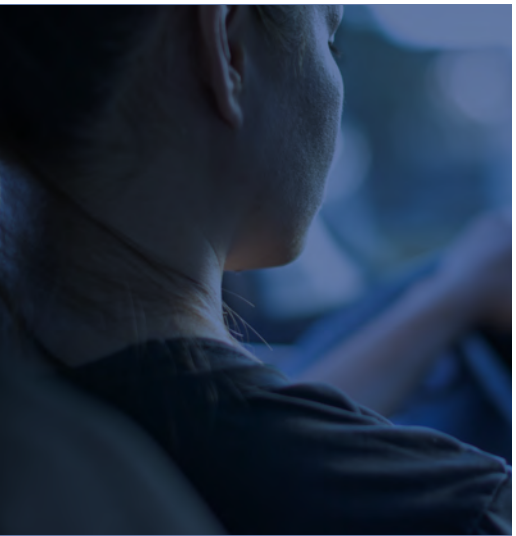
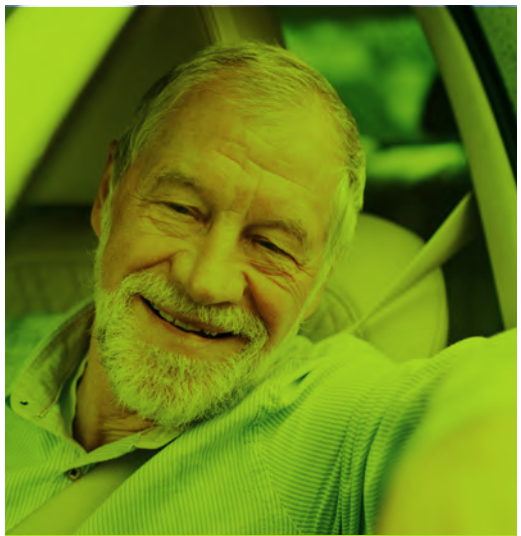
Ohio

Strategic Highway Safety Plan

2020





EVERY MOVE YOU MAKE

TOWARD ZERO DEATHS

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The strategies and actions in the SHSP are targeted for implementation in 2021–2025.

What is the Strategic Highway Safety Plan?

The Strategic Highway Safety Plan (SHSP) is a comprehensive statewide plan that addresses the most prevalent causes of roadway deaths and serious injuries in Ohio. This data-driven plan establishes common goals, priorities and strategies; provides a framework to track implementation of activities and safety investments across organizations; and helps maximize Ohio's resources as various agencies and organizations work together to prevent injuries and save lives on all public roads.

Developing the Plan

The plan was developed in collaboration and coordination with local, state, federal and private sector organizations from a variety of traffic safety disciplines, including engineering, education, enforcement and emergency response. The SHSP also coordinates with the state's other transportation plans including: Highway Safety Improvement Program (HSIP), Highway Safety Plan (HSP), Commercial Vehicle Safety Plan (CVSP) and State of Ohio Rail Plan. Collectively, these stakeholders developed a comprehensive and actionable SHSP that emphasizes safety for all road users, including cars, trucks, trains, motorcycles, bicycles and pedestrians.

Further discussions on the development of the plan can be found on page 14. The strategies in this plan will be implemented through the statewide transportation planning process.

Striving for Zero Deaths

Ohio's sole focus in transportation safety is eliminating traffic deaths and injuries. Reaching this goal requires a comprehensive and coordinated approach among all of Ohio's safety partners including thousands of local and state agencies that maintain Ohio's infrastructure and enforce our laws. It also requires educating motorists on the need to adopt safe driving habits to ensure the safety of others.

Working Together

Ohio's broad range of agencies and safety stakeholders will be critical to implement this plan. Ohio organizations are committed to making investments that:

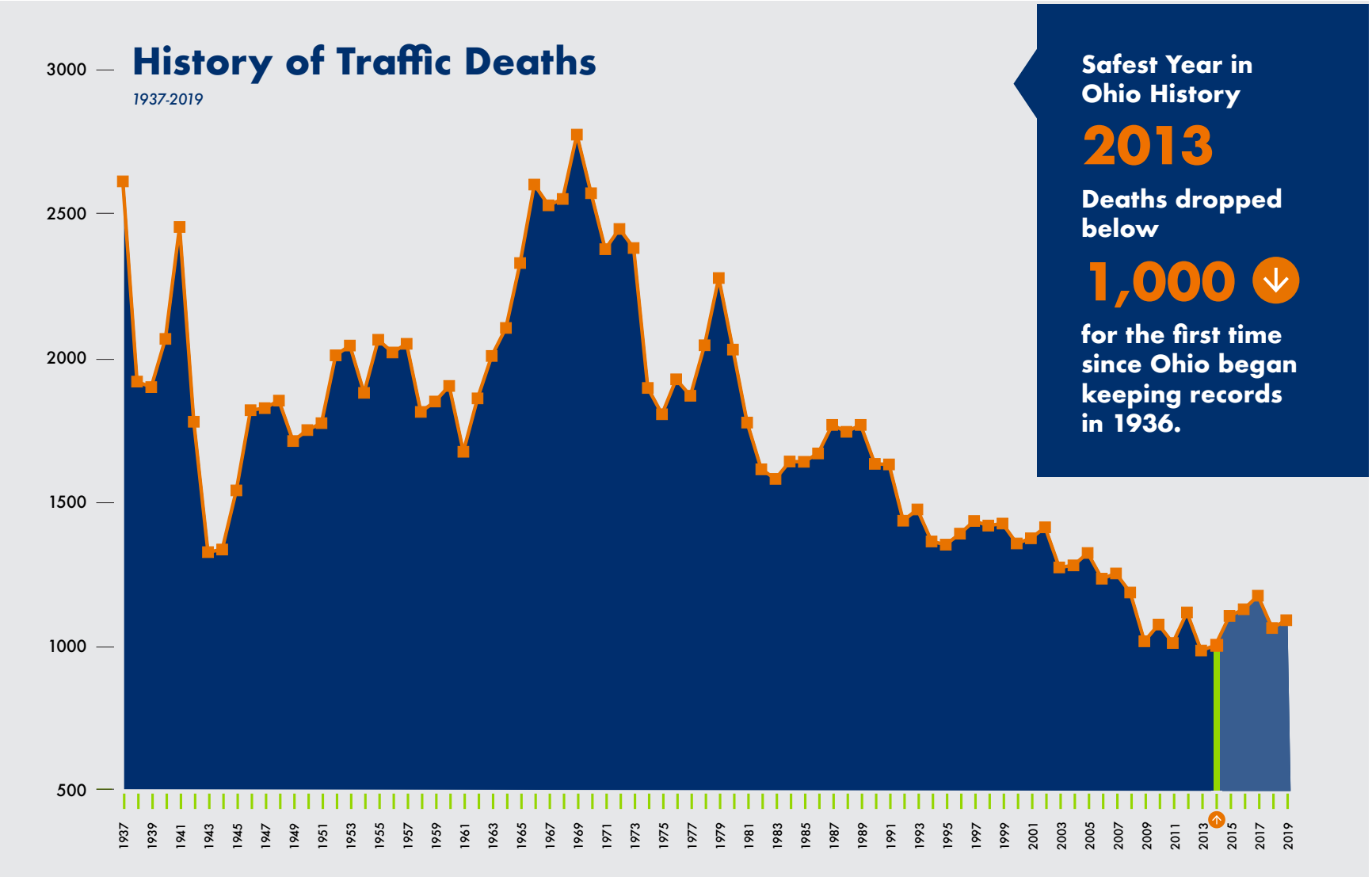
- Reduce the occurrence and severity of roadway departure, intersection and highway/railroad crossing crashes;
- Address high-risk drivers and behaviors such as young and older drivers, impaired driving, unbelted drivers and passengers, distracted driving and excessive speed;
- Address vulnerable road users such as motorcycle and bicycle riders and pedestrians, which are more likely to be involved in serious crashes;
- Increase our understanding of how connected and automated vehicles can improve safety;
- Improve the quality, accuracy, timeliness and availability of crash, driver, roadway and emergency care data.

Focusing on these transportation safety issues provides the greatest opportunities for Ohio to move toward zero deaths and reduce serious injuries over the five-year life of this plan.

Maximize resources and work together to prevent injuries and save lives on all public roads.

Ohio Crash Trends

For decades, Ohio fatalities have been trending down. However, traffic deaths over the past several years have started to rise despite safer vehicle technology.



Traffic deaths rose each year from 2014-2017.

Ohio experienced a decrease in deaths in 2018, only to rise again in 2019.

8%

1,068
2018

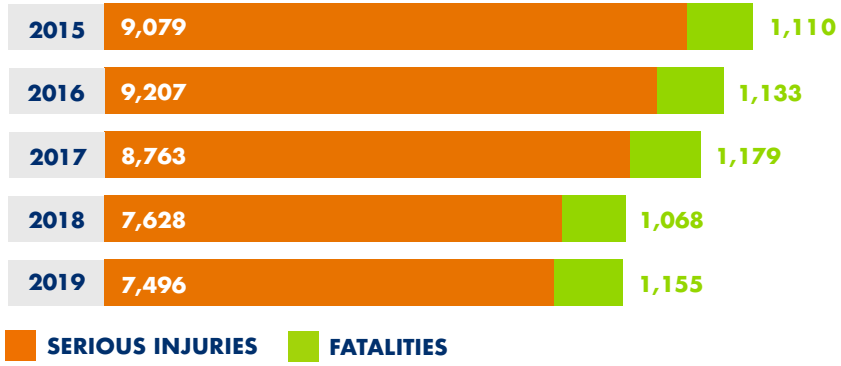
1,155
2019

Fatalities Nationally

36,096
in 2019
2% increase since 2015

Source: NHTSA, www-fars.nhtsa.dot.gov/Main/index.aspx

Fatalities and Serious Injuries



Serious Injuries
We suspect serious injuries in Ohio have been trending down because more people are driving newer, safer vehicles that reduce the severity of injuries in a crash.

Fatalities
We suspect fatalities have gotten worse because these safety features are less effective when drivers engage in dangerous activities such as extreme speeds, not wearing a seat belt, distracted driving or are severely impaired by drugs and alcohol.

Percentage Change

2015-2019

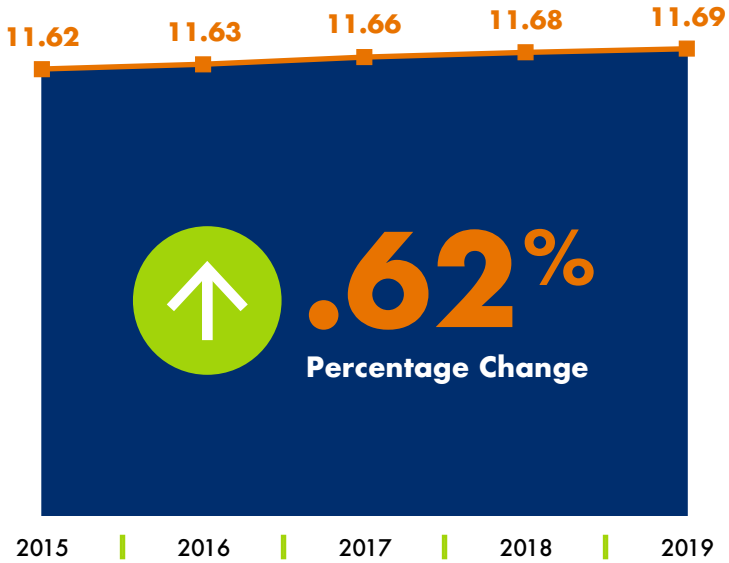
17% SERIOUS INJURIES

4% FATALITIES

Other Factors Influencing Ohio Crash Trends

It's important to understand the external factors and key trends that influence the state's number of traffic deaths and serious injuries.

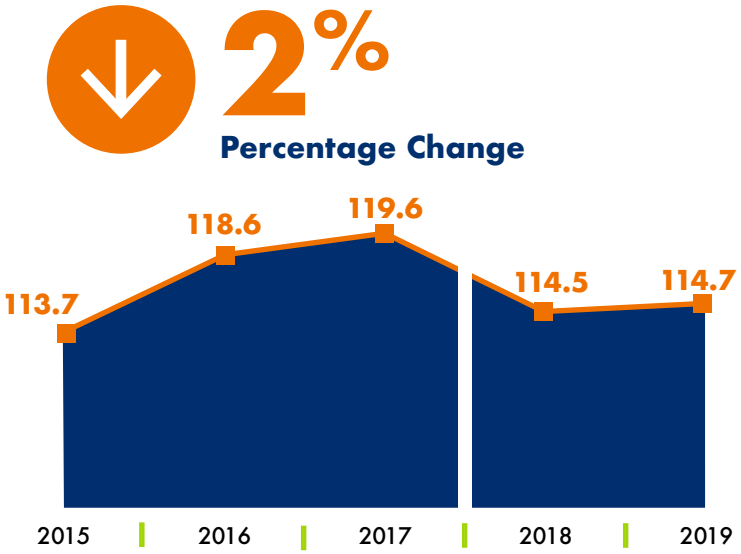
Population (in millions)



Source: US Census Bureau

Vehicle Miles Traveled (in billions)

2015-2019



ODOT methodology to estimate local VMT changed from 2017-2018.

2019 National Fatality Rate

1.10 per 100 million Vehicle Miles Traveled

Source: NHTSA

2019 Ohio Fatality Rate

1.01 per 100 million Vehicle Miles Traveled

Source: ODOT

Monitoring these trends will allow Ohio's safety stakeholders to direct strategies and actions to yield results.

Top 10 State Annual Vehicle Miles Traveled* (in millions)

1. **California** 348,796
2. **Texas** 282,037
3. **Florida** 221,816
4. **Georgia** 131,456
5. **New York** 123,510
6. **North Carolina** 121,127
7. **Ohio** 114,474
8. **Illinois** 107,954
9. **Michigan** 102,398
10. **Pennsylvania** 102,109

Statistics provided are for 2018. Source: U.S. Department of Transportation, Office of Highway Policy Information

Fatalities and Serious Injuries Rate by County

2015-2019

Fatalities And Serious Injuries Per Million Vehicle Miles Traveled

- 0-0.07
- 0.071-0.09
- 0.091-0.1
- 0.101-0.012
- 0.121-0.22

Key Trends
Shaping Ohio's Transportation System

Commuting Habits

2014-2018

83% Drive Alone

8% Carpool

4% Work from Home

2% Walk

2% Public Transit

Source: American Community Survey, 2018, 5-year data

Ohio Demographics

8/10 People Live in Urban Areas

2010

Source: US Census

65+ **20%** Licensed Drivers 65+

<19 **4%** Licensed Teen Drivers

2016

Source: www.statista.com

Growth in Population

Overall Population

11.6M 2015

12.6M 2045

65+ Population

44% 65+

2015-2045

Under 19 Population

2% <19

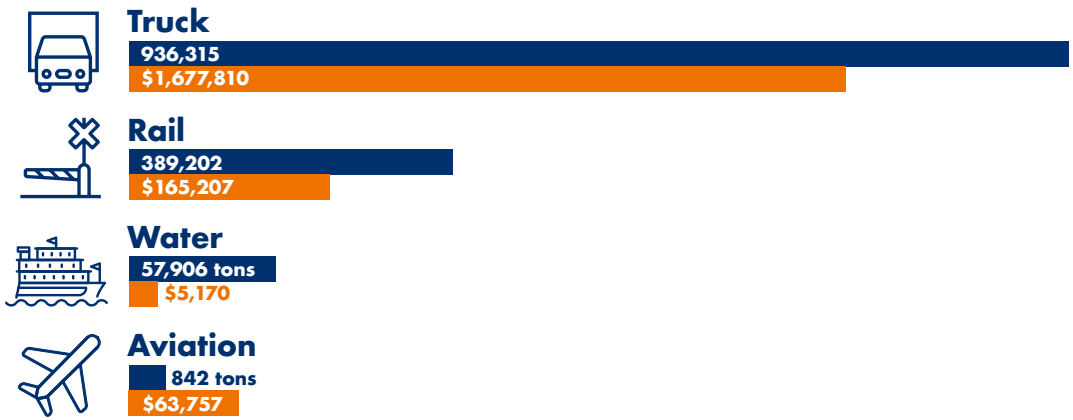
2015-2045

Source: US Census

Freight

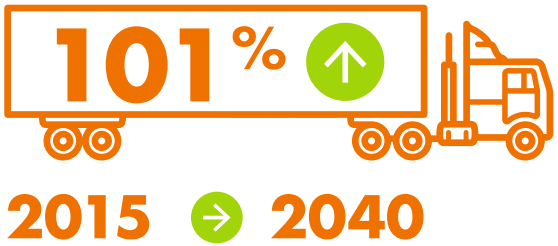
2019

VALUE (MILLIONS) | WEIGHT (THOUSAND TONS)



Growth in Truck VMT

Ohio Truck VMT for the roads in the statewide model is projected to increase 101% between 2015 and 2040.



Technology

Technology is changing how we move and our level of distraction.

Percent of US Adults 18+ Using Rideshare Apps*

Use by Community Type

45% Urban

40% Suburban

19% Rural

*at least once
Source: Pew Research Center 2018 survey

Smartphone Ownership in U.S.

Source: www.pewresearch.org/internet/fact-sheet/mobile/

Improving Safety On Local Roads

Over the past decade, Ohio has increased emphasis on providing technical resources and funding to local governments, which are responsible for maintaining and improving safety on most Ohio roads.

Ohio has 123,000 miles of road – one of the largest roadway networks in the nation. Eighty-four percent of these roads are considered local roads maintained by more than 900 cities and villages, 1,308 townships and 88 counties. The remaining 16% are considered state roads, which are maintained by ODOT.

Over half of Ohio's serious injuries and fatalities occur on local roads. From 2015-2019, 62% of all serious injuries and 53% of all traffic deaths occurred on local roads built and maintained by local governments. Almost 40% occurred on roads maintained by cities and villages.

This complex network of responsibility makes it difficult to deliver effective training, technical assistance and funding to all the jurisdictions that need it. However, Ohio safety organizations are committed to overcoming these challenges. For example, Ohio has significantly increased its investments in pedestrian and bicycle safety at the local level.

Ohio also remains committed to working with local law enforcement on high visibility enforcement targeting speed, impaired driving and increasing seat belt use.

In almost every SHSP Emphasis Area most severe injuries and fatalities occur on locally-maintained roads.

Ohio is targeting a greater share of safety funding toward arterials, which have more lanes and higher speeds. A focus on these roads is key to reducing fatalities and serious injuries in Ohio.

Fatalities and Serious Injuries by Road Type and Emphasis Area

ODOT vs. Local Roads

Emphasis Area	Local vs. State Roads		Type of Local Road			Total FSI*
	Local	State	City	County	Township	
Bicycle	85.1%	14.9%	68.0%	12.2%	4.9%	1.8%
Pedestrian	80.5%	19.5%	69.1%	8.4%	3.0%	7.0%
Intersection	69.1%	30.9%	52.9%	12.8%	3.4%	39.0%
Alcohol Impaired	62.6%	37.4%	35.9%	19.0%	7.7%	16.4%
Older Driver (65+)	55.9%	44.1%	37.6%	14.7%	3.6%	19.1%
Motorcycle	59.9%	40.1%	36.9%	17.8%	5.3%	11.5%
Speed	59.8%	40.2%	38.1%	15.6%	6.2%	24.3%
Young Driver (15 to 25)	59.6%	40.4%	37.5%	16.0%	6.1%	35.0%
Unrestrained Driver/ Occupant	56.8%	43.2%	30.9%	18.8%	7.1%	19.0%
Drug Impaired	55.7%	44.3%	32.4%	17.9%	5.5%	9.3%
Distracted Driver	54.6%	45.4%	33.1%	16.0%	5.5%	7.9%
Roadway Departure	54.2%	45.8%	26.8%	19.8%	7.6%	43.0%
Commercial Motor Vehicle (CMV)	36.2%	63.8%	24.7%	8.8%	2.7%	11.3%

**FSI: Fatalities and Serious Injuries combined*

Urban vs. Rural Roads

Emphasis Area	Urban vs. Rural Roads		Total FSI*
	Urban	Rural	
Pedestrian	89.4%	10.6%	7.0%
Bicycle	81.2%	18.8%	1.8%
Intersection	72.7%	27.3%	39.0%
Older Driver (65+)	63.6%	36.4%	19.1%
Young Driver (15 to 25)	62.5%	37.5%	35.0%
Alcohol Impaired	62.2%	37.8%	16.4%
Speed	60.9%	39.1%	24.3%
Motorcycle	60.9%	39.1%	11.5%
Drug Impaired	60.0%	40.0%	9.3%
Distracted Driver	58.0%	42.0%	7.9%
Unrestrained Driver/ Occupant	54.7%	45.3%	19.0%
Commercial Motor Vehicle (CMV)	54.2%	45.8%	11.3%
Roadway Departure	51.5%	48.5%	43.0%

Fatalities and Serious Injuries by Roadway Type

12%

Freeways

43%

Arterial Roads

27%

Collector Roads

15%

Local Roads

3%

Unknown

Performance Measure Targets

The federal Fixing America's Surface Transportation (FAST) Act established five safety performance measures and requires states to set targets for those measures to demonstrate progress toward reducing specific crashes.

Ohio has adopted a 2% reduction goal across all five measures.

Required Performance Measures

- Number of fatalities
- Number of serious injuries
- Fatality rate
- Serious injury rate
- Number of non-motorized fatalities and serious injuries

Together, these performance measures are required to foster transparency and accountability, and help organizations track safety progress at the regional, state and national levels.

The federal government uses five-year rolling averages to better calculate historical crash trends and set new targets. Five-year rolling averages are used to better predict long-term crash trends by smoothing out short-term, year-to-year fluctuations.

Ohio has adopted a 2% reduction target across all five measures, as shown in the following graphics. We selected these targets based on promising new developments in Ohio, including: a recent increase in the state gas tax that will increase safety investments by $50 million annually; new programs to increase the effectiveness of Ohio's young driver training programs; and the introduction of legislation that will modernize Ohio's distracted driving laws.

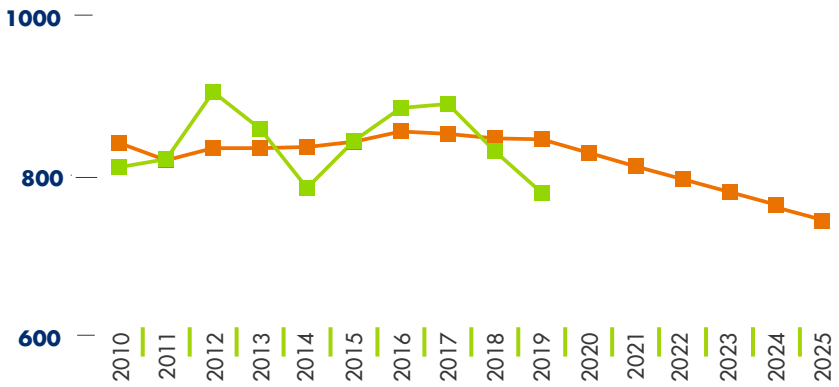
ANNUAL 5-YEAR AVERAGE

Non-Motorized

Reduce Non-Motorized Fatalities and Serious Injuries

845 → 748

By 2025



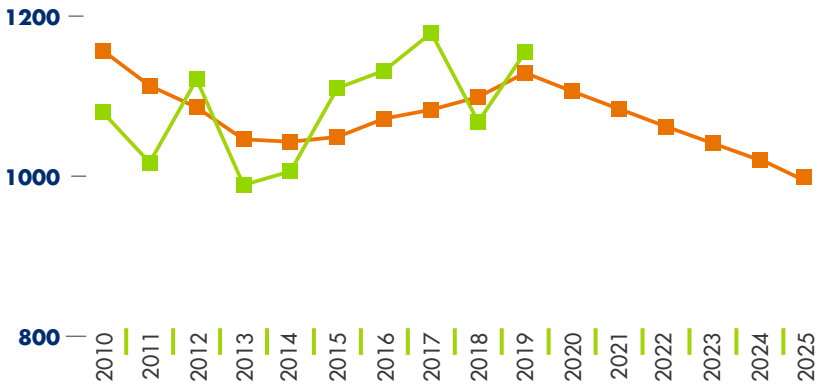
ANNUAL 5-YEAR AVERAGE

Fatalities

Reduce Fatalities

1,129 → 1,000

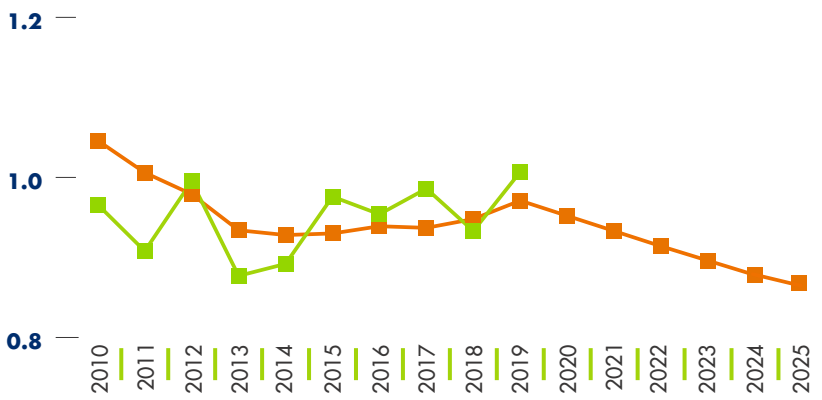
By 2025



Reduce Fatality Rate

0.97 → 0.86

By 2025

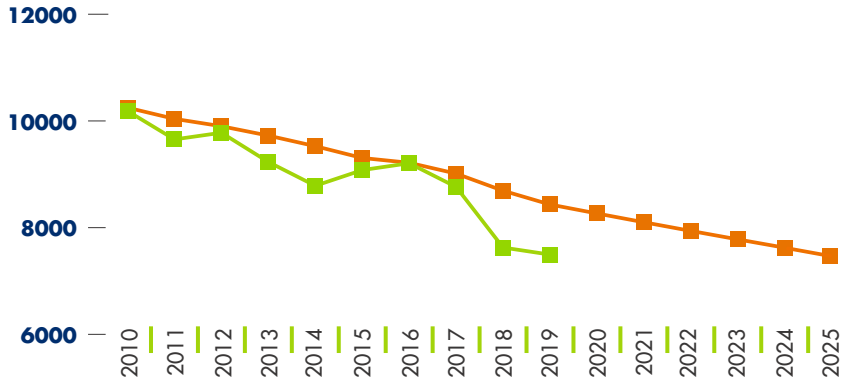


Serious Injuries

Reduce Serious Injuries

8,434 → 7,472

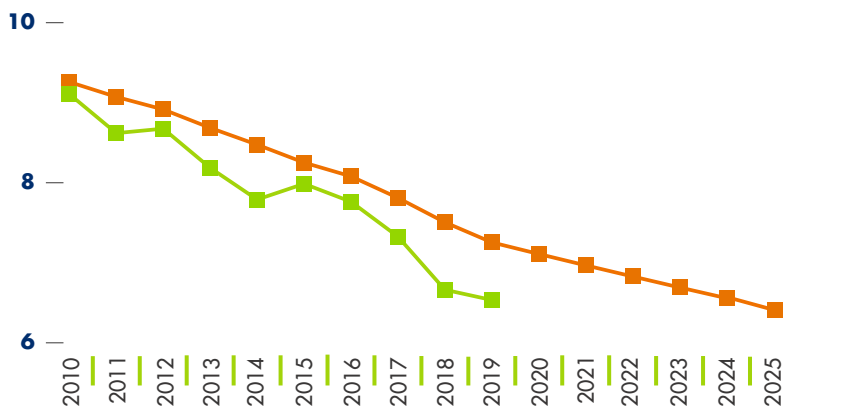
By 2025



Reduce Serious Injury Rate

7.26 → 6.43

By 2025



These performance measures assumed 1% traffic growth rate for future projections.

What are the SHSP Emphasis Areas?

Emphasis areas are a required component of any SHSP that help direct resources and focus the state's transportation safety improvement efforts on the areas of greatest need.

After a review of the data, Ohio chose to continue with most of the emphasis areas in the previous plan and add connected and automated vehicles (CAV) to link our efforts with emerging technologies that can reduce crashes. The emphasis areas are intentionally broad to connect key stakeholders across a range of crash trends that impact the lives of Ohioans.

State, local, federal and private sector stakeholders from a variety of traffic safety disciplines participated on emphasis area teams that were relevant to their interest and expertise. These teams met throughout the plan development process to review all relevant data to identify high-risk locations and behaviors, then craft strategies and actions for their emphasis area action plans that focused on improving road user safety. Teams also identified performance measures and implementation timeframes to track progress over time. The draft plans were presented to the SHSP Steering Committee for input, then finalized for inclusion in the plan (see Appendix A).

Emphasis Areas

- Roadway Departure
- Motorcycles
- Intersections
- Commercial Motor Vehicles (CMV)
- Young Drivers (15-25)
- Distracted Driving
- Speed
- Impaired
- Older Drivers (65+)
- Pedestrians and Bicycles
- Seat Belts
- Highway Railroad Crossings
- Connected Automated Vehicles
- Data

Fatalities and Serious Injuries By Emphasis Area

2015-2019

**Distracted Driving is underreported in Ohio crash data because it's difficult to prove.*

Roadway Departure

Each year in Ohio, more than half of all traffic deaths and almost half of all serious injuries involve a roadway departure.

Crashes occur when a vehicle leaves the travel lane and crosses the below lines:

46%
Centerline

42%
Edgeline

49%
Occurred in rural areas where there are more two-lane roads with curves, narrow shoulders and ditches close to the roadway.

Driver behavior and age also play a role in these crashes. Drivers who are speeding, distracted and/or impaired by alcohol or drugs often have difficulty staying on the road. In these crashes, vehicle occupants not wearing a seat belt are frequently ejected when their vehicle strikes another object or vehicle. In addition, young drivers with less experience often struggle with staying within their lane on narrow roads and may over-correct when they leave the travel lane.

Top Ohio Strategies for 2021-2025

1. Monitor, track and remove objects in right-of-way to improve roadway departure safety.
2. Identify and upgrade at-risk roads for roadway departures.
3. Provide assistance to counties and locals to improve roadway departure safety.
4. Analyze sign needs for roadway departure.
5. Review ODOT policy and standards for roadway departure crashes.

For a complete list of strategies, please see the Roadway Departure Action Plan in the appendix.

Roadway Departure Fatalities and Serious Injuries by Driver Behavior

2015-2019

44% 6,362 Alcohol & Drug

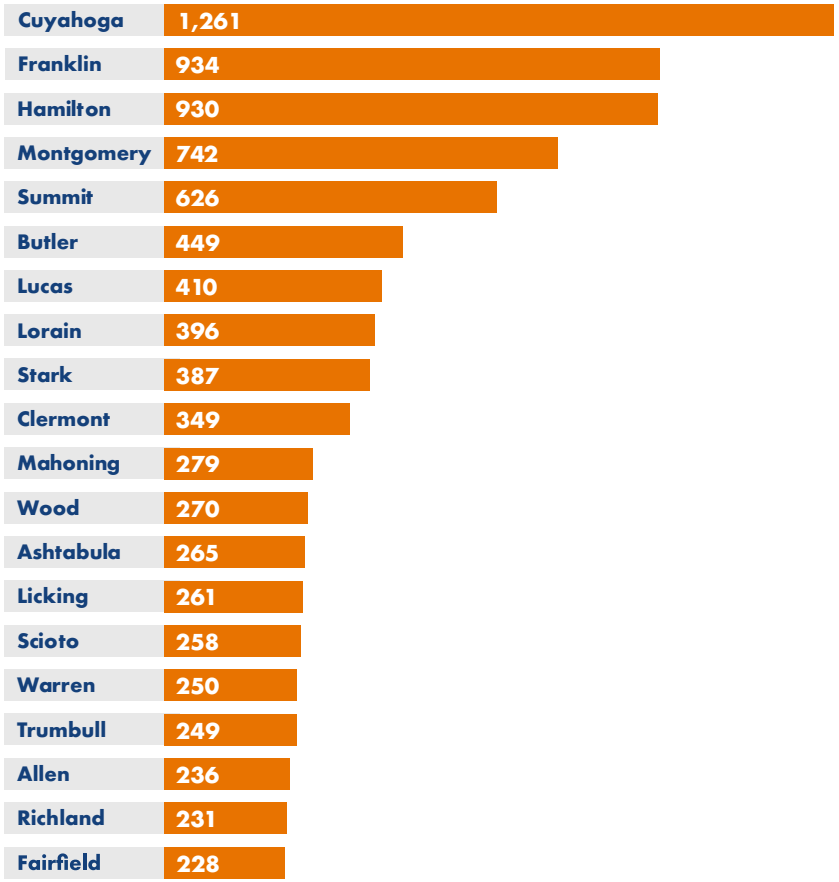
40% 5,786 Unbelted Person

41% 5,861 Speed

<25 **37%** 5,277 Young Driver

Top 20 Counties for Fatalities and Serious Injuries

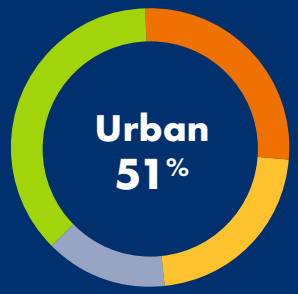
2015-2019



Roadway Departure Fatalities and Serious Injuries by Roadway Type

Urban vs. Rural

2015-2019

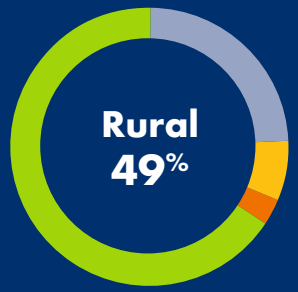


37% Two-Lane

27% Multilane

22% Interstates/ Freeways

14% Local Roads



66% Two-Lane

3% Multilane

7% Interstates/ Freeways

24% Local Roads

Intersections

Each year in Ohio, about 20% of all traffic deaths and 40% of all serious injuries occur at an intersection. About 43% of fatalities and serious injuries occur on high-capacity arterials, of which a quarter are located in cities.

Fatalities and serious injuries occurred at:

54%
Signal

43%
Stop Sign

2%
Yield Sign

1%
Flasher

Intersections are locations where two or more roads meet, and traffic moving in different directions all come together. Intersections come in many different designs, configurations and sizes.

The most common types of crashes are:

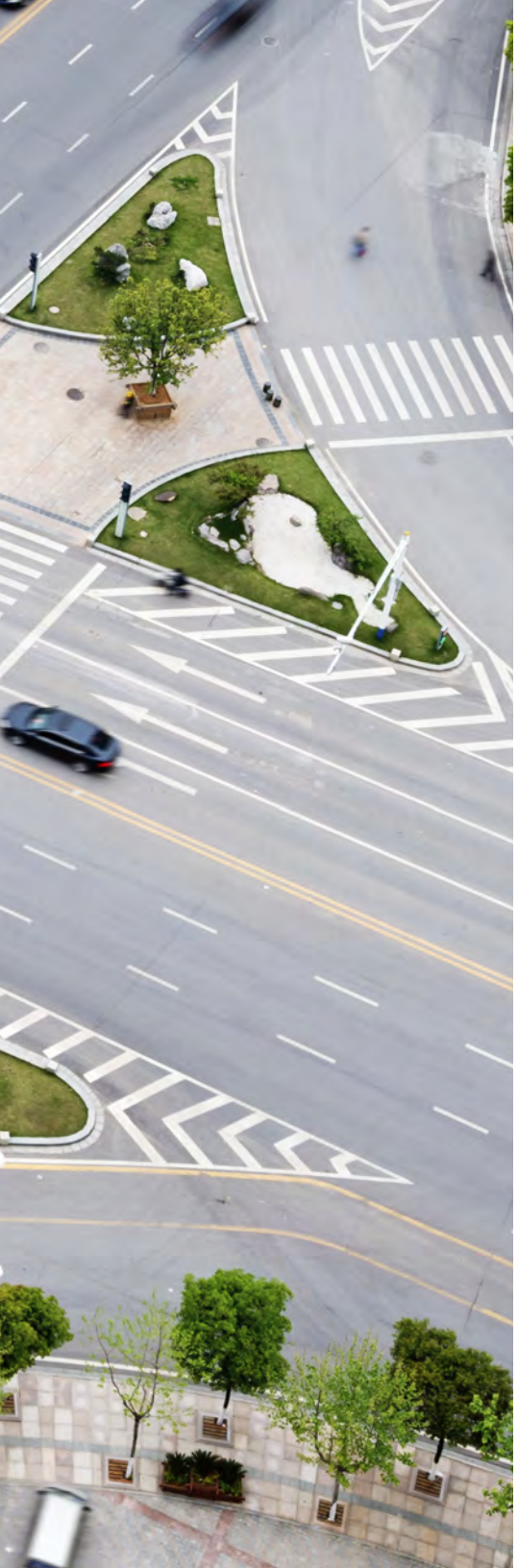
- Angle – Driver fails to yield to a driver from another direction.
- Rear end – Driver hits the vehicle in front of it.
- Sideswipe – Two vehicles traveling in the same direction collide when one or more drivers switch or drift from their lane.
- Motorcycle, bicycle and pedestrian – A driver collides with one of these road users while passing through or turning at an intersection.

Driver behavior and age also play a role in these crashes. A driver who is speeding, distracted or under the influence of alcohol or drugs is likely to have difficulty navigating intersections. Young drivers are more likely to be involved in an intersection crash than any other age group.

Top Ohio Strategies for 2021-2025

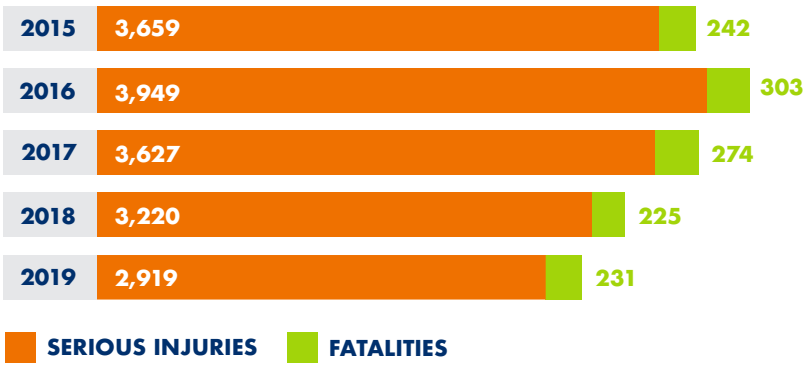
1. Advance the use of new technology that makes intersections safer.
2. Implement proven and low-cost systematic safety improvements to reduce intersection crashes.
3. Educate roadway users, especially young drivers, on the types of crashes which occur at intersections, new intersection types, signals and laws.
4. Develop and implement a comprehensive plan to address angle, left-turn, bicycle and pedestrian crashes at intersections.

For a complete list of strategies, please see the Intersection Action Plan in the appendix.



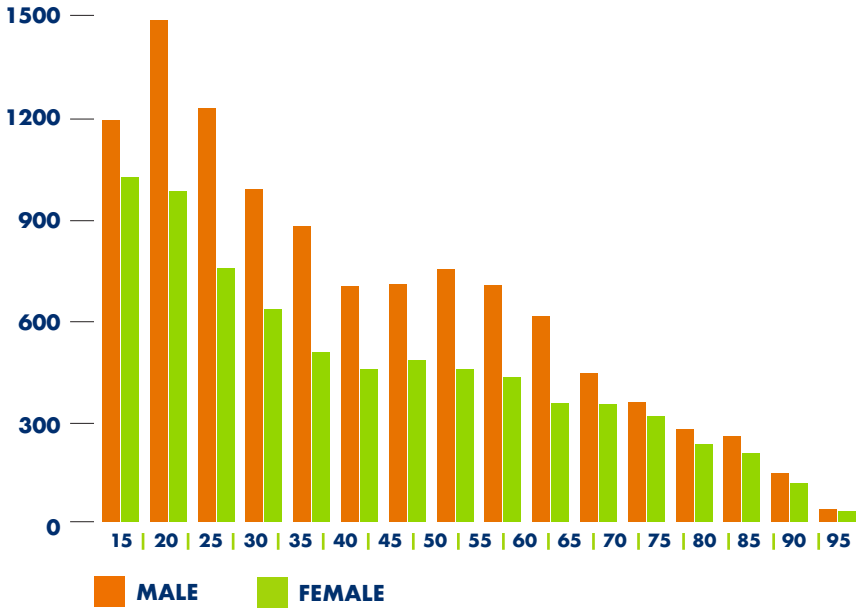
Intersection Fatalalities and Serious Injuries

2015-2019



Fatalities and Serious Injuries by At-Fault Driver Age and Gender

2015-2019



Fatalities and Serious Injuries by Location

2015-2019

64% 4-Way Intersection

27% T-intersection

3% Other

2% Y-intersection

2% Driveway/ Alley Access

2% 5 or More Point Intersection

Less than 1% of all serious injuries or fatalities occur at roundabouts.

Urban vs. Rural

73%

27%

Young Drivers
(15-25)

Crashes are the leading cause of death among young drivers (ages 15-20) nationally. In Ohio, young drivers ages 15 to 25 represent almost 30% of deaths and 35% of serious injuries each year. Young drivers are far more likely to be involved in fatal and serious crashes because they lack driving experience and tend to take greater risks.

Fatalities and serious injuries most often occur:

43%

Intersections

Crashes most often occur:

2-7 P.M.

Daily

Young drivers are the least experienced drivers on the road and the most likely to drive distracted. A NHTSA survey found that nearly half of young drivers (16-21) think they can take their eyes off the road for three or more seconds without putting themselves in danger. In addition to driving distracted, it is common for young drivers to speed, drive impaired and not wear a seat belt. The combination of these factors makes young drivers the most dangerous group of drivers on the road.

While there was a 15% reduction in young driver serious injuries, there was no significant change in fatalities from 2015-2019 in Ohio.

Of the crashes involving young drivers in Ohio between 2015 and 2019, about 60% percent were male and 40% were female. Crashes in this age group peaked at around age 22. Young drivers were most likely to crash at intersections (43%), which require more attention and complex decision making to process signs, signals, turning movements, speed and the presence of other road users. Peak times for fatalities and serious injuries were between 2-7 p.m. daily and between May and October.

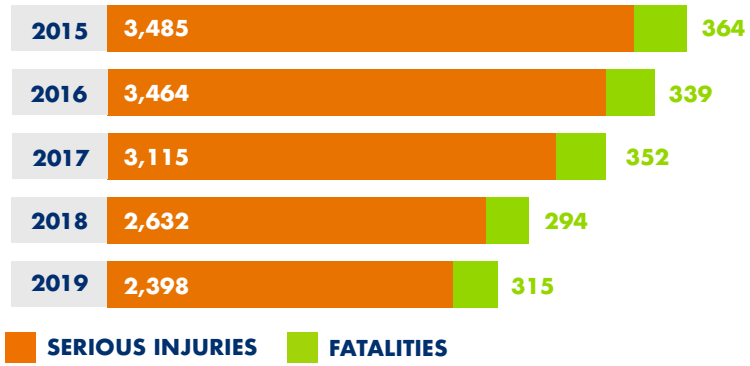
Top Ohio Strategies for 2021-2025

1. Use peer-to-peer programs to increase seat belt use and reduce risky behaviors that contribute to fatalities and injuries among teens.
2. Implement media campaigns and outreach efforts using delivery methods that reach young drivers with messages about unsafe driving practices.
3. Use new data sources to guide improvements and curriculum changes in driver training.

For a complete list of strategies, please see the Young Driver (15-25) Action Plan in the appendix.

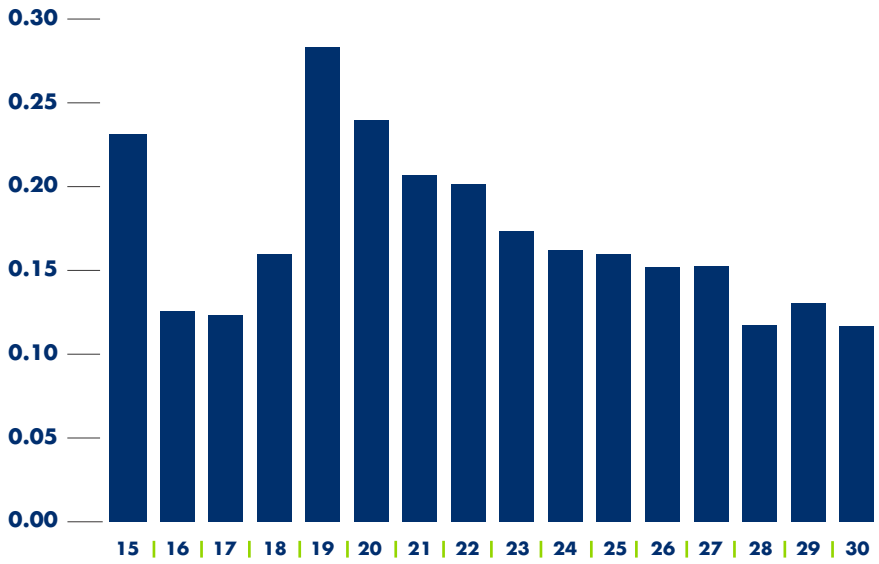
Young Driver Fatalities and Serious Injuries

2015-2019



Average Fatalities and Serious Injuries per 100 Registered Drivers by Age

2015-2019



Overlapping Emphasis Areas

2015-2019

43% Intersection

40% Roadway Departure

29% Seat Belt

29% Speed

15% Alcohol Impaired

9% Distracted*

**Distracted driving is vastly underreported in crash data because it's difficult to prove.*

Speed

Ohio consistently ranks above the national average for speed-related deaths. About 31% of traffic deaths and 23% of serious injuries each year involve speed.

Crashes occurred on:

36% ODOT-Maintained Roads

36% City-Maintained Roads

17% County-Maintained Roads

Speeding is more than just breaking the law. It endangers everyone on the road and leads to more severe injuries.

The consequences include greater potential to lose control of the vehicle, increased stopping distance when approaching an intersection or potential hazards, decreased effectiveness of seat belts and significant increase in the chances of injury and death when pedestrians and bicyclists are involved.

Even traveling at the posted speed can be unsafe. Drivers frequently travel too fast for road conditions, such as in bad weather, construction areas and at night.

Driver attitudes and cultural norms are also a major factor in decisions to speed. Individuals involved in speed-related crashes often exhibit other risk-taking behavior such as not wearing a seat belt (38%) or driving drunk (26%).

Distracted driving increasingly plays a role too. However, it's underreported in Ohio crash data.

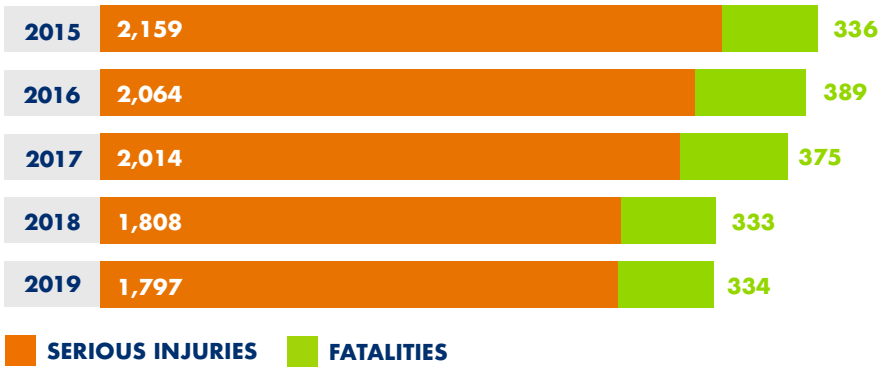
Top Ohio Strategies for 2021-2025

1. Update speed setting process for Ohio.
2. Conduct high visibility speed enforcement linked with paid and earned media at the state, county and local levels.
3. Market communication and educational messages that focus on high-risk drivers.
4. Review national research and best practices on design standards related to speed.

For a complete list of strategies, please see the Speed Action Plan in the appendix.

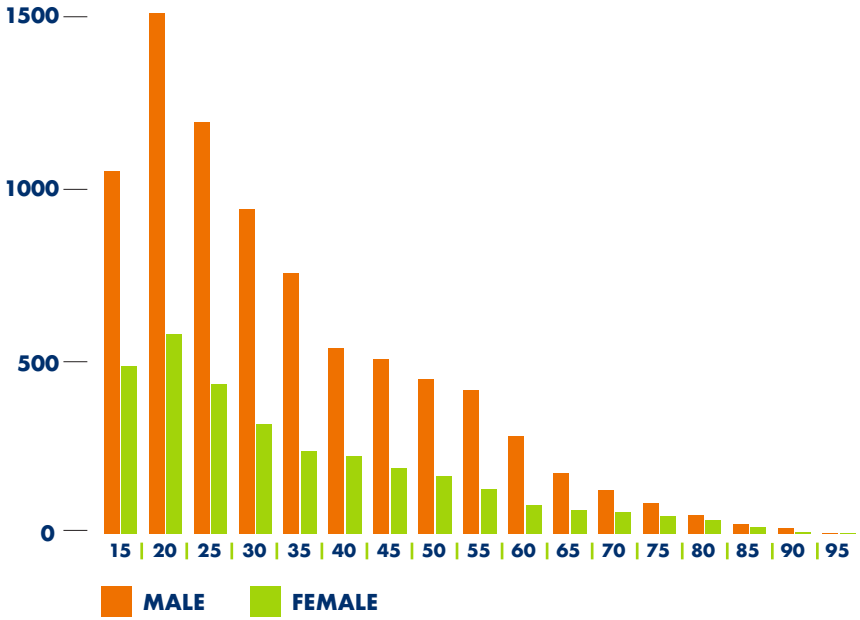
Speed Fatalities and Serious Injuries

2015-2019



Fatalities and Serious Injuries by At-Fault Driver Age and Gender

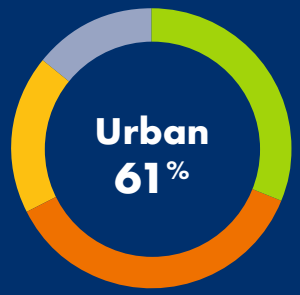
2015-2019



Fatalities and Serious Injuries by Roadway Type

Urban vs. Rural

2015-2019

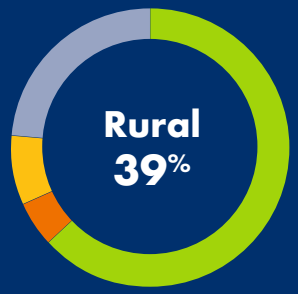


31% Two-Lane

36% Multilane

18% Interstates/ Freeways

14% Local Roads



62% Two-Lane

5% Multilane

8% Interstates/ Freeways

23% Local Roads

Impaired

Impaired driving is not only driving under the influence of alcohol, it also includes driving under the influence of illegal or prescription drugs. Alcohol and drugs are substances that can reduce the function of the brain, impairing thinking, reasoning and muscle coordination. All these abilities are essential to operating a vehicle safely.

Over the past five years:

Alcohol		Drugs	
30%	**15%**	**20%**	**8%**
Fatalities	**Serious Injuries**	**Fatalities**	**Serious Injuries**

When a driver is impaired by drugs and/or alcohol, the consequences can be deadly, not just for the driver but for their passengers, pedestrians and bicyclists, and other people sharing Ohio roads.

Combining drugs with alcohol while driving is on the rise. From 2015 to 2019, 52% of drug-impaired driving fatalities and serious injuries involved alcohol. However, only 29% of drivers impaired by alcohol were also using drugs. Of the crashes that occurred, men were were more likely than women to be driving impaired. Over the past five years, 78% of men were impaired by alcohol or drugs compared to 22% of women.

When it comes to timing, alcohol deaths and serious injuries spiked on Friday and Saturday evenings, while drugged driving was more consistent throughout the week.

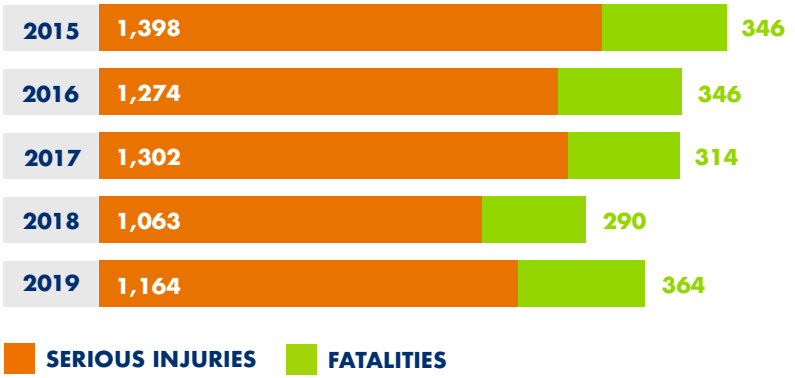
Top Ohio Strategies for 2021-2025

1. Sustain a data-driven, high visibility impaired driving enforcement program.
2. Implement an impaired driving mass media campaign and outreach efforts using delivery methods that reach specific segments of the targeted population.

For a complete list of strategies, please see the Impaired Action Plan in the appendix.

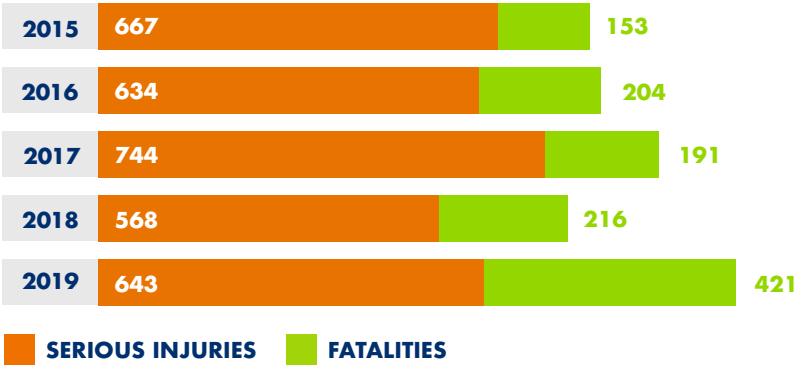
Alcohol-Impaired Driving Fatalities and Serious Injuries

2015-2019



Drug-Impaired Driving Fatalities and Serious Injuries

2015-2019



In 2019, toxicology results on the crash report were updated to match FARS.

Overlapping Emphasis Areas

2015-2019

Alcohol

64% Roadway Departure

39% Speed

31% Young Driver

29% Drug Impaired

Drugs

64% Roadway Departure

52% Alcohol Impaired

36% Speed

34% Young Driver

Older Drivers
(65+)

People age 65 or older represent the fastest-growing segment of drivers nationally and in Ohio. National projections suggest that 25% of the driving population will be 65 or older by 2025. This is one of the reasons why Ohio is experiencing an increase in traffic deaths and serious injuries involving older adults.

A decade ago		2019	
18%	15%	23%	19%
Fatalities	Serious Injuries	Fatalities	Serious Injuries

Driving helps older adults stay connected and independent, especially in rural communities with longer distances to travel and limited access to sidewalks, bike lanes and transit services. Although older adults are among the safest drivers on Ohio roads, their risk of being injured or killed in a crash increases with age. In addition, gradual changes in vision, physical and mental abilities, and the prevalence of medical conditions and medications can significantly affect their ability to drive.

In Ohio, the percentage of older adults at fault in crashes rises after age 75. National data shows that drivers age 70 and older have higher crash rates per mile than middle-aged drivers, though not as high as young drivers.

To prevent these crashes, Ohio has state and local programs and resources that can help older drivers adopt strategies to stay safe on the road, as well as find alternatives to driving if they can no longer do so safely. Communities can also help by expanding access to transit services and building age-friendly infrastructure to help drivers and provide safe spaces for older adults to walk, bike and use transit.

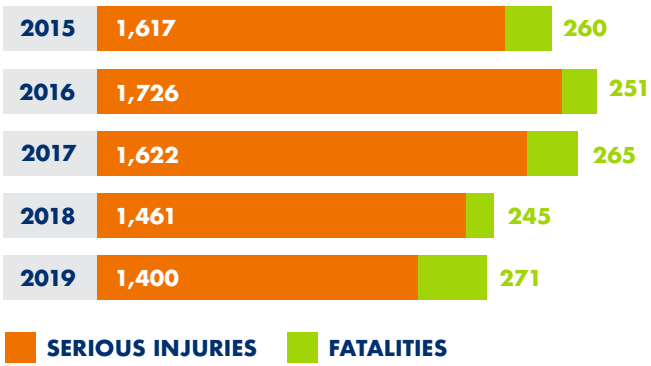
Top Ohio Strategies for 2021-2025

1. Promote the use and installation of roadway improvements that compensate for impacts of aging on safe driving.
2. Centralize and distribute information on available alternative transportation options in Ohio.
3. Increase the knowledge of medical providers, law enforcement, licensing personnel, family and caregivers on the recognition, assessment and reporting of older medically at-risk drivers.
4. Increase awareness and availability of information, resources and tools to improve older road user safety and mobility.

For a complete list of strategies, please see the Older Driver (65+) Action Plan in the appendix.

Older Driver Fatalities and Serious Injuries

2015-2019



Overlapping Emphasis Areas

2015-2019

51% Intersection

29% Roadway Departure

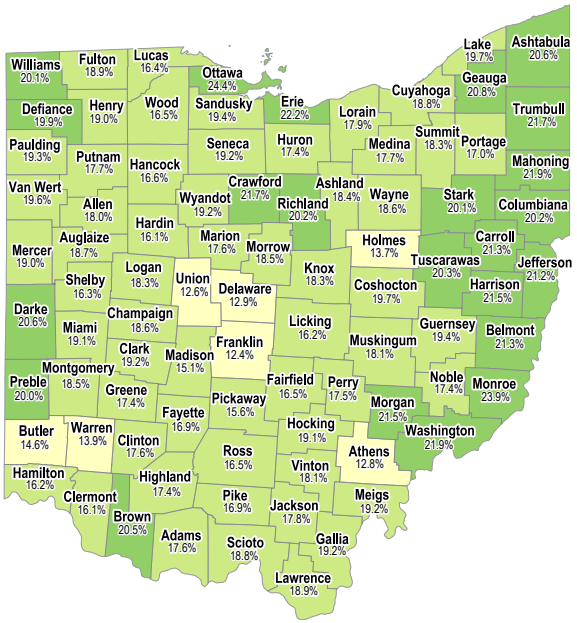
21% Young Driver (<25)

20% Seat Belt

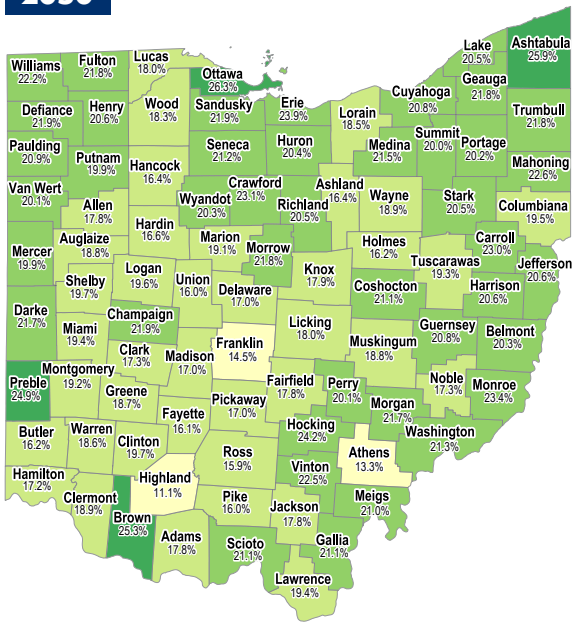
15% Speed

Population by County 65+

2020



2050



9%-14.9% **15%-19.9%** **20%-24.9%** **25% or more**

Source: Scripps Gerontology Center, Miami University

Seat Belts

Wearing a seat belt is the most effective way to prevent death and serious injury during a crash. Yet 48% of fatalities and 22% of serious injuries between 2015 and 2019 in Ohio involved drivers and passengers who were not wearing a seat belt.

Usage Rate

2019

86%
Ohio

91%
United States

Gender & Age

Males under the age of 30

Lowest Seat Belt Usage

Killed or Seriously Injured

33%
Not Buckled

2015-2019

According to the National Highway Traffic Safety Administration (NHTSA), seat belts saved nearly 15,000 lives in 2017 (most recent year available). Buckling up makes sure the driver and passengers stay in the vehicle and are not ejected in the event of a crash.

In Ohio, between 2015 and 2019, crashes involving unbelted drivers and passengers often involved young drivers and high-risk behaviors like speeding and alcohol. About 60% percent involved roadway departure where a driver left the travel lane and hit another vehicle or object. Drivers and passengers are often ejected from the vehicle because they are not wearing a seat belt.

Over the past five years, Ohio has increased its seat belt use from 84% to 86%. However, states with a primary seat belt law have higher rates. Ohio's law is secondary, which means an officer can only warn or cite a driver for not wearing a seat belt if they observe another traffic offense first.

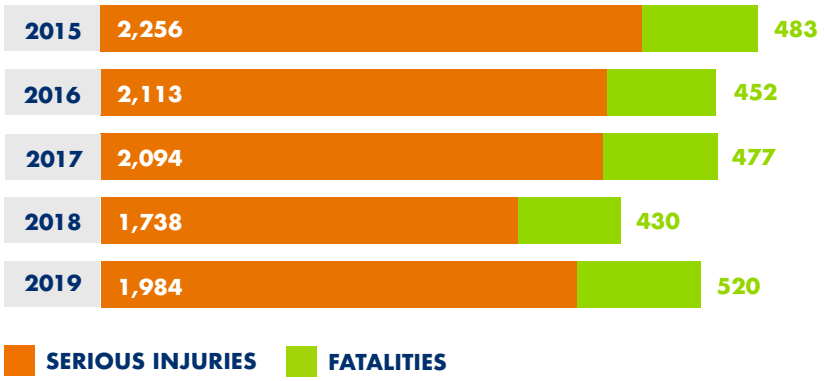
Top Ohio Strategies for 2021-2025

1. Sustain high visibility seat belt-related enforcement in jurisdictions and at times with a disproportionate number of unrestrained occupant-related fatalities and serious injuries.
2. Implement mass media campaigns and outreach efforts using delivery methods that reach specific, high-risk segments of the population to encourage seat belt use.

For a complete list of strategies, please see the Seat Belt Action Plan in the appendix.

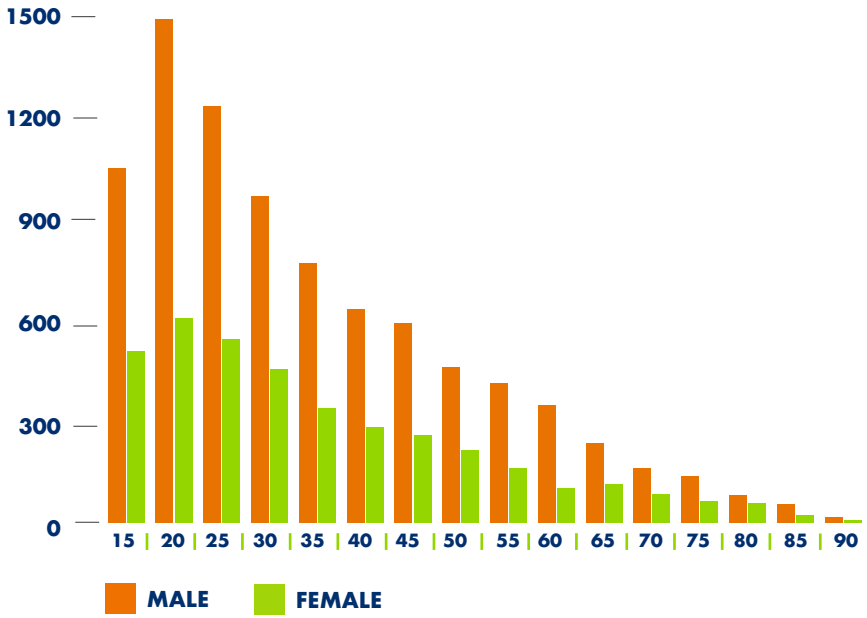
Unbelted Fatalities and Serious Injuries

2015-2019



Fatalities and Serious Injuries by Age and Gender

2015-2019



Overlapping Emphasis Areas

2015-2019

60% Roadway Departure

39% Young Driver

35% Speed

31% Intersection

27% Alcohol Impaired

Motorcycles

Motorcycles were involved in about 15% of Ohio's traffic deaths and 11% of serious injuries each year between 2015 and 2019. Yet, they represented only 3% of Ohio's registered vehicles.

Fatalities and Serious Injuries

66%

No Helmet

48%

Not Licensed/Unendorsed

2015-2019

Riding a motorcycle can be a fun, challenging and exhilarating experience, but it can also be dangerous. Riding takes balance, coordination, good judgment and the ability to react quickly to the unexpected actions of others on the road or changing roadway conditions. According to NHTSA, motorcyclists are about 28 times more likely to die in a traffic crash compared to occupants in passenger vehicles.

Motorcycle safety is a shared responsibility between drivers and riders. Motorcyclists can avoid serious crashes by being visible, well trained and by wearing a USDOT-compliant helmet to avoid serious head injuries.

Drivers are responsible for looking out for motorcycles which can be more difficult to see because of their size.

Ohio is consistently among the top five states for registered motorcycles in the country. Over the past five years, motorcycle deaths and serious injuries have fluctuated. In 59% of these crashes, the motorcycle operator was at fault. In 46% of the crashes only the motorcyclist was involved. Almost half of all deaths and serious injuries involved riders who had not been fully licensed or endorsed to operate a motorcycle.

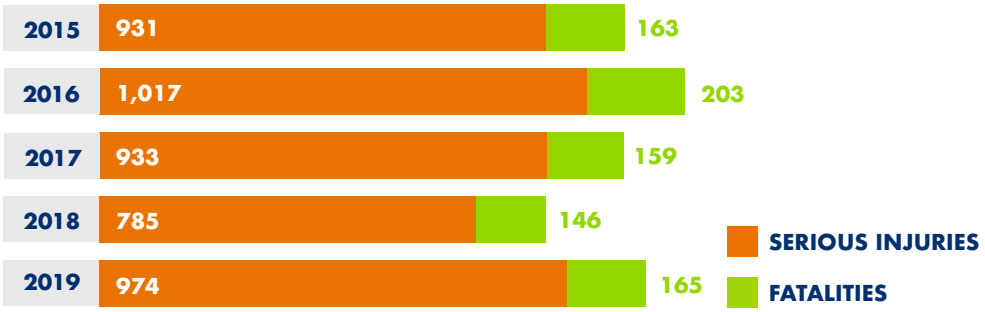
Top Ohio Strategies for 2021-2025

1. Implement paid media and outreach programs with data driven safety messages to motorcyclists and motorists.
2. Provide training to motorcycle riders on skills related to crash causation.

For a complete list of strategies, please see the Motorcycle Action Plan in the appendix.

Motorcycle Fatalities and Serious Injuries

2015-2019



Overlapping Emphasis Areas

2015-2019

37% Roadway Departure

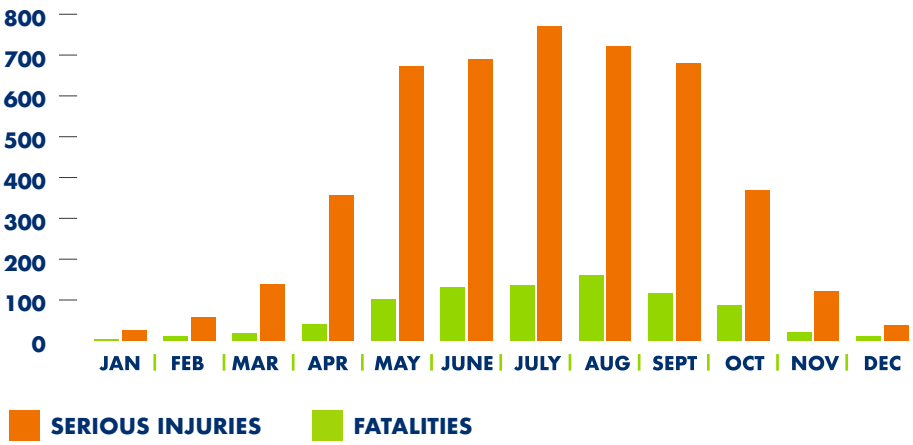
36% Intersection

25% Young Driver

24% Speed

Fatalities and Serious Injuries by Month

2015-2019



Top 10 States For Motorcycle Registration

2018

1. California **822,844**
2. Florida **587,499**
3. Ohio **409,893**
4. New York **389,404**
5. Pennsylvania **372,679**
6. Texas **349,082**
7. Wisconsin **336,410**
8. Illinois **319,764**
9. Montana **293,567**
10. Michigan **258,487**

Source: Statista

Commercial Motor Vehicles

Ohio is a crossroads for moving goods around the globe. Our state has the seventh largest population in the country, the fourth largest interstate network and is located within 600 miles of 60% of the U.S. and Canadian populations.

Percentage of All Ohio Fatalities and Serious Injuries

2015-2019

17%
Fatalties

10%
Serious Injuries

59%
Caused by Other Drivers

28%
Involved Young Drivers

The quick and reliable delivery of goods and raw materials to and from manufacturing plants, consumers and markets is critical to the Ohio economy and most of it moves by truck. About 42% of the nation's truck freight passes through Ohio each year.

As a result of this large volume of truck traffic, Ohio consistently ranks within the top 10 states in the country for traffic deaths involving commercial motor vehicles or CMVs. Each year, about 17% of all Ohio traffic deaths and 10% of serious injuries involve a CMV.

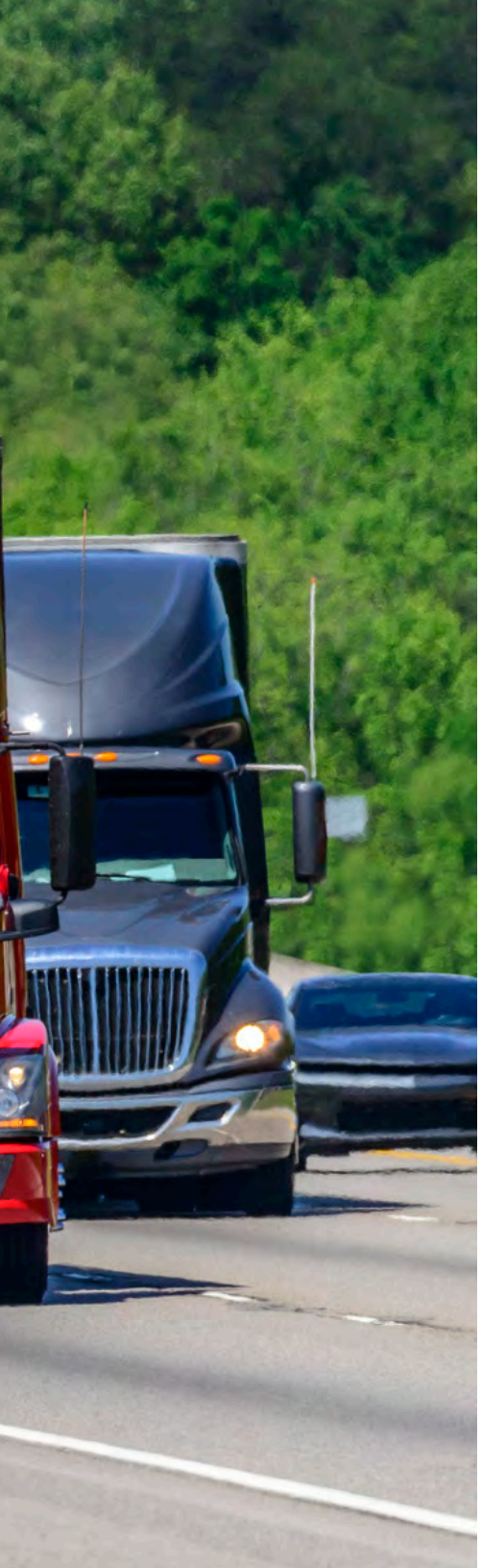
Most of the fatalities and serious injuries between 2015 and 2019 were caused by other drivers (59%). About 28% involved young drivers between the ages of 15 and 25.

These crashes can be prevented by taking simple actions like avoiding a CMV's blind spot and leaving plenty of space for a truck to slow down. Cutting in or cutting off a CMV when passing is always dangerous because it takes a CMV almost twice as long as other vehicles to stop.

Top Ohio Strategies for 2021-2025

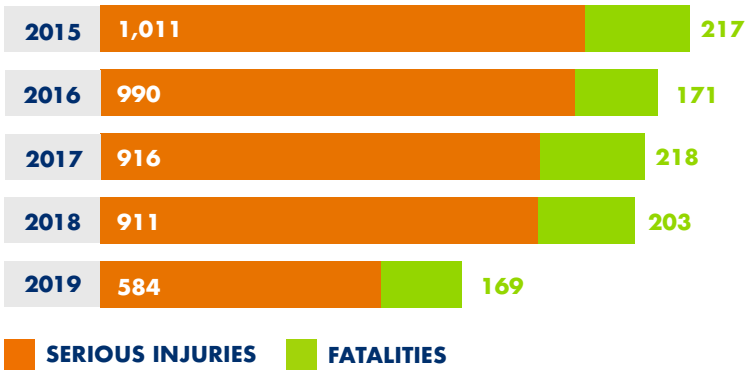
1. Provide CMV safety education and awareness activities to carriers, commercial drivers and the public.
2. Improve commercial motor vehicle safety in work zones.
3. Maintain a CMV inspection program to evaluate the safety performance of carriers.
4. Identify and investigate CMV carriers that may pose a safety risk.
5. Educate new carriers on safe roadway behaviors through the Safety Audits program.

For a complete list of strategies, please see the Commercial Motor Vehicles Action Plan in the appendix.



Commercial Motor Vehicles Fatalities and Serious Injuries

2015-2019



Commercial Motor Vehicles by Vehicles Miles Traveled

2015-2019

Year	Total VMT	VMT Cars	VMT Trucks
2015	113,673	102,783	10,890
2016	118,608	107,393	11,215
2017	119,598	107,399	12,199
2018	114,474	102,753	11,721
2019	114,694	103,385	11,309

Note: 2015 may not include all VMT; in 2018 ODOT's methodology changed to calculate local estimates

In Ohio

2015-2019

279,767 Commercial Motor Vehicle Drivers

31,000 Freight Carriers

259,762 Commercial Motor Vehicles

Serious Crashes by Road Type

2015-2019

34% Multilane Road

31% Two-lane Road

1% Turnpike

23% Interstate/ Freeway

11% Local Road

Overlapping Emphasis Areas

2015-2019

35% Intersection

35% Roadway Departure

28% Young Driver

23% Speed

19% Older Driver

Distracted Driving

Over the past five years, Ohio has seen a rise in traffic deaths despite safer vehicle technology. This rise correlates with the widespread adoption of mobile and smart phone use. More Ohioans have these devices, and they are increasingly using them behind the wheel.

Over the past five years Ohio has recorded:

92,495
Crashes

However, the total number of crashes is unknown.

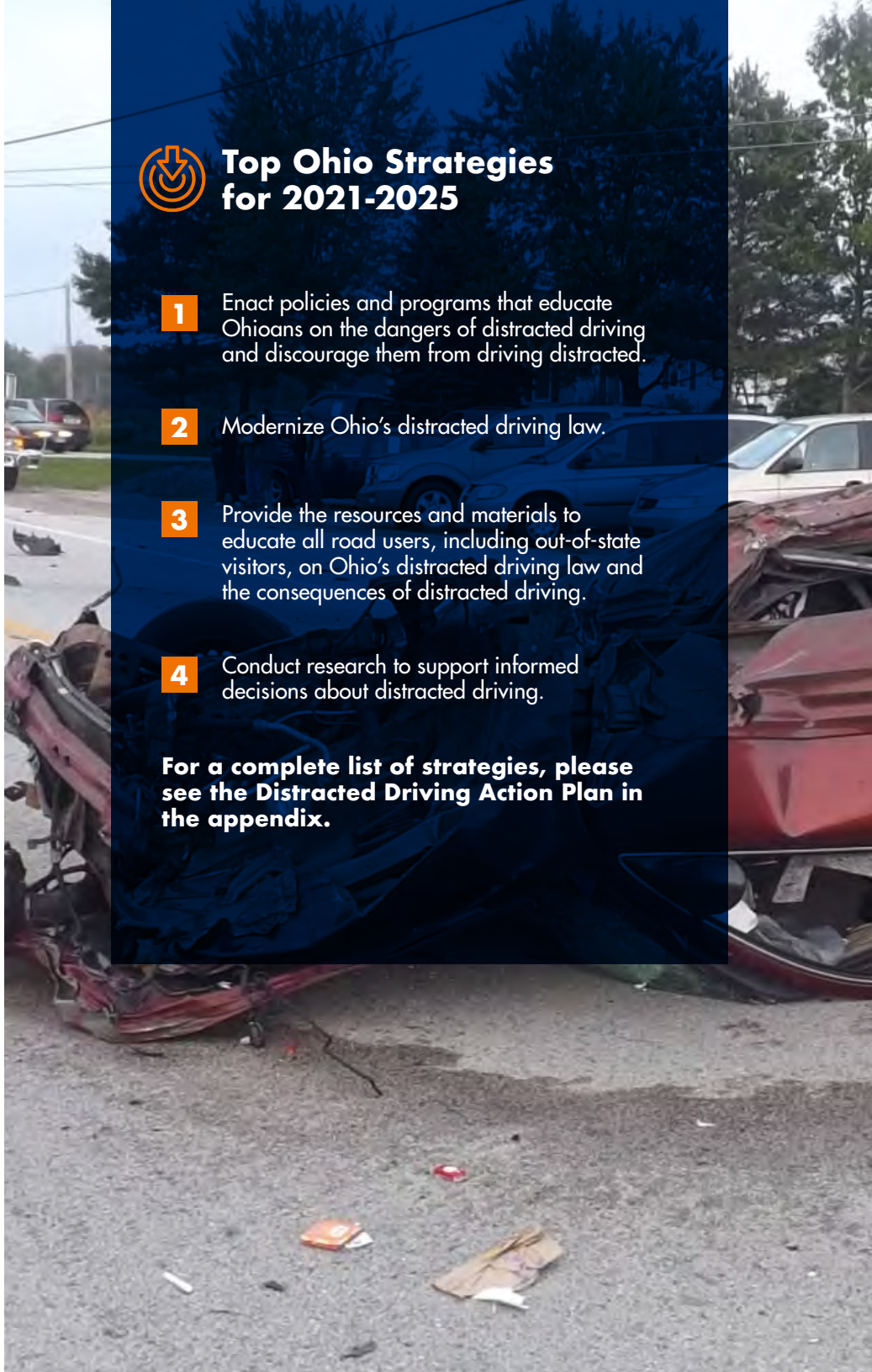
3,243
Serious Injuries

266
Fatalities

Distracted driving is difficult to prove so these crashes often get attributed to something else.

Mobile devices pose a greater threat to Ohioans than traditional distractions like drinking, eating and reaching for the radio. It's because these activities take a driver's eyes off the road and mind off driving for longer periods of time. In addition, the more complex the mobile device task the slower a driver's reaction time to potential hazards and the longer it takes a driver to refocus on driving.

This concern is documented in over a decade's worth of research that says using a mobile or smart phone device while driving significantly increases the risk of a crash.



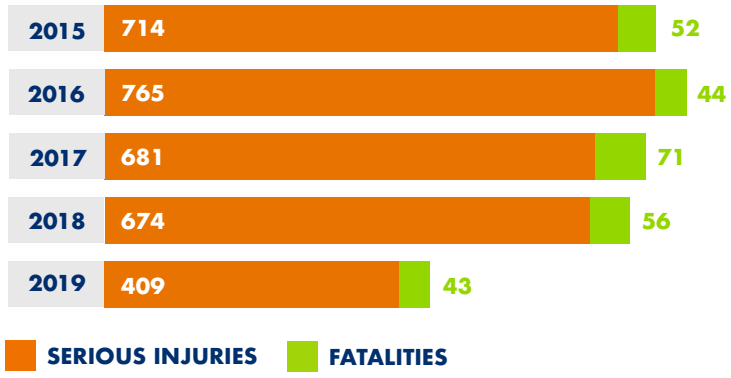
Top Ohio Strategies for 2021-2025

1. Enact policies and programs that educate Ohioans on the dangers of distracted driving and discourage them from driving distracted.
2. Modernize Ohio's distracted driving law.
3. Provide the resources and materials to educate all road users, including out-of-state visitors, on Ohio's distracted driving law and the consequences of distracted driving.
4. Conduct research to support informed decisions about distracted driving.

For a complete list of strategies, please see the Distracted Driving Action Plan in the appendix.

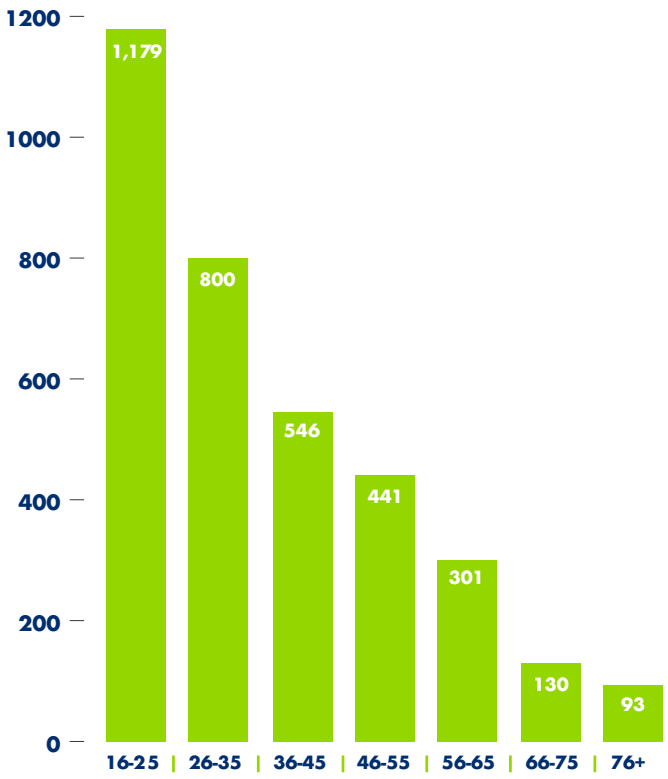
Distracted Driving Fatalities and Serious Injuries

2015-2019



Fatalities and Serious Injuries by Age Group

2015-2019



Device Ownership in U.S.

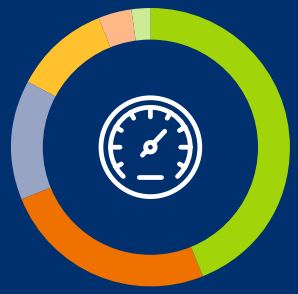
96%
Own a Mobile Phone

81%
Own a Smart Phone Capable of Complex, Computer-like Functions.

Source: www.pewresearch.org/internet/fact-sheet/mobile/

Fatalities and Serious Injuries by Posted Speed

2015-2019



4% >65 MPH
44% 55-65 MPH
14% 45-54 MPH
25% 35-44 MPH
11% 25-34 MPH
2% <25 MPH

Pedestrians and Bicycles

Walking and biking are essential modes of travel for many Ohioans, and a healthy, environmentally friendly choice for everyone. While walking and biking on separated facilities such as sidewalks or paths are generally safe, pedestrians and bicyclists are at a disadvantage when they share public roads with drivers in motorized vehicles.

Bicycle and pedestrian crashes are more likely to result in death and serious injury. In Ohio, they are on the rise.

Pedestrian

11% **Fatalities**

6% **Serious Injuries**

2015-2019 - Percentage of all Ohio fatalities and serious injuries.

Bicycle

2% **Fatalities and Serious Injuries**

Fatal and serious injuries involving pedestrians and bicyclists are concentrated on arterial roadways, primarily in urban areas. Crashes involving people walking and biking are common on roadways that lack dedicated infrastructure such as sidewalks, bike lanes, paths and marked crossings.

Driver behavior including distraction, impairment or speeding puts pedestrians and bicyclists at risk. Increased speeds also reduce driver visibility and increase stopping distance. In addition, the higher the speed of the vehicle, the less likely a pedestrian or bicyclist will survive a crash.

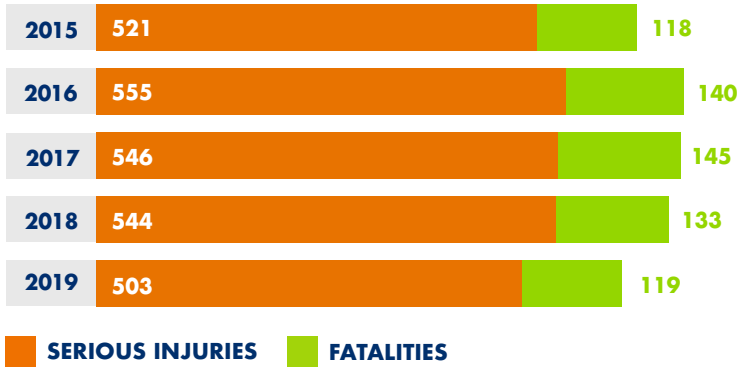
Top Ohio Strategies for 2021-2025

1. Support major projects along high-risk roadways that increase safety and address all roadway users needs.
2. Encourage reductions in vehicle miles traveled (VMT) by promoting multimodal options.
3. Provide bicycle- and pedestrian-related technical assistance and education to practitioners, including planners, engineers, law enforcement and their partners.
4. Establish an Active Transportation monitoring program.
5. Expand active transportation safety data collection and analysis.
6. Strengthen ongoing coordination and collaboration between ODOT and its local partners.

For a complete list of strategies, please see the Pedestrian and Bicycle Action Plan in the appendix.

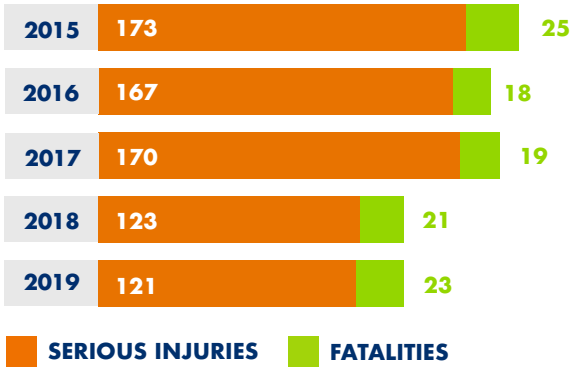
Pedestrian Fatalities and Serious Injuries

2015-2019



Bicycle Fatalities and Serious Injuries

2015-2019



Pedestrian Fatalities

Most common crash types:

- Midblock crossing
- Walking along roadway
- Through vehicle at an intersection

Bicyclist Fatalities

Most common crash types:

- Motorist failure to detect
- Ride out at an intersection
- Wrong way riding

Fatalities and Serious Injuries by Jurisdiction

2015-2019

Emphasis Area	Local vs. State Roads		Type of Local Road		
	Local	State	City	County	Township
Bicycle	80.5%	19.5%	69.1%	8.4%	4.9%
Pedestrian	85.1%	14.9%	68%	12.2%	3.0%

Highway Railroad Crossings

Ohio is a crossroads state with extensive transportation infrastructure and a dense network of railroads. There are over 5,000 miles of active rail in the state and about 123,000 miles of roadway.

4TH **Largest Number of Crossings in the Nation**

5,700 **Railroad Public Crossings**

59% **Lights and Gates**

31% **Passive Warning Systems** (such as Crossbucks)

10% **Flashing Light**

2019

Although highway railroad crashes account for less than 1% of Ohio's traffic deaths and serious injuries each year, when they occur, the consequences are tragic and severe. Because of the severity and the large number of crossings, Ohio has chosen to include highway/railroad crossing safety in the SHSP.

Over the past five years, crossing crashes involving serious injuries and deaths have decreased. Of the 38 fatalities at grade crossings between 2015 and 2019, 33 occurred at crossings equipped with lights and gates. Many of these crashes occurred because impatient drivers attempted to drive around the lowered gates or because drivers were stopped on the tracks instead of waiting to cross when the other side was clear.

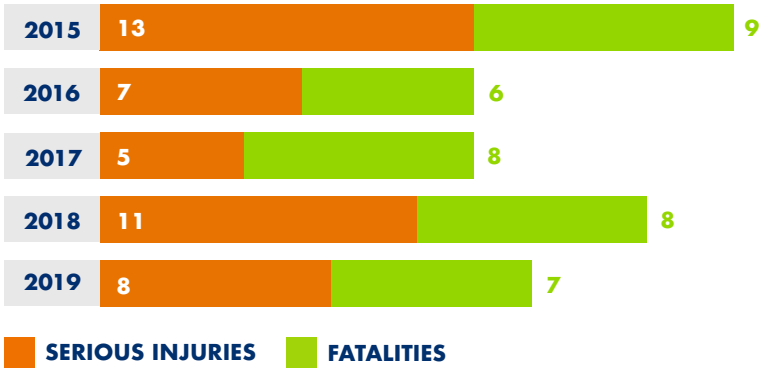
Top Ohio Strategies for 2021-2025

1. Expand the use of new and proven crash prevention methods at grade crossings.
2. Reduce the overall number of public grade crossings in Ohio.
3. Identify blocked crossing locations and take remedial action.

For a complete list of strategies, please see the Railroad Crossing Action Plan in the appendix.

Railroad Crossing Fatalities and Serious Injuries

2015-2019



Total Railroad Crossing Crashes Decreased by 7%

2015-2019

Fatalities and Injuries by Age

2015-2019

Only 75% of railroad crossing crashes are represented in this data; 25% of crash reports did not include the driver's age.

16-19	20-29	30-39	40-49
6%	22%	18%	15%

50-59	60-69	70+
16%	13%	10%

Fatalities and Serious Injuries by Warning Device

2015-2019

	Gates	Lights	Crossbucks
2015	18	0	4
2016	10	2	1
2017	12	0	1
2018	15	1	3
2019	12	1	2

Connected Automated Vehicles

As automotive technology continues to evolve, Ohioans will continue to reap the benefits in terms of safety.

According to the National Traffic Highway Safety Administration:

94% of Crashes → Involved human error

Connected and automated vehicles (CAV) can reduce the likelihood of roadway departure, speeding, distracted driving and other types of crashes.

The first wave of this CAV evolution is already here. Each year, more vehicles on Ohio roads are equipped with crash avoidance technology such as lane keeping, blind spot detection, rear backing cameras and automated braking systems.

One day, automated driving systems may eventually handle the entire task of driving, further reducing the likelihood of serious crashes caused by human error.

Today, automated or "self-driving" vehicle technologies are in research and development.

Developers are testing components and systems through simulation and modeling, controlled track testing and limited on-road testing with vehicle operators and monitors. As of 2020, at least 34 states including Ohio are engaged in on-road testing and development.

This technology and research will be integrated into Ohio's vehicle fleet and transportation network and generate new safety strategies and approaches over the next five years. As Ohio organizations like DriveOhio continue to pilot, promote and track the progress, safety advocates will be considering new opportunities to develop and apply this technology to highway safety priorities.

Top Ohio Strategies for 2021-2025

1. Increase the number of partnerships with Ohio universities and research institutions that will research new applications of technology with industry partners, with an emphasis on safety.
2. Increase the number of public/private CAV partnerships, pilots and deployments in all regions of the state.
3. Advance Ohio's work in CAV standards and specifications and the state's influence in national conversations on CAV.
4. Continue to promote and expand CAV awareness, education and training opportunities.

For a complete list of strategies, please see the Connected and Automated Vehicles Action Plan in the appendix.

Data

All states are required by law to develop an SHSP that uses safety data to identify the greatest causes of fatalities and serious injuries on public roads.

The results of the analysis are used to develop emphasis areas and strategy recommendations to reduce fatal and serious injury crashes. Data also helps highway safety stakeholders understand the challenges, set priorities and develop and evaluate programs that save lives.

Ohio's Traffic Records Coordinating Committee (TRCC), led by the Ohio Department of Public Safety, serves as the emphasis area team that works with organizations to share data, pool funding and prioritize data improvement projects.

Connecting the state's crash, roadway, injury outcome, citation and adjudication, driver, vehicle and other data also provides a clearer picture of what happens when these crashes occur and who is involved. Contributing factors give clues to the types of strategies that can prevent crashes or reduce their severity.

Ohio's guiding principle has been to "get the data right," then automate the data so anyone at any skill level can use it to make more informed decisions and better safety investments. Through the TRCC, Ohio has invested millions of dollars in roadway inventory, emergency medical services information and data analysis projects. In addition, other improvements have been developed internally at various agencies.

Knowing how, when, where, who and why crashes have occurred are the foundation of a comprehensive system analysis.

Top Ohio Strategies for 2021-2025

1. Improve data collection and management.
2. Improve data accessibility for the public and agency partners.
3. Enhance data integration to link various safety-related data sets.
4. Provide data analysis support to public and agency partners.

For a complete list of strategies, please see the Data Action Plan in the appendix.

Safety Partners

Ohio is fortunate to have a wide range of organizations and advocates working to reduce traffic fatalities and injuries.

This network of supporters provided critical input throughout the development of Ohio's Strategic Highway Safety Plan. Their insight and experience helped Ohio develop an updated plan that identifies a broad range of strategies encompassing engineering, education, enforcement and emergency response.

The agencies and organizations listed here deserve to be recognized for their contributions to this plan and continued commitment to improving traffic safety across Ohio.

List of Partners

- AAA
- AARP
- American Bikers Aimed Toward Education of Ohio (ABATE)
- Area Agencies on Aging
- City and County Health Departments
- County Engineering Offices
- County Engineers Association of Ohio (CEAO)
- County Sheriff's Offices
- County Veterans Service Commission
- DriveOhio
- Federal Highway Administration (FHWA)
- Federal Motor Carrier Safety Administration (FMCSA)
- Hospitals throughout Ohio
- Local Government Officials
- Metropolitan Planning Organizations (MPOs) and other Regional Planning Agencies
- Motorcycle Ohio
- Municipal Engineering Departments
- Municipal Police Departments
- National Highway Traffic Safety Administration (NHTSA)
- Ohio Association of Regional Councils (OARC)
- Ohio Bicycle Federation
- Ohio Department of Aging (ODA)
- Ohio Department of Education (ODE)
- Ohio Department of Health (ODH)
- Ohio Department of Natural Resources (ODNR)
- Ohio Department of Public Safety (ODPS)
- Ohio Department of Transportation (ODOT)
- Ohio Local Technical Assistance Program (LTAP)
- Ohio Operation Lifesaver
- Ohio Rail Development Commission (ORDC)
- Ohio Students Against Destructive Decisions (SADD)
- Ohio State Highway Patrol (OSHP)
- Ohio Turnpike and Infrastructure Commission
- Public Transit Agencies
- Public Utilities Commission of Ohio (PUCO)
- Safe Communities Programs
- Universities and Colleges throughout Ohio
- YMCA

High Risk Rural Roads

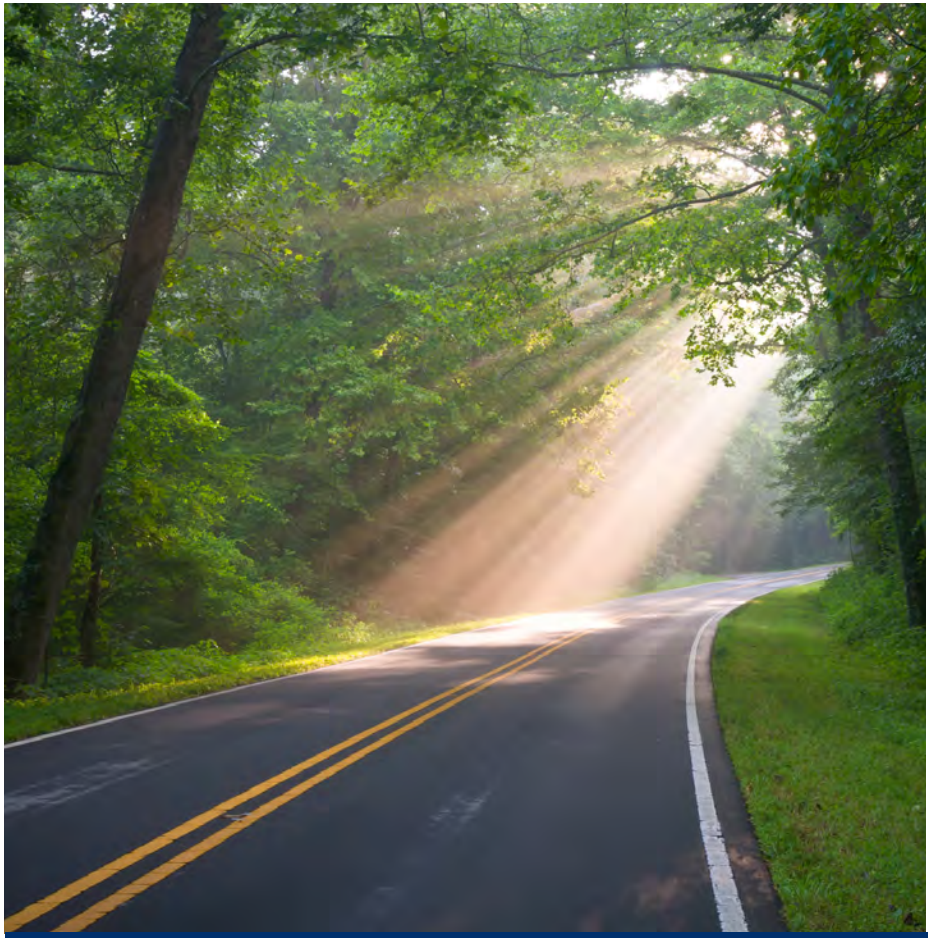
High risk rural roads (HRRR) are defined in Ohio as rural roadways, including county and township roads, that have a higher fatal and injury crash frequency than roads with similar characteristics. These rural roadway types include rural major or minor collectors, or rural local roads.

Each year, ODOT prioritizes roadway locations for safety study or review. Ohio was one of the first states in the country to fully implement AASHTOWare's Safety Analyst software to prioritize safety locations across Ohio. Safety Analyst uses state-of-the-art statistical methodologies to identify roadway locations with the highest potential for reducing crashes. The software flags intersections and road segments that have higher-than-predicted crash frequencies. It also flags locations for review based on crash severity. This methodology is more efficient and cost effective and allows the department to study fewer locations yet address more crashes each year. In addition, because Ohio has a large Amish population, ODOT also reviews roadway locations which have resulted in Amish-related crashes for possible safety study or review.

ODOT typically studies up to 200 locations across the state annually. These locations are grouped by type of roadway including the following rural roads:

- Rural Intersection
- Rural Segment – Non Freeway
- Rural Freeway

The federal Moving Ahead for Progress in the 21st Century Act (MAP-21) legislation eliminated the set-aside funding for the HRRR program, and established a special rule for high risk rural road safety. This rule, which was continued with the Fixing America's Surface Transportation Act (FAST Act), requires states to monitor fatality rates on rural roadways and obligate a specified amount of funding for high risk rural roads if the fatality rate increases over the most recent two years of data. This special rule does not currently apply to Ohio.



Ohio was one of the first states in the country to fully implement AASHTOWare's Safety Analyst software to prioritize safety locations across Ohio.

Appendix A

Emphasis Area Action Plans

The Emphasis Area Action Plans are based on relevant data that identified high-risk locations and behaviors. They include strategies, actions, performance measures and timelines. All with a focus on improving road user safety.

Ohio's SHSP Emphasis Area Action Plans include:

- Commercial Motor Vehicles (CMV)
- Connected Automated Vehicles
- Data
- Distracted Driving
- Highway Railroad Crossings
- Impaired
- Intersections
- Motorcycles
- Older Drivers (65+)
- Pedestrians and Bicycles
- Roadway Departure
- Seat Belts
- Speed
- Young Drivers (15-25)

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Commercial Motor Vehicles Action Plan

Emphasis Area Leader: Alan Martin, PUCO

Strategy #1: Maintain a commercial motor vehicle (CMV) inspection program to evaluate the safety performance of carriers.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
1.1	OSHP and PUCO	Implement a six level inspection program, which conducts inspections at the roadside, or at appropriate facilities, to evaluate the safety of the drivers and vehicles of CMV carriers operating in Ohio.	- Number of inspections conducted and reported in the national database annually	Year 1, ongoing

Strategy #2: Identify and investigate CMV carriers that may pose a safety risk.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
2.1	PUCO	Conduct off-site document reviews to identify specific carrier safety performance and compliance problems.	- Number of off-site reviews conducted annually	Year 1, ongoing
2.2	PUCO	Conduct on-site reviews at a carrier's place of business, including employee interviews and vehicle inspections, when specific safety performance and compliance problems are identified.	- Number of on-site reviews conducted annually	Year 1, ongoing

2.3	PUCO	Conduct comprehensive reviews of the entire safety operation of a carrier, including employee interviews and vehicle inspections, when significant safety performance and compliance problems are identified.	- Number of comprehensive reviews conducted annually	Year 1, ongoing

Strategy #3: Educate new carriers on safe roadway behaviors through the Safety Audits program.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
3.1	PUCO	Conduct on- or off-site Safety Audits with all new interstate motor carrier companies to ensure they understand safe behaviors on the roadway and the federal and state regulations that motor carriers are required to follow.	- Number of on-site safety audts conducted annually - Number of off-site audits conducted annually	Year 1, ongoing

Strategy #4: Provide CMV safety education and awareness activities to carriers, commercial drivers and the public.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
4.1	PUCO and OSHP	Provide safety talks to industry personnel at carrier facilities or in a public forum.	– Number of safety talks given to the industry annually	Year 1, ongoing
4.2	PUCO and OSHP	Implement the "Just Drive" program assembled by the Training, Research and Education for Driving Safety (TREDS) to address commercial vehicle distracted driving.	- Number of program presentations delivered annually - Number of individuals participating in the program annually	Year 1, ongoing
4.3	PUCO	Present information at meetings of the state trucking association about what will help improve safety.	- Number of meetings each year where safety topics are addressed with membership	Year 1, ongoing
4.4	OSHP	Set up a State Fair display and provide information to the public on commercial vehicle safety.	- Number of materials distributed annually	Year 1, ongoing

Strategy #5: Improve commercial motor vehicle safety in work zones.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
5.1	ODOT	Review statewide standards and policies for accomodating CMVs in work zones.	- Current policies reviewed - Recommendations distributed	Year 1, 6 months Year 1, 3 months
5.2	ODOT	Create and disseminate educational materials on the importance of giving CMVs more space in work zones.	- Materials developed and distributed	Year 2, 3-6 months
5.3	ODOT	Explore the use of in-cab communications to communicate work zones safety messages to CMV drivers.	- Use of communications and protocols studied - Study results and recommendations distributed	Year 2, 6-12 months

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Connected and Automated Vehicles Action Plan

Emphasis Area Leader: Andrew Bremer, DriveOhio

Category: **CAV Planning and Research**

Strategy #1: Increase the number of partnerships with Ohio universities and research institutions that will research new applications of technology with industry partners, with an emphasis on safety.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timframe
1.1	Rich Granger, Nick Hegemier; DriveOhio; TRC; Ohio Department Higher Education	Establish a long-term program with the Ohio Department of Higher Education with emphasis on research of new safety applications and deployments of smart mobility technologies with industry and government partners.	- Long-term higher education program established	Year 1, 2 years
1.2	Rich Granger, Nick Hegemier; DriveOhio; TRC; Ohio Department Higher Education	Set up and maintain active partnerships with Ohio higher educational institutions, research institutions and PreK-12 STEM education partners each academic year (preferably across various regions), with emphasis on safety applications and deployments of smart mobility technologies.	- Number of partnerships	Year 1, ongoing
1.3	Nick Hegemier, DriveOhio; Mitch Blackford, ODOT	Finalize construction of the US33 Smart Mobility Corridor according to project specifications to allow for open road testing of automated and connected vehicle applications and smart infrastructure.	- Corridor constructed according to project specifications by Q3 of 2020.	Year 1, ongoing
1.4	DriveOhio/Ohio DOT Team Project Lead Nick Hegemier; DriveOhio Project Manager Andrew Wallace	Conduct automated vehicle (AV) research projects with other states through the ODOT-led pooled fund study for AVs. Partner with the Virginia-led connected vehicle (CV) pooled fund study, where applicable, to join both CV and AV technology to advanced Cooperative Automated Vehicle technology.	- Number of project outcomes incorporated into national practices/approaches. - Number of states particiating in the pooled fund	Year 1, ongoing

1.5	Tim McDonald, ODOT Planning; Patrick Smith, DriveOhio	Hold regular, quarterly meeting between ODOT Planning and Research and DriveOhio to link DriveOhio Pilots and Deployments to ODOT Planning and Research goals and objectives.	- Number of quarterly meetings held - Number of goals and objectives identified/resolved by potential DriveOhio applications/projects	Year 1, ongoing
1.6	Tim McDonald, ODOT Planning; Patrick Smith, DriveOhio	DriveOhio pilots and deployments will coordinate with ODOT Planning and Research on specific projects	- Number of DriveOhio and ODOT coordinated projects	Year 2, ongoing

Category: CAV Pilots and Deployments

Strategy #2: Increase the number of public/private CAV partnerships, pilots and deployments in all regions of the state.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timframe
2.1	Nick Hegemier, DriveOhio; NW 33 COG Engineers	Pilot, test and deploy connected vehicle applications as specified by the 2016 ATCMTD grant and other application pilots in development on the US33 Smart Mobility Corridor.	- Number of tested applications and technologies piloted on the US33 Corridor	Year 1, ongoing
2.2	Nick Hegemier, DriveOhio; Captain Alwine, Ohio Highway Patrol (OSHP)	Deploy 15 on board units (OBUs) in partnership with the OSHP.	- Number of OBUs deployed within ODOT - Number of OBUs deployed on government vehicles outside of ODOT	Year 2, 6 months to 1 year
2.3	Ohio County Engineers Association; Ohio Municipal League; Ohio Mayors' Alliance	Increase the number of municipalities that sign on to the DriveOhio MOA to allow testing and deployment of CAV technology in their jurisdiction.	- Number of new MOA signatories each year - Number of deployments each year	Year 1, ongoing
2.4	Nick Hegemier, DriveOhio; TRC	Increase the number of partnerships with private sector innovators to research and develop solutions to transportation issues each year.	- Number of partnerships each year - Number of demonstrations each year	Year 1, ongoing
2.5	Cynthia Jones, DriveOhio; FMCSA	Capture data on rural automated vehicle deployment of passenger vehicles and commercial vehicles, leveraging work on Ohio's US DOT Automated Driving Systems grant project (DATA in Ohio).	- Number of use cases tested and captured - Number of cases uploaded with CARMA collaboration - Number of miles driven on public roadways	Year 2, ongoing

Category: CAV Standards and Specifications

Strategy #3: Advance Ohio's work in CAV standards and specifications and the state's influence in national conversations on CAV.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
3.1	ODOT ITS; DriveOhio; CEAO	Roll out the statewide Systems Engineering Analysis (SEA) for CV/AV technology to local partners.	- SEA updated and accessible to local partners - Number of local partners utilizing SEA	Year 2, 6 months to 1 year
3.2	Nick Hegemier, DriveOhio; ODOT ITS	Participate in nationally recognized groups, associations, and organizations to influence national conversations on CAV.	- Number of meetings attended - Number of presentations at national CAV meetings	Year 1, ongoing
3.3	Nick Hegemier, DriveOhio; ODOT ITS	Influence and produce whitepapers, speicifcations, and standards that are promoted by nationally-recognized groups, associations and organizations.	- Number of whitepapers, specifications and standards produced	Year 3, ongoing
3.4	ODOT SPR; DriveOhio	Expand participation in the Smart Belt Coalition and increase the number of membership states with specific, active projects.	- Number of active projects and demonstrations that span across state boundaries	Year 2, 1 to 2 years
3.5	Fred Judson, DriveOhio UAS	Finalize and implement the ODOT TSMO plan which standardizes the use of Unmanned Aircraft Systems (UAS) in traffic management and safety applications to further integrate UAS into ODOT's traffic management and business functions.	- TSMO plan released which standardizes the use of UAS in traffic management - Number of safety applications implemented	Year 1, 6 months to 1 year

Category: CAV Education and Awareness

Strategy #4: - Continue to promote and expand CAV awareness, education and training opportunities.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
4.1	Edgar Avilla, AAA NW Ohio; Rich Granger, DriveOhio	Continue to promote and expand the "Technology Takes the Wheel" seminar series produced by AAA and university partners and conduct events each year across different regions of Ohio.	- Number of locations where "Technology Takes the Wheel" is offered - Number of "Technology Takes the Wheel" events per year	Year 2, ongoing

4.2	Edgar Avilla, AAA NW Ohio; Rich Granger, DriveOhio	Work with DriveOhio Alliance partners, including TRC and AAA, to expand national partnerships with organziations including the PAVE Coalition (Partners for Automated Vehicle Education) to co-develop programming on topics related to AV safety education and co-host at least one event per year in Ohio.	- Finalize DriveOhio's membership on PAVE public sector steering group - Number of events co-hosted in Ohio with PAVE and other DriveOhio Alliance partners	Year 1, ongoing
4.3	ODOT Planning; DriveOhio	Plan and execute Ohio's Smart Mobility Summit in various locations statewide on an annual basis.	- Smart Mobiliy Summits conducted annually	Year 2, annually
4.4	ODOT Communications; Luke Stedke, DriveOhio	Present the DriveOhio message to other organizations and expand partnerships with local organizations, trade groups, industry associations, etc.	- Number of presentations per year - Number of new partnerships per year - Number of webinars and events per year	Year 2, ongoing
4.5	ODOT Equipment and Facilities; DriveOhio; ODOT Employee Development and Learn	Develop training programs for the deployment of CV technology and conduct training sessions with ODOT, Ohio Turnpike and local infrastructure maintenance personnel.	- Number of people in Ohio that have received training from the materials developed - Number of people outside of Ohio that have received training from the materials developed - Number of educational programs actively using the training materials in their curriculum (number of students recieved training certification)	Year 2, 1 - 2 years

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Data Action Plan

Emphasis Area Leader: Derek Troyer, ODOT

Strategy #1: Improve data collection and management.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
1.1	Ohio Department of Public Safety (ODPS)	Promote the Ohio Law Enforcement Information System (OLEIS) program and work with third party vendors to report crashes electronically to the state.	- Number of electronic crash submissions annually	Ongoing
1.2	ODPS	Expand the electronic citation program by collaborating with vendors and court systems.	- Number of law enforcement agencies participating in electronic citation annually	Ongoing
1.3	ODPS/BMV	Transition paper forms for Bureau of Motor Vehicle (BMV) vehicle and driver information to an electronic format.	- Number vehicle and driver record forms converted - Percent increase in accurracy of vehicle and driver record forms annually	Year 1, ongoing
1.4	ODPS/EMS	Complete the Emergency Management Services (EMS) Incident Reporting System (EMSIRS) system update.	- Number of EMS agencies reporting to EMSIRS annually	Year 1, ongoing
1.5	ODOT	Collect Model Inventory Roadway Elements (MIRE) to support SHSP Emphasis Area Action Steps	- Number of attributes added	Year 1, ongoing
1.6	ODOT	Increase traffic counts on local roads.	- Number of short term counts on local roads	Year 2, ongoing
1.7	ODPS	Develop a web-based crash reporting system to increase submission of electronic crash data.	- Web-based crash reporting system created	Year 3, 2 years

Strategy #2: Improve data accessibility.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
2.1	ODPS	Increase data sharing agreements with researchers.	- Number of agreements signed	Year 1, ongoing
2.2	ODPS, ODOT	Leverage outside data sources to advance analysis capabilities.	- Number of alternative data sources integrated	Year 1, ongoing
2.3	ODPS	Provide crash data extract as a webservice.	- Crash data extracts service established	Year 2, 1 year
2.4	ODPS	Provide citation data to agency partners.	- Number of citation data extracts provided to other agencies for review	Year 2, ongoing
2.5	ODOT	Distribute real time travel data to inform motorists of driving conditions through mobile or vehicle applications.	- Number of external agencies consuming ODOT-verified travel data	Year 3, ongoing
2.6	ODPS/EMS	Implement reporting of all EMS activations to the National Emergency Medical Services Information System (NEMSIS).	- Number of activiations sent to the national database	Year 3, ongoing

Strategy #3: Enhance data integration.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
3.1	ODPS/BMV	Complete state-to-state driver license connectivity (one license for one individual).	- Implementation complete	Year 1, 2 years
3.2	ODPS, ODOT	Update the crash location mapping tool for the OLEIS and Ohio Trooper Information System (OTIS).	- Software update implemented for both software applications	Year 2, 1 year
3.3	ODPS, PUCO, ODOT	Link Public Utilities Commission of Ohio (PUCO) evaluated commercial motor vehicle (CMV) reporting to original crash record.	- Electronic connection to crashes reported as CMV crashes created	Year 2, 1 year

3.4	ODPS/EMS, ODOT	Link medical professional injury evaluation reports to the associated crash report.	- Number of medical professional injury evaluation reports linked to a crash report annually	Year 3, ongoing
3.5	ODPS	Conduct a pilot study for linking court adjudication records to the statewide citation repository.	- Methodology to create linkages developed	Year 3, 2 years
3.6	ODPS	Link citation, crash, vehicle and driver data sets so that data can be more efficiently analyzed for enforcement decisions and traffic safety mitigation.	- Methodology to create linkages developed	Year 3, 2 years
3.7	ODPS	Link Blood Alcohol Concentration (BAC)/drug toxicology results to Operating a Vehicle Under the Influence (OVI) arrest records electronically.	- System link OVIs to BAC/drug toxicology results created Number of OVIs linked to BAC/drug toxicology results annually	Year 3, ongoing

Strategy #4: Support data analysis efforts.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
4.1	ODOT, ODPS, PUCO	Identify data owners and provide contact information to agency partners.	- Create and maintain a list of data owners that can support the SHSP Emphasis Area Teams	Year 1, ongoing
4.2	ODOT, ODPS	Provide data analysis support to meet the SHSP and agency safety plans' data analysis needs, including identification of high risk user behaviors and roadway data elements on the state and local systems.	- Number of SHSP emphasis area action steps completed with data analysis support - Number of agency safety plans completed with data anlysis support	Year 1, ongoing
4.3	ODPS, ODOT	Coordinate distribution of accurate crash statistics to the public.	- Number of data summaries or reports coordinated annually	Year 1, ongoing

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Distracted Driving Action Plan

Emphasis Area Leader: Michelle May, ODOT

Strategy #1: Enact policies and programs that educate Ohioans on the dangers of distracted driving and discourage them from driving distracted.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
1.1	ODOT, Risk Institute	Encourage Ohio employers to enact strong distracted driving policies for employees.	- Draft language developed and promoted - Number of employers that enact distracted driving policies for employees	Year 1, ongoing
1.2	ODPS/BMV	Include the distracted driving laws in the ODPS Digest of Ohio Motor Vehicle Laws.	- Language drafted and approved - Digest updated with distracted driving information	Year 2, 6 months -1 year
1.3	ODOT	Identify and promote the use of distracted driving lesson plans that could be used by teachers for grades 5-12.	- Lesson plans identified - Information published on web site and promoted among Ohio educators.	Year 1, 3 months Year 1, ongoing
1.4	ODPS	Increase the amount of time and content dedicated to distracted driving in Ohio's Driver Education curriculum.	- New curriculum guidelines developed - New curriculum materials developed and distributed to schools and instructors - Administrative rule updated to add distracted driving requirement	Year 1, 3 -6 months Year 1, 3 -6 months Year TBD*, 3 -6 months

* Would occur in year of administrative rule review (5 year cycle)

Strategy #2: Modernize Ohio's distracted driving law.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
2.1	Governor's Office	Enact one "Hands-Free" law with primary enforcement in the state of Ohio.	- Legislation enacted	Year 1

Strategy #3: Provide the resources and materials to educate all road users, including out-of-state visitors, on Ohio's distracted driving law and the consequences of distracted driving.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
3.1	ODOT, OSHP	Dedicate resouces to publicize and enforce Ohio's distracted driving law including annual enforcement/media campaigns, distribution of educational materials and other initiatives.	- Funding source(s) identified, committed and utilized	Year 1, ongoing
3.2	ODOT	Post signs and distribute educational materials at points of entry to the state (i.e., state borders, airports and where people rent vehicles) once new distracted driving law enacted.	-Sign messages approved - Signage locations identified - Signage posted - Educational materials developed and distributed	Following passage of a bill, 3-6 months
3.3	ODOT, Risk Institute, ODPS, AAA	Convene an annual forum to review action plan progress, evaluate success of recommended actions and identify actions that have been successful elsewhere that could be applied to reduce distracted driving in Ohio.	- Summit, roundtable or similar event conducted annually	Year 1, ongoing
3.4	ODOT, Risk Institute, ODPS, AAA	Identify and implement ways to promote continued education on distracted driving and culture change.	- Statewide campaign developed and	Year 1, ongoing

Strategy #4: Conduct research to support informed decisions about distracted driving.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
4.1	OSU Department of Psychology	Conduct surveys to refine distracted driving messages.	- Survey conducted - Survey findings published	Year 1, ongoing
4.2	OSU Risk Institute	Research what role the built environment, legislation and Driver Education play in the frequency and severity of distracted driving crashes.	- Reearch findings published	Year 1, ongoing

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Highway Railroad Crossings Action Plan

Emphasis Area Leader: Cathy Stout, ORDC

Strategy #1: Expand the use of new and proven crash prevention methods at grade crossings.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
1.1	Cathy Stout, ORDC Jill Henry, PUCO	Increase the number of locations with active warning devices.	- Number of grade crossings upgraded from passive to active warning systems	Year 1, ongoing
1.2	Cathy Stout, ORDC Jill Henry, PUCO	Upgrade and/or modernize active warning devices.	- Number of crossings upgraded from flashing lights to flashing lights and gates - Number of gated crossings with circuitry, LED or other improvements	Year 1, ongoing
1.3	Cathy Stout, ORDC	Installation or improvement of railroad preemption of traffic signals.	- Number of new or improved preemption installations	Year 1, ongoing
1.4	Jill Henry, PUCO	Installation of supplemental safety enhancements at grade crossings.	- Number of locations improved	Year 1, ongoing
1.5	Matt Dietrich, ORDC	Creation/development of policy guidance for non-motorized transportation.	- Publication of policy guidance	Year 1, 6 months to 2 years

Strategy #2: Reduce the overall number of public grade crossings in Ohio.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
2.1	Cathy Stout, ORDC	Identify redundant grade crossings and negotiate for closure.	- Number of crossings closed	Year 1, ongoing
2.2	Matt Dietrich, ORDC	Support community efforts for grade separation through technical assistance and funding participation if at-grade crossings will be closed.	- Number of communities assisted - Grade separation funding participation (number of projects)	Year 1, ongoing

Strategy #3: Identify blocked crossing locations and remedial action.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
3.1	Cathy Stout, ORDC	Identify problem blocked crossings by 1) obtaining blocked crossing location data from the FRA Block Crossing Web Portal and 2) logging constituent blocked crossing reports received.	- Review data once annually and generate a list of crossings to be addressed	Year 1, ongoing
3.2	Megan McClory, ORDC	Identify a methodology for prioritizing blocked crossings for remediation.	- Publication of a prioritization tool (Adaptability Index)	Year 1, 3 to 6 months
3.3	Matt Dietrich and Cathy Stout, ORDC	Installation of engineering solutions in partnership with local communities and railroads. This may include blocked crossing notification systems, crossing signal changes, etc.	- Number of installations	Year 1, ongoing
3.4	Matt Dietrich, ORDC	Work with railroads to identify potential railroad operational changes to alleviate blocked crossings.	- Meet with railroads at least once annually to review blocked crossings identified by FRA data and constituent reports	Year 1, ongoing

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Impaired Driving Action Plan

Emphasis Area Leader: Felice Moretti, DPS

Strategy #1: Sustain a data-driven and high visibility impaired driving enforcement program.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
1.1	State, county and local law enforcement agencies	Conduct highly visible alcohol impaired driving enforcement activity (overtime enforcement, saturation patrols and/or check points) at strategic times throughout the year including required blitzes and the national campaign based on local fatal/serious injury crash problem identification.	- Number of overtime hours worked annually - Number of impaired driving citatations annually	Year 1, ongoing
1.2	State, county and local law enforcement agencies	Conduct overtime enforcement focused on drug impaired drivers using Advanced Roadside Impaired Driving Enforcement (ARIDE) certified officers.	- Number of overtime hours worked annually - Number of drugged driving citatations annually	Year 1, ongoing
1.3	Ohio Investigative Unit	Interview suspect/witnesses of alcohol involved fatal and serious injury crashes to collect information to "trace back" where the alcohol was consumed prior to crash.	- Number of trace back investigations annually	Year 1, ongoing
1.4	State, county and local law enforcement agencies	Conduct classes to certify officers as Drug Recognition Experts (DREs).	- Number of certified DREs - Number of DRE call-outs annually	Year 1, ongoing
1.5	Ohio State Highway Patrol (OSHP) and Ohio Peace Officer	Conduct ARIDE courses for law enforcement officers.	- Number of of officers trained in ARIDE courses	Year 1, ongoing

	Training Academy (OPOTA)			
1.6	Ohio Department of Health (ODH)	Train and certify law enforcement across the state on new instruments to ensure consistency and establish competency.	- Number of law enforcement trained annually	Year 1, ongoing

Strategy #2: Implement an impaired driving mass media campaign and outreach efforts using delivery methods that reach specific segments of the targeted population.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
2.1	Ohio Traffic Safety Office (OTSO) and Media Buyer	Implement a paid media campaign modeled after the NHTSA National Communications Plan and using an appropriate mix of impaired driving messages around the national alcohol mobilization, other impaired related holidays and throughout each year.	- Annual gross impressions (number of people reached)	Year 1, ongoing
2.2	Safe Communities Coalitions	Each countywide Safe Communities coalition will deliver alcohol and drug impaired driving messages and programs throughout the year, including a countywide kick-off event for Drive Sober or Get Pulled Over.	- Number of events annually - Number of people reached annually - Number of materials distributed annually	Year 1, ongoing

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Intersections Action Plan

Emphasis Area Leader: Dave Holstein, ODOT

Strategy #1: Advance the use of new technology that make intersections safer.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
1.1	Office of Traffic Operations (OTO) and Office of Roadway Engineering (ORE)	Standardize the use of dilemma zone detection on high speed approaches by developing and publishing information for the implementation of acutated/coordinated operation (green extension, queue discharge, etc.) and incorporating into the Signal Design Reference Packet for general use.	- Requirements published - Information published	Year 2, 3-6 months
1.2	OTO, ORE, Safety Consultant	Develop and publish guidance on the cost, benefits and application of Signal Performance Measures (SPM), Video Surveillance and signal system controls (isolated, closed loop, Time Base Coordination (TBC), Central System, etc.) for use by districts, locals and consultants in the scoping of traffic signal projects.	- Guidance published	Year 2, 3-6 months
1.3	OTO, ORE	Utilize more of the controller application functionality that have the potential to reduce crashes (ex. Red Extension) by determining which controller features would be beneficial, publishing guidance, and revising and publishing standard plan signal timing charts accordingly.	- Guidance published - Timing charts published	Year 2, 3-6 months
1.4	DriveOhio, ORE, OTO	Evaluate which safety related applications are ready for deployment and provide necessary CFR940 documentation forms to support field implementation as required by the Statewide AV/CV Systems Engineering Document.	- CFR940 documentation forms published	Year 3, 6-9 months

Strategy #2: Implement proven and low-cost systematic safety improvements to reduce intersection crashes.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
2.1	ORE, OTO	Strategically implement signing and striping standards that provide substantive safety in lieu of current nominal safety (minimum required by the Ohio Manual of Uniform Traffic Control Devices (OMUTCD)).	- Candidate standards identified - Revised requirements published	Year 1, 3-6 months Year 1, 3-6 months (after strategies identified)
2.2	ORE, OTO, ODOT Safety Program	Continue pilot implementation of Flashing Yellowe Arrows (FYA). Implement FYA as a standard requirement if pilot is successful by creating and disseminating FYA educational information and retroactively converting ODOT signal installations prioritized by crash data.	- Standards published - Educational materials developed and distributed - Signal installations converted	Year 2, 3-6 months Year 2, 3-6 months Year 3, ongoing
2.3	OTO	Continue statewide signal timing analysis program that provides consultant assistance to ODOT Districts and local governments to analyze and update signal timing, and include evaluation of pedestrian facilties during signal timing field work. Expand consultant scope to include evaluation of phase changes (protected turns) based on field observations of queues and crash data.	- Program funded - Number of analyses conducted - Number of intersections with signal timing updated	Year 1, ongoing
2.4	ORE	Update existing Traffic Engineering Manual (TEM) guidance to provide specific crash data, speed, context, geometrics or other criteria for the proactive installation of transverse rumble strips (as opposed to just being a passive tool in the tool box).	- Standards updated and published	Year 1, 6-9 months
2.5	ORE, Safety Program	Develop and publish criteria based on geometric features, context and/or crash data where double red signal heads should be deployed and retroactively install double red signal heads at ODOT-maintained signals that meet that criteria.	- Criteria developed and published - Number of intersections with new double red signal heads installed	Year 2, 3-6 months Year 2, ongoing
2.6	ORE, OTO	Revise signal head standards to require additional (supplemental) signal heads.	- Standards published	Year 1, 6-9 months
2.7	ORE/OTO	Create standards defining the application of overhead signal flashers and Light Emitting Diode-enhanced (LED) warning/regulatory signs.	- Standards published	Year 2, 3-6 months

Strategy #3: Educate roadway users on the types of crashes which occur at intersections, new intersection types, signals and laws.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
3.1	ODOT Safety Program	Continue action team to identify media to be used for message distribution and develop a strategy for educating the public including a focus on younger drivers.	- Information and educational materials (videos, facts sheets) distributed	Year 1, ongoing
3.2	ODOT Safety Program	Assist driver training programs by continuing to provide information and educational materials (videos, facts sheets) as new designs and traffic laws are passed.	- Information and educational materials (videos, facts sheets) provided	Year 1, ongoing
3.3	ODOT Safety Program	Develop media information/education program, as well as training materials, for the new FYA signal operation.	- Training materials developed - Education program completed	Year 2, 3-6 months
3.4	ODOT Safety Program, OTO, LTAP	Develop Local Public Agency (LPA) video training program that highlights the considerations, options, maintenance/operations requirements, etc. for an LPA that owns traffic signals (So you want to own/operate a signal).	- Video published	Year 2, 3-6 months

Strategy #4: Develop and implement a comprehensive plan to address angle and left crashes at intersections.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
4.1	ORE	Implement an Intersection Control Evaluation (ICE) process to systematically screen intersections for both operational and safety performance including consideration of: • Roundabouts • Mini-roundabouts • RCUTS/Superstreets (displaced left turn intersections not including Continuous Flow Intersections (CFI))	- ICE process implemented	Year 1, 6-12 months
4.2	ODOT Safety Program, Office of Traffic Operations	Implement a traffic signal Protected Phasing program that utilizes crash and asset inventory information to systemically identify candidate signalized intersections with an excess of angle crashes that could potentially be addressed with protected signal phasing.	- Program implemented and funded	Year 2, 3-6 months

4.3	ORE, OTO	Revise design guidance to require the use of supplemental signal heads at signalized intersections meeting published criteria.	- Design guidance published	Year 1, 6-9 months

Strategy #5: Develop and implement comprehensive plan to address pedestrian and bicycle safety at intersections.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
5.1	ORE, OTO	Publish a Multi-Modal Manual (M^3) that provides guidance, warrants, standards and requirements for: • Leading Pedestrian Intervals (LPI) • Ped clearances • Pedestrian Hybrid Beacon (PHB) (even though mid block currently) • Clearly define when pedestrian accomodations are required as traffic signals	- Existing manuals revised by Jan. 1, 2021 in the interim until the Multi-Modal Manual (M^3) is published - M^3 published	Year 1, 3-6 months Year 2 , 3-6 months
5.2	ORE	Increase geometric and policy guidance for design features that minimizes pedestrian distances or increases conspicuity, e.g., curb bump outs and Pedestrian Refuge Islands.	- Guidance published	Year 2, 6-9 months
5.3	ORE	Publish requirements for intersection lighting that consider pedestrian conspicuity.	- Requirements published	Year 1, 6-9 months,
5.4	ORE	Publish requirements that require use of high visibility crosswalks.	- Requirements published	Year 1, 3-6 months
5.5	ORE, Safety Program	Raise bicycle design awareness by publishing in existing manuals low cost bicycle safety strategies (e.g., two-stage left turn bike box) prior to the M^3 being published.	- Strategies published in existing manuals	Year 2, 3-6 months

Strategy #6: Develop and implement comprehensive plan to address commercial motor vehicle (CMV) safety at intersections.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
6.1	ODOT Safety Program, ORE, OTO	Create a statewide program to conduct road safety audit/corridor analysis of corridors with crash patterns that are overrepresented with CMV involved crashes to determine and implement practical countermeasures such as: • Extended CMV detection; • Queue discharge detection; • Positive offset turn lanes; • Supplemental signal heads; • Signal timing adjustments.	- Program created - Number of intersections where audits and analyses are conducted	Year 2, 6-9 months Year 2, ongoing

Strategy #7: Develop and deploy a low speed data strategy for intersections.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
7.1	ODOT Safety Program, ORE, OTO	Form a task force to conduct a forensic review of the data, determine causality or trends and develop potential countermeasures to address fatal and serious injury intersection crashes on low speed intersections that are very overrepresented in Ohio's crash data.	- Task force convened - Report issued - Countermeasures implemented	Year 1, 1-3 months Year 1, 12 months Year 2, ongoing

OHIO STRATEGIC HIGHWAY SAFETY PLAN

2020 SHSP Update

Motorcycles Action Plan

Emphasis Area Leader: Felice Moretti, DPS

Strategy #1: Implement paid media and outreach programs with data-driven safety messages to motorcyclists and motorists.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
1.1	Ohio Traffic Safety Office (OTSO) and Media Buyer	Work with the media buyer to reach both the motorcyclist with a safey message and the general public with a motorcycle awareness message.	- Annual gross impressions (number of people reached)	Year 1, ongoing
1.2	Safe Communities Coalitions	Each countywide Safe Communities coalition that has a motorcycle issue identified in its crash problem identification will deliver motorcycle related safety messages and programs throughout the year when appropriate.	- Number of events annually - Number of people reached annually - Number of materials distributed annually	Year 1, ongoing

Strategy #2: Provide training to motorcycle riders on skills related to crash causation.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
2.1	Motorcycle Ohio	Provide the Basic Rider Skills (BRS), Basic Rider Skills for Experienced Riders (BRS-2), Basic Rider Skills for Returning Riders (BRS-RR) and Advanced Rider Skills (ARS) training courses to motorcyclists throughout the state.	- Number of students trained annually	Year 1, ongoing

OHIO STRATEGIC HIGHWAY SAFETY PLAN

2020 SHSP Update

Older Road Users
Education

Emphasis Area Leader: Kimberly Schwind, AAA

Subcommittee Leaders: Cindy Antrican, AAA; Kellie O'Riordan, AAA

Strategy #1: Increase awareness and availability of information, resources and tools to improve older road user safety and mobility.

Action Step	Leader(s)	Action Steps	Performance Measure(s)	Timeframe
1.1	ODOT Consultant Support	Research Florida's Safe Mobility for Life, Maryland and other states' materials and best practices and how they're distributed and determine if the materials could be customized for Ohio; and review programs and resources in Ohio such as AAA and ODOT Office of Transit's database of county transportation resources.	- Research conducted - Recommendations made to full committee	Year 1, 3-6 months
1.2	The Ohio State University – CAID, ODOT Consultant Support	Conduct a baseline survey to determine older Ohioans' awareness of Stay Fit to Drive and other SHSP Older Road User subcommittee materials and campaign(s) in 2021 and after the statewide campaign(s) is complete.	- Baseline survey conducted - Baseline survey report completed and delivered to the SHSP Steering Committee	Baseline: Year 1, 6 months – 1 year
1.3	AAA, AARP, ODOT Consultant Support	Develop or update and market print and social media materials that identify available older road user resources, tools, information, research and best practices available in Ohio and nationally that support the work of the Older Road User subcommittees.	- Materials updated, completed and distributed - Quantities of printed resources distributed	Years 1-5, ongoing
1.4	AAA, AARP, ODOT Consultant Support	Develop or update and market web page(s) that identify available older road user resources, tools, information, research and best practices available in Ohio and nationally that support the work of the Older Road User subcommittees.	- Web page(s) created - Analytics for various resources determined and measured	Years 1-5, ongoing
1.5	AAA, AARP, The Ohio State	Develop and conduct statewide education campaigns that target the issues and concerns of older road users,	- Creative materials developed	Years 1-5, ongoing

	University, ODOT Consultant Support	caregivers, family members, law enforcement, etc., including: impact of aging on safe driving, warning signs, driver impairment, etc. Test messages and creative materials with target audiences.	- Materials created and distributed	
1.6	The Ohio State University – CAID, ODOT Consultant Support	Conduct a follow-up survey to determine older Ohioans' awareness of Stay Fit to Drive and other SHSP Older Road User subcommittee materials and campaign(s) in 2025 after the statewide campaign(s) is complete.	- Follow up survey conducted - Follow up survey report completed and delivered to the SHSP Steering Committee	Follow up: Year 5, 6 months – 1 year
1.7	AAA, AARP, ODOT Consultant Support	Work with the At-Risk Drivers subcommittee to develop and conduct training programs to educate law enforcement, medical providers and drivers license examiners on current requirements and best practices in assessing older drivers, including Driver Orientation Screen for Cognitive Impairment (DOSCI). Research and apply for continuing education credits when possible.	- Support network built from representative professions - Number of training programs developed - Number of trainings conducted - Number of programs offering continuing education credits - Pre- and post-training surveys of professionals conducted - Results of professionals' pre- and post-training surveys presented to ORU Workgroup	Training created: Year 2, 6 months – 1 year Trainings conducted: Years 3-5, ongoing

Strategy #2: Increase access to programs and activities that help older road users stay mobile.

Action Step	Leader(s)	Action Steps	Performance Measure(s)	Timeframe
2.1	AAA, AARP	Increase the number of trained CarFit technicians and event hosts in ODOT's 12 districts.	- Number of new technicians - Number of new hosts - Number of events hosted in each ODOT district - Number of attendees at CarFit events	Years 1-5, ongoing
2.2	AAA, AARP	Identify and promote programs and activities that help older road users stay mobile such as CarFit, driver assessments, public transit and driver improvement programs. Share information with ODOT's Office of Transit.	- Database (of programs, activities) developed - Resoures created to distribute at programs and activities - Number of each resource distributed	Years 1-5, ongoing

OHIO STRATEGIC HIGHWAY SAFETY PLAN

2020 SHSP Update

Older Road Users

Active/Alternative Transportation Action Plan

Emphasis Area Leader: Kimberly Schwind, AAA **Subcommittee Leader:** Katie White, The Ohio State University

Strategy #1: Centralize and distribute information on available alternative transportation options in Ohio.

Action Step	Leader(s)	Action Steps	Performance Measure(s)	Timeframe
1.1	Age-Friendly Columbus and Franklin County; work with ODOT Transit, mobility managers, and ODOT Consultant Support	Conduct a hot spot analysis and create a comprehensive map of older adult population density and transit services (all mobility options) available across the state.	- Hot spot analysis completed - Map completed	Year 1, 3 to 6 months
1.2	Age-Friendly Columbus and Franklin County; work with ODOT Consultant Support	Identify locations in rural and urban geographies where there is a concentration of older people and one of the following situations exist: current services are underutilized or new infrastructure has been recently constructed.	- Locations identified - Summary completed	Year 1, 3 to 6 months
1.3	Age-Friendly Columbus and Franklin County; work with aging and transportation organizations and with Education Subcommittee	Provide information to Education Committee for the creation of resources on available transportation options and distribute them in the locations identified in Action Step #2.	- Resources created - Number of partner organizations distributing resources	Years 1-5, 6 to 12 months; review and updates ongoing

Strategy #2: Expand or replicate mobility options for older road users to support safe routes to age in place.

Action Step	Leader(s)	Action Steps	Performance Measure(s)	Timeframe
2.1	Age-Friendly Columbus and Franklin County; work with aging and transportation organizations	Implement a "Safe Routes to Age in Place" Program toolkit that starts with a pilot location/region, which replicates the program developed in the last cycle and builds upon the research and design of the "Safe Routes to Age in Place" program. Work with Infrastructure Subcommittee to provide best practices.	- Toolkit presented to full Active/Alternative Transportation Subcommittee - Program replicated in two communities - Toolkit presented to Infrastructure Subcommittee	Year 1, 3 to 6 months
2.2	Age-Friendly Columbus and Franklin County	Identify and replicate travel training, e-hail and other alternative transportation modes piloted from 2016-2020 through Age-Friendly Communities.	- Summary written and presented to Active/Alternative Transportation Subcommittee - Two pilot programs replicated	Years 1-5, ongoing
2.3	Age-Friendly Columbus and Franklin County; work with aging organizations and ODOT Consultant Support	Conduct a comprehensive mobility pre-survey of older residents across the state including residents that live in transit/transportation deserts using online, in-person and mail-in options to ask recipients about transportation habits, infrastructure challenges, travel modes, destinations and knowledge of travel options.	- Number of pre-surveys conducted - Percent of responses from residents that live in transit/transportation deserts	Year 2, 6 to 12 months
2.4	Age-Friendly Columbus and Franklin County; work with Education Subcommittee, aging organizations and ODOT Consultant Support	Work with Education Subcommittee to conduct outreach through events, printed materials, phone calls, etc. to inform recipients about transportation options identified in Action Step 2.2 in their area.	- Outreach materials developed - Number of people that receive information	Years 2-3, ongoing
2.5	Age-Friendly Columbus and Franklin County; work with aging organizations and ODOT Consultant Support	Conduct post-survey of same group in Action Step 2.3, asking questions about transportation habits, travel modes and changes in perception about travel options.	- Number of post-surveys conducted	Year 4, 6 to 12 months
2.6	Age-Friendly Columbus and Franklin County; work with Education Committee	Compare and contrast pre- and post-surveys to identify if outreach changed opinions and habits. Provide information to Education Committee for the design of a summary and present final report to ORU Workgroup.	- Analysis complete - Summary written	Year 5, 12 months

OHIO STRATEGIC HIGHWAY SAFETY PLAN

2020 SHSP Update

Older Road Users
Medically At-Risk Drivers Action Plan

Emphasis Area Leader: Kimberly Schwind, AAA **Subcommittee Leader:** Julie Dominik, Mercy Medical Center-Canton

Strategy #1: Review other states' best practices and programs for working with older medically at-risk drivers and identify information that can be used in Ohio.

Action Step	Leader(s)	Action Steps	Performance Measure(s)	Timeframe
1.1	ODOT Consultant Support	Conduct a review of state practices and programs, including Medical Advisory Boards and screenings conducted during Medicare Wellness Nurse client visits, that work with older medically at-risk drivers.	- State practices and programs reviewed	Year 1, 3-6 months
1.2	ODOT Consultant Support	Present findings of the state practices and programs review to ORU Workgroup for input on those which could not be implemented/accomplished in Ohio.	- Findings compiled - Findings presented to ORU members	Year 1, 3-6 months
1.3	ODOT Consultant Support	Develop a report of state practices and programs for working with older medically at-risk populations to be considered for Ohio and present to the SHSP Steering Committee.	- Report developed - Report presented to SHSP Steering Committee	Year 1, 6 months-1 year
1.4	Kimberly Schwind, AAA	Establish a working group to determine which practices and programs Ohio can implement and revise this action plan with practices and programs to be implemented.	- Working group established - Action plan revised	Year 1 or 2, 6 months-1 year

Strategy #2: Support the assessment process to evaluate a driver's ability to drive safely through public outreach and partnerships with law enforcement.

Action Step	Leader(s)	Action Steps	Performance Measure(s)	Timeframe
2.1	ORU Medically At-Risk team	Provide the Education Subcommitte information on the cognitive and physical warning signs that may require medical providers to recommend a transition from driving	- Technical information collected - Concept, technical information and intended audience(s)	Year 2, 3-6 months

	with ORU Education team	for the development of digital and/or print educational materials for distribution to the public.	provided to Education Subcommittee	
2.2	ORU Medically At-Risk team with ORU Education team	Provide the Education Subcommittee information that explains the process and related options to assess a driver's ability to drive safely for the development of digital and/or print educational materials.	- Technical information collected - Concept, technical information and intended audience(s) provided to Education Subcommittee	Year 2, 3-6 months
2.3	ORU Medically At-Risk team	Develop a medically at-risk materials distribution list to reach multiple channels and networks (contact information and number of recipients) throughout the state.	- Distribution list developed - Number of potential recipients identified	Year 2, 6 months-1 year
2.4	ORU Medically At-Risk team with law enforcement agencies	Conduct a Driver Orientation Screen for Cognitive Impairment (DOSCI) pilot test in one or more jurisdictions to determine its effectiveness and any revisions needed for widespread use in Ohio.	- Number of agencies agreeing to conduct DOSCI pilot - Number of DOSCI pilots conducted	Year 1
2.5	Julie Dominik, Subcommittee Leader	Provide information on DOSCI to law enforcement agencies through the Ohio Association of Chiefs of Police (OACP) and Buckeye State Sheriffs' Association (BSSA).	- Information distributed to OACP and BSSA	Year 2, 3-6 months (dependent on pilot test time line)

Strategy #3: Increase the knowledge of medical providers, law enforcement, licensing personnel, family and caregivers on the recognition, assessment and reporting of older medically at-risk drivers.

Action Step	Leader(s)	Action Steps	Performance Measure(s)	Timeframe
3.1	ORU Medically At-Risk team	Develop guidelines and training for drivers license personnel on detecting potential medical impairments that can affect driving ability.	- Need for guidelines and training acknowledged and assistance requested - Guidelines developed - Training materials developed	Year 2-3
3.2	Julie Dominik, Subcommittee Leader	Identify and work with state licensure boards and professional associations to educate medical professionals on the need for and value of engaging with therapists and certified driving rehabilitation specialists (CDRS) to evaluate older medically at-risk drivers.	- Boards and associations identified - Number of Boards and associations receiving CDRS information and agreeing to distribute CDRS information - Number of medical professionals receiving CDRS information - Number of referals to CDRS professionals	Year 2-3

3.3	Julie Dominik, Subcommittee Leader	Secure the BMV's approval of an official letter which is recognized as a physician's initial referral of a potential medically at-risk driver for the purpose of opening a medical case file, including acceptance that the letter will be accessible and can be submitted electronically.	- Physician referral letter developed - Letter accepted by the BMV to open a medical case file - Letter accessible electronically - Electronic submission of the letter accepted by the BMV	Year 1, 6 months-1 year
3.4	Julie Dominik, Subcommittee Leader	Develop an explanation of the referral process referenced in 3.3, which medical professionals can submit to the BMV to open a medical case file for Medically At-Risk Subcommittee review and determine how to distribute the explanation.	- Explanation developed - Distribution method determined - Explanation distributed	Year 2, 3-6 months
3.5	ORU Medically At-Risk team with ORU Education team	Provide information for the development of digital and/or print educational materials that explain why certain medical conditions put an individual at risk of operating a motor vehicle safely. Include information on who to talk to, processes, assessment options, etc.	- Technical information collected - Concept, technical information and intended audience(s) provided to Education Subcommittee	Year 2-3

OHIO STRATEGIC HIGHWAY SAFETY PLAN

2020 SHSP Update

Older Road Users
Infrastructure Action Plan

Emphasis Area Leader: Kimberly Schwind, AAA **Subcommittee Leader:** Don Fisher, ODOT

Strategy #1: Promote the use and installation of roadway improvements that compensate for impacts of aging on safe driving**.**

Action Step	Leader(s)	Action Steps	Performance Measure(s)	Timeframe
1.1	Don Fisher, ODOT Roadway	Promote improvement to and use of delineation of roadway features such as curbs, medians and edge lines to aid older drivers with decreased depth and contrast perception by using techniques such as wider edge lines, rumble stripes, wet reflective pavement markings, raised pavement markers, post-mounted delineators and chevrons, bike-friendly center and edge line strips, and optimal materials, especially on local roads.	- Miles installed	Year 2, ongoing
1.2	Don Fisher, ODOT Roadway	Evaluate the number and width of travel lanes to determine a level of capacity in urban areas where four or more travel lanes exist and investigate optimizing the use of the roadway if extra capacity exists or if a roadway can be altered without reducing capacity.	- Number of locations implemented	Year 3, 1 year
1.3	Jonathan Young, ODOT Safety	Increase use of advanced warning and/or oversized, guide and street name signs, including wrong way signs, in areas with higher populations of older road users. (Will locate target interesections by their proximity to adult care facilities, senior centers and hospitals by using census and other available data.)	- Number of locations implemented	Year 2, ongoing
1.4	Jason Yeray, ODOT Traffic Operations	Increase use of more protected left-turn signal phases at high-volume intersections, especially in areas with higher populations of older road users. (See 1.3 on locating intersections)	- Number of locations implemented	Year 3, ongoing
1.5	Jonathan Young, ODOT Safety	Investigate the impact interchange design has on older driver crashes.	- Analysis conducted	Year 1, 6 months

Strategy #2: Implement improvements to make walking and bicycling safer for older road users.

Action Step	Leader(s)	Action Steps	Performance Measure(s)	Timeframe
2.1	Don Fisher, ODOT Roadway	Make crosswalks more visible and available and increase use of advance crosswalk signs, where appropriate. Work with the Alternative Transportation Subcommittee to coordinate community-based participatory planning focus groups with older adults to inform the process.	- Number of older adult participants in focus groups - Number of focus groups Number of locations implemented	Year 3, ongoing
2.2	Jason Yeray, ODOT Traffic Operations	Improve crossing conditions at intersections with advanced signal-timing strategies including Leading Pedestrian Intervals (LPIs) and extended crossing times.	- Number of locations implemented	Year 3, ongoing
2.3	Don Fisher, ODOT Roadway	Promote the use of median refuges and/or curb bump outs.	- Number of locations implemented	Year 3, 6 – 12 months

OHIO STRATEGIC HIGHWAY SAFETY PLAN

2020 SHSP Update

Pedestrians and Bicycles Action Plan

Emphasis Area Leader: Caitlin Harley, ODOT

Category: **Policy & Planning**

Strategy #1: Develop and adopt multimodal planning, design, implementation and guidance.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
1.1	ODOT Statewide Planning and Research, Local Programs, Program Management, MPOs, RTPOs, Local Governments	Develop Active Transportation (AT) planning guidance for metropolitan planning organizations (MPO), regional planning organizations (RTPO), municipalities and villages across Ohio.	- New guide developed - New guide distributed - Planning tools/templates developed - Number of agencies receiving planning tools/templates information	Year 1, 6 months-1year
1.2	ODOT Office of Roadway Engineering, Program Management, Local Programs	Develop and promote the new ODOT Multimodal Design Guide and provide training.	- Multimodal Design Guide developed - Multimodal Design Guide promoted - New Multimodal Design Guide training course developed - Number of individuals completing the Multimodal Design Guide course	Year 2, ongoing
1.3	ODOT Office of Environmental Services	Review and enhance the Project Development Process (PDP) to provide additional consideration for bicyclist and pedestrian needs.	- PDP revised	Year 1, 1 year

1.4	Local Jurisdictions, MPOs, RTPOs	Develop regional and local level plans (e.g., local road safety plans, Active Transportation Plans, School Travel Plans) that address bicycle and pedestrian safety.	- Number of new regional and local agencies who conduct local road safety audits and safety studies and/or develop plans	Year 1, ongoing

Strategy #2: Provide clarity within the Ohio Revised Code (ORC) related to how motorized and non-motorized road users must behave at intersections and crossings.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
2.1	ODOT, Local Advocacy Groups, Local Jurisdictions	Review current ORC language and identify ambiguities between how motorized and non-motorized road users must behave at intersections and crossings.	- Documentation of existing ORC language completed	Year 1, ongoing
2.2	ODOT, Local Advocacy Groups, Local Jurisdictions	Review best practices and recommendations for legislative language addressing how non-motorized road users must behave at intersections and crossings.	- Report of best practices and recommendations completed	Year 2, ongoing
2.3	ODOT, Local Advocacy Groups, Local Jurisdictions	Educate key state and local decision makers on best practices and recommendations for legislative language that addresses how non-motorized road users must behave at intersections and crossings.	- Informational materials developed	Year 2, ongoing
2.4	ODOT, Local Advocacy Groups, Local Jurisdictions	Educate key partners (e.g., law enforcement, drivers' education, other educators) on how non-motorized road users must behave at intersections and crossings.	- Relevant resources and materials updated and distributed	Year 3, ongoing

Category: Implementation & Funding

Strategy #3: Assist local communities in bicycle and pedestrian project development and implementation.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
3.1	ODOT	Expand tools (e.g., data dashboards and cost estimation tools) to identify high risk bicycle and pedestrian locations/ generators, and enhance local project development and implementation, and educate agencies on their use.	- Data dashboards developed - Cost estimation tool developed - Tutorial(s) and/or training(s) developed - Number of individuals completing the tutorial(s) and/or training(s)	Year 1, ongoing
3.2	ODOT Safety Program, MPOs/RTPOs, Local Governments	Utilize funding for bicycle and pedestrian project development (engineering, design, ROW, etc.) in areas with high risk locations/generators.	– Amount of funding used annually for project implementation	Year 1, ongoing
3.3	ODOT, MPOs, RTPOs, Local Governments	Assist with multi-jurisdictional project development.	- Number of projects supporting regional connectivity	Year 1, ongoing
3.4	ODOT, Local Governments	Partner with local public agencies to reduce project development burdens in areas with the highest need.	- Funding mechanism(s) identified - Percent of funding spent in disadvantaged communities	Year 2, 1 year

Strategy #4: Support systemic bicycle and pedestrian safety improvements.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
4.1	ODOT Safety Program, MPOs, RTPOs, Local Governments	Develop and promote tools to assist local communities in bundling and implementing safety countermeasures to address high risk bicycle and pedestrian generators.	- Dashboards, cost estimation tools, countermeasure lists and purchasing tools developed	Year 1, 1 year
4.2	ODOT Safety Program, MPOs, RTPOs, Local Governments	Provide network screening assistance to prioritize locations for systemic improvement projects.	- Number of communities assisted	Year 1, 1 year
4.3	ODOT Safety Program	Tie systemic safety projects to abbreviated safety application process.	- Number of systemic safety projects funded via the abbreviated safety application	Year 1, 1 year
4.4	ODOT Safety Program, MPOs, RTPOs, Local Governments	Develop targeted funding programs to expedite project delivery in priority areas.	- Number of targeted funding programs developed - Amount of funding provided for systemic safety programs in priority areas	Year 1, ongoing

Strategy #5: Support major projects along high-risk roadways that increase safety and address user needs.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
5.1	ODOT Safety Program, MPOs, RTPOs, Local Jurisdictions	Identify and expedite project applications that include bicycle/pedestrian facilities along arterial roadways.	- Number of new projects along arterial roadways funded annually	Year 1, 2 years

5.2	ODOT Safety Program, MPOs, RTPOs, Local Jurisdictions	Target major project development for communities along high-risk roadways.	- Number of new major projects developed on high-risk roadways	Year 2, 2 years
5.3	ODOT Safety Program, MPOs, RTPOs, Local Jurisdictions	Incorporate bicycle and pedestrian crossings into major highway interchanges (Diamond, SPUIs, Restricted Crossing U-Turns, etc.).	- Number of major highway interchange projects funded which incorporate bicycle and pedestrian crossings annually	Year 2, 2 years

Strategy #6: Implement the State & US Bike Route System.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
6.1	ODOT Program Management, Local Jurisdictions	Create a project list of improvements to the State & US Bike Route system along priority corridors based on safety, demand, need and level of traffic stress.	- System project list developed	Year 1, 1 year
6.2	ODOT Safety Program, Local Jurisdictions	Increase motorist awareness by providing standard design features and wayfinding signage.	- Percent of system signed	Year 1, 2 years
6.3	ODOT Safety Program, MPOs, Local Jurisdictions	Support improvements to priority areas with the goal of making the system safer for its users.	- Percent of system with Level of Traffic Stress (LTS) 1 and 2 improvements initiated	Year 2, ongoing

Strategy #7: Review and develop standardized project selection and scoring for bicycle and pedestrian projects**.**

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
7.1	ODOT Safety Program	Develop task force to review and provide recommendations on scoring bicycle and pedestrian projects through Safety Program.	-Task force roster identified and invitations sent to potential members - First task force meeting convened - Scoring recommendations developed	Year 1, ongoing
7.2	ODOT Safety Program	Update application guidance and provide informational opportunities to ODOT and local partners.	- Application guidance updated - Number of venues used to disseminate information - Number of partners receiving guidance information	Year 2, 2 years
7.3	ODOT, MPO/RTPOs, Local Jurisdictions	Streamline AT project funding application processes and identify opportunities to consolidate.	- Final criteria developed	Year 2, 2 years

Category: Education & Promotion

Strategy #8: Educate elected officials at all levels about the importance of a more walkable and bikeable Ohio.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
8.1	ODOT, Local Advocacy Groups, Local Jurisdictions	Work with local communities and partners to provide resources, toolkits and guidance to communicate directly with local leaders.	- Number of resources developed	Year 2, ongoing
8.2	ODOT Program Management and Local Programs, Local Advocacy Groups, Local Jurisdictions	Support opportunities for experiential education which increases awareness, understanding and knowledge of current conditions and opportunities for advancing walking and biking.	- Number of experiential education opportunities delivered - Number of individuals participating	Year 1, ongoing

Strategy #9: Provide bicycle- and pedestrian-related technical assistance and education to practitioners, including planners, engineers, law enforcement and their partners.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
9.1	ODOT Local Programs and Program Management	Expand the Local Technical Assistance Program (LTAP) and the Active Transportation Academy to include new active transportation topics.	- Number of AT Academy Training options - Number of LTAP trainings conducted - Number of individuals completing trainings	Year 1, 2 years
9.2	ODOT Program Management, Statewide Planning, Local Programs, Local	Continue implementation of the AT Action Institute to bring together practitioners from across the state.	- Number of Action Institutes conducted	Year 2, ongoing

	Jurisdictions, MPO/RTPOs		- Number of communities and practitioners participating	
9.3	ODOT Safety Program, MPO/RTPOs, Local Jurisdictions	Support other walking and biking educational and capacity building programs through non-infrastructure funding.	- Number of non-infrastructure funded program awards	Year 1, ongoing
9.4	ODOT Local Programs, Program Management	Provide training and technical assistance on the various bicycle and pedestrian related tools and templates that are available to local stakeholders.	- Number of trainings provided annually - Number of individuals trained annually	Year 2, ongoing

Strategy #10: Develop educational materials for roadway users on rights and responsibilities impacting people walking and biking.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
10.1	ODOT Safety Program, Ohio Department of Public Safety (ODPS), Advocacy partners	Expand the resources available and distribution mechanisms of educational materials.	- Number of new materials developed - Number of new approaches and/or partnerships agreeing to distribute materials	Year 2, 2 years
10.2	ODOT Safety Program, Local jurisdictions	Maintain the Your Move Ohio campaign and incorporate new topics	- Number of additional resources developed - Number of communities promoting messaging	Year 2, 1 year
10.3	ODOT Safety Program, Local/Regional Partners	Establish an ODOT clearinghouse for active transportation safety education materials.	– Clearinghouse developed	Year 3, 1 year

Strategy #11: Encourage reductions in vehicle miles traveled (VMT) by promoting multimodal options.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
11.1	ODOT Office of Environmental Services, Local Jurisdictions, MPO/RTPOs	Update the existing statewide Public Participation Document (PDP) and the PDP process to increase participation in traditionally underserved communities and areas of highest need.	- Updated content incorporated	Year 1, 2 years
11.2	ODOT, Ohio Department of Natural Resources (ODNR), Ohio Division of Tourism, MPOs, RTPOs, Local Jurisdictions, Advocacy Groups	Develop promotional maps at multiple scales to promote existing networks and increase awareness.	- Promotional maps developed	Year 3, ongoing
11.3	Local Jurisdictions, ODOT, Advocacy Groups	Create specialized outreach materials and training materials for traditionally underserved communities with minority and low-income populations.	- Materials developed	Year 2, ongoing
11.4	MPOs, RTPOs, Local Jurisdictions, ODOT	Support transportation demand management activities that encourage and incentivize walking, biking and transit use	- Number of activities annually	Year 2, ongoing

Category: Data

Strategy #12: Expand active transportation safety data collection and analysis.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
12.1	ODOT Safety Program and Statewide Planning, MPOs, RTPOs	Provide technical assistance to local communities and regional planning organizations to analyze AT crash data.	- Number of tools developed - Number of agencies receiving assistance - Best practices documented - Best practices shared with partners	Year 1, ongoing
12.2	ODOT Safety Program, ODPS Statistics, FARS, Local agencies	Automate Vulnerable Roadway User Crash type coding within ODOT's Crash Data Systems.	- Crash type data made available to users	Year 2, 2 years
12.3	ODOT Safety Program and Local Programs	Develop a training module specific to active transportation safety in the Highway Safety Training Opportunities program.	- AT safety module developed and included in program	Year 1, ongoing
12.4	ODOT Safety Program, ODPS Statistics, FARS, Local agencies	Improve crash report form accuracy of crashes involving pedestrian and bicycles.	- Reporting issues to improve training identified - Crash report form training for law enforcement updated - Changes for future crash report revision recommended	Year 2, 3+ years
12.5	AT EA team with Data EA Team	Coordinate with the Data EA team to link medical professional injury evaluation reports to the associated crash report.	- Number of medical professional injury evaluation reports linked to a crash report annually - Number of pedestrian and bicyclist injuries without a crash report identified annually	Year 3, ongoing

Strategy #13: Develop a statewide active transportation asset inventory.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
13.1	ODOT Program Management, Statewide Planning, Technical Services, MPOs, RTPOs, Local Jurisdictions	Identify specific asset data needs and create a standard framework for pedestrian and bicycle assets.	- GIS database framework (data schema) developed	Year 1, 2 years
13.2	ODOT Program Management, Statewide Planning, Technical Services, MPOs, RTPOs, Local Jurisdictions,	Inventory statewide bicycle facilities based on established framework.	- Funding for data collection and in-house data systems secured	Year 3, 1 year
13.3	ODOT Technical Services, MPOs, RTPOs, Local Jurisdictions	Develop an Active Transportation Data Collection User's Guide.	- Final document shared with partners	Year 3, 1 year

Strategy #14: Establish an active transportation monitoring program.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
14.1	ODOT, MPOs, RTPOs, Local Jurisdictions	Evaluate use of new technology for data collection and develop a consistent reporting structure.	- Key data collection technology identified - Reporting framework developed	Year 2, ongoing
14.2	ODOT Technical Services, MPO/RTPOs	Develop a statewide non-motorized volume collection program.	- Permanent count locations identified	Year 2, 2 years

			- Bicycle/pedestrian counts integrated when doing vehicular counts	
14.3	ODOT Technical Services, MPO/RTPOs, Local Jurisdictions	Support regional non-motorized data collection programs.	- Increased number of counts reported	Year 1, ongoing

Category: Collaboration

Strategy #15: Strengthen ongoing coordination and collaboration between ODOT and its local partners.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
15.1	ODOT, MPO/RTPO, Local Jurisdictions, Advocacy Organizations	Target bicycle and pedestrian outreach to high need/demand communities.	- Technical Assistance provided annually in high need/demand areas	Year 1, ongoing
15.2	ODOT, MPO/RTPO, Local Jurisdictions, Partners	Host annual meetings in each ODOT district office to coordinate network implementation and project development opportunities.	- Number of annual meetings conducted in districts	Year 2, ongoing
15.3	ODOT, MPO/RTPO, Local Jurisdictions, Partners	Increase opportunities to raise awareness, share information, and promote good work through conferences, forums, and trainings.	- Number of events annually between ODOT and its local partners	Year 2, ongoing

Strategy #16: Strengthen ongoing coordination and collaboration between ODOT and other state agencies.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
16.1	ODH, ODOT	Maintain strong partnerships between ODOT and ODH through AT planning, community engagement, education and promotion.	- Number of coordinated events annually	Year 1, ongoing
16.2	ODNR, ODOT	Maintain and build partnerships between ODOT and ODNR, with a focus on forwarding strategic initiatives.	- Number of coordinated projects annually	Year 1, ongoing
16.3	ODOT Safety Program, ODPS Ohio Traffic Safety Office and BMV, Ohio Department of Education (ODE)	Maintain and build partnership between ODOT, ODPS and ODE to pursue AT-related education and enforcement initiatives.	- Number of bicycle/pedestrian materials shared annually	Year 2, ongoing
16.4	ODOT	Establish a multi-agency work group that meets regularly to discuss active transportation.	- Number of coordinated state agency meetings annually	Year 1, ongoing

OHIO STRATEGIC HIGHWAY SAFETY PLAN

2020 SHSP Update

Roadway Departure Action Plan

Emphasis Area Leader: Jonathan Young, ODOT

Strategy #1: Monitor and track objects in right-of-way to improve roadway departure safety.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
1.1	ODOT Survey, Real Estate, Safety Program	Create a right-of-way database for tracking objects within the clear zone and state right-of-way.	– Database created – Data collection started	Year 2, ongoing
1.2	ODOT Local Technical Assistance Program (LTAP), Safety Program	Create training program for Transportation Managers on how to identify and locate objects and encroachments within clear zone and state right-of-way.	– Training course established	Year 2, 2 years
1.3	ODOT Safety Program, Real Estate, District Safety Review Team (DSRT)	Work with districts and locals to remove natural objects currently inside state right-of-way/clear zone.	– Number of objects removed inside clear zone	Year 3, ongoing

Strategy #2: Identify and upgrade at-risk roads for roadway departures.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
2.1	ODOT Safety Program, County Engineers Association of Ohio (CEAO)	Prioritize roadway segements for roadway departure crashes	– Requirements established – List populated - Segments on list tracked	Year 1, ongoing
2.2	ODOT Safety, CEAO	Create route upgrade assistance program for deficient roadways.	– Requirements for assistance created	Year 2, ongoing
2.3	ODOT Roadway, Engineering and Safety Priogram, CEAO	Institutionalize systemic safety treatments.	– Policies for various treatments developed	Year 2, ongoing

Strategy #3: Provide assistance to counties and locals to improve roadway departure safety.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
3.1	ODOT LTAP, Safety, CEAO	Create Ballbank Testing Course and provide training for counties and locals.	– Publish course – Number of county and local personnel that attend course	Year 1, 2 years
3.2	ODOT Roadway, Engineering and Safety Program, CEAO	Work with CEAO and locals on replacing Type A guardrails on non-National Highway System (NHS) and NHS.	– Prioritize locations with Type A guardrails – Create target for how many of each guardrail type to replace each year	Year 2, ongoing
3.3	ODOT Safety Program, CEAO	Provide assistance to CEAO striping program to install improved marking and materials.	– Number of routes and line-miles that striping is installed	Year 2, ongoing

Strategy #4: Analyze sign needs for roadway departure.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
4.1	ODOT LTAP, Safety Program	Maintain the Township Sign Program.	– Number of townships that have received signs	Year 1, ongoing
4.2	ODOT Roadway, Engineering, Safety Program	Create Roadway Departure Sign Program for state and local partners	– Requirements created for funding – Number of routes that have received signs	Year 2, 2 years
4.3	ODOT LTAP	Maintain an education program for local transportation partners on the importance of addressing roadway departure crashes.	– Number of locals and counties that attend the training	Year 1, ongoing

Strategy #5: Review ODOT policy and standards for roadway departure crashes.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
5.1	ODOT Safety Program	Evaluate project effectiveness including maintenance costs	– Number of projects evaluated	Year 1, 2 years
5.2	ODOT Roadway, Engineering and Safety Program	Examine guardrail and other assets' repair policy, including the repair vs. replace policy.	– Policies updated to current safety recommendations	Year 2, 1 year
5.3	ODOT Roadway, Engineering and Safety Program	Review minimum standards for lane widths, shoulder widths and end condition combinations to reduce crashes.	– Condition combinations examined – Condition combinations published	Year 5, 2 years

OHIO STRATEGIC HIGHWAY SAFETY PLAN

2020 SHSP Update

Seat Belts Action Plan

Emphasis Area Leader: Felice Moretti, DPS

Strategy #1: Sustain high visibility seat belt-related enforcement in jurisdictions and at times with a disproportionate number of unrestrained occupant-related fatalities and serious injuries.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
1.1	County and local law enforcement agencies	Conduct highly visible enforcement activities at strategic times throughout the year consistent with the NHTSA Communications Calendar including required blitzes and the national campaign, and based on local fatal/serious injury crash problem identification.	- Number of overtime hours worked annually - Number of seat belt citations annually	Year 1, ongoing
1.2	Ohio State Highway Patrol (OSHP)	Conduct seat belt TAC squads during the designated Holiday Click It Or Ticket (CIOT) mobilization and the National May CIOT mobilization.	- Number of overtime hours worked annually - Number of seat belt citations annually	Year 1, ongoing

Strategy #2: Implement mass media campaigns and outreach efforts using delivery methods that reach specific high-risk segments of the population to encourage seat belt use.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
2.1	Ohio Traffic Safety Office (OTSO) and Media Buyer	Implement a paid media campaign modeled after the NHTSA National Communications Plan and using an appropriate mix of seat belt use	- Annual gross impressions (number of people reached)	Year 1, ongoing

		messages around the national seat belt mobilization and throughout each year.		
2.2	Safe Communities Coalitions	Each countywide Safe Communities coalition will deliver seat belt usage messages and programs throughout the year including a countywide kick-off event for CIOT.	- Number of events annually - Number of people reached annually - Number of materials distributed annually	Year 1, ongoing

OHIO STRATEGIC HIGHWAY SAFETY PLAN

2020 SHSP Update

Speed Action Plan

Emphasis Area Leader: Mike McNeill, ODOT

Strategy #1: Conduct high visibility speed enforcement linked with paid and earned media at the state, county and local levels.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
1.1	ODOT Safety Program & Districts, Ohio State Highway Patrol (OHSP)	Implement high visibility 'safety corridors' focused on speeding and distracted driving.	- Number of safety corridors - Total miles of safety corridors - Reduction in crash frequency - Reduction in crash severity	Year 1, ongoing
1.2	ODOT Safety Program	Provide funding to enforce speeds within specified high speed fatal and serious injury corridors including work zones.	- Reduction in crash frequency - Reduction in crash severity - Amount of funding provided	Year 1-2, ongoing
1.3	ODOT, OHSP, local Police Departments (PD), MPOs, RTPOs	Provide crash and/or speed data to jurisdictions for corridor enforcement based on speed related fatal and serious injury crashes.	- Develop list of top corridors for locals	Year 2-3, ongoing
1.4	ODOT	Collect data and identify research techniques on the most effective strategies to control speeds in work zones.	- Findings presented to executive management on potential ideas/strategies	Year 2-3, 1 year

Strategy #2: Update speed setting process for Ohio.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
2.1	ODOT Traffic Management	Establish a Speed Management Action Team Committee to review the statewide plan for changing speed limits.	- Members identified - Committee established - Meetings convened	Year 1, 6-12 months
2.2	Speed Management Committee, ODOT Traffic Management	Explore USLIMIT2 and update the speed zoning study process used by ODOT and local jurisdictions.	- Changes to Transportation Engineering Manual (TEM) completed - Recommended changes to Ohio Revised Code (ORC) compiled	Year 1, 1-3 years
2.3	ODOT Traffic Management, consultant assistance	Provide guidance materials and training to understand speed limits and regulations established by the ORC.	- Materials established - LTAP training sessions offered - Number of individuals completing training	Year 1-2, 2-5 years
2.4	ODOT Traffic Managament	Purchase speed data for use by all Ohio agencies to support potential speed zone studies.	- Speed data purchased - Number of agencies using the data	Year 1, ongoing

Strategy #3: Market communication and educational messages that focus on high-risk drivers.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
3.1	ODOT Communications, OTSO, Locals	Develop effective Public Service Announcements (PSAs) related to speed to be communicated to the public.	- PSAs developed - PSAs distributed and aired	Year 2-3, ongoing
3.2	ODOT, OTSO, MPOs, RTPOs	Coordinate with safety partners in development and marketing of speed-related safety messaging.	- Materials developed and distributed	Year 2-3, ongoing

Strategy #4: Review national research and best practices related to speed.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
4.1	ODOT Roadway Engineering	Develop recommendations on speed management standards based on best practice review which could include land use and zoning for locals agencies.	- Recommendations and/or standards developed	Year 1-3, 2-3 years

OHIO STRATEGIC HIGHWAY SAFETY PLAN

2020 SHSP Update

Young Drivers Action Plan

Emphasis Area Leader: Felice Moretti, DPS

Strategy #1: Use peer-to-peer programs to increase seat belt use and reduce risky behaviors that contribute to fatalities and injuries among teens.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
1.1	Students Against Destructive Decisions (SADD)	Use evidence-based programming to facilitate peer-to-peer education to educate young drivers on seat belt usage, the dangers of alcohol and drug impaired driving, and distracted driving.	- Number of students reached annually	Year 1, ongoing
1.2	Family, Career and Community Leaders of America (FCCLA)	Facilitate statewide peer-to-peer campaigns in high schools using toolkits focusing on seatbelts, distracted and impaired driving.	- Number of students reached annually	Year 1, ongoing

Strategy #2: Implement media campaigns and outreach efforts using delivery methods that reach young drivers with messages about unsafe driving practices.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
2.1	Ohio Traffic Safety Office (OTSO) and Media Buyer	Use media messages to encourage young drivers to wear seat belts, not drive impaired or distracted, not speed and other unsafe driving	- Annual gross impressions (number of people reached)	Year 1, ongoing

		practices as identified through problem identification.		
2.2	OTSO, The Ohio State University (OSU) and Recording Artists Against Drunk Driving (RADD)	Partner with OSU and RADD, and the Higher Education Center for Alcohol and Drug to promote safe driving practices through an active social media campaign, web presence, event presence at concert venues and build on RADD TV concept by securing video content promoting sober driving using entertainment themes and eight up and coming artists.	- Number of students reached	Year 1, 12 months
2.3	Safe Communities Coalitions	Each countywide Safe Communities coalition will deliver young driver related traffic safety messages and programs in communities that have a young driver issue identified in its crash problem identification.	- Number of events - Number of people reached - Number of materials distributed	Year 1, ongoing

Strategy #3: Use new data sources to guide improvements and curriculum changes in driver training.

Action Step	Leaders	Action Steps	Performance Measure(s)	Timeframe
3.1	OTSO and Children's Hospital Of Philadelphia (CHOP)	Partner with CHOP to collect statewide data from new drivers to determine areas of driving behavior that are deficient and use the data to guide educational programming to improve new driver skill sets and for youthful driving (grant funding-related) problem identification.	- Data collected - New driver educational programming identified - Problem identification used to identify jurisdictions eligible for funding of new driver programming	- Year 1, 12 months - Year 2, ongoing - Year 2, ongoing
3.2	Bureau of Motor Vehicles (BMV)	Use data obtained from driver exams administered under the new electronic driver exam platform to idenitify areas for improved or additional training based on test items with high failure rates on both the driving/skills and the knowledge tests.	- Data collected and analyzed - Opportunities for training adjustments identified - New training material developed and implemented	Year 1, ongoing Year 2, ongoing Year 2, ongoing

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