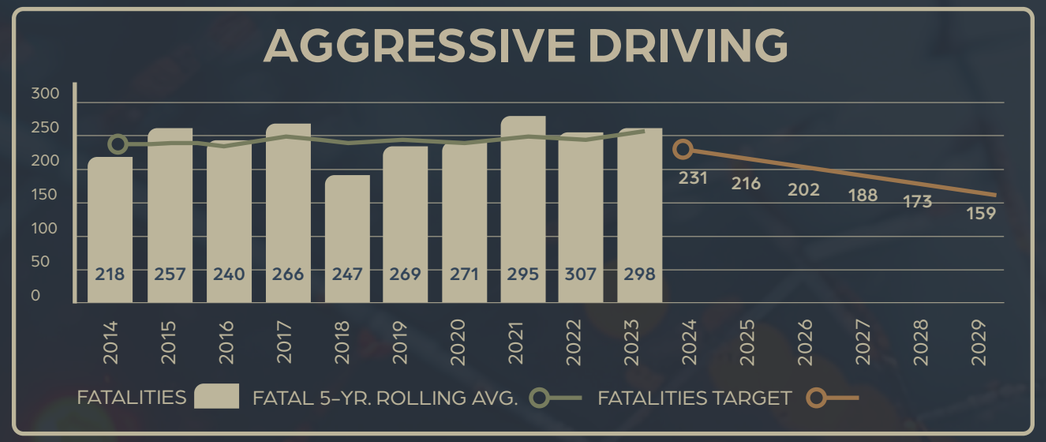
From 2019 to 2023, 1,259 fatalities and 4,159 serious injuries resulted from crashes involving aggressive driving on Kentucky roadways.

GOAL AND OBJECTIVE

Kentucky identifies 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 all 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 159 by December 31, 2029.

AGGRESSIVE DRIVING

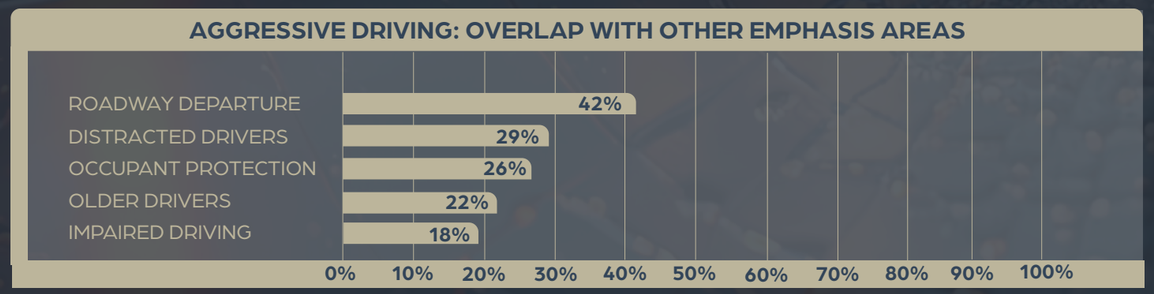


OPPORTUNITIES

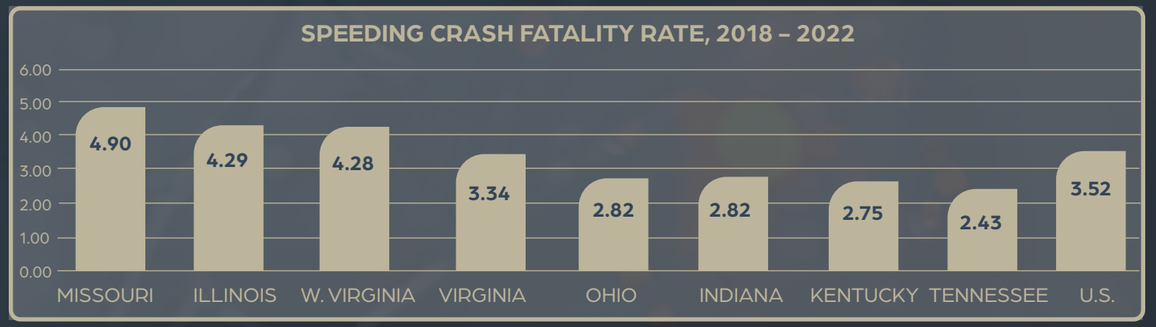
Safer Speeds is one of the foundational principles of the Safe System Approach. As part of its Vision Zero program, the city of Louisville has developed a Speed Management Plan to modernize how speed limits are set, develop projects to calm traffic, and educate drivers. The city is partnering with KYTC to evaluate current conditions of crash data, driver trends, and roadway design. In addition, the city is conducting a survey that asks of residents:

- **What are your concerns about speeding in Louisville?**
- **Where do you think speeding is a problem?**
- **What are your ideas for solutions to manage speeds and reduce speeding?**

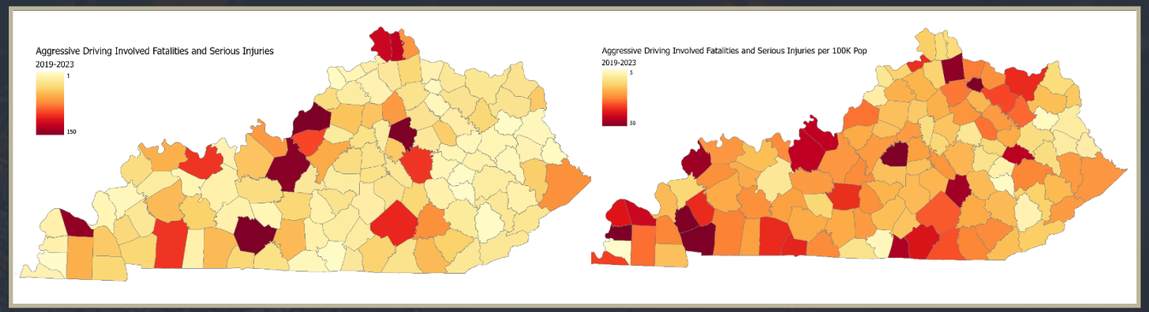
The plan, which will be implemented over the next decade, will establish a framework for Vision Zero Louisville's Safer Speeds approach and be leveraged to seek funding for speed management programs and roadway improvements.
Aggressive driving severe crashes often occur with other emphasis-area crash types. Most commonly (42 percent of the time) aggressive driving severe crashes involve roadway departure, with distracted driving, occupant protection and impaired driving also contributing to the severity of these crashes. One in five aggressive driving severe crashes involves an older driver (a new SHSP emphasis area).



Compared to surrounding states, Kentucky has a relatively lower speeding fatality rate (where fatalities occur and excessive speed is listed as a contributing factor). With a rate of 2.75 fatalities per billion vehicle miles driven, Kentucky's rate is lower than the national average speeding fatality rate and only slightly higher than the safest adjoining state (Tennessee). Still, the rate is significantly higher than the national overall fatality rate, which is close to 1.0.



Within the state, severe aggressive driving crashes are most prevalent in the urbanized counties while severe aggressive driving crash rates per capita are much more geographically dispersed and extending more into the western parts of the state.



DISTRACTED DRIVING

OVERVIEW

Distracted driving is defined by NHTSA as "any activity that diverts attention from driving, including talking or texting on your phone, eating and drinking, talking to people in your vehicle, fiddling with the stereo, entertainment or navigation system—anything that takes your attention away from the task of safer driving." The three main forms of distracted driving involve drivers removing:

- **Their eyes from the road**
- **Their hands from the wheel**
- **Their minds from the task of driving**

Vehicle and phone technology contribute to all three types of distraction. The risk of a crash escalates when drivers view content on their phones, make or receive phone calls or texts, or attend to their infotainment systems when driving.

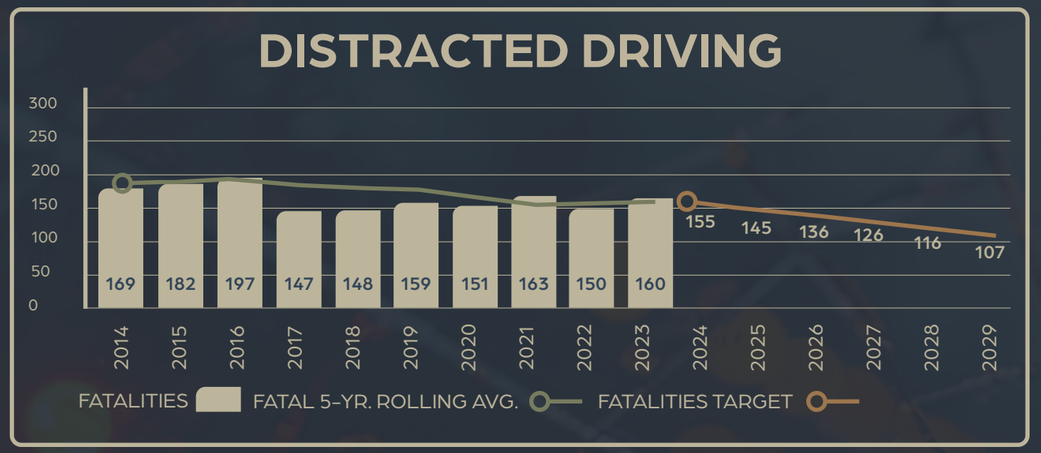
From 2019 to 2023, 783 fatalities and 4,470 serious injuries resulted from crashes involving distracted driving on Kentucky roadways. These numbers likely understate the problem, as it can be difficult to identify and/or prove distraction as a contributing factor to a crash.

GOAL AND 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 all 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 107 by December 31, 2029.

DISTRACTED DRIVING



OPPORTUNITIES

Driver error, often in the form of distracted driving, is common on our roadways. As part of the Safe System Approach, KYTC recognizes that improvements to our transportation system can be made to reduce the likelihood of death or serious injury being the consequence of these mistakes. Distracted driving severe crashes frequently occur at intersections. From 2019–2023, 37 percent of Kentucky intersection crash deaths and serious injuries involved distracted driving, and that figure likely understates the occurrence.

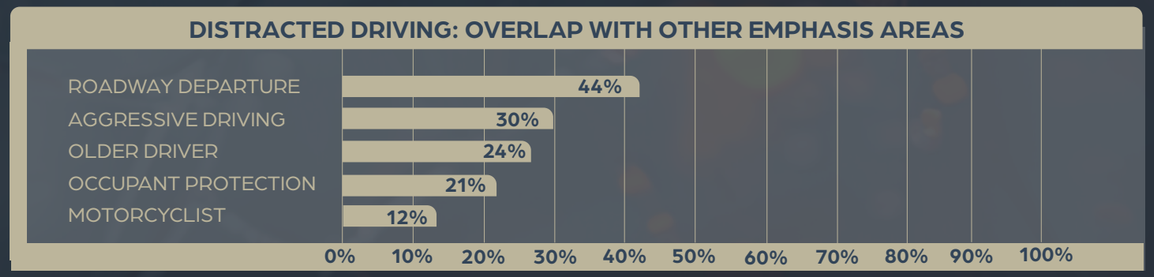
To combat the problem, Innovative Intersection designs are being deployed across the Commonwealth. Innovative Intersections intend to manage the circumstances of crashes and reduce the likelihood of their outcomes being severe. Innovative intersection designs that have been installed on Kentucky roadways include :

- **Roundabouts and Mini-Roundabouts**
- **Diverging Diamond Interchanges**
- **Restricted Crossing U-Turn (RCUT)**
- **Continuous Green T Intersections**

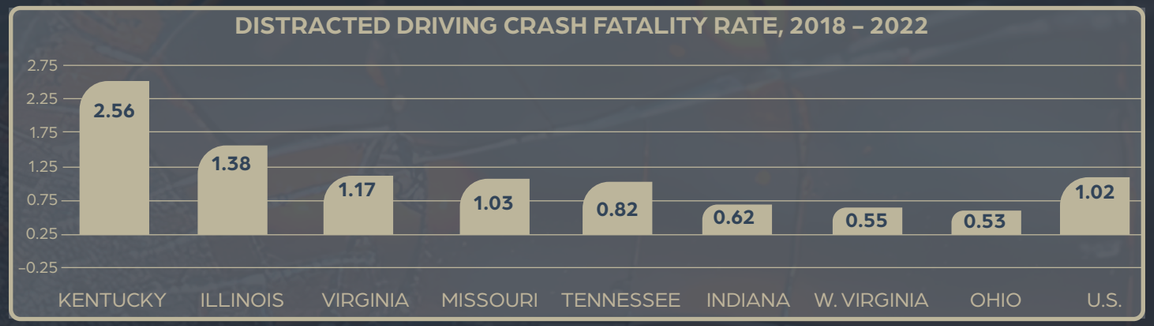
Information on these and other innovative intersections techniques is available at the Cabinet's SAFERoads initiative web site.

Bath-Rowan County Mini-Roundabout at US 60 and KY 801

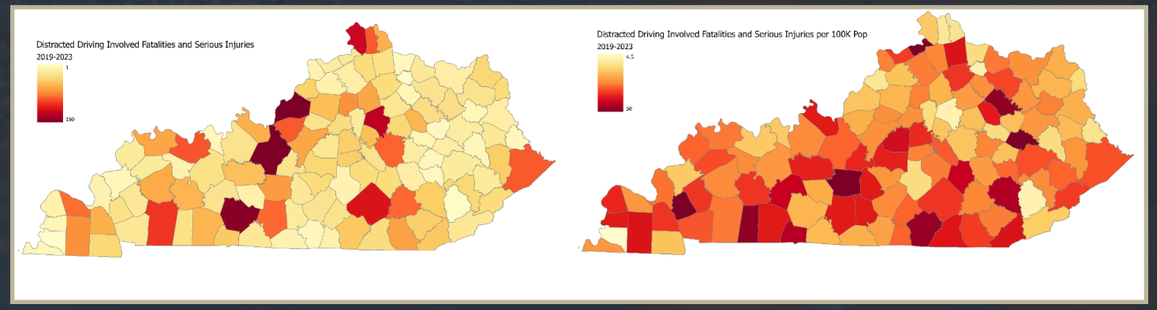
Severe distracted driving crashes often occur with other emphasis-area crash types. Most commonly (44 percent of the time) severe distracted driving crashes involve roadway departure, with aggressive driving and occupant protection also contributing to the severity of these crashes. One in four severe distracted driving crashes involves an older driver and 12 percent of the time involves a motorcyclist (new SHSP emphasis areas).



Compared to surrounding states, Kentucky ranks much higher with its distracted driving crash fatality rate. With a rate of 2.56 fatalities per billion vehicle miles driven, Kentucky's rate is more than double the national average and all surrounding states. One contributing factor here may be that Kentucky is the only of these states to not have a "hands-free" law that prohibits the usage of cell phones while driving.



Within the state, severe distracted driving crashes are most prevalent in the I-65 and I-75 corridors while severe distracted driving crash rates per capita are much more geographically dispersed and extending more into the southern parts of the state.



IMPAIRED DRIVING

OVERVIEW

Impaired Driving is defined as operating a motor vehicle while under the influence of alcohol or drugs. 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, reduced muscle control and deteriorating reaction times. These result in a decline in visual functions and multitasking, reduced concentration, impaired perception, and an inability to respond quickly to emergencies. In Kentucky, the per se BAC level of impairment is 0.08.

Impaired driving can also involve drug usage – both illegal narcotics and misuse of prescription drugs. Drug impairment can be more difficult to detect, though efforts such as the Drug Recognition Expert (DRE) program are improving these capabilities. Kentucky's legalization of marijuana for medicinal purposes, in effect as of January, 2025, presents additional challenges toward preventing impaired driving crashes and resulting serious injuries and deaths. Reminders may be needed that medicinal marijuana may be legal, but driving while impaired from medicinal marijuana is not.

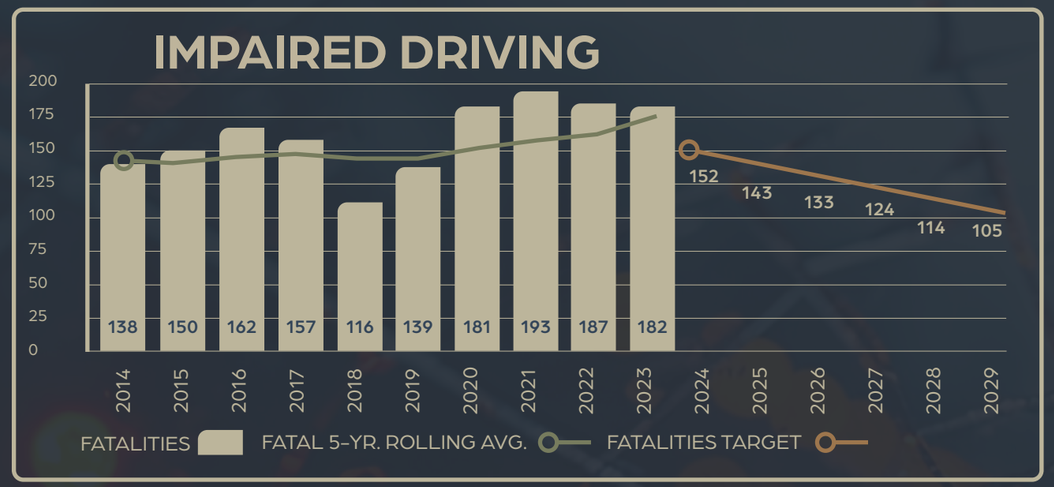
From 2019 to 2023, 882 fatalities and 2,236 serious injuries resulted from crashes involving impaired driving on Kentucky roadways. Indeed, these totals are likely underreported due to difficulties and inconsistencies in drug usage detection.

GOAL AND 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 all 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 105 by December 31, 2029.

IMPAIRED DRIVING



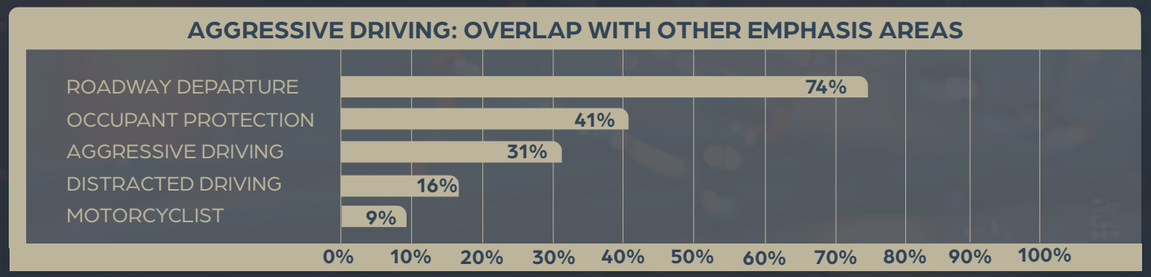
OPPORTUNITIES

Under the Safe System Approach, multiple layers of redundant strategies are required to combat the problem and mitigate the consequences of impaired driving. These include:

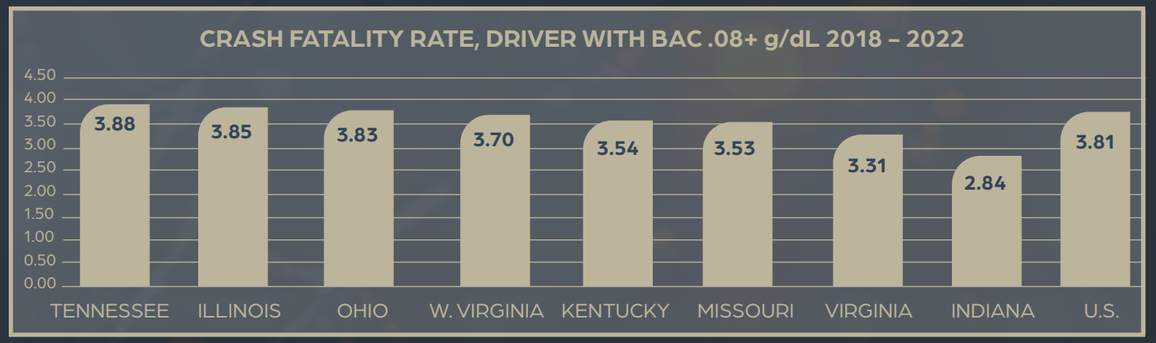
- **Vehicle technology, such as ignition interlocks to prevent repeat offenders**
- **Road infrastructure, such as cable barriers to prevent severe median crossover crashes**
- **Separated facilities for pedestrians and bicyclists**

In addition to this, deterrence remains as a proven countermeasure for combatting impaired driving. Deterrence is most effective when drivers understand they are likely to be arrested, convicted, and punished for driving while impaired. Programs that promote deterrence include the Drug Evaluation and Classification (DEC) program, which trains officers to become Drug Recognition Experts (DREs), and the Advanced Roadside Impaired Driving Enforcement (ARIDE) program, which provides training to bridge the gap between Standard Field Sobriety Testing and the (DEC/DRE) program.
The Kentucky law enforcement phlebotomy program is a joint effort of the Kentucky Office of Highway Safety (KOHS) and the Kentucky Drug Evaluation and Classification Program (DECP). The program funds phlebotomy training toward the certification of law enforcement officers. Having certified law enforcement phlebotomists allows agencies to expedite the process of testing for the presence of drugs and alcohol in cases of suspected impairment. With Kentucky moving toward the legalization of marijuana for medicinal purposes in 2025, the phlebotomy program will be on the front lines of preventing the tragic consequences of impaired driving.

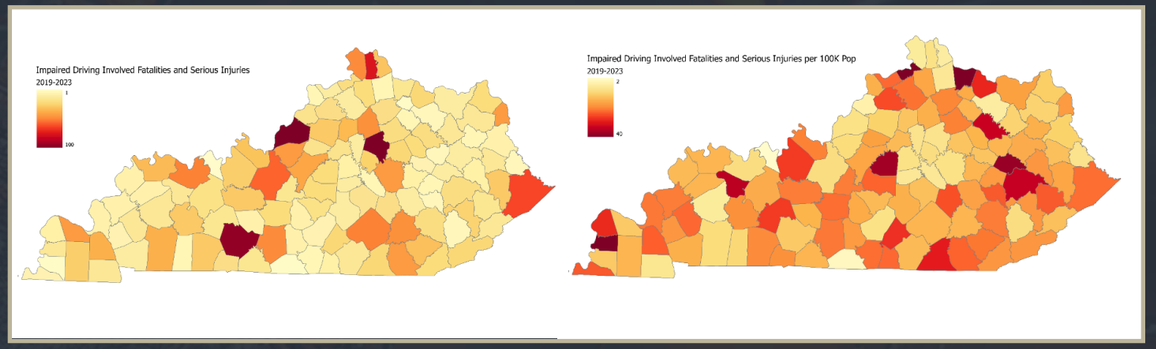
Severe impaired driving crashes often occur with other emphasis-area crash types. Most commonly (74 percent of the time!) severe aggressive driving crashes involve roadway departure. Occupant protection, aggressive driving and distracted driving also contribute to the severity of these crashes. Nearly one in ten severe impaired driving crashes involve a motorcyclist (a new SHSP emphasis area).



Compared to surrounding states, Kentucky ranks in the middle of impaired driving crash fatality rate as measured as over 0.08 BAC. With a rate of 3.54 fatalities per billion vehicle miles driven, Kentucky's rate is lower than the national average but 25 percent higher than the safest adjoining state (Indiana).



Within the state, severe impaired driving crashes are the most prevalent in the urbanized counties while severe impaired driving crash rates per capita are much more geographically dispersed.



OCCUPANT PROTECTION

OVERVIEW

Occupant protection includes 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 belts reduce the risk of a fatal injury to front seat passengers by an estimated 45 percent. The simplest thing – taking a second to buckle in – can prevent so many tragedies on Kentucky highways. This simple choice, whether one agrees with the law or not, is the best protection against death and serious injuries that would otherwise keep one from their family and future.

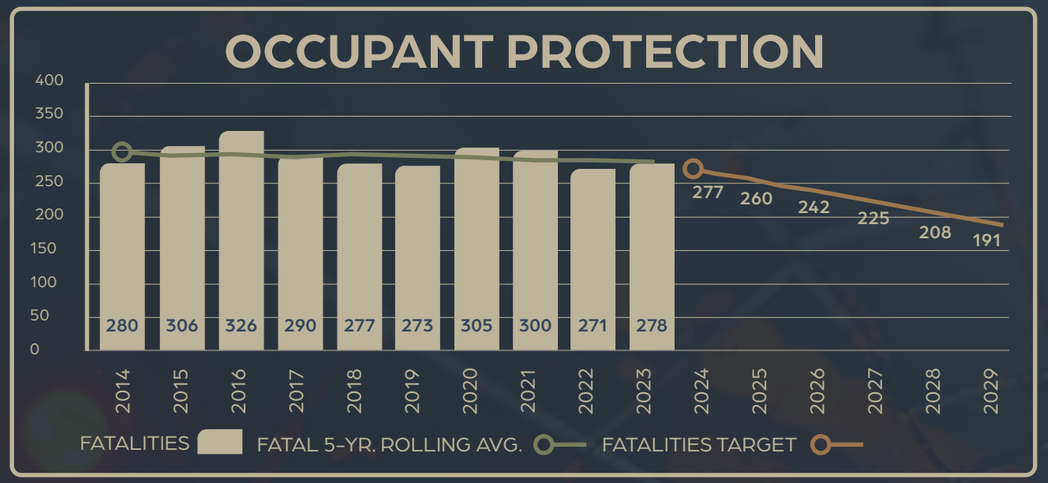
In 2023, Kentucky's seatbelt usage rate was 89.8 percent, which was below the national average of 91.9 percent. From 2014 to 2023, nearly 300 unrestrained Kentuckians lost their lives in road crashes annually.

GOAL AND 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 all 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 191 by December 31, 2029. However, zero should be the goal for unrestrained child serious injuries and deaths! Kentucky has the partnerships to accomplish this goal, including KSPAN, Vision Zero, Norton Childrens Hospital, Buckle Up for Life, AAA, KACP, MADD, SADD, and over 150 law enforcement agencies including KSP.

OCCUPANT PROTECTION



OPPORTUNITIES

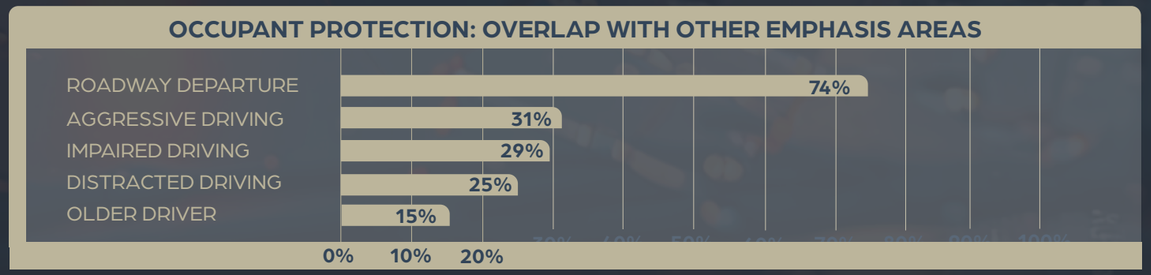
Seatbelts are among the easiest and most effective tools for preventing deaths and serious injuries on Kentucky roadways. Seatbelts are a critical component of Safer Vehicles, a founding principle of the Safe System Approach -- The CHOICE to wear them is a critical part of the safer people portion of the SSA.

In 2022, Kentucky participated in the High Five Rural Traffic Safety Seat Belt Program. The program targeted five rural counties where unbelted crashes are a critical problem. The program includes:

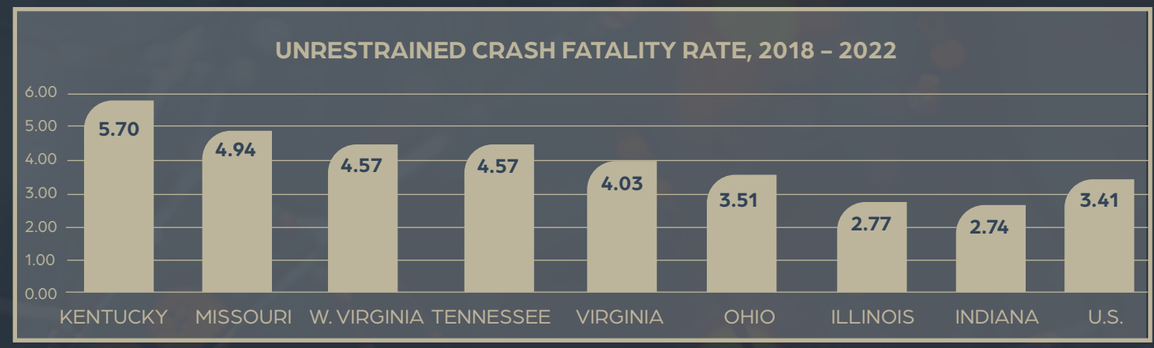
- **Community outreach, including educational programs at all high schools in the areas**
- **Law enforcement distributed printed materials**
- **At least two seatbelt enforcement projects per month over a year**
- **Observational seat belt surveys**
- **Road safety assessments**

While the final results are still pending, the program was understood to be a great success, and the KOHS intends to carry forward the program to new counties as part of a High 95 initiative to boost Kentucky's overall usage rate to 95 percent or above.

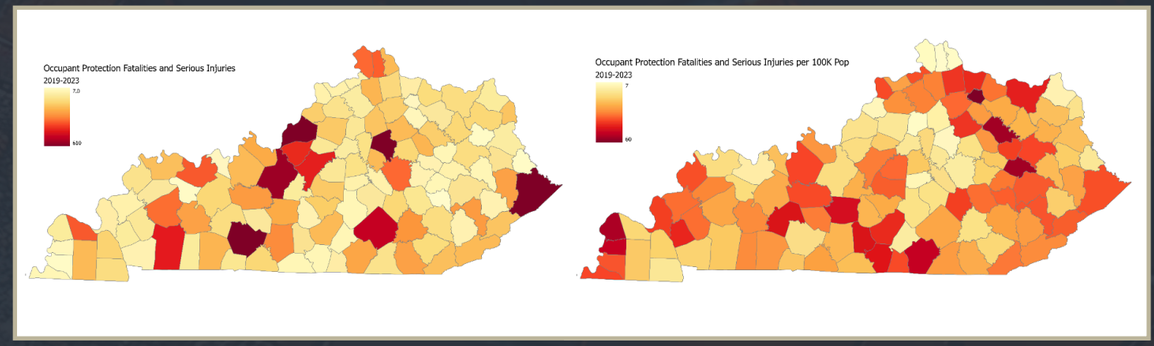
Severe occupant protection (or lack thereof) crashes often occur with other emphasis-area crash types. Most commonly (74 percent of the time!) severe occupant protection crashes involve roadway departure. These crashes are particularly problematic due to the higher chance of rollover and passenger ejection. Aggressive, impaired and distracted driving also contribute to the severity of these crashes. One in six severe occupant protection crashes involve an older driver, (a new SHSP emphasis area).



Compared to surrounding states, Kentucky has the highest unrestrained crash fatality rate. With a rate of 5.70 fatalities per billion vehicle miles driven, Kentucky's rate is 67 percent higher than the national average and over twice that of the safest adjoining state (Indiana). Kentucky also has one of the lowest penalties for driving unrestrained ($25 and no court cost as compared to $400-$500 including court cost in neighboring Virginia.) In the last five years, Kentucky law enforcement issued almost 300,000 citations for failure to wear set belts and over 7000 citations for failure to properly use child restraints.



Within the state, severe unrestrained driving crashes are most prevalent in the urbanized counties and along the I-65 and I-75 corridors while severe unrestrained driving crash rates per capita are much more geographically dispersed and extending more into the more rural parts of the state.



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 often involves collisions with other moving or stationary vehicles, fixed hazardous objects, such as trees or utility poles, or vulnerable road users, such as pedestrians and bicyclists.

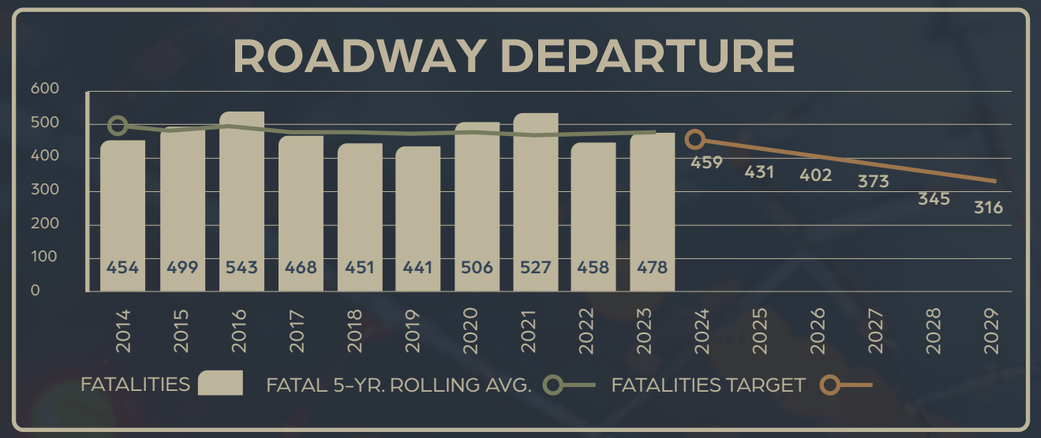
The need to prevent fatalities from road departures is imperative. From 2019 to 2023, 2,410 fatalities involved roadway departures, 62 percent of all traffic deaths in Kentucky.

GOAL AND 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 all 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 316 by December 31, 2024.

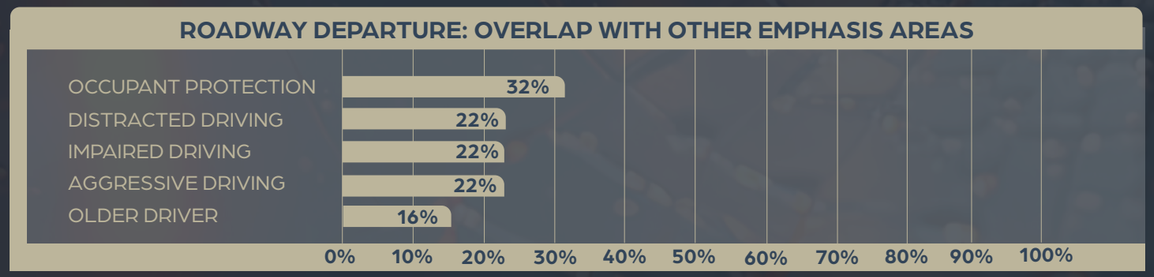
ROADWAY DEPARTURE



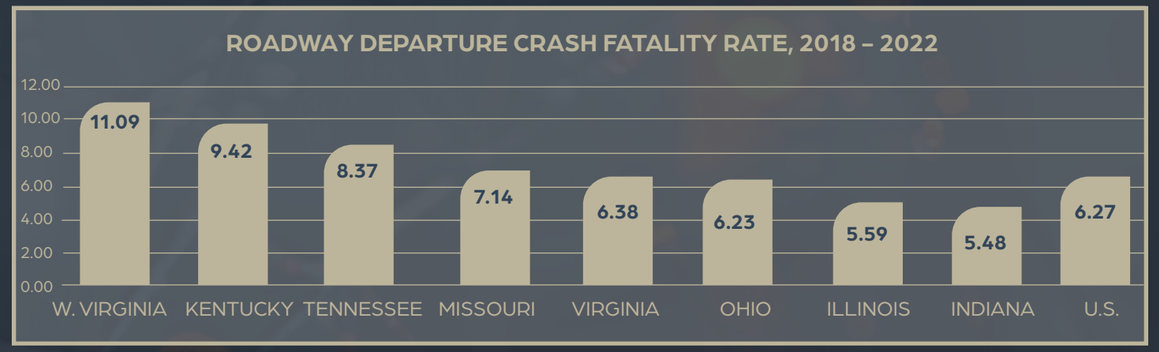
OPPORTUNITIES

The Safe System Approach includes safer roads as one of its core principles. KYTC's HSIP promotes safer roads through its Roadway Departure Corridors initiative. This initiative uses historical crash data and state-of-the-art Safety Performance Functions to identify corridors that are good candidates for the implementation of roadway departure countermeasures aimed at improving safety performance. Appropriate countermeasures, such as curve re-alignment, super-elevation improvements, and/or High Friction Surface Treatment, are employed at high-crash curves along the corridors. In addition, systemic improvements such as shouldering, signing, and improvements to create a consistent roadside are employed along the entire corridor. From 2020 to 2023, KYTC HSIP funded approximately $150 million in Roadway Departure safety improvements across the Commonwealth.

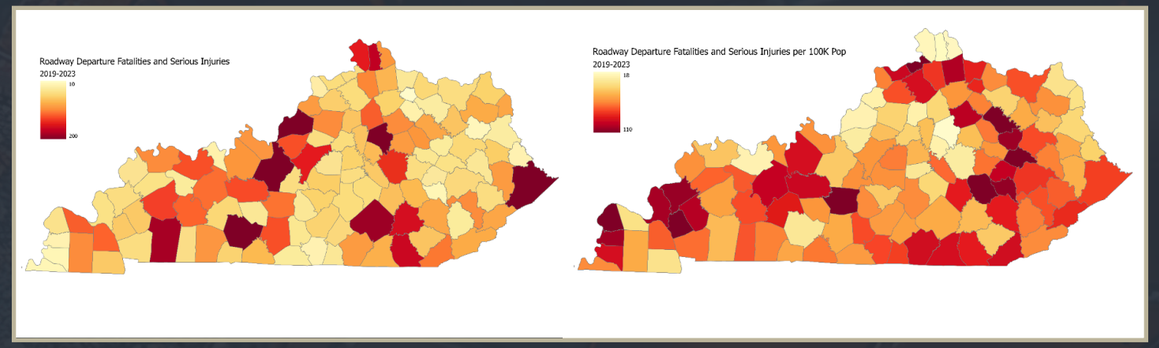
Severe road departure crashes often occur with other emphasis-area crash types. Most commonly (32 percent of the time) severe road departure crashes involve a lack of occupant protection. These crashes are problematic due to the higher chance of rollover and passenger ejection, particularly when higher speeds are involved such as is common in rural areas on higher speed roads and where outcomes are more severe and EMS response times are often higher. Distracted and impaired driving also contribute to the severity of these crashes. One in six road departure crashes involve an older driver, (a new SHSP emphasis area).



Compared to surrounding states, Kentucky has the second highest severe roadway departure crash fatality rate. With a rate of 9.42 fatalities per billion vehicle miles driven, Kentucky's rate is 77 percent higher than the national average, twice that of the safest adjoining state (Indiana).



Within the state, severe roadway departure driving crashes are most prevalent in the western and far eastern as well as the I-65 and I75 corridors while severe roadway departure driving crash rates per capita are much more geographically dispersed and extending mostly into rural parts of the state.



VULNERABLE ROAD USERS

OVERVIEW

This 2025 SHSP update continues Vulnerable Road Users as an emphasis area, however for this update motorcyclists have been split off into a new emphasis area. Vulnerable Road Users are now defined as all non-motorized roadway users, including pedestrians and bicyclists. These roadway users are grouped for the fact that all are at a significantly heightened risk to severe injury or fatality in the event of a collision with a motor vehicle.

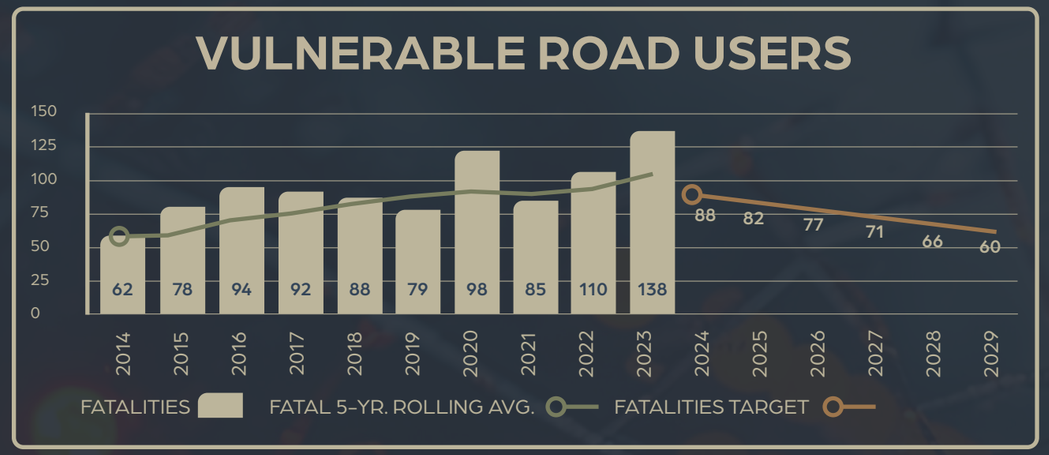
From 2019 to 2023, there were 510 fatalities and 1,066 serious injuries involving vulnerable roadway users in Kentucky. Of these 510 fatalities, 462 (91 percent) were pedestrians, and 48 (9 percent) were bicyclists. In addition to these, 49 fatalities resulted from crashes involving 'Motor scooters or motor bikes,' not considered as motorcycles. Two fatalities involved "animal drawn vehicles."

GOAL AND 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 all future vulnerable road user fatalities and serious injuries, including innovative features such as Rectangular Rapid Flashing Beacons (RRFBs), bump outs and new roadway configurations.

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 60 by December 31, 2029.

VULNERABLE ROAD USERS



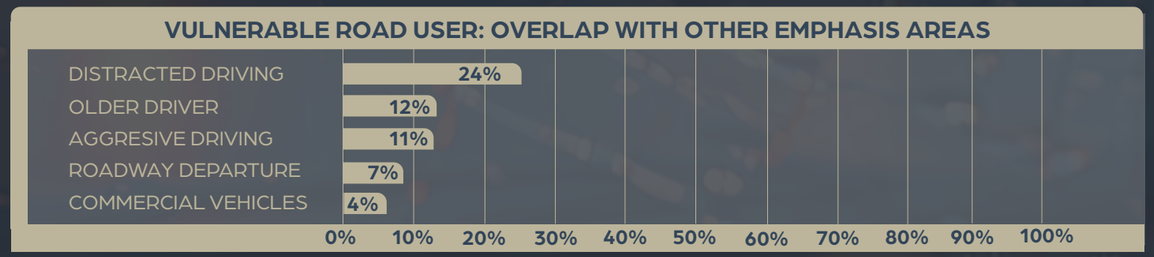
OPPORTUNITIES

All road user safety is one of the foundational principles of the Safe System Approach. Kentucky recognizes the importance of providing safer opportunities for walking and biking that connect communities and promote their livability, health, economic growth and environmental stewardship. The Statewide Bike/Ped Master Plan, completed in 2022, lays out a vision for the future of Kentucky's active transportation system. The plan includes:

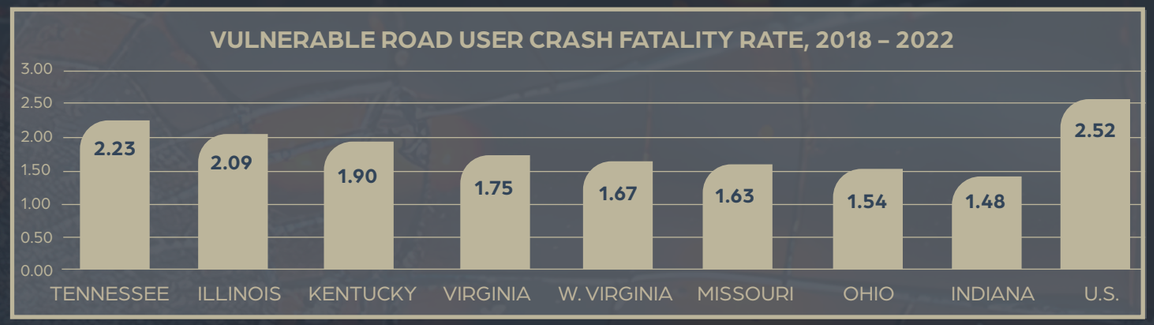
- **An inventory of Kentucky's bicycle and pedestrian networks**
- **Policies, programs, and tools that support active transportation**
- **A framework for advancing bike/ped planning at the local, regional, and statewide level**

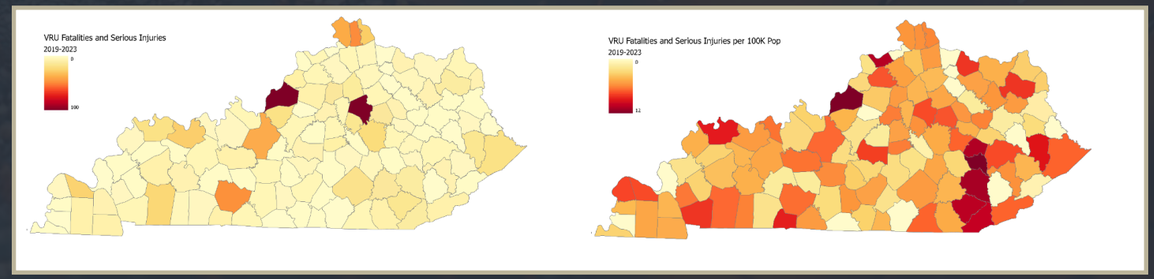
The plan coordinates with other statewide activities, including the Vulnerable Road User Assessment, the KY Complete Streets, Roads, and Highways Policy, and KYTC's 2021 ADA Transition Plan. Local activities conducted in coordination with the plan include the Lexington Area Bicycle and Pedestrian Master Plan, Louisville Vision Zero, and more than 80 individual counties, cities, Area Development Districts, Metropolitan Planning Organizations, and other public agencies involved in bicycle and pedestrian planning.

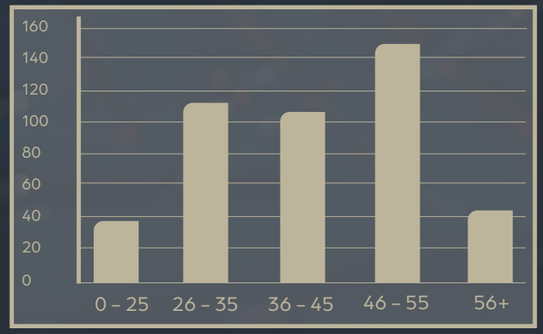
Vulnerable road user crashes often occur with other emphasis-area crash types. Most commonly (24 percent of the time) vulnerable road user departure crashes involve distracted driving. Second, most commonly, vulnerable road user crashes involve an older driver, (a new SHSP emphasis area). VRU crashes involve aggressive driving, road departure and commercial motor vehicles.



Compared to surrounding states, Kentucky has the third highest vulnerable road user crash fatality rate. With a rate of 1.90 fatalities per billion vehicle miles driven, Kentucky's rate is lower than the national average but 28 percent higher than the safest adjoining state (Indiana).







Within the state, severe vulnerable road user crashes are nearly exclusively in the urbanized counties while severe vulnerable road user crash rates per capita are much more geographically dispersed and extending more into the eastern and more rural parts of the state.rate is lower than the national average but 28 percent higher than the safest adjoining state (Indiana).

PEDESTRIAN FATALITIES BY SPEED LIMIT

MOTORCYCLISTS

OVERVIEW

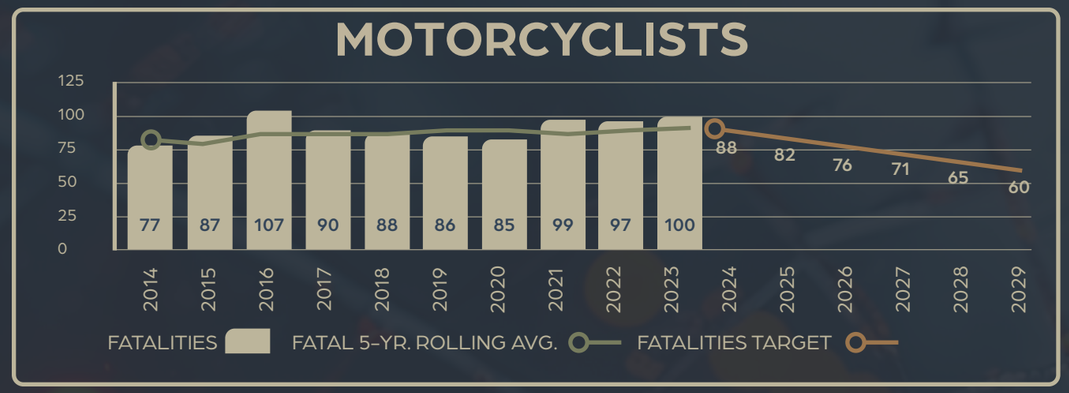
Operating a motorcycle is one of the most dangerous forms of transportation on Kentucky roadways. Motorcycles do not offer the same protections that a passenger vehicle does, leaving an operator virtually defenseless in the event of a crash. In addition, motorcycles are smaller than passenger vehicles making them less visible and more vulnerable when colliding with larger, heavier vehicles. From 2019–2023, 32 percent of crashes involving a motorcycle resulted in fatality or serious injury compared to just 3 percent of all crashes statewide.

GOAL AND OBJECTIVE

Kentucky has identified Motorcyclists 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 all future motorcyclist fatalities and serious injuries.

To measure progress toward this goal, an objective has been set to prevent future motorcyclist fatalities such that the annual total will fall at or below 60 by December 31, 2029.

MOTORCYCLISTS

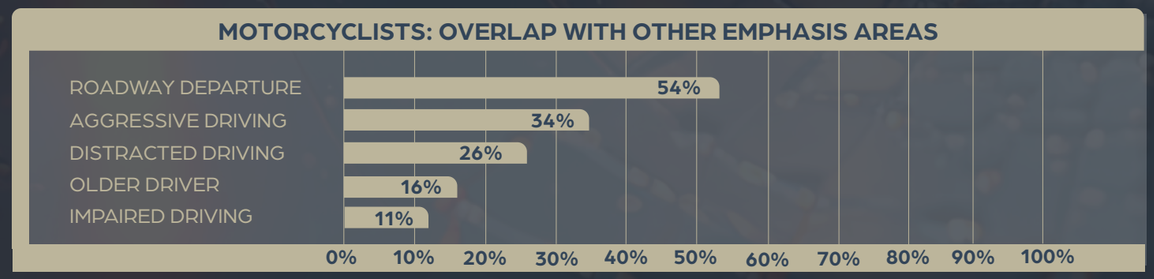


OPPORTUNITIES

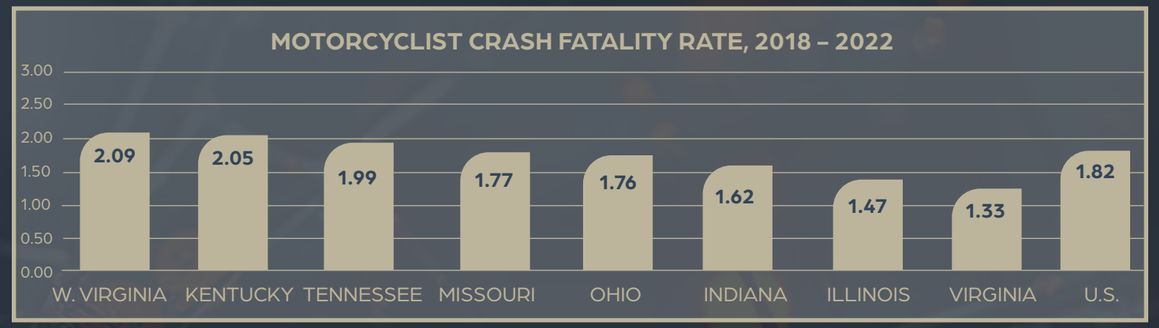
Motorcyclists present a unique class of roadway users who share the same roadway and operate at similar speeds as other motor vehicles, but whose occupants are significantly more vulnerable to serious injury or death in the event of a crash. Motorcyclists require a number of protective factors under the Safe System Approach, including:

- **Safer Users:** The KOHS supports programs that work with the Kentucky Motorcycle Safety Education Commission and RideSmart Ky to educate new motorcycle riders on the skills needed to operate a motorcycle safely and to further educate current motorcycle riders to improve their riding skills. While efforts have been made to make it easier for riders to achieve the motorcycle endorsement on their license, relatively few crash reports indicate that the rider had the endorsement. This could be an opportunity for improved data (e.g., auto-population of information from the driver's license) or it may indicate an opportunity for improved driver education and certification.
- **Safer Vehicles:** Motorcycle visibility is critical to improving safety.
- **Safer Speeds:** The KOHS supports High Visibility Enforcement campaigns and traffic safety checkpoints to promote safer speeds on Kentucky roadways.
- **Safer Roads:** The KYTC HSIP funds high-friction surface treatments to help prevent vehicles from sliding off the road. Appropriate signage for curves in the roadway also help prevent motorcycle crashes.

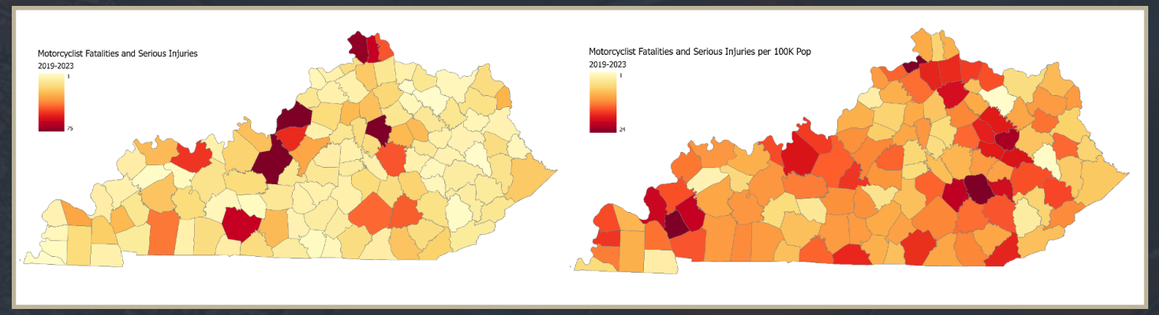
Motorcycle crashes often occur with other emphasis area crash types. Most commonly (54 percent of the time), motorcycle crashes involve roadway departure, with aggressive and distracted driving also contributing to many of these crashes.



Compared to surrounding states, Kentucky ranks second highest in motorcycle crash fatality rate. With a rate of 2.05 fatalities per billion vehicle miles driven, Kentucky's rate is slightly higher than the national average but 54 percent higher than the safest adjoining state (Virginia). Kentucky's rurality likely contributes to the higher rate. Weather is known to affect motorcycle crash rates, with good weather (more riding) resulting in more crashes. About half of all fatalities involve a single vehicle (motorcycle) on a country road on a nice day. An opportunity for improvement may be additional rider training, with second level training (Basic Rider Course – BRC II) just getting a foothold in the state. Providing incentives or prizes to motorcycle riding groups for competing for riding safety training participation rates could be helpful.



Within the state, severe motorcycle crashes are most prevalent in the urbanized counties while severe motorcycle crash rates per capita are much more geographically dispersed.



COMMERCIAL VEHICLES

OVERVIEW

The Federal Motor Carrier Safety Administration (FMCSA) defines a commercial motor vehicle as any motor vehicle used on a highway in interstate commerce to transport property or passengers when the vehicle:

- Has a gross vehicle weight rating (GVWR) of 10,001 pounds or more
- Is single or a combination of vehicles with a gross vehicle weight rating (GVWR) of 26,001 pounds or more
- Is designed or used to transport more than 8 passengers (including the driver) for compensation; or more than 15 passengers if not receiving compensation for the transportation.
- Any size vehicle that transports hazardous materials that require federal placarding

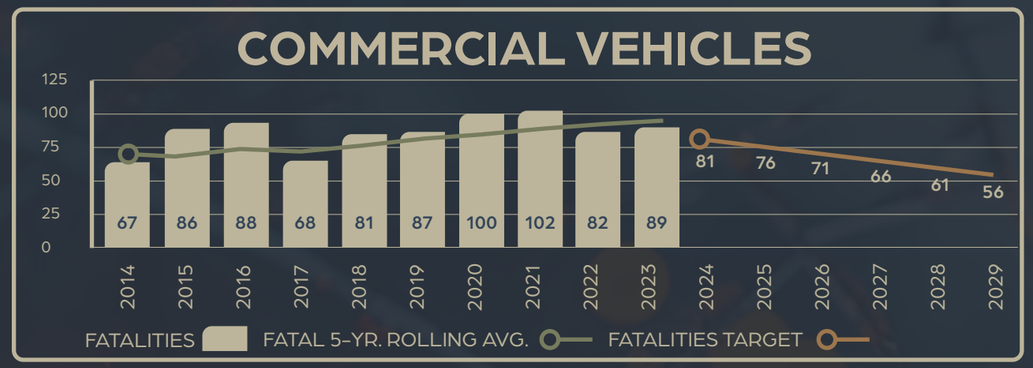
CMVs have been selected as an emphasis area due to their size and potential threat to roadway users (including drivers and passengers of the CMVs) in the event of a collision. From 2019 to 2023, there were 460 fatalities and 837 serious injuries that resulted from crashes involving CMVs in Kentucky. CMVs are typically driven by CDL holders, which presents an opportunity to further educate a particular group of individuals.

GOAL AND OBJECTIVE

Kentucky has identified Commercial Motor Vehicles 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 all future CMV fatalities and serious injuries.

To measure progress toward this goal, an objective has been set to reduce future commercial motor vehicle involved fatalities such that the annual total will fall at or below 56 by December 31, 2029.

COMMERCIAL VEHICLES

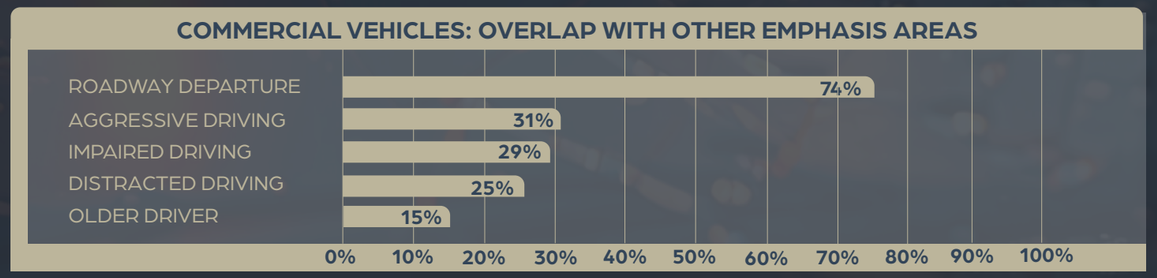


OPPORTUNITIES

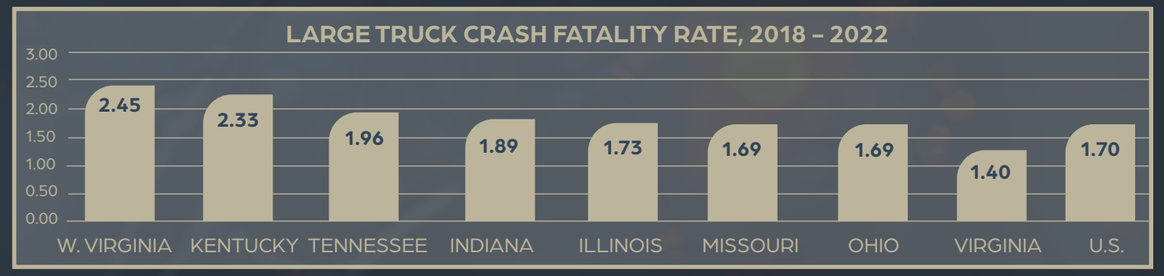
Kentucky is home to major freight corridors, including the north-south routes of I-65 and I-75. These corridors service the supply chains of freight generators such as the UPS Worldport, Amazon Prime, Ford Kentucky Truck Assembly, Ford Louisville Assembly Plant, and Toyota Motor Manufacturing Kentucky. Additional freight will soon be generated by a pair of $5.8 billion EV battery plants set to begin producing in Hardin County in 2025.
Due to their sheer size and weight, CMVs present unique challenges to highway safety. In accordance with the Safe System Approach, Kentucky is implementing multi-layered strategies to address this challenge, including:

- Technological advancements have improved law enforcement crash clearance times (Quick Clearance) by up to 70 percent, allowing officers to gather needed site information efficiently before re-opening the roadway. Faster clearance times lead to decreased rates of secondary collisions for CMVs and other vehicles.
- Roadway improvements that can help to address CMV safety include median crossover barriers, guardrail, and high friction surface treatments.
- Kentucky is a full participant in the FMCSA Commercial Driver's License (CDL) Drug and Alcohol Clearinghouse. Driversindicated in the clearinghouse as having refused a test will have their Kentucky CMV license downgraded beginning in November 2024.
- High Visibility Enforcement (HVE) is an effective countermeasure for improving CMV safety. HVE campaigns supported by the KOHS include 'Drive Sober or Get Pulled Over', 'Click It or Ticket', and 'Speed Week'.
- Efforts of the Kentucky Department of Vehicle Regulation at weigh stations such as PrePass or Drivewyze as well as research being conducted by the Kentucky Transportation Center in the CMV program area.

CMV crashes often occur with other emphasis area crash types. Most commonly (74 percent of the time), CMV crashes involve roadway departure, with aggressive, impaired and distracted driving also contributing to many of these crashes. One in six CMV crashes involves an older driver (another new SHSP emphasis area).

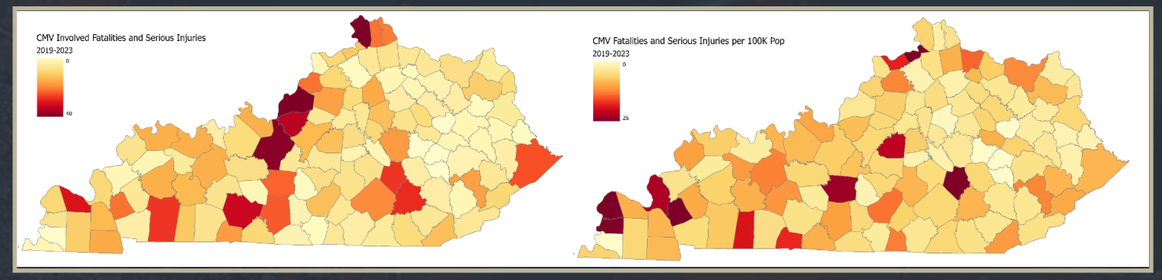


Compared to surrounding states, Kentucky ranks second highest in large truck crash fatality rate. With a rate of 2.33 fatalities per billion vehicle miles driven, Kentucky's rate is 37 percent higher than the national average and 66 percent higher than the safest adjoining state (Virginia).



Within the state, severe CMV crashes are most prevalent in the heavily traveled I-65 and I-75 corridors while areas with severe CMV crash rates (per capita) include additional rural areas in the western portion of the Commonwealth.

A challenge to CMV safety will be the increased numbers of heavy trucks operating in the I65 corridor due to increased GDP and manufacturing business. Availability of manpower and collaboration between rural and urban partners are also challenges. Opportunities for improvement include safety impact analyses for new industrial development as well as applications for FMCSA "technology" and "high priority" grants. Legislation such as a "hands-free" law could also assist in reducing CMV crashes as the fault in these crashes is often the behavior/actions of other, non-commercial drivers involved.



OLDER DRIVERS

OVERVIEW

Older drivers are defined as motor vehicle operators aged 65 and up. The average age of Kentucky's population is increasing, and as such the share of older drivers on Kentucky roadways is also going up. With the 'Baby Boomer' generation entering retirement years, Kentucky's population pyramid now resembles more a pillar, with nearly equal numbers of people in older groups as in middle aged and younger groups. There are unique safety challenges involved with older drivers including changes in vision, physical fitness, and reflexes.

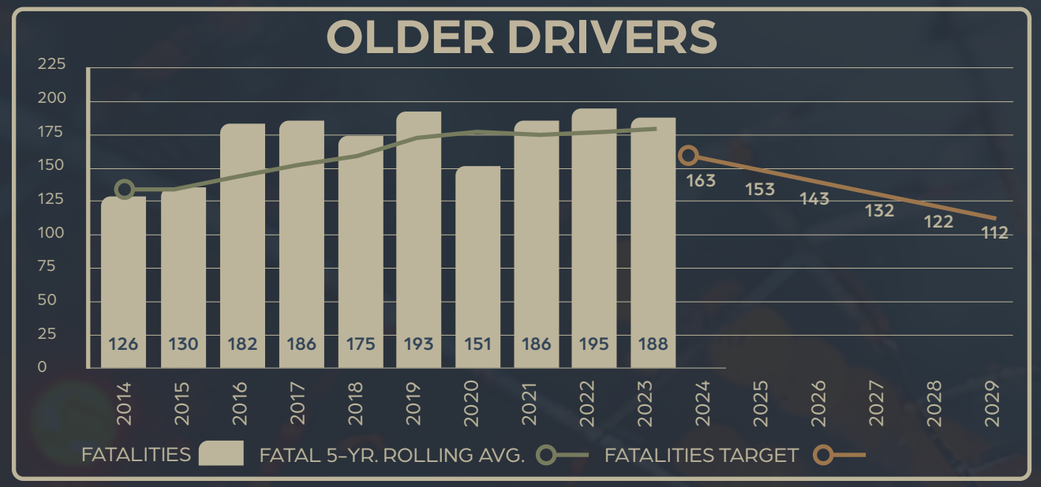
According to NHTSA analysis, in 2022 there were 8,572 deaths nationwide from crashes involving older drivers, the highest since at least 1975. In Kentucky, there were 913 deaths and 2,480 serious injuries from crashes involving older drivers between 2019-2023.

GOAL AND OBJECTIVE

Kentucky has identified Older Drivers 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 all future older driver fatalities and serious injuries.

To measure progress toward this goal, an objective has been set to prevent future older driver involved fatalities such that the annual total will fall at or below 112 by December 31, 2029.

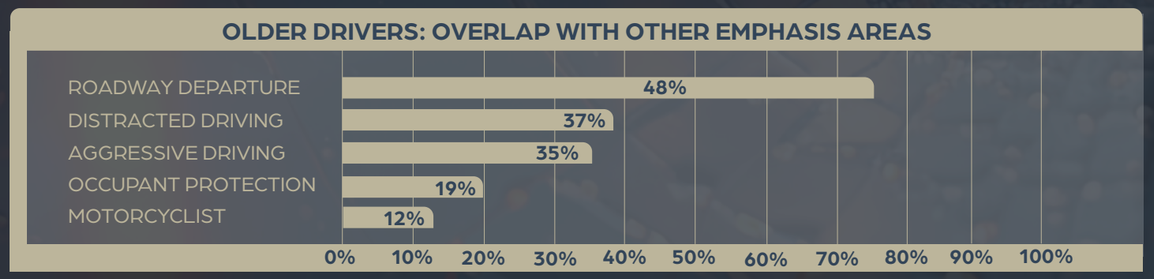
OLDER DRIVERS



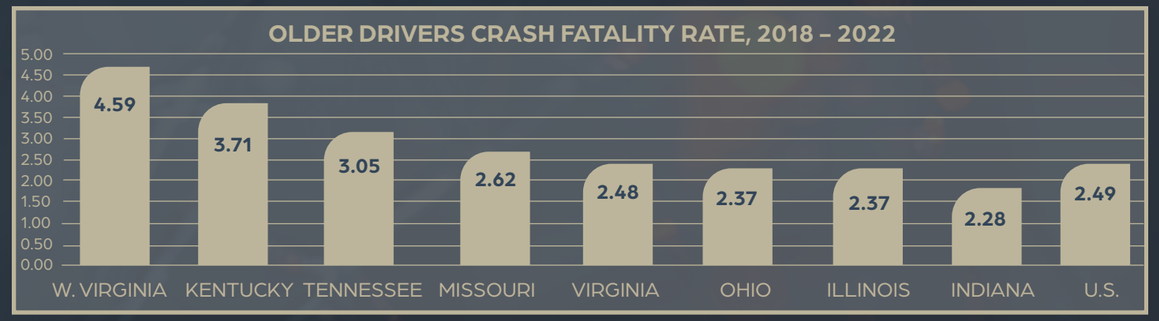
OPPORTUNITIES

The Safe System Approach calls for a multi-layered and redundant approach to preventing deaths and serious injuries. For older drivers, this necessitates improvements in vehicular technology as well as education about it, roadway infrastructure, and post-crash care. The FHWA "Handbook for Designing Roadways for the Aging Population" recognizes challenges that may impact people as they age include declining vision, decreased flexibility and psychomotor performance, and changes in perceptual and cognitive performance. In accordance with the handbook, this SHSP includes strategies, such as improvements to intersections, interchanges, roadway segments, construction/work zones, and highway-rail grade crossings. In addition, this SHSP includes outreach programs aimed at older drivers and partner with safety stakeholders, such as AAA Foundation, Norton Healthcare, and St. Elizabeth Healthcare.

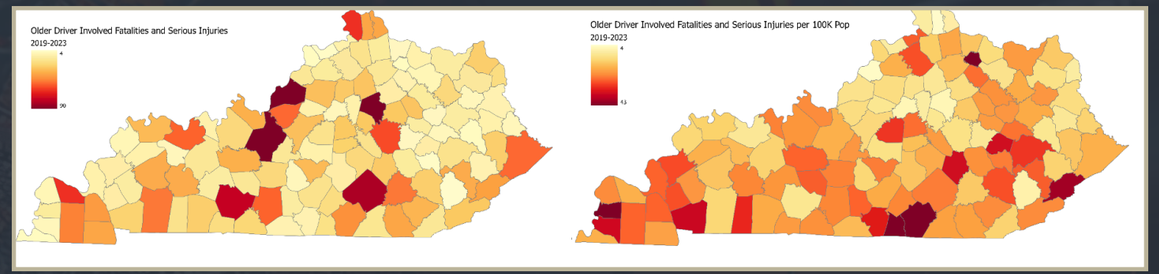
Older driver crashes often occur with other emphasis-area crash types. Most commonly (48 percent of the time) older driver crashes involve roadway departure. Distracted driving, aggressive driving and lack of occupant protection also contribute to the severity of these crashes. 12 percent of older driver crashes involve a motorcycle (another new SHSP emphasis area).

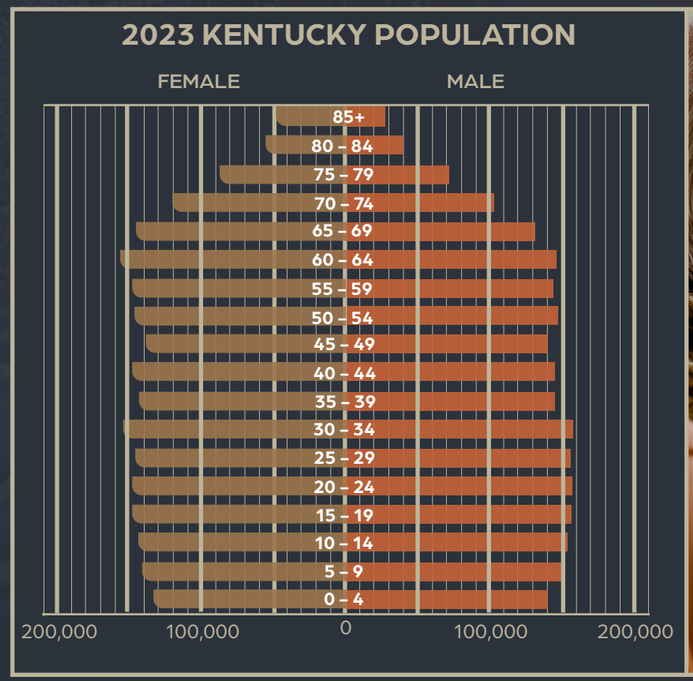


Compared to surrounding states, Kentucky has the second highest older driver crash fatality rate. With a rate of 3.71fatalities per billion vehicle miles driven, Kentucky's rate is about 50 percent higher than the national average and 63 percent higher than the safest adjoining state (Indiana).



Within the state, severe older driver crashes are most prevalent in the urbanized counties and I-65 and I-75 corridors. Severe older driver crash rates per capita are much more geographically dispersed and extending more into the rural and southern parts of the state.





IMPLEMENTATION AND EVALUATION

This plan sets very aggressive interim goals toward preventing fatal and serious injury crashes. It is important to remember that our ultimate goal is zero. The implementation of these strategies is urgent to attain those goals and have Kentuckians, and visitors to the Commonwealth, arrive safely at their destination.

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. Implementation requires:

- **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 highway safety partners provides necessary knowledge and can offer meaningful approaches. All working together can break down a "siloed" mindset to produce a coordinated, comprehensive approach to safety.

HIGHWAY SAFETY RELATIONSHIP STRUCTURE

GOVERNOR'S EXECUTIVE COMMITTEE ON HIGHWAY SAFETY

GECHS was established to combat the epidemic of fatalities and serious 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. The KYTC Secretary serves as the Governor's Representative for Highway Safety.

KENTUCKY OFFICE OF HIGHWAY SAFETY (KOHS)

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. The KOHS works specifically to save lives by preventing severe highway crashes through relevant, data-driven, outcome-based approaches and effective program delivery.

- **THE DIVISION OF HIGHWAY SAFETY PROGRAMS** consists of the Grants Management Branch, which is responsible for NHTSA programs, and the Safety Education Branch, which is responsible for community outreach programs aimed at implementing the Safer People principle of the Safe System Approach.
- **THE DIVISION OF INCIDENT MANAGEMENT** is responsible for planning, communications, and operations in response to incidents and infrastructure related emergencies across the Commonwealth of Kentucky.

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)

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. Federal statute requires states 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 funds are administered by staff within the Division of Traffic Operations in KYTC's Central Office. Each of the twelve KYTC Highway Districts has an HSIP Coordinator that acts as a liaison between, and works closely with, Central Office HSIP staff and District staff.

Traditionally, HSIP has focused on the implementation of data-driven highway projects with engineering countermeasures that are consistent with Kentucky's SHSP. 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 to prevent deaths and serious injuries for all users. HSIP staff extend 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.

TECHNICAL LEADERSHIP COUNCIL

The SHSP Technical Leadership Council is comprised of leadership from each of the emphasis area task forces. The Council is tasked with meeting semiannually to coordinate efforts that are cross-cutting, potentially benefiting 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 agencies and stakeholders. Semiannual workshops will be held to report out on action metrics:

- **What strategies have been implemented during the last 6 months?**
- **What metrics can be developed for each strategy and how can we track progress?**
- **Are all Emphasis Areas being addressed? Yearly updates on fatalities and serious injuries for each area.**
- **How can strategies continue to be identified, developed, and implemented to further the Safey Systems approach?**

INTEGRATION WITH OTHER KENTUCKY STATE PLANS, PROGRAMS, & 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.

- **KYTC Strategic Plan**
- **KYTC Six Year Highway Plan**
- **KYTC Highway Safety Improvement Program (HSIP) Plan**
- **OHS Triennial Highway Safety Plan (3HSP)**
- **KYTC Complete Streets, Roads and Highways Plan**
- **KYTC Long Range Transportation Plan**
- **Transportation Asset Management Plan**
- **KYTC Truck Parking Plan**
- **KIPRC Injury Prevention Plan**
- **KYTC Bicycle and Pedestrian Master Plan**
- **Motor Carrier Safety Assistance Program (MCSAP) and 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**
- **Transportation Improvement Program (Statewide and Metropolitan)**
- **Kentucky Freight Plan**
- **Vision Zero Louisville**
- **Lexington Road Safety Plan**
- **Local Road Safety Plans**

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.

MARKETING AND COMMUNICATION

SHSP marketing and communication will be led by the Kentucky Office of Highway Safety (KOHS). KOHS distributes federal grant funds to law enforcement and other traffic safety agencies, oversees highway safety media campaigns, and supports partners in traffic safety education. Its mission is to improve quality of life for all Kentuckians through awareness, education, and enforcement, working to prevent serious injuries and fatalities on Kentucky's roadways.

OPPORTUNITIES AND CHALLENGES

A stakeholder engagement workshop was held in 2024. During this meeting, participants were asked to identify barriers or challenges to implementing Highway Safety activities which can also be opportunities for improvement. Following are ideas resulting from that workshop:

- **COMMUNITY BUY-IN, COMMUNICATING THE MESSAGE, HUMAN BEHAVIOR**
- **EDUCATIONAL CHALLENGES – GET THE SAFETY MESSAGE INTO SCHOOLS**
- **CONCERN ABOUT LOW HANGING FRUIT ALREADY BEING ADDRESSED**
- **DATA QUALITY IMPROVEMENTS, COMPLETE AND ACCURATE DATA**
- **ADVANCES IN CRASH ANALYSIS**
- **GETTING LEGISLATION PASSED**

- DATA SHARING AND IMPROVING AVAILABILITY, OPEN AND SHAREABLE DATA, DATA LINKAGES
- FUNDING AND STAFFING BARRIERS
- LEGAL CHANGES TO BAC TESTING HAVE MADE IMPAIRED DRIVING ENFORCEMENT DIFFICULT
- REACTIVE SYSTEM
- KNOWING WHETHER PROGRAMS ARE EFFECTIVE
- MOTORCYCLE LICENSING CONCERNS, MOTORCYCLE PERMIT VS LICENSE (ALSO NO LICENSE)
- HEAVY VEHICLE SAFETY
- DATA DEFINITION FOR CMV
- UNDERSTANDING PEDESTRIAN/BICYCLIST EXPOSURE• OLDER DRIVERS – IMPROVING MEDICAL ADVISORY BOARDS; PROVIDING RESOURCES TO BETTER ASSESS PLANNING FOR DRIVING RETIREMENT; BETTER TRANSPORTATION OPTIONS IN RURAL COMMUNITIES
- MORE AUTOMATED DATA COLLECTION
- DISTRACTED DRIVING – BETTER DATA COLLECTION AND CRASH CAUSATION
- CONCERN ABOUT POTENTIAL LOWERING OF AGE FOR DRIVERS PERMIT
- BETTER DRIVER TRAINING TO ADVANCE TO GETTING LICENSE MORE QUICKLY
- TESTING FITNESS OF OLDER DRIVERS
- ALIGN EMPHASIS AREAS WITH PROGRAMS AND GRANT OPPORTUNITIES – ANNUAL REPORTING ON WHAT'S BEING DONE
- BETTER USE OF AI FOR RESEARCH OR INVESTMENT DECISIONS
- BETTER INTEGRATION OF THE SAFE SYSTEM APPROACH INTO BUSINESS PRACTICES

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. 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 GECHS to track progress toward meeting the interim goals. 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. The Technical Leadership Council 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 council will, under the direction of GECHS, 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.

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 will carry forward through this SHSP:

- **OCCUPANT PROTECTION:** The Commonwealth of Kentucky Occupant Protection 2023 Plan was developed and adopted by the Kentucky Occupant Protection Task Force (KOPTF). The plan provides guidance and direction on comprehensive strategies aimed at preventing and reducing unbelted fatalities and serious injuries. Strategies endorsed by the plan include media campaigns, enforcement, and legislative action.

- **IMPAIRED DRIVING:** The Impaired Driving 2023-2027 Strategic Plan was developed and adopted by the Kentucky Impaired Driving Task Force (KIDTF). The task force consists of a coalition of agencies and provides a top-down effort to reduce the numbers of impaired driving fatalities and injuries on Kentucky roadways. The plan establishes goals and oversees strategies oriented toward prevention, criminal justice approaches, communication and education, alcohol and drug misuse, and program evaluation.

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 promote better outcomes for those who travel Kentucky's transportation system.

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 and University of Louisville. 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 assessments 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.

Traffic records for each of the databases are regularly monitored and assessed according to their Timeliness, Accuracy, Completeness, Uniformity, Integration, and Accessibility

EVALUATION PROGRAMS

The Kentucky Occupational Safety and Health Surveillance (KOSHS) program conducts population and case-based surveillance of occupational injuries and illnesses in Kentucky with emphasis on prevention of occupational motor vehicle collisions and severe traumatic injuries. The KOSHS program serves as a resource to employers, policymakers, governmental organizations, and others by providing valuable data, training tools, and prevention recommendations. KOSHS data reports and dashboards, training resources, and hazard alerts can be accessed on the KOSHS webpage. The KOSHS program can fulfill specific data requests for Kentucky occupational motor vehicle collisions and other occupational injury and illness topics.

The Kentucky Fatality Assessment and Control Evaluation (KY FACE) program is an occupational fatality prevention and surveillance program of the Kentucky Injury Prevention and Research Center and the Kentucky Department for Public Health that has conducted surveillance of all Kentucky occupational fatalities since 1994. Additionally, KY FACE staff members conduct on-site investigations of workplace fatalities, producing investigative reports and other training materials that contain targeted recommendations for workplace injury prevention. Commercial Motor Vehicle Motor collisions are a special emphasis area of the KY FACE program and many investigative reports have been produced that provide valuable guidance for prevention to employers, policymakers, regulatory agencies, and equipment manufacturers.

STRATEGIES

Kentucky identifies the following strategies and countermeasures to be implemented toward the prevention of deaths and serious injuries on Kentucky roadways. Strategies reflect activities both already underway and proven to be effective as well as those can or should be implemented over the course of this 2025–2029 Plan. The strategies are categorized according the '4 Es': Education, Emergency Management Services, Enforcement, and Engineering. Each individual strategy is also identified according to its contribution to Kentucky's Safe Systems approach.

EDUCATION

PROGRAM

MOTORCYCLE EDUCATION AND INSTRUCTION

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• MOTORCYCLE SAFETY EDUCATION PROGRAM	• 3HSP	MOTORCYCLISTS	• SAFER PEOPLE
• RIDESMART KY	• 3HSP		

PROGRAM

MEDIA CAMPAIGNS

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• BUCKLE UP, PHONE DOWN CAMPAIGN	• 3HSP, KOPTF	MOTORCYCLISTS	• SAFER PEOPLE
• LOCAL HEROES CAMPAIGN	• 3HSP, KOPTF		• SAFER SPEEDS
• CLICK IT OR TICKET CAMPAIGN	• 3HSP, KOPTF		
• CHILD PASSENGER SAFETY WEEK CAMPAIGN	• KOPTF	DISTRACTED DRIVING	
• CONTINUE PRODUCTION OF MEDIA CAMPAIGNS ORIENTED AROUND HOLIDAYS AND/OR MAJOR EVENTS	• 3HSP, KOPTF	IMPAIRED DRIVING	
• PUBLIC AWARENESS: DYNAMIC MESSAGE SIGNS THAT PROMOTE SAFETY, E.G., "DAYS SINCE LAST FATALITY"	• 3HSP, KOPTF	OCCUPANT PROTECTION	
• DEVELOP PSAS THAT EMPHASIZE THE CONSEQUENCES OF AGGRESSIVE, IMPAIRED, AND DISTRACTED DRIVING	• STAKEHOLDER WORKSHOPS		
• BELOW 100 PROGRAM	• KOPTF		

PROGRAM

COMMUNITY ORIENTED PROGRAMS

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• EXPAND RURAL HI FIVE PROGRAM	• 3HSP, KOPTF	IMPAIRED DRIVING	• SAFER PEOPLE
• INITIATE HIGH 95 PROGRAM TO PUSH KENTUCKY'S SEAT BELT USAGE RATE TO 95% OR ABOVE	• KOHS	OCCUPANT PROTECTION	
• PARTNERSHIP WITH MOTHERS AGAINST DRUNK DRIVING (MADD)	• 3HSP, KIDTF	VULNERABLE ROAD USERS	
• THE MOCKTAIL PROJECT	• KIDTF		
• CONTINUE FUNDING CHILD PASSENGER SAFETY INSTRUCTORS/TECHNICIANS AND FITTING STATIONS	• 3HSP, KOPTF		
• SUPPORT VRU SAFETY AWARENESS CAMPAIGNS	• KY BIKE/PED Plan		

PROGRAM

SCHOOL BASED PROGRAMS

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• SAFE ROUTES TO SCHOOL PROGRAM	• 3HSP	AGGRESSIVE DRIVING	• SAFER PEOPLE
• CHECKPOINTS TEEN DRIVER PROGRAM	• 3HSP	DISTRACTED DRIVING	
• TEEN DRIVER AND PARENT PRIMER PROGRAM TO COMMUNICATE THE REGULATIONS AND RULES FOR THE GRADUATED DRIVER LICENSING PROCESS	• 3HSP	IMPAIRED DRIVING	
• CONTRACT WITH ALLIANCE HIGHWAY SAFETY TO PROVIDE EDUCATIONAL AND OUTREACH PROGRAMS ON PEDESTRIAN SAFETY IN UNDERSERVED COMMUNITIES	• 3HSP	VULNERABLE ROAD USERS	
• NTEGRATING DRIVING SAFETY INTO HEALTH CURRICULUM	• KIDTF		
• INCORPORATE ACTIVE TRANSPORTATION SAFETY CONSIDERATIONS INTO DRIVERS LICENSING PROGRAM, AND/OR DRIVER'S EDUCATION CLASSES	• KY BIKE/PED Plan		

EMERGENCY MEDICAL SERVICES

PROGRAM

EMERGENCY RESPONSE

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• PEDIATRIC TRANSFER DEVICES	• STAKEHOLDER WORKSHOPS	AGGRESSIVE DRIVING	• POST CRASH CARE
• CONTINUE SUPPORT FOR QUICK CLEARANCE EFFORTS	• STAKEHOLDER WORKSHOPS	DISTRACTED DRIVING	
• EMS ASSESSMENT	• STAKEHOLDER WORKSHOPS	IMPAIRED DRIVING	
		OCCUPANT PROTECTION	
		ROADWAY DEPARTURE	
		VULNERABLE ROAD USERS	
		MOTORCYCLISTS	
		COMMERCIAL MOTOR VEHICLES	
		OLDER DRIVERS	

PROGRAM

DATA AND PLANNING IMPROVEMENTS

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• IMPROVE TRAUMA DATA LINKAGE TO INCREASE ACCURACY	• KIDTF	AGGRESSIVE DRIVING	• POST CRASH CARE
• ASSESSING MEDICAL RISK IN RURAL AND JUSTICE 40 COMMUNITIES	• VISION ZERO LOUISVILLE	DISTRACTED DRIVING	
• DEVELOP HIGH INJURY NETWORK	• STAKEHOLDER WORKSHOPS	IMPAIRED DRIVING	
		OCCUPANT PROTECTION	
		ROADWAY DEPARTURE	
		VULNERABLE ROAD USERS	
		MOTORCYCLISTS	
		COMMERCIAL MOTOR VEHICLES	
		OLDER DRIVERS	

ENFORCEMENT

PROGRAM

IMPAIRED DRIVING ENFORCEMENT ENHANCEMENTS

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• ADVANCED ROADSIDE IMPAIRED DRIVING ENFORCEMENT (ARIDE) AND DRUG RECOGNITION EXPERT (DRE)	• 3HSP, KIDTF	IMPAIRED DRIVING	• SAFER PEOPLE • PARTNERSHIPS
• IMPLEMENT AND EXPAND THE LAW ENFORCEMENT PHLEBOTOMY PROGRAM	• 3HSP	OCCUPANT PROTECTION	
• ORAL ROADSIDE FLUID TESTING EXPANSION	• KOHS		
• IGNITION INTERLOCK PROGRAM	• 3HSP, KIDTF		
• JUDICIAL OUTREACH LIAISON (JOL) PROGRAM	• 3HSP, KIDTF		
• CONTINUE SUPPORT FOR THE TRAFFIC SAFETY SOURCE PROSECUTOR (TRSP)	• 3HSP, KIDTF		
• IMPLEMENT PUBLICIZED ENFORCEMENT CHECKPOINTS FOR BOTH IMPAIRED AND OCCUPANT PROTECTION VIOLATIONS	• 3HSP		

PROGRAM

HIGH VISIBILITY ENFORCEMENT CAMPAIGNS

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• WORK ZONE ENFORCEMENT	• 3HSP	AGGRESSIVE DRIVING	• SAFER PEOPLE • SAFER SPEEDS
• DRIVE SOBER OR GET PULLED OVER	• 3HSP	DISTRACTED DRIVING	
• CLICK IT OR TICKET	• 3HSP, KOPTF	OCCUPANT PROTECTION	
• NIGHTHAWK NIGHTTIME SEAT BELT ENFORCEMENT PROGRAM	• KOPTF	ROADWAY DEPARTURE	
• SPEED WEEK	• 3HSP		
• HANDS FREE LAW FOR ALL DRIVERS	• STAKEHOLDER WORKSHOPS		

PROGRAM

LEGISLATIVE IMPROVEMENTS

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• ALLOWING FOR AUTOMATED ENFORCEMENT – BEGINNING WITH WORK ZONES	• STAKEHOLDER WORKSHOPS	AGGRESSIVE DRIVING	• SAFER SPEEDS • PARTNERSHIPS
• HARSHER PENALTIES FOR IMPAIRED DRIVING, SPEEDING, AND IMPROPER SEAT BELT USAGE	• STAKEHOLDER WORKSHOPS	IMPAIRED DRIVING	
• ADDRESSING REPEAT OFFENDERS: REQUIRE A RETAKE OF DRIVING TEST	• STAKEHOLDER WORKSHOPS	OCCUPANT PROTECTION	
• FURTHER INTEGRATION OF CITATION AND CRASH DATABASES	• STAKEHOLDER WORKSHOPS	ROADWAY DEPARTURE	

PROGRAM

DATA IMPROVEMENTS

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• INCORPORATING CRASH DATA INTO CITE SELECTION FOR TARGETED ENFORCEMENT	• KOPTF	AGGRESSIVE DRIVING	• SAFER PEOPLE • SAFER ROADS • SAFER SPEEDS • PARTNERSHIPS
• REDESIGN CRASH REPORTING SYSTEM	• STAKEHOLDER WORKSHOPS	DISTRACTED DRIVING	
		IMPAIRED DRIVING	
		OCCUPANT PROTECTION	
		ROADWAY DEPARTURE	
		VULNERABLE ROAD USERS	
		MOTORCYCLISTS	
		COMMERCIAL MOTOR VEHICLES	
		OLDER DRIVERS	

PROGRAM

ROAD INFRASTRUCTURE IMPROVEMENTS

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• CROSSOVER/HEAD-ON CRASH PREVENTION STRATEGIES: • Install And Upgrade Median Barriers (Guardrail, Cable, Concrete); • Install Centerline Buffer Areas Along Undivided Roadways	• HSIP	AGGRESSIVE DRIVING DISTRACTED DRIVING IMPAIRED DRIVING OCCUPANT PROTECTION ROADWAY DEPARTURE VULNERABLE ROAD USERS MOTORCYCLISTS COMMERCIAL MOTOR VEHICLES OLDER DRIVERS	• SAFER SPEEDS • SAFER ROADS • PARTNERSHIPS
• WRONG-WAY DRIVING CRASH PREVENTION STRATEGIES: • Install Enhanced Wrong-Way Signing And Pavement Markings; • Install Intelligent Transportation System (Its) Technologies To Detect Wrong-Way Entry And Activate Dynamic Signage To Alert The Wrong Way Driver, Warn Correct-Way Drivers, And Notify Law Enforcement	• HSIP		
• PAVEMENT FRICTION MANAGEMENT PROGRAM: • Continue To Utilize Continuous Pavement Friction Measurement To Enable Network Wide Friction Monitoring And Provide The Data Necessary To Select And Prioritize Both Friction Treatment Projects; • Implement A Variety Of Friction Treatments, Such As Microsurface, Shotblasting, Resurface, High Friction Surface Treatment, Etc.; • Perform Research To Increase The Polish Resistance Of Pavement Surfaces Through Enhanced Material Specifications, Improved Pavement Mix Design Processes, And Updated Asphalt Mix Warrants	• HSIP		
ROADWAY DELINEATION STRATEGIES: • Sign Replacement And Improvement, Especially Curve Signing And Other Safety Critical Signing, Such As Regulatory Signs; • Pavement Marker Replacement And Maintenance; • Flexible Delineators And Curbing Systems For Lane Separation And/Or Access Management	• HSIP		
• ROADWAY DEPARTURE: IMPROVEMENTS TO KEEP USERS ON THE ROADWAY AND IN THEIR LANE OF TRAVEL • Signing, Striping, And Other Delineation Treatments • Rumble Strips • Friction Treatments • Superelevation Improvements • Curve Widening • Curve Realignment	• HSIP		

PROGRAM

ROAD INFRASTRUCTURE IMPROVEMENTS

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• ROADWAY DEPARTURE: IMPROVEMENTS TO HELP MOTORISTS SAFELY RETURN TO THEIR LANE OF TRAVEL AFTER A LANE DEPARTURE • Durable Pavement Edge • Wider Paved Shoulders • Centerline Buffer Area	• HSIP	AGGRESSIVE DRIVING DISTRACTED DRIVING IMPAIRED DRIVING OCCUPANT PROTECTION ROADWAY DEPARTURE VULNERABLE ROAD USERS MOTORCYCLISTS COMMERCIAL MOTOR VEHICLES OLDER DRIVERS	• SAFER SPEEDS • SAFER ROADS • PARTNERSHIPS
• ROADWAY DEPARTURE: IMPROVEMENTS TO DECREASE CRASH SEVERITY IF A MOTORIST DEPARTS THE ROADWAY • Guardrail And End Treatment Upgrades • Installation Of New Roadside Barriers And End Treatments • Clear Zone Improvements Such As Tree Removal Tree Trimming, Flattening Of Roadside Slopes, And Removal/Relocation Of Roadside Objects	• HSIP		
• CONTINUE TO IDENTIFY AND IMPLEMENT ROADWAY DEPARTURE CORRIDOR PROJECTS (I.E. PROJECTS THAT IMPLEMENT A WIDE VARIETY OF ROADWAY DEPARTURE COUNTERMEASURES)	• HSIP		
• CONTINUE TO COLLECT AND MAINTAIN CURVE ADVISORY SPEED DATA	• HSIP		
• INTERSECTION STRATEGIES: IMPROVEMENTS THAT REDUCE THE NUMBER AND/OR SEVERITY OF CONFLICT POINTS • Dedicated Left And Right Turn Lanes • Offset Left Turn Lanes And Offset Right Turn Lanes • Innovative Intersections (E.g. Roundabouts, Rcuts, Muts, Quadrant, Etc.) • Access Management (At/Near Intersections Or Corridor-Wide)	• HSIP		
• INTERSECTION STRATEGIES: IMPROVEMENTS THAT ENHANCE THE CONSPICUITY OF TRAFFIC SIGNALS • Flashing yellow arrows (for left turns and potentially right turns, where appropriate) • Retroreflective backplates • Advance Warning Flashers	• HSIP		
• INTERSECTION STRATEGIES: IMPROVEMENTS TO INCREASE AWARENESS OF INTERSECTIONS • Signing and pavement marking enhancements At intersections and along intersection approaches • Intersection Conflict Warning Systems	• HSIP		

ENGINEERING

PROGRAM

ROAD INFRASTRUCTURE IMPROVEMENTS

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• VULNERABLE ROAD USER STRATEGIES IMPROVEMENTS THAT INCREASE PEDESTRIAN SAFETY • Filling In Gaps Along Existing Sidewalk And Shared Use Path Networks • Installing New Pedestrian Facilities, Such As Share Use Paths, Sidewalks, And Walkways (E.g. Paved Shoulders) • Enhanced Signing And Pavement Markings At Or Approaching Crosswalks • Curb Bump-Outs • High-Visibility Crosswalks • Lighting • Rectangular Rapid Flashing Beacons (Rrfbs), Pedestrian Hybrid Beacons (Phbs) • Pedestrian Refuge Islands • Leading Pedestrian Interval (Lpi) • Improvements To Encourage Slower Speeds, Such As Speed Tables, Raised Crosswalks, And Raised Intersections	• HSIP	AGGRESSIVE DRIVING DISTRACTED DRIVING IMPAIRED DRIVING OCCUPANT PROTECTION ROADWAY DEPARTURE VULNERABLE ROAD USERS MOTORCYCLISTS COMMERCIAL MOTOR VEHICLES OLDER DRIVERS	• SAFER SPEEDS • SAFER ROADS • PARTNERSHIPS
• VULNERABLE ROAD USER STRATEGIES: IMPROVEMENTS THAT INCREASE BICYCLIST SAFETY • Filling In Gaps Along Existing Bicyclist Networks • Installing New Bike Facilities, Such As Shared Use Paths, Buffered/Protected Bike Lanes, Conventional/In-Roadway Bike Lanes, And/Or Sharrows • Enhanced Signing And Pavement Markings, Such As The Use Of Green Thermoplastic Markings • Improvements To Encourage Slower Speeds, Such As Speed Tables, Raised Crosswalks, And Raised Intersections	• HSIP		
• LOCAL ROAD SAFETY STRATEGIES: • Develop And Grow Partnerships Between Kytc And Local Agencies • Continue To Develop Local Road Safety Plans And/Or Safety Action Plans For Partner Cities, Counties, And/Or Regions Of The State (Such As Mpos And Adds) • Continue The Safety Circuit Rider Program Identify And Implement Improvements To Minimize High-Speed Crashes At The End Of Long/Unexpected Traffic Queues (E.g. Exit Ramps Where Traffic Queues Onto The Mainline)	• HSIP		

PROGRAM

ROAD INFRASTRUCTURE IMPROVEMENTS

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• IDENTIFY AND IMPLEMENT CROSS-CUTTING STRATEGIES • Roadway Reconfiguration • Traffic Calming, Especially In Urban, Suburban, And Land-Use/Context Transition Areas • Development And Implementation Of Speed Management Plans For Cities, Counties, And/Or Regions Of The State (Such As Mpos And Adds) • Road Safety Assessments And/Or Safe System Assessments, Especially For Projects In The Project Development Stages • Continue To Advance The Implementation Of The Complete Streets, Roads, And Highways Program	• HSIP • VISION ZERO LOUISVILLE, • STAKEHOLDER WORKSHOPS	AGGRESSIVE DRIVING DISTRACTED DRIVING IMPAIRED DRIVING OCCUPANT PROTECTION ROADWAY DEPARTURE VULNERABLE ROAD USERS MOTORCYCLISTS COMMERCIAL MOTOR VEHICLES OLDER DRIVERS	• SAFER SPEEDS • SAFER ROADS • PARTNERSHIPS
• COMPLETE STREETS PROGRAM	• KY BIKE/PED PLAN • VISION ZERO LOUISVILLE, • STAKEHOLDER WORKSHOP		
• SPEED MANAGEMENT PLAN			
• UTILIZE SAFE STREETS FOR ALL GRANT PROGRAM			

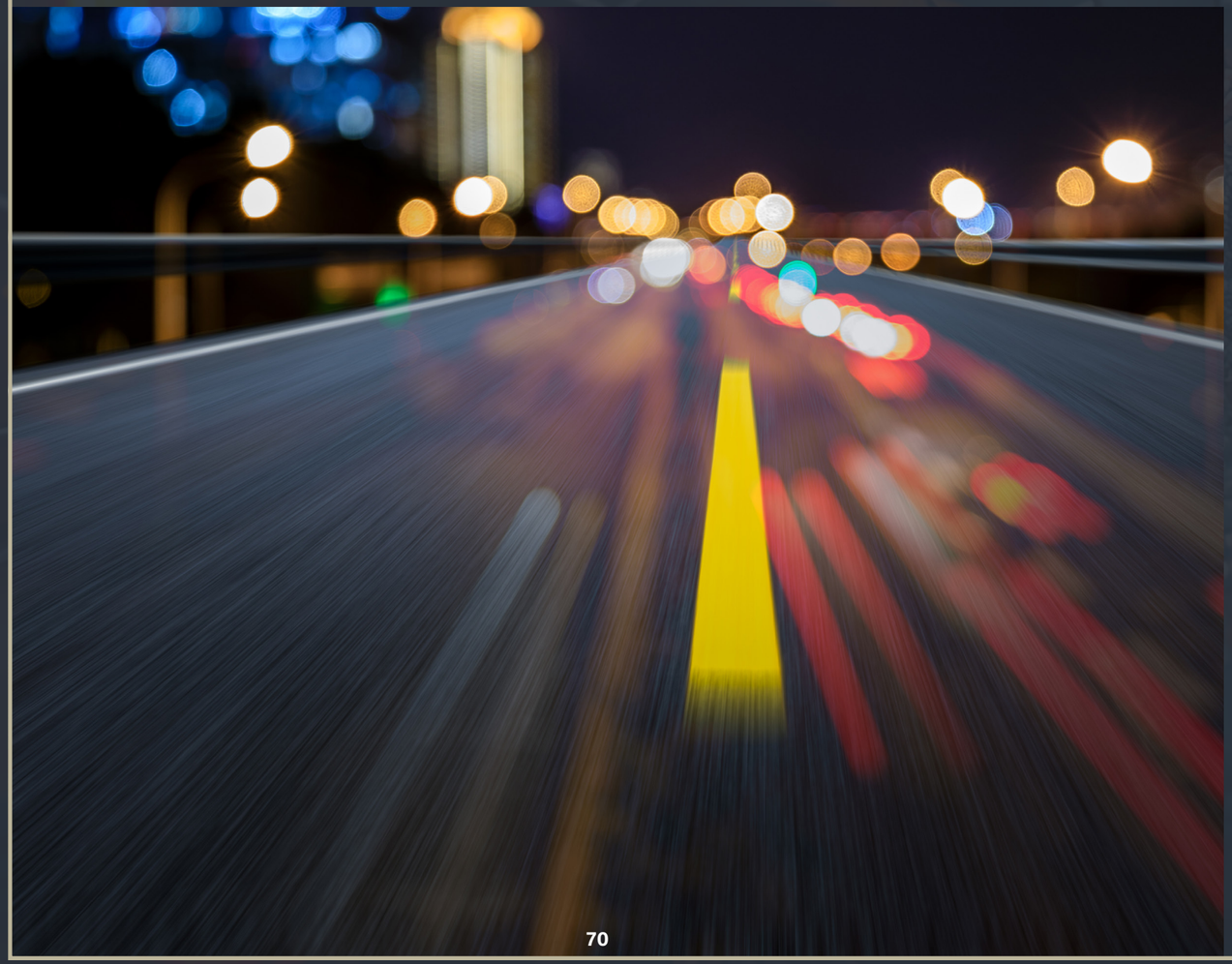
PROGRAM

VEHICLE TECHNOLOGY ENHANCEMENTS

STRATEGY	PLAN/SOURCE	EMPHASIS AREA	SAFE SYSTEM COMPONENTS
• SAFETY FEATURES ASSOCIATED WITH CONNECTED AND/OR AUTOMATED VEHICLES (CAVS)	• STAKEHOLDER WORKSHOPS	AGGRESSIVE DRIVING DISTRACTED DRIVING IMPAIRED DRIVING OCCUPANT PROTECTION ROADWAY DEPARTURE VULNERABLE ROAD USERS MOTORCYCLISTS COMMERCIAL MOTOR VEHICLES OLDER DRIVERS	• SAFER VEHICLES • SAFER ROADS • PARTNERSHIPS
• SUBSIDIZATION OF VEHICLE SAFETY FEATURES	• STAKEHOLDER WORKSHOPS		
• ANALYZING LAND USE AND FACILITY TYPE IN RELATION TO HIGH CRASH LOCATIONS	• STAKEHOLDER WORKSHOPS		

ENGINEERING

PROGRAM			
DATA IMPROVEMENTS AND PLANS			
STRATEGY	**PLAN/SOURCE**	**EMPHASIS AREA**	**SAFE SYSTEM COMPONENTS**
• IDENTIFYING PEDESTRIAN AND BICYCLE TRAFFIC • CRASH CAUSATION ANALYSIS FOR CMVS	• KY BIKE/PED PLAN • CVSP	COMMERCIAL MOTOR VEHICLES	• SAFER PEOPLE • SAFER VEHICLES • PARTNERSHIPS
• DEVELOP KY PEDESTRIAN AND BICYCLE STRATEGIC SAFETY PLAN	• KY BIKE/PED PLAN	VULNERABLE ROAD USERS	
• DEVELOP STATEWIDE SPEED MANAGEMENT PLAN	• HSIP	AGGRESSIVE DRIVING	• SAFER SPEEDS
		ROADWAY DEPARTURE	
		VULNERABLE ROAD USERS	



GLOSSARY

3HSP	Triennial Highway Safety Plan
AAA	American Automobile Association
ARIDE	Advanced Roadside Impaired Driving Enforcement
BAC	Blood-Alcohol Concentration
BIL	Bipartisan Infrastructure Law
BRC	Basic Rider Course
CAV	Connected and Automated Vehicles
CDL	Commercial Driver's License
CMV	Commercial Motor Vehicle
CVSP	Commercial Vehicle Safety Plan
DECP	Drug Evaluation and Classification Program
DRE	Drug Recognition Expert
EA	Emphasis Area
EV	Electric Vehicle
FAST Act	Fixing America's Surface Transportation Act
FHWA	Federal Highways Administration
FMCSA	Federal Motor Carrier Safety Administration
GECHS	Governor's Executive Committee on Highway Safety
GVWR	Gross Vehicle Weight Rating
HPMS	Highway Performance Monitoring System
HRRR	High Risk Rural Roads
HSIP	Highway Safety Improvement Program
HVE	High Visibility Enforcement
JOL	Judicial Outreach Liaison
KIDTF	Kentucky Impaired Driving Task Force
KOHS	Kentucky Office of Highway Safety
KOPTF	Kentucky Occupant Protection Task Force
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
MCSAP	Motor Carrier Safety Assistance Program
MOV	Moving Object Detection
MPO	Metropolitan Planning Organizations
NHTSA	National Highway Transportation Safety Administration
RCUT	Restricted Crossing U-Turn
SHIFT	Strategic Highway Investment Formula for Tomorrow
SHSP	Strategic Highway Safety Plan
TRSP	Traffic Safety Resource Prosecutor
USDOT	United States Department of Transportation
VMT	Vehicle Miles Traveled
VRU	Vulnerable Road Users

KENTUCKY VULNERABLE ROAD USER SAFETY ASSESSMENT

Appendix to the Kentucky 2025–2029 Strategic Highway Safety Plan
The VRU Section is appended

SECTION 1 – INTRODUCTION

HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP)

The Bipartisan Infrastructure Law directed each state to complete an initial Vulnerable Road User (VRU) Safety Assessment by November 15, 2023, as a part of its Highway Safety Improvement Program (HSIP). The assessment must contain an overview of VRU safety performance, an analysis that identifies high-risk areas, consultation with stakeholders, identification of strategies to address VRU safety, and application of the Safe System Approach to VRUs. This assessment plan must be submitted as an attachment to the state's Strategic Highway Safety Plan (SHSP) and updated each year a new SHSP is published. [1]

Kentucky state leaders want to significantly reduce the mortality and morbidity associated with VRU crashes. This objective is outlined in the state's 2025 Strategic Highway Safety Plan (SHSP), which has the goal of preventing VRU deaths such that the annual total is 60 or fewer by 2029, with an ultimate goal of 0.

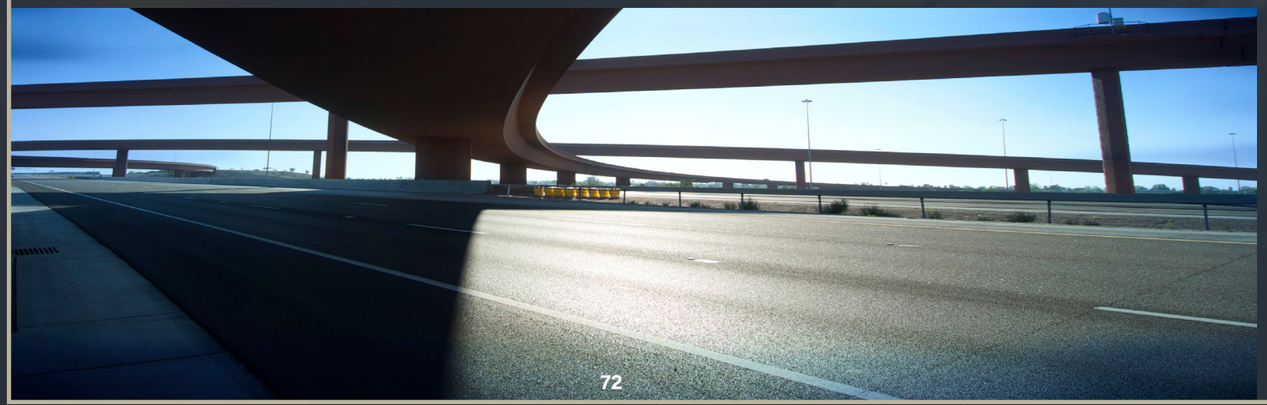
Kentucky's SHSP outlines strategic and crosscutting opportunities to prevent deaths and serious injuries on the state's roadways. It identifies nine Emphasis Areas to guide highway safety improvements:

- **AGGRESSIVE DRIVING**
- **DISTRACTED DRIVING**
- **IMPAIRED DRIVING**
- **OCCUPANT PROTECTION**
- **ROADWAY DEPARTURE**
- **VULNERABLE ROAD USERS**
- **MOTORCYCLISTS**
- **COMMERCIAL MOTOR VEHICLES**
- **OLDER DRIVERS**

These areas were selected for both the urgency of the problems and the opportunity for improvement. Improvement strategies identified in the plan are organized based on the four Es of road safety — Education, Emergency Medical Services, Enforcement, and Engineering — as well as legislative strategies. Most strategies in the SHSP focus on more than one Emphasis Area.

This assessment complements ongoing activities of the SHSP VRU Task Force. The assessment team systematically evaluated the nature of VRU crashes in Kentucky and engaged constituents most affected by and best positioned to address the VRU-related safety challenges and opportunities in the state. [2]

This assessment defines VRUs in alignment with FHWA guidance to include pedestrians and bicyclists. This assessment looks at the most severe crashes, including those that result in deaths and/or serious injuries, and considers both demographics and the Safe System Approach.



SECTION 2 – SAFE SYSTEM

The USDOT recently adopted the Safe System Approach as part of the National Road Safety Strategy. Its goal is to improve safety and eliminate all serious injuries and deaths on US roadways. This approach is an effective way to mitigate risks across the transportation system and works by building and reinforcing multiple layers of protection to prevent crashes and minimize harm if crashes do occur. The Safe System Approach has six guiding principles:

- **ROADWAY FATALITIES AND SERIOUS INJURIES ARE UNACCEPTABLE AND AVOIDABLE**
- **HUMANS ARE VULNERABLE**
- **HUMANS MAKE MISTAKES**
- **RESPONSIBILITY IS SHARED BY ALL ROADWAY USERS**
- **SAFETY SHOULD BE PROACTIVE**
- **REDUNDANCY IS KEY TO ENSURING SAFETY FOR ALL**

The objective of the Safe System Approach is to improve safety and reduce crash risks by attending to roadway users, vehicle safety, roads, speeds, and post-crash care. Improving all five of these elements creates the desired redundancy that enhances safety for all roadway users. [4]

Bicyclists and pedestrians are among the most vulnerable roadway users and benefit greatly from increased redundancy within safety-related improvements. As such, the Safe System Approach is a vital strategy to improve user experiences.

SECTION 3 – DEMOGRAPHICS

Knowledge of VRU demographics creates an opportunity to implement customized, intentional countermeasures. For VRU Safety Assessments, the FHWA recommends considering five data sources that aggregate demographic data and categorize disadvantaged status:

- **Environmental Justice Screening and Mapping Tool (EPA)**
- **FHWA Socioeconomic and Equity Analysis (FHWA)**
- **Transportation Disadvantaged Census Tracts (USDOT)**
- **Climate and Economic Justice Tool (Council on Environmental Quality)**
- **Social Vulnerability Index (CDC)** [5]

After reviewing all five data sources and their respective data elements, Kentucky decided to use the USDOT Transportation Disadvantaged Census Tract database because it incorporates data directly from two of the other recommended datasets (EPA and CDC datasets) and indirectly incorporates similar metrics to the remaining two recommended datasets. The USDOT dataset, in accordance with the Justice40 Initiative, ranks census tracts nationwide on 22 indicators across six categories of transportation disadvantage to determine if a census tract qualifies as a historically disadvantaged community (DAC).[6]

The six categories of disadvantage considered in the USDOT dataset are summarized below. Raw data sources for indicators that comprise each category of disadvantage are included in parentheticals.

• Transportation Access disadvantage identifies communities and places that spend more money and time to get where they need to go. (CDC Social Vulnerability Index, Census America Community Survey, EPA Smart Location Map, HUD Location Affordability Index)
• Health disadvantage identifies communities based on variables associated with adverse health outcomes, disability, and environmental exposures. (CDC Social Vulnerability Index)
• Environmental disadvantage identifies communities with disproportionate pollution burden and inferior environmental quality. (EPA EJ Screen)
• Economic disadvantage identifies areas and populations with high poverty, low wealth, lack of local jobs, low homeownership, low educational attainment, and high inequality. (CDC Social Vulnerability Index, Census America Community Survey, FEMA Resilience Analysis & Planning Tool)
• Resilience disadvantage identifies communities vulnerable to hazards caused by climate change. (FEMA National Risk Index)
• Equity disadvantage identifies communities with a high percentile of persons (age 5+) who speak English less than well. (CDC Social Vulnerability Index)

A census tract's percentile rank is calculated for all 22 indicators. The percentile rank of each census tract is averaged across all indicators in each disadvantage category, which results in a percentile rank for each of the six disadvantage categories. A tract

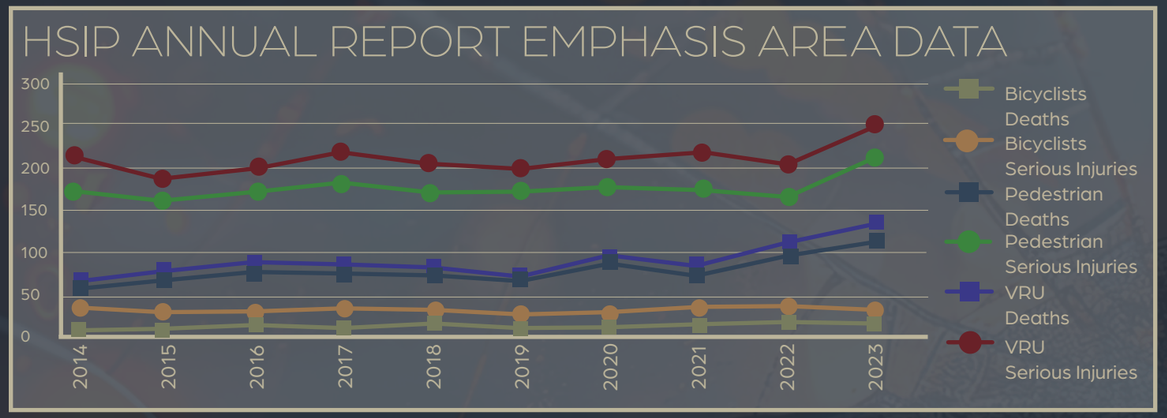
is considered disadvantaged in a category if it has an average percentile ranking of 50th or higher. This means the tract is more disadvantaged in a given category than 50% of the country's census tracts. The resilience disadvantage category is the only exception. In this category, a tract must score in the top 75th percentile to be considered resiliency disadvantaged. Any tract with a disadvantaged rating in four or more categories is defined as a DAC.

According to these criteria, 280 of Kentucky's 1,115 census tracts are DACs. These DACs are home to 27.3% of the state's population and account for 25.1% of its land area.

SECTION 4 – DATA ANALYSIS

VRU crash data provide valuable insight into statewide trends and potential focus areas. This section details data analysis in terms of time, user type, and crash type.

Prior to the VRU Safety Assessment mandate, Kentucky monitored the performance of bicycle and pedestrian safety through the SHSP and HSIP. Bicycle and pedestrian crashes are two of the 12 crash type emphasis areas Kentucky tracks in its annual HSIP report. Figure 1 displays the number of fatalities and serious injuries annually for bicycle and pedestrian crashes during the 2014 – 2023 period. The VRU Fatalities and VRU Serious Injuries combine information for bicycles and pedestrians. [7]



Pedestrians and bicycles exhibit many of the same trends for deaths and serious injuries. Bicycle and pedestrian deaths and serious injuries increased between 2014 and 2017 before trending downward through 2019. However, from 2020 to 2023, pedestrian and bicyclist deaths began to climb. In 2023, VRU deaths and serious injuries reached a ten-year high, with 138 deaths and 253 serious injuries. Kentucky's SHSP has a goal of reaching 60 or fewer vulnerable road user deaths per year by the end of 2029. Based on the 2023 crash trends for the bicycle and pedestrian deaths, significant progress on VRU safety is needed achieve this goal.

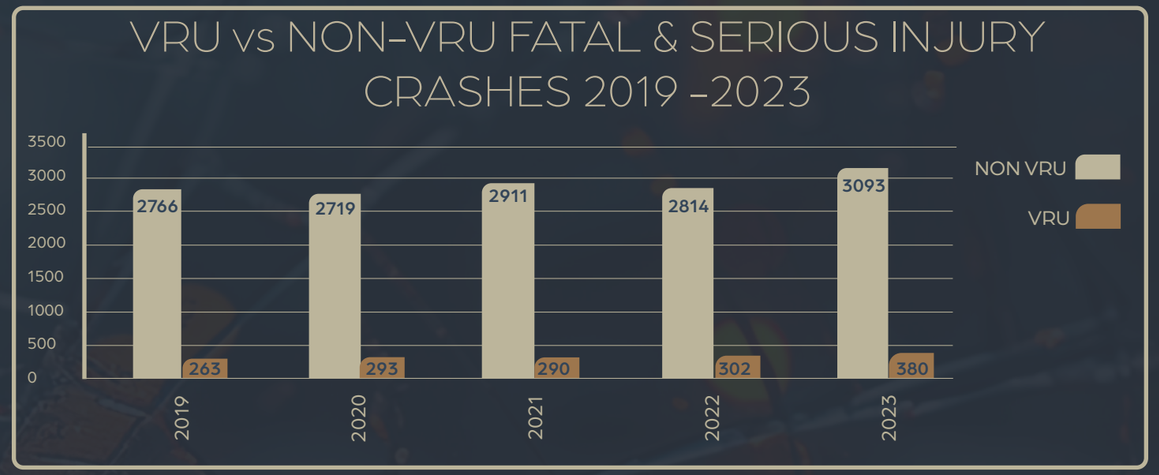
To understand trends and risk factors unique to VRU crashes, fatal and serious injury VRU crash data and associated roadway information were compared to all other fatal and serious injury crashes in the state during the same period. Trends among fatal and serious injury bicycle crashes were compared to trends for pedestrian fatal and serious injury crashes. These comparisons revealed trends unique to VRU crashes, providing insight into risk factors and systemic changes that could potentially improve VRU safety.

The assessment used the most recent five years of statewide crash data (2019 – 2023) for fatal and serious injury crashes and enriched them with roadway feature data from Kentucky's Highway Information System (HIS) database and intersection data from the state's intersection database. Kentucky uses the KABCO scale to categorize crash severity, with K representing fatal crashes and A representing serious injury crashes. Throughout this report, fatal and serious injury crashes are referred to as KA crashes. Additionally, the USDOT DAC designation was identified for each crash location. Most of Kentucky's HIS data cover state-maintained roads, with limited coverage of locally owned roads. Therefore, data enrichment was limited for crashes on locally owned roads. The enrichment process provided the following information for each crash, where applicable:

- **Annual Average Daily Traffic**
- **Number of travel lanes and lane width**
- **Median type and median width**
- **Shoulder type and shoulder width**
- **Intersection classification**
- **Functional classification**
- **Urban/Rural designation**
- **Disadvantaged status**

4.1 VRU VS. NON-VRU KA CRASHES

Between 2019 and 2023, Kentucky recorded 14,303 non-VRU KA crashes and 1,528 VRU KA crashes. VRU crashes accounted for 502 of the 3,558 fatality crashes and 1,026 of the 12,273 serious injury crashes. In other words, 14.1% of fatal crashes and 8.4% of serious injury crashes in Kentucky involved a VRU. Figure 2 provides a breakdown of VRU and non-VRU crash types for each year.



The data reveal an inverse relationship between VRU crash severity and non-VRU crash severity. In years that non-VRU fatal and serious injury crashes decreased, VRU crashes of the same severity increased, and vice versa.

To further examine the differences between VRU crashes and non-VRU crashes, the assessment team compared the percentage of VRU KA crashes for a given crash/roadway category to the percentage of non-VRU KA crashes for the same category. The greatest disparity was for hit-and-run crashes. 21.1% of VRU KA crashes between 2019 and 2023 were hit and run, while only 4.1% of non-VRU KA crashes were hit and run. That means VRU KA crashes were over 5 times more likely to be hit-and-run crashes than all other KA crashes.

Nearly 75% of VRU KA crashes occurred in an urban or suburban area, while only 40.2% of non-VRU KA crashes occurred in an urban or suburban area. This indicates VRU safety risk is greatest in urban/suburban areas. Other major differences in crash and roadway characteristics between VRU KA crashes and non-VRU KA crashes are summarized below.

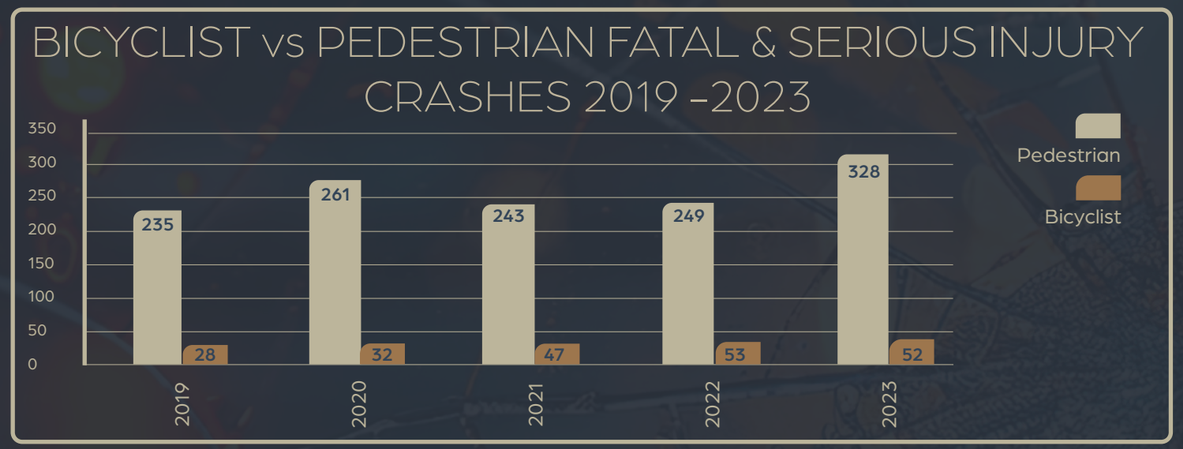
- Over 62% of non-VRU KA crashes occurred on roads with a reported speed limit of 55 mph or greater, whereas 50.1% of VRU KA crashes occurred on roads with a reported speed limit of 35 mph or less. Kentucky's statutory speed limit in urban/suburban settings is 35 mph.
- KA crashes of all types were most likely to occur at non-intersection locations — 43.1% of VRU KA crashes occurred at intersections while only 31% of non-VRU KA crashes occurred at intersections. The most common intersection types at which VRU KA crashes occurred were undivided, three-leg, urban, partially stop-controlled and undivided, four-leg, urban, signalized intersections. At these intersection types, VRU KA crashes were twice as likely to occur as non-VRU KA crashes.
- Compared to non-VRU KA crashes, a higher proportion of VRU KA crashes occurred on roadways with no data available in Kentucky's HIS database. This indicates VRU KA crashes are more likely to occur on locally owned roads with no information in the HIS database. Data analysis indicated VRU KA crashes are roughly 50% more likely to occur on locally owned roadways than non-VRU KA crashes.
- Between 2019 and 2023, 37.7% of VRU KA crashes occurred during daylight hours, compared to 62.1% of non-VRU KA crashes. This suggests VRU KA crashes are a more common nighttime phenomenon and thus influenced by visibility.
- 69.2% of non-VRU KA crashes occurred on two-lane roads whereas only 56.4% of VRU KA crashes occurred on two-lane roads. VRU KA crashes were more likely to occur on roads with four or more lanes than non-VRU KA crashes.
- VRU KA crashes occurred most frequently in the autumn, while non-VRU KA crashes occurred more frequently in the summer.
- VRU KA crashes occurred most frequently in locations with curb and gutter or 2' shoulders or less. Non-VRU KA crashes occurred more frequently in locations with 3' shoulders or greater.

Along with differences in crash and roadway characteristics, key differences in demographics and person-level crash data between VRU and non-VRU KA crashes were identified:

• KA crashes most often involved males — 72.7% of cyclists and pedestrians involved in VRU KA crashes were male compared to only 67.8% male for non-VRU KA crashes.
• Similar age distributions were generally seen among persons involved in VRU and non-VRU KA crashes. Notably though, VRU KA crashes were twice as likely to involve a person under 10 years of age, and had two-thirds the likelihood of involving persons aged 20 to 29 compared to non-VRU KA crashes.
• Similar human factors contributing to the crash were reported for VRU and non-VRU KA crashes, with Inattention, Not under proper control, and Failure to yield right of way as the most common human factors for each crash group.
• The most meaningful demographic trend identified was the disparity between VRU and non-VRU KA crashes in DACs. Based on USDOT data, 37.7% of VRU KA crashes occurred in a DAC between 2019 and 2023. Conversely, 29.4% of non-VRU KA crashes occurred in DACs. As noted, DACs house 27.3% of the state's population and account for 25.1% of its land area. Proportionally, this indicates KA crashes of all types are slightly overrepresented in DACs. More importantly, compared to non-VRU KA crashes, VRU KA crashes are overrepresented in DACs by a factor of 25%.

4.2 PEDESTRIAN VS. BICYCLE KA CRASHES

Between 2019 and 2023, Kentucky recorded 1,316 pedestrian KA crashes and 212 bicycle KA crashes. Figure 3 provides a year-by-year breakdown of these crashes.



Pedestrian KA crashes rose sharply to 328 in 2023. Bicycle KA crashes were lowest in 2019 and rose steadily over the rest of the period. Pedestrian KA crashes accounted for the majority of the state's VRU KA crashes (86.7%), and little progress has been made to lower the KA crashes for either transportation mode.

Analysis of bicycle and pedestrian KA crashes — which mirrored analysis that compared VRU and non-VRU KA crashes — was performed to identify trends for each crash type included under the heading of VRU crashes. Beginning with roadway and crash characteristics, the assessment team identified several trends for bicycle and pedestrian crashes:

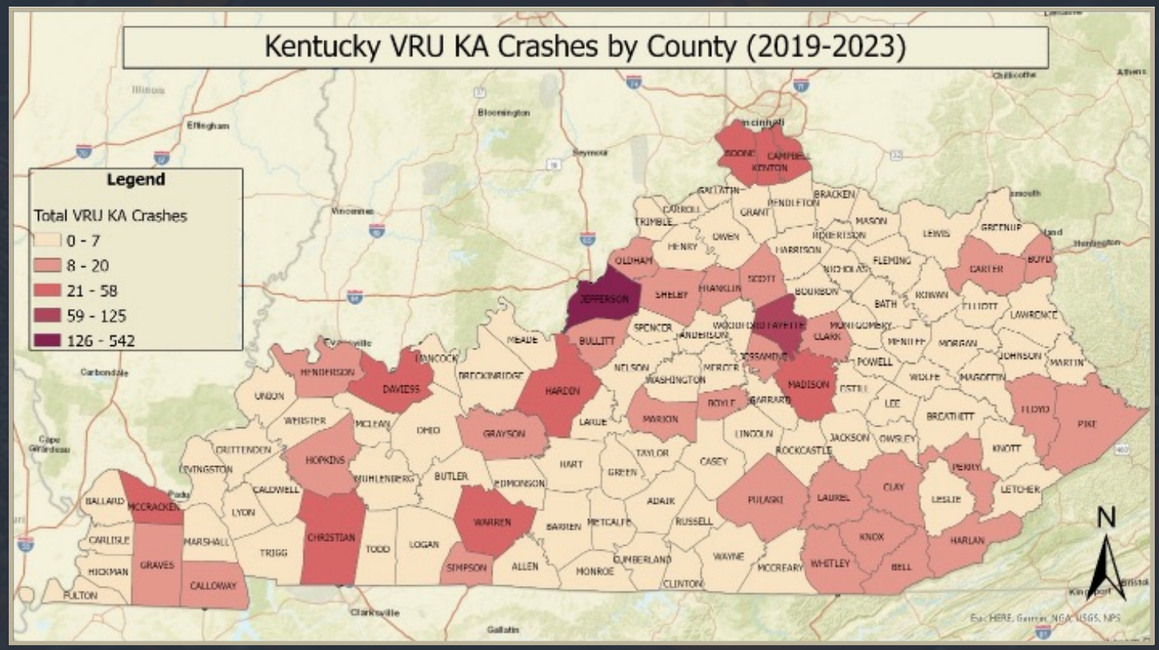
• Hit-and-run crashes accounted for 27.0% of bicycle KA crashes and 20.2% of pedestrian KA crashes.
• 65.4% of bicycle KA crashes occurred on roadways with reported speed limits of 35 mph or less, compared to 48.2% of pedestrian KA crashes on roadways with the same speed limits. On roads with 55 mph speed limits, pedestrian KA crashes were 43% more likely than bicycle KA crashes.
• Two-lane roads accounted for 65.9% of bicycle KA crashes and 54.8% of pedestrian KA crashes.
• 41.7% bicycle KA crashes occurred on locally owned roadways compared to 26.8% of pedestrian KA crashes.
• 56.9% of bicycle KA crashes occurred during daylight hours, compared to 34.5% of pedestrian crashes. This indicates pedestrians are more vulnerable in low-light conditions and/or VRUs are less likely to choose bicycling as a mode of transportation in low-light conditions.
• Fewer than half (41.6%) of all pedestrian KA crashes occurred at intersections, but more than half (52.9%) of bicycle KA crashes occurred at intersections. The most common intersection type for bicycle KA crashes was undivided, three-leg, urban, partially stop-controlled intersections, which recorded 21.6% of all bicycle KA crashes. The next most common intersection type for bicycle KA crashes was the undivided, four-leg, urban, signalized intersection, with 14.% of bicycle KA crashes. This intersection type was also the most common for pedestrian KA crashes, with 23.7% of all pedestrian KA crashes occurring at this type of intersection between 2019 and 2023.

Along with differences in crash and roadway characteristics, the assessment team identified key differences in demographics and person-level crash data between bicycle and pedestrian KA crashes.

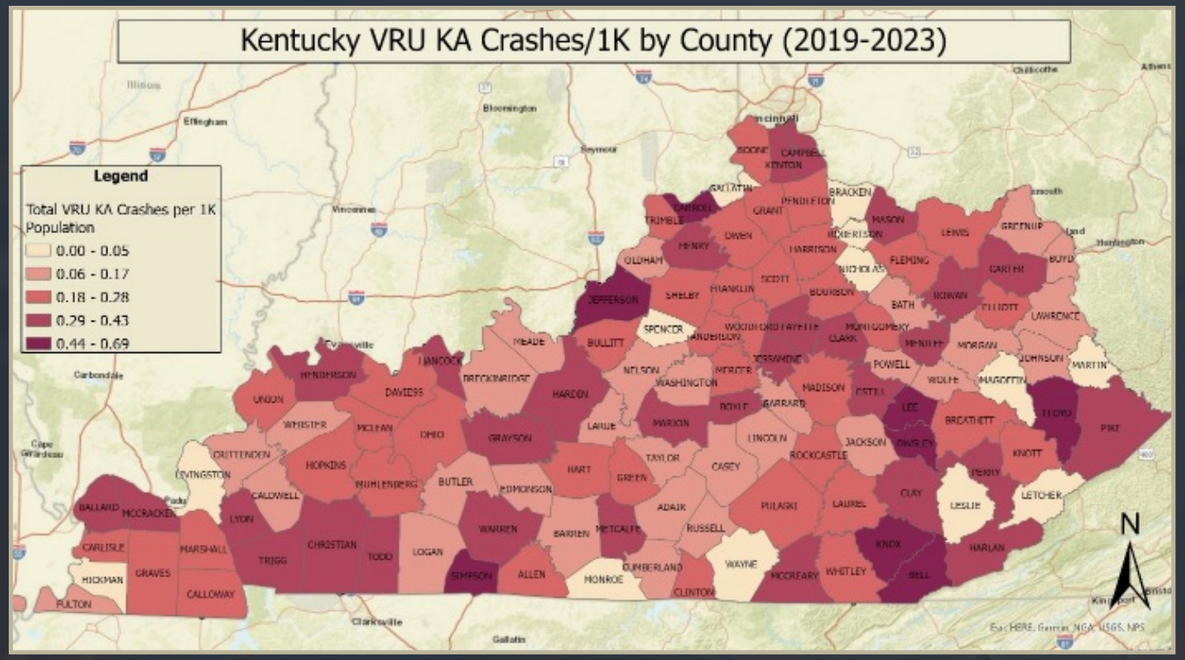
• Males were overwhelmingly overrepresented in bicycle KA crashes. They were the cyclist in 88.6% of all bicycle KA crashes. 70.1% of pedestrians involved in pedestrian KA crashes were male.
• Ages of persons involved in bicycle crashes skewed younger compared to those involved in pedestrian KA crashes. 8.5% of pedestrian KA crashes involved a person 70 years old or older compared to only 4.3% of bicycle KA crashes. Persons aged 10 to 19 and those aged 50 to 59 accounted for higher percentages of bicycle KA crashes than people of the same age involved pedestrian KA crashes.
• Both bicycle and pedestrian KA crashes are significantly overrepresented in DACs. 40.8% of bicycle KA crashes and 37.2% of pedestrian KA crashes occurred in DACs, compared to 29.4% of non-VRU KA crashes that occurred in DACs.

SECTION 5 – HIGH-RISK VRU AREAS

A critical component of a VRU Safety Assessment is understanding the spatial distribution of crashes. This section discusses statewide trends as well as more granular data at specific location types. The assessment team mapped county-level VRU KA crash data for 2019 – 2023 (Figure 4).



Jefferson and Fayette counties — the most populous in Kentucky — recorded the most VRU KA crashes by a large margin. Combined, 44% of VRU KA crashes occurred here. To account for the distribution of populations across the state, VRU KA crash data totals were normalized by each county's population (i.e., per 1,000 residents). Figure 5 maps KA VRU crashes per 1,000 residents at the county level.



Jefferson County had the most VRU KA crashes per 1,000 residents. But Fayette County is no longer a clear second. Lee, Knox, and Bell counties now follow Jefferson in terms of highest VRU KA crashes per 1,000 residents. Note, however, that these counties each had fewer than 16 KA VRU crashes during the study period.

To provide a more granular understanding of VRU risk statewide, the assessment team prioritized three levels of high-risk areas: census tracts, routes, and intersections. The prioritization procedure for each area type is as follows:

- **Census tracts were scored and ranked by total VRU KA crashes per 1,000 residents with an additional 25% adjustment for DAC census tracts.**
- **Route segments were scored and ranked by total VRU KA crashes per route segment, with an additional 25% adjustment for routes in a DAC census tract. Routes were segmented at census tract boundaries to ensure reasonable segment lengths and an accurate accounting of a route's disadvantaged status.**
- **Intersections were scored and ranked by total VRU KA crashes with an additional 25% adjustment for intersections in a DAC census tract. Kentucky's intersection database defines each intersection in the state using a polygon, containing the approaches as well as the central intersection. Only crashes inside that polygon were treated as intersection crashes.**

The 25% adjustment for DAC census tracts accounts for the 25% overrepresentation of VRU KA crashes among DACs. This adjustment was made at each step of the prioritization procedure. The adjustment factor accounts for the magnitude of overrepresentation of VRU KA crashes in these locations and ensures the demographics of those residing in DACs are considered. Table 1 lists the 25 census tracts with highest risk for VRUs.

Table 1: Top 25 Highest Risk Census Tracts in Kentucky for VRU Fatal and Serious Injury Crashes

Census Tract ID	County	Pop.	DAC Status	Total VRU KA Crashes	Total VRU KA Crashes per 1k Pop	Score	Rank
21221980100	Trigg	23	Not DAC	1	43.48	43.48	1
21111004900	Jefferson	4088	Not DAC	27	6.60	6.60	2
21111009103	Jefferson	1624	DAC	8	4.93	6.16	3
21111003700	Jefferson	1706	DAC	7	4.10	5.13	4
21111003900	Jefferson	3785	DAC	12	3.17	3.96	5
21111005900	Jefferson	5090	DAC	16	3.14	3.93	6
21111011301	Jefferson	2599	DAC	8	3.08	3.85	7
21111001800	Jefferson	1358	Not DAC	5	3.68	3.68	8
21111000600	Jefferson	1790	Not DAC	6	3.35	3.35	9
21111011800	Jefferson	2645	DAC	7	2.65	3.31	10
21111006200	Jefferson	2134	Not DAC	7	3.28	3.28	11
21111000200	Jefferson	2802	DAC	7	2.50	3.12	12
21111002700	Jefferson	2403	DAC	6	2.50	3.12	13
21111004500	Jefferson	2892	DAC	7	2.42	3.03	14
21067001300	Fayette	2066	DAC	5	2.42	3.03	15
21067001400	Fayette	2222	DAC	5	2.25	2.81	16
21111011906	Jefferson	3112	DAC	7	2.25	2.81	17
21067001600	Fayette	2276	DAC	5	2.20	2.75	18
21111012802	Jefferson	2288	DAC	5	2.19	2.73	19
21111012501	Jefferson	2836	DAC	6	2.12	2.64	20
21111002400	Jefferson	5165	Not DAC	13	2.52	2.52	21
21067000102	Fayette	1723	Not DAC	4	2.32	2.32	22
21111000700	Jefferson	2724	DAC	5	1.84	2.29	23
21111012103	Jefferson	3312	Not DAC	7	2.11	2.11	24
21111012801	Jefferson	2984	DAC	5	1.68	2.09	25

The most at-risk census tract is located in Trigg County (a small, rural county). This tract has a population of 23 and recorded one VRU KA crash from 2019 to 2023, giving the tract an exceptionally high number of VRU KA crashes per 1,000 residents. This tract encompasses Land Between the Lakes, a recreational area that hosts many tourists, but which has few residents. As such, there were issues normalizing this tract for population, so it is considered an outlier. Of the remaining 24 tracts on the list, all are in Jefferson and Fayette counties. Over half of the highest-risk census tracts are in a DAC. Table 2 shows the top 25 routes that pose the highest risk to VRUs in Kentucky.

Table 2: Top 25 Highest Risk Routes in Kentucky for VRU Fatal and Serious Injury Crashes

County	Route	BMP	EMP	Length (Miles)	DAC Status	Total VRU KA Crashes	Score	Rank
Jefferson	W Broadway	1.94	2.70	0.76	Not DAC	9	9	1
Jefferson	Fern Valley Rd	0.76	1.94	1.17	DAC	6	7.5	2
Jefferson	Cane Run Rd	8.78	10.48	1.70	Not DAC	7	7	3
Jefferson	Dixie Hwy	4.57	6.24	1.67	Not DAC	7	7	3
Jefferson	Berry Blvd	0.60	1.58	0.98	DAC	5	6.25	5
Floyd	US 23	0.00	8.98	8.98	DAC	5	6.25	5
Jefferson	Dixie Hwy	0.00	4.57	4.57	DAC	5	6.25	5
Jefferson	Preston Hwy	5.73	6.34	0.61	DAC	5	6.25	5
Jefferson	National Tpke	3.62	5.38	1.75	DAC	5	6.25	5
Jefferson	Preston Hwy	0.00	1.40	1.40	Not DAC	5	5	10
Fayette	Nicholasville Rd	2.41	3.34	0.92	Not DAC	5	5	10
Jefferson	Poplar Level Rd	10.25	11.33	1.08	DAC	4	5	10
Jefferson	S 3rd St	1.89	2.67	0.78	DAC	4	5	10
Jefferson	Dixie Hwy	11.30	12.53	1.24	DAC	4	5	10
Fayette	E New Circle Rd	10.90	11.34	0.44	DAC	4	5	10
Jefferson	I 65	135.25	136.11	0.86	DAC	4	5	10
Jefferson	S 2nd St	12.00	12.72	0.73	Not DAC	4	4	17
Fayette	S Limestone	5.49	6.43	0.93	Not DAC	4	4	17
Jefferson	S 6th St	0.00	0.87	0.87	Not DAC	4	4	17
Jefferson	Dixie Hwy	6.38	7.54	1.16	Not DAC	4	4	17
Jefferson	7th Street Rd	0.00	0.41	0.41	Not DAC	4	4	17
Fayette	N Broadway	7.06	7.85	0.79	Not DAC	4	4	17
Jefferson	Bardstown Rd	11.12	12.03	0.91	Not DAC	4	4	17
Jefferson	S 3rd St	1.51	1.89	0.38	Not DAC	4	4	17
Knox	US 25 E	22.08	26.20	4.12	Not DAC	4	4	17

Table 3 lists the 25 highest-risk intersections for VRUs in Kentucky. Only two are outside of Jefferson and Fayette counties. Just under half of the highest-risk intersections are in a DAC.

Table 3: Top 25 Highest Risk Intersections in Kentucky for VRU Fatal and Serious Injury Crashes

County	Main Route	Minor Route	DAC Status	Total VRU KA Crashes	Score	Rank
Jefferson	S 3rd St	W Southland Blvd	Not DAC	4	4	1
Jefferson	Preston Hwy	Indian Trl	DAC	3	3.75	2
Jefferson	New Cut Rd	W Kenwood Dr	DAC	3	3.75	2
Jefferson	National Tpke	Tolls Ln	DAC	3	3.75	2
Jefferson	W Broadway	S 6th St	Not DAC	3	3	5
Jefferson	W Muhammad Ali Blvd	Louis Coleman Jr Dr	DAC	2	2.5	6
Jefferson	S Preston St	E Chestnut St	DAC	2	2.5	6
Jefferson	E Broadway	S Preston St	DAC	2	2.5	6
Jefferson	W Hill St	S 12th St	DAC	2	2.5	6
Jefferson	Dixie Hwy	Youngland Ave	DAC	2	2.5	6
Jefferson	Winkler Ave	Algonquin Pkwy	DAC	2	2.5	6
Jefferson	Bardstown Rd	Goldsmith Ln	DAC	2	2.5	6
Franklin	E Main St	Allnutt Dr	DAC	2	2.5	6
Fayette	W New Circle Rd	Russell Cave Rd	DAC	2	2.5	6
Fayette	E New Circle Rd	Golden Way	DAC	2	2.5	6
Jefferson	Dixie Hwy	San Jose Ave	DAC	2	2.5	6
Jefferson	Fern Valley Rd	Preston Hwy	DAC	2	2.5	6
Campbell	Monmouth St	12th St	Not DAC	2	2	18
Mason	W Third St	Limestone St	Not DAC	2	2	18
Jefferson	S 2nd St	W Market St	Not DAC	2	2	18
Jefferson	W Liberty St	S 4th St	Not DAC	2	2	18
Jefferson	W Broadway	Madelon Ct	Not DAC	2	2	18
Jefferson	E Broadway	S 1st St	Not DAC	2	2	18
Jefferson	Garland Ave	S 28th St	Not DAC	2	2	18
Jefferson	S 22nd St	Garland Ave	Not DAC	2	2	18

At all levels of evaluation, the assessment indicated that Jefferson and Fayette counties are the highest-risk locations for VRU safety. These counties had the highest total VRU KA crashes during the 2019 – 2023 period and include the vast majority of the highest-risk census tracts, routes, and intersections. Many of the high-risk areas in these counties are in DACs. As such, these counties should be prioritized for VRU safety countermeasures, with an emphasis on ensuring equity among the DACs in the counties.

SECTION 6 – STAKEHOLDER INVOLVEMENT

Jefferson and Fayette counties recorded for 44% of the state's VRU KA crashes between 2019 and 2023 and have 24 of the top 25 census tracts that pose the highest risk to VRUs. VRU crashes overwhelmingly tend to be an urban phenomenon. Jefferson and Fayette counties have the largest urban cores in the state (Louisville and Lexington, respectively). Given they have the highest risk for VRU crashes, Jefferson and Fayette counties have greatest potential for safety improvement. Therefore, these counties were identified as good locations for stakeholder involvement. One stakeholder meeting was held for each county. When combined with the data-driven analysis, stakeholder feedback provided a broader perspective and identified realistic steps to bolster VRU safety.

Stakeholder meetings had four main goals:
- Inform stakeholders of the high VRU risk in their areas
- Connect local stakeholders with KYTC personnel to build relationships
- Inform stakeholders of ongoing efforts in the state to enhance VRU safety
- Seek input from stakeholders on strategies and countermeasures to increase VRU safety in their areas

Meetings were scheduled for 1.5 hours, hosted virtually through Zoom and followed this general agenda:

- **Introductions**
- **Overview of the VRU Safety Assessment purpose**
- **Explanation of the Safe System Approach**
- **Presentation of VRU safety performance in the state**
- **Presentation of VRU safety performance in the county**
- **Overview of the high-risk areas for VRUs in the county (list of routes and intersections)**
- **Overview of Kentucky's current efforts with VRU safety**
- **Brainstorming session for strategies and countermeasures to improve VRU safety with a focus on the Safe System Approach**
- **Summary of brainstorming discussions and outcomes**

The first 30 minutes of each meeting was used to provide background on the VRU Safety Assessment, summarize statewide and local VRU trends, discuss high-risk areas, and explain Kentucky's current efforts to enhance VRU safety. The remaining hour of was used to discuss VRU safety and seek input from local stakeholders.

During brainstorming sessions, meeting attendees joined virtual breakout rooms, each of which had at most 10 local stakeholders. A representative of the VRU Safety Assessment team was assigned to each group to lead a discussion on local VRU safety concerns and potential strategies/countermeasures to increase local VRU safety. Stakeholders had five minutes to independently brainstorm ideas while being presented with a slide outlining the five elements of the Safe System Approach and example countermeasures for each element. For the next 35 minutes, stakeholders shared their ideas while the VRU Safety Assessment team member documented their ideas on a virtual whiteboard. Using smaller breakout groups ensured each stakeholder could be heard by other stakeholders and the VRU Safety Assessment team. Smaller group sizes also helped to facilitate discussions between stakeholders who otherwise might not have had the opportunity to meet. Following the breakout room discussions, the full stakeholder meeting regrouped. Each VRU Safety Assessment team member summarized discussions from their breakout groups.

6.1 JEFFERSON COUNTY STAKEHOLDER MEETING

Approximately 50 stakeholders participated in the Jefferson County meeting, with representatives from the following organizations:

- **Open Mobility Foundation**
- **Parks Alliance of Louisville**
- **Louisville Metro Transportation Planning**
- **Kentucky Transportation Cabinet Central Office: Traffic Safety and Planning Divisions**
- **Kentucky Transportation Cabinet District 5 Office**
- **Louisville Metro Public Works**
- **Institute of Transportation Studies**
- **Louisville Metro Department of Public Health and Wellness**
- **Louisville Metro Police Department**
- **Louisville City Council: Metro Council District 21**
- **Louisville Parks & Recreation**
- **WSP**
- **Burgess & Niple**
- **FHWA Kentucky Office**
- **Norton Children's Hospital Emergency Department**
- **Transit Authority of River City (TARC)**
- **University of Louisville Civil Engineering Department**
- **Matthew's Bridge Inc. (501c3)**
- **Louisville Metro Emergency Services**
- **University of Kentucky Civil Engineering Department**
- **Kentucky Transportation Center**

A common theme that emerged in all breakout groups is the need for better guidance and policies to help agencies implement countermeasures that enhance VRU safety. Stakeholders identified the following policy and guidance needs:

- **Standardize guidelines to identify intersection and corridor lighting needs.**
- **Provide guidance on using solar powered lighting versus partnering with local energy providers to hardwire lighting power.**
- **Include considerations for VRUs when scoring all potential roadway projects statewide.**
- **Provide statewide guidance on the type of bicycle and pedestrian facilities appropriate for a given roadway functional class.**
- **Consider legislation that would authorize camera enforcement of speeding violations.**
- **Revise the state's resurfacing program to include opportunities to reassign roadway right of way to VRUs.**
- **Create policies to limit roadway widening without prior consideration of non-vehicular roadway users.**
- **Mandate helmet usage for cyclists via local or statewide policies.**
- **Enact policies to maintain connectivity when work zones disrupt dedicated VRU facilities.**
- **Develop a program to collect accurate data on pedestrian and cyclist volumes to use when preparing demand calculations for VRU facilities.**
- **Include considerations for DACs when prioritizing roadway projects. Transportation projects outside of DACs could be charged a "tax" to fund equity projects within DACs.**

This stakeholder group included an emergency services representative and a children's emergency room doctor who provided valuable insights from a post-crash care perspective on strategies that could improve VRU safety. They suggested targeting medically underserved communities (areas not close to a hospital with a trauma center) with more first aid training and Stop the Bleed campaigns that may improve the likelihood of a seriously injured person surviving until they can be brought to a proper trauma center. First aid training should be added to school curriculums for all Kentucky K – 12 students. Additional funding to increase EMS staff as well as public outreach to encourage people to dial 911 sooner were also identified as post-crash care strategies.

Another key discussion topic was vehicle dynamics. A growing percentage of vehicles on the road today are large trucks, SUVs, and electric vehicles, all of which are heavier than conventional vehicles and carry a high amount of energy into a collision. Even at slower speeds, these vehicle types can cause devastating injuries to VRUs because of their weight. As such, the stakeholders highlighted that automakers should be responsible for incorporating safety features into their vehicles such as radar detection of pedestrians and automatic emergency braking to avoid VRU collisions. Stakeholders also recommended that automakers design vehicles to have less rigidity in front-end impacts, which would transfer less energy to VRUs. Lastly, prioritizing public transit opportunities — either through buses or light rail — is another vehicle-related initiative the Jefferson County stakeholders believe could improve VRU Safety. Increasing public transit opportunities has the dual effect of reducing the number of single-occupancy vehicles on the road and providing VRUs an alternative transportation mode that affords them greater protection from vehicles.

6.2 FAYETTE COUNTY STAKEHOLDER MEETING

Approximately 30 stakeholders participated in the Fayette County meeting, with representatives from the following organizations:

- **Lexington Area Metropolitan Planning Organization**
- **University of Kentucky Civil Engineering Department**
- **Kentucky Transportation Center**
- **Kentucky Transportation Cabinet District 7**
- **Kentucky Transportation Cabinet Central Office: Traffic Safety and Strategic Planning Divisions**
- **Kentucky Office of Highway Safety**
- **FHWA Kentucky Office**
- **Lexington Police Department**

- **Studio Jesse James Architects Inc.**
- **Lexington-Fayette Urban County Government Environmental Quality and Public Works**
- **Lexington City Council**
- **University of Kentucky Student Government**
- **University of Kentucky Police Department**
- **Fayette County Public Schools**

One focus of this stakeholder discussion was the public perception of VRUs. Several discussions addressed on the dissonance between how drivers view VRUs and how VRUs view drivers. Concerns of victim-blaming were raised when reviewing the pedestrian factors recorded in crash reports of recent VRU KA crashes in Fayette County. The group noted the use of codes such as Dark Clothing and Walking in Roadway. These codes may imply that VRUs are to blame for a crash when there is nothing inherently wrong with either action (assuming VRUs are in the road while crossing). A similar victim-blaming concern was raised related to the term jaywalking. As a result of these discussions, the group suggested public awareness campaigns to improve public perception of pedestrians and more training for all road users on the safe use of transportation facilities, with an emphasis on strategies for interacting with users of different modes.

Another emphasis of the discussion was redesigning roads that attend to the perspectives of all users, not just motorists, which is how roads have been designed historically. This entails balancing limited space to provide adequate sidewalks, bicycle lanes, transit facilities, and travel lanes based on the anticipated users for a given facility. This sentiment pairs well with Kentucky's recently published Complete Streets, Roads, and Highways Manual (see Section 7), which provides guidance on how to design for all roadway users. This manual was issued in August 2022, so many of its principles have not yet been implemented statewide. Stakeholders were directed to this manual for further information.

Speed management was also a concern for stakeholders. Data presented to the group showed that in Fayette County VRU KA crashes occurred on roads with higher speed limits than in the rest of the state. One stakeholder mentioned that Louisville is working to develop a speed management plan for the city and that Lexington could develop its own speed management plan. An FHWA representative indicated that FHWA considers speed management plans to be a proven, low-cost safety countermeasure.

Suggestions from the group on methods to reduce speeds included removing striping in high-density urban areas to force drivers to pay attention, adjusting roadway geometry on ramps/slip lanes to force drivers to reduce speeds, curb extensions, camera-based automated speed enforcement, road diets, speed feedback signs to alert drivers of their speeds, and road designs based on lower target speeds.

6.3 SUMMARY BY CATEGORY

All strategies, countermeasures, and general feedback from both stakeholder meetings are listed below and organized according to the Safe System Approach: Users, Vehicles, Roads, Speeds, and Post-Crash Care. Another category — Policy — was added due to the call in both stakeholder sessions for statewide guidance on VRU issues.

POLICY

- **Adjust standard widths for sidewalks and shared use paths based on roadway functional class.**
- **Append statewide policy changes to limit roadway widening (with possible exceptions).**
- **State and local agencies should explore data sources that provide an indication of pedestrian and cyclist usage and volumes. This data can help identify areas with a need for VRU facilities.**
- **Enact statewide or local policies to address speed management. Current policies prioritize moving vehicles efficiently with no emphasis on other roadway users.**
- **Build policies to maintain pedestrian/cyclist facility connectivity in work zones.**
- **Diversify representation in safety advocacy groups to better serve the population.**
- **Consider legislative changes that allow for automated speed enforcement.**
- **Adjust roadway project prioritization methods to place a greater emphasis on VRU safety.**
- **Include VRU safety considerations during roadway resurfacing projects.**
- **Include disadvantaged area demographics as a consideration when prioritizing transportation projects.**
- **Provide statewide policy and guidance on lighting warrants and standards. Guidance is also needed on the use of solar lighting versus hardwired lighting.**
- **Legislate a helmet policy for cyclists.**
- **Leverage resurfacing projects to implement road diets and reassign right of way to sidewalks, lighting, and bike lanes.**
- **Utilize Kentucky's Complete Streets, Roads, and Highways Manual and the Highway Design Guide. Both documents are currently being updated and will provide further considerations for VRU safety.**
- **Reframe pedestrian factors in crash reporting to move toward phrasing that can help identify solutions. For example, changing dark clothing as a pedestrian crash factor to non-reflective clothing to indicate reflectivity would make a pedestrian more visible in low-light conditions.**

USERS

- **Educate the public about VRU safety. Currently, the KOHS VRU safety group is developing VRU safety education programs to add to school curriculums. These materials are being developed for K–12 students and will be delivered in health classes. This initiative will start VRU safety training early on so that students form good VRU safety habits. A secondary goal is for children to take this information home and encourage their parents/guardians to engage in safe VRU behaviors as well.**
- **Regulate or establish education programs for e-scooters. These users move faster than pedestrians and are harder for drivers to see when they approach intersections.**
- **Consider enforcement and/or education programs for impaired pedestrians.**
- **Campaigns to encourage cyclists, e-scooter riders, and runners/walkers to wear high-visibility clothing to improve their visibility to drivers.**
- **Utilize public involvement to identify where VRUs feel unsafe. Pair this with VRU hotspot location data to prioritize projects.**
- **Support safety in homeless and low-income communities. Many members of these communities use bikes to get around. Provide free helmets and high visibility gear to these groups along with educational campaigns about VRU safety.**
- **Raise awareness by holding biking and walking rallies — shut down roads and give access to VRUs to highlight their presence.**
- **Use public art to bring awareness to VRUs.**
- **Set up marketing campaigns to change public perception of VRUs to enhance empathy and reduce tension between users of different transportation modes.**

VEHICLES

- **Consider supplemental safety efforts directed toward trucks and SUVs. Their height and tinted windows make it more difficult for drivers to see VRUs (especially children).**
- **Heavier vehicles generate more kinetic energy and therefore present a higher risk to VRUs. Introduce a weight-based vehicle tax for heavy vehicles to help fund VRU safety initiatives.**
- **Require electric/automated vehicles to have pedestrian radar detection.**
- **Design vehicles to have a lower point of impact and less rigidity in the front to reduce energy transfer to VRUs in the event of a crash. The automotive industry should be responsible for proper design and weight of vehicles, particularly with the emergence of electric vehicles that are much heavier than standard gas passenger cars.**
- **Build a light rail line for Louisville (especially in the West End to provide transportation to more economic opportunities).**
- **Improve public transit opportunities to reduce the number of single-occupancy vehicles on the road network and provide another mode of transportation for VRUs. For example, focusing on bus rapid transit may encourage more people to select transit as a transportation mode.**

ROADS

- **Begin conversations about "disconnecting" highways (interstates/freeways) from urban areas.**
- **Incorporate short-term, low-cost projects into statewide transportation planning instead of relying only on large, expansive transportation projects.**
- **Consider infrastructure updates that small, rural towns may need. Many lack pedestrian and bicycle facilities. It is possible that there was not a need for VRU infrastructure when they were designed, but growing populations may have changed this. This need should be considered in conjunction with location prioritization for retrofitting facilities to Complete Streets standards.**
- **Move away from sharrows and toward dedicated bike lanes. Sharrows are painted markings on the roadway to indicate that bicyclists and motorists must share the road. While this could help raise awareness of bicyclists using the roadway, the safer option is to separate bike and vehicle traffic.**
- **Add more crosswalks to suburban corridors that have few crossing locations.**
- **Improve crosswalk visibility for all users.**
- **Add raised medians along center turn lanes so that drivers do not use them as passing lanes.**
- **Consider the number of curb cuts in a given area. Businesses are entitled to curb cuts that provide access to their business and parking lot, but an abundance of driveway entrances create additional conflict points for VRUs.**
- **Improve intersection and corridor lighting so VRUs are more visible at night. Also consider using more LED lighting as it can more uniformly illuminate VRUs.**
- **Add more speed limit signs on rural roads to remind drivers of the speed limit.**
- **Improve the consistency of roadway markings (e.g., crosswalks, roadway striping) and use materials that improve visibility during low-light and wet conditions.**

ROADS (cont.)

- Drivers tend to look in the direction of potential vehicle conflicts rather than potential pedestrian/cyclist conflicts, so find solutions to help drivers notice potential VRU conflict spots as well.
- Transit stops should be connected to bicycle or pedestrian facilities to establish more seamless flow for transit users.
- Use fencing in medians to discourage pedestrians from crossing mid-block outside of a dedicated crosswalk. Ensure the fencing is forgiving if a car were to crash into it.
- Enhance landscaping to improve the appeal/comfort of VRU spaces, such as along sidewalks or multi-use paths. However, avoid planting trees and landscaping that prevent drivers from detecting VRUs. Be strategic with landscaping and proactive with landscape maintenance.
- Find equitable solutions for sidewalk maintenance. Maintenance and repair of neighborhood sidewalks are often the responsibility of homeowners. More affluent neighborhoods can afford higher quality sidewalks, which widens the safety gap between disadvantaged and non-disadvantaged communities. Lack of sidewalk repair due to lack of funding also creates potential issues with ADA compliance.

SPEEDS

- Apply traffic calming strategies such as reducing lane widths, curb extensions, and speed humps, where applicable.
- Implement camera-based automated speed enforcement in work zones, schools, and areas with a high volume of VRUs.
- Implement variable speed limits in high-volume VRU areas.
- Install speed feedback signs in neighborhoods to make drivers aware of their speed.
- Utilize delineators at crosswalks to encourage drivers to slow down.
- Consider linking the cost of a speeding ticket to the offender's annual income. This supports equity, may increase the severity of speed-related ticketing, and can help discourage repeat offences.
- Develop a speed management plan at the city level.
- Shift roadway design toward a focus on target speed — not design speed — to encourage motorists to drive the target speed or slower.

POST-CRASH CARE

- Target first aid training in medically underserved communities. Stop the Bleed campaigns can train more civilians on prompt and efficient first aid techniques, which can extend the time VRUs can survive as they are being transported to a trauma center equipped to handle their injuries.
- Increase funding for EMS in order to hire more staff and improve response times.
- Include first aid training in middle and high school curriculums.
- Build public outreach campaigns that encourage people to call 911 sooner when they see an incident occur.

SECTION 7 – KENTUCKY'S PROGRESS TOWARDS IMPROVING VRU SAFETY

Kentucky has many initiatives focused on improving the safety of VRUs. These can support the progress toward meeting VRU safety performance targets. The following sections describe these activities.

7.1 COMPLETE STREETS, ROADS, AND HIGHWAYS MANUAL

Published in 2022, the Complete Streets, Roads, and Highways Manual is a "guide to implementing safe and equitable transportation strategies for facilities in rural and urban Kentucky." The manual defines complete streets as "an evolution of the way streets, roads, and highways address the transportation needs of the communities they serve, shifting from a motor vehicle-centric transportation system to a new, holistic approach for building a network that supports the needs of all users." It emphasizes the Safe System Approach from the National Roadway Safety Strategy (NRSS) and "offers guidance, recommendations, and resources for the implementation of Complete Streets in all transportation projects as a tool to promote safety for all users as part of an equitable, accessible, and sustainable transportation network." It identifies and supports a variety of users on Kentucky streets and highways, including motorists, bicyclists, pedestrians, scooter riders, transit riders, and freight carriers. The manual touches on several project types, including new construction, reconstruction, and modernization. Specific guidance for urban curbside management and rural and small communities with higher concentrations of farming, equestrians, and horse-powered vehicles operating on or near Kentucky's streets and highways is also discussed. The manual is a living document that recognizes that "user types, multimodal guidance, and transportation best practices will continue to evolve." Kentucky's Complete Streets, Roads, and Highways Manual was honored with the American Council of Engineering Companies (ACEC) Grand Award in 2023.[8]

7.2 KENTUCKY PEDESTRIAN AND BICYCLIST SAFETY PROGRAM ASSESSMENT

In March 2022 following issuance of the Uniform Guidelines for State Highway Safety Programs which are required by Congress, Kentucky conducted a Pedestrian and Bicycle Safety Program Technical Assessment. The assessment was facilitated by the National Highway Traffic Safety Administration (NHTSA) and conducted by a team of national experts. It posed 86 questions about the status of the state's bicycle and pedestrian safety programs in the areas of program management, education, enforcement, engineering, and emergency medical services. Responses included current practice, in development, under consideration, or not at this time. The assessment report included overall priority recommendations in each question category (program management and the 4 Es) as well as longer summaries and recommendations for each area.[9]

7.3 STATEWIDE BICYCLE AND PEDESTRIAN MASTER PLAN

In November 2022, with support from QK4 Inc., KYTC published its Statewide Bicycle and Pedestrian Master Plan (BPMP). The purpose of this plan is to "inventory Kentucky's current bicycle and pedestrian networks, to identify current policies, programs, and tools available, both within KYTC and by other partners supporting active transportation and to establish a framework to advance bike/ped planning within local, regional, and agency jurisdictions over the next few years." The plan includes sections on (1) the benefits of active transportation and the KYTC planning process and related plans, (2) existing conditions (including heat maps, infrastructure, routes and policies, funding, and partners), (3) a futures framework (including trends and goals related to safety, connectivity, equity, health/environment, and thriving communities), and (4) recommendations (action items). The BPMP refers to and integrates with other plans (e.g., SHSP, Complete Streets, Roads, and Highways Manual, Bike/Ped Safety Assessment, ADA Transition Plan, and SHIFT).[10]

7.4 KYTC AMERICANS WITH DISABILITIES ACT TRANSITION PLAN

U.S. Department of Justice (USDOJ) regulations require that state and local governments perform a self-evaluation of their services, programs, policies, and practices to verify compliance with the Americans with Disabilities Act (ADA). In 2021, KYTC published the Americans with Disabilities Act Transition Plan 2021. The plan details KYTC's "dedication to meeting and exceeding accessibility needs in new highway projects." The plan describes KYTC's process for conducting a self-evaluation to identify barriers associated with sidewalks, transit stops, and intersections (curb ramps, detectable warnings, crosswalks, and pedestrian signals) adjacent to state-maintained roadways. An estimated project schedule is outlined to analyze data and prioritize essential accessibility enhancement projects. The ADA Transition Plan includes descriptions of ADA roles and responsibilities for relevant offices, districts, and divisions of KYTC as well as sections on grievances, coordination with other plans, communications, training, and public outreach. Finally, the plan lists KYTC's actions for achieving ADA compliance, including a list of barriers to compliance and estimated budget needs for eliminating these barriers. The plan is a living document intended to be revised each year.[11]

7.5 VISION ZERO LOUISVILLE SAFETY PLAN

On April 13, 2021, the City of Louisville/Jefferson County published the Vision Zero Louisville Safety Report with the goal of eliminating "all traffic related fatalities and serious injury crashes by taking a proactive, preventive approach rather than a reactive approach to address safety challenges." The report characterizes safety using crash data by severity for vehicle occupants/riders, pedestrians, and bicyclists, and then outlines the principles for achieving goals. These principles include keeping a focus on people, being data informed and action oriented, maintaining equity, ensuring accountability and continuous improvement, and taking a Safe System Approach. The report describes trends using charts and maps and estimates the costs of crashes to the community. Areas of opportunity are identified, similar to the SHSP's emphasis areas. Each area is described in detail and countermeasures are suggested for each. Four implementation strategies and actions are presented:

- **Improve Multi-Modal Safety**
- **Improve Roadway Network**
- **Improve Environmental Justice**
- **Improve Human Behavior**

The Louisville Metro Department of Public Works and Assets received a Special Achievement in GIS (SAG) Award for maps and visualizations that appeared in Vision Zero Louisville. The award was presented by Esri President, Jack Dangermond, during the 2023 Esri International User Conference.[12]

7.6 LEXINGTON SAFETY ACTION PLAN

The City of Lexington published its Safety Action Plan on June 30, 2023. Similar to Louisville's Vision Zero Safety Report, Lexington's Safety Action Plan has as its goal zero road fatalities by 2050. The Plan includes sections on leadership, commitment and goal setting, planning structure, safety analysis (including trends), engagement and collaboration, equity considerations, policy and process changes (including related plans and activities), strategy and project selections (including reactive and systemic improvements), and progress and transparency [13]

7.7 LEXINGTON COMPLETE STREETS POLICY

The City of Lexington has a Complete Streets Policy which advances a vision to "provide an equitable, balanced, safe and efficient transportation system that supports a sustainable and healthy community with thriving people, neighborhoods, cultural life and businesses." The policy recognizes diverse users, equity, and a "commitment to complete streets in the design, construction, maintenance and operation of transportation networks" require clear and accountable exceptions to the policy. It reviews jurisdictional issues, design guidance, complete streets and land use context, project prioritization and selection criteria, policy implementation, and performance measures.[14]

7.8 SHIFT SCORING APPROACH FOR PEDESTRIAN AND BICYCLE PROJECTS

The Strategic Highway Investment Formula for Tomorrow (SHIFT) is KYTC's data-driven, objective approach for comparing capital improvement projects and prioritizing limited transportation funds. A systematic process has been developed for scoring pedestrian and bicycle projects for the SHIFT 2024 evaluation. This effort focused on examining the SHIFT 2022 projects and developing an approach that could be used to score pedestrian and bicycle projects. The approach included the selection of projects that were identified as having a pedestrian and/or bicycle components as part of the project, a systematic review of each project to determine existing conditions, the possible project that could be implemented, the potential for pedestrian and/or bicycle projects, and an assessment of the surrounding area to define the context of the project and identify possible trip generators for pedestrian and/or bicycle activity. The Pedestrian and Bicycle component score is calculated as an equally weighted measure of bicycle and pedestrian facilities proposed as compared to existing facilities.[15]

7.9 KENTUCKY VRU DASHBOARD

KOHS hosts a public-facing, interactive dashboard for VRU crash data. The dashboard allows users to filter statewide VRU crash data from 2010 to the present. Data are filterable by VRU crash type (including motorcycle crashes), time, location, injury severity, and several crash-related factors. The dashboard has mapping capabilities and provides an aggregated breakdown of environmental factors, human factors, and demographics for selected crashes. This tool is a useful resource for agencies and individuals across Kentucky that want to develop a better understanding of VRU safety performance both statewide and at a local level.[16]

7.10 JEFFERSON COUNTY VRU TASKFORCE

KOHS has partnered with KYTC's District 5 Chief Engineer to organize a multidisciplinary taskforce to develop a process for conducting VRU-specific road safety assessments (RSAs) that can be applied statewide. With Jefferson County having the highest overall VRU risk, the taskforce chose this county to test the development of the VRU RSA process. The team, led by engineers from Gresham Smith, drafted an assessment template that includes a pre-field review roadway data analysis page, a list of prompts to consider while conducting the field assessment, a summary of the crash history at the target location, and a page to take notes on during the field assessment.

The taskforce conducts biweekly VRU RSAs at the location of every fatal and serious injury VRU crash that has occurred in Jefferson County since the beginning of 2023 (62 sites as of October 31, 2023). The objective of these RSAs are twofold: to achieve more individualized understanding of recent VRU crashes and to refine the VRU RSA process before implementing it on a larger scale. Many systemic risk factors and solutions have been identified through these assessments. The following list provides examples of short-, mid-, and long-term action items that address systemic risk factors identified from the road safety assessments.

Short-Term Action Items

- **Reflective signal backplates**
- **Refresh pavement markings**
- **Lighting audits**
- **Vegetation trimming or removal**
- **Enhance midblock crossings**

Medium-Term Action Items

- **Access management**
- **Speed management**
- **Coordination with public transit**
- **Adding or enhancing pedestrian crossings**
- **Traffic calming**

Long-Term Action Items

- **Capital investment projects (corridor-wide)**
- **Interchange investments**
- **Hardscape pedestrian refuges**
- **Sidewalk infill in suburban areas**

Several of the short-term action items have already been implemented on KYTC-maintained corridors where VRU RSAs have been completed. The taskforce is working to combine several mid- and long-term action items into corridor-wide projects and is seeking funding sources to implement larger VRU countermeasures. Solutions proposed based on the VRU RSAs will be implemented via KYTC's planning, guidance, and standard drawing documents. The RSA process developed by the VRU taskforce can be adopted by state and local agencies throughout Kentucky to increase VRU safety statewide.

SECTION 8 – STRATEGIES AND COUNTERMEASURES

The assessment team compiled VRU strategies and countermeasures sourced from Kentucky's bicycle and pedestrian initiatives and guidance documents (see Section 7), as well as external sources, such as FHWA proven safety countermeasures, to serve as a unifying list to guide designers and practitioners toward meaningful methods of improving VRU safety.

The list categorizes each strategy or countermeasure according to the Safe System Approach focus area it affects, allowing users to filter the list by targeting specific Safe System elements. This list is housed on the KOHS website and is linked to on the state's interactive VRU dashboard. The hosting locations for this list provide convenient access to effective VRU safety countermeasures to those actively seeking VRU safety data.

SECTION 9 – ENDNOTES

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