

# CENTRAL OHIO TRANSPORTATION SAFETY PLAN 2019



MID-OHIO REGIONAL  
**MORPC**  
PLANNING COMMISSION



# ACKNOWLEDGMENTS

The Mid-Ohio Regional Planning Commission (MORPC) consulted with state, regional, and local transportation and safety agencies in the development of the Central Ohio Transportation Safety Plan. In particular, we wish to acknowledge the following:

## REGIONAL TRANSPORTATION SAFETY PLAN WORKING GROUP

A working group representing local governments, safety services, public health, and other agencies and organizations within MORPC's Metropolitan Planning Organization (MPO) boundary was formed to guide the overall direction of and provide content for the plan. Through a series of meetings, the working group reviewed data, defined the plan's emphasis areas, created goals and benchmarks, and provided input on strategies to achieve these goals. Members included representatives from:

- » The cities of Canal Winchester, Columbus, Delaware, Dublin, Gahanna, Grandview Heights, Grove City, Groveport, Hilliard, Pickerington, Powell, Westerville, Whitehall, and Worthington
- » Delaware and Franklin counties
- » Central Ohio Transit Authority
- » Franklin County Safe Communities
- » Mid-Ohio Regional Planning Commission
- » Ohio Department of Transportation
- » Ohio Department of Public Safety/Ohio State Highway Patrol
- » Yay Bikes!

## REGIONAL TRANSPORTATION SAFETY PLAN FOCUS GROUP

To supplement the ongoing efforts of the working group, a stakeholder focus group was brought together to provide input on the emphasis areas and strategies developed by the working group. Members of the focus group represented local organizations whose work and/or stakeholders are impacted by transportation safety. The focus group included representatives from the following organizations:

- » Age Friendly Communities
- » Columbus Metropolitan Library
- » Friends & Families for Safe Streets Columbus
- » The Ohio State University
- » Transit Columbus
- » United Way of Central Ohio

Additionally, MORPC wishes to thank the Ohio Association of Regional Councils (OARC) Transportation Safety Working Group for their insights on regional safety planning.

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# GLOSSARY OF ACRONYMS

- COG:** *Central Ohio Greenways*
- COTA:** *Central Ohio Transit Authority*
- COTSP:** *Central Ohio Transportation Safety Plan*
- FAST ACT:** *Fixing America’s Surface Transportation Act*
- FHWA:** *Federal Highway Administration*
- HSIP:** *Highway Safety Improvement Program*
- LPA:** *Local Public Agency*
- LRSP:** *Local Road Safety Plan*
- LTAP:** *Local Technical Assistance Program*
- MAP-21:** *Moving Ahead for Progress in the 21st Century Act*
- MORPC:** *Mid-Ohio Regional Planning Commission*
- MPO:** *Metropolitan Planning Organization*
- MTP:** *Metropolitan Transportation Plan*
- MVMT:** *Million Vehicle Miles Traveled*
- OACP:** *Ohio Association of Chiefs of Police*
- OARC:** *Ohio Association of Regional Councils*
- ODOT:** *Ohio Department of Transportation*
- ODPS:** *Ohio Department of Public Safety*
- OPWC:** *Ohio Public Works Commission*
- OTSO:** *Ohio Traffic Safety Office*
- RTPO:** *Rural Transportation Planning Organization*
- SHSP:** *Strategic Highway Safety Plan*





# CHAPTER 1

## Introduction

# WHAT IS THE CENTRAL OHIO TRANSPORTATION SAFETY PLAN?

The Central Ohio Transportation Safety Plan (COTSP) is a comprehensive safety plan for the Central Ohio region that identifies the most significant causes of serious injuries and fatalities on the local roadway system. The plan establishes a series of goals and benchmarks for safety improvements, identifies existing trends and critical safety priorities, and sets up a framework for how collaboration can improve safety throughout the region. This plan was developed by the Mid-Ohio Regional Planning Commission (MORPC) in collaboration with local, state, and private sector organizations with a wide array of expertise on transportation safety in Central Ohio. A primary influence on the development of the COTSP was the Ohio Strategic Highway Safety Plan (SHSP).

## OHIO STRATEGIC HIGHWAY SAFETY PLAN

Under MAP-21 and the FAST Act, State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) are required to establish performance measures for five-year rolling averages to carry out the Highway Safety Improvement Program (HSIP). These measures include:

- » Number of fatalities
- » Rate of fatalities per 100 million vehicle miles traveled
- » Number of non-motorized (bicyclist and pedestrian) fatalities and serious injuries
- » Number of serious injuries
- » Rate of serious injuries per 100 million vehicle miles traveled

The Ohio Department of Transportation (ODOT) uses this data to set statewide targets for reducing fatal and serious injuries on public roads through the SHSP. The current SHSP summarized these data points for the 2008-2012 timeframe, identified emphasis areas that represent the greatest potential for improvement, and established goals and strategies that aim to reduce the number of fatal and serious injury crashes occurring throughout the state.

The SHSP identified the critical challenges that exist throughout the state, but the challenges that exist in Central Ohio may differ significantly from those experienced in another part of the state. Additionally, more than 80 percent of Ohio roads are locally maintained, leaving the responsibility for safety improvements to the local governments. In many cases, MPOs and Rural Transportation Planning Organizations (RTPOs) are better positioned to impact the safety of locally maintained roadway systems by assisting the local governments and connecting them with available funding. The COTSP is intended to address this by taking what was established by the SHSP and focusing on more localized data to understand the priorities for Central Ohio, specifically.

## LOCAL ROAD SAFETY PLANS

The COTSP was developed through a process recommended by the Federal Highway Administration (FHWA) for creating local road safety plans (LRSPs). LRSPs are data-driven plans that identify and prioritize safety issues impacting local roads and provide strategies for how to address those issues.

In addition to evaluating and addressing key safety challenges in Central Ohio, the COTSP was developed in collaboration with ODOT and local partners to provide a template for other MPOs and RTPOs around the state of Ohio to develop LRSPs for their regions. The COTSP will also provide guidance and support for LRSPs throughout Central Ohio. Two counties in Central Ohio – Delaware and Franklin – have developed LRSPs and are supported by this plan.

## CENTRAL OHIO ROADMAP

The COTSP is focused on the communities within MORPC's MPO area. To help improve local road safety in Central Ohio, MORPC also provides technical assistance to communities within the MPO. The MPO area, also known as MORPC's transportation planning area, is shown on the following page. It covers Franklin County, Delaware County, and portions of Fairfield, Licking, and Union counties. This is the area referenced throughout the COTSP and the extents for all data in the plan, unless otherwise noted.



# PLANNING PROCESS

The COTSP was developed through a phased approach that included engagement of key regional stakeholders throughout the process. The phases included background research, data analysis, identification of priorities, and strategy development, followed by an ongoing phase of implementation and evaluation. This process is closely in line with the methodology recommended by the FHWA for development of LRSPs and is described in more detail on the following pages.



Source: FHWA, Local Road Safety Plans

## PHASE 01

### ENGAGE AND ESTABLISH LEADERSHIP

Key regional stakeholders were invited to form a Regional Transportation Safety Plan Working Group and Stakeholder Focus Group that were engaged at strategic milestones throughout the planning process to help build a better understanding of the safety-related challenges and opportunities for the region and guide plan development. These stakeholders also provided critical insights and feedback on the feasibility of the strategies identified for improving regional transportation safety.

- » The **Regional Transportation Safety Plan Working Group** was formed through open invitation to local jurisdictions, organizations, and agencies that have direct, day-to-day work with safety in Central Ohio. Members of this working group provided a boots-on-the-ground perspective on regional transportation safety issues based on their own data and understanding of site-specific conditions and relationships.
- » A **Stakeholder Focus Group** responded to the emphasis areas and action items developed by the working group and provided input from the perspective of local organizations whose work and/or stakeholders are impacted by transportation safety.

## PHASE 02

### DATA COMPILATION AND ANALYSIS

MORPC collected and analyzed regional crash data from 2013-2017 to understand the critical safety issues throughout the region. This analysis helped to identify the most common crash types occurring throughout the region, specific crash types that have been leading to the most severe injuries, driver behaviors that are influencing the frequency and severity of crashes, and recurring characteristics of crashes. All of these factors are critical to understand in order to effectively address transportation safety in Central Ohio.

## PHASE 03

### PRIORITY SAFETY LOCATION IDENTIFICATION

In addition to the data analysis conducted in Phase 2, key intersections and corridors throughout the region with high numbers of fatal and serious crashes were identified. Mapping these locations allows for agencies to better understand where to invest funding and resources to reduce severe crashes and improve transportation safety in Central Ohio.

## PHASE 04

### REGIONAL SAFETY ACTION PLAN AND SAFETY STRATEGY DEVELOPMENT

Phase 4 and 5 of the FHWA process were combined into this phase. Strategies and action items were developed in collaboration with the working group and focus group to address the safety issues identified through the data analysis that was conducted. The COTSP was then developed based on the information produced in phases 1-3, as well as the input received from the working groups. The action plan establishes the priorities that will be implemented through collaboration with the stakeholders and partners who were involved in development of the COTSP.

## PHASE 05

### IMPLEMENTATION AND EVALUATION

This plan represents a road map toward achieving set goals through effective implementation of the strategies and action items proposed in the action plan. An implementation committee will be established to assist in overseeing the implementation of the action plan and evaluate its progress over time. Evaluation will be a significant part of the implementation process and critical to ensuring the overall success of the plan.

# GOALS AND TARGETS

MORPC's 2016-2040 Metropolitan Transportation Plan (MTP) established a set of regional transportation goals and objectives as well as recommended strategies and projects that will maintain, manage, and develop Central Ohio's transportation system through 2040.

The goals and strategies identified through the planning process guided the selection of projects that will expand the region's roadway network, install infrastructure to support increased traffic volumes from projected population growth, create more infrastructure for active transportation users, support enhanced public transit, and improve safety for all transportation system users.

The goals, strategies, and projects identified in the MTP set the stage for transportation investments over the long term. While the MTP does not allocate funding to the projects that are identified, projects must be included in the MTP before they can be added into the Transportation Improvement Program (TIP), which then secures and commits funding to the implementation of a project.

For more information on the MTP visit [www.morpc.org/mtp](http://www.morpc.org/mtp).

## 2016-2040 MTP GOALS

- » **Reduce per capita energy consumption and promote alternative fuel resources to increase affordability and resilience of regional energy supplies**
- » **Protect natural resources and mitigate infrastructure vulnerabilities to maintain a healthy ecosystem and community**
- » **Position Central Ohio to attract and retain economic opportunity to prosper as a region and compete globally**
- » **Create sustainable neighborhoods to improve residents' quality of life**
- » **Increase regional collaboration and employ innovative transportation solutions to maximize the return on public expenditures**
- » **Use public investments to benefit the health, safety, and welfare of people**

The COTSP will play an important role in helping the region meet the goals set by the MTP by promoting the needs of all users of the region's transportation system in getting to their destinations safely. While current trends indicate that serious injury crashes and the rate of serious injuries per 100 million vehicle miles traveled are decreasing, the number of fatal crashes and rate of fatalities have been, and are expected to continue, increasing. Through the identification of safety emphasis areas and setting of targets focused on those emphasis areas, this plan aims to improve Central Ohio's ability to reduce transportation fatalities and injuries.

## COTSP GOALS

In compliance with the requirements of MAP-21 and the FAST Act, MORPC's MTP includes targets related to the five requisite safety performance measures under the overarching goal, "Use public investments to benefit the health, safety, and welfare of people." The overall goals established for the COTSP reflect the regional goals and the following targets set by the MTP:

**Reduce the number of fatalities by 8 percent from 2017 to 2025**

**Reduce the fatality rate by 1 percent annually**

**Reduce the number of non-motorized fatalities and serious injuries by 8 percent from 2017 to 2025**

**Reduce the number of serious injuries by 8 percent from 2017 to 2025**

**Reduce the serious injury rate by 1 percent annually**

# THE SIX E'S OF SAFETY

The six E's are strategic focus areas that support safe, multimodal transportation and consider all aspects of transportation safety. Traditionally, this comprehensive approach to transportation safety includes four areas (Engineering, Enforcement, Emergency Response, and Education). The COTSP has included two additional aspects (Evaluation and Equity) to highlight the importance of those factors when it comes to safety.

Strategies focused around all of these areas play a critical role in reducing serious injuries and fatalities. For this reason, the Regional Transportation Safety Plan Working Group intentionally included members from local organizations and agencies that have day-to-day operations with each of these focus areas in mind.



## ENGINEERING

Engineering involves the operational and physical aspects of transportation infrastructure that impact user behavior. Many of the crash data trends illustrated in this plan can be addressed through infrastructure improvements that specifically target the identified safety issues.

## EDUCATION

Education leads to greater awareness of traffic safety laws and new transportation facilities while providing information that informs community members about safe roadway behavior. The information included in this plan can be distributed to local communities to inform residents of possible risks and how to prevent them.

## ENFORCEMENT

Enforcement programs focus on ensuring that roadway users follow traffic laws and practice safe travel behaviors. Local law enforcement agencies are key partners in effective implementation of new programs that impact transportation safety.

## EMERGENCY

Fast emergency response times when crashes occur can help to reduce fatalities. Additionally, first responders are aware of common causes of crashes in their jurisdiction and are important participants in developing safety strategies that can be implemented in their communities.

## EVALUATION

Evaluation provides a way to track progress and measure the impacts of improvements made in regard to the first three E's. Evaluation is critical to understand how effective the strategies are in respect to meeting the established targets. This process may include annual reporting and check-in meetings, and will keep stakeholders up-to-date on the successes and challenges of the plan's implementation.

## EQUITY

Equity recognizes that transportation programs and policies affect every aspect of the community and have the potential to bring people together or deepen existing social and accessibility inequities. This plan aims to increase safety for all members of the Central Ohio community.





# CHAPTER 2

# Current Conditions

*The following chapter introduces trends in transportation safety that have occurred throughout the state in recent years and compares those trends to what is happening within Central Ohio. Understanding these larger trends helps to identify the critical factors impacting transportation safety that need to be addressed.*

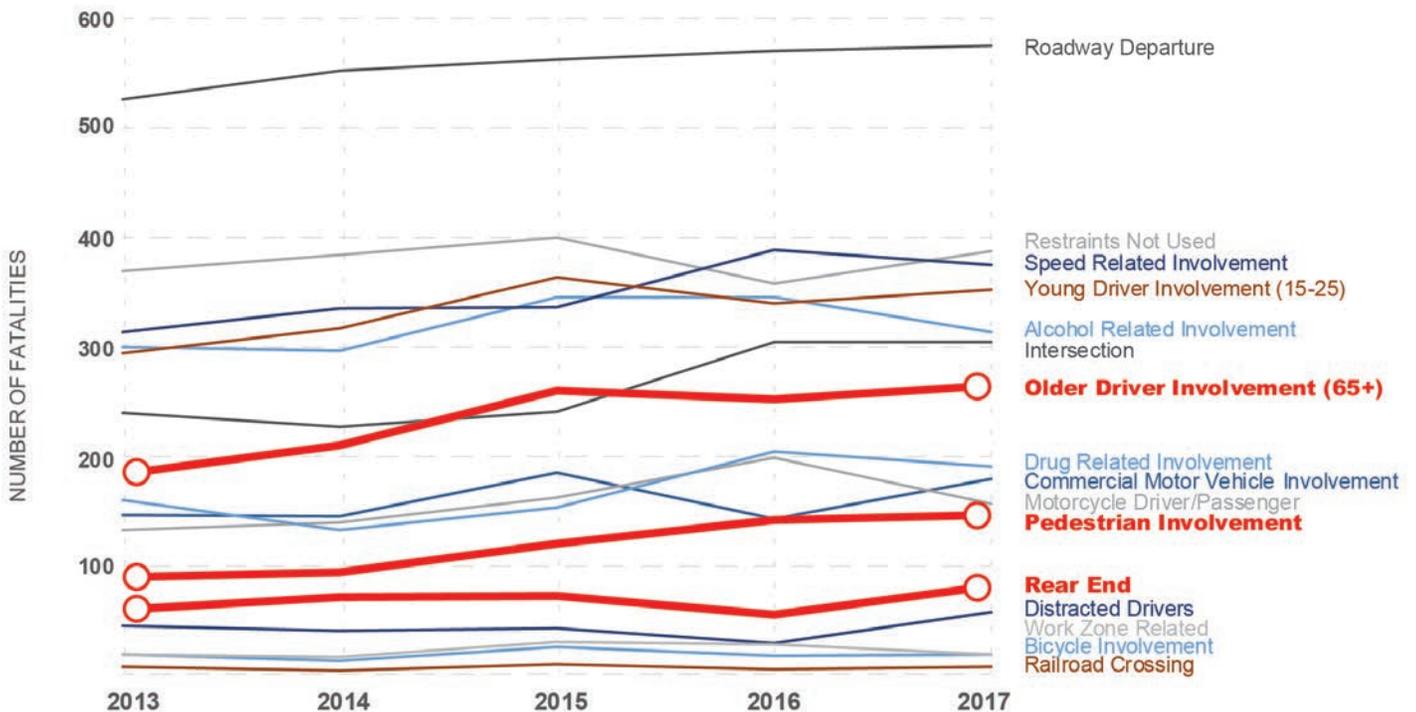
# STATEWIDE SAFETY TRENDS

As part of the commitment to the SHSP, ODOT conducts regular analyses to understand changes in crash trends and assess how those trends are tracking in comparison to the goals and performance measures established in the SHSP. In 2017, Ohio had the 6th highest number of traffic fatalities in the country, accounting for more than 3 percent of all fatalities nationwide. While traffic fatalities across the U.S. decreased overall between 2016 and 2017, there was a 4 percent increase in Ohio. This represented the fourth year in a row that traffic fatalities have increased in Ohio.

The chart in Figure 1 illustrates the changes in number of traffic fatalities over the 2013-2017 time period based on the emphasis areas identified in the Ohio SHSP. While traffic fatalities increased almost across the board in terms of crash types, the most significant increases throughout the state over the 2013-2017 time period included the following:

- » A 37 percent increase in fatalities related to rear end crashes
- » A 44 percent increase in fatalities related to crashes involving older drivers (65+)
- » A 62 percent increase in pedestrian fatalities

**Figure 1. Traffic Fatalities in Ohio by SHSP Emphasis Area**



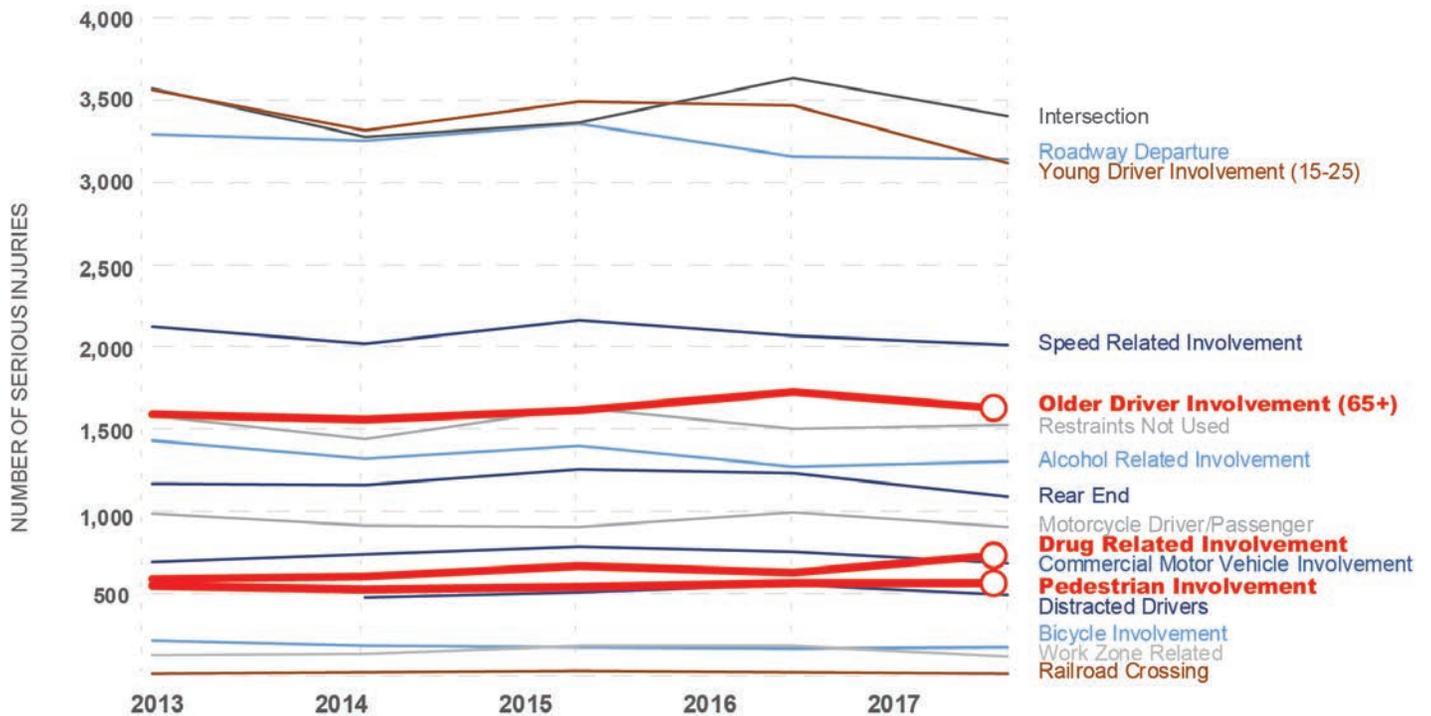
While traffic fatalities across the state have been increasing, the total number of serious injuries has decreased since 2013. Only three of the emphasis areas identified in the Ohio SHSP were reported as having an overall increase in serious injuries over the 2013-2017 time period:

- » A 2 percent increase in serious injuries related to crashes involving older drivers (65+)
- » A 3 percent increase in serious injuries to pedestrians
- » A 27 percent increase in serious injuries as a result of drug-related crashes

The chart in Figure 2 illustrates the changes in number of serious injuries over the 2013-2017 time period based on the emphasis areas identified in the Ohio SHSP.

As noted in both charts, crashes involving pedestrians and older drivers were two categories of crashes that experienced both a significant increase in fatalities and an increase in serious injuries over the 2013-2017 time period throughout Ohio.

**Figure 2. Serious Injuries in Ohio by SHSP Emphasis Area**



# TRENDS IN REGIONAL SAFETY

The crash data for Central Ohio presented within this document was obtained from ODOT through the GIS Crash Analysis Tool (GCAT) and from the Ohio Department of Public Safety (ODPS) Crash Report System. This data is based on information received from standardized police reports (OH-1) that are generated each time a traffic crash occurs and law enforcement responds.

These crash reports include a wealth of information regarding the various factors associated with the crash, including the location and type of roadway where the crash occurred, the severity of the crash and types of units involved, the total number of persons injured or killed as a result of the crash, weather and other environmental conditions, and many other potential contributing factors.

MORPC analyzes this data annually to produce its Top 100 Regional High-Crash Locations List and State of Safety Report. Such information is imperative to understanding the causes of crashes in Central Ohio and, perhaps more importantly, to identifying effective strategies to reduce their frequency. This data is also used to track progress toward the regional targets established in the MTP.

## CURRENT FIVE-YEAR TRENDS

Between 2013 and 2017, a total of 196,792 crashes were reported within MORPC's MPO area, with an overall increase of more than 21 percent over the five-year time period. Nearly half a million people were involved in these crashes, of which 528 were fatally injured and 4,323 suffered serious, life-changing injuries. The chart in Figure 3 includes an overview of the crash trends by year for the 2013-2017 time period.

**On average, nearly 300 people were involved in a crash each day over the 2013-2017 time period.**

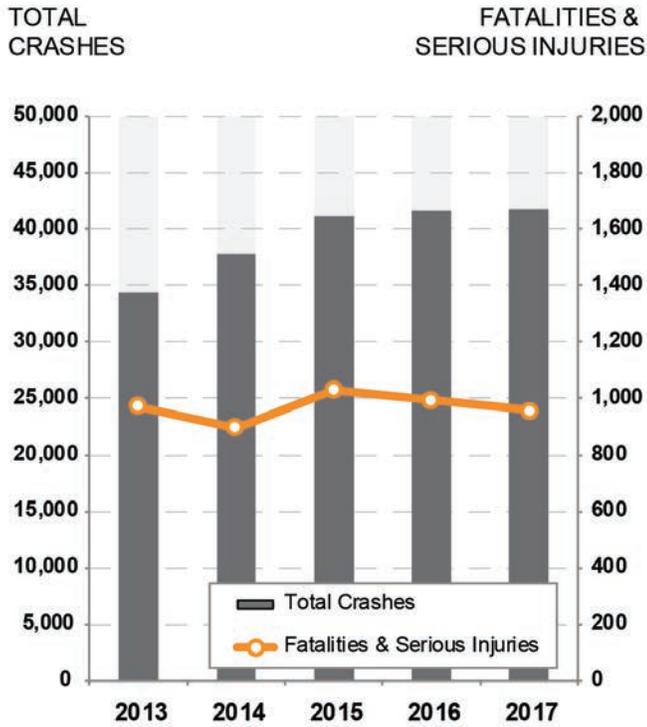


**Figure 3. Crash Trends in Central Ohio by Year (2013-2017)**

YEAR	CRASH STATISTICS				OCCUPANT STATISTICS					SAFETY METRICS		
	Fatal Crashes	Injury Crashes	Property Damage Crashes	Total Crashes	Fatalities	Serious Injuries	Minor Injuries	No Injuries	Total People Involved	Injury Rate	EPDO	Fatalities and Serious Injuries / 100,000 Population
2013	81	8,783	25,583	34,447	90	882	11,694	75,312	87,978	25.73%	2.97	66.20
2014	84	9,341	28,339	37,764	91	803	12,377	82,039	95,310	24.96%	2.78	60.13
2015	96	10,488	30,576	41,160	108	922	14,177	88,973	104,180	25.71%	2.86	68.17
2016	115	10,863	30,694	41,672	124	871	14,642	89,566	105,203	26.34%	2.86	66.37
2017	109	10,990	30,650	41,749	115	845	14,718	89,782	105,460	26.59%	2.84	61.73
5-Year Total	485	50,465	45,842	96,792	528	4,323	67,608	425,672	498,131			
Annual Average	97	10,093	29,168	39,358	106	865	13,522	85,134	99,626	25.9%	2.86	65
Percent Change 2013-2017	34.6%	25.1%	19.8%	21.2%	27.8%	-4.2%	25.9%	19.2%	19.9%	3.3%	-4.3%	-6.8%

Note: The data shown in the chart above represent the raw data reported during this time period.

**Figure 4. Overall Crash Trends (2013-2017)**



While enhancements in vehicle safety, roadway design, emergency response times, traffic laws and enforcement over time have all contributed to a safer transportation system, Central Ohio has experienced population increases as well as an increase in vehicle miles traveled of 4.5 percent from 2013-2017. Our transportation system may be safer than it has ever been, but we also have more people using it.

During the 2013-2017 time period, traffic fatalities in Central Ohio increased by 27.8 percent. However, the number of serious injuries decreased by slightly more than 4 percent. The number of traffic fatalities and serious injuries combined has decreased by approximately 1 percent since 2013. The chart in Figure 4 illustrates the changes in the total number of crashes as well as fatalities and serious injuries by year from 2013-2017.

The chart in Figure 5 indicates the current trends in relation to the MTP targets and goals of the COTSP. The information in this chart represents 5-year rolling averages for the 2013-2017 time period, which helps to illustrate the overall trend by averaging out any significant peaks or declines that occur on a year-by-year basis. The overall trends for each target indicate that our region is moving toward meeting the established targets related to serious injuries, but the region is not on track to meet the targets established regarding traffic fatalities or serious and fatal injuries to non-motorized users.

**Figure 5. Annual Performance Toward Targets**

YEAR	NUMBER OF FATALITIES	NUMBER OF SERIOUS INJURIES	NUMBER OF NON-MOTORIZED FATAL & SERIOUS INJURIES	RATE OF FATALITIES/ 100 MVMT	RATE OF SERIOUS INJURIES/ 100 MVMT
2013	98	922	125	0.71	6.65
2014	97	898	133	0.69	6.46
2015	100	883	138	0.72	6.35
2016	105	878	145	0.74	6.26
2017	107	866	145	0.74	6.11

*Note: The data shown in the chart above represent the five-year rolling averages required for the federal performance measures. The cells highlighted in orange represent the highest numbers within each metric.*

# POPULATION GROWTH ADDS URGENCY

Central Ohio is the fastest-growing region in the Midwest. Based on current population projections, the region is expected to grow to around three million people by the year 2050. In 2018 alone, the 15-county region grew by 43,000 residents, an average of 118 people each day. With a greater number of residents and visitors, Central Ohio is at a greater risk of transportation safety-related injuries and fatalities.

MORPC's insight2050 initiative assists Central Ohio communities in proactively planning for this population growth and its impacts on mobility and development. Housing choices and changing mobility needs will play an increasingly prominent role in the future as the region grows and population demographics change. For example, there is a growing market demand for neighborhoods that are more walkable and transit-friendly. The insight2050 study demonstrates that there are a variety of benefits to such compact, connected neighborhoods, including reductions in traffic congestion, land consumption, and household costs. By taking this focused approach to growth, Central Ohio can proactively prepare for more residents and simultaneously accommodate the growing market demand for neighborhoods that are more walkable and transit-friendly. These same neighborhood development patterns have been shown to reduce the number of fatal and serious injuries on the locally maintained roadway system.

The region's transportation system should be robust enough to serve Central Ohio residents to 2050 and beyond. This Plan proposes strategies to support safe transportation development and augment local efforts of Central Ohio communities.



[GETINSIGHT2050.ORG](http://GETINSIGHT2050.ORG)

# REGIONAL SAFETY PRIORITIES

The information gathered through the analysis of the data in this chapter provided critical insight into where, as well as what types of safety improvements need to be made throughout Central Ohio. The analyses and findings presented in this chapter help to establish the safety priorities and emphasis areas for the region.

While every crash is unique, they are often categorized according to the circumstances of the crash. Categorizing crashes in this way is an important step, as each crash type indicates a particular problem that may be addressed through a targeted engineering, enforcement, or behavioral countermeasure. Additionally, a key focus for this plan is crashes that resulted in fatal and serious injury. This emphasis on fatal and serious injuries follows the goals outlined in the Ohio SHSP and ODOT’s Toward Zero Deaths campaign.

The following topics will be covered in more detail in this section:

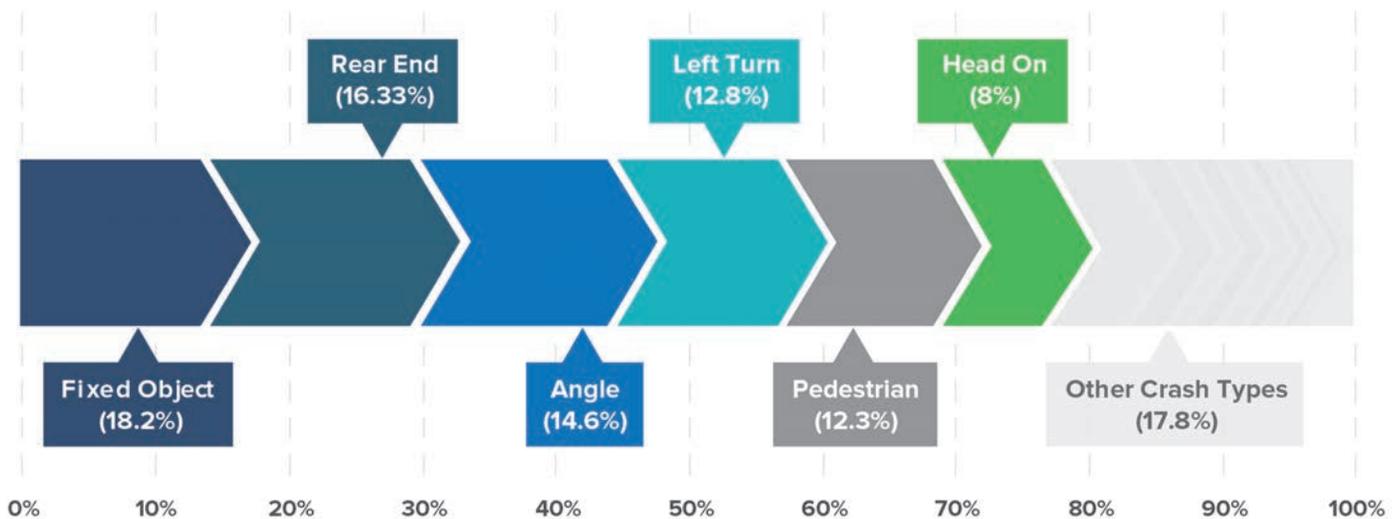
- » Serious Crash Types
- » Vulnerable Roadway Users
- » High Risk Drivers and Behaviors
- » Emerging Technologies

## SERIOUS CRASH TYPES

Throughout Central Ohio between 2013 and 2017, five crash types accounted for nearly 70 percent of fatalities and serious injuries: fixed object crashes, rear-end crashes, angle crashes, left turn crashes, and head on crashes. Pedestrian-involved crashes also accounted for a significant percentage of fatalities and serious injuries, but were included in a separate category to emphasize the importance of addressing safety for users who are not traveling in motor vehicles.

Figure 6 illustrates the total number of fatalities and serious injuries by each crash type that occurred during the 2013-2017 time period. The five motorized crash types identified in this graph comprise one of four emphasis areas established through the COTSP planning process: Serious Crash Types.

**Figure 6. Total Fatalities and Serious Injuries by Crash Type (2013-2017)**



# REGIONAL SAFETY PRIORITIES

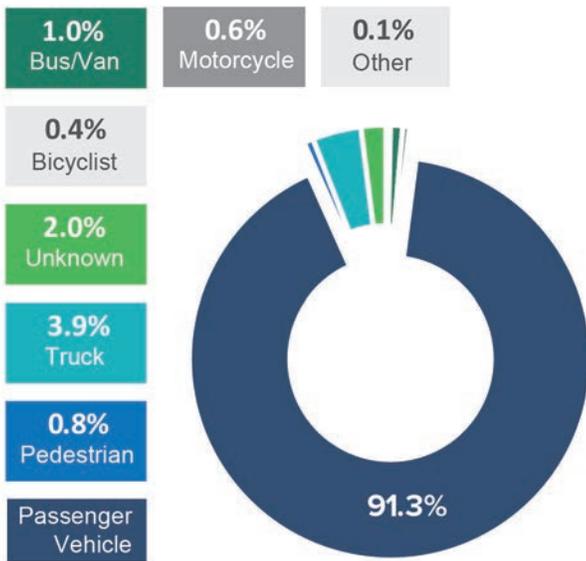
## VULNERABLE ROADWAY USERS

Taking a closer look at the number of fatalities and serious injuries during this time period, it is evident that pedestrians, motorcyclists, and bicyclists are significantly over-represented in comparison to the total number of crashes that occurred involving these users. The charts in Figure 7 and Figure 8 illustrate this disparity across all types of units involved in crashes in Central Ohio during the 2013-2017 time period.

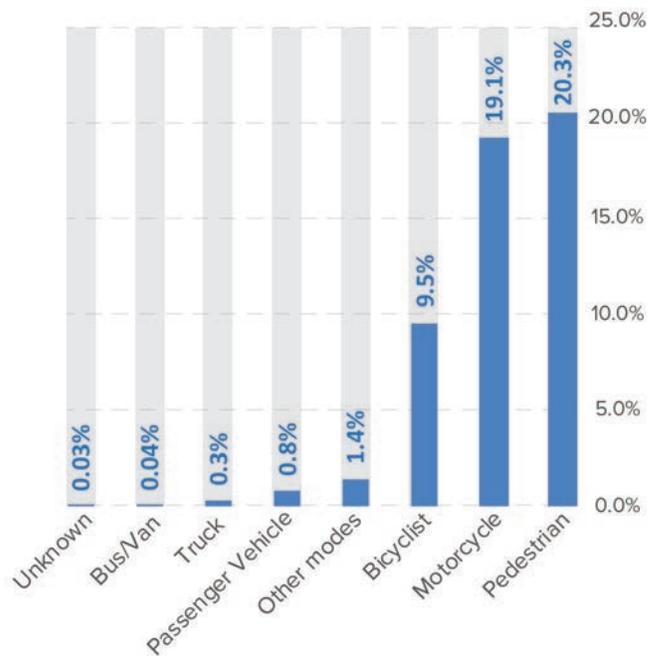
While pedestrians accounted for less than 1 percent of all units involved in crashes from 2013-2017, they represented more than 12 percent of all serious injuries and fatalities during the time period. Additionally, the rate of serious injury or fatality for pedestrians (more than 20 percent) was significantly higher than for most other unit types.

The same can be said for motorcyclists and bicyclists, who accounted for less than 1 percent of all units involved in crashes combined, but experienced rates of serious and fatal injury of 19 percent and 9.5 percent, respectively. This data indicates a much greater risk of serious and fatal injury to people walking, bicycling, and riding motorcycles, leading to the inclusion of these users as the second of four emphasis areas in the COTSP: Vulnerable Roadway Users.

**Figure 7. Percentage of Units Involved in Crashes by Unit Type**



**Figure 8. Fatal & Serious Injury Rate by Unit Type**



## HIGH RISK DRIVERS & BEHAVIORS

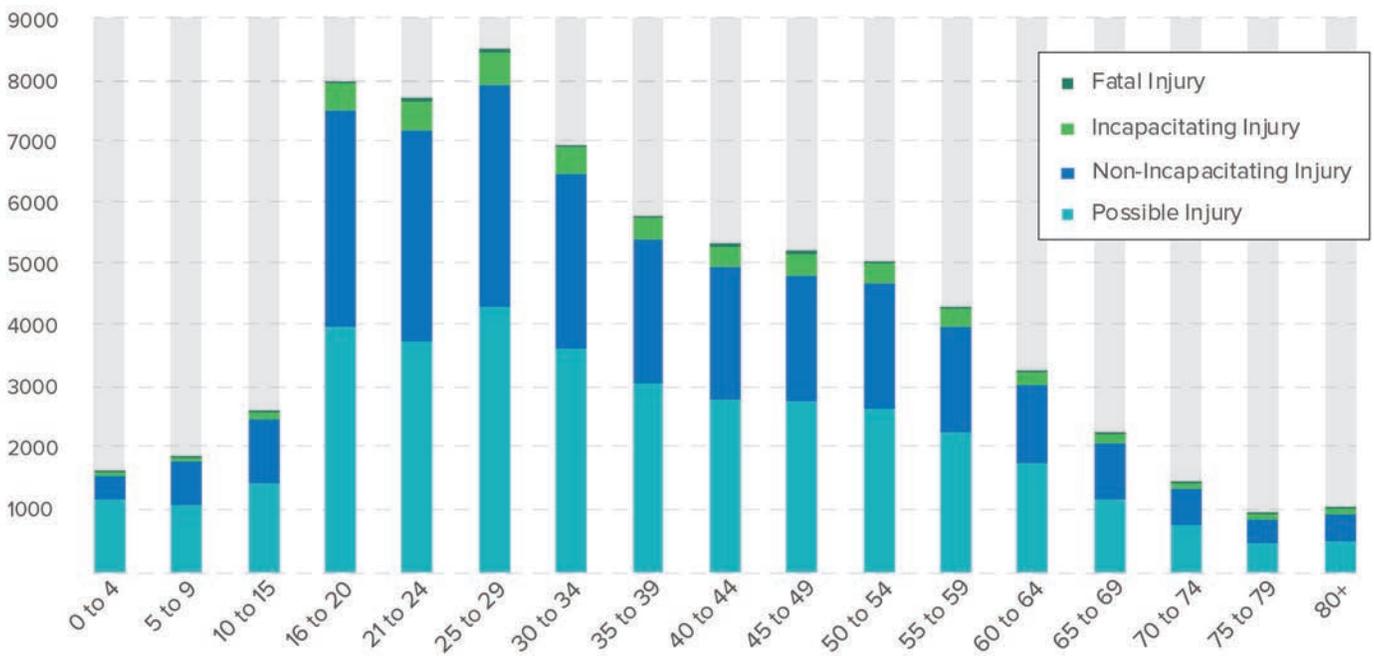
The factors leading to a crash provide engineers and law enforcement agencies with valuable information needed to reduce the severity and frequency of future crashes. These factors can include infrastructure and environmental conditions, along with behavioral aspects and driver experience, age, and skill.

### High Risk Drivers

High risk drivers include specific age groups that represent a much higher percentage of serious injuries and fatalities in the crash data. The highest risk age groups within Central Ohio during the 2013-2017 time period included drivers between the ages of 16 and 29, as well as drivers age 75 and older.

Drivers age 16 to 29 accounted for the greatest number of persons involved in crashes during this time period, as well as more than 30 percent of all fatalities and serious injuries. However, while drivers age 75 and older accounted for the lowest number of persons involved in crashes, they experienced the highest rate of fatality and serious injury of any age group. The chart in Figure 9 illustrates this disparity in injuries across different age groups from 2013-2017.

**Figure 9. Total Number of Injuries by Age Group and Severity of Injury**



# REGIONAL SAFETY PRIORITIES

## High Risk Behaviors

High risk behaviors include driver behaviors that can result in serious or fatal crashes, such as impaired driving, speeding, and distracted driving. This also includes drivers who choose not to wear a seat belt, which can lead to serious and fatal injury when involved in a crash.

**Impaired driving** includes driving while under the influence of alcohol or drugs, and is a suspected factor in many of the fatal and serious crashes in Central Ohio. Alcohol and/or drugs were suspected in crashes that resulted in 26.9 percent of all fatalities and 14.3 percent of all serious injuries during the 2013-2017 time period.

**Speeding** is one factor that tends to go under-reported in crash data due to the difficulty of determining what speed a vehicle was traveling when the crash occurred. Additionally, crashes are only classified as speed related if the reporting officer indicated that the at-fault driver was exceeding the speed limit. However, even with the under-reporting of speeding, crashes classified as speed related accounted for 24.8 percent of all fatalities and 17.4 percent of all serious injuries during the 2013-2017 time period in Central Ohio, which is on par with crashes related to impaired driving.

Speed is a critical factor in crashes, as it has been shown to increase crash risk in two key ways:

- » Speed can increase the likelihood of involvement in a crash, and
- » Speed can increase the severity of the injury sustained as a result of a crash

It is for this reason that the COTSP takes a deeper look at the impact of speed on fatalities and serious injuries in Central Ohio. The analyses in the next chapter include an assessment of posted speed limits on the roadways where fatal and serious injury crashes occurred.

**Distracted driving** is another factor that tends to be under-reported in crash data due to the difficulty of determining whether a driver was distracted at the time the crash occurred. However, trends indicate that distracted driving has increased in recent years and fatalities related to distracted driving have also increased. Crashes reported as distracted driving related accounted for 5 percent of all fatalities and 6.7 percent of all serious injuries during the 2013-2017 time period in Central Ohio.

The high risk drivers and behaviors identified here – younger and older drivers, impaired driving, speeding, and distracted driving – comprise the third of four emphasis areas: Driving Safety Concerns.

## THE IMPACTS OF SPEED

*“The relationship between speed and crash involvement is complex, and it is affected by factors such as road type, driver age, alcohol impairment, and roadway characteristics like curvature, grade, width, and adjacent land use. In contrast, the relationship between speed and injury severity is consistent and direct. Higher vehicle speeds lead to larger changes in velocity in a crash, and these velocity changes are closely linked to injury severity. This relationship is especially critical for pedestrians involved in a motor vehicle crash due to their lack of protection.”*

- Reducing Speeding-Related Crashes Involving Passenger Vehicles, National Transportation Safety Board (NTSB) Safety Study 17/01





## EMERGING TECHNOLOGIES

In recent years, a number of new mobility options have arrived on the streets within Central Ohio, and others are expected to come in the future. Shared electric scooters are one of the most significant new technologies that have entered the transportation realm and have created new challenges for communities where they have appeared. Safety has become a primary concern, due to the nature of how the scooters are operated – some users ride in the street and share the travel lane with automobiles that move at much higher speeds, while others travel on the sidewalk and create conflict with pedestrians who travel much slower.

Because the scooters are so new to the transportation realm, it has been difficult to consistently record and track crashes involving scooter users. There is no unique code for tracking scooters on existing police reports for crashes, so officers responding to these crashes select a category that is most suitable, or none at all. This leads to potential inflation of related categories such as bicycle- and pedestrian-involved crashes, and lack of information about scooter-involved crashes.

In addition to scooters, autonomous vehicles are already operating on Central Ohio roadways and are expected to increase in numbers in the future. Many communities have started planning ahead to address potential changes to our transportation system as a result of these new technologies, and ODPS has updated the State Traffic Crash Report to include a section on autonomous operation.

While the COTSP does not provide any analysis of crash data related to these emerging technologies, this is understood to be a current challenge for Central Ohio and has been identified as the fourth emphasis area in the COTSP: Emerging Technologies.



# REGIONAL SAFETY PRIORITIES

## CRASH FREQUENCY BY MAINTENANCE AUTHORITY

The location information included in the crash data includes both the type of roadway the crash occurred on as well as the maintenance authority. The maintenance authority is the agency that is responsible for improving and maintaining that roadway. This is a critical piece of information when it comes to implementing safety improvements, but also for prioritizing where and how to implement safety improvements. For the purpose of this plan, the maintenance authority information was categorized into city maintained, county maintained, or ODOT maintained. City maintained includes roadways maintained by all city governments within the MPO area. County maintained includes all other jurisdictions within the MPO area.

It is often the case that certain contexts and roadway design characteristics create conditions that result in the same types of crashes occurring at locations with similar context and design. A majority (70 percent) of the ODOT maintained roadways within the MPO area are freeways, while a significant portion of the remaining ODOT maintained roadways are state highways. These facilities are designed differently and have a very different context than most city maintained roadways, and the same could be said for many county maintained roadways. However, it is also important to note that every roadway and every crash is unique; this categorization is simply a method of analyzing common characteristics that could be leading to the occurrence of certain crash types.

The table in Figure 10 indicates the percentage of fatal and serious injury crashes that occurred on each facility type (city, county, or ODOT), organized by the type of crash that occurred. The cells highlighted in orange represent the most significant crash types for each maintenance authority. For example, pedestrian and bicyclist crashes were two of the most frequent crash types on city maintained roadways, while sideswipe-passing crashes were the most frequent crash type on ODOT maintained roadways.

**Figure 10. Percentage of Fatal & Serious Crashes by Roadway Maintenance Authority**

CRASH TYPE	CITY	COUNTY	ODOT
ANGLE	71.25%	13.57%	15.18%
ANIMAL	22.22%	33.33%	44.44%
BACKING	66.67%	16.67%	16.67%
FALLING FROM / IN VEHICLE	0.00%	100.00%	0.00%
FIXED OBJECT	45.92%	17.60%	36.48%
HEAD ON	67.29%	11.65%	21.05%
LEFT TURN	74.90%	7.92%	17.18%
OTHER NON-COLLISION	55.00%	3.33%	41.67%
OTHER OBJECT	0.00%	0.00%	100.00%
OVERTURNING	32.91%	24.05%	43.04%
PARKED VEHICLE	67.50%	10.00%	22.50%
BICYCLIST	75.76%	15.15%	9.09%
PEDESTRIAN	78.66%	8.14%	13.20%
REAR END	46.99%	5.57%	47.44%
RIGHT TURN	67.35%	16.33%	16.33%
SIDESWIPE - MEETING	58.21%	14.93%	26.87%
SIDESWIPE - PASSING	38.87%	3.64%	57.49%
UNKNOWN	87.50%	0.00%	12.50%
<b>TOTAL FATAL AND SERIOUS CRASHES</b>	<b>60.34%</b>	<b>10.99%</b>	<b>28.67%</b>

*Note: The following crash types listed above had very few crashes reported: Animal, Falling from/in Vehicle, Other Object, and Unknown.*

As illustrated by this chart, a majority (60 percent) of all fatal and serious injury crashes occurred on city maintained roadways from 2013-2017. However, some crash types are more common on city maintained roadways, while others are more common on county or ODOT maintained facilities. The crash types resulting in fatal or serious injury that occurred more frequently on city maintained roadways compared to the other facilities included crashes that involved pedestrians and bicyclists. More than 75 percent of all pedestrian and bicycle crashes resulting in fatal or serious injury occurred on a city maintained roadway. Other crash types resulting in fatal or serious injury that occurred with more frequency on city maintained roadways included crash types that often occur at intersections, such as angle crashes and left turn crashes.

# PRIORITY SAFETY LOCATIONS

Throughout the region, there are intersections and corridors that exhibit a high concentration of fatal and serious injury crashes. Crash data analysis helps to pinpoint these locations of recurring fatal and serious injury crashes and develop safety improvements aimed at reducing crash rates and crash severity. The following analyses for high-crash intersections and high injury corridors were conducted to understand more specifically where Central Ohio communities should prioritize safety improvements.

## HIGH-CRASH INTERSECTIONS

MORPC performs an analysis on crash data every year for crashes occurring within the MPO area to identify high-crash locations from the three most recent years. This analysis produces the Top 100 Regional High-Crash Locations, Top 5 High-Crash Intersections by Jurisdiction, and Top Pedestrian and Bicycle High-Crash Clusters. The map in Figure 11 on the following page illustrates the Top 100 Regional High-Crash Locations for the 2015-2017 time period.

The process of identifying the Top 100 Regional High-Crash Locations involves spatial analysis of the crash data obtained through ODOT and ODPS for all intersections in the MPO area except those with freeways, freeway ramps, and other limited-access facilities. This analysis involves calculation of the overall crash frequency (total number of crashes) at each intersection, the relative severity of the crashes at each intersection, and the overall crash rate (total number of crashes per million vehicles entering the intersection) at each intersection. A more detailed description of the methodology for this analysis is available at [morpc.org/safety](http://morpc.org/safety).

## HIGH INJURY CORRIDORS

Streets that have historically experienced a high number of crashes resulting in fatal and serious injuries are considered high injury corridors. Fatal and serious injury crashes that occurred from 2013-2017 were mapped to the roadway network to highlight the priority corridors for safety improvements throughout the region.

This analysis included identification of the corridors within the MPO area that experienced multiple fatal and serious crashes along continuous, or mostly continuous, stretches of the roadway. The map in Figure 12 on page 31 illustrates the corridors that were identified and comprise the Central Ohio High Injury Network (HIN) for the 2013-2017 time period.

The intent of the Central Ohio HIN is to understand which corridors in our region are the most challenging in terms of safety, particularly as it relates to fatal and serious crashes. The following are key characteristics of the Central Ohio HIN:

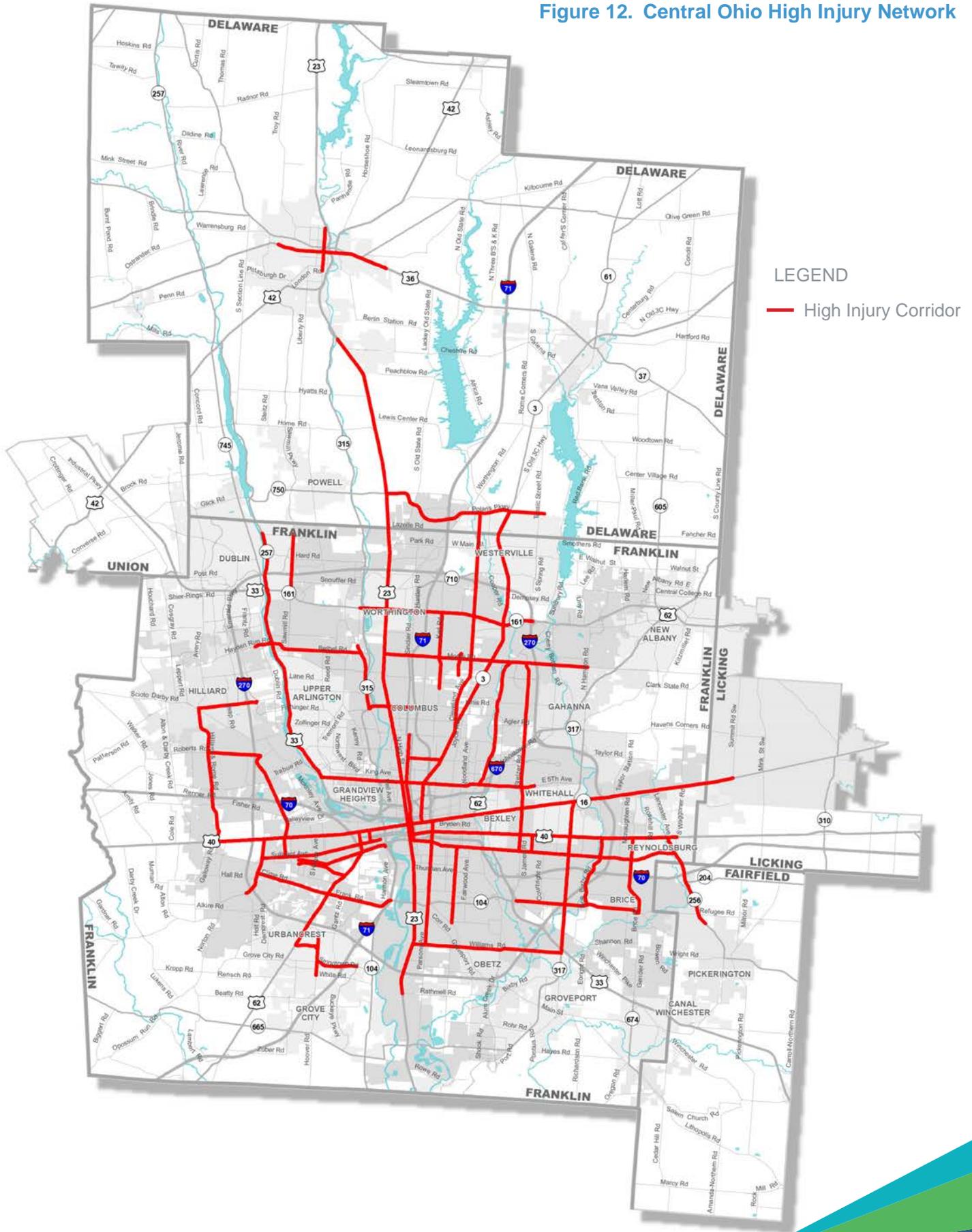
- » These high injury corridors make up approximately 5 percent of the non-freeway roadway network within the MPO area.
- » The fatalities that occurred as a result of crashes along these corridors comprised approximately 42 percent of all fatalities that occurred on the non-freeway network within the MPO area.
- » The serious injuries that occurred as a result of crashes along these corridors comprised approximately 48 percent of all serious injuries that occurred on the non-freeway network within the MPO area.

## TRACKING SAFETY IMPROVEMENTS

It is important to note that many of the locations identified through this data analysis have had safety improvements that were completed in recent years or are currently underway. However, the crash data from years prior to those improvements result in the locations still be included in the following maps. MORPC is working with communities to track these improvements and the resulting impacts on safety over time at those locations.



Figure 12. Central Ohio High Injury Network







# CHAPTER 3

## Emphasis Areas

# REGIONAL EMPHASIS AREAS

The crash data presented in the previous chapter highlighted four key emphasis areas that represent the greatest potential for reducing fatal and serious crashes:



## SERIOUS CRASH TYPES

- » Fixed Object Crashes
- » Rear End Crashes
- » Angle Crashes
- » Left Turn Crashes
- » Head On Crashes



## DRIVING SAFETY CONCERNS

- » Younger and Older Drivers
- » Impaired Driving
- » Speeding
- » Seat Belt / Restraint Use
- » Distracted Driving



## VULNERABLE ROADWAY USERS

- » Pedestrians
- » Bicyclists
- » Motorcyclists



## EMERGING TECHNOLOGIES

- » Autonomous / Connected Vehicles
- » Electric Vehicles
- » Electric Scooters

These emphasis areas were chosen based on the frequency of crash types, the number of serious and fatal crashes by type, the severity of the crash types, and consideration of the different types of roadway users involved in the crashes. These factors were reviewed with the working groups to dive deeper into specific local issues and effectively categorize the different issues into appropriate emphasis areas. The following sections provide an overview of each emphasis area, including key information about the relevant crash types, goals for improvement, strategies for accomplishing those goals, and performance measures to track progress.

## SERIOUS CRASH TYPES

Serious crash types are those crashes that resulted in the highest total numbers of fatal and serious injuries for crashes that only involved motor vehicles during the 2013-2017 period. The serious crash types include fixed object, rear end, angle, left turn and head on crashes. These crash types contributed to nearly 70 percent of all fatal and serious crashes.

## VULNERABLE ROADWAY USERS

Vulnerable roadway users include users that experience a significantly higher rate of serious and fatal injury as a result of a crash. These users have been identified in this plan as pedestrians, bicyclists, and motorcyclists, and they operate within the same transportation system as motor vehicles. This often leads to conflicts and crashes between these users and motor vehicles.

It is important to note that while crash data exists for these users, it is not comprehensive and not as well documented as data for vehicular crashes. Many crashes involving pedestrians and bicyclists are not reported, and there is often a tendency to cite these users as being at-fault because of how our policies and infrastructure are designed.

Scooter users are not included in the vulnerable roadway users category because the available crash data does not yet identify crashes involving scooter users. They may be accounted for within the bicyclist- or pedestrian-involved crashes as a result of limitations in the crash reporting form.

## DRIVING SAFETY CONCERNS

In addition to identifying high frequency crash types, it is important to recognize the impact of unsafe driving behavior as well as our most at-risk user groups. Younger and older drivers, impaired driving, speeding, seat belt use, and distracted driving have been identified as the primary driving safety concerns to focus on within the region.

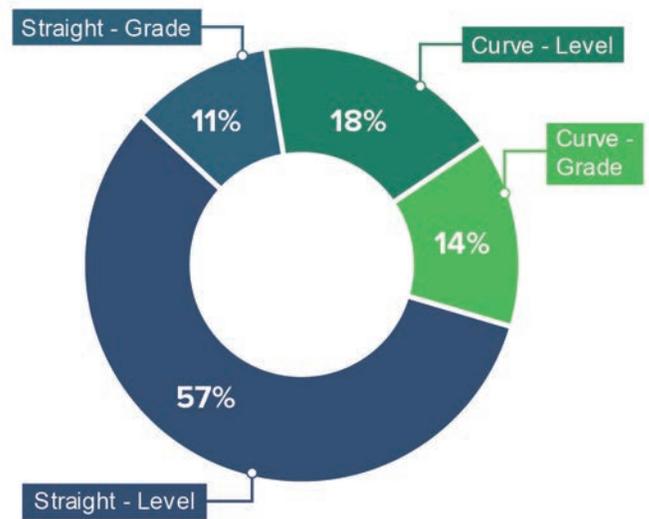
## EMERGING TECHNOLOGIES

As Central Ohio continues to grow, new technologies will have impacts on roadway safety as users have new modes of transportation to use. Autonomous/connected vehicles, electric vehicles, and electric scooters are already using the roadway network today or soon will be, and there will likely be other new technologies in the future. It will be important to consider the potential impacts of these technologies as well as how they can be safely accommodated within our transportation system.

# SERIOUS CRASH TYPES

## FIXED OBJECT CRASHES

Fixed object crashes occur when a motorist leaves the roadway and strikes a stationary object. In the Central Ohio region, the most commonly struck stationary objects were median barriers, trees, curbs, and utility poles. Fatal and serious fixed object crashes most often occurred on straight, level roadway segments, but a significant portion (32 percent) also occurred on curved roadway segments. The majority (77 percent) of these crashes did not occur at intersections.



### GOALS

- » Reduce the number of fatalities related to fixed object crashes by 8 percent between 2017 and 2025 (1 percent annual reduction).
- » Reduce the number of serious injuries related to fixed object crashes by 8 percent between 2017 and 2025 (1 percent annual reduction).

### TRENDS

Between 2013 and 2017:

- » The total number of fixed object crashes **increased** by 8.2 percent.
- » The total number of **fatalities** related to fixed object crashes **increased** by 22.2 percent.
- » The total number of **serious injuries** related to fixed object crashes **decreased** by 32.2 percent.

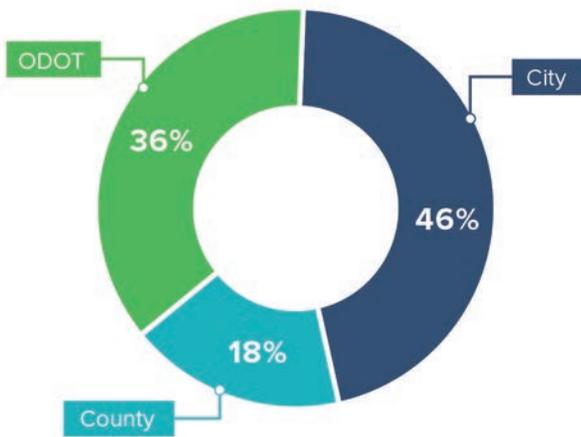


Fixed object crashes were the **fourth most common type of crash** in Central Ohio between 2013-2017. Fixed object crashes had a comparatively moderate rate of fatal and serious injury (3.89 percent), but **accounted for the largest percentage of all fatalities and serious injuries** (18.2 percent) that occurred during this time period.

**Between 2013 and 2017 in Central Ohio:**

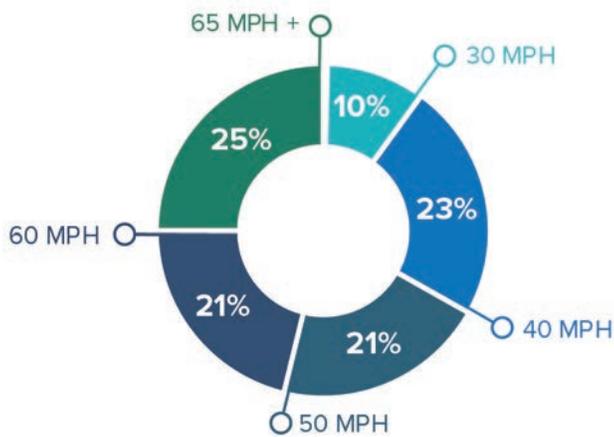
- » 20,421 fixed object crashes were reported (10.4 percent of all crashes).
- » 158 people were killed as a result of fixed object crashes (29.9 percent of all fatalities).
- » 725 people were seriously injured as a result of fixed object crashes (16.8 percent of all serious injuries).

**Figure 13. Fatal & Serious Fixed Object Crashes by Maintenance Authority**



The chart in Figure 13 illustrates the percentage of fixed object crashes resulting in fatal and serious injury that occurred on city, county, and ODOT maintained facilities from 2013-2017. The largest individual share (46 percent) of these fatal and serious injury crashes occurred on city maintained roadways, but each maintenance authority holds a significant percentage of responsibility for mitigating this crash type. The majority (54 percent) of fixed object crashes resulting in fatal and serious injury did not occur on city maintained roadways, but were split between ODOT maintained (36 percent) and county maintained (18 percent).

**Figure 14. Fatal & Serious Fixed Object Crashes by Posted Speed Limit**



The chart in Figure 14 illustrates the percentage of fixed object crashes resulting in fatal and serious injury based on the posted speed limit of the roadway on which the crash occurred. Nearly all (90 percent) of the fixed object crashes resulting in fatal or serious injury occurred on roadways with posted speed limits of 35 mph or greater, and a majority (67 percent) of these crashes occurred on roadways with posted speed limits of 45 mph or greater. While this chart does not indicate whether the driver was speeding at the time of the crash, drivers can more easily lose control of the vehicle and have less time to react at higher speeds; higher speeds provide less opportunity to recover from error.

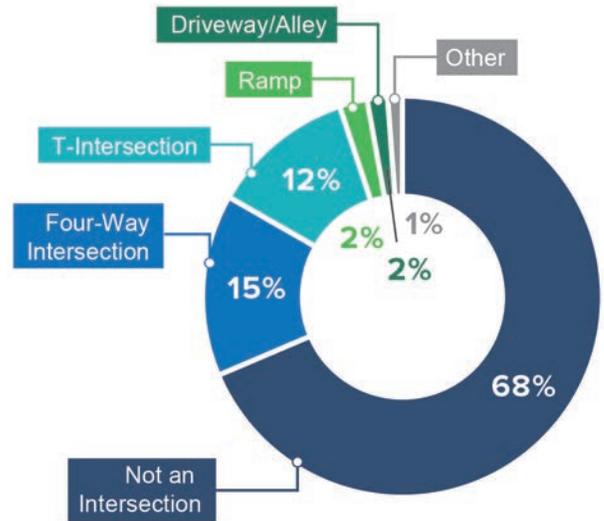
# SERIOUS CRASH TYPES

## REAR END CRASHES

Rear end crashes occur when a motorist strikes another vehicle from behind. Fatal and serious rear end crashes occurred most often on straight, level roadway segments. The majority of these crashes (68 percent) did not occur at intersections, however a significant portion (27 percent) occurred at some type of intersection.

### GOALS

- » Reduce the number of fatalities related to rear end crashes by 8 percent between 2017 and 2025 (1 percent annual reduction).
- » Reduce the number of serious injuries related to rear end crashes by 8 percent between 2017 and 2025 (1 percent annual reduction).



### TRENDS

Between 2013 and 2017:

- » The total number of rear end crashes **increased** by 19.3 percent.
- » The total number of **fatalities** related to rear end crashes **decreased** by 41.7 percent.
- » The total number of **serious injuries** related to rear end crashes **increased** by 21.2 percent.

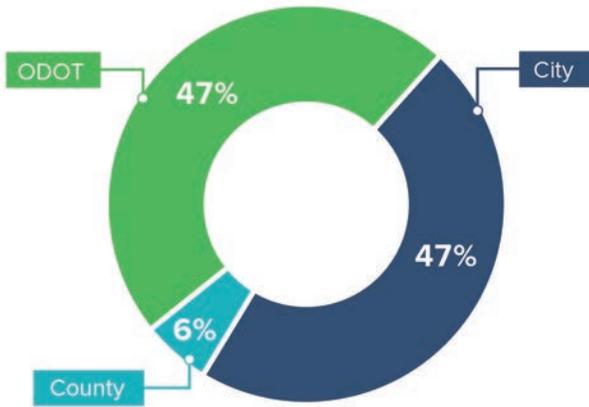


Rear end crashes were the **most common type of crash** in Central Ohio between 2013-2017. These crashes had one of the lowest rates of fatal and serious injury (1 percent), but accounted for the second largest percentage of all fatalities and serious injuries (16.3 percent) that occurred during this time period due to the high number of total crashes.

**Between 2013 and 2017 in Central Ohio:**

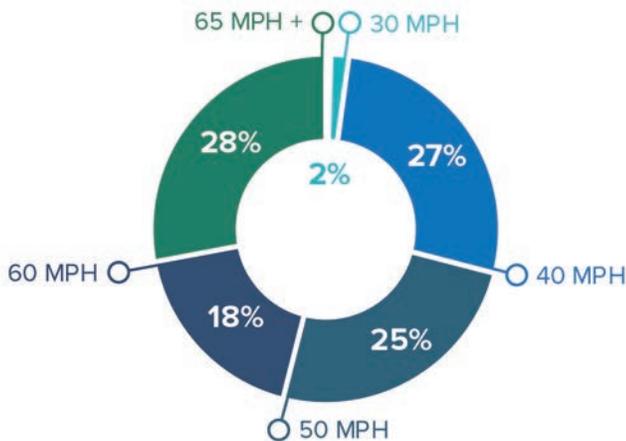
- » 64,756 rear end crashes were reported (32.9 percent of all crashes).
- » 53 people were killed as a result of rear end crashes (10 percent of all fatalities).
- » 739 people were seriously injured as a result of rear end crashes (17.1 percent of all serious injuries).

**Figure 15. Fatal & Serious Rear End Crashes by Maintenance Authority**



The chart in Figure 15 illustrates the percentage of rear end crashes resulting in fatal and serious injury that occurred on city, county, and ODOT maintained facilities from 2013-2017. The vast majority (94 percent) of rear end crashes resulting in fatal and serious injury occurred on city and ODOT maintained roadways, each accounting for an equal share (47 percent each). Very few (6 percent) rear end crashes resulting in fatal and serious occurred on county maintained roadways.

**Figure 16. Fatal & Serious Rear End Crashes by Posted Speed Limit**

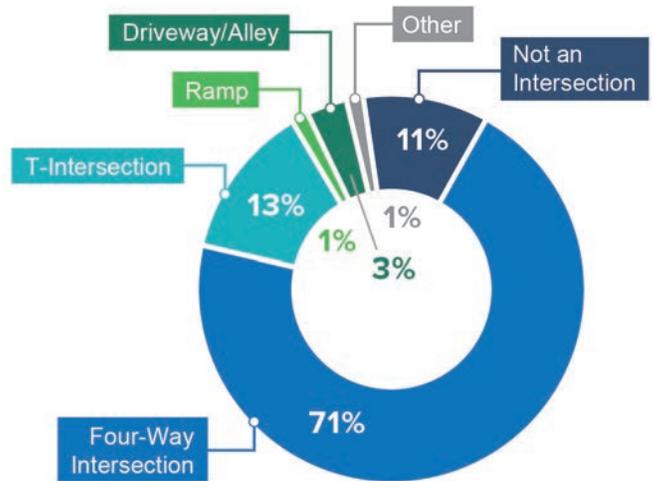


The chart in Figure 16 illustrates the percentage of rear end crashes resulting in fatal and serious injury based on the posted speed limit of the roadway on which the crash occurred. Nearly all (98 percent) of the rear end crashes resulting in fatal or serious injury occurred on roadways with posted speed limits of 35 mph or greater, and a majority (71 percent) of these crashes occurred on roadways with posted speed limits of 45 mph or greater. While this chart does not indicate whether the driver was speeding at the time of the crash, rear end crashes often occur when drivers on higher speed roadways are forced to an abrupt stop due to congestion or other issues on the roadway.

# SERIOUS CRASH TYPES

## ANGLE CRASHES

Angle crashes occur when vehicles collide while crossing or on perpendicular paths. These crashes have been separated from right and left turns. Fatal and serious angle crashes occurred most often on straight, level roadway segments. The majority of these crashes (84 percent) occurred at some type of intersection.



### GOALS

- » Reduce the number of fatalities related to angle crashes by 8 percent between 2017 and 2025 (1 percent annual reduction).
- » Reduce the number of serious injuries related to angle crashes by 8 percent between 2017 and 2025 (1 percent annual reduction).

### TRENDS

Between 2013 and 2017:

- » The total number of angle crashes **increased** by 29.3 percent.
- » The total number of **fatalities** related to angle crashes **decreased** by 28.6 percent.
- » The total number of **serious injuries** related to angle crashes **increased** by 8.7 percent.

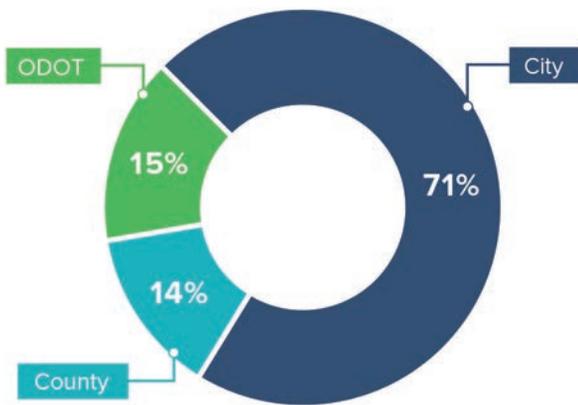


Angle crashes were the **fifth most common type of crash** in Central Ohio between 2013-2017. Additionally, angle crashes had a comparatively low rate of fatal and serious injury (3 percent), but accounted for the third largest percentage of all fatalities and serious injuries (14.6 percent) that occurred during this time period.

**Between 2013 and 2017 in Central Ohio:**

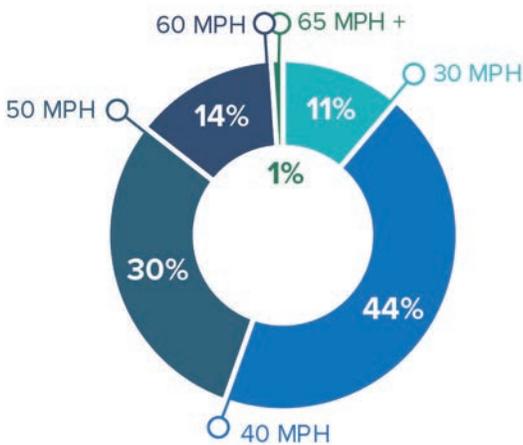
- » 18,844 angle crashes were reported (9.6 percent of all crashes).
- » 45 people were killed as a result of angle crashes (8.5 percent of all fatalities).
- » 663 people were seriously injured as a result of angle crashes (15.3 percent of all serious injuries).

**Figure 17. Fatal & Serious Angle Crashes by Maintenance Authority**



The chart in Figure 17 illustrates the percentage of angle crashes resulting in fatal and serious injury that occurred on city, county, and ODOT maintained facilities from 2013-2017. The majority (71 percent) of these fatal and serious injury crashes occurred on city maintained roadways, but each maintenance authority holds a share of responsibility for mitigating this crash type. A significant portion of angle crashes resulting in fatal and serious injury occurred on county maintained roadways (14 percent) and ODOT maintained roadways (15 percent) as well.

**Figure 18. Fatal & Serious Angle Crashes by Posted Speed Limit**



The chart in Figure 18 illustrates the percentage of angle crashes resulting in fatal and serious injury based on the posted speed limit of the roadway on which the crash occurred. Nearly all (89 percent) of the angle crashes resulting in fatal or serious injury occurred on roadways with posted speed limits of 35 mph or greater. However, a majority (74 percent) of these crashes occurred on roadways with posted speed limits greater than 35 mph, but less than 55 mph. This is indicative of the fact that angle crashes occur most often at intersections or other locations where there are conflicting vehicular movements, which are less common on limited access, higher speed roadways. While this chart does not indicate whether the driver was speeding at the time of the crash, angle crashes can be much more severe at higher travel speeds.

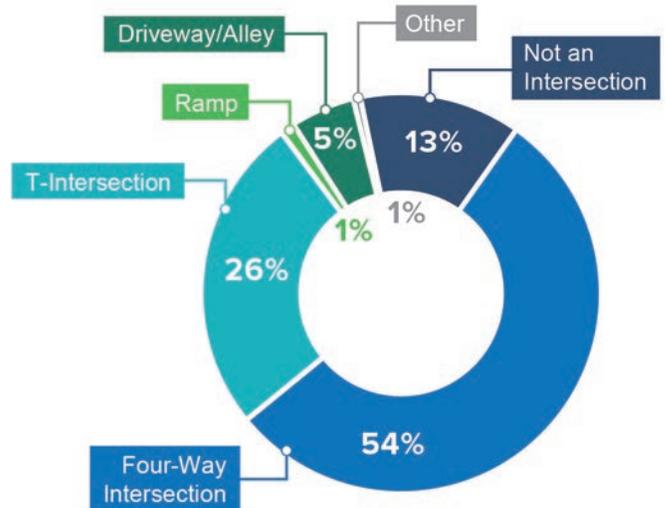
# SERIOUS CRASH TYPES

## LEFT TURN CRASHES

Left turn crashes occur when a vehicle turning left onto a road or at an intersection is struck by another vehicle running perpendicular to the first motorist. Fatal and serious left turn crashes occurred most often at straight, level, four-way or two-way intersections.

### GOALS

- » Reduce the number of fatalities related to left turn crashes by 8 percent between 2017 and 2025 (1 percent annual reduction).
- » Reduce the number of serious injuries related to left turn crashes by 8 percent between 2017 and 2025 (1 percent annual reduction).



### TRENDS

Between 2013 and 2017:

- » The total number of left turn crashes **increased** by 19.7 percent.
- » The total number of **fatalities** related to left turn crashes **increased** by 75 percent.
- » The total number of **serious injuries** related to left turn crashes **decreased** by 14 percent.

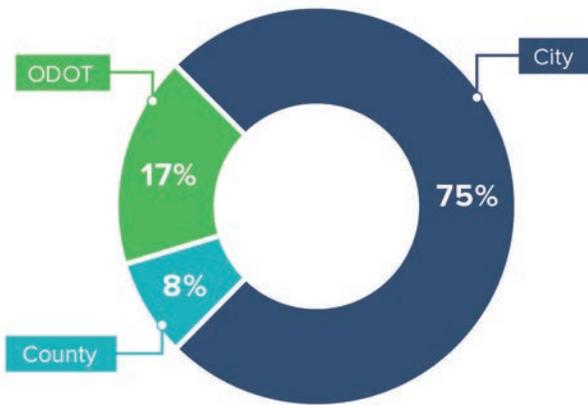


Left turn crashes were the **third most common type of crash** in Central Ohio between 2013-2017. Additionally, left turn crashes had a comparatively low rate of fatal and serious injury (2.4 percent), but accounted for the fourth largest percentage of all fatalities and serious injuries (12.8 percent) that occurred during this time period.

**Between 2013 and 2017 in Central Ohio:**

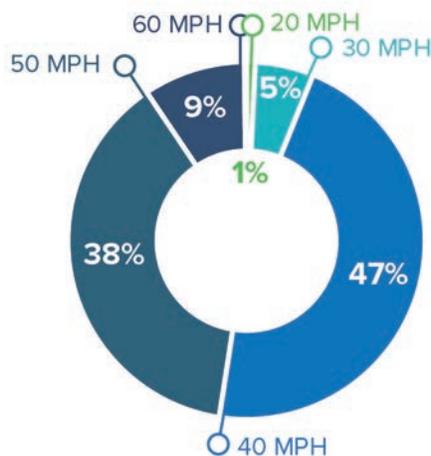
- » 21,960 left turn crashes were reported (11.2 percent of all crashes).
- » 32 people were killed as a result of left turn crashes (6.1 percent of all fatalities)
- » 590 people were seriously injured as a result of left turn crashes (13.7 percent of all serious injuries).

**Figure 19. Fatal & Serious Left Turn Crashes by Maintenance Authority**



The chart in Figure 19 illustrates the percentage of left turn crashes resulting in fatal and serious injury that occurred on city, county, and ODOT maintained facilities from 2013-2017. Similar to angle crashes, the majority (75 percent) of left turn crashes resulting in fatal and serious injury occurred on city maintained roadways, but each maintenance authority holds a share of responsibility for mitigating this crash type. A significant portion of these fatal and serious injury crashes occurred on county maintained (8 percent) and ODOT maintained roadways (17 percent) as well.

**Figure 20. Fatal & Serious Left Turn Crashes by Posted Speed Limit**

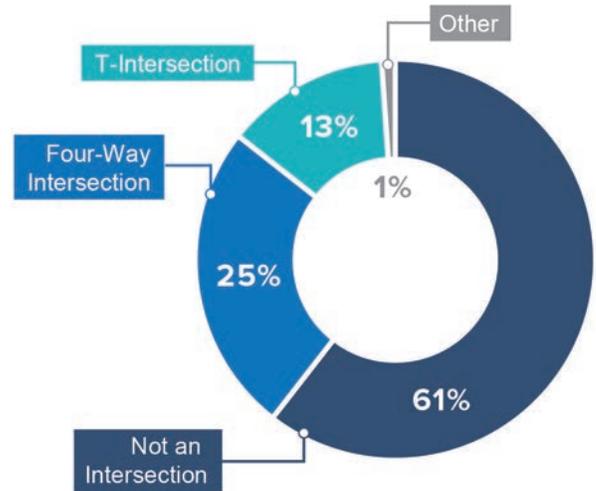


The chart in Figure 20 illustrates the percentage of left turn crashes resulting in fatal or serious injury based on the posted speed limit of the roadway on which the crash occurred. Nearly all (94 percent) of the left turn crashes resulting in fatal or serious injury occurred on roadways with posted speed limits of 35 mph or greater. However, a vast majority (85 percent) of these crashes occurred on roadways with posted speed limits greater than 35 mph, but less than 55 mph. Similar to the situation with angle crashes, this is indicative of the fact that left turn crashes occur most often at intersections or other locations like driveways and access points that enable conflicting vehicular movements, which are less common on limited access, higher speed roadways. While this chart does not indicate whether the driver was speeding at the time of the crash, left turn crashes can be much more severe at higher travel speeds.

# SERIOUS CRASH TYPES

## HEAD ON CRASHES

Head on crashes occur when two vehicles' front ends collide while traveling in opposite directions. Fatal and serious head on crashes occurred most often on straight, level roadway segments. The majority of these crashes (61 percent) did not occur at intersections, but a significant portion (38 percent) occurred at some type of intersection.



### GOALS

- » Reduce the number of fatalities related to head on crashes by 8 percent between 2017 and 2025 (1 percent annual reduction).
- » Reduce the number of serious injuries related to head on crashes by 8 percent between 2017 and 2025 (1 percent annual reduction).

### TRENDS

Between 2013 and 2017:

- » The total number of head on crashes **increased** by 21.3 percent.
- » The total number of **fatalities** related to head on crashes **increased** by 320 percent.
- » The total number of **serious injuries** related to head on crashes **increased** by 16.2 percent.

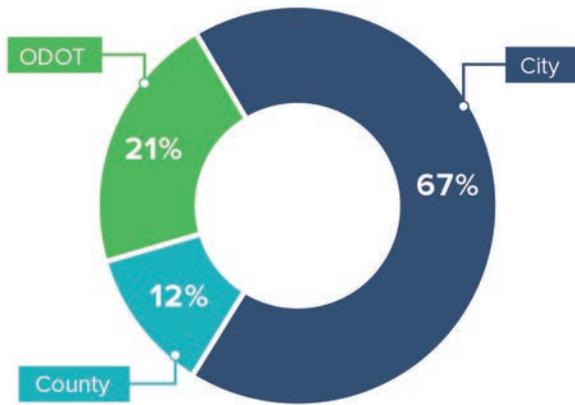


Head on crashes were not a very common type of crash in Central Ohio between 2013-2017. However, head on crashes had the third highest rate of fatal and serious injury (9.6 percent) and accounted for the sixth largest percentage of all fatalities and serious injuries (8 percent) that occurred during this time period.

**Between 2013 and 2017 in Central Ohio:**

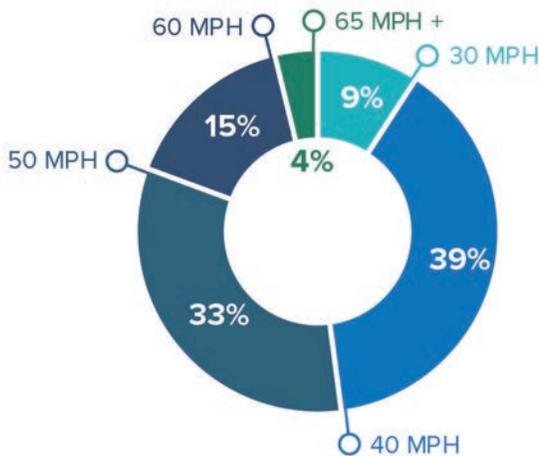
- » 2,804 head on crashes were reported (1.4 percent of all crashes).
- » 61 people were killed as a result of head on crashes (11.6 percent of all fatalities).
- » 326 people were seriously injured as a result of head on crashes (7.5 percent of all serious injuries).

**Figure 21. Fatal & Serious Head On Crashes by Maintenance Authority**



The chart in Figure 21 illustrates the percentage of head on crashes resulting in fatal and serious injury that occurred on city, county, and ODOT maintained facilities from 2013-2017. The majority (67 percent) of these fatal and serious injury crashes occurred on city maintained roadways, but each maintenance authority holds a share of responsibility for mitigating this crash type. A significant percentage of head on crashes resulting in fatal and serious injury occurred on county maintained (12 percent) and ODOT maintained roadways (21 percent).

**Figure 22. Fatal & Serious Head On Crashes by Posted Speed Limit**

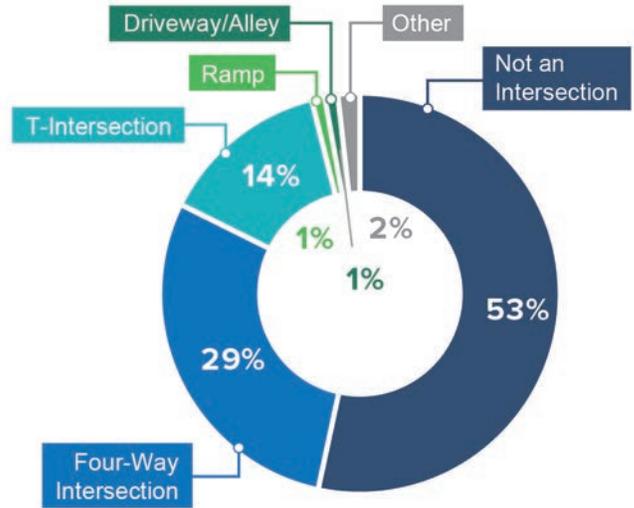


The chart in Figure 22 illustrates the percentage of head on crashes resulting in fatal and serious injury based on the posted speed limit of the roadway on which the crash occurred. Nearly all (91 percent) of the head on crashes resulting in fatal or serious injury occurred on roadways with posted speed limits of 35 mph or greater. However, a majority (72 percent) of these crashes occurred on roadways with posted speed limits greater than 35 mph, but less than 55 mph. This is likely due to the fact that many higher speed (55 mph and above) roadways often have medians or center dividers that would prevent head on crashes from occurring. While this chart does not indicate whether the driver was speeding at the time of the crash, head on crashes can be much more severe at higher travel speeds.

# VULNERABLE ROADWAY USERS

## PEDESTRIAN-INVOLVED CRASHES

Pedestrian-involved crashes are crashes involving a motor vehicle and one or more pedestrians. Fatal and serious pedestrian-involved crashes occurred most often on straight, level roadway segments. The majority of these crashes (53 percent) did not occur at intersections, but a significant portion (43 percent) occurred at some type of intersection.



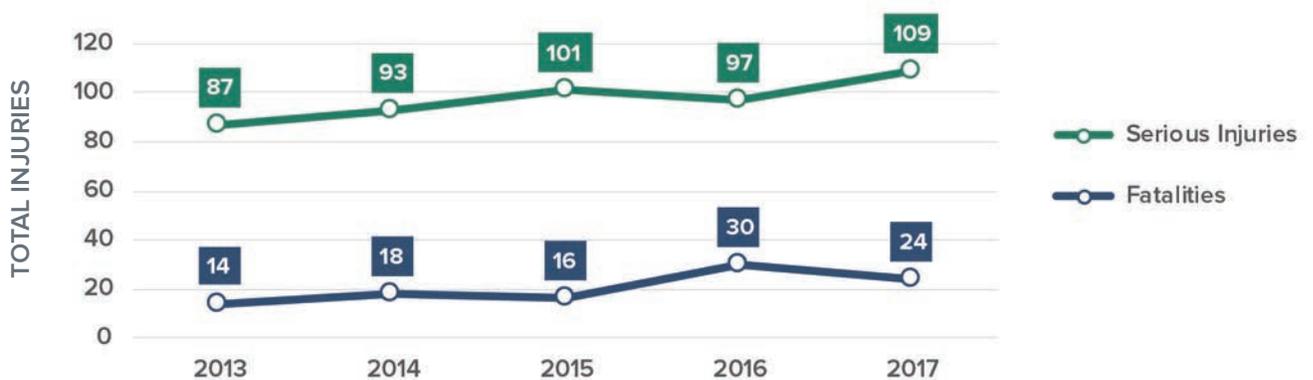
### GOALS

- » Reduce the number of pedestrian fatalities by 8 percent between 2017 and 2025 (1 percent annual reduction).
- » Reduce the number of serious injuries to pedestrians by 8 percent between 2017 and 2025 (1 percent annual reduction).

### TRENDS

Between 2013 and 2017:

- » The total number of crashes involving pedestrians **increased** by 18.5 percent.
- » The total number of pedestrian **fatalities increased** by 71.4 percent.
- » The total number of **serious injuries** to pedestrians **increased** by 25.3 percent.

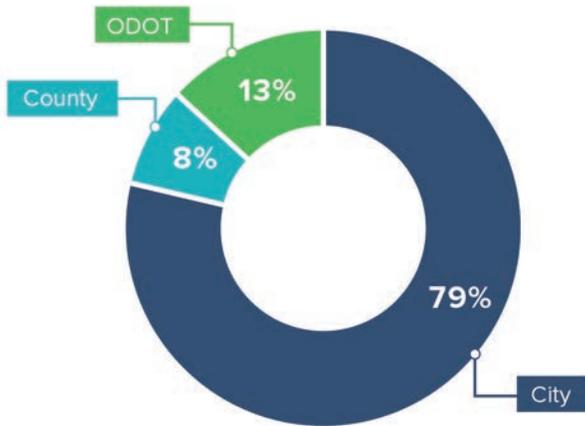


Crashes involving pedestrians did not occur nearly as often as many other crash types in Central Ohio between 2013-2017. However, **crashes involving pedestrians had the highest rate of fatal and serious injury** (20.3 percent) of any crash type and accounted for the fifth largest percentage of all fatalities and serious injuries (12.3 percent) that occurred during this time period.

**Between 2013 and 2017 in Central Ohio:**

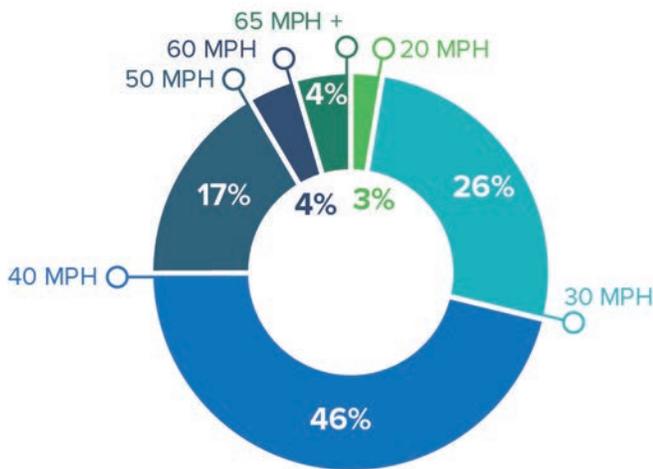
- » 2,767 crashes involving pedestrians were reported (1.4 percent of all crashes).
- » 102 people were killed as a result of being hit by a car while walking (19.3 percent of all fatalities).
- » 487 people were seriously injured as a result of being hit by a car while walking (11.2 percent of all serious injuries).

**Figure 23. Fatal & Serious Pedestrian-Involved Crashes by Maintenance Authority**



The chart in Figure 23 illustrates the percentage of pedestrian-involved crashes resulting in fatal and serious injury that occurred on city, county, and ODOT maintained facilities from 2013-2017. The majority (79 percent) of these fatal and serious injury crashes occurred on city maintained roadways, but each maintenance authority holds a share of responsibility for mitigating this crash type. A significant percentage of pedestrian-involved crashes resulting in fatal and serious injury occurred on county maintained (8 percent) and ODOT maintained roadways (13 percent).

**Figure 24. Fatal & Serious Pedestrian-Involved Crashes by Posted Speed Limit**

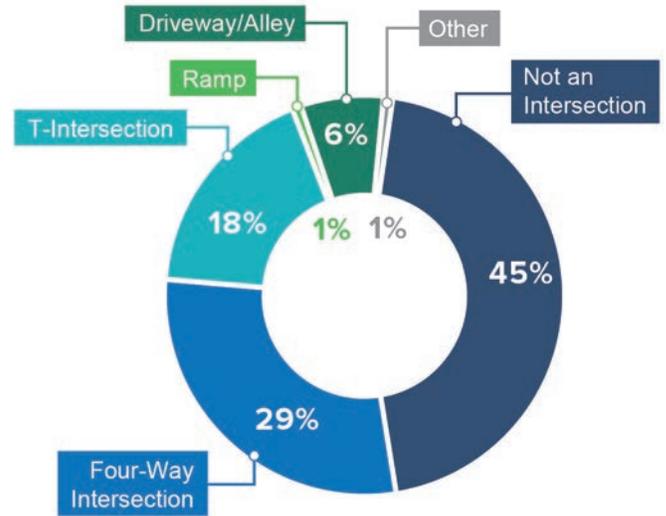


The chart in Figure 24 illustrates the percentage of pedestrian-involved crashes resulting in fatal and serious injury based on the posted speed limit of the roadway on which the crash occurred. A majority (71 percent) of the pedestrian-involved crashes resulting in fatal or serious injury occurred on roadways with posted speed limits of 35 mph or greater. However, a significant percentage (26 percent) of these crashes occurred on roadways with posted speed limits of 25 and 30 mph. This may be a result of higher pedestrian activity on these lower speed roadways, but comprehensive data does not exist for pedestrian volumes to evaluate this. However, studies have shown that speed is a critical factor in the severity of pedestrian-involved crashes, as a pedestrian hit by a car moving at speeds greater than 30 mph has about a 50 percent chance of being seriously injured or killed.

# VULNERABLE ROADWAY USERS

## BICYCLIST-INVOLVED CRASHES

Bicyclist-involved crashes are crashes involving a motor vehicle and one or more persons on a bicycle. Fatal and serious bicyclist-involved crashes occurred most often on straight, level roadway segments. The largest percentage of these crashes (47 percent) occurred at some type of intersection, but a similar portion (45 percent) did not occur at intersections.



### GOALS

- » Reduce the number of bicyclist fatalities by 8 percent between 2017 and 2025 (1 percent annual reduction).
- » Reduce the number of serious injuries to bicyclists by 8 percent between 2017 and 2025 (1 percent annual reduction).

### TRENDS

Between 2013 and 2017:

- » The total number of crashes involving bicyclists **increased** by 7.5 percent.
- » The total number of bicyclist **fatalities** **decreased** by 33.3 percent.
- » The total number of **serious injuries** to bicyclists **decreased** by 41.4 percent.

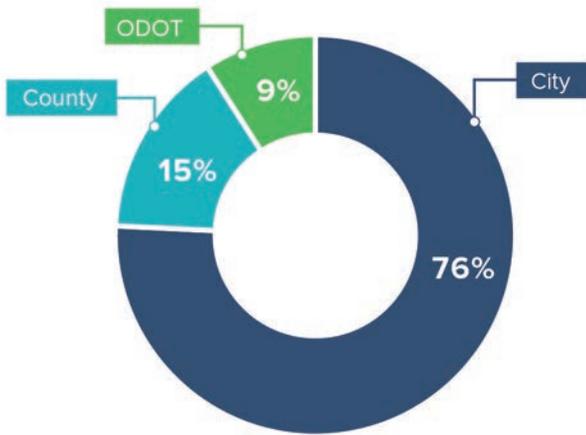


Crashes involving bicyclists did not occur nearly as often as many other crash types in Central Ohio between 2013-2017. Crashes involving bicyclists had a high rate of fatal and serious injury (9.5 percent), but accounted for the lowest percentage of all fatalities and serious injuries (2.8 percent) that occurred during this time period.

**Between 2013 and 2017 in Central Ohio:**

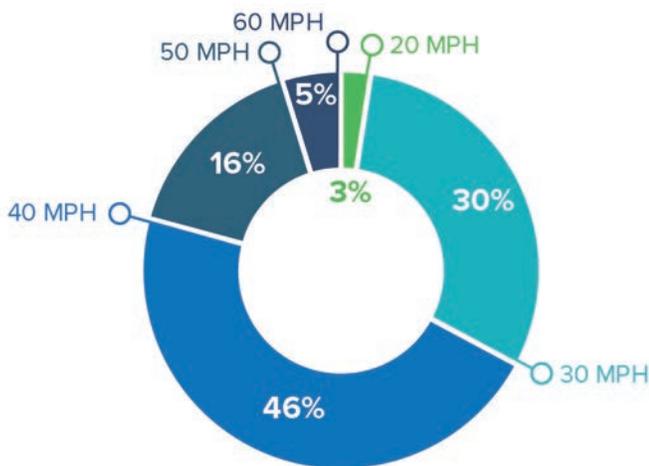
- » 1,410 crashes involving bicyclists were reported (0.7 percent of all crashes).
- » 14 people were killed as a result of being hit by a car while on a bicycle (2.7 percent of all fatalities).
- » 120 people were seriously injured as a result of being hit by a car while on a bicycle (2.8 percent of all serious injuries).

**Figure 25. Fatal & Serious Bicyclist-Involved Crashes by Maintenance Authority**



The chart in Figure 25 illustrates the percentage of bicyclist-involved crashes resulting in fatal and serious injury that occurred on city, county, and ODOT maintained facilities from 2013-2017. The majority (76 percent) of these fatal and serious injury crashes occurred on city maintained roadways, but each maintenance authority holds a share of responsibility for mitigating this crash type. A significant percentage of bicyclist-involved crashes resulting in fatal and serious injury occurred on county maintained (15 percent) and ODOT maintained roadways (9 percent).

**Figure 26. Fatal & Serious Bicyclist-Involved Crashes by Posted Speed Limit**

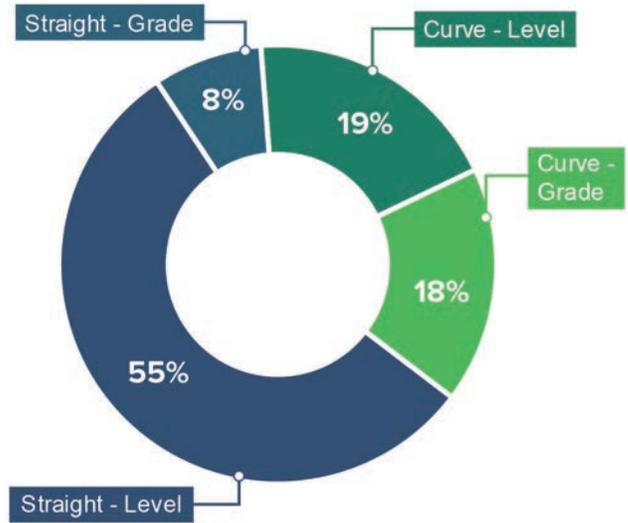


The chart in Figure 26 illustrates the percentage of bicyclist-involved crashes resulting in fatal and serious injury based on the posted speed limit of the roadway on which the crash occurred. A majority (77 percent) of the bicyclist-involved crashes resulting in fatal or serious injury occurred on roadways with posted speed limits of 35 mph or greater. However, a significant percentage (30 percent) of these crashes occurred on roadways with posted speed limits of 25 and 30 mph. Similar to crashes involving pedestrians, this may be a result of higher bicycling activity on these lower speed roadways. Bicyclists are likely not present in high volumes on higher speed roadways, but comprehensive data does not exist for bicyclist volumes to evaluate this.

# VULNERABLE ROADWAY USERS

## MOTORCYCLIST-INVOLVED CRASHES

Motorcyclist-involved crashes are crashes involving a single motorcycle, multiple motorcycles, or a motor vehicle and one or more motorcycles. Fatal and serious motorcyclist-involved crashes occurred most often on straight, level roadway segments, but a significant portion (37 percent) also occurred on curved roadway segments. The majority of these crashes (63 percent) did not occur at intersections.



### GOALS

- » Reduce the number of motorcyclist fatalities by 8 percent between 2017 and 2025 (1 percent annual reduction).
- » Reduce the number of serious injuries to motorcyclists by 8 percent between 2017 and 2025 (1 percent annual reduction).

### TRENDS

Between 2013 and 2017:

- » The total number of crashes involving motorcyclists **increased** by 13.8 percent.
- » The total number of motorcyclist **fatalities** **decreased** by 7.7 percent.
- » The total number of **serious injuries** to motorcyclists **increased** by 11.4 percent.



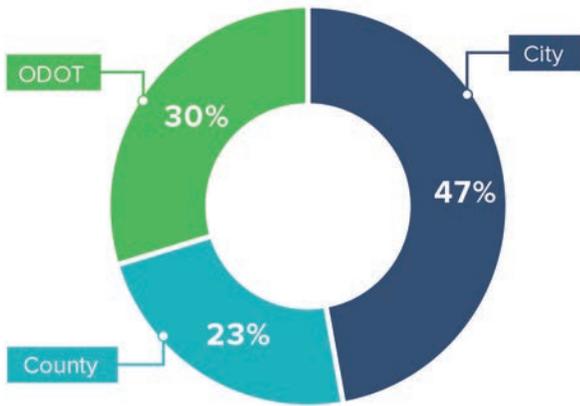
*Note: The data presented here regarding motorcyclist-involved crashes may overlap with the data accounted for in the serious crash types presented previously due to how the data is reported.*

Crashes involving motorcyclists did not occur nearly as often as many other crash types in Central Ohio between 2013-2017. Crashes involving motorcyclists had the **second highest rate of fatal and serious injury** (19 percent) and accounted for about 9 percent of all fatalities and serious injuries that occurred during this time period.

**Between 2013 and 2017 in Central Ohio:**

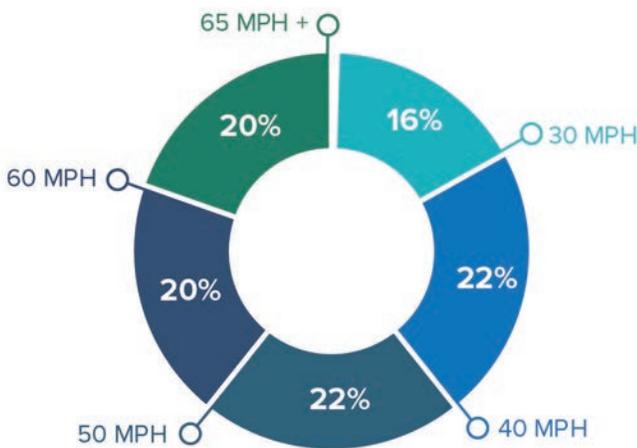
- » 2,170 crashes involving motorcyclists were reported (1.1% of all crashes).
- » 75 people were killed as a result of a motorcycle crash (14.2 percent of all fatalities).
- » 362 people were seriously injured as a result of a motorcycle crash (8.4 percent of all serious injuries).

**Figure 27. Fatal & Serious Motorcyclist-Involved Crashes by Maintenance Authority**



The chart in Figure 27 illustrates the percentage of motorcyclist-involved crashes resulting in fatal and serious injury that occurred on city, county, and ODOT maintained facilities from 2013-2017. The largest individual share (47 percent) of these fatal and serious injury crashes occurred on city maintained roadways, but each maintenance authority holds a significant percentage of responsibility for mitigating this crash type. The majority (53 percent) of motorcyclist-involved crashes resulting in fatal and serious injury did not occur on city maintained roadways, but were split between ODOT maintained (30 percent) and county maintained (23 percent).

**Figure 28. Fatal & Serious Motorcyclist-Involved Crashes by Posted Speed Limit**



The chart in Figure 28 illustrates the percentage of motorcyclist-involved crashes resulting in fatal and serious injury based on the posted speed limit of the roadway on which the crash occurred. A majority (83 percent) of the motorcyclist-involved crashes resulting in fatal or serious injury occurred on roadways with posted speed limits of 35 mph or greater. While a considerable percentage (16 percent) of the fatal and serious injury crashes occurred on roadways with posted speed limits of 25 and 30 mph, more than 30 percent of those crashes were reported as speed-related.

Only 25 percent of all motorcyclist-involved crashes resulting in fatal or serious injury were reported as speed-related, and the fatal and serious injury crashes that were reported as speed-related on roadways with posted speed limits of 25 and 30 mph comprised more than 20 percent of them. As with crashes involving pedestrians and bicyclists, speed is a critical factor in the severity of motorcyclist-involved crashes.

*Note: The data presented here regarding motorcyclist-involved crashes may overlap with the data accounted for in the serious crash types presented previously due to how the data is reported.*

# DRIVING SAFETY CONCERNS

## YOUNGER AND OLDER DRIVERS

Driver experience and skill are important factors in roadway safety and often vary based on the age of the driver. Additionally, a driver's age and underlying health may affect the extent of any sustained injuries as a result of a crash. For the purpose of this plan, younger drivers includes drivers age 16 to 29, and older drivers includes drivers age 75 and older. The data presented here only include drivers involved in crashes. Other occupants within the vehicle or involved outside of a vehicle are not included in the younger and older drivers category.

### GOALS

- » Reduce the number of younger and older driver fatalities by 8 percent between 2017 and 2025 (1 percent annual reduction).
- » Reduce the number of serious injuries to younger and older drivers by 8 percent between 2017 and 2025 (1 percent annual reduction).

### TRENDS FOR YOUNGER DRIVERS

Between 2013 and 2017:

#### Younger Drivers

- » The total number of younger driver **fatalities increased** by 10.5 percent.
- » The total number of **serious injuries** to younger drivers **decreased** by 4.4 percent.



*Note: The data presented here regarding younger and older drivers may overlap with the data accounted for in other data categories presented due to how the data is reported.*

## TRENDS FOR OLDER DRIVERS

Between 2013 and 2017:

- » The total number of older driver **fatalities increased** by 33.3 percent.
- » The total number of **serious injuries** to older drivers **decreased** by 30.3 percent.



Between 2013 and 2017 in Central Ohio:

### Younger Drivers

- » 117,966 younger drivers were involved in crashes (33.1 percent of all drivers involved in crashes).
- » 107 younger drivers were killed as a result of a crash (32.4 percent of all driver fatalities).
- » 977 younger drivers were seriously injured as a result of a crash (32.3 percent of all serious injuries to drivers).
- » The rate of fatal and serious injury for younger drivers involved in crashes was one of the lowest of any age group at 0.9 percent.

### Older Drivers

- » 7,902 older drivers were involved in crashes (2.2 percent of all drivers involved in crashes).
- » 18 older drivers were killed as a result of a crash (5.5 percent of all driver fatalities).
- » 123 older drivers were seriously injured as a result of a crash (4.1 percent of all serious injuries to drivers).
- » The rate of fatal and serious injury for older drivers involved in crashes was the highest for any age group at 1.8 percent.

Note: The data presented here regarding younger and older drivers may overlap with the data accounted for in other data categories presented due to how the data is reported.

# DRIVING SAFETY CONCERNS

## IMPAIRED DRIVING

Impaired driving includes crashes reported as being alcohol- or drug-related. A crash is classified as alcohol- or drug-related if the reporting officer suspected the driver of the at-fault vehicle of being under the influence of alcohol or drugs, respectively.

### GOALS

- » Reduce the number of fatalities related to impaired driving crashes by 8 percent between 2017 and 2025 (1 percent annual reduction).
- » Reduce the number of serious injuries related to impaired driving crashes by 8 percent between 2017 and 2025 (1 percent annual reduction).

### TRENDS

Between 2013 and 2017:

- » The total number of impaired driving crashes **increased** by 19.5 percent.
- » The total number of fatalities resulting from impaired driving crashes **increased** by 13.6 percent.
- » The total number of serious injuries resulting from impaired driving crashes **decreased** by 16.5 percent.



Between 2013 and 2017 in Central Ohio:

- » 8,363 crashes were reported with alcohol and/or drugs as a suspected factor in the crash.
- » 142 people were killed as a result of a crash related to impaired driving (27 percent of all fatalities).
- » 618 people were seriously injured as a result of a crash related to impaired driving (14 percent of all serious injuries).

*Note: The data presented here regarding impaired driving may overlap with the data accounted for in other data categories presented due to how the data is reported.*

# DRIVING SAFETY CONCERNS

## SPEEDING

A crash is defined as speed related if the reporting officer recorded excessive speeding or driving too fast for conditions as a contributing factor in the crash. Speeding as a contributing factor in the crash can sometimes be difficult for a reporting officer to determine and, as a result, is under-reported.

### GOALS

- » Reduce the number of speed related fatalities by 8 percent between 2017 and 2025 (1 percent annual reduction).
- » Reduce the number of speed related serious injuries by 8 percent between 2017 and 2025 (1 percent annual reduction).

### TRENDS

Between 2013 and 2017:

- » The total number of crashes reported as speed related **increased** by 30 percent.
- » The total number of fatalities resulting from crashes reported as speed related **increased** by 75 percent.
- » The total number of serious injuries resulting from crashes reported as speed related **decreased** by 14.2 percent.



Between 2013 and 2017 in Central Ohio:

- » 14,912 crashes were reported as being speed related.
- » 131 people were killed in a crash reported as speed related (24.8 percent of all fatalities).
- » 751 people were seriously injured in a crash reported as speed related (17.4 percent of all serious injuries).

*Note: The data presented here regarding speeding may overlap with the data accounted for in other data categories presented due to how the data is reported.*

# DRIVING SAFETY CONCERNS

## SEAT BELT / RESTRAINT USAGE

The usage of restraints provided in motor vehicles involved in crashes influences the presence and severity of injuries experienced by the occupants of those vehicles. For the purpose of this plan, restraint usage includes the following: partial seat belt or shoulder and lap belt. Motor vehicles includes: passenger vehicle, bus/van, and truck; unrestrained persons includes persons inside a motor vehicle who were not using a restraint at the time of the crash.

### GOALS

- » Reduce the number of seat belt related fatalities by 8 percent between 2017 and 2025 (1 percent annual reduction).
- » Reduce the number of seat belt related serious injuries by 8 percent between 2017 and 2025 (1 percent annual reduction).

### TRENDS

Between 2013 and 2017:

- » The total number of unrestrained persons involved in crashes **decreased** slightly by 0.3 percent.
- » The total number of unrestrained persons killed in crashes **remained level**.
- » The total number of unrestrained persons seriously injured in crashes **decreased** by 8.4 percent.

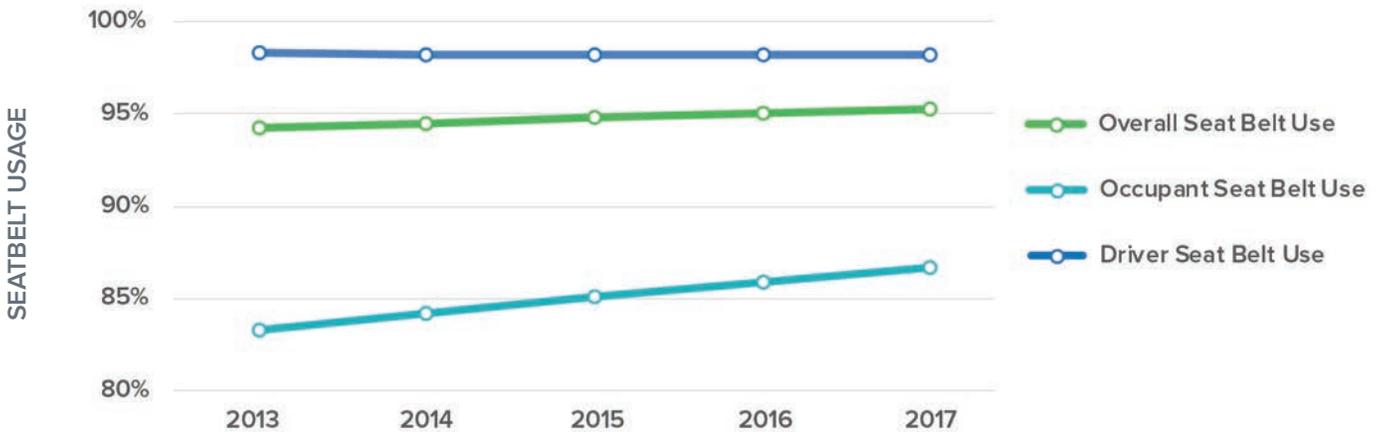


*Note: The data presented here regarding seat belt / restraint usage may overlap with the data accounted for in other data categories presented due to how the data is reported.*

**Between 2013 and 2017 in Central Ohio:**

- » 126 people were killed in a vehicle crash while not wearing a seat belt (51 percent of all motor vehicle occupant fatalities).
- » 476 people were seriously injured in a crash while not wearing a seat belt (16 percent of all serious injuries to motor vehicle occupants).

The overall use of seat belts by persons involved in crashes over the 2013-2017 time period increased, most significantly for occupants (non-drivers) of the vehicles. The percentage of drivers involved in crashes who wore seat belts remained level at approximately 98 percent.



*Note: The data presented here regarding seat belt / restraint usage may overlap with the data accounted for in other data categories presented due to how the data is reported.*

# DRIVING SAFETY CONCERNS

## HELMET USAGE

For bicyclists and motorcyclists, the main safety feature tracked within the crash data during the 2013-2017 time period was helmet usage. However, it is important to note that helmet usage is not reported for every crash involving bicyclists and motorcyclists.

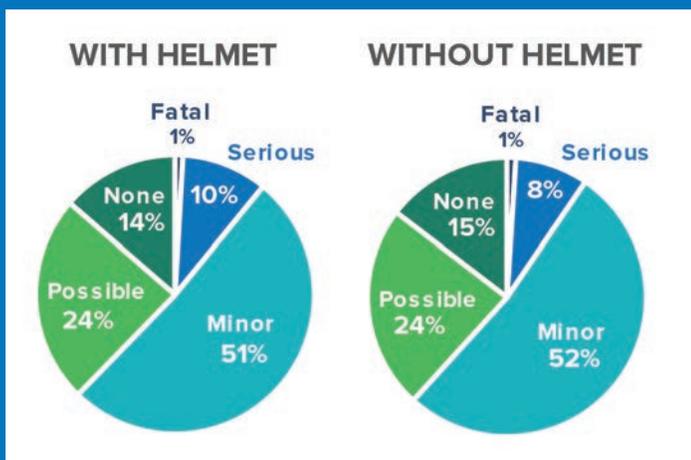
### BICYCLISTS

Between 2013 and 2017 in Central Ohio:

- » 220 bicyclists (15.5 percent) involved in crashes were reported as wearing a helmet.
- » 978 bicyclists (69.1 percent) involved in crashes were reported as not wearing a helmet.
- » 217 bicyclists (15.3 percent) involved in crashes were reported with no information regarding helmet use.

Bicyclists reported as riding without helmets accounted for approximately 71 percent of bicyclist fatalities, and approximately 14 percent of bicyclist fatalities did not have reported information regarding helmet use. However, the rate of fatal and serious injury to bicyclists reported as not wearing helmets was slightly lower than for those wearing helmets – 9.5 percent compared to 10.9 percent, respectively. The charts in Figure 29 illustrate the percentage of each injury type suffered by bicyclists involved in crashes based on whether the bicyclist was reported as wearing a helmet or not wearing a helmet.

Figure 29. Helmet Usage in Bicyclist-Involved Crashes



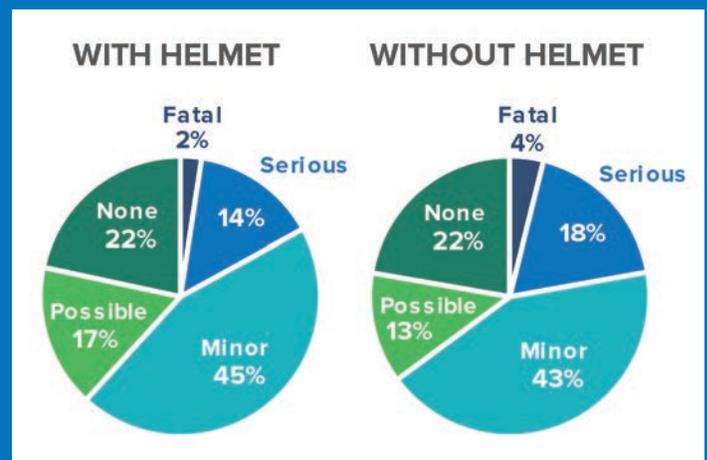
### MOTORCYCLISTS

Between 2013 and 2017 in Central Ohio:

- » 1,188 motorcyclists (51.8 percent) involved in crashes were reported as wearing a helmet.
- » 974 motorcyclists (42.5 percent) involved in crashes were reported as not wearing a helmet.
- » 130 motorcyclists (5.7 percent) involved in crashes were reported with no information regarding helmet use.

Approximately 50 percent of motorcyclists fatally injured in a crash during this time period were reported as not wearing a helmet, and about 11 percent of motorcyclist fatalities did not have reported information regarding helmet use. The rate of fatal and serious injury to motorcyclists reported as not wearing helmets was higher than for those wearing helmets – 22.2 percent compared to 17 percent, respectively. The charts in Figure 30 illustrate the percentage of each injury type suffered by motorcyclists involved in crashes based on whether the motorcyclist was reported as wearing a helmet or not wearing a helmet.

Figure 30. Helmet Usage in Motorcyclist-Involved Crashes



# DRIVING SAFETY CONCERNS

## DISTRACTED DRIVING

Distracted driving includes any activity that can potentially pull a driver’s attention away from driving. Three major types of distractions are visual, when the line of sight leaves the road; manual, when the driver’s hands leave the wheel; and lack of focus, when attention is directed away from driving.

A crash is defined as related to distracted driving if the reporting officer records a driver distraction on the crash report for any unit involved in the crash. It does not necessarily indicate that a distracted driver caused the crash. Distracted driving can also be difficult for a reporting officer to determine, resulting in under-reporting.

### GOALS

- » Reduce the number of fatalities related to distracted driving crashes by 8 percent between 2017 and 2025 (1 percent annual reduction).
- » Reduce the number of serious injuries related to distracted driving crashes by 8 percent between 2017 and 2025 (1 percent annual reduction).

### TRENDS

Between 2013 and 2017:

- » The total number of crashes reported as distracted driving related **increased** by 21.7 percent.
- » The total number of **fatalities** resulting from crashes reported as distracted driving related **increased** by 25 percent.
- » The total number of **serious injuries** resulting from crashes reported as distracted driving related **decreased** by 37.3 percent.



Between 2013 and 2017 in Central Ohio:

- » 12,933 crashes were reported as being distracted driving related.
- » 26 people were killed in a crash reported as distracted driving related (5 percent of all fatalities).
- » 290 people were seriously injured in a crash reported as distracted driving related (6.7 percent of all serious injuries).

*Note: The data presented here regarding distracted driving may overlap with the data accounted for in other data categories presented due to how the data is reported.*

# EMERGING TECHNOLOGIES

As Central Ohio continues growing, new technologies will have impacts on roadway safety as users have new modes of transportation to use. The following new technologies are already using the roadway network today or soon will be, and there will likely be others in the future. It will be important to consider the potential impacts of these technologies as well as how they can be safely accommodated within our transportation system.

## AUTONOMOUS / CONNECTED VEHICLES

Autonomous/connected vehicles are vehicles that may be partially or completely self-driven. These vehicles can make travel more efficient, and Smart Columbus has included electric, autonomous shuttles as a demonstration on autonomous vehicle use in Ohio. Integrating these vehicles into the existing transportation system also brings potential challenges.

## ELECTRIC VEHICLES

Electric vehicles provide an opportunity to use less conventional fossil fuels and reduce the carbon footprint for Central Ohio. Integrating electric vehicles involves additional infrastructure and new user behavior around vehicle charging and vehicle technology. Additionally, electric vehicles present a challenge for pedestrians, particularly those with visual impairment. Electric vehicles are much quieter and are difficult for the visually impaired to interact with at intersections.

## ELECTRIC SCOOTERS

Electric scooters offer another mode of non-motorized travel for Central Ohioans. As they are a relatively new mode, these scooters – along with other alternative non-motorized ride/shares – have introduced new challenges within the right-of-way.

## GOALS

**While the previous emphasis area goals all focus on reducing the number of fatal and serious crashes, there is limited data available regarding crashes involving emerging technologies. Until this data becomes available, the primary goal for this emphasis area is to:**

- » Support the ability of LPAs to respond to new transportation technologies as they emerge.

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# CHAPTER 4

# Implementation and Evaluation

*Implementation of the COTSP will be based on the Action Plan, which includes strategies and action items to address the challenges identified for each emphasis area. Evaluation will include an annual reporting process that evaluates the success of each action item based on the progress towards satisfying goals and performance measures identified for each emphasis area, as well as the relevant output measures identified in the Action Plan.*

# IMPLEMENTATION PARTNERS

Both implementation of the plan and evaluation of the success of the plan will be guided by the partners who assisted in development of the plan, as well as those who continue to be involved through the Implementation Committee.

Partners identified in the action plan include:

- » Central Ohio Greenways (COG)
- » Central Ohio Transit Authority (COTA)
- » Franklin County Safe Communities
- » Local Public Agencies (LPAs)
- » Local Technical Assistance Program (LTAP)
- » Mid-Ohio Regional Planning Commission (MORPC)
- » Ohio Association of Chiefs of Police (OACP)
- » Ohio Department of Public Safety (ODPS)
- » Ohio Department of Transportation (ODOT)
- » Ohio Traffic Safety Office (OTSO)
- » Yay Bikes!

The partners listed above will be critical to the implementation process and will serve as leaders for the action items they are associated with in the action plan. Additional partners will also be important to understand the impacts and successes of the COTSP. These additional partners could include other agencies and community organizations that are impacted by the actions items, such as:

- » Columbus Metropolitan Library
- » Friends & Families for Safe Streets Columbus
- » Columbus and Franklin County Metro Parks
- » The Ohio State University
- » Transit Columbus
- » United Way of Central Ohio
- » Emerging technology companies
- » Other private entities

# TECHNICAL ASSISTANCE & FUNDING

## MEMBER ASSISTANCE

The High-Crash Intersections identified for the 2015-2017 time period and the High Injury Corridors identified for the 2013-2017 time period will be used to prioritize ongoing efforts for safety improvements throughout the region. MORPC will use this information to coordinate with local governments within the MPO area to study these locations in more detail and identify funding opportunities for improvements. MORPC will work with each local government to determine the appropriate strategy for the locations within their jurisdiction. This assistance could include any of the following:

### Road Safety Audits

Road Safety Audits (RSAs) address locations that have received significant attention around roadway issues. RSAs are performed by a team of specialists – engineers, safety professionals, agency representatives, etc. – that formally audit the location and provide an official report with recommendations to improve it. Recommendations often involve medium- to low-cost spot safety treatments. MORPC can assist local governments with RSAs and provide support for an application for safety funds to implement the recommended countermeasures. For more information on conducting RSAs, see the Regional RSA Implementation Guide on MORPC’s website at [morpc.org/tool-resource/local-safety-initiative](http://morpc.org/tool-resource/local-safety-initiative).

### Safety Studies

Safety studies provide in-depth evaluation of a location that is used to develop high- to medium-cost spot safety treatments. These locations generally show a high frequency of severe to fatal crashes and often require significant improvements to address them. Safety studies utilize both internal (MORPC) and external resources to complete, and can then be used to apply for safety funds to implement the recommended countermeasures.

## Systemic Safety Improvements

Systemic safety improvements (SSIs) are different from traditional safety projects that address specific types of crashes at a specific location. SSIs look at crash data more holistically across a region or throughout a jurisdiction to identify trends or common threads. These improvements usually involve low-cost, risk-based treatments that can be implemented across a series of locations.

SSIs are conducted in a more systematic manner compared to the in-depth and focused site analysis required of an RSA or safety study. The intent is to address widespread safety concerns at multiple locations by analyzing potential risk based on similar characteristics present throughout the region, then implement system-wide safety improvements. For more information on SSIs, see the Guide to Implementing Regionally-Based Systemic Safety Improvements on MORPC’s website at [morpc.org/tool-resource/local-safety-initiative](http://morpc.org/tool-resource/local-safety-initiative).

# TECHNICAL ASSISTANCE & FUNDING

## FUNDING OPPORTUNITIES

Many of the action items identified in the action plan will require a source of funding in order to complete their implementation. MORPC will work with plan partners and the Implementation Committee to identify relevant sources of funds to implement the strategies of the action plan.

There are many financial resources available for the programs, projects, and services that make our region successful. Information about funding and grant opportunities that are available to local communities and organizations can be at [www.morpc.org/funding](http://www.morpc.org/funding). Some highlights of key funding programs are listed below.

### Potential Funding Available for Safety Projects:

- » **MORPC-Attributable Funds:** Attributable funds are federal transportation funds that are allocated at MORPC's discretion, following an application and selection process. These funds can be used for roads and bridges, public transit, bikeways, sidewalks, and a variety of other activities. More information about MORPC-Attributable Funds can be found on the MORPC website at [www.morpc.org/tool-resource/funding-grants](http://www.morpc.org/tool-resource/funding-grants).
- » **Ohio Public Works Commission (OPWC)**
  - **State Capital Improvement Program (SCIP):** Counties, cities, villages, and townships can apply for SCIP funding that is provided through grants, loans, and loan assistance or local debt support. Grants are available for up to 90 percent of the total project costs for repair/replacement and up to 50 percent for new/expansion. Loans can be provided for up to 100 percent of the project costs. Grant/loan combinations are also available.
  - **Local Transportation Improvement Program (LTIP):** Counties, cities, villages, and townships can apply for LTIP funding that is provided through grants and may cover up to 100 percent of project costs.

More information about the SCIP and LTIP funding process can be found on MORPC's website at [www.morpc.org/tool-resource/franklin-county-scip-ltip](http://www.morpc.org/tool-resource/franklin-county-scip-ltip) or general program information can be found on the OPWC website at [www.pwc.ohio.gov/Programs/All-OPWC-Funding-Programs](http://www.pwc.ohio.gov/Programs/All-OPWC-Funding-Programs).

- » **Highway Safety Improvement Program (HSIP):** HSIP funding can be used by local governments to make improvements on any public roadway. Funding is available for all stages of development and typically requires a 10 percent local match. Safety improvements, such as upgrading signs, signals, pavement markings and guardrail are eligible for 100 percent funding. More information on HSIP funding can be found on ODOT's website at [www.dot.state.oh.us/Divisions/Planning/ProgramManagement/HighwaySafety/HSIP](http://www.dot.state.oh.us/Divisions/Planning/ProgramManagement/HighwaySafety/HSIP).

# ANNUAL REPORTING

The COTSP partners and Implementation Committee will assist with the development of an annual report through the tracking of relevant output measures identified in the action plan. Some of the identified output measures may be easier to track than others, and some may be more effective than others at measuring progress. This annual reporting process will help to determine whether progress is being achieved toward each action item and if any output measures may need adjustment.

One goal for the annual reporting process is to develop a regional survey that can be conducted through these partnerships to better understand some of the impacts from more qualitative action items. This could include action items regarding any of the following:

- » Outreach events
- » Promotional materials
- » Education
- » New or revised legislation
- » Local policy
- » Partnerships with law enforcement agencies

## DATA AND TECHNOLOGY

While the COTSP presents a significant amount of information and data regarding crashes that have occurred in the region, there are still significant gaps in our ability to track many important characteristics of these crashes – as was noted throughout the document. It will be critical to work with partners to improve data collection efforts going forward, including the crash reporting process and crash analysis tools, as well as regional modeling and other data sources in regard to understanding traffic volumes and volumes of non-motorized users.

## PLAN MAINTENANCE & UPDATING

As the COTSP is implemented and progress toward the goals is evaluated, there will be a need to revise and update the plan. The following are key elements of this update process:

- » Identifying any barriers to implementation
- » Modifying action items as issues or new opportunities arise
- » Providing updates and additional guidance on specific programs, activities, etc.

**Please refer to the action plan document to guide implementation.**

