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 2014 through 2016 for the Miami Valley Region (Montgomery, Miami, Greene, and northern Warren Counties).

The Region as A Whole
A total of 58,581 reported crashes occurred in the Miami Valley from 2014 to 2016. These crashes include only those costing $1,000 or greater in property damage, injury-causing, or fatal. Of that total, 205 crashes were fatal, and 15,714 crashes led to injuries. Alcohol was reported to be involved in 35% of all fatal crashes. On average, a crash occurred in the Region every 27 minutes.
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 2.4 crashes for every 1 million miles traveled within the county.

Comparison to Ohio and the Nation

The total crash rate in the Miami Valley has been above the National rate but below Ohio’s rate. From 2012 to 2016, the average crash rate was 2.0 nationally, 2.2 in the Miami Valley, and 2.5 statewide. On average, the Region had a lower rate of roadway fatalities than Ohio and the Nation.
Change Through Time

Since the lowest total annual crashes in 2013, the number of crashes reported annually in the Miami Valley has increased. From 2013 to 2016, the total reported crashes increased by 24%. In 2013, 16,729 crashes were reported compared to 20,762 in 2016. Similarly, vehicle miles traveled (VMT) experienced an 11% increase during the same period.

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 7.9 injuries per 100 million miles traveled from 2008 to 2012 to 7.3 from 2012 to 2016. In contrast, the fatality rate, along with the non-motorized serious injury and fatality rate, experienced an increase.

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.
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 2014 to 2016, a total of 44,465 crashes were reported on the regional road network.

### Road Network Crashes by County

<table>
<thead>
<tr>
<th>County</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>Total</th>
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<tbody>
<tr>
<td></td>
<td>Fatal</td>
<td>Injury</td>
<td>PDO</td>
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<td>13,424</td>
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</tbody>
</table>

PDO - Property Damage Only crashes

From henceforth, this data report examines crashes that occurred only on the regional roadway network.

### Types of Crashes

Several types of crashes occurred on the regional roadway network from 2014 to 2016. The most common crash types were rear-end (33% of all crashes), angle (19%), and fixed-object (17%) crashes. Although common, these crash types 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 venerable road users. 96% of reported crashes involving a pedestrian, and 88% 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 1,317 serious injury crashes and 163 fatal crashes occurred. The remaining crashes led to minor injuries or property damage only (PDO).

Twenty-six percent (26%) of serious crashes were fixed object crashes, and 22% were angle crashes. These crashes varied by age group of drivers involved. Thirty-six percent (36%) of fixed-object crashes involved youth, ages 16 to 25. Similarly, 24% of angle crashes involved seniors, ages 66 and above.

**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 close (32% of all crashes), failure to control (17%), and failure to yield (16%).

The factors that had the highest severity were running stop light/sign and turning left of center. Forty-four percent (44%) of crashes caused by running a stop sign or red light led to injuries or fatalities.
Alcohol and Drug Related Crashes

The crash data indicates the dangerous implications of driving while under the influence of alcohol or drugs. A total of 3,314 crashes involved someone who had been drinking or using drugs.

Thirty-one percent (31%) of fatal crashes (50 of 163 total fatal crashes) involved someone who had been drinking. Similarly, someone who had been using drugs was involved in 15% of fatal crashes.

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 295 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, 9.6 led to a fatality.
Bicycle and Pedestrian Crashes

There were 232 bicyclist-motorist and 438 pedestrian-motorist crashes reported. These crashes represented a small fraction of all roadway crashes (only 1.5%). However, they were very severe. Up to 96% of pedestrian crashes and 88% of bicycle crashes resulted in an injury or fatality.

The number of fatal crashes involving a bicycle or pedestrian has remained stagnant. From 2011 to 2013, 29 fatal crashes were reported. That number remained at 29 from 2014 to 2016.

The top contributing factor for bicycle and pedestrian crashes was failure to yield, which was a factor in 35% of these crashes.

Bicycle and pedestrian-related crashes disproportionately occurred at intersections. Sixty-seven percent (67%) of bicycle or pedestrian crashes were intersection-related.
Seat Belt - Fatal and Serious Injuries

Unrestrained persons (persons without a seat belt) are vulnerable road users. There were 2,090 crashes involving at least one unrestrained person, and 31% of them lead to injuries or fatalities.

Youth, ages 16-25, were the most likely to be involved in single-occupant unrestrained crashes. There were 993 youth involved in unrestrained crashes.

Distracted Driving

In 2013, law enforcement officers were required to include detailed information on distracted driving in crash reports. This data indicates that from 2014 to 2016, 3,481 crashes involving a distracted driver occurred. These included internal distractions, external distractions, phones, and other electronic devices. People aged 16 to 25 were most frequently reported in distracted driving. The top crash type reported with distracted driving was rear ends. Forty-eight percent (48%) of distracted driving crashes were rear ends.
**Fixed-Object Crashes**

Fixed-object crashes were the top crash type leading to serious injuries or fatalities. Twenty-six percent (26%) of crashes that led to a severe crash involved a fixed-object crash. The top contributing factor of these crashes was a failure to control (64%). Many different types of objects were struck in fixed-object crashes, but the most frequent objects struck were utility poles and guardrails.

**Crashes with Youth and Seniors**

Youth (ages 16 to 25) and seniors (66 years or older) are high-risk road users. There were 20,093 youth involved in crashes – the highest of all age groups. Forty percent (40%) of all crashes involved a young person. Similarly, people age 66 or older were involved in 16% of all crashes and 11% of serious crashes. Additionally, 31.7 serious senior crashes occurred for every 1,000 crashes involving seniors.
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.

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