

## Overall Crash Facts

Between the years of 2005 and 2007, a total of 124,533 crashes involving 334,828 people occurred in MORPC's transportation planning area. During this time frame, there were 289 fatal crashes, in which 304 people lost their lives. 32,093 crashes resulted in one person or more being injured.

The total annual number of crashes decreased by 2.2% from 2005 to 2007, while the number of injury crashes decreased by 4.8% and the number of fatal crashes decreased by 16.5%. The total numbers are reported in Table 1.

Table 1: Reported Crashes by Severity

Year	Fatal	Injury	PDO	Private Property	Total
2005	109	11,015	28,970	2,024	<b>42,118</b>
2006	89	10,593	29,003	1,551	<b>41,236</b>
2007	91	10,485	28,943	1,660	<b>41,179</b>
<b>Total</b>	<b>289</b>	<b>32,093</b>	<b>86,916</b>	<b>5,235</b>	<b>124,533</b>
<b>Average</b>	<b>96</b>	<b>10,698</b>	<b>28,972</b>	<b>1,745</b>	<b>41,511</b>

Source: MORPC Crash Data 2005-2007

Approximately 2 out of 5 crashes resulted in one or more injuries. However, nearly 4 out of 5 crashes that involved a pedestrian, a bicyclist or a motorcyclist resulted in some type of injury (see Table 2). These statistics show that the injury risk in a crash decreases with increased protection.

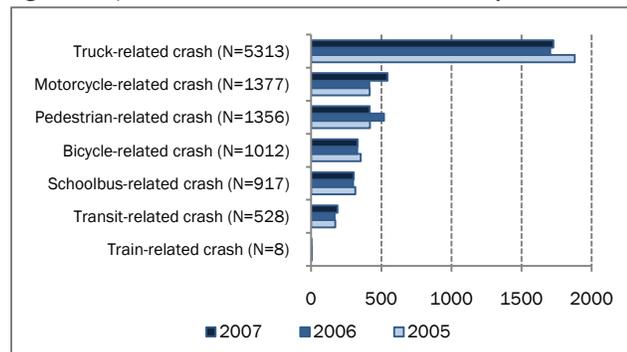
Table 2: Reported Crashes by Vehicle Mode and Severity

2005-2007	Number	% of all Crashes	% that resulted in injuries
Pedestrian-related	1,356	1.1%	82%
Bicycle-related	1,012	0.8%	78%
Motorcycle-related	1,377	1.1%	75%
Transit	528	0.4%	24%
Truck-related	5,313	4.3%	20%
School bus-related	917	0.7%	18%
<b>All Crashes</b>	<b>124,533</b>	<b>100%</b>	<b>40.8%</b>

Source: MORPC Crash Data 2005-2007

Figure 1 shows that while crashes overall decreased over the three-year period, motorcycle and transit crashes increased.

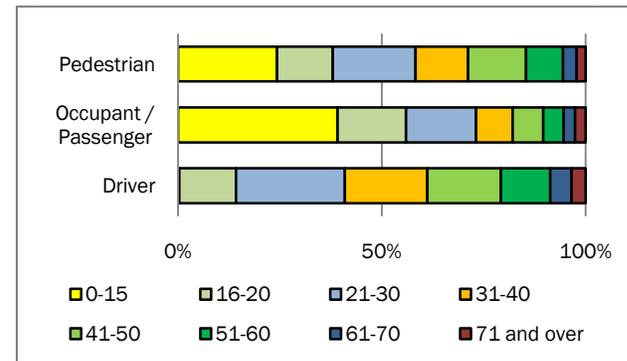
Figure 1: Special Vehicle User-Related Crashes by Year



Source: MORPC Crash Data 2005-2007; N=10,511

Over 40 percent of the drivers involved in crashes were between the ages of 16 and 30 years (see Figure 2). Nearly 50 percent of the drivers were male, 38 percent female, and for 12 percent the gender was not reported.

Figure 2: People in Crashes [in %] by Selected Type and Age

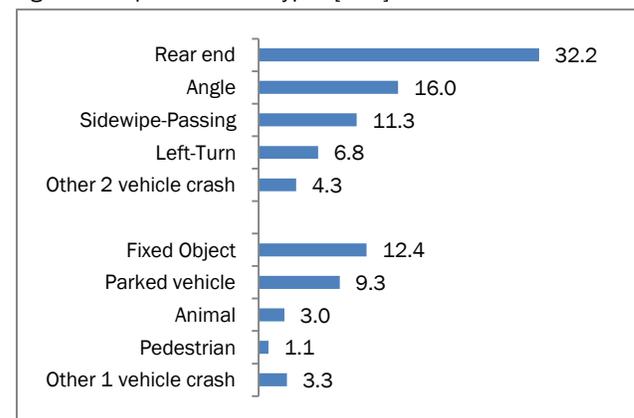


Source: MORPC Crash Data 2005-2007; N=298,328

The majority of crashes involved a passenger car<sup>1</sup> (74 percent), followed by pick-up trucks/vans (12 percent), heavy trucks (2.2 percent) and bicyclists/pedestrians (1.0 percent).

The most common type of reported crashes were rear-end, followed by angle, fixed object, sideswipe passing and parked vehicle crashes (see Figure 3).

Figure 3: Reported Crash Types [in %]



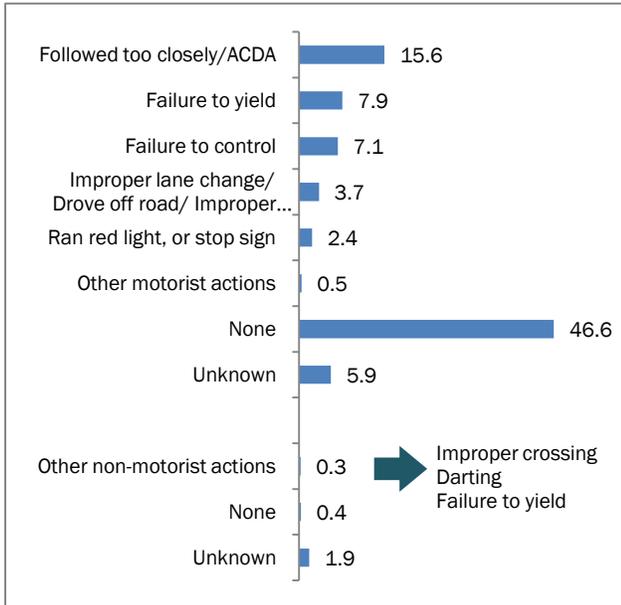
Source: MORPC Crash Data 2005-2007; N=124,522

As Figure 4 shows, "following too closely," "failure to yield," and "failure to control" were the three most

<sup>1</sup> Passenger car includes Mid size, full size, Minivan, SUV, Pickup, and Van.

commonly reported factors contributing to crashes. Related to non-motorists' actions, "improper crossing," "darting," or "failure to yield right-of-way" were reported most frequently.

Figure 4: Reported Crashes by Probable Cause [in %]

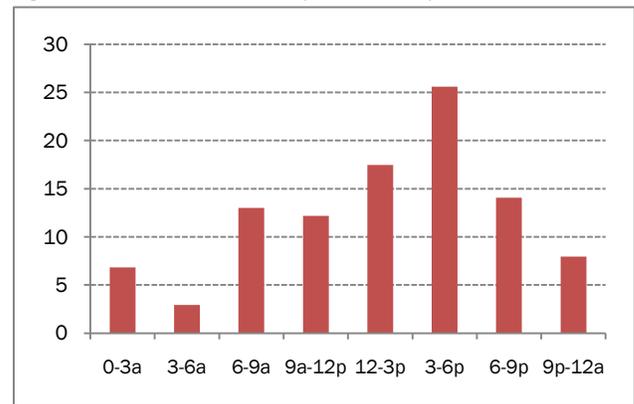


Source: MORPC Crash Data 2005-2007; N=223,280

It is important to note that the reported contributing crash factors are often subjective and therefore need to be read with caution. The reporting is limited to the officer's ability to fully understand the reasons behind the crash and to rely on the honesty of the crash participant. They are therefore referred to as "probable cause."

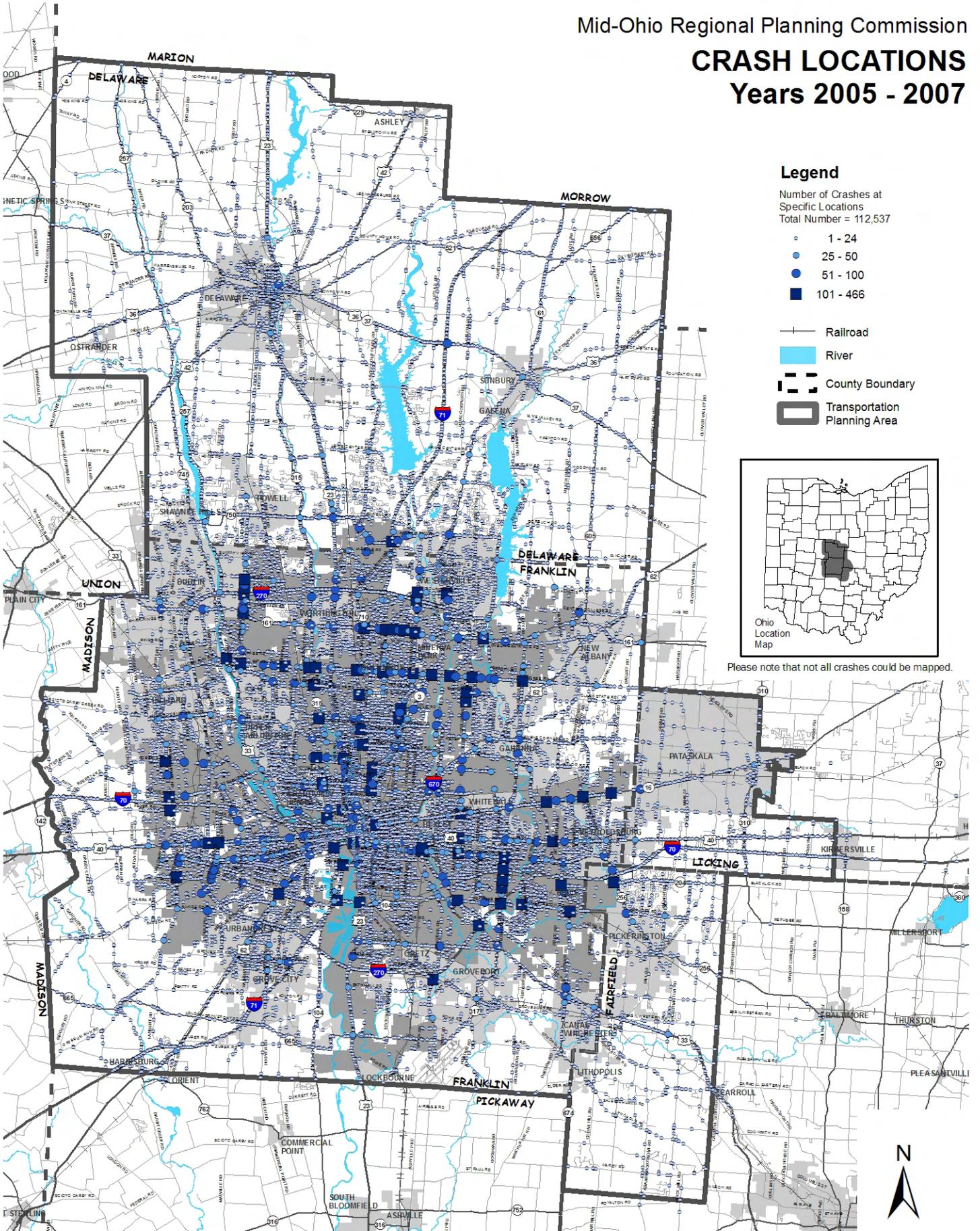
The majority of reported crashes occurred during the afternoon and early evening hours, between 12 p.m. and 9 p.m. (see Figure 5).

Figure 5: Reported Crashes by Time of Day [in %]



Source: MORPC Crash Data 2005-2007; N=124,533

# CRASH LOCATIONS Years 2005 - 2007



### Legend

Number of Crashes at Specific Locations  
Total Number = 112,537

- 1 - 24
- 25 - 50
- 51 - 100
- 101 - 466

- Railroad
- River
- - - County Boundary
- ▭ Transportation Planning Area



Please note that not all crashes could be mapped.



## Fatal Crashes

The three-year period shows a total of 289 fatal crashes in MORPC's transportation planning area, resulting in 304 fatalities. A total of 12 percent (37) of these fatalities were pedestrians, 71 percent (215) were drivers, and 17 percent (52) were passengers. Nearly 70 percent of all people involved in fatal crashes were male. From 2005 to 2007, the number of fatal crashes decreased by nearly 16.5 percent, from 109 to 91.

The majority of fatal crashes we reported to have occurred on county roads (36 percent), followed by interstate routes (19 percent), and state routes (16 percent).

The table below illustrates that most fatalities occurred in or with passenger motor vehicles. Pedestrians and motorcyclists were also significantly represented in fatal crashes.

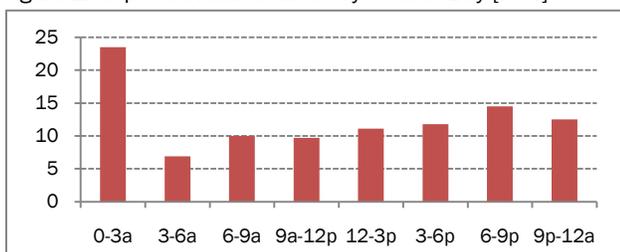
Table 1: Fatalities and Total Crashes by Type of Unit Involved

2005-2007	Number of Fatalities	Total Number of Crashes	Percent Fatal
Passenger car related	170	178,272	0.1%
Pedestrian related	37	1,356	2.7%
Motorcycle related	32	1,377	2.3%
Bicycle related	3	1,012	0.3%
Transit related	0	528	0.0%
Truck related	0	5,313	0.0%
School bus related	0	917	0.0%
Other Modes	62	53,410	0.1%
<b>All Crashes</b>	<b>304</b>	<b>242,185</b>	<b>0.1%</b>

Source: MORPC Crash Data 2005-2007

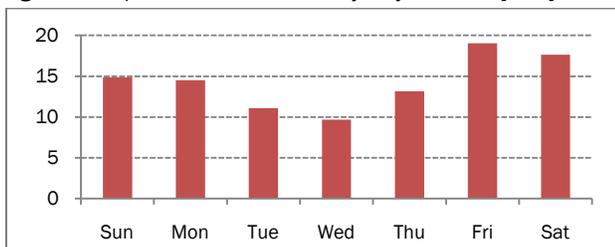
Figure 1 shows that the majority of fatal crashes (51 percent) occurred during the night between 6 p.m. and 3 a.m. Almost 37 percent of all fatal crashes occurred on Fridays and Saturdays (see Figure 2).

Figure 1: Reported Fatal Crashes by Time of Day [in %]



Source: MORPC Crash Data 2005-2007; N=289

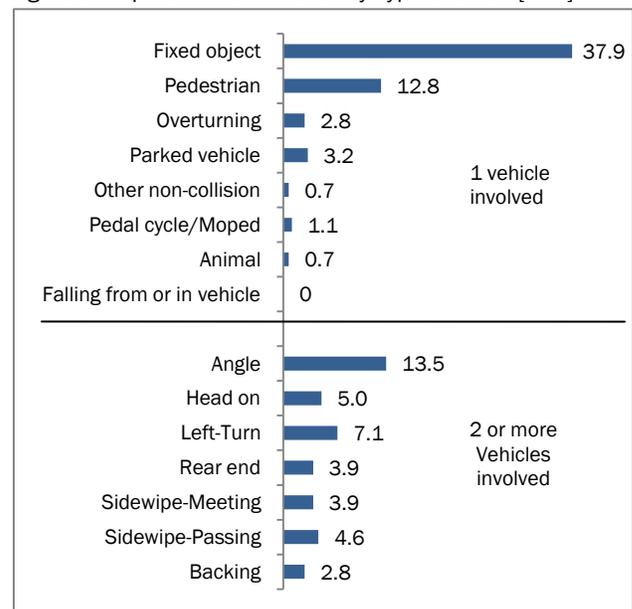
Figure 2: Reported Fatal Crashes by Day of Week [in %]



Source: MORPC Crash Data 2005-2007; N=289

The most frequent crash types that resulted in a fatal crash were fixed-object crashes (38 percent), followed by angle crashes (14 percent) and crashes involving a vehicle and a pedestrian (12 percent) (see Figure 3). Of those crashes where the probable contributing factor was reported, "failure to control," "failure to yield," "operating vehicle in reckless manner," and "running red light" were the most common ones.

Figure 3: Reported Fatal Crashes by Type of Crash [in %]

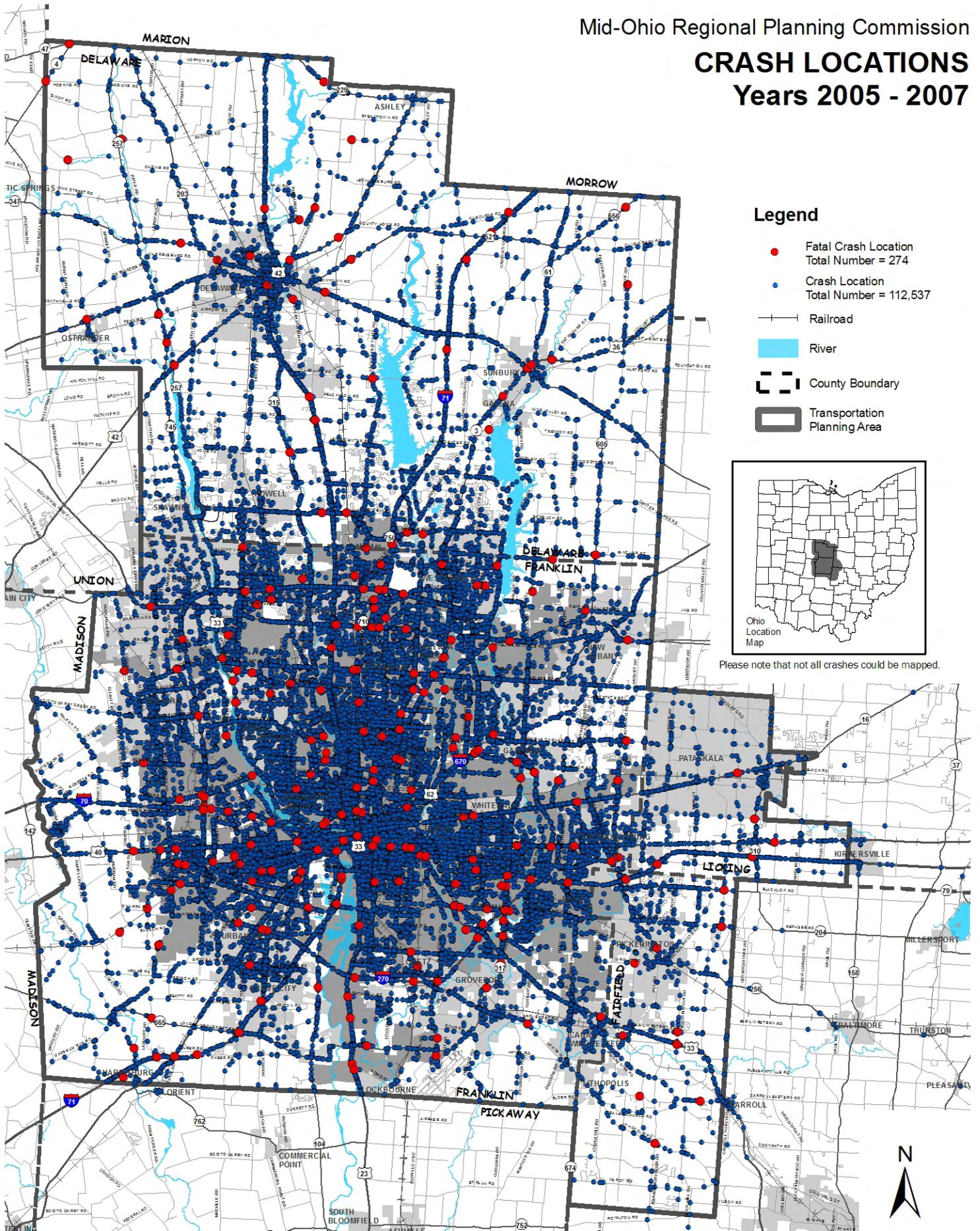


Source: MORPC Crash Data 2005-2007; N=282

Over 15 percent of the 289 fatal crashes reportedly involved alcohol and/or drugs. Speeding was reported in 9 percent of all these crashes, meaning that the actual speed was determined to be above speed limit. Potentially, more of these crashes could be the result of speed but were not reported as such.

Of the 243 fatally injured vehicle occupants, 43 percent were not wearing safety belts; of the 47 killed occupants, 43 percent were unbuckled. In addition, 29 percent of the fatally injured drivers and 35 percent of the occupants were at least partially ejected in the crash.

# CRASH LOCATIONS Years 2005 - 2007



### Legend

- Fatal Crash Location  
Total Number = 274
- Crash Location  
Total Number = 112,537
- Railroad
- River
- - - County Boundary
- ▭ Transportation Planning Area



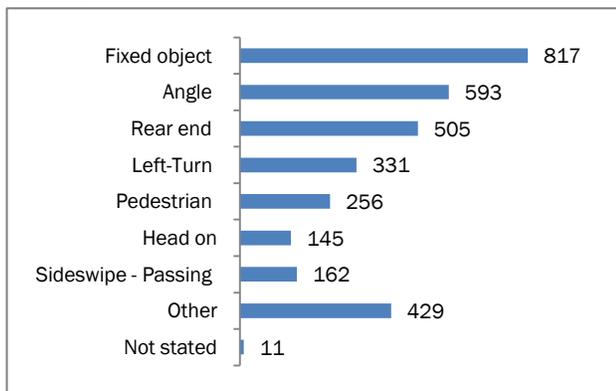
Please note that not all crashes could be mapped.

## Serious Crash Types

More than 10 percent of all fatal and incapacitating injuries over the 3-year period occurred in fixed-object or angle crashes. Fixed-object crashes tend to occur more frequently during winter months and wet road conditions. Angle crashes most often take place at intersections and during the day. A significant decrease of angle crashes was observed during the 3-year period.

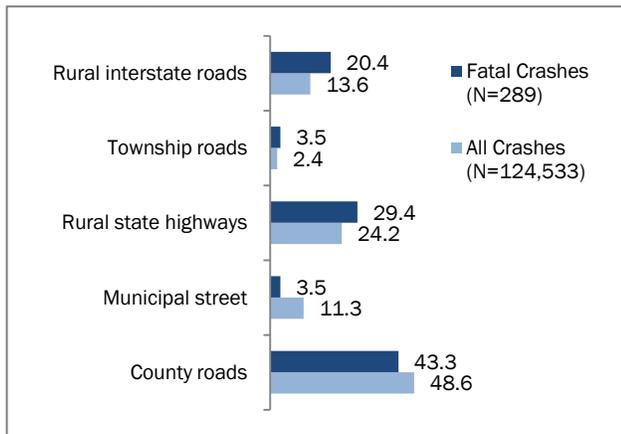
According to MORPC's crash data analysis, over 10 percent of all fatal injuries (N=304) as well as incapacitating injuries (N=2,945) occurred in a fixed-object or angle crash. Many incapacitating injuries were also caused in rear-end crashes, and pedestrian crashes often resulted in fatal injuries (see Figure 1).

Figure 1: Reported Fatal and Incapacitating Injury Crashes by Crash Type



Source: MORPC Crash Data 2005-2007; N=3,249

Figure 2: All Reported Crashes and Fatal Crashes in Comparison by Jurisdiction of Roadway [in %]



Source: MORPC Crash Data 2005-2007

County roads were the most common location for crashes. Rural state and interstate roads had a higher percentage of fatal crashes than total crashes (See Figure 2).

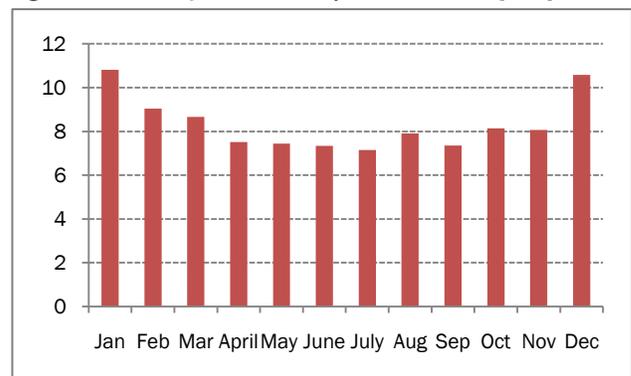
The following statistics will provide more detailed information on fixed-object and angle crashes, as well as intersection crashes.

### Fixed-Object Crashes

During the 3-year period, a total of 15,480 fixed-object crashes occurred in MORPC's transportation planning area, resulting in 107 fatal and 4,494 injury crashes.

Of the fixed-object crashes, more than 50 percent occurred during the day and about 38 percent on wet road conditions (including rain, snow, and ice).

Figure 3: Fixed-Object Crashes by Month of Year [in %]



Source: MORPC Crash Data 2005-2007; N=15,480

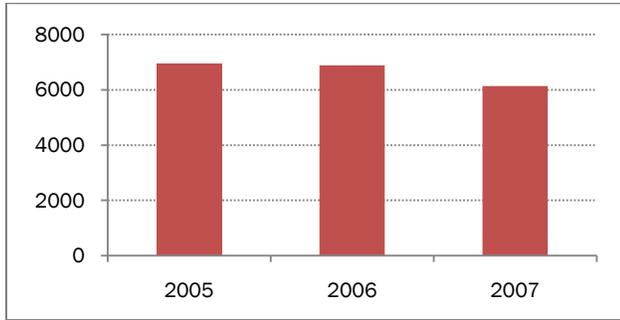
Figure 3 shows that fixed-object crashes were more common during the winter months when inclement weather increases the likelihood of dangerous road conditions.

### Angle Crashes

A total of 19,976 of the crashes within the 3-year period were recorded as angle crashes. Of these crashes, 38 were fatal and 6,405 involved injuries.

Three-fourths occurred during the day and in dry road conditions. As expected, the majority of these crashes (over 75 percent) were intersection-related. The transportation planning area experienced a decrease in angle crashes of more than 10 percent from 2005 to 2007 (see Figure 4).

Figure 4: Reported Angle Crashes by Year [in %]



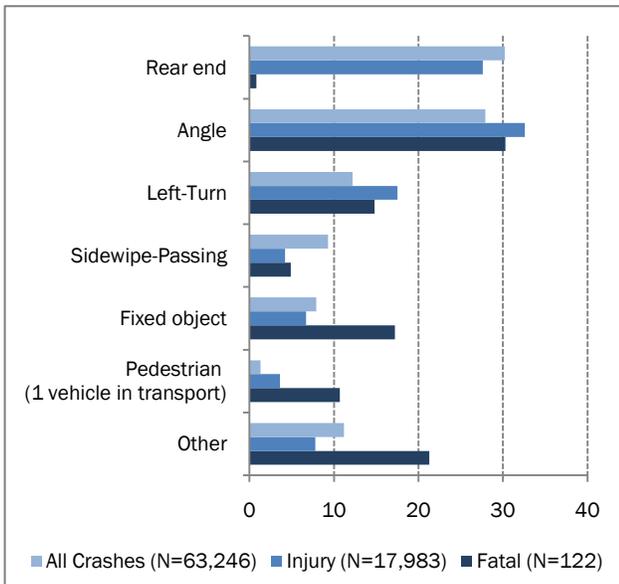
Source: MORPC Crash Data 2005-2007; N=19,976

The top two probable causes for reported angle crashes were failure to yield (25 percent) and running a red light (12 percent).

### Intersection Crashes

When analyzing the crash data based on the variable field “Type of Intersection,” a total of 61,287 (49 percent) were labeled as non-intersection crashes. Based on these statistics, over 40 percent of all fatal crashes and about 55 percent of all injury crashes did occur at an intersection. However, even crashes that did not occur directly at an intersection could still be intersection-related.

Figure 5: Intersection-Related Crashes by Crash Type [in %]



Source: MORPC Crash Data 2005-2007

Figure 5 illustrates that angle and fixed-object crashes at intersections were often the cause for fatalities, while rear-end and angle crashes were the overall most frequent crash types at intersections.

### Red Light Running

Columbus currently has a total of 10 existing and 8 planned red-light camera locations (see Map 1). Early studies have shown a drastic decrease in red-light running since the deployment of the cameras, also reducing the number of crashes at these locations.

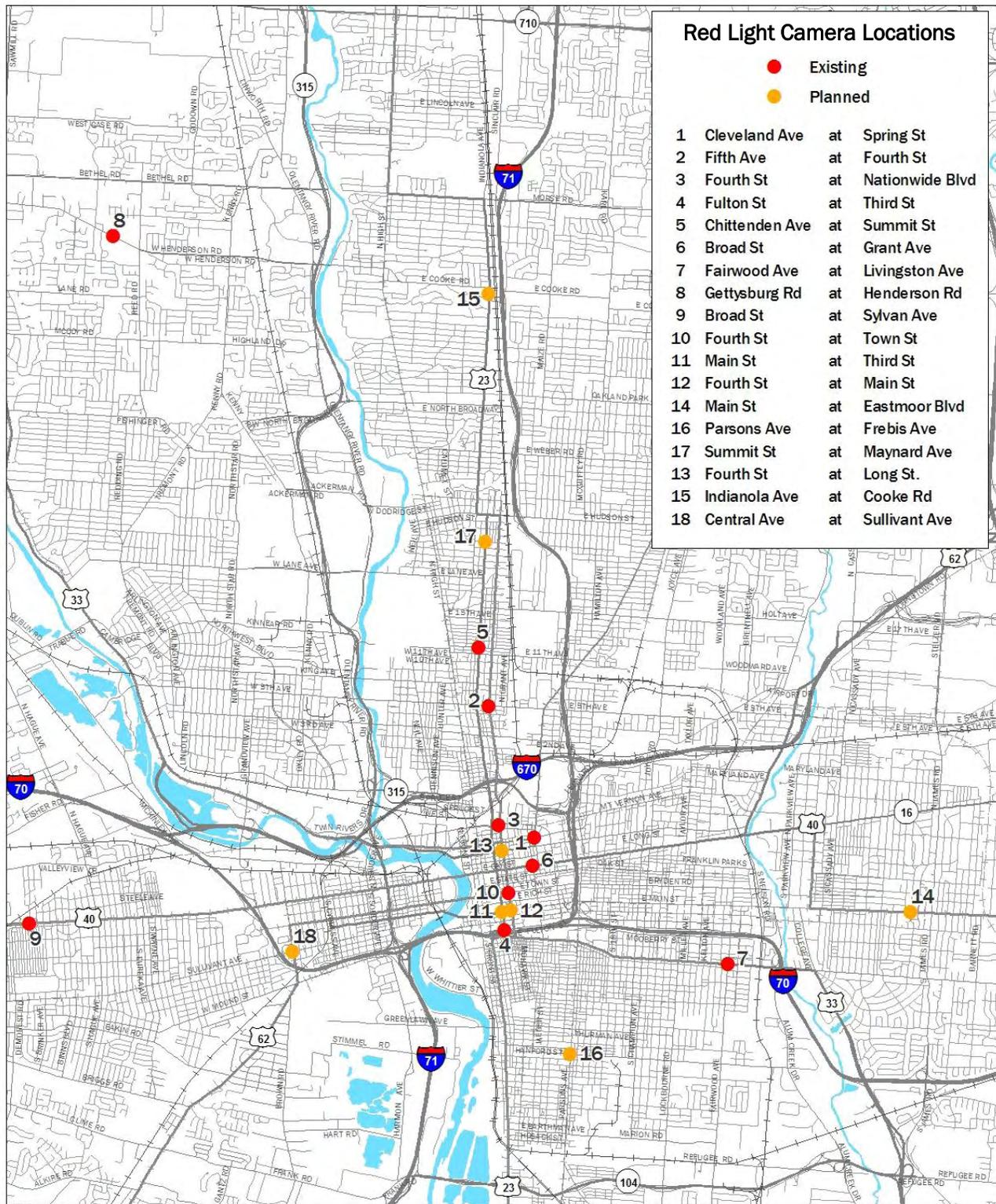
### Roundabouts

Roundabouts are one of the most effective intersection control treatments available with the added benefit of calming traffic. They limit vehicle speeds to approximately 20 mph and can control vehicle speeds on four streets simultaneously. Roundabouts typically reduce crashes by 40 – 60 percent, reduce injury by 35 – 80 percent and almost completely eliminate incapacitating injury and fatal crashes<sup>2</sup>.

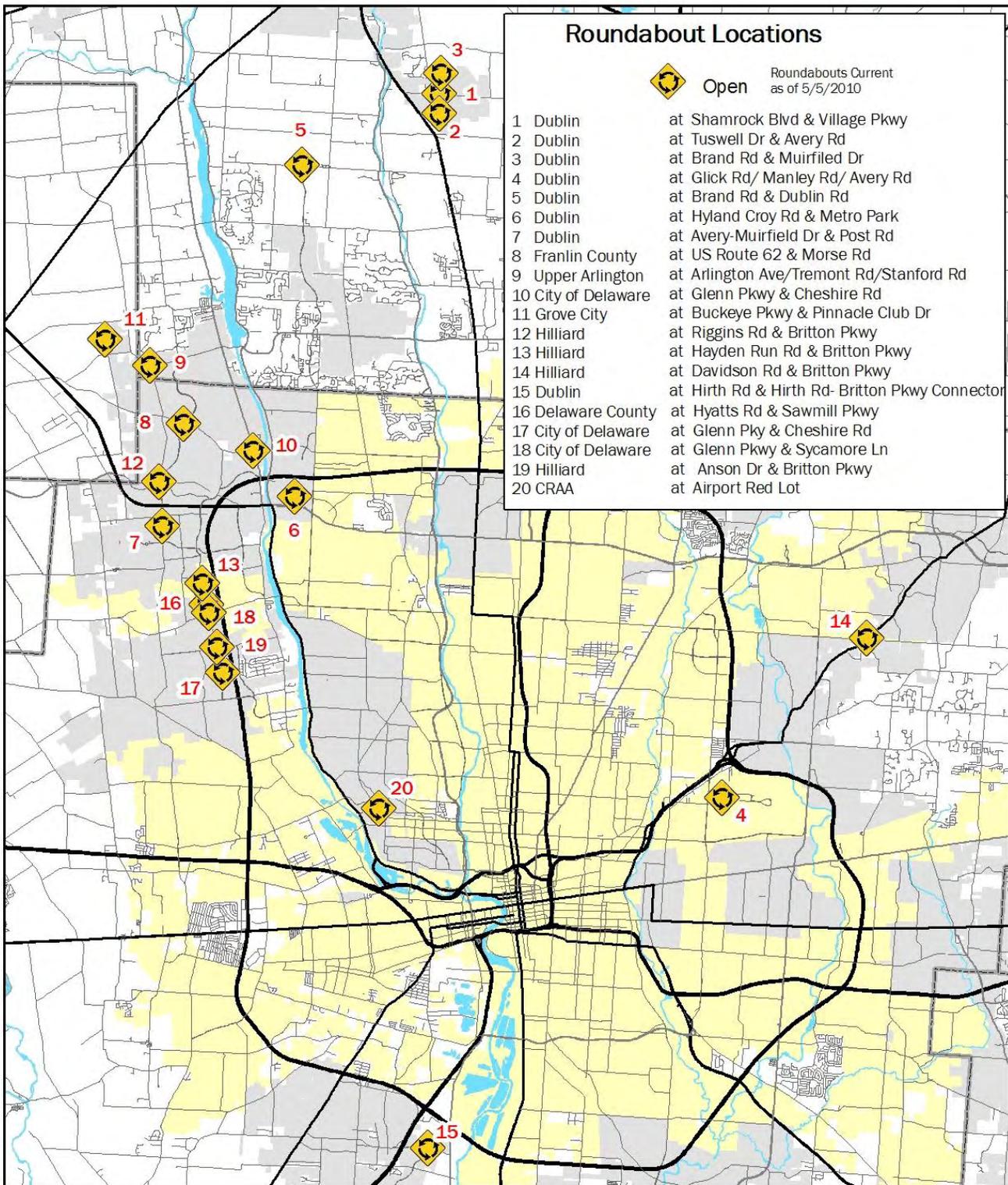
MORPC’s transportation planning area has a total of 19 roundabouts, either built (14) or currently under construction (5) (see Map 2).

<sup>2</sup> <http://www.dublin.oh.us/engineering/roundabout/index.php>

**Map 1: Red Light Locations in Columbus, OH (April 2010)**



**Map 2: Roundabouts in Columbus, OH (May 2010)**



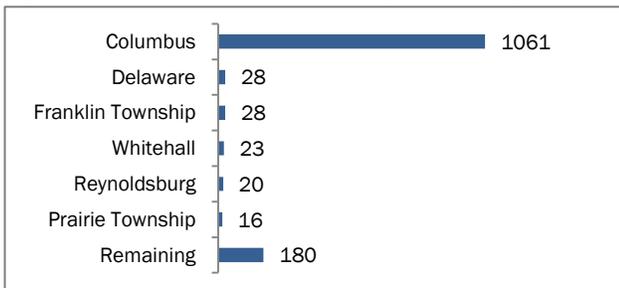
## Pedestrians

Between the years of 2005 and 2007, a total of 1,356 pedestrian-related crashes were reported in the MORPC planning area, with a total of 37 pedestrians killed. Even though pedestrian-related crashes make up only 1.1 percent of all crashes, they are responsible for 13 percent of all fatal crashes.

With approximately 80 percent of all non-motorist crashes resulting in some type of injury, pedestrians and bicyclists are especially vulnerable transportation users. These statistics emphasize the importance of both motorist and non-motorist education on traffic laws, as well as the need to increase visibility of non-motorists on the roadways.

Figure 1 shows that the majority of all pedestrian-related crashes in the 3-year period occurred within the City of Columbus (78 percent).

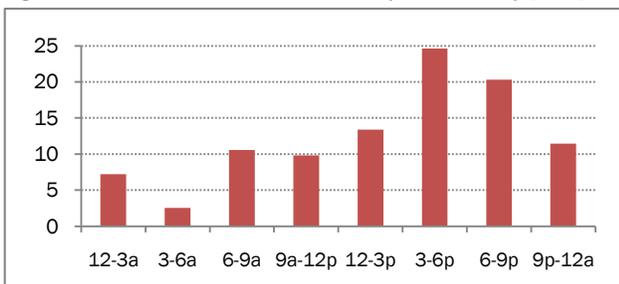
Figure 1: Pedestrian-related Crashes by Municipality



Source: MORPC Crash Data 2005-2007; N=1,356

Figure 2 shows that pedestrian-related crashes are most common between the hours of 3 p.m. and 9 p.m.

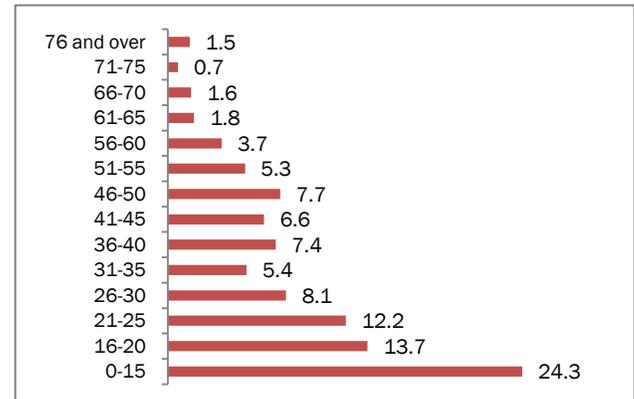
Figure 2: Pedestrian-related Crashes by Time of Day [in %]



Source: MORPC Crash Data 2005-2007; N=1,356

Figure 3 shows the age distribution of pedestrians involved in crashes with motor vehicles. 24 percent of all reported pedestrian crashes involved children under the age of 15. Over 30 percent of the crashes included teenagers and young adults between the ages of 16 and 30.

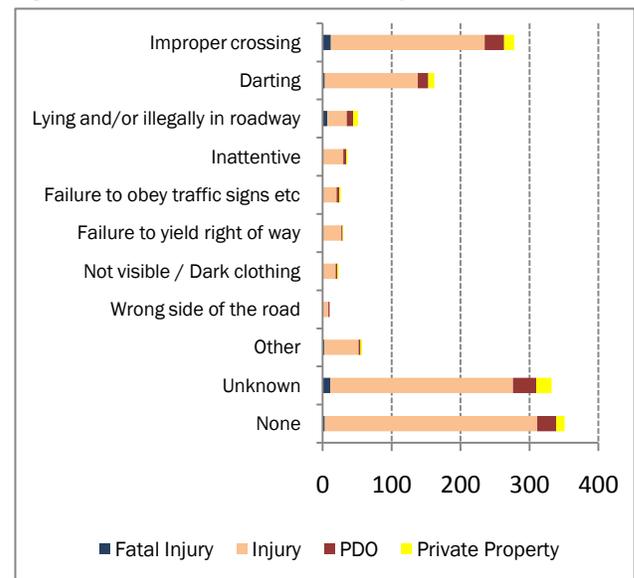
Figure 3: Pedestrians Involved in Crashes by Age [in %]



Source: MORPC Crash Data 2005-2007; N=1,290

“Improper crossing” was reportedly the most common known cause for pedestrian fatalities, followed by “darting” (see Figure 4).

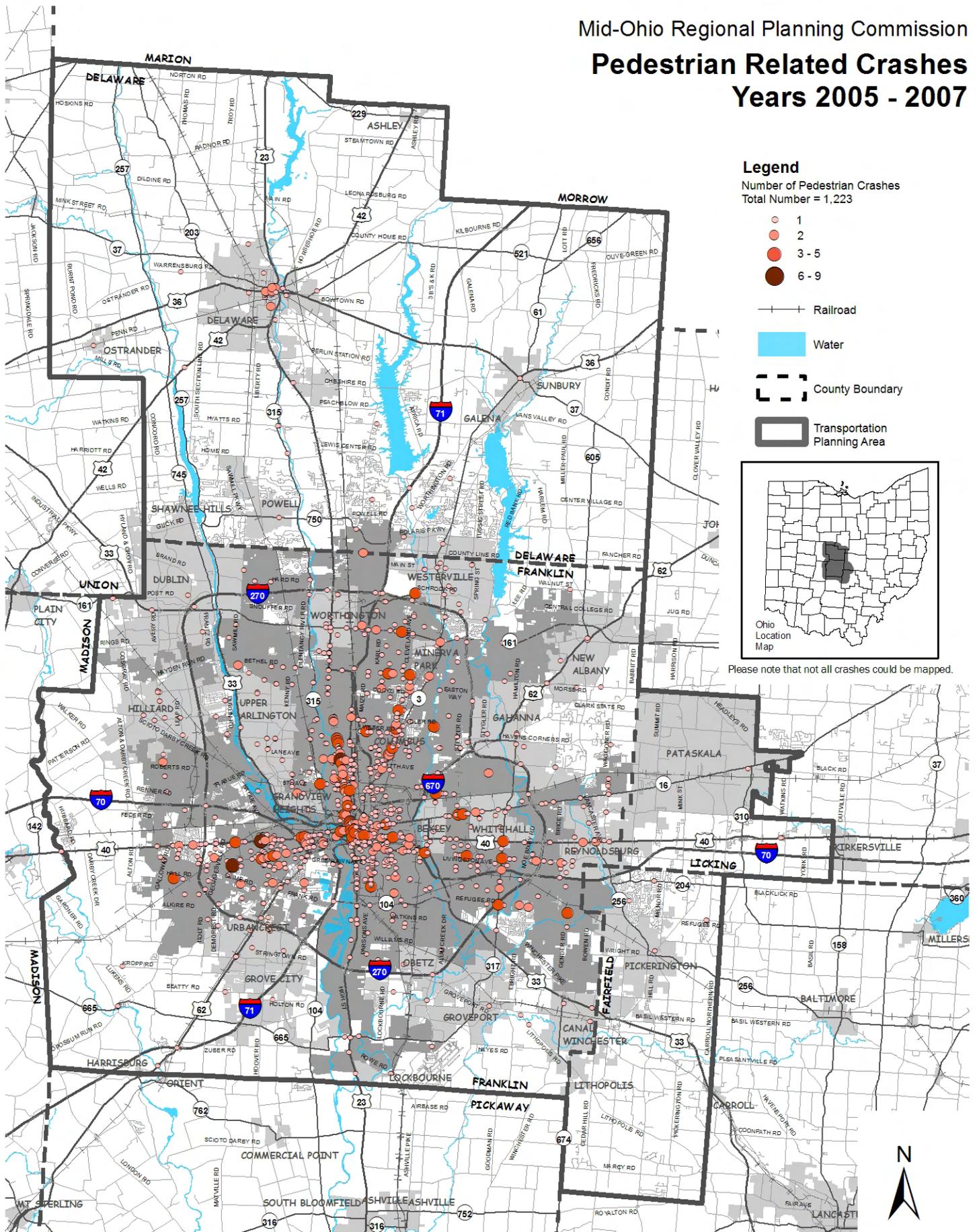
Figure 4: Pedestrian-related Crashes by Probable Cause



Source: MORPC Crash Data 2005-2007; N=1,356

Most of the 37 pedestrian fatalities within the 3-year period occurred in urban areas (85 percent), on the roadway (92 percent), at non-intersection locations (64 percent), in normal weather conditions (87 percent), and during the night (64 percent).

Mid-Ohio Regional Planning Commission  
**Pedestrian Related Crashes**  
**Years 2005 - 2007**



**Legend**

Number of Pedestrian Crashes  
 Total Number = 1,223

- 1
- 2
- 3-5
- 6-9

—+— Railroad

Water

County Boundary

Transportation Planning Area



Please note that not all crashes could be mapped.



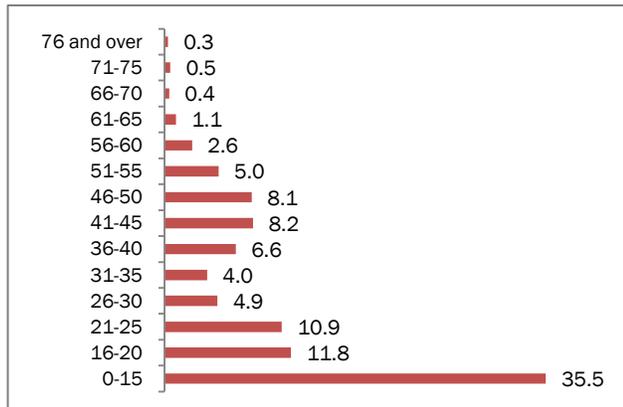
## Bicyclists

Within the regional transportation planning area, a total of 1,012 bicycle-related crashes, involving 1,025 bicyclists, occurred during the years 2005 and 2007. While most bicycle-related crashes resulted in some type of injury (78 percent), only 3 of those crashes were fatal.

With approximately 80 percent of all non-motorist crashes resulting in some type of injury, pedestrians and bicyclists are especially vulnerable transportation users. These statistics emphasize the importance of both motorist and non-motorist education on traffic laws, as well as the need to increase visibility of non-motorists on the roadways.

Similar to pedestrian-related crashes, the majority of bicyclists involved in crashes were either 15 years or younger (36 percent) or between 16 and 30 years (28 percent) (see Figure 1).

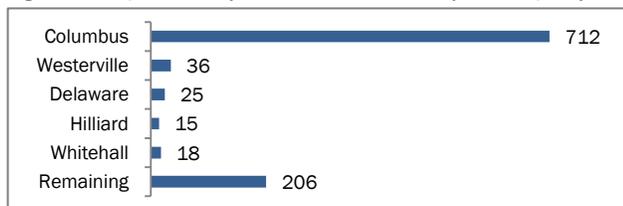
Figure 1: Bicyclists Involved in Crashes by Age [in %]



Source: MORPC Crash Data 2005-2007; N=935

As Figure 2 illustrates, most of the bicycle-related crashes in the 3-year period occurred within the City of Columbus (70 percent).

Figure 2: Reported Bicycle-related Crashes by Municipality

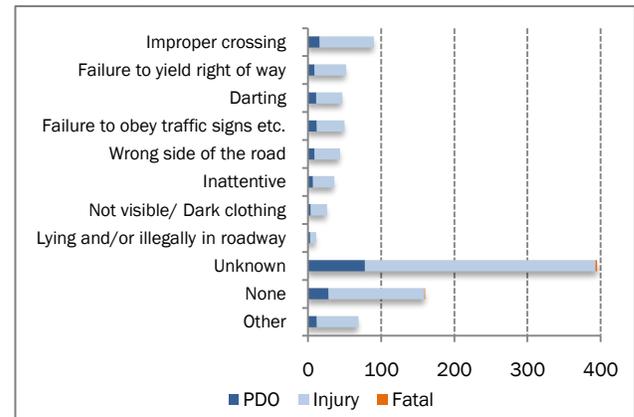


Source: MORPC Crash Data 2005-2007; N=1,012

The majority of all reported bike crashes (65 percent) occurred in the summer months between May and September of each year. Further, 91 percent of these crashes took place during normal weather conditions, and – in contrast to reported pedestrian crashes - 63 percent occurred in the daytime. Nearly two-thirds were intersection-related.

When analyzing contributing factors for bicycle crashes, and particularly injury and fatal crashes, “improper crossing” and “failure to yield right-of-way” were the most common factors (see Figure 3). Again, these statistics need to be read with caution since the contributing factors are subject to the field officer’s judgment and the person involved in the crash.

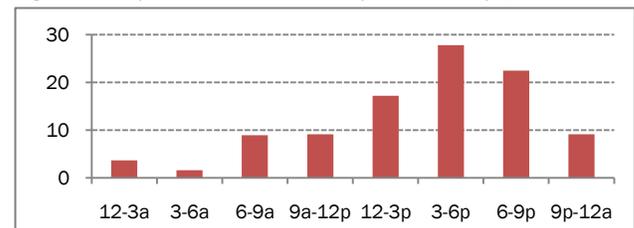
Figure 3: Bicycle-related Crashes by Contributing Factors



Source: MORPC Crash Data 2005-2007; N=980

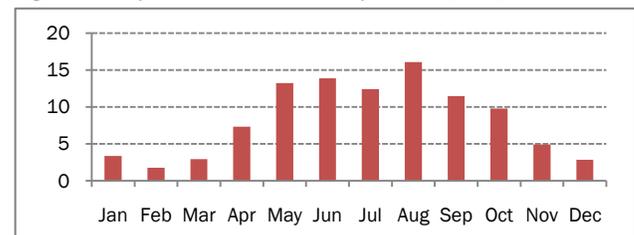
50% of bicycle-related crashes occurred between 3 p.m. and 9 p.m., and the highest number of crashes occurred between May and August (see Figure 4 and Figure 5).

Figure 4: Bicycle-related Crashes by Time of Day [in %]



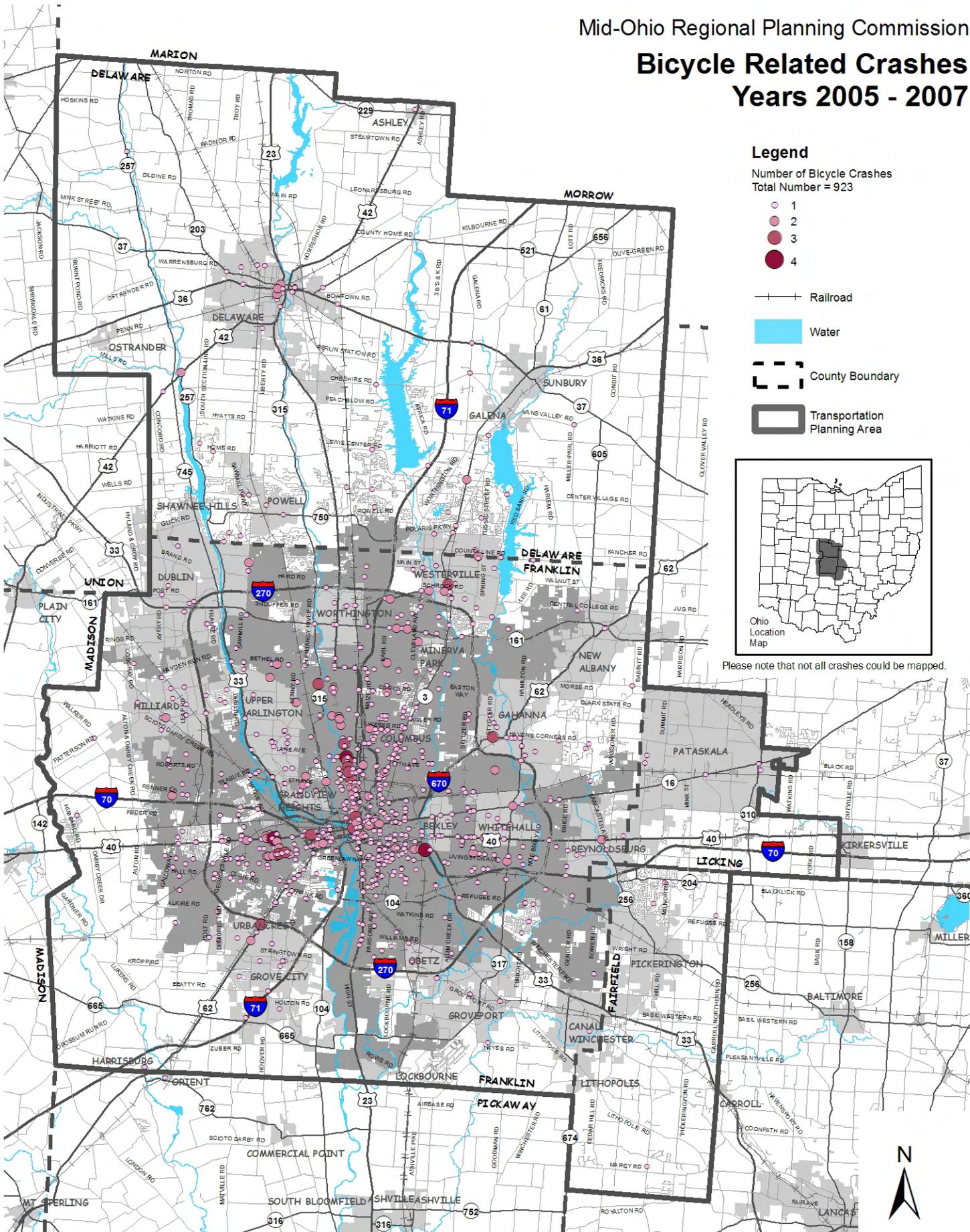
Source: MORPC Crash Data 2005-2007; N=1,012

Figure 5: Bicycle-related Crashes by Month [in %]



Source: MORPC Crash Data 2005-2007; N=1,012

# Bicycle Related Crashes Years 2005 - 2007

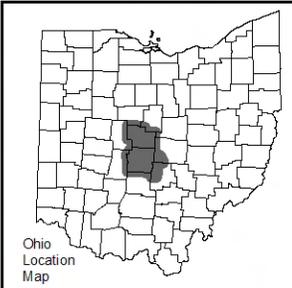


**Legend**

Number of Bicycle Crashes  
Total Number = 923

- 1
- 2
- 3
- 4

- Railroad
- Water
- County Boundary
- Transportation Planning Area



Please note that not all crashes could be mapped.



## Motorcyclists

For the years 2005 to 2007, the MORPC transportation planning area showed a total of 1,377 reported motorcycle crashes involving 1,517 motorcyclists. While the number of crashes remained steady between the years 2005 and 2006, it increased by 31 percent from 2006 to 2007.

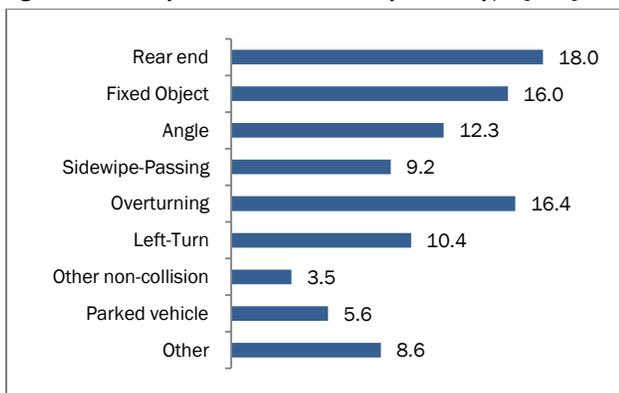
Similar to non-motorized transportation users, motorcyclists are significantly vulnerable, with 77 percent of crashes resulting in some type of injury, and 3 percent were fatal, with a total of 32 fatalities. The high number of motorcycle fatalities reflects the inherently greater risk associated with high speeds and lack of body protection and safety features compared to motor vehicles.

Although helmet usage is proven to be effective in preventing serious brain damage and fatal injuries, many motorcyclists do not use them. About 50% of motorcyclists killed in crashes (15 out of 32 fatalities in MORPC's area) were not wearing helmets.

34 percent of the fatally injured motorcyclists were recorded as having been under the influence of alcohol or drugs.

As Figure 1 illustrates, the top 5 reported crash types in motorcycle-related crashes are rear-end, fixed-object, angle, sideswipe passing and overturning.

Figure 1: Motorcycle-related Crashes by Crash Type [in %]

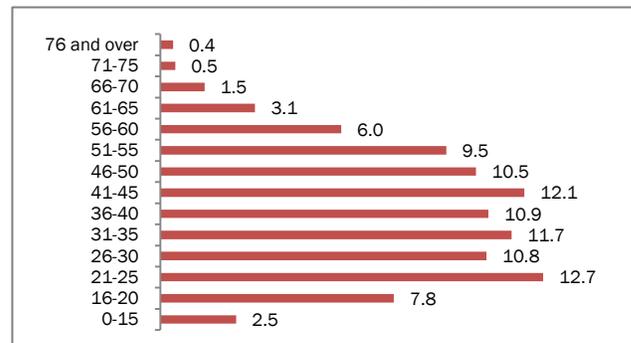


Source: MORPC Crash Data 2005-2007; N=1,377

Nearly 90 percent of all motorcycle-related crashes occurred during the warmer months from April through October, and during dry road conditions. Over half of these crashes happened during the day and nearly half were non-intersection-related.

Over one-third of all reported motorcycle crashes involved young drivers between the ages of 16 and 30 years, and over 50 percent involved adults ages 31 to 55 years (see Figure 2).

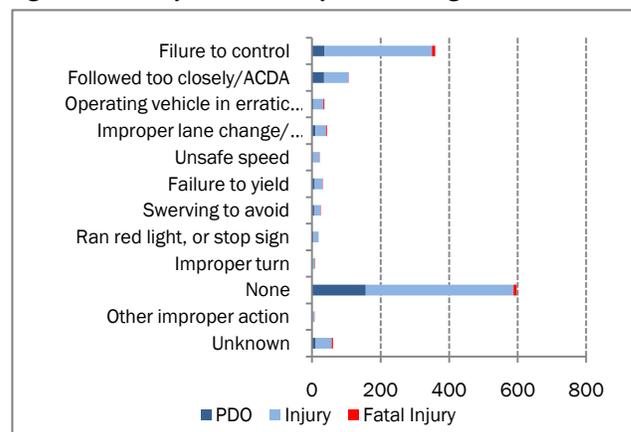
Figure 2: Motorcyclists in Crashes by Age [in %]



Source: MORPC Crash Data 2005-2007; N=1,431

As Figure 3 illustrates, those factors that most commonly were reported to contribute to the crash were “failure to control” and “followed too closely.”

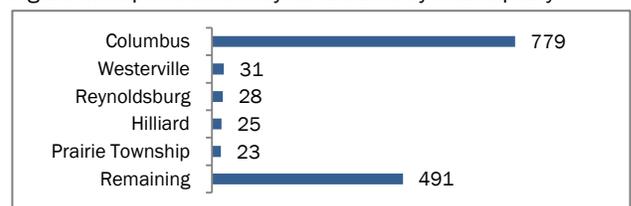
Figure 3: Motorcycle Crashes by Contributing Factors



Source: MORPC Crash Data 2005-2007; N=1,317

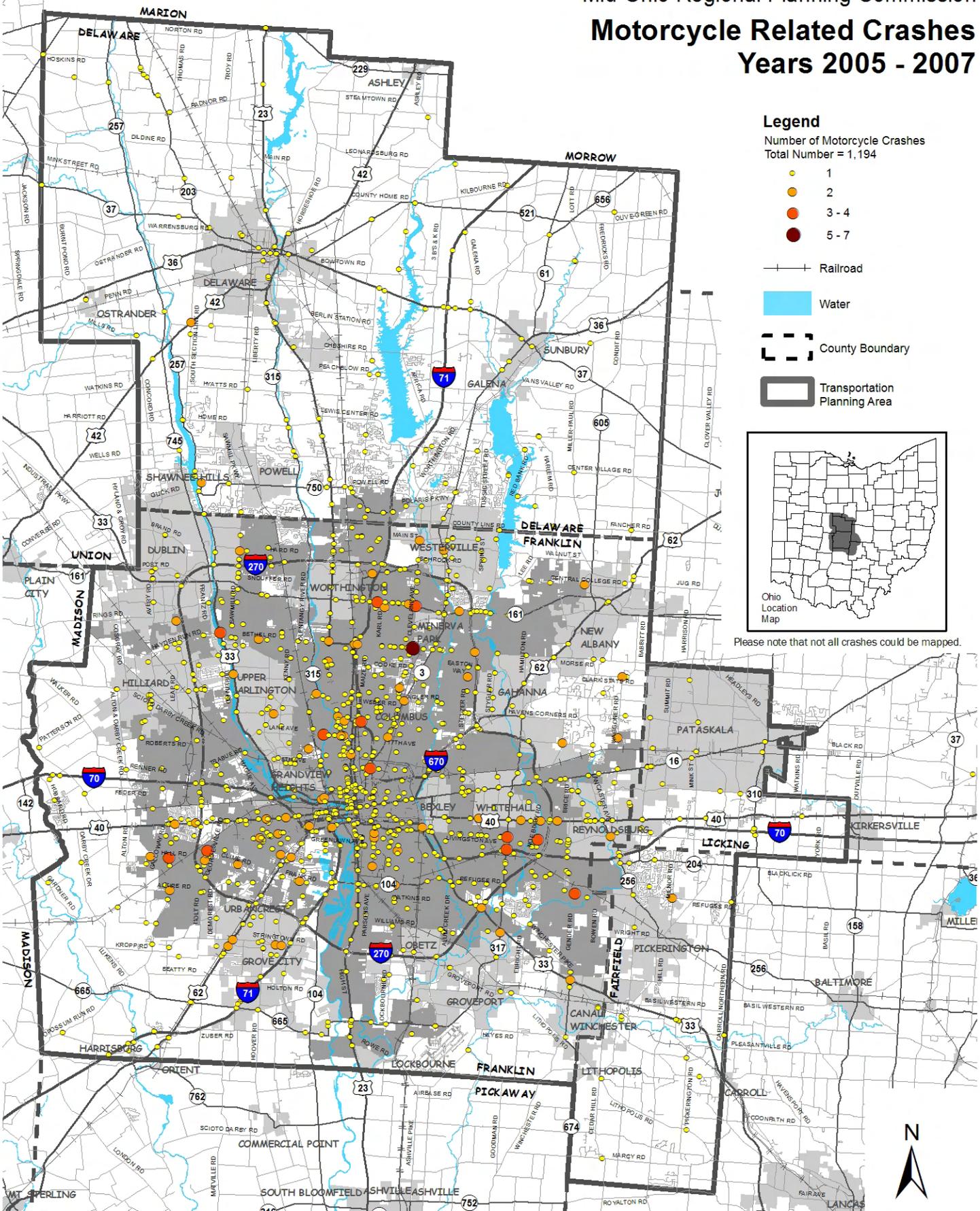
The majority of reported motorcycle crashes occurred within the City of Columbus, followed by Westerville, Reynoldsburg, Hilliard, and Prairie Township. As Figure 4 illustrates, most of the motorcycle-related crashes in the 3-year period occurred within the City of Columbus (57 percent).

Figure 4: Reported Motorcycle Crashes by Municipality



Source: MORPC Crash Data 2005-2007; N=1,377

# Mid-Ohio Regional Planning Commission Motorcycle Related Crashes Years 2005 - 2007



**Legend**  
Number of Motorcycle Crashes  
Total Number = 1,194

- 1
- 2
- 3 - 4
- 5 - 7

—+—+— Railroad

Water

County Boundary

Transportation Planning Area



Please note that not all crashes could be mapped.



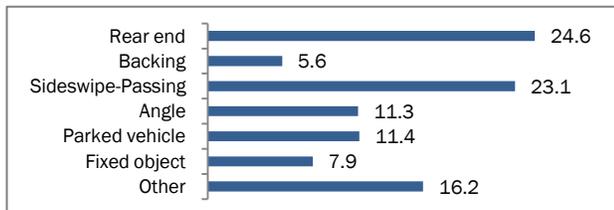
## Truck Drivers

During the time frame of 2005 to 2007, a total of 5,313 crashes related to trucks were reported within MORPC's transportation planning area. These crashes involved over 6,000 people. Most of the crashes (78 percent) resulted in property damage only (PDO). A total of 9 of the truck-related crashes ended fatal and 1,059 in some type of injury. Although most truck-related crashes did not end in an injury, the type of injury tends to be more severe if it involves a person other than the truck driver or truck passenger.

Within MORPC's transportation planning area, about two percent of crashes involving trucks were reported as work zone-related.

Rear-ending, sideswipe-passing, or hitting a parked vehicle were reported crash types for nearly 60 percent of truck-related crashes (see Figure 1).

Figure 1: Truck-related Crashes by Crash Type [in %]

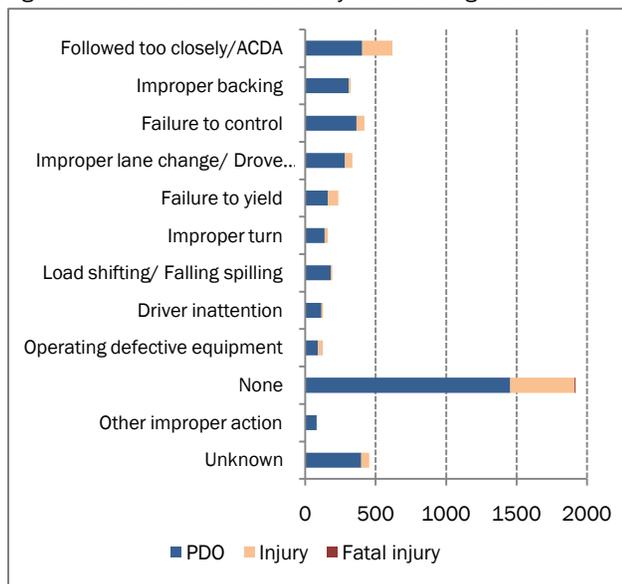


Source: MORPC Crash Data 2005-2007; N=5,313

8 percent of truck-related crashes decreased slightly over the three years examined.

In general, "following too closely," "improperly backing up," "failure to control," or "improper lane change" were the most commonly reported contributing factors to a truck-related crash (see Figure 2). Due to the large size of the vehicle and the challenges of maneuvering, backing up a truck can cause great difficulties.

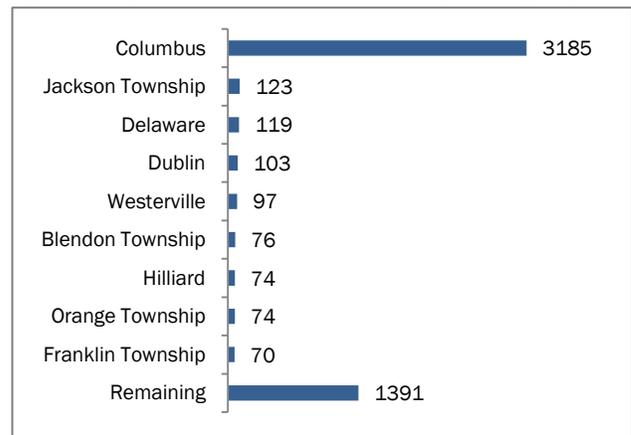
Figure 2: Truck-related Crashes by Contributing Factors



Source: MORPC Crash Data 2005-2007; N=4,980

As with all crashes, the majority of reported truck crashes occurred in Columbus, followed by Jackson Township, Delaware City, Dublin, and Westerville (see Figure 3).

Figure 3: Reported Truck-related Crashes by Municipality

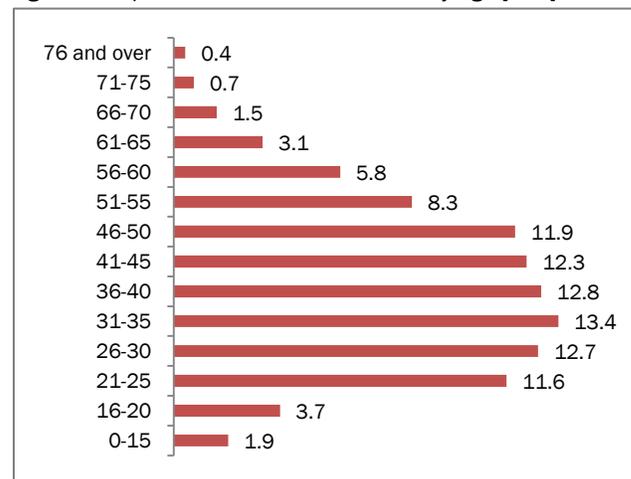


Source: MORPC Crash Data 2005-2007; N=5,312

The majority of reported truck crashes occurred during normal weather conditions (86 percent), during the daytime (85 percent), and at non-intersection locations (51 percent).

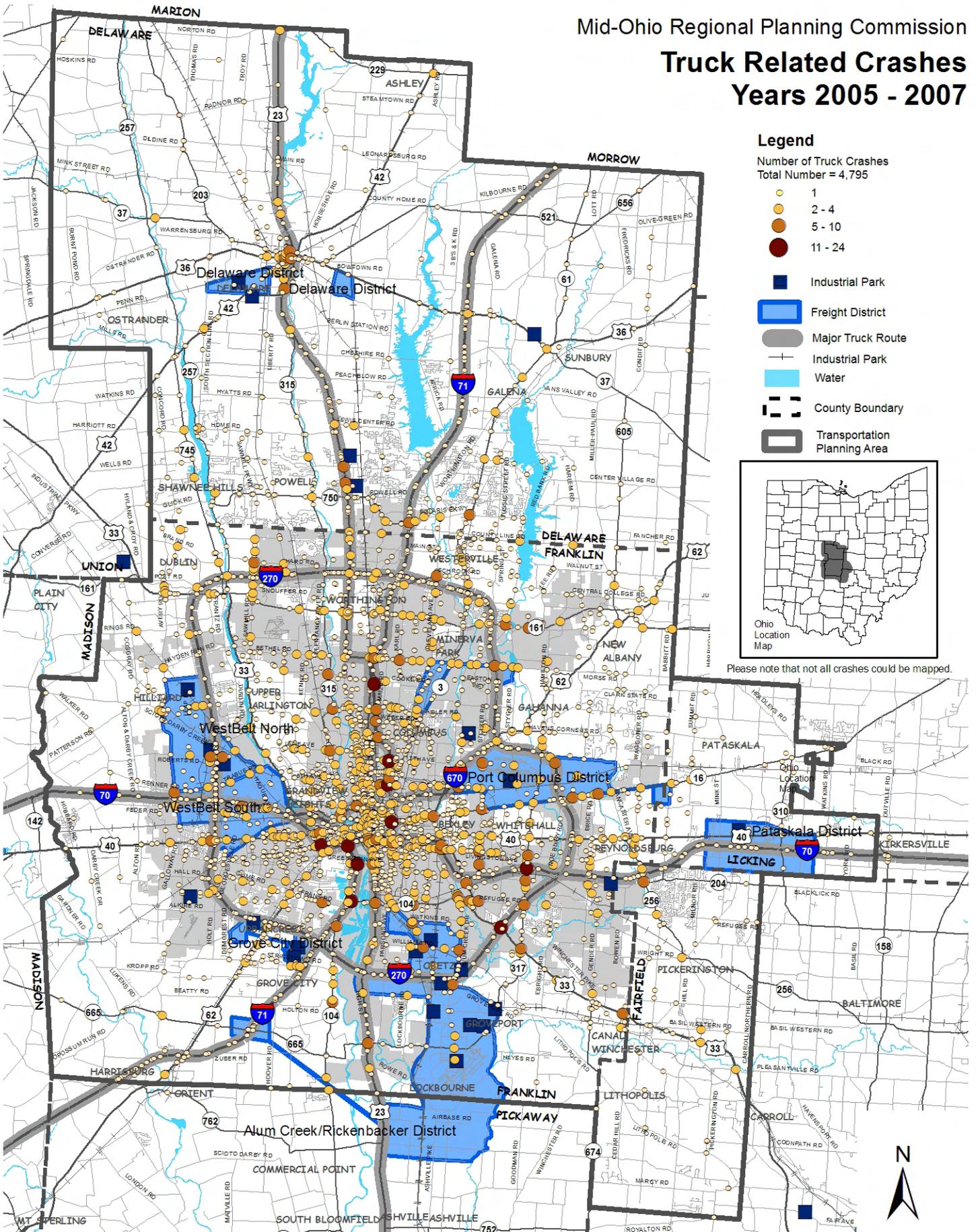
Figure 4 illustrates that the vast majority of people (4,336) involved in reported truck crashes are adults between the ages of 21 and 50 years.

Figure 4: Reported Truck-related Crashes by Age [in %]



Source: MORPC Crash Data 2005-2007; N=5,811

# Mid-Ohio Regional Planning Commission Truck Related Crashes Years 2005 - 2007



### Legend

Number of Truck Crashes  
Total Number = 4,795

- 1
- 2 - 4
- 5 - 10
- 11 - 24
- Industrial Park
- Freight District
- Major Truck Route
- + Industrial Park
- Water
- County Boundary
- Transportation Planning Area



Please note that not all crashes could be mapped.



## Public Transit

Less than 1 percent of all crashes that occurred between 2005 and 2007 were transit-related. However, over the 3 year time period, there was a 9 percent increase in transit-related crashes. Half of the transit-related crashes in 2005-2007 occurred at intersections, and more than one third were due to sideswipe passing errors.

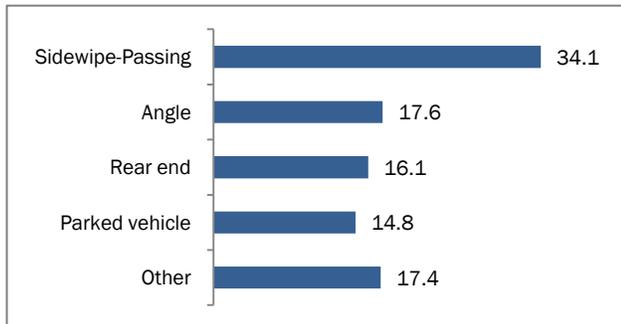
For MORPC’s transportation planning area, two main transit authorities exist: The Central Ohio Transit Authority (COTA) located in Columbus serving Franklin County, and the Delaware Area Transit Agency (DATA) serving Delaware County.<sup>3</sup> Both are required to submit records of all transit incidents annually to the NTD.

A total of 528 transit-related crashes occurred between the years 2005 and 2007, involving 1,582 units, resulting in 155 injuries, but no fatalities.

There has been a clear trend that transit-related crashes have increased over the 3-year period by 9 percent. Only 4% of crashes involved pedestrians; 91% involved other vehicles.

Figure 1 illustrates that more than one-third of these crashes occurred due to sideswipe passing errors, followed by angle, rear-end, and parked-vehicle crashes.

Figure 1: Transit-related Crashes by Crash Type [in %]



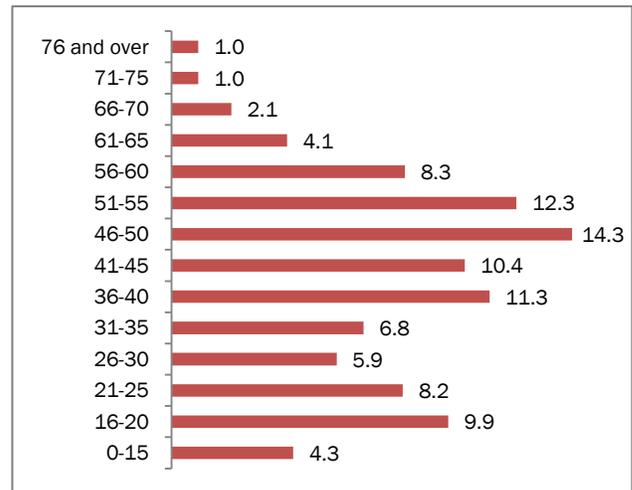
Source: MORPC Crash Data 2005-2007; N=528

Over 40 percent of all crashes involving transit occurred at intersections. Over 80 percent of transit crashes took place during the daytime and during dry road conditions.

Figure 2 shows that the age distribution was fairly even for people involved in transit-related crashes. The highest number of crashes occurred within the age

group of 36 to 55 years (48 percent). The number of crashes seemed balanced throughout the months.

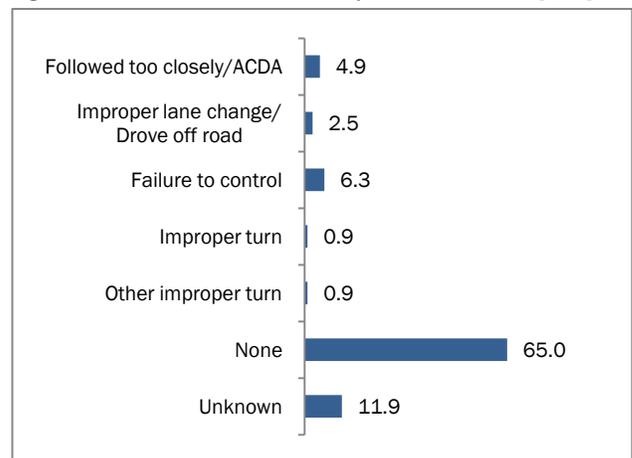
Figure 2: Reported Transit-related Crashes by Age [in %]



Source: MORPC Crash Data 2005-2007; N=1,359

According to the crash data, the probable cause for most transit-related crashes was unknown. In the few cases that this type of information was given, “failure to control” and “following too closely” were the most prevalent contributing factors (see Figure 3).

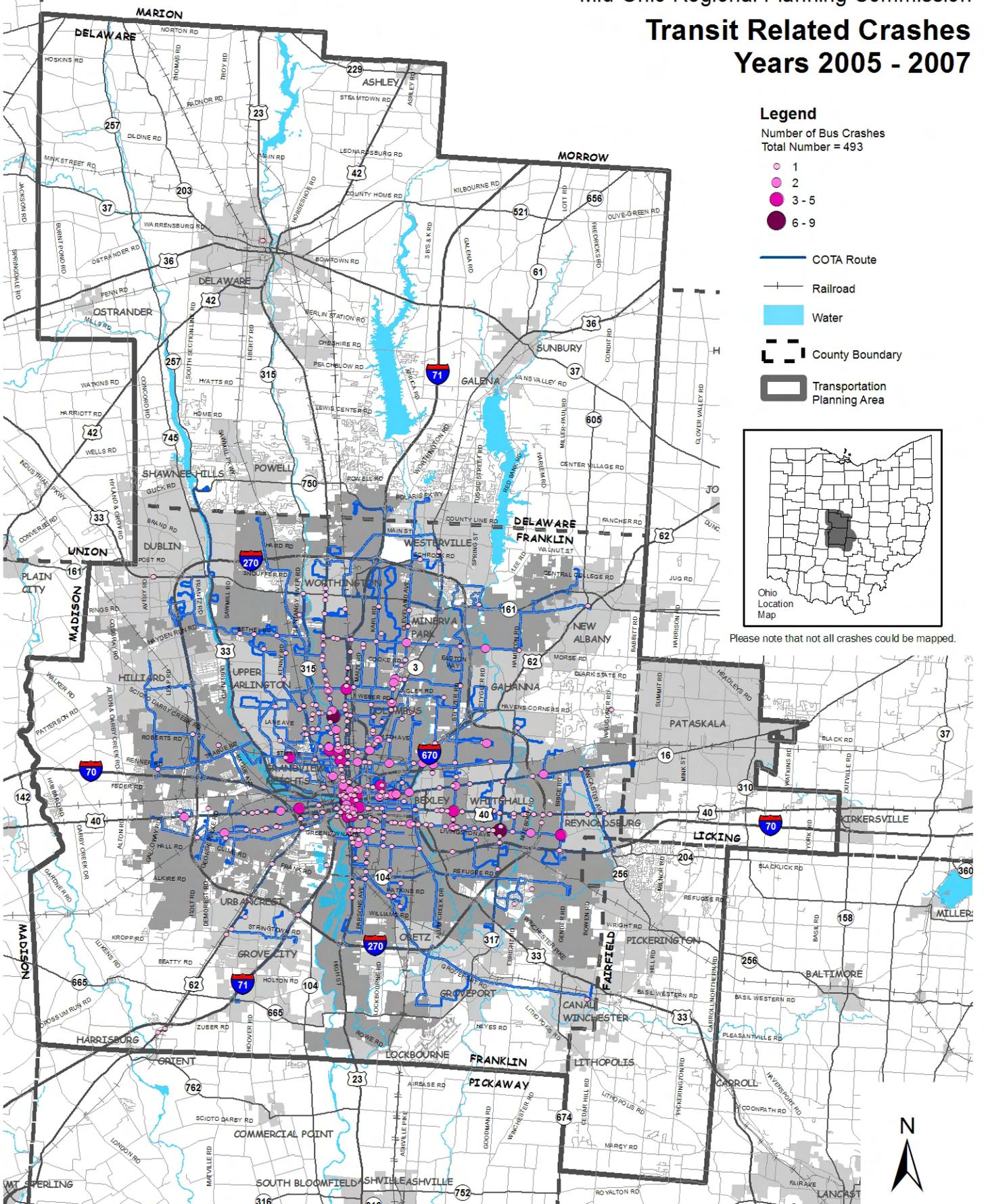
Figure 3: Transit-related Crashes by Probable Cause [in %]



Source: MORPC Crash Data 2005-2007; N=528

<sup>2</sup> In addition, the Licking County Transit Board (<http://www.lcounty.com/lctb/>) provides demand-response transit service to rural parts of Licking County, and the Lancaster Public Transit System (<http://www.ci.lancaster.oh.us/dept/transit/>) serves Fairfield County. The National Transit Database (NTD) program maintains a listing of transit authorities at the state and local level (<http://www.ntdprogram.gov/ntdprogram/links.htm>).

# Transit Related Crashes Years 2005 - 2007



**Legend**  
Number of Bus Crashes  
Total Number = 493

- 1
- 2
- 3 - 5
- 6 - 9

- COTA Route
- Railroad
- Water
- County Boundary
- Transportation Planning Area



Please note that not all crashes could be mapped.

## Rear-end and Work Zone Crashes

Rear-end and work zone related crashes are assumed to be primarily congestion-related. Rear end crashes are also the third most common crash type in serious injury crashes and the primary crash type for work zone related crashes.

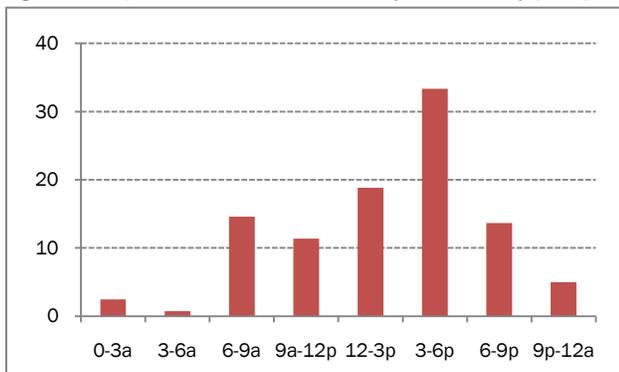
### Rear-end Crashes

Over one-third of all crashes that occurred during the years 2005 to 2007 were rear-end crashes. Of these 40,144 crashes, 11 ended fatally and 11,074 in injuries.

Over the 3-year period, the number of rear-end crashes steadily increased by nearly 0.3 percent. Overall, over 70 percent of all rear-end crashes took place during the day and during dry road conditions. Only 3 percent were work zone-related, but 47 percent were intersection-related.

Figure 1 illustrates that 78 percent occurred between 6 a.m. and 6 p.m., with a 33 percent peak between 3 p.m. and 6 p.m.

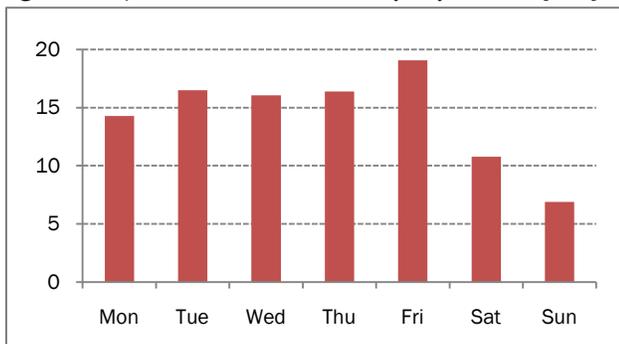
Figure 1: Reported Rear-end Crashes by Time of Day [in %]



Source: MORPC Crash Data 2005-2007; N=40,144

The majority (over 80 percent) of rear-end crashes occurred in urban areas and during the work week (see Figure 2)..

Figure 2: Reported Rear-end Crashes by Day of Week [in %]



Source: MOPRC Crash Data 2005-2007; N=40,144

As one would expect, the primary contributing factor to these crashes was “following too closely” (over 40 percent).

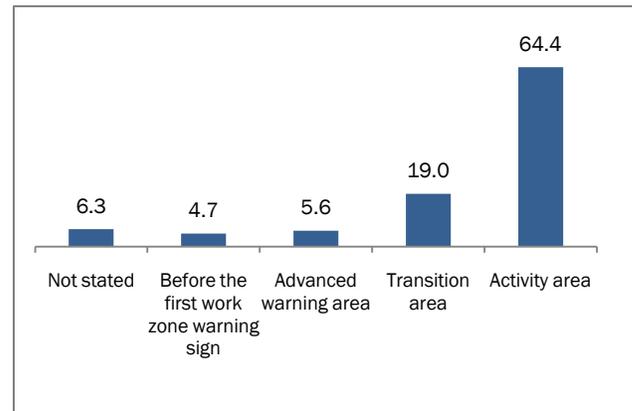
### Work Zone Crashes

Within MORPC’s transportation planning area, there were 2,306 work zone related crashes during the 3-year period. One-fourth of these crashes ended in some type of injury, and 6 were fatal.

Although work zone related crashes accounted for only 1.9 percent of all crashes, they experienced a drastic decrease of more than 20 percent from 870 crashes in 2005 to 682 crashes in 2007.

Figure 3 illustrates that the majority of work zone related crashes occurred within the activity area, followed by the transition area and the advanced warning area.

Figure 3: Work Zone-related Crashes by Location [in %]



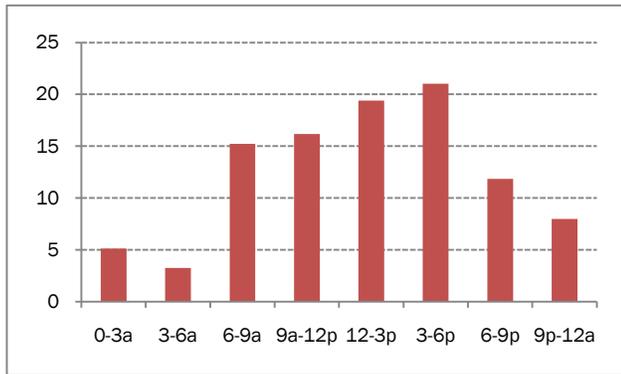
Source: MORPC Crash Data 2005-2007; N=2,304

Lane closure (32.1 percent) was the primary type of work zone where the crash occurred, followed by on shoulder or on median work (31.9 percent) and lane shift (15 percent).

In regard to time of day, the majority of work zone-related crashes occurred during the day between 6 a.m. and 6 p.m. (see Figure 4).

As stated above, most work zone-related crashes occurred during the daytime but also during dry road conditions (79 percent). Over 30 percent of the crashes were intersection-related.

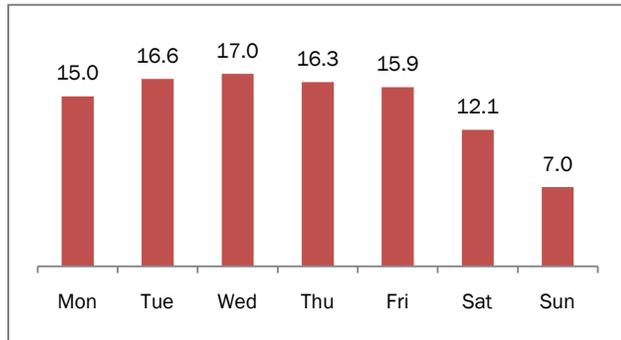
Figure 4: Reported Work Zone-Related Crashes by Time of Day [in %]



Source: MORPC Crash Data 2005-2007; N=2,306

Similar to rear-end crashes, most work zone-related crashes (81 percent) occurred during the work week (see Figure 5).

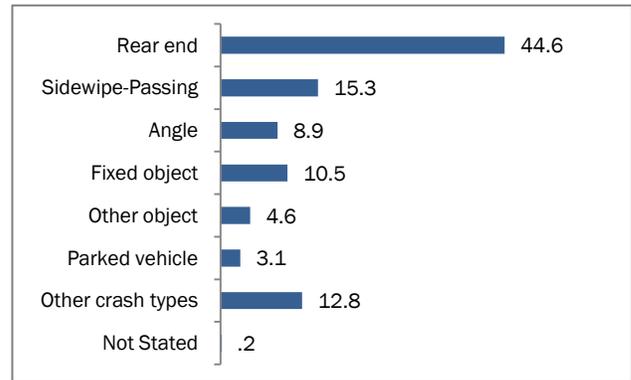
Figure 5: Reported Work Zone-related Crashes by Day of Week [in %]



Source: MORPC Crash Data 2005-2007; N=2,306

Figure 6 illustrates that rear-end crashes were the most common crash type in work zones. These statistics are followed by sideswipe passing, angle, and hitting some sort of fixed object, including a parked vehicle.

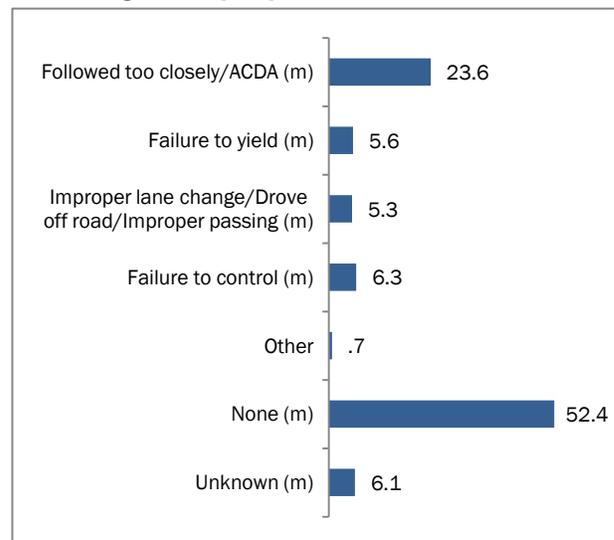
Figure 6: Reported Work Zone-related Crashes by Crash Type [in %]



Source: MORPC Crash Data 2005-2007; N=2,306

As Figure 7 illustrates, “following too closely” was by far the most common factor that contributed to the crash. Other contributing factors were related to failure to yield, driving off the road, or failure to control.

Figure 7: Reported Work Zone-related Crashes by Contributing Factors [in %]



Source: MORPC Crash Data 2005-2007; N=4,145

# Work Zone Related Crash Locations Year 2007

## Legend

Work Zone Crash Location  
Year 2007

Total Number = 610

- 1 - 5
- 6 - 10
- 11 - 20
- 21 - 30

— Paving the Way 2007 Project

Railroad

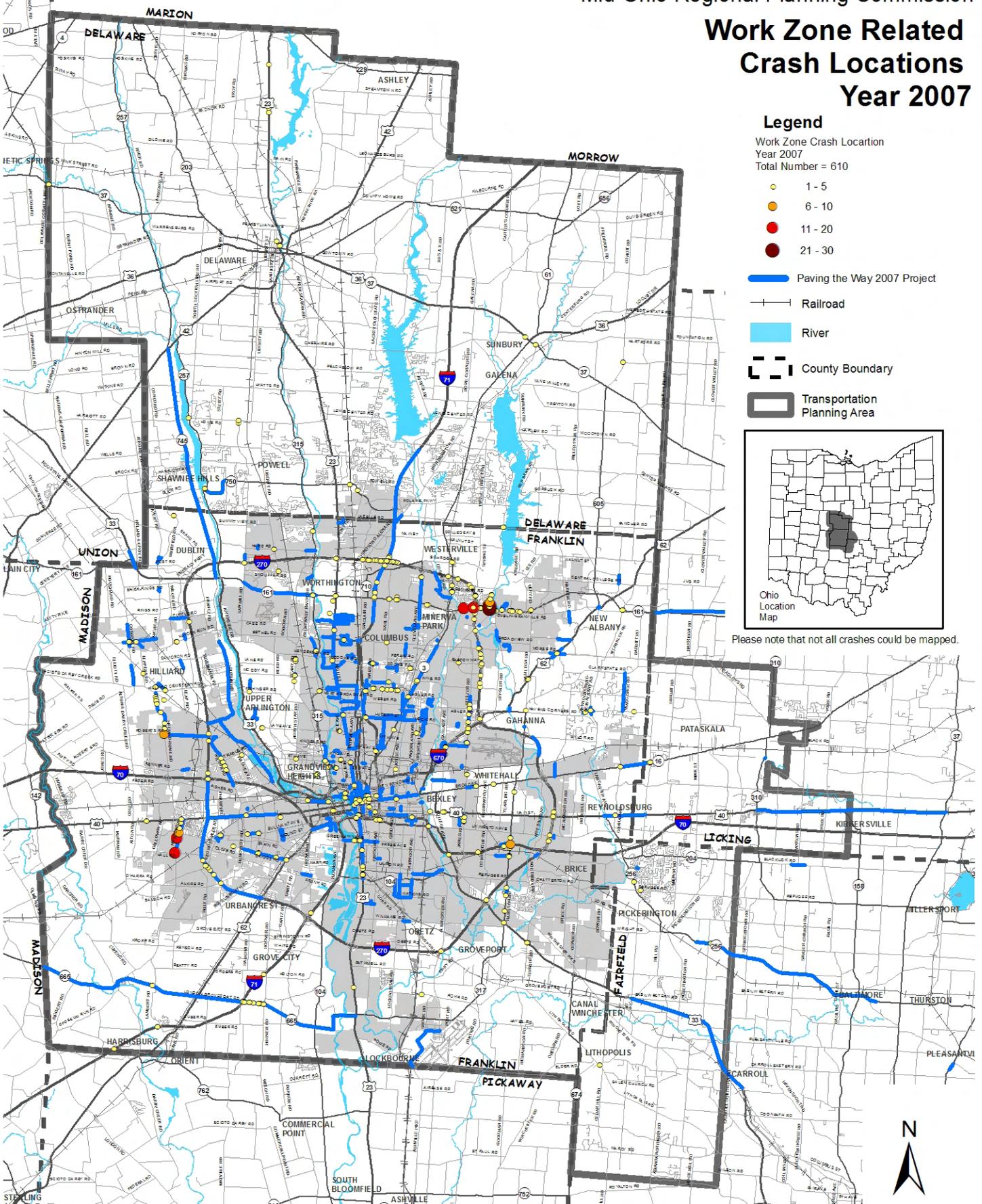
— River

County Boundary

Transportation Planning Area



Please note that not all crashes could be mapped.



## Driver Behavior Trends

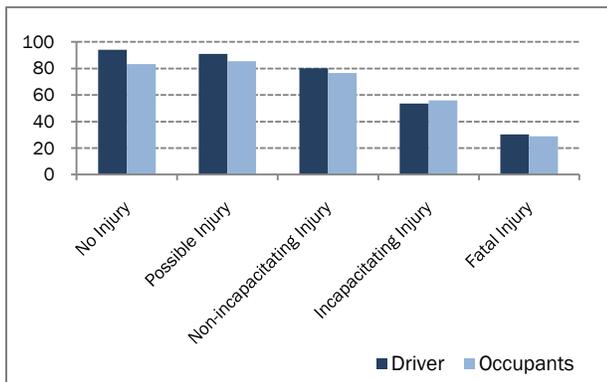
Unsafe driving behaviors can be categorized either as behaviors that mainly impact the individual (such as seatbelt or motorcycle helmet usage) and those that impact most often others (such as drunk, distracted, or aggressive driving).

### Seat Belt Usage

The use of safety belts tends to reduce the severity of injury. While 91 percent of people who escaped crashes with no injury were wearing safety belts, only 31 percent of people who died in crashes were wearing safety belts. The lack of restraint usage also seems to positively correlate with the number of partially or fully ejected people. While 5 percent of ejected people died, only 0.1 percent of non-ejected people died.

In the MORPC transportation planning area, more than 80 percent of the motorists involved in crashes were properly restrained. However, the more serious the injury, the less likely it is that safety belts were used (see Figure 1). In practical terms, this means that wearing a seat belt reduces the likelihood of serious injury or death if a crash occurs.

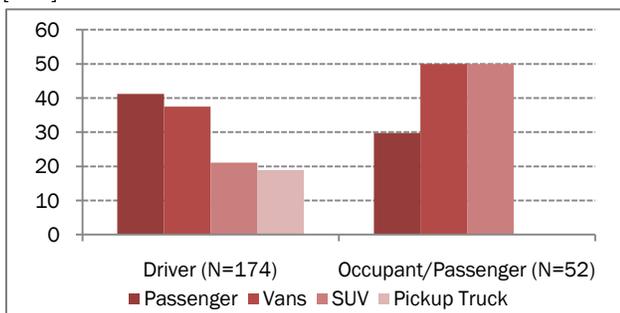
Figure 1: Motorists' Safety Belt Usage Rate by Injury Severity [in %]



Source: MORPC Crash Data 2005-2007; N=267,374

Of the various crash types, pickup truck occupants seem to show the lowest restraint usage (see Figure 2).

Figure 2: Safety Belt Usage Rate in Fatalities by Vehicle Type [in %]



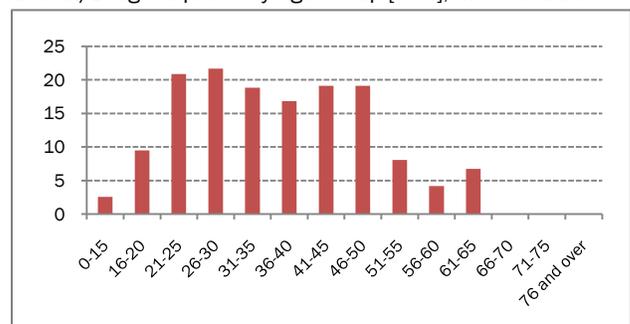
Source: MORPC Crash Data 2005-2007

29 percent of the fatally injured drivers and 35 percent of the fatally injured occupants were partially or totally ejected in the crash.

### Impaired Driving

Within MORPC's transportation planning area, 16 percent of all drivers involved in fatal crashes were suspected to be under the influence of alcohol or other drugs. Since crash reports only record suspected use and not the results of later tests, the true number is likely to be even greater. The majority of impaired drivers with incapacitating or fatal injuries were between the ages of 21 and 35 years (see Figure 3). Overall, more than twice as many men were impaired during a crash than women.

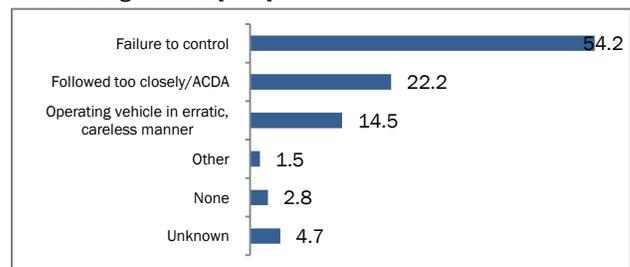
Figure 3: Drivers with Incapacitating and Fatal Injuries and Alcohol/Drug Suspicion by Age Group [in %], MORPC area



Source: MORPC Crash Data 2005-2007; N=2,279

The main factors that contributed to the crashes were "failure to control" (54 percent), followed by "following too closely" and "operating vehicle in careless manner" (see Figure 4).

Figure 4: Persons with Alcohol/Drug Suspicion by Contributing Factors [in %]



Source: MORPC Crash Data 2005-2007; N=4,134

In Ohio, 0.08d/gL Blood Alcohol Concentration (BAC) is the legal driving limit.

## ***Speeding / Aggressive Driving***

Within the MORPC transportation planning area, a total of 8,018 crashes were speeding-related. As such, speeding contributed to 6 percent of all crashes and to 17 percent of all fatal crashes. A crash was considered speeding-related if the vehicle speed at the time of the crash was reported greater than the speed limit. Unsafe and exceeded speed was reported as a contributing factor in 1,249 cases. These statistics account for less than 1 percent of all contributing factors. However, it can be assumed that speed was involved also in other aggressive driving behaviors that contributed to crashes, such as operating vehicle in reckless manner, failure to control, following too closely, or driving off the road, making up 27 percent of all crash contributing factors.

## ***Distracted Driving/Cell phone use***

Unfortunately, no information is available on distracted driving for MORPC's transportation planning area since OH-1 records do not obtain this information and studies have not been conducted in the area. A new OH-1 report that is being introduced in 2012 will contain fields to provide this type of information.

As of April 2010, there are 23 states that ban text messaging while driving, 6 states that ban talking on a handheld cell phone while driving, and 24 states that ban cell phone use by novice drivers.<sup>1</sup> Ohio does not fall into any of these categories. However, the legislature is considering such a law for the state, and many communities in Central Ohio already have or are in the process of passing such legislation.

The U.S. Department of Transportation's National Automotive Sampling System (NASS) estimates that in 2008, distracted driving was involved in 21% of injury crashes and 16% of traffic fatalities.<sup>2</sup>

There are a variety of crash factors such as "failure to yield" or "following too closely" that could be closely related to inattentive driving.

## ***Young Drivers***

In the MORPC transportation planning area, a total of 28,898 drivers between the ages of 16 and 20 years were involved in traffic crashes. Of these drivers, 53 percent were male and 47 percent were female.

Although 7 percent (21) of all fatalities occurred within this age group, the majority of young driver crashes (83 percent) did not result in any injury.

55 percent of crashes involving young drivers occurred in clear weather, 73 percent during dry conditions, and 68 percent during daytime. 51 percent of the crashes happened at an intersection. The main contributing factors included "Following too closely" (24 percent), "Failure to yield" (12 percent), and "Failure to control" (11 percent). The majority of people involved in these crashes were not reported as alcohol or drug impaired.

Often, the young driver was at fault for the crash, demonstrating the need for improved driver education and training.

## ***Older Population (>65 Years)***

In MORPC's transportation planning area, a total of 14,931 people aged 65 or older were involved in crashes during the years 2005 to 2007, resulting in 4,607 injuries and 55 fatalities.

→ Nearly 77 percent of the older population involved in crashes were drivers, accounting for almost 5 percent of all drivers.

58 percent of these crashes occurred in clear weather, 79 percent during dry conditions, and 84 percent during daytime. 44 percent of the crashes happened at an intersection. The main crash types included rear-end (36 percent), angle (24 percent), sideswipe passing (13 percent), and left turn crashes (10 percent). "Failure to yield" (13 percent) and "Following too closely" (12 percent) were reported as the primary causes for these crashes. The majority of people involved in these crashes were not reported as alcohol or drug impaired.

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<sup>1</sup> Governor's Highway Safety Association, "Cell Phone and Texting Laws."

[http://www.ghsa.org/html/stateinfo/laws/cellphone\\_laws.html](http://www.ghsa.org/html/stateinfo/laws/cellphone_laws.html)

<sup>2</sup> U.S.D.O.T., "Statistics and Facts About Distracted Driving."

<http://www.distraction.gov/stats-and-facts/#did>