MIAMI VALLEY
Regional Planning Commission

2021 to 2023

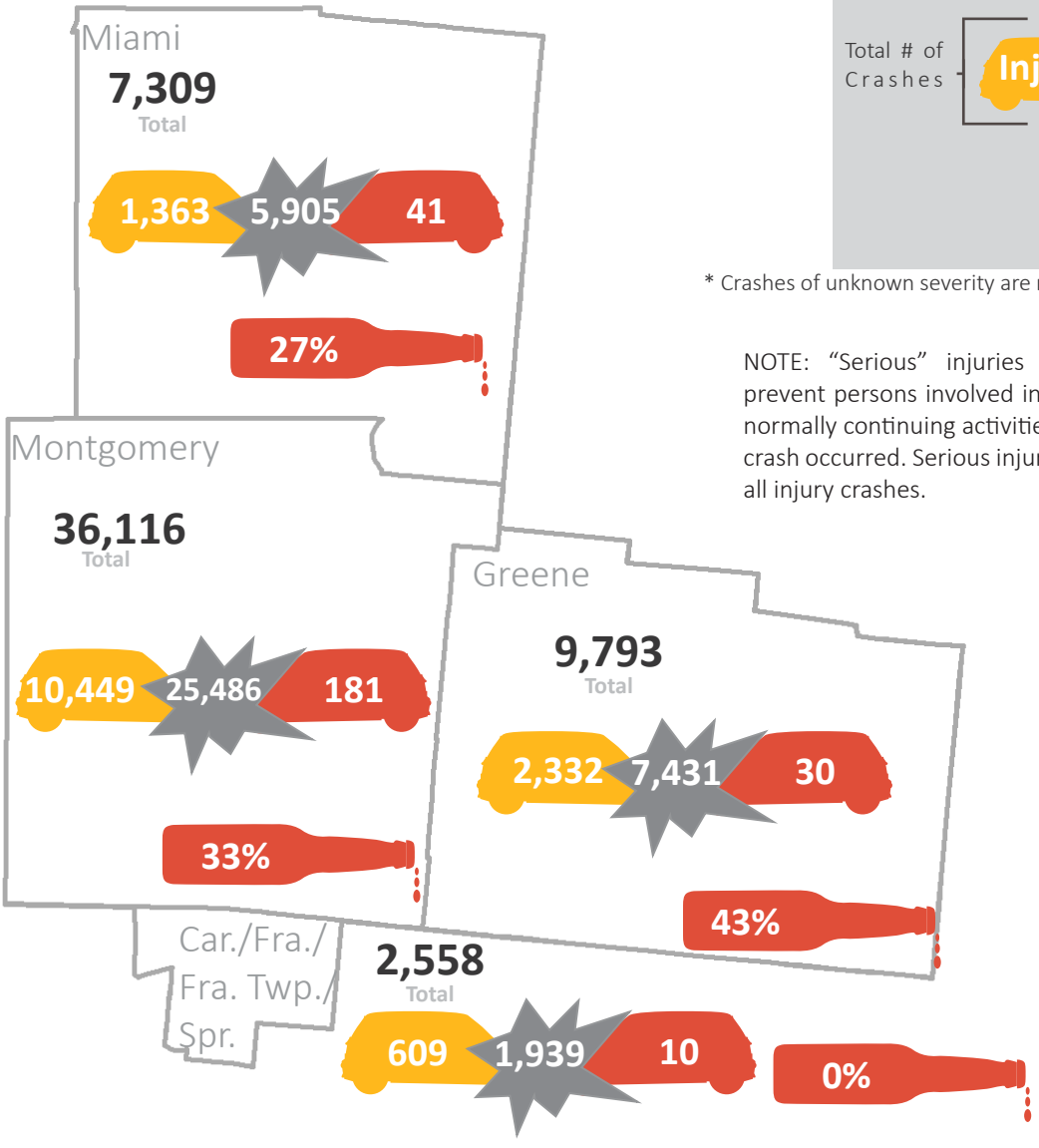
Crash Data Report

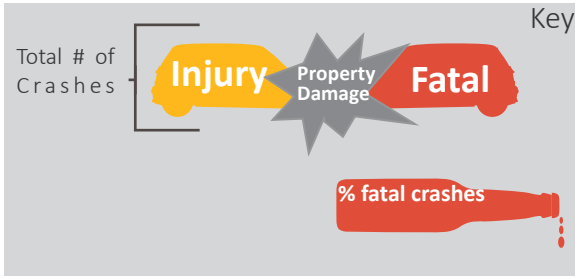
for the Miami Valley Region

The Miami Valley Regional Planning Commission (MVRPC) analyzes crash data from the Ohio Department of Transportation and the Ohio Department of Public Safety every three years. This report examines the trends found in the crash data from the years 2021 through 2023 for the Miami Valley Region (Montgomery, Miami, Greene, and northern Warren Counties).

The Region as A Whole

A total of 55,776 reported crashes occurred in the Miami Valley from 2021 to 2023. These crashes include only those costing $1,000 or greater in property damage, injury-causing, or fatal. Of that total, 262 crashes were fatal, and 14,753 crashes led to injuries where 1,325 of injury crashes lead to serious injuries. Alcohol was reported to be involved in 32% of all fatal crashes. On average, a crash occurred in the Region every 28 minutes.



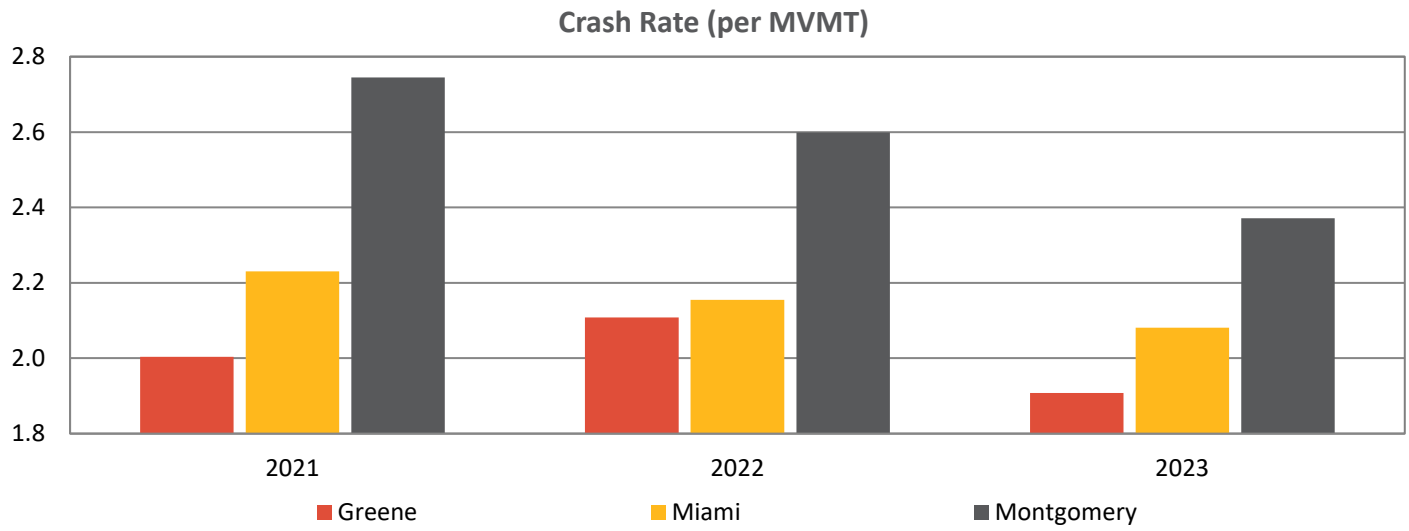


* Crashes of unknown severity are not indicated but are included in total.

NOTE: "Serious" injuries are incapacitating injuries that prevent persons involved in crashes from walking, driving, or normally continuing activities they were capable of before the crash occurred. Serious injury crashes are nine percent (9%) of all injury crashes.

Comparison Across the Region

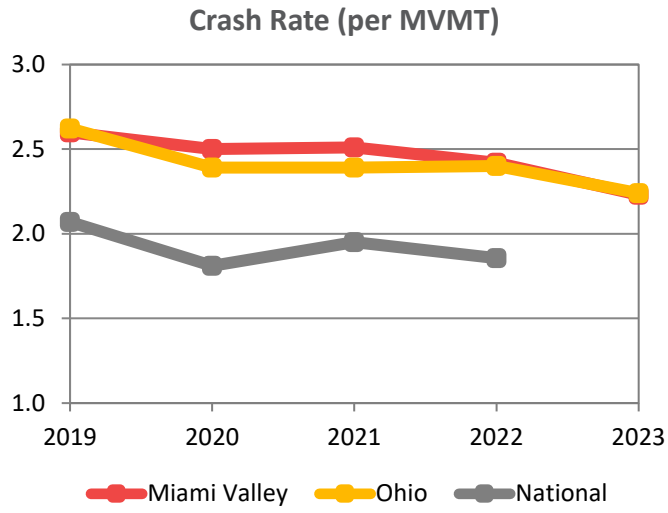
The total crash rate, calculated by the number of crashes per million vehicle miles travelled (MVMT), was varied across the Region's three counties. On average, Montgomery County experienced the highest crash rate with a three-year (3) average of 2.24 crashes for every 1 million miles traveled within the county.

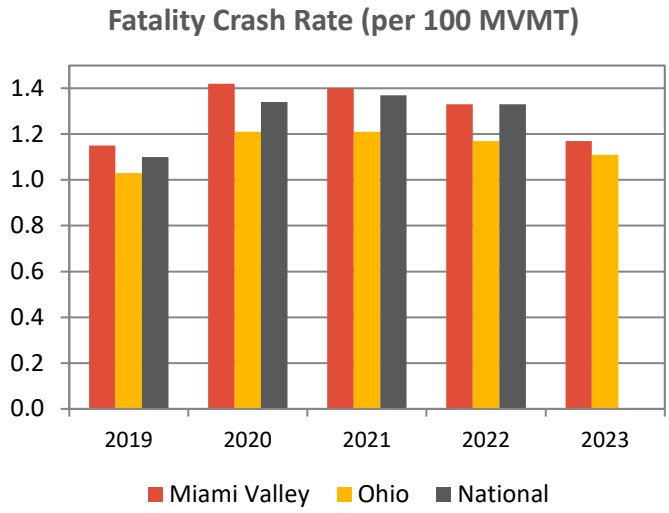


Vehicle Miles Traveled (VMT) is an estimation of the total number of miles driven within a specific time period and geographic area.

Comparison to Ohio and the Nation

The total crash rate in the Miami Valley has been above the National rate and relatively close to Ohio's rate. From 2019 to 2023, the average crash rate was 1.94 nationally, 2.45 in the Miami Valley, and 2.41 statewide. On average, the Region had a higher rate of roadway fatalities than Ohio and the Nation.

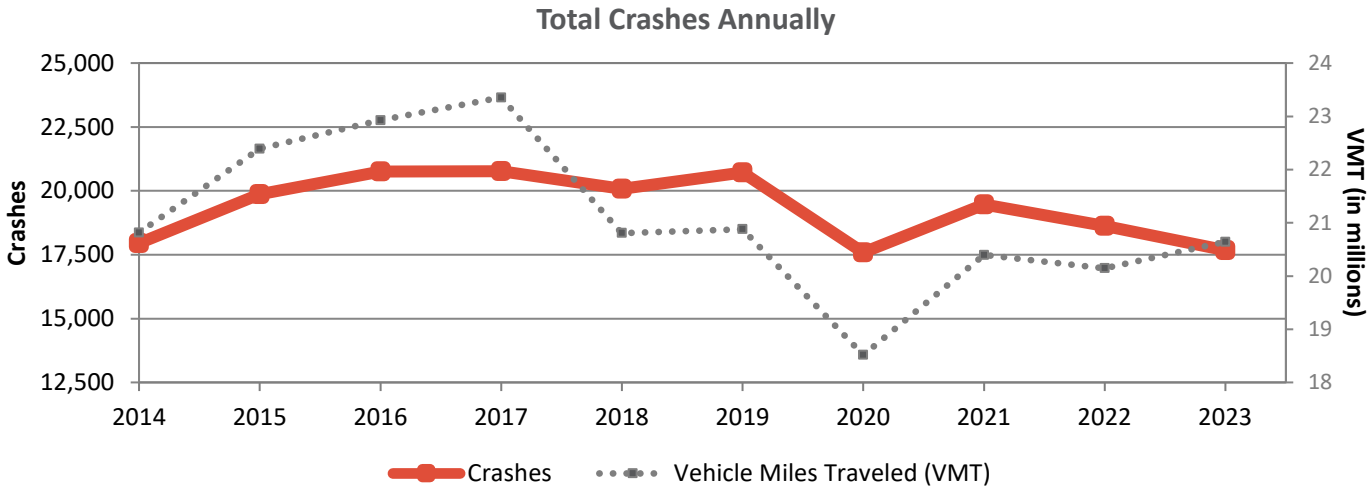




2023 National crash rate data unavailable. Warren County is excluded due to unavailable MVMT data.

Change Through Time

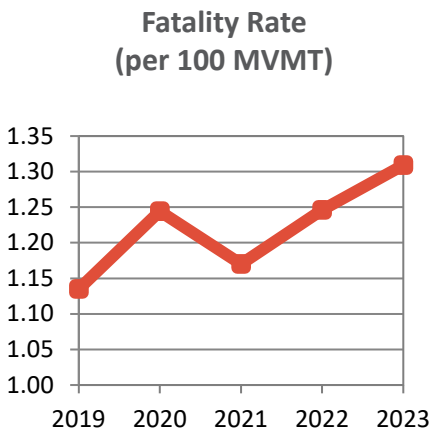
The total number of crashes reported annually in the Miami Valley generally increased through 2019 then decreased through 2023. From 2019 to 2023, the total reported crashes decreased by 14%. In 2019, 20,721 crashes were reported compared to 17,679 in 2023. Similarly, the average VMT also decreased after reaching a peak point in 2017.

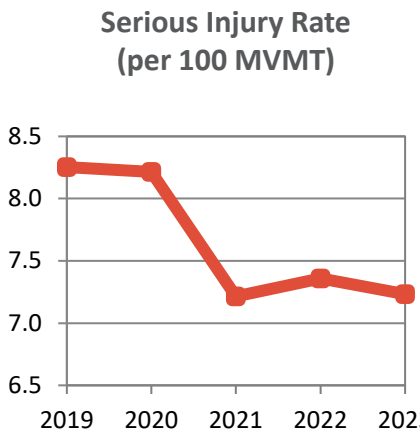


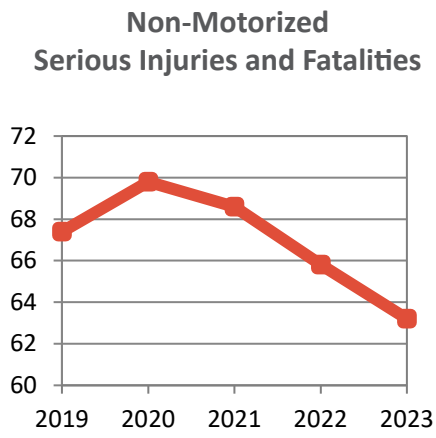
5-Year Performance

Federal rules require regions to set goals to improve roadway safety and measure performance. Goals will be based on the five-year (5) rolling average number and rate of serious injuries and fatalities.

Overall, the Miami Valley Region seeks improvements to counter against these measures. The five-year (5) average rate of serious injuries decreased from 8.25 injuries per 100 million miles traveled from 2015 to 2019 to 7.23 from 2019 to 2023. In contrast, the fatality rate, along with the number of non-motorized serious injuries and fatalities, usually experienced an increase.







Regional Road Network Crashes

To further analyze regional road safety, focus was placed on the regional road network (primarily the Region's collectors, arterials, and freeways). Only crashes that occurred on those roads were selected and examined. Crashes on local roads were omitted. Road construction or animal crashes were also omitted.

From 2021 to 2023, a total of 41,569 crashes were reported on the regional road network.

Road Network Crashes by County		2021				2022				2023				County Total
		Fatal	Injury	PDO	Total	Fatal	Injury	PDO	Total	Fatal	Injury	PDO	Total	
County	Greene	9	659	1,651	2,319	11	695	1,735	2,441	4	619	1,685	2,308	7,068
	Miami	15	380	1,201	1,596	7	366	1,161	1,534	9	330	1,184	1,523	4,653
	Montgomery	51	3,153	6,786	9,990	52	2,889	6,383	9,324	50	2,813	5,635	8,498	27,812
	Warren (MPO Area)	0	167	467	634	2	170	486	658	3	187	554	744	2,036
Region Total		75	4,359	10,105	14,539	72	4,120	9,765	13,957	66	3,949	9,058	13,073	41,569

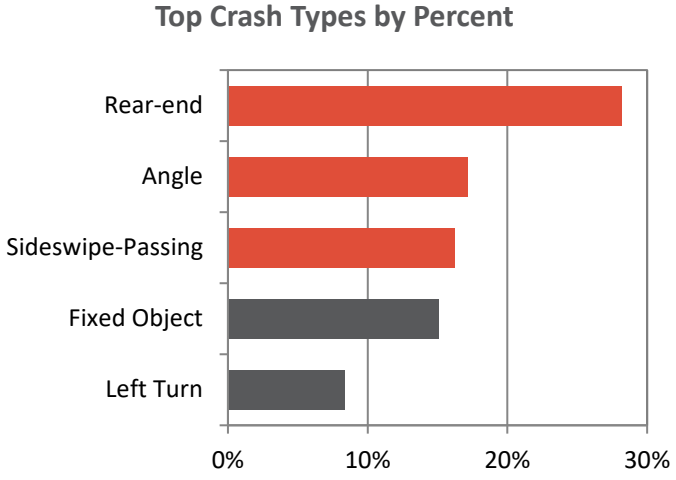
PDO - Property Damage Only crashes

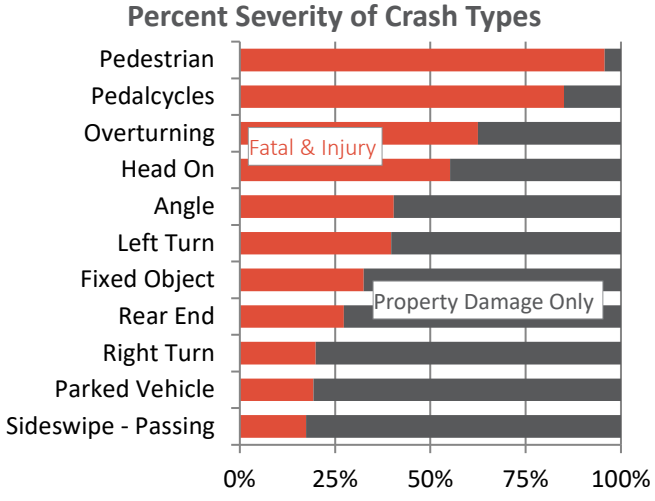
The remainder of this report focuses on crashes that occurred on the regional roadway network.

Types of Crashes

Multiple crash types occurred on the regional roadway network from 2021 to 2023. The most common crash types were rear-end (28% of all crashes), angle (17%), and sideswipe-passing (16%) crashes. Although common, rear-end crashes were not the most severe.

The severity of crashes varied by crash type. Over half of head-on and overturning crashes led to fatalities or injuries. This percentage was even higher for the most vulnerable road users. 96% of reported crashes involving a pedestrian, and 85% of bicycle crashes resulted in a fatality or injury.



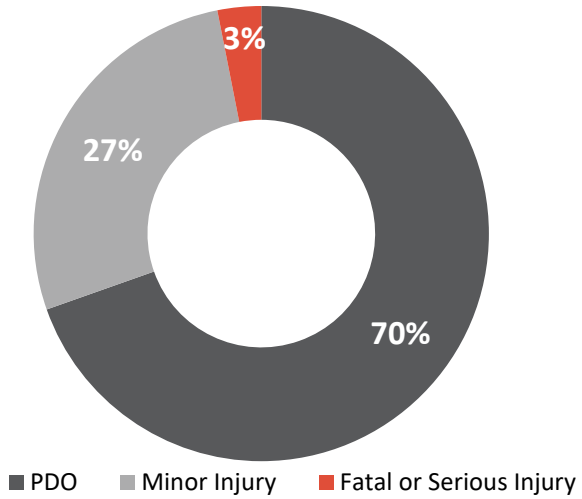


Serious Crashes

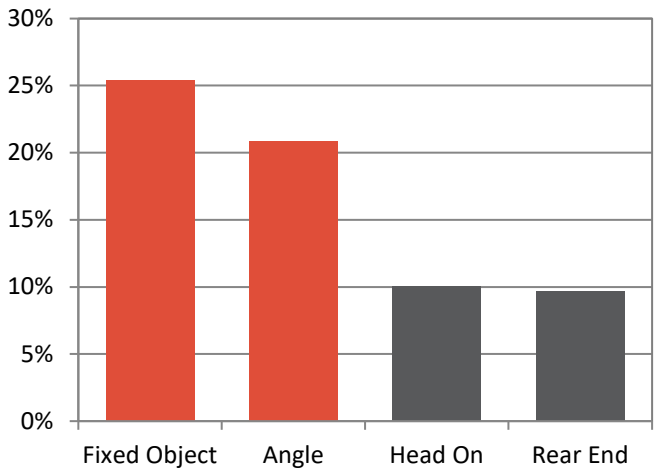
Serious crashes are those that lead to an incapacitating injury or loss of life. Although, serious crashes represented a small percent of total crashes (3%), a total of 1,075 serious injury crashes and 213 fatal crashes occurred. The remaining crashes led to minor injuries or property damage only (PDO).

Twenty-five percent (25%) of serious crashes were fixed object crashes, and 21% were angle crashes. These crashes varied by age group of drivers involved. Thirty-one percent (31%) of fixed-object crashes involved youth, ages 16 to 25. Similarly, 28% of angle crashes involved seniors, ages 66 and above.

Percent Total Crashes by Severity



Top Crash Types Leading to Serious Crashes

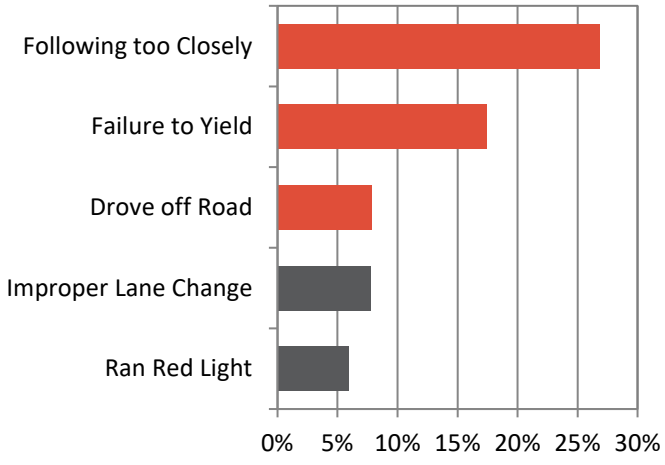


Contributing Factors

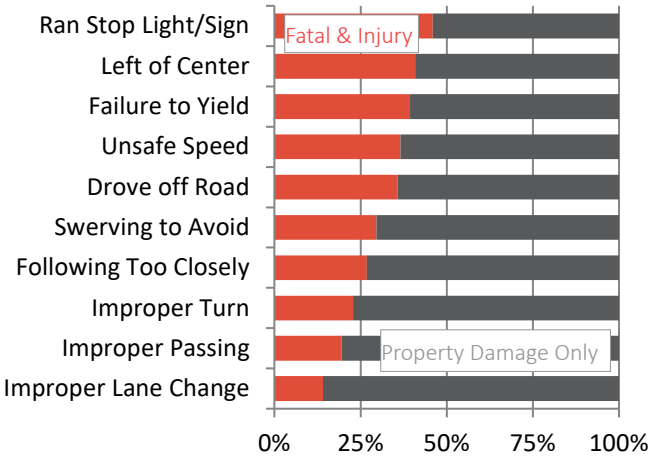
Contributing factors are the driver or non-motorist's actions that may have contributed to the crash, as reported by the law enforcement officer. The most common contributing factors were following too closely (27% of all crashes), failure to yield (17%), and drove off road (8%).

The factors that had the highest severity were running stop light/sign and veering left of center. Forty-six percent (46%) of crashes caused by running a stop sign or red light led to injuries or fatalities.

Top Contributing Factors by Percent



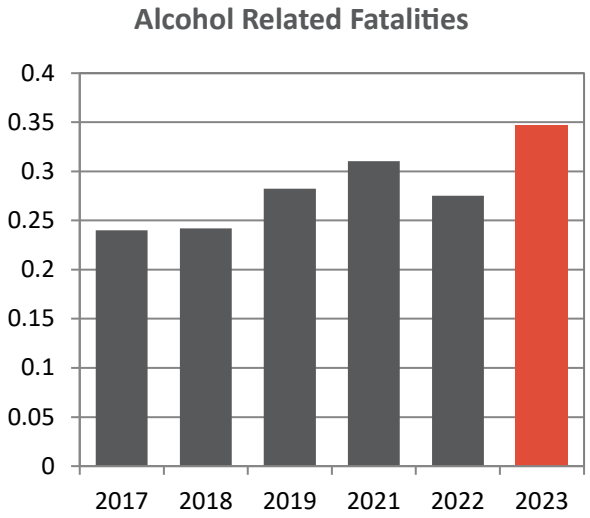
Percent Severity of Contributing Factors

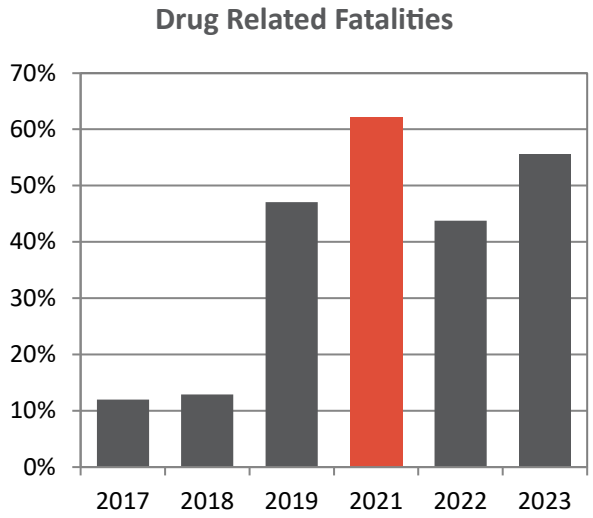


Alcohol and Drug Related Fatalities

The crash data indicates the dangerous implications of driving while under the influence of alcohol or drugs. A total of 151 fatalities involved alcohol and/or drug related fatal crashes.

Compared to the previously analyzed period, alcohol use slightly increased from 25 to 31 percent while drug use increased from 24 to 54 percent in fatal crashes*.



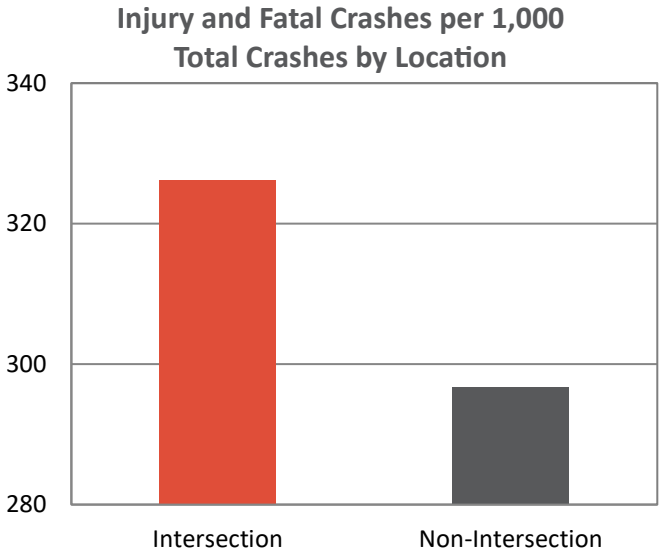


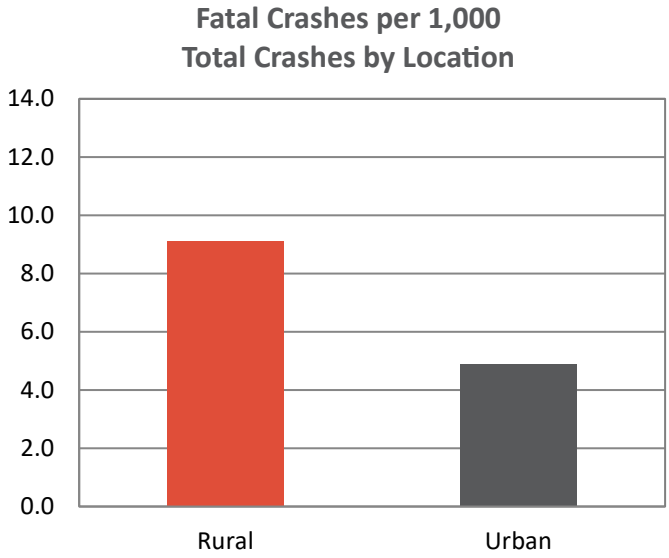
* In 2019, crash reports were updated based on toxicology tests resulting in higher but more accurate drug-related fatality statistics

Intersection-Related and Rural Areas Crashes

Crashes that occurred at intersections tended to be more severe (causing injury or fatality) than crashes at other locations. There were 326 injury-causing or fatal crashes for every 1,000 total crashes at intersections, compared to a rate of 297 injury or fatal crashes at non-intersection locations.

Similarly, rural areas of the Region were more prone to fatal crashes. For every 1,000 total crashes in rural areas, 9.1 led to a fatality [compared to 4.9 for urban crashes].



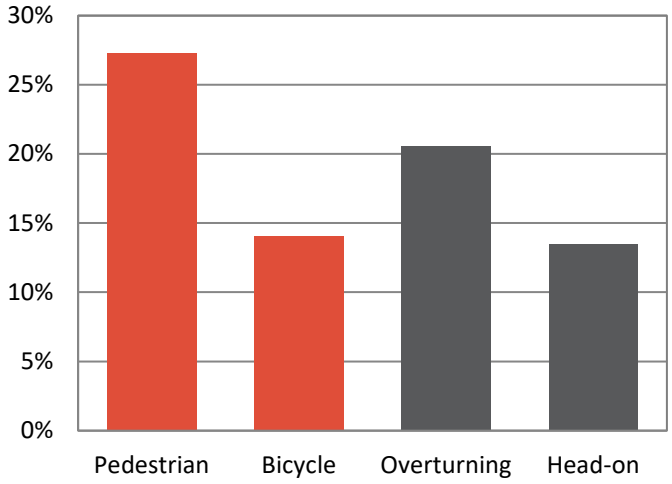


Bicycle and Pedestrian Crashes

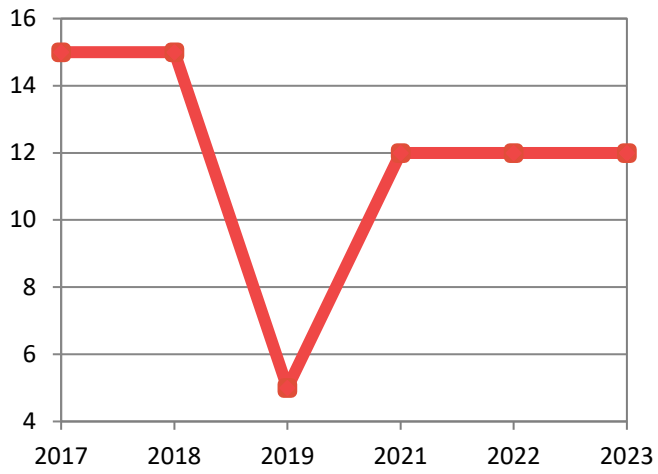
There were 219 bicyclist-motorist and 384 pedestrian-motorist crashes reported. These crashes represented a small fraction of all roadway crashes (only 1.49%). However, they were very severe. Up to 96% of pedestrian crashes and 85% of bicycle crashes resulted in an injury. 23% resulted in a serious crash (serious injury or fatality).

The number of fatal crashes involving a bicycle or pedestrian has remained relatively constant. From 2017 to 2019, 35 fatal crashes were reported. That number increased to 36 from 2021 to 2023.

Percent of Serious Crashes per Crash Type



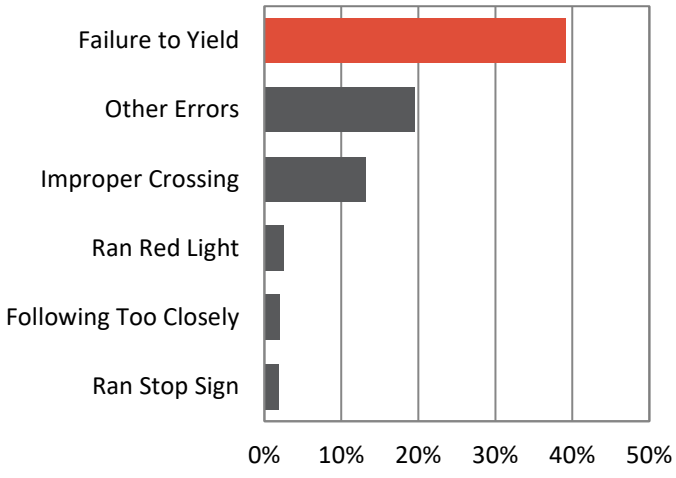
Annual Fatal Bike/Ped Crashes



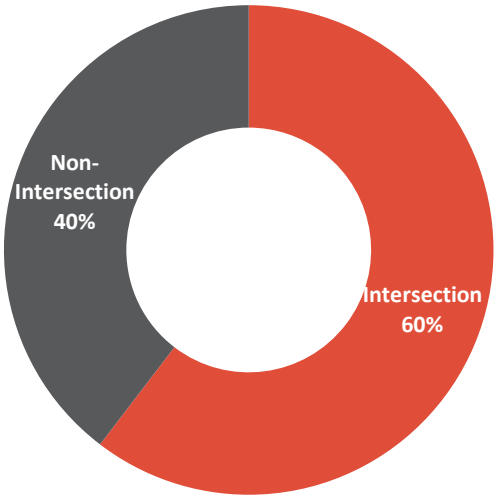
The top contributing factor for bicycle and pedestrian crashes was failure to yield, which was a factor in 39% of these crashes.

Bicycle and pedestrian-related crashes disproportionately occurred at intersections. Sixty percent (60%) of bicycle or pedestrian crashes were intersection related. Around half (48%) of the intersection crashes occurred at intersections with local roads.

Top Contributing Factors of Bike/Ped Crashes



Percent of Bike/Ped Crashes at Intersections

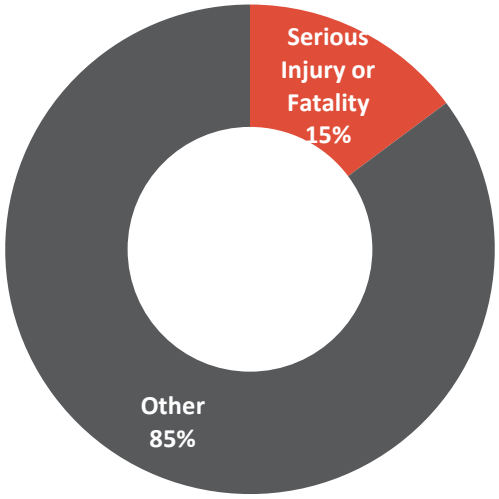


Seat Belt - Fatal and Serious Injuries

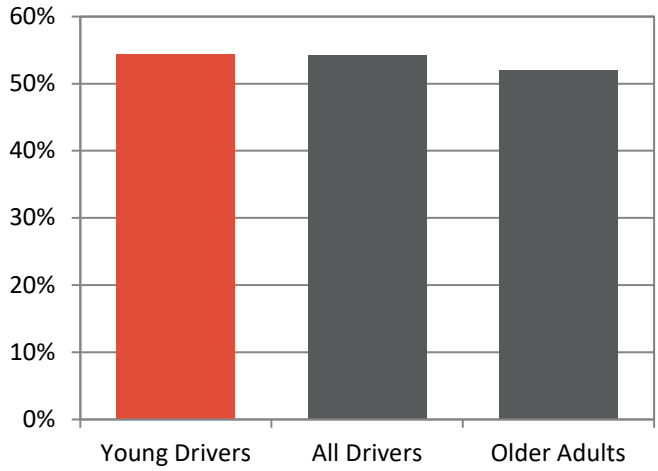
Unrestrained persons (persons without a seat belt) are vulnerable road users. 15% of unrestrained crashes lead to fatalities or serious injuries.

Young drivers, ages 16 to 25, were the most likely to be involved in single-occupant unrestrained crashes. 54% of severe unrestrained crashes involved young drivers.

Percent of Serious Injury or Fatality in Unrestrained Crashes



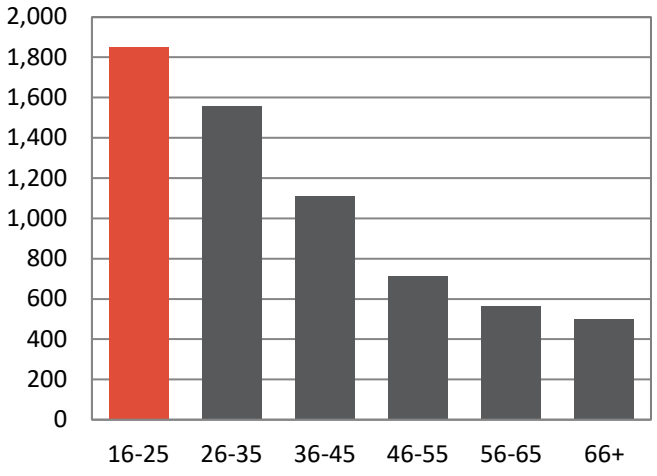
Percent of Severe Unrestrained Crashes by Age Group



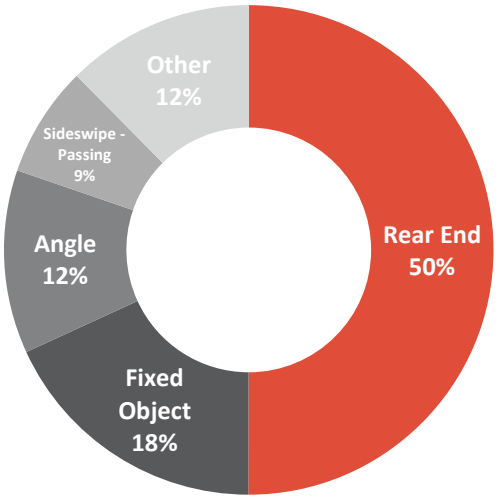
Distracted Driving

In 2012, law enforcement officers started collecting information on distracted driving in crash reports. This data indicates that from 2021 to 2023, 2,047 crashes involving a distracted driver occurred. These included internal distractions, external distractions, phones, and other electronic devices. Young drivers, ages 16 to 25, were most frequently involved in distracted driving. The top crash type reported with distracted driving was rear ends. Fifty percent (50%) of distracted driving crashes were rear ends.

Age Groups of Distracted Drivers



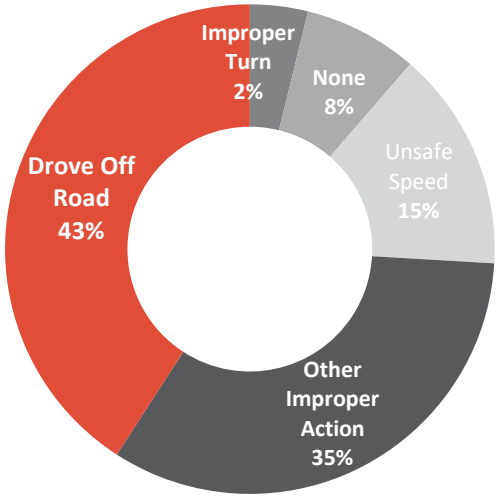
Types of Crashes Involving Distractions



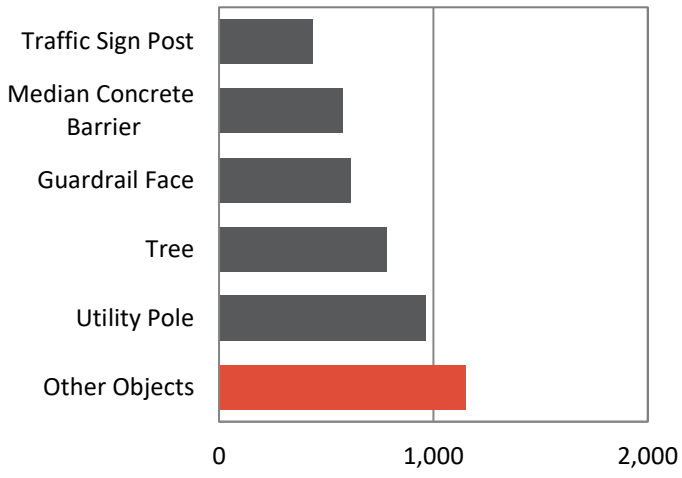
Fixed-Object Crashes

Fixed-object crashes were the top crash type leading to serious injuries or fatalities. Twenty-five percent (25%) of crashes that led to a severe crash involved a fixed-object crash. The top contributing factor of these crashes was “drove off road” (43%). Many different types of objects were struck in fixed-object crashes, but the most frequent objects struck were utility poles and trees.

Top Contributing Factors of Fixed-Object Crashes



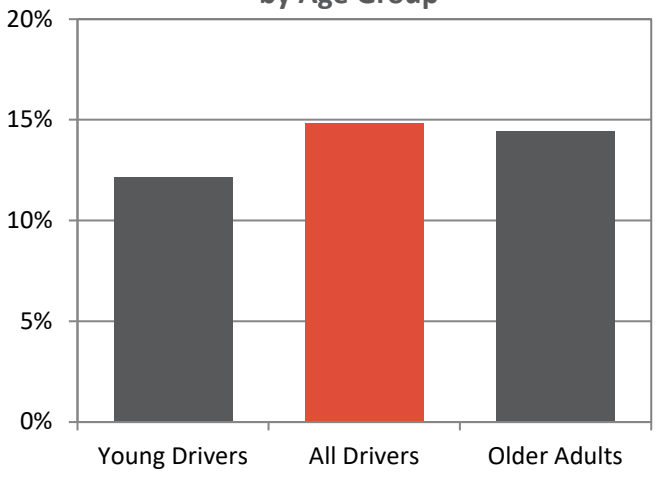
Frequency of Different Objects Struck



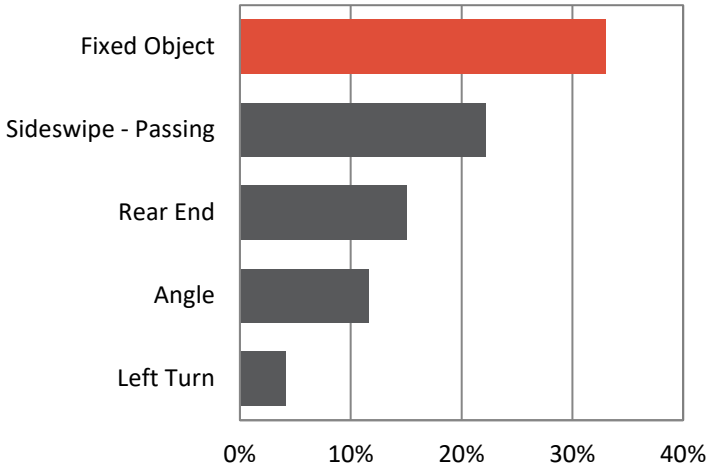
Speed Related Crashes

Speed related crashes occur when a driver goes over the speed limit or too fast for environmental conditions. Older adults, ages 66 and above, were most likely to be involved in a severe speed related crash. Forty-three percent (43%) of severe speed related crashes involving older adults led to a fatality or injury; 33% of speed related crashes were fixed object crashes followed by sideswipe-passing crashes (22%) and rear end crashes (15%).

Percent of Severe Speed Related Crashes by Age Group

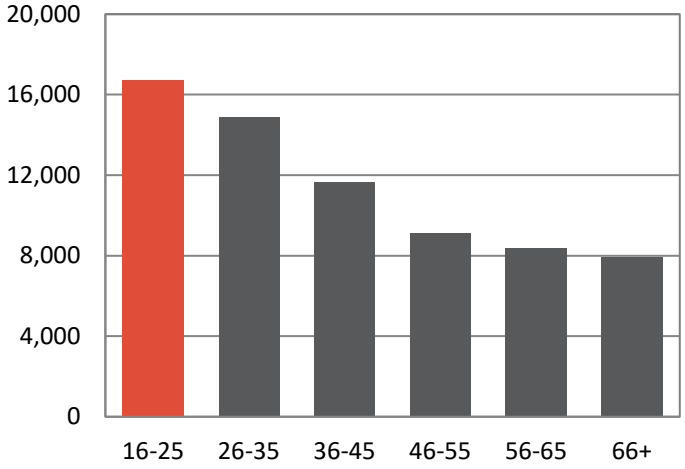


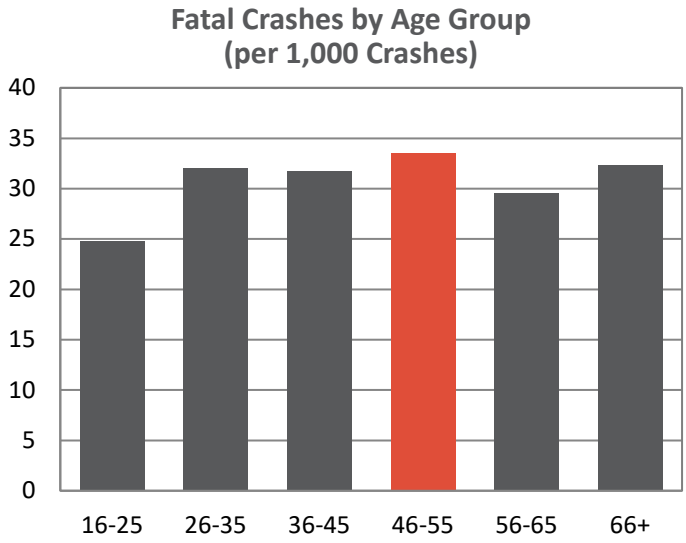
Percent of Speed Related Crashes by Crash Type



Young Driver and Older Adult Crash Involvement

Young drivers (ages 16 to 25) are high-risk road users. There were 16,722 young drivers involved in crashes – the highest of all age groups. Twenty-four percent (24%) of all crashes involved a young person, whereas in contrast, older adults were involved in only 12% of all crashes and 12% of serious crashes. Additionally, 6.1 fatal crashes occurred for every 1,000 crashes involving drivers ages 46-55, the highest of any age group.





Data analyzed in this report was derived from the Ohio Department of Transportation, the Ohio Department of Public Safety, and the National Highway Traffic Safety Administration crash databases and reports.

May 2025

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Shaping Our Region's Future Together