# Grand Valley Metropolitan Council

# Traffic Crash Facts 2021

September 2022

# Introduction

The Grand Valley Metro Council (GVMC) is the designated MPO for Grand Rapids Metro area and is responsible for the traffic safety planning in this area. The crash data assembled by GVMC staff can provide information to the MPO stakeholder and public for the future safety planning and selection of future road projects.

This report includes statistics of crash data for the Grand Rapids Metropolitan Area such as crash facts in 2021, top 50 crash intersections, and top 50 crash segments.

# Definition

The terms defined in this report as applied to the crash facts are as follows,

PDO: Number of crashes involving Property Damage Only

Injury: Number of crashes involving injuries, not the number of injuries

A-Type: Number of crashes involving incapacitating injuries

B-Type:  Number of crashes involving non-incapacitating injuries

C-Type: Number of crashes involving possible injuries

Fatal: Number of crashes involving fatalities, not the number of fatalities

# All Traffic Crashes

In 2021, there were 21,980 traffic crashes reported in GVMC area. This is an increase of 17.4 percent from 2020. Figure 1 below shows total traffic crashes from 2016 to 2021.
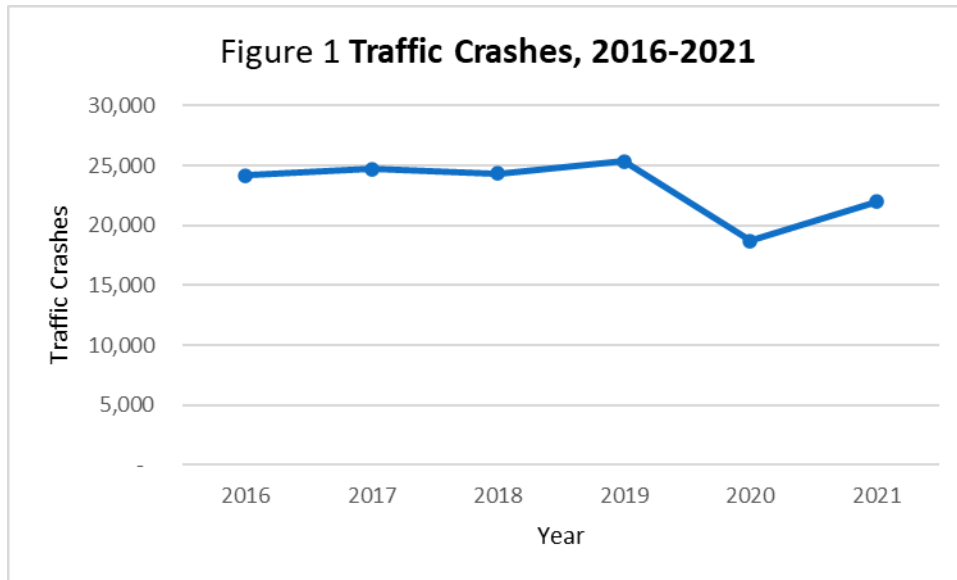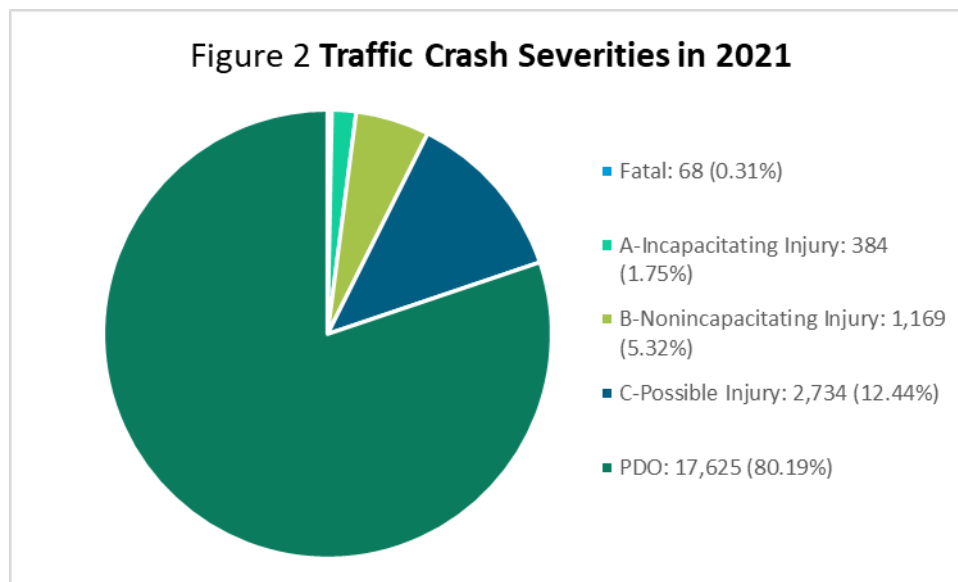


Source: www.michigantrafficcrashfacts.org

# Traffic Crashes by Jurisdiction

Table 1 shows the number of total crashes by jurisdiction in GVMC area from 2016-2021.

| Local Governments | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| Ada | 339 | 314 | 332 | 350 | 238 | 313 |
| Algoma | 291 | 285 | 363 | 296 | 227 | 253 |
| Allendale | 403 | 386 | 387 | 444 | 332 | 377 |
| Alpine | 292 | 323 | 313 | 367 | 297 | 352 |
| Blendon | 192 | 164 | 192 | 216 | 154 | 208 |
| Bowne | 69 | 87 | 64 | 88 | 64 | 72 |
| Byron | 633 | 746 | 742 | 814 | 565 | 703 |
| Caledonia | 378 | 354 | 383 | 430 | 314 | 430 |
| Cannon | 218 | 226 | 209 | 193 | 168 | 200 |
| Cascade | 765 | 795 | 763 | 839 | 582 | 708 |
| Casnovia | 3 | 2 | 7 | 4 | 1 | 0 |
| Cedar Springs | 95 | 77 | 82 | 82 | 70 | 75 |
| Chester | 61 | 54 | 52 | 61 | 49 | 56 |
| Courtland | 176 | 220 | 196 | 168 | 166 | 218 |
| East Grand Rapids | 176 | 163 | 156 | 199 | 96 | 135 |
| Gaines | 509 | 526 | 550 | 612 | 453 | 589 |
| Georgetown | 948 | 931 | 955 | 1020 | 737 | 861 |
| City of Grand Rapids | 8477 | 8907 | 8559 | 8936 | 6602 | 7119 |
| Grand Rapids Township | 627 | 579 | 607 | 604 | 401 | 471 |
| Grandville | 877 | 870 | 808 | 782 | 575 | 703 |
| Grattan | 105 | 106 | 126 | 97 | 87 | 102 |
| Hudsonville | 206 | 195 | 215 | 246 | 133 | 182 |
| Jamestown | 197 | 220 | 211 | 243 | 200 | 207 |
| Kent City | 28 | 25 | 30 | 27 | 13 | 0 |
| Kentwood | 1315 | 1354 | 1356 | 1433 | 1069 | 1381 |
| Lowell | 312 | 352 | 360 | 100 | 64 | 101 |
| Nelson | 110 | 136 | 136 | 124 | 111 | 129 |
| Oakfield | 142 | 130 | 131 | 125 | 106 | 129 |
| Plainfield | 1085 | 1075 | 1086 | 1127 | 711 | 914 |
| Polkton | 214 | 217 | 203 | 254 | 176 | 224 |
| Rockford | 162 | 144 | 152 | 152 | 102 | 136 |
| Sand Lake | 2 | 5 | 11 | 11 | 9 | 0 |
| Solon | 212 | 247 | 238 | 201 | 174 | 195 |
| Sparta | 180 | 145 | 191 | 208 | 30 | 191 |
| Spencer | 69 | 67 | 86 | 67 | 85 | 85 |
| Tallmadge | 243 | 239 | 239 | 314 | 259 | 262 |
| Tyrone | 116 | 114 | 105 | 99 | 100 | 126 |
| Vergennes | 110 | 109 | 128 | 130 | 91 | 106 |
| Walker | 1600 | 1465 | 1447 | 1559 | 1066 | 1350 |
| Wright | 238 | 263 | 240 | 274 | 194 | 214 |
| Wyoming | 2616 | 2655 | 2478 | 2611 | 2037 | 2525 |

## Traffic Crashes by Severity

Of the 21,980 traffic crashes in GVMC area in 2021, there were 3,520 crashes causing fatalities or injuries. A total of 68 fatal crashes resulted in 173 deaths, and a total of 4,287 injury crashes resulted in some degree of injuries of 11,055 people. Figure 2 shows traffic crashes distribution by injury severity in 2021. Table 2 shows the number of each severity and the number of fatalities and injuries caused by the crashes.



Figure 2 **Traffic Crash Severities in 2021**

- Fatal: 68 (0.31%)
- A-Incapacitating Injury: 384 (1.75%)
- B-Nonincapacitating Injury: 1,169 (5.32%)
- C-Possible Injury: 2,734 (12.44%)
- PDO: 17,625 (80.19%)

Source: www.michigantrafficcrashfacts.org

Table 2 **Traffic Crash Severity in 2021**

| Crash Severity | Number of Traffic Crashes | Number of Injuries |
|---|---|---|
| Fatal | 68 | 173 |
| A-Type Injury | 384 | 981 |
| B-Type Injury | 1,169 | 2,997 |
| C-Type Injury | 2,734 | 7,077 |
| Injury and Fatality subtotal | 4,355 | 11,228 |
| PDO | 17,625 | |
| **Total** | **21,980** | |

Source: www.michigantrafficcrashfacts.org

# All Fatalities and Serious Injuries

Fatalities and serious injuries are defined as a crash that causes death within 30 days of the crash or incapacitating injuries as defined in Michigan Traffic Crash Facts' Data Query Tool. Figure 2a below shows fatalities and serious injury crashes in GVMC area. These crashes increased 1.6 percent from 2016 to 2021.

Figure 2a **Fatalities and Serious Injuries, 2016-2021**
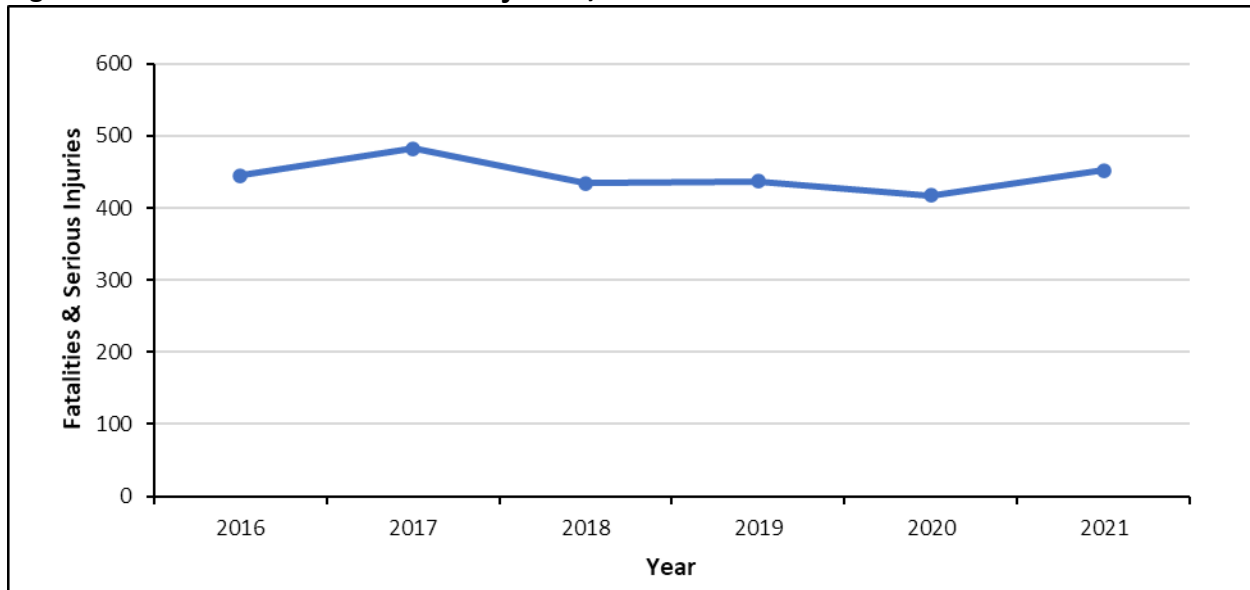


Source: www.michigantrafficcrashfacts.org

## Traffic Crashes by Crash Type

Figure 3 shows traffic crash distribution by crash type in 2021. As shown in the figure below, the most common type of crash was rear end crash, which accounted for 28.8% of all traffic crashes, and the least common type of crash was backing, which accounted for 2.1%.

Figure 3 **Traffic Crashes by Crash Type in 2021**
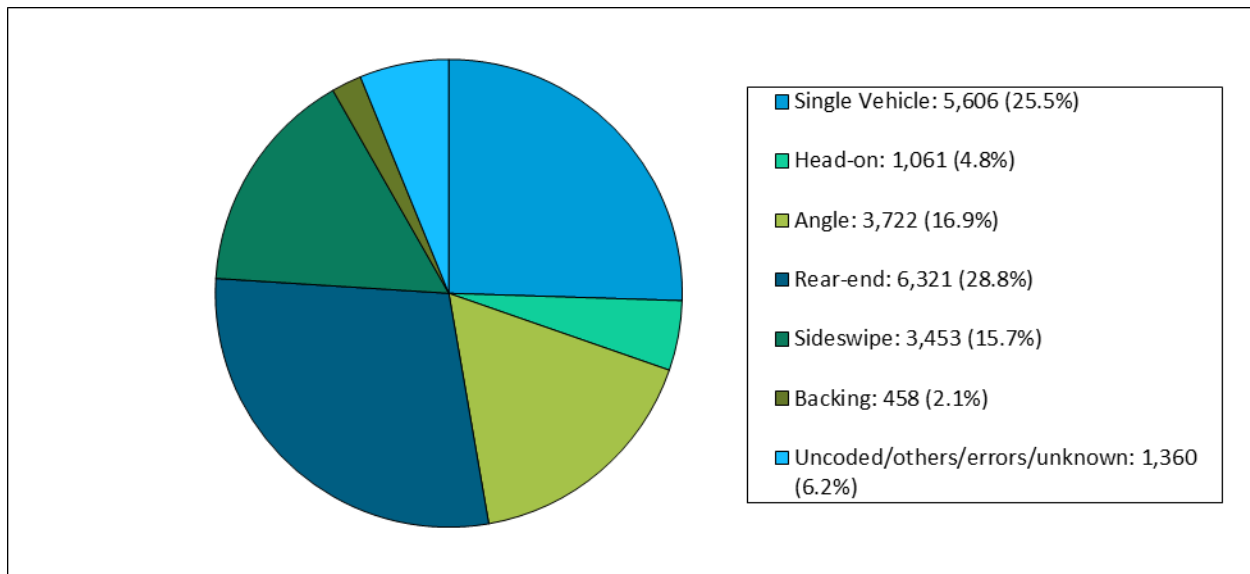


Source: www.michigantrafficcrashfacts.org

## Traffic Crashes by Month, Day, and Hour

Figures 4-6 show traffic crashes distribution by month, day and hour, respectively. As shown in Figure 4, there were more traffic crashes in November than any other month (2,232). April had the fewest crashes (1,460) in 2021. Figure 5 shows that more traffic crashes occurred on Fridays than any other day of the week (3,746) in 2021, and Sunday had the fewest traffic crashes (2,237). Figure 6 shows that more traffic crashes occurred between 5 pm and 6 pm than any other hour interval (1,863), and the time of day with the fewest crashes was between 3 am and 4 am (248 crashes).

Figure 4 **Traffic Crashes by Month in 2021**
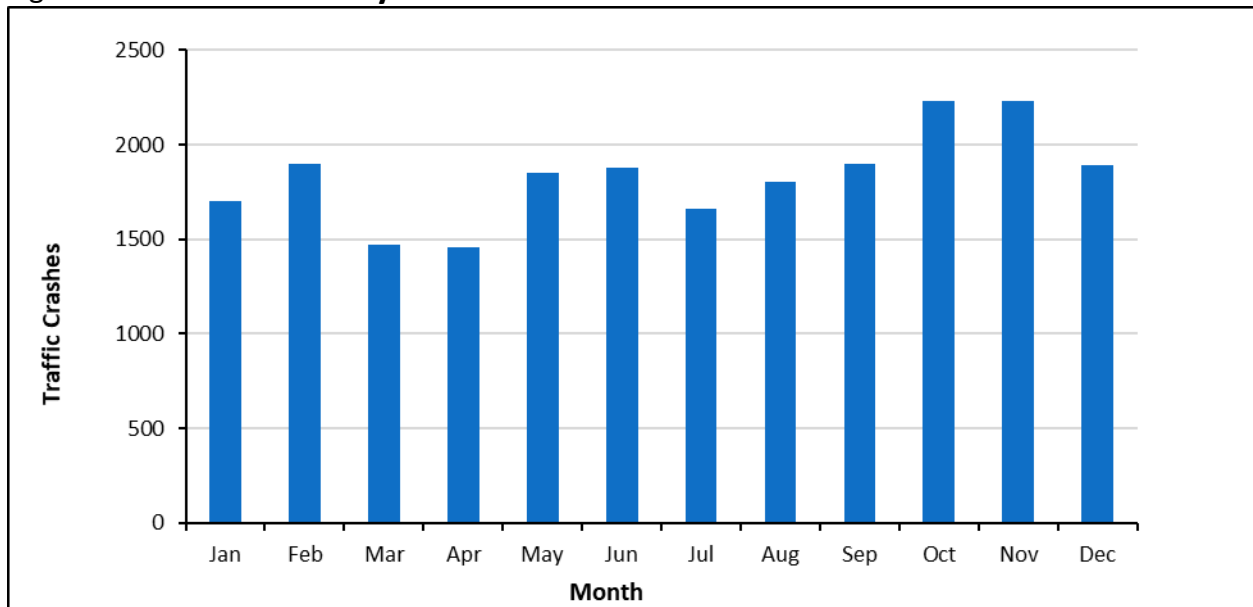


Source: www.michigantrafficcrashfacts.org

Figure 5 **Traffic Crashes by Day of Week in 2021**
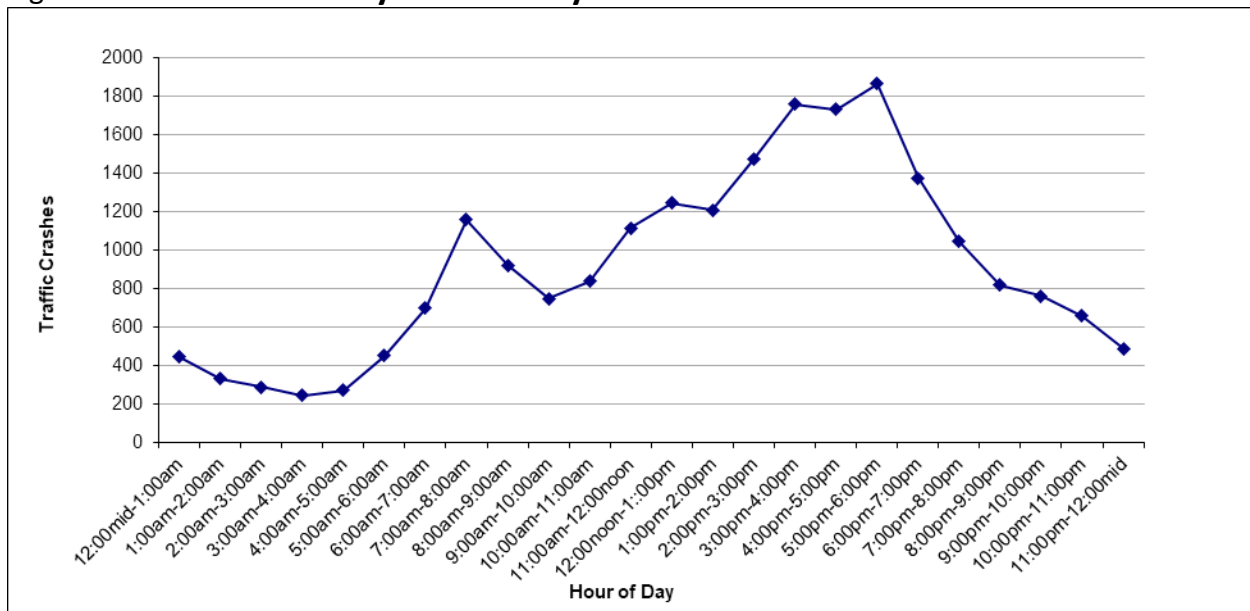


Source: www.michigantrafficcrashfacts.org

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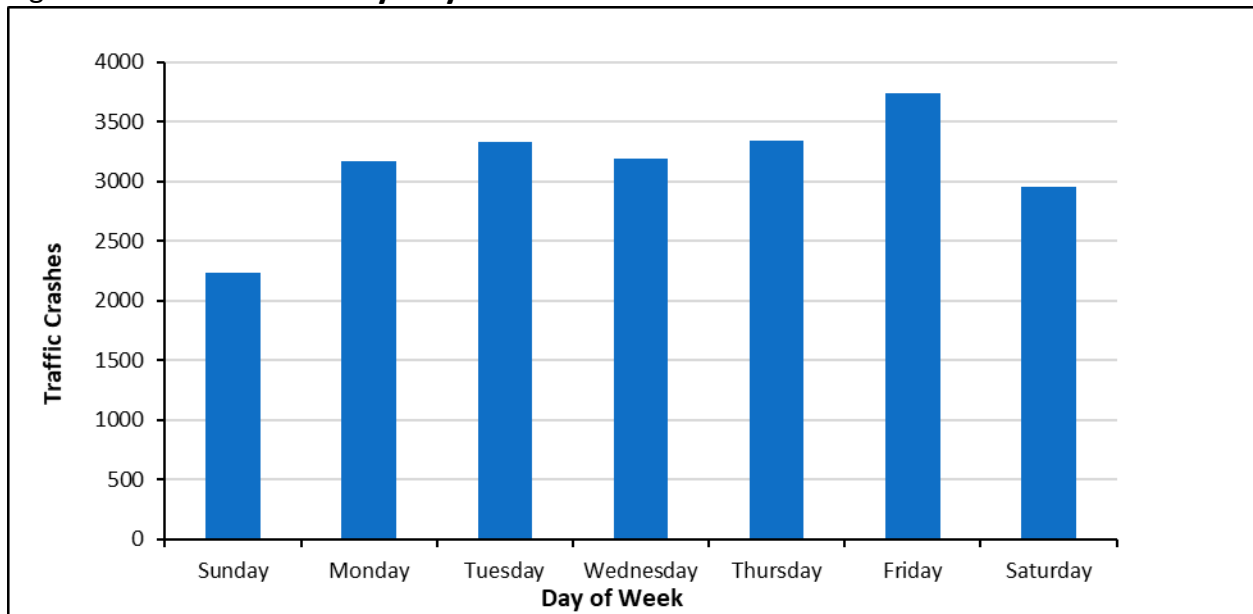
Figure 6 **Traffic Crashes by Hour of Day in 2021**



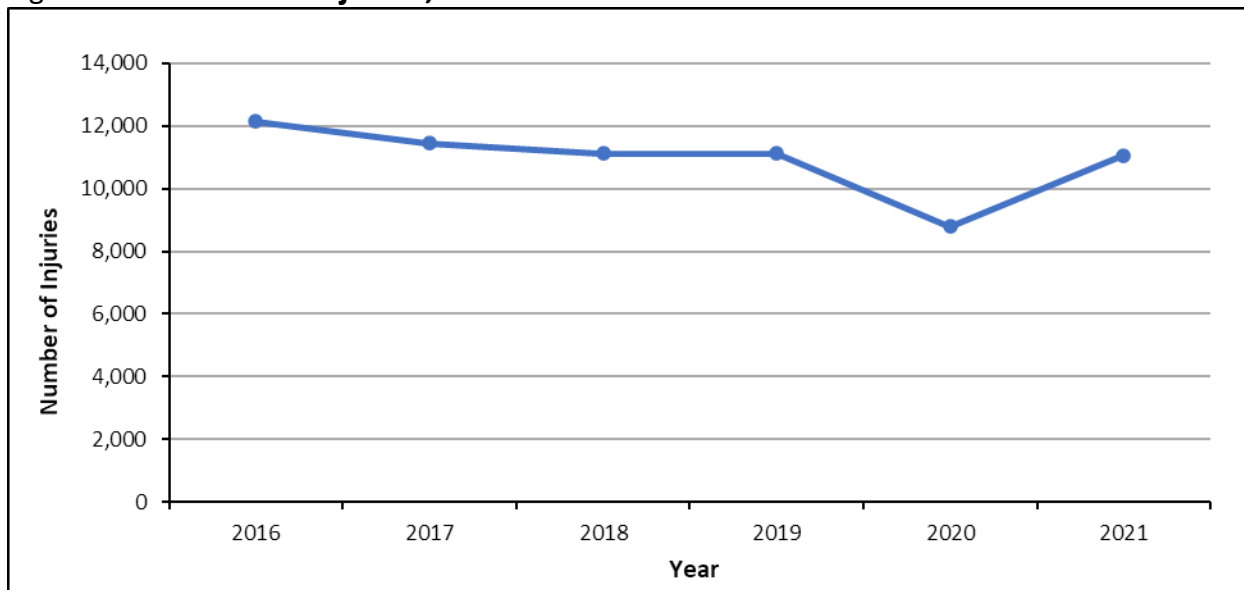Source: www.michigantrafficcrashfacts.org

# Injury Traffic Crashes

Injury traffic crash is defined as a crash resulting in an injury, but not a fatality. Figure 7 below shows injury traffic crash in GVMC area. Injury traffic crashes decreased 7.3 percent from 2016 to 2021, and Figure 8 shows a 8.9 percent decrease in number of injuries from 2016 to 2021.

Figure 7 **Injury Traffic Crashes, 2016-2021**
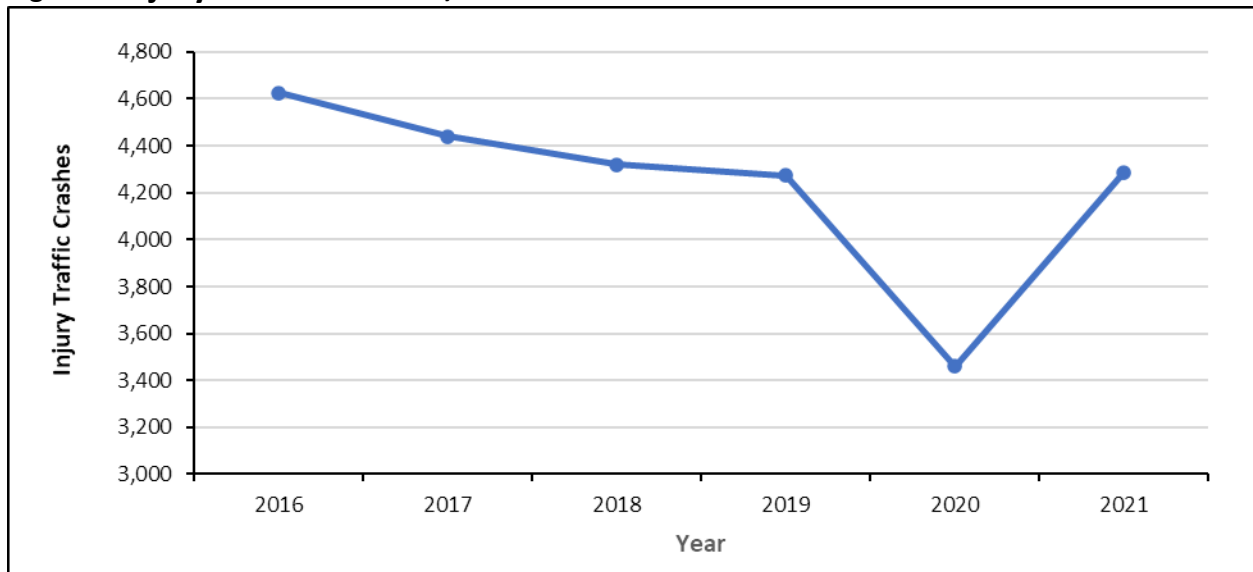


Source: www.michigantrafficcrashfacts.org

Figure 8 **Numbers of Injuries, 2016-2021**



Source: www.michigantrafficcrashfacts.org

# Injury Traffic Crashes by Jurisdiction

Table 3 shows the number of injury traffic crashes by jurisdiction in GVMC area from 2016-2021.

| Local Governments | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| Ada | 70 | 49 | 38 | 53 | 40 | 42 |
| Algoma | 53 | 59 | 62 | 43 | 41 | 44 |
| Allendale | 56 | 71 | 60 | 53 | 53 | 72 |
| Alpine | 65 | 68 | 75 | 75 | 61 | 64 |
| Blendon | 31 | 19 | 21 | 18 | 18 | 29 |
| Bowne | 16 | 18 | 13 | 10 | 15 | 11 |
| Byron | 130 | 129 | 131 | 148 | 98 | 144 |
| Caledonia | 74 | 65 | 66 | 74 | 53 | 75 |
| Cannon | 52 | 33 | 27 | 39 | 27 | 31 |
| Cascade | 106 | 127 | 110 | 113 | 83 | 137 |
| Casnovia | 1 | 1 | 2 | 2 | 0 | 0 |
| Cedar Springs | 20 | 7 | 16 | 17 | 14 | 12 |
| Chester | 6 | 8 | 7 | 9 | 9 | 7 |
| Courtland | 33 | 37 | 35 | 39 | 30 | 45 |
| East Grand Rapids | 20 | 17 | 24 | 25 | 11 | 15 |
| Gaines | 100 | 124 | 114 | 118 | 94 | 131 |
| Georgetown | 197 | 151 | 153 | 146 | 146 | 166 |
| City of Grand Rapids | 1520 | 1476 | 1418 | 1403 | 1192 | 1420 |
| Grand Rapids Township | 98 | 99 | 89 | 93 | 68 | 86 |
| Grandville | 171 | 161 | 166 | 132 | 121 | 146 |
| Grattan | 16 | 22 | 24 | 16 | 16 | 18 |
| Hudsonville | 31 | 30 | 17 | 12 | 12 | 26 |
| Jamestown | 36 | 47 | 28 | 45 | 45 | 45 |
| Kent City | 6 | 4 | 5 | 6 | 6 | 0 |
| Kentwood | 313 | 301 | 351 | 300 | 248 | 343 |
| Lowell | 52 | 42 | 36 | 34 | 31 | 42 |
| Nelson | 29 | 17 | 23 | 22 | 17 | 24 |
| Oakfield | 38 | 31 | 30 | 32 | 14 | 21 |
| Plainfield | 209 | 201 | 199 | 172 | 106 | 149 |
| Polkton | 32 | 36 | 34 | 20 | 20 | 31 |
| Rockford | 29 | 17 | 21 | 9 | 14 | 20 |
| Sand Lake | 1 | 1 | 3 | 3 | 1 | 0 |
| Solon | 36 | 35 | 40 | 42 | 26 | 39 |
| Sparta | 42 | 37 | 39 | 34 | 43 | 39 |
| Spencer | 15 | 7 | 20 | 16 | 19 | 22 |
| Tallmadge | 40 | 48 | 33 | 43 | 43 | 34 |
| Tyrone | 22 | 22 | 26 | 22 | 21 | 24 |
| Vergennes | 18 | 17 | 19 | 18 | 17 | 20 |
| Walker | 296 | 271 | 276 | 242 | 188 | 237 |
| Wright | 41 | 45 | 38 | 44 | 44 | 35 |
| Wyoming | 595 | 569 | 493 | 512 | 430 | 522 |

# Injury Traffic Crashes by Crash Type

Figure 9 shows that rear-end crashes were the most common type of injury crashes (30.4%) in 2021. Table 4 shows head-on crashes were more likely to cause injury than any other type of crashes, with 42.6% head-on crashes resulting in injury. Only 2.2% of backing crashes caused injury in 2021.

Figure 9 **Injury Traffic Crashes by Crash Type in 2021**
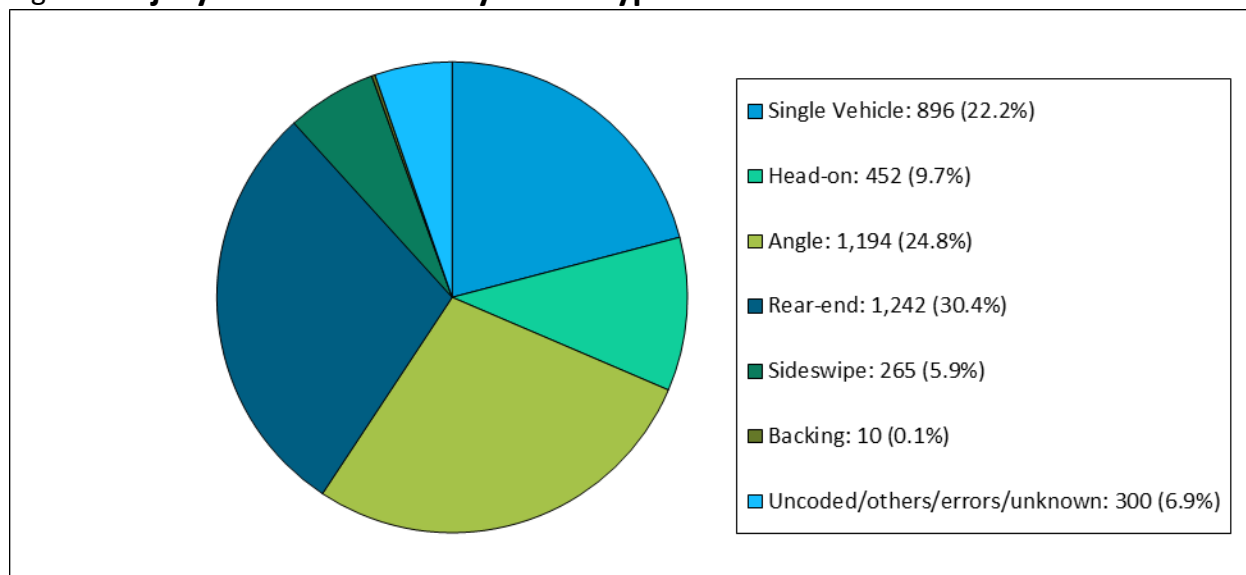


Source: www.michigantrafficcrashfacts.org

Table 4 **Traffic Crash Type by Percent Resulting in Injury in 2021**

| Crash Type | Injury Crashes | All Crashes | Percent Resulting in Injury |
|---|---|---|---|
| Head-on | 452 | 1,061 | 42.6% |
| Angle | 1,194 | 3,722 | 32.1% |
| Rear-End | 1,242 | 6,321 | 19.6% |
| Single-Vehicle | 896 | 5,605 | 16.0% |
| Sideswipe | 265 | 3,453 | 7.7% |
| Backing | 10 | 458 | 2.2% |
| Uncoded/others/errors/unknown | 228 | 1,360 | 16.8% |
| **Total** | **4,287** | **21,980** | **19.5%** |

Source: www.michigantrafficcrashfacts.org

# Injury Traffic Crashes by Month, Day, and Hour

Figure 10 shows more injury traffic crashes occurred in September than any other months in 2021, with 430 injury traffic crash, and Figure 11 shows that Friday was the day of week with the most injury traffic crashes (711).

Figure 10 **Injury Traffic Crashes by Month in 2021**
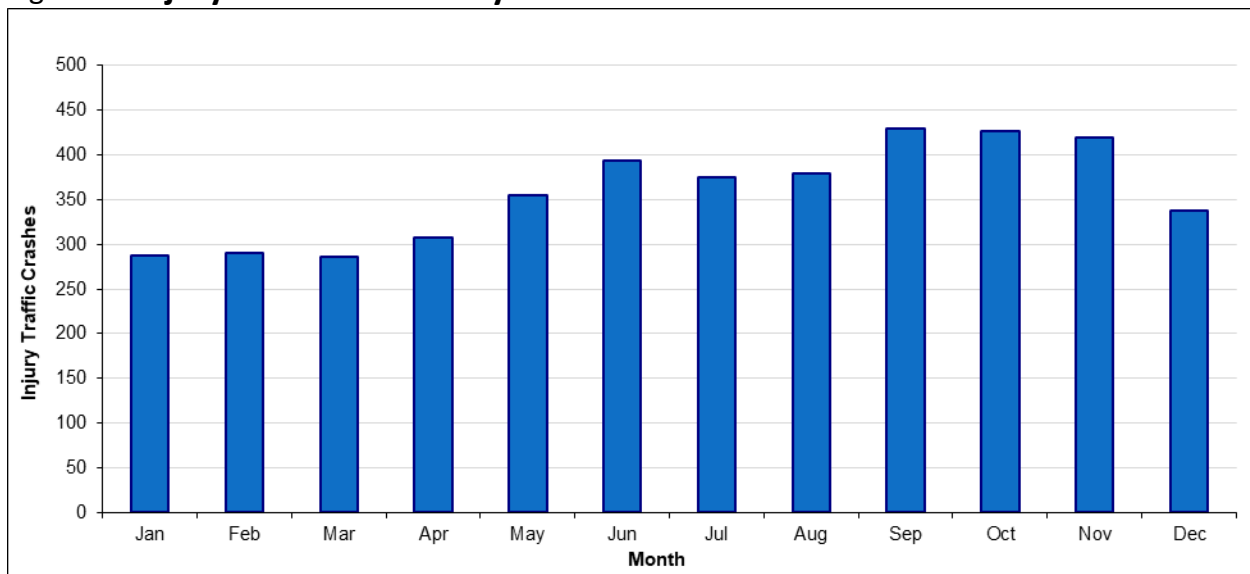


Source: www.michigantrafficcrashfacts.org

Figure 11 **Injury Traffic Crashes by Day of Week in 2021**



Source: www.michigantrafficcrashfacts.org

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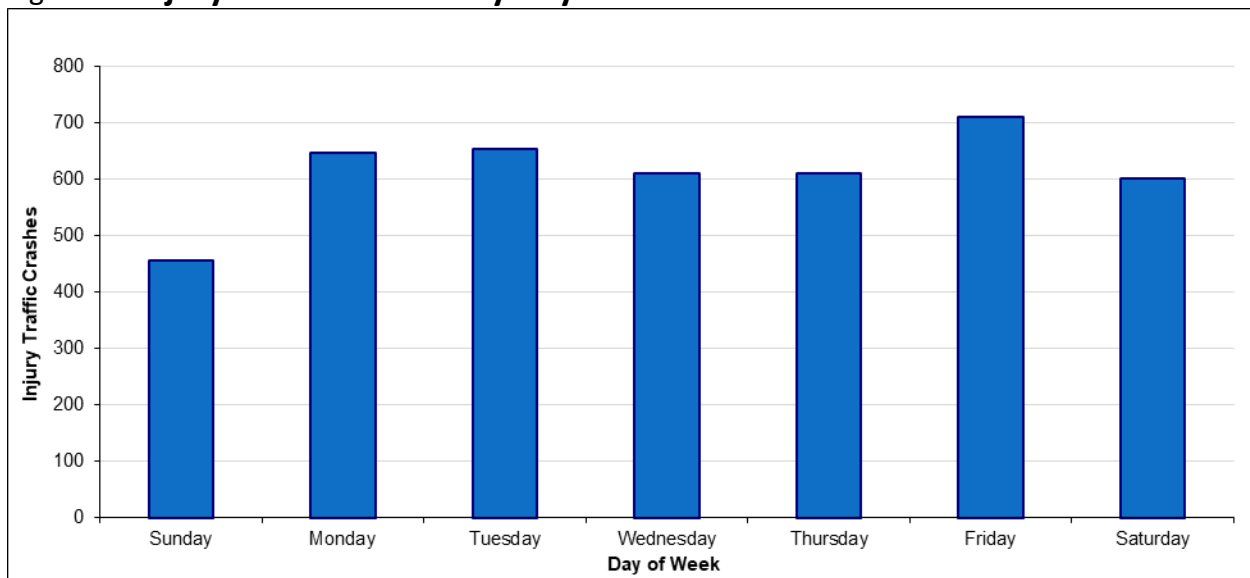
Figure 12 indicates that most injury traffic crashes occurred between 5 pm to 6 pm during each hour interval, with 410 injury crashes.

Figure 12 **Injury Traffic Crashes by Hour of Day in 2021**
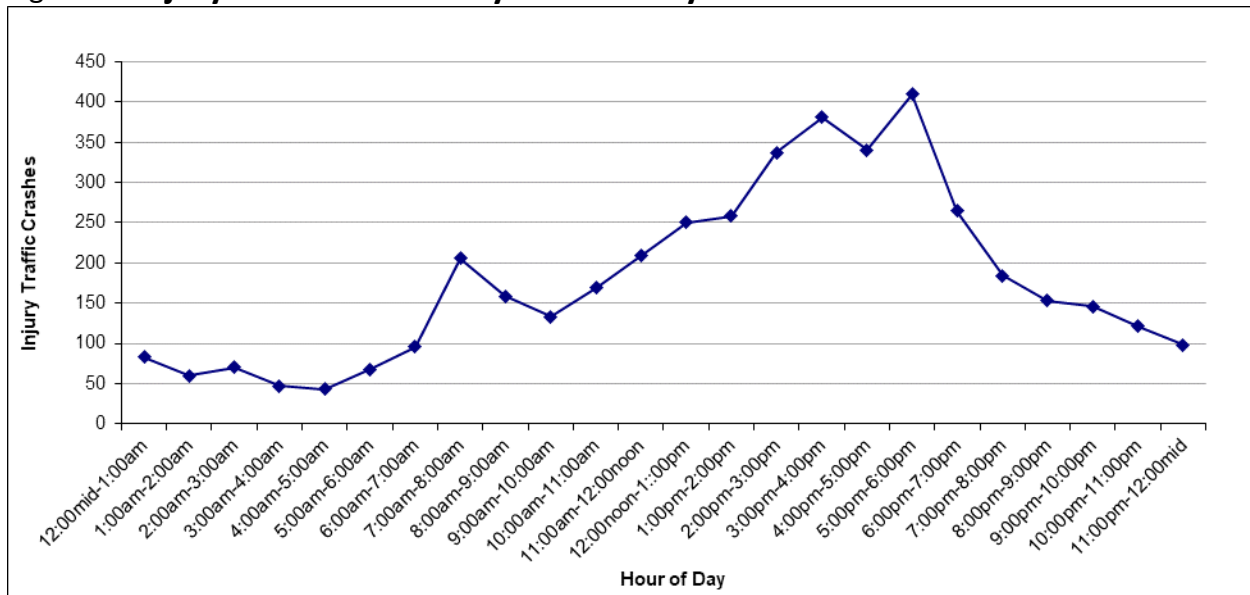


Source: www.michigantrafficcrashfacts.org

# Fatal Traffic Crashes

A fatal crash is defined as a crash that causes death within 30 days of the crash. There were 68 fatal crashes in GVMC area in 2021, a 15.3% increase from 2020, which had 59 fatal crashes. Figure 13 and Figure 14 show the number fatal crashes and the number of fatalities caused by traffic crashes from 2016 to 2021.

Figure 13 **Fatal Traffic Crashes, 2016-2021**
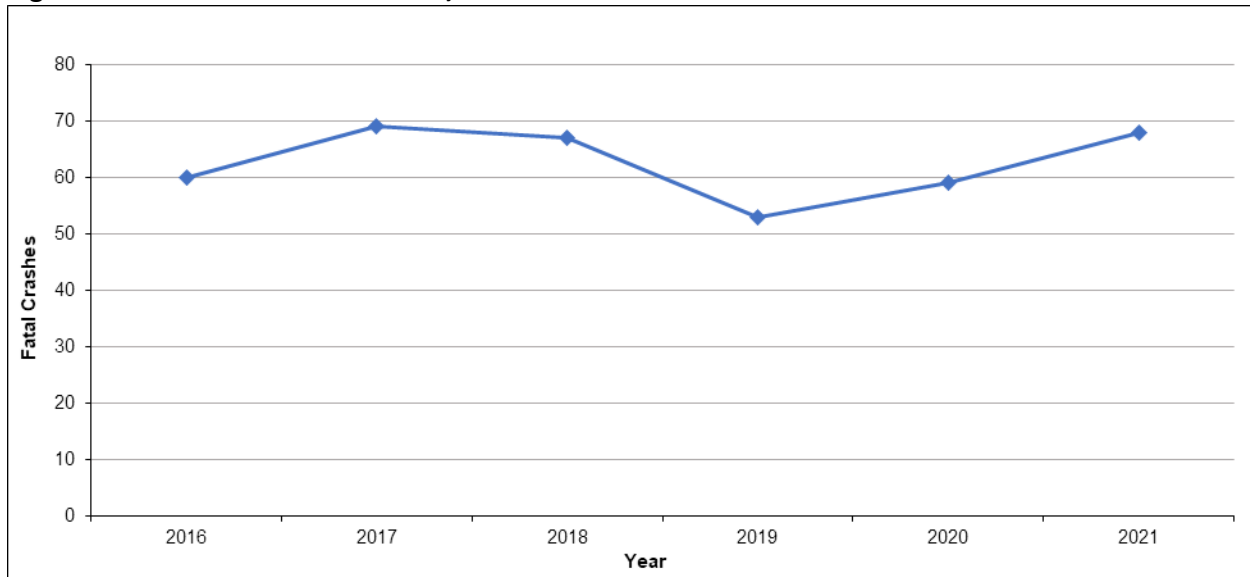


Source: www.michigantrafficcrashfacts.org

Figure 14 **Traffic Crash Fatalities, 2016-2021**
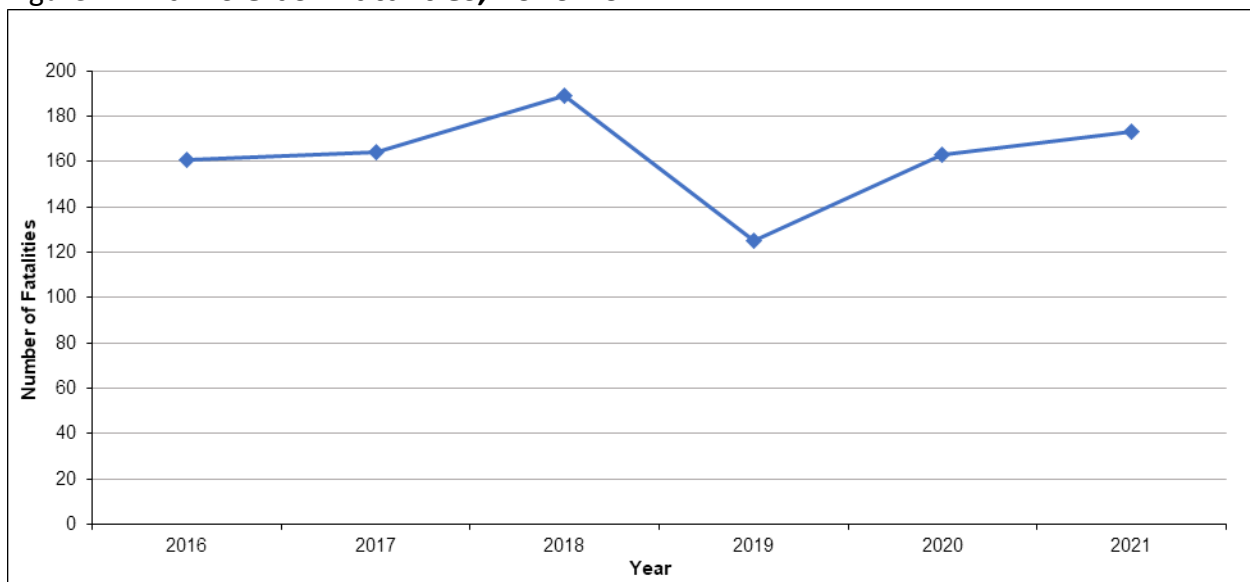


Source: www.michigantrafficcrashfacts.org

# Fatal Traffic Crashes by Crash Type

Figure 15 shows that the most common type of crash causing fatalities in 2021 was single vehicle crash, which accounts for 52.9 percent of all fatal crashes. However, head-on crashes were more likely to result in a fatality, with 1.6% of head-on crashes causing fatality.

Figure 15 **Fatal Traffic Crashes by Crash Type in 2021**



- Single Vehicle: 36 (52.9%)
- Head-on: 17 (25%)
- Angle: 10 (14.7%)
- Rear-end: 1 (1.5%)
- Sideswipe: 2 (2.9%)
- Other: 2 (2.9%)
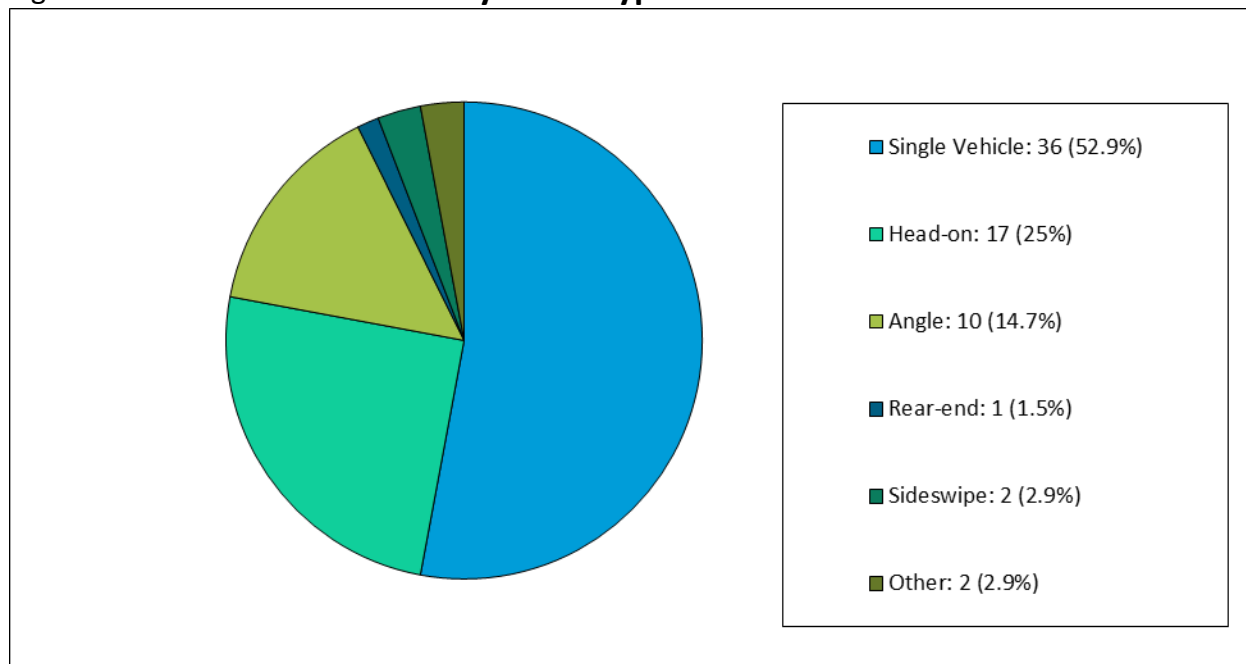
Source: www.michigantrafficcrashfacts.org

Table 5 **Crash Type by Percent Resulting in Fatality in 2021**

| Crash Type | Fatal Crashes | All Crashes | Percent Resulting in Fatality |
|---|---|---|---|
| Head-on | 17 | 1,061 | 1.6% |
| Single-Vehicle | 36 | 5,605 | 0.6% |
| Angle | 10 | 3,722 | 0.27% |
| Sideswipe | 2 | 3,453 | 0.06% |
| Rear-End | 1 | 6,321 | 0.02% |
| Other | 2 | 1,360 | 0.15% |
| **Total** | **68** | **21,980** | **0.3%** |

Source: www.michigantrafficcrashfacts.org

## Fatal Traffic Crashes by Month, Day, and Hour

Figures 16 and 17 show the distribution of fatal traffic crashes by month and day of week in GVMC area in 2021.

**Figure 16 Fatal Traffic Crashes by Month in 2021**
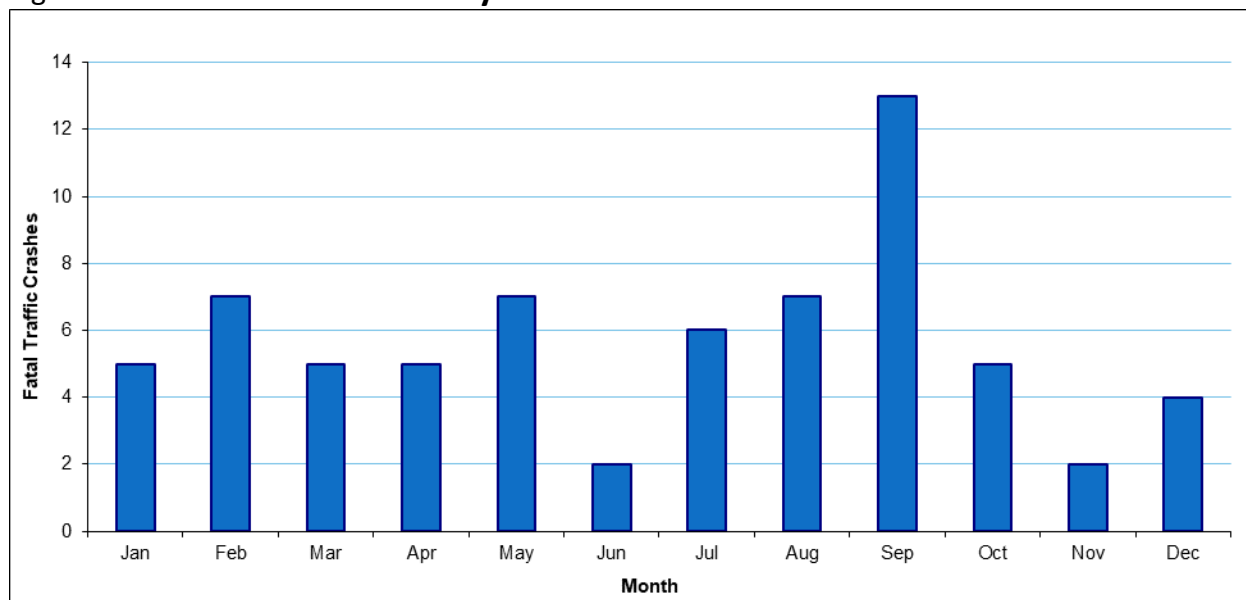


Source: www.michigantrafficcrashfacts.org

**Figure 17 Fatal Traffic Crashes by Day of Week in 2021**
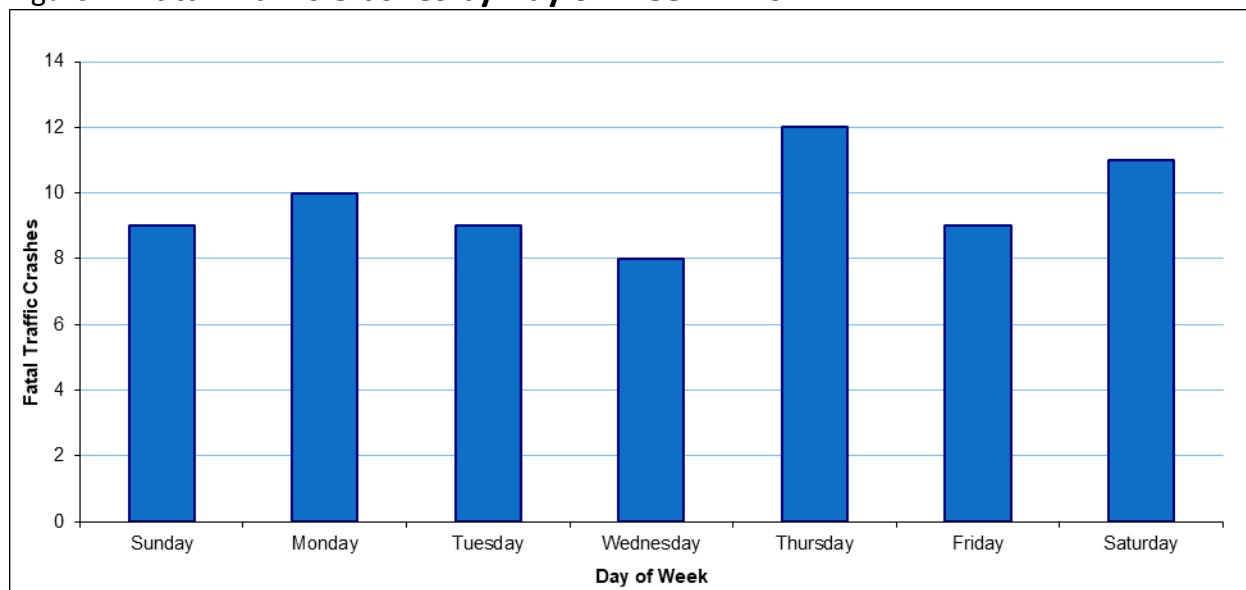


Source: www.michigantrafficcrashfacts.org

Figure 18 below shows the hourly distribution of fatal traffic crashes in GVMC area in 2021.

Figure 18 **Fatal Traffic Crashes by Hour of Day in 2021**
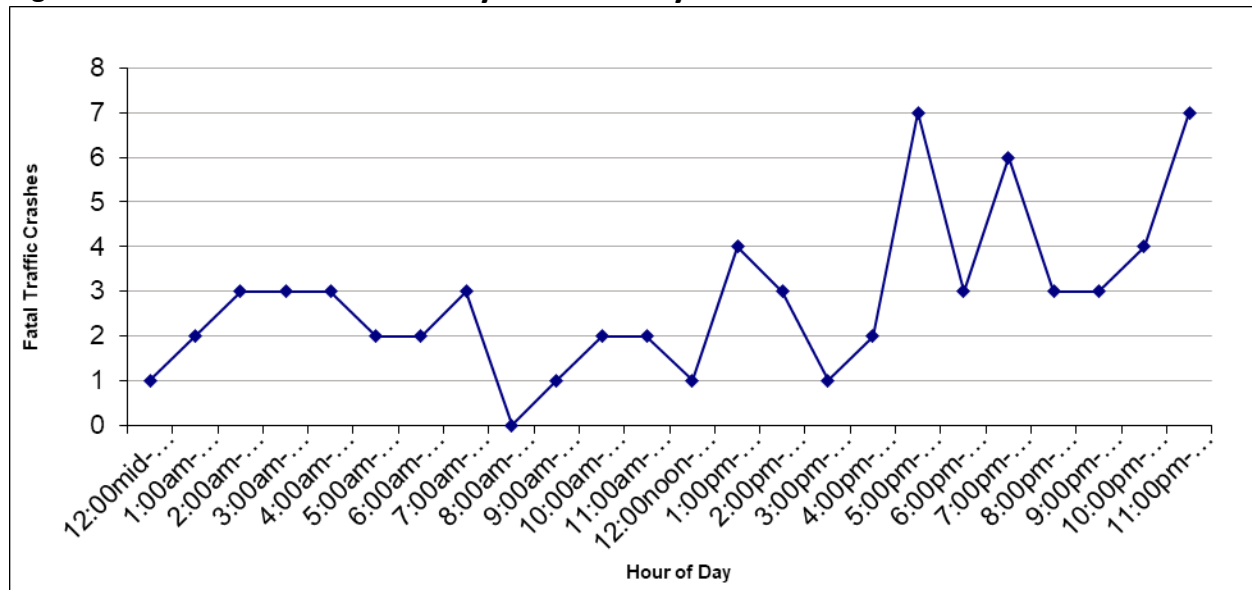


Source: www.michigantrafficcrashfacts.org

# Pedestrian Traffic Crashes

As shown in Figure 19, the pedestrian traffic crashes both increased and decreased between 2016 and 2021 in the GVMC area. There were 171 pedestrian crashes in 2021.  Figure 20 and Table 6 show pedestrian traffic crashes by severity in 2021.

Figure 19 **Pedestrian Traffic Crashes, 2016-2021**
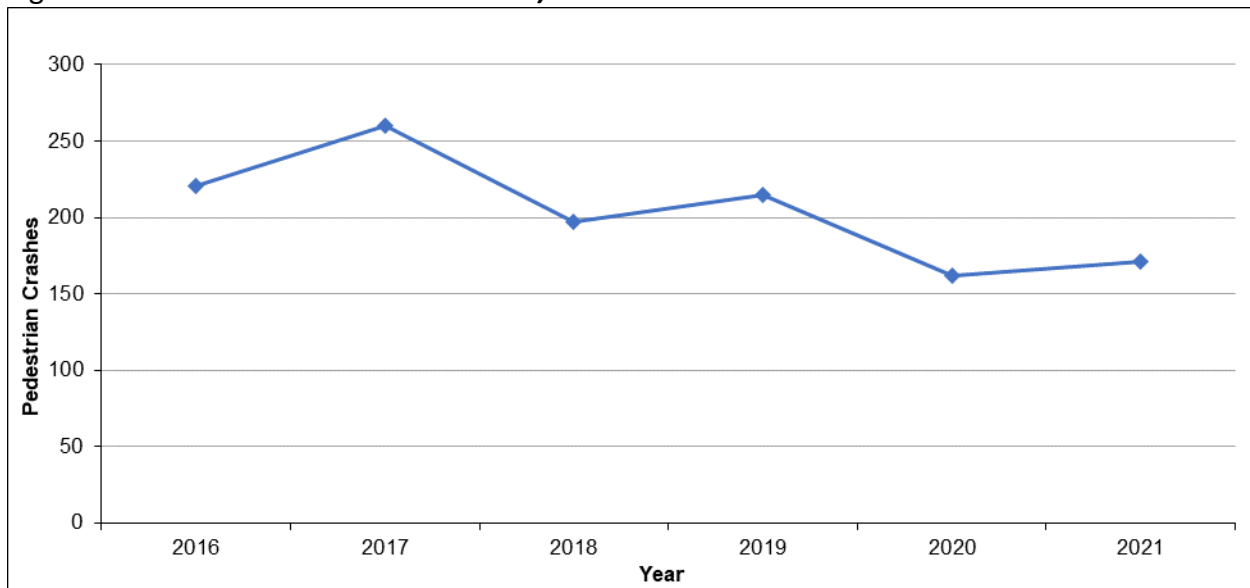


Source: www.michigantrafficcrashfacts.org

# Pedestrian Traffic Crashes by Severity

Figure 20 **Pedestrian Traffic Crashes by Severity in 2021**
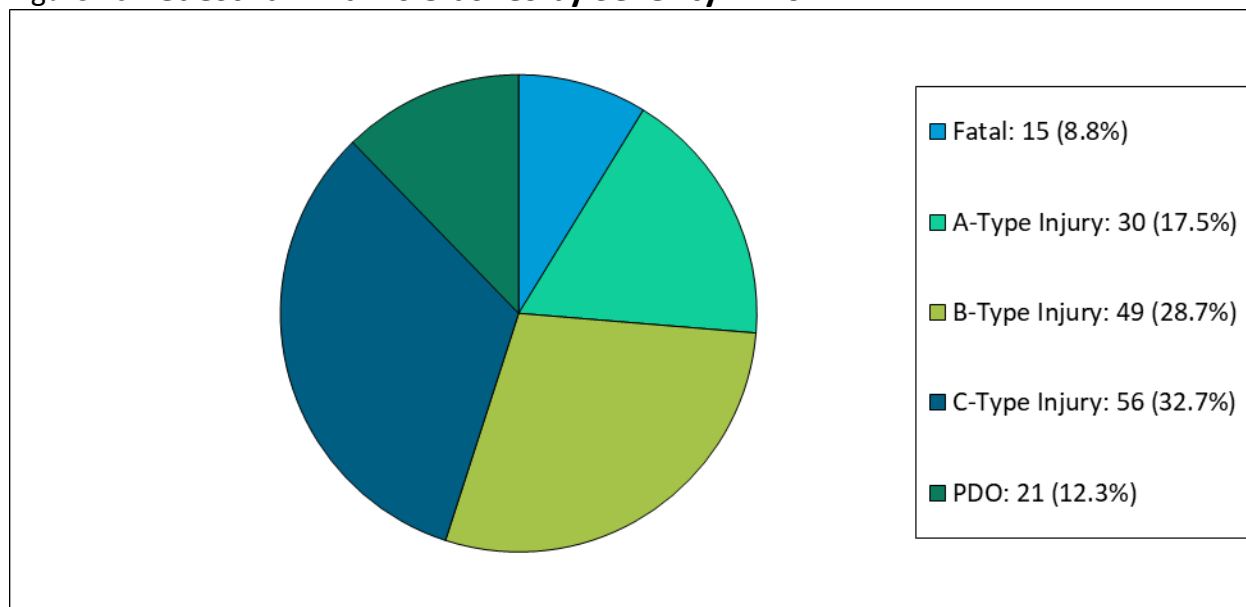


Source: www.michigantrafficcrashfacts.org

Table 6 **Pedestrian Traffic Crash by Severity in 2021**

| Crash Severity | Pedestrian Traffic Crashes | All Traffic Crashes | Pedestrian Crashes Percentage |
|---|---|---|---|
| Fatal | 15 | 68 | 22.06% |
| A-Type Injury | 30 | 384 | 7.81% |
| B-Type Injury | 49 | 1,169 | 4.19% |
| C-Type Injury | 56 | 2,734 | 2.05% |
| PDO | 21 | 17,625 | 0.12% |
| **Total** | **171** | **21,980** | **0.78%** |

Source: www.michigantrafficcrashfacts.org

# Pedestrian Traffic Crashes by Month, Day, and Hour

Figure 21 shows pedestrian traffic crashes in the GVMC area in 2021.

Figure 21 **Pedestrian Traffic Crashes by Month in 2021**
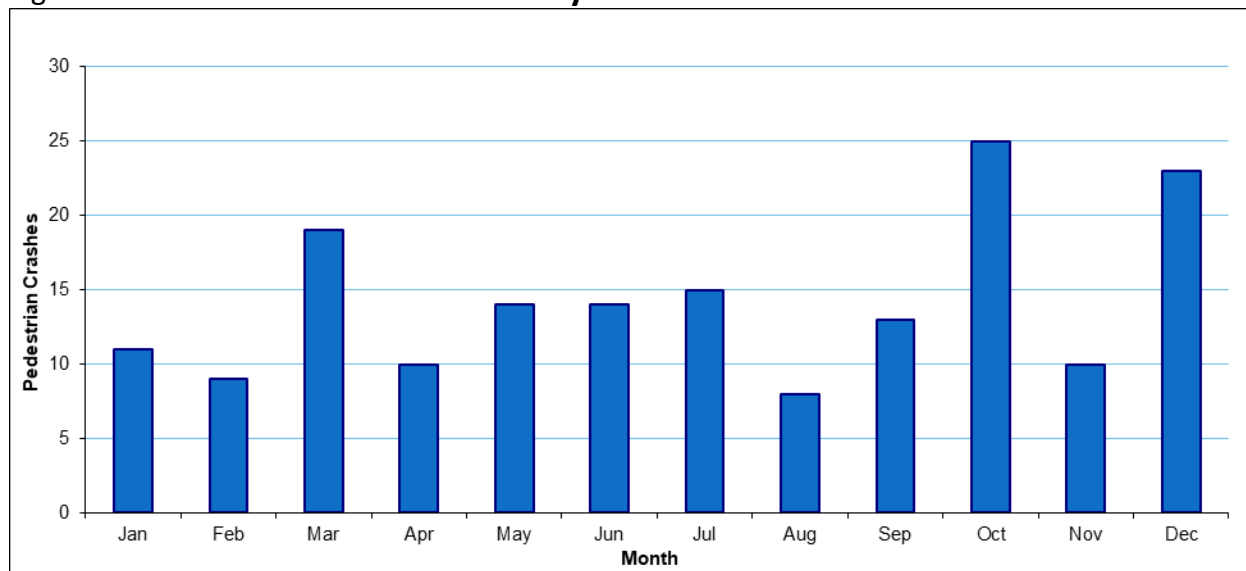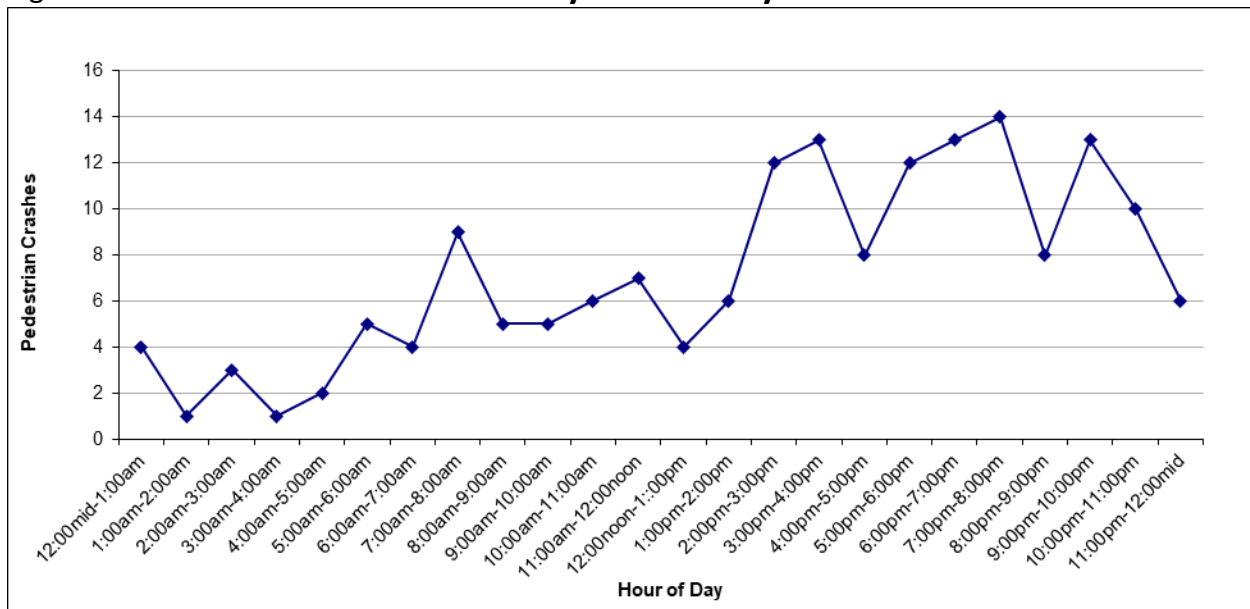


Source: www.michigantrafficcrashfacts.org

Figure 22 shows that Mondays had the most pedestrian crashes and Sundays had the fewest.

As shown in Figure 23, pedestrian crashes were most likely to occur between 7 and 8pm.

Figure 22 **Pedestrian Traffic Crashes by Day of Week in 2021**
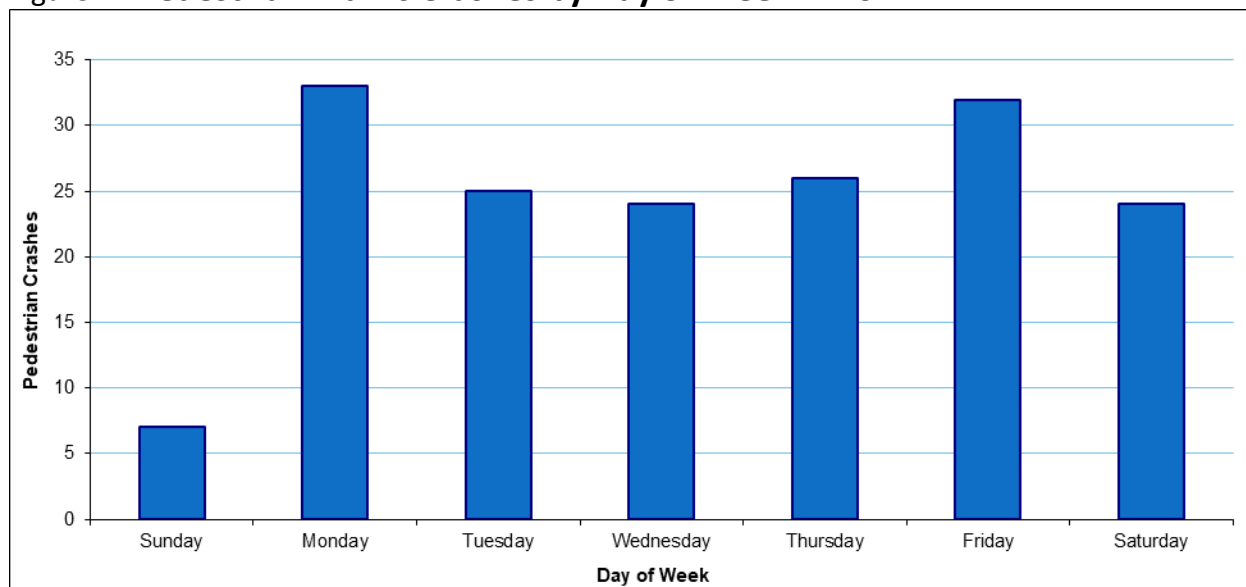


Source: www.michigantrafficcrashfacts.org

Figure 23 **Pedestrian Traffic Crashes by Hour of Day in 2021**



Source: www.michigantrafficcrashfacts.org

# Bicyclist Traffic Crashes

Figure 24 shows bicyclist traffic crashes between 2016 and 2021. There was a 33.7 percent decrease of bicyclist traffic crashes in 2021 compared to 2016.
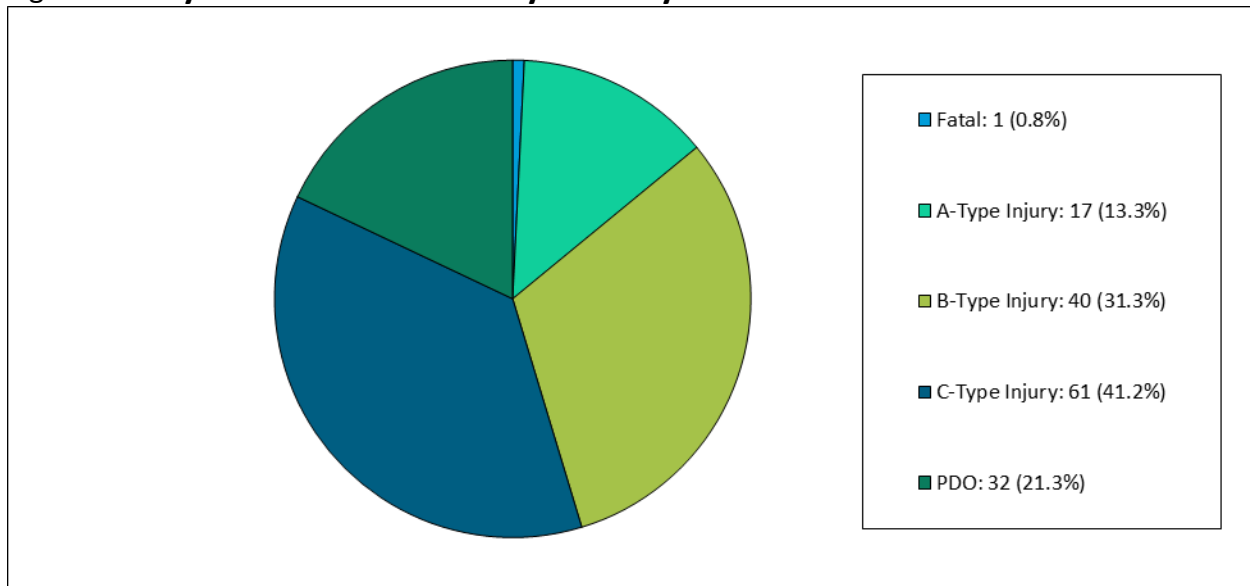
Figure 24 **Bicyclist Traffic Crashes, 2016-2021**
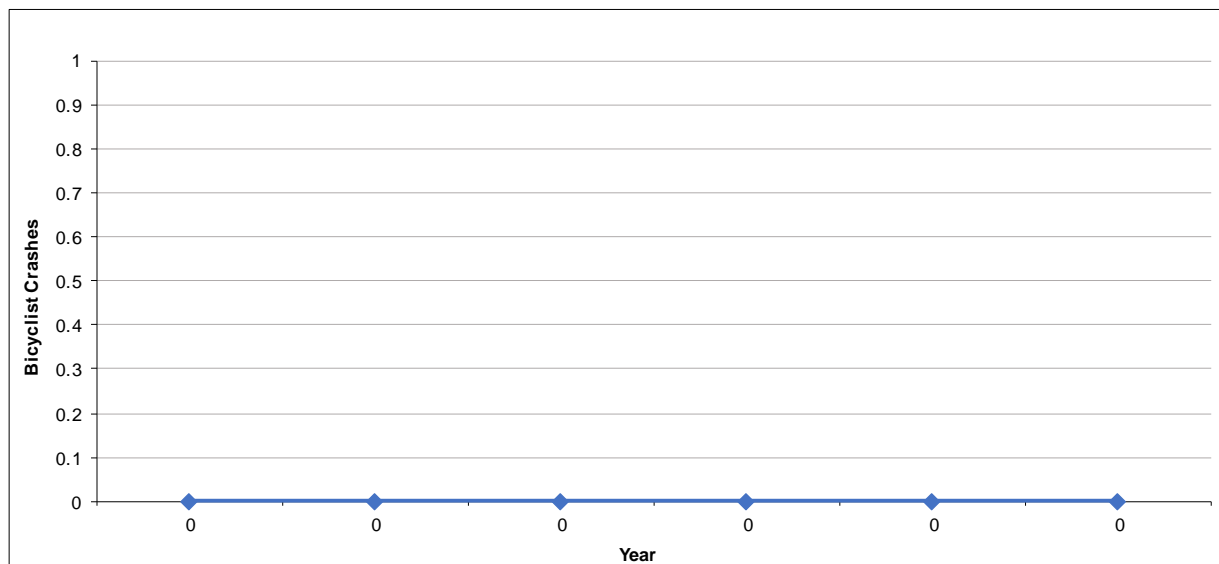


Source: www.michigantrafficcrashfacts.org

# Bicyclist Traffic Crashes by Severity

Figure 25 indicates that bicyclists can be easily injured when involved in traffic crashes, since PDO only accounted for 21.3 percent of all bicyclist traffic crashes. Table 7 shows the distribution of bicyclist severity in 2021.

Figure 25 **Bicyclist Traffic Crashes by Severity in 2021**



Legend:
- Fatal: 1 (0.8%)
- A-Type Injury: 17 (13.3%)
- B-Type Injury: 40 (31.3%)
- C-Type Injury: 61 (41.2%)
- PDO: 32 (21.3%)

Source: www.michigantrafficcrashfacts.org

Table 7 **Bicyclist Traffic Crash by Severity in 2021**

| Crash Severity | Bicyclist Traffic Crashes | All Traffic Crashes | Bicyclist Crashes Percentage |
|---|---|---|---|
| Fatal | 1 | 68 | 1.5% |
| A-Type Injury | 17 | 384 | 4.4% |
| B-Type Injury | 40 | 1,169 | 3.4% |
| C-Type Injury | 61 | 2,734 | 2.2% |
| PDO | 32 | 17,625 | 0.2% |
| **Total** | **128** | **21,980** | **0.6%** |

Source: www.michigantrafficcrashfacts.org

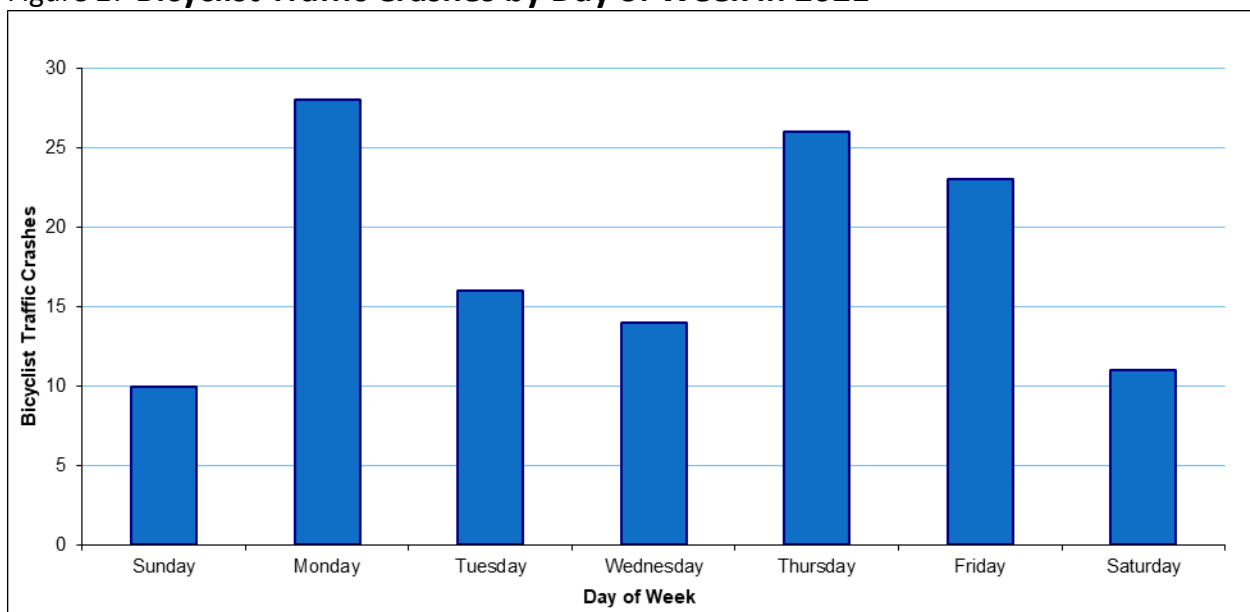# Bicyclist Traffic Crashes by Month, Day, and Hour

As shown in Figure 26, bicyclist traffic crashes were more likely to occur during summer and least likely to occur during winter season due to the harsh weather condition.

Figure 26 **Bicyclist Traffic Crashes by Month in 2021**
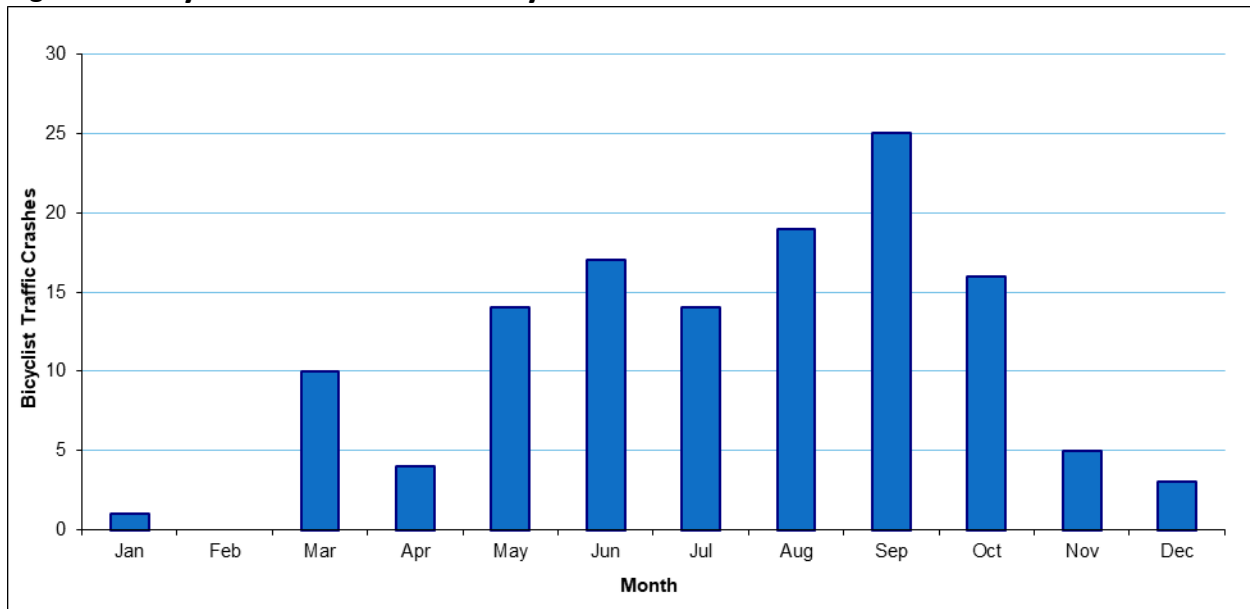


Source: www.michigantrafficcrashfacts.org

Figure 27 **Bicyclist Traffic Crashes by Day of Week in 2021**



Source: www.michigantrafficcrashfacts.org

Figure 28 shows that bicyclist traffic crashes were more likely to take place during afternoon.

Figure 28 **Bicyclist Traffic Crashes by Hour of Day in 2021**
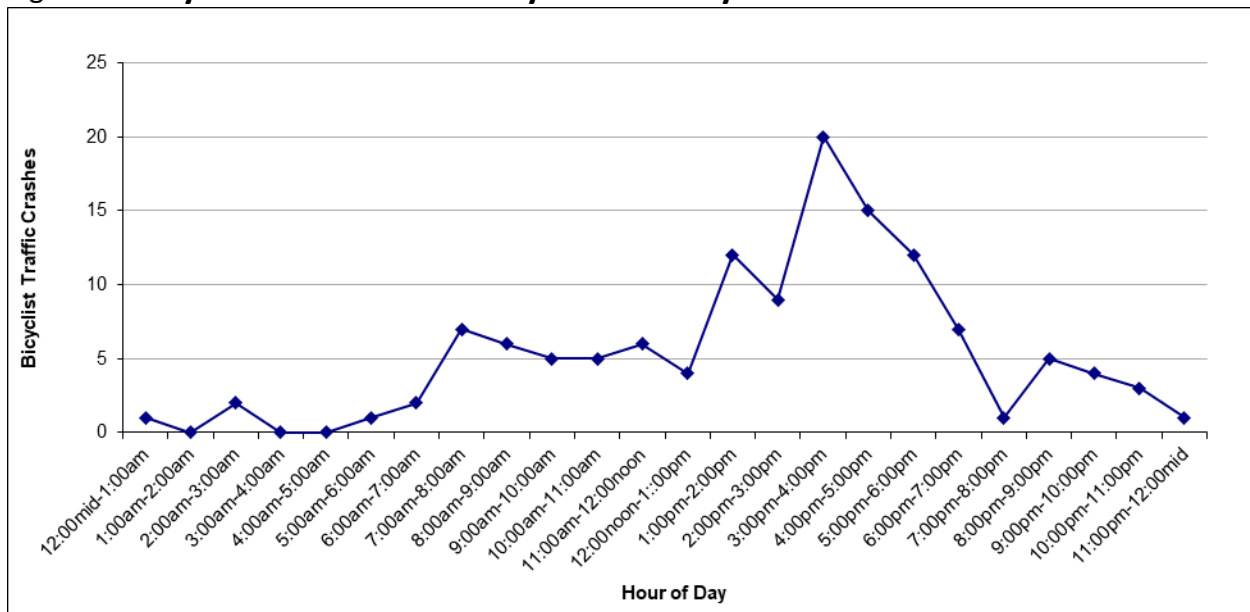


Source: www.michigantrafficcrashfacts.org

# Bicycle & Pedestrian Fatalities and Serious Injuries

Bicycle and pedestrian fatalities and serious injuries are defined as a crash that causes death within 30 days of the crash or incapacitating injuries as defined in Michigan Traffic Crash Facts' Data Query Tool involving a bicyclist or pedestrian. Figure 28a below shows fatalities and serious injury crashes in GVMC area. These crashes decreased 1.6 percent from 2016 to 2021.

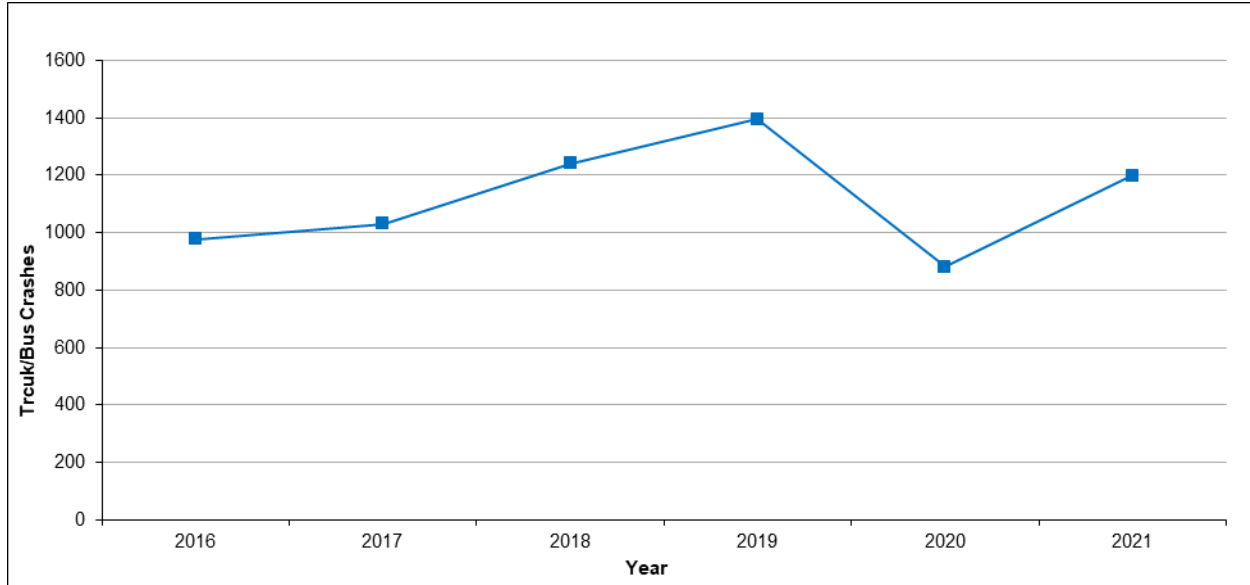Figure 28a **Bicycle & Pedestrian Fatalities and Serious Injuries, 2016-2021**
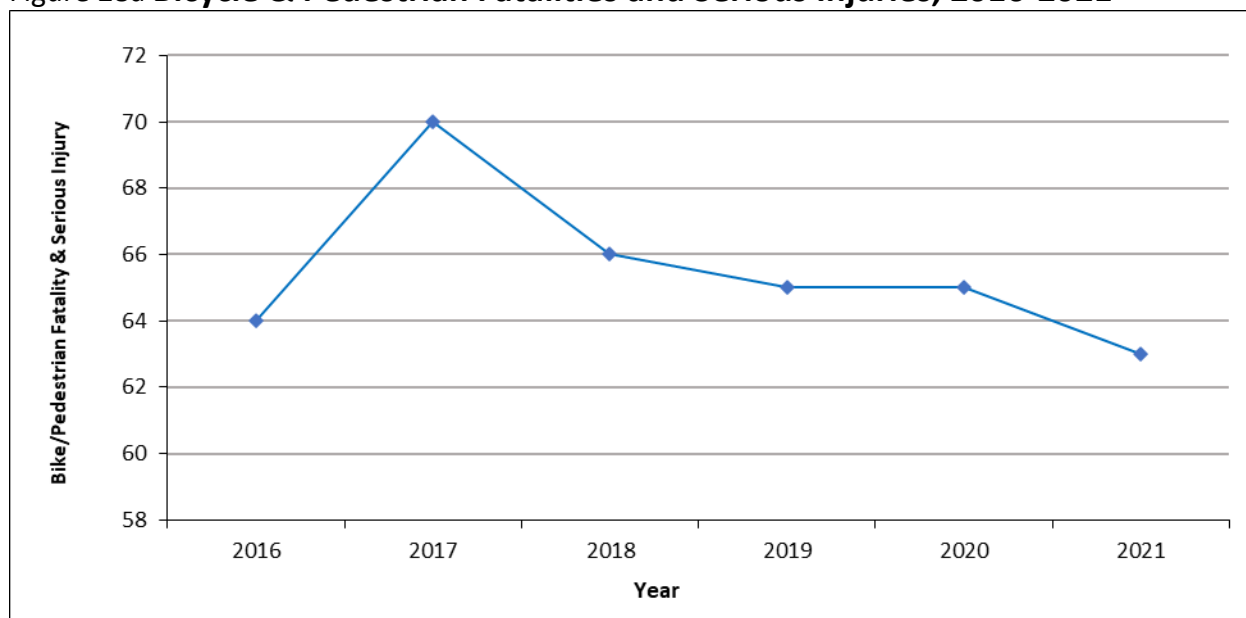


Source: www.michigantrafficcrashfacts.org

# Truck and Bus Traffic Crashes

Figure 29 shows the trend of truck/bus crashes from 2016 to 2021 in GVMC area.

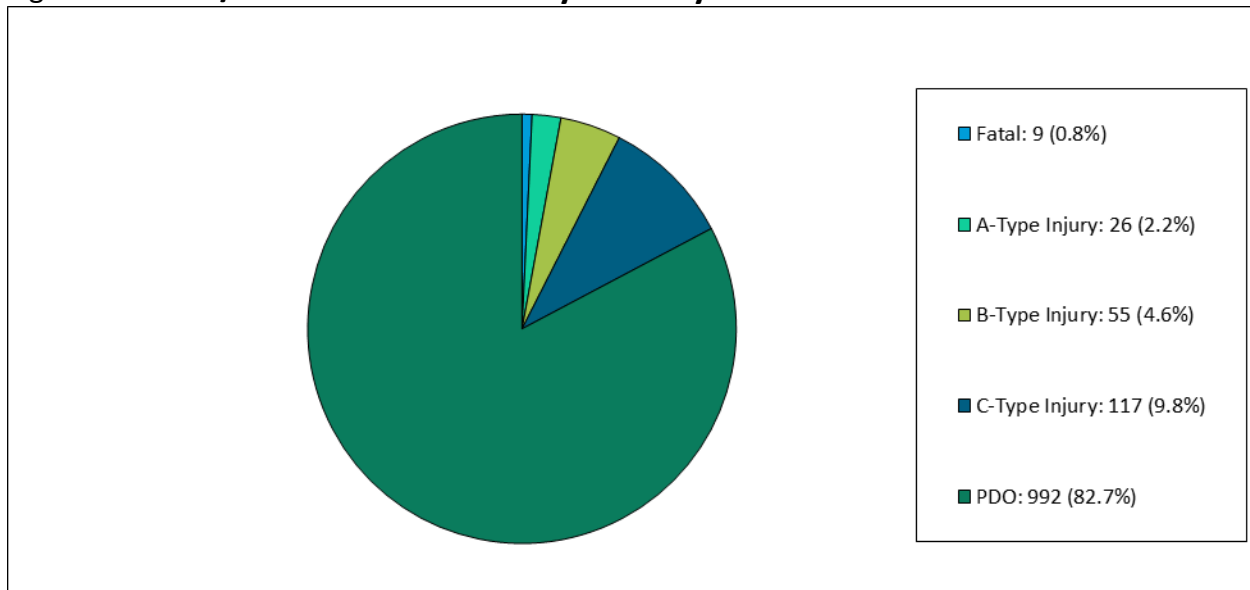Figure 29 **Truck/Bus Traffic Crashes, 2016-2021**



Source: www.michigantrafficcrashfacts.org

## Truck/Bus Traffic Crashes by Severity

Figure 30 shows truck/bus traffic crashes by severity in 2021. Most of the crashes were PDO crash (82.7%). As shown in Table 8, fatalities and A-type injuries in truck/bus crashes accounted for 20% of all traffic fatal crashes and 6.8% of all traffic A-Type injuries, respectively.

Figure 30 **Truck/Bus Traffic Crashes by Severity in 2021**



Legend:
- Fatal: 9 (0.8%)
- A-Type Injury: 26 (2.2%)
- B-Type Injury: 55 (4.6%)
- C-Type Injury: 117 (9.8%)
- PDO: 992 (82.7%)

Source: www.michigantrafficcrashfacts.org

Table 8 **Truck/Bus Traffic Crash by Severity in 2021**

| Crash Severity | Truck/Bus Traffic Crashes | All Traffic Crashes | Truck/Bus Crashes Percentage |
|---|---|---|---|
| Fatal | 9 | 68 | 13.2% |
| A-Type Injury | 26 | 384 | 6.8% |
| B-Type Injury | 55 | 1,169 | 4.7% |
| C-Type Injury | 117 | 2,734 | 4.3% |
| PDO | 992 | 17,625 | 5.6% |
| **Total** | **1,199** | **21,980** | **5.5%** |

Source: www.michigantrafficcrashfacts.org

## Truck/Bus Traffic Crashes by Crash Type

Figure 31 shows the crash type distribution of truck/bus crashes. There were more sideswipe truck/bus crashes (33.4%) than any other crash type in 2021.

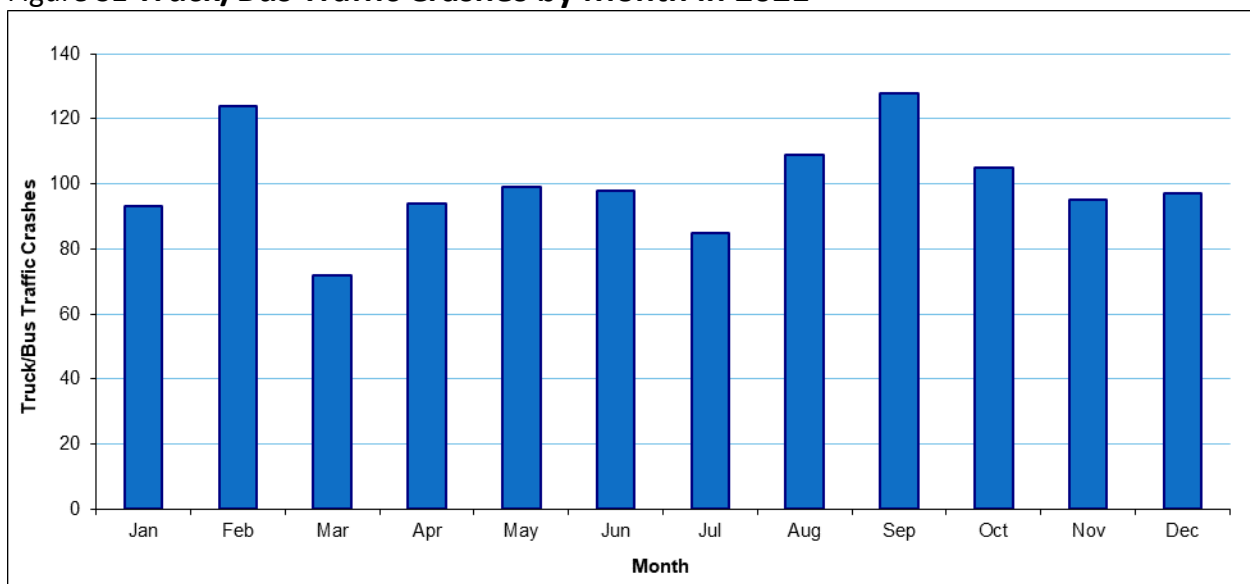Figure 31 **Truck/Bus Traffic Crashes by Crash Type in 2021**
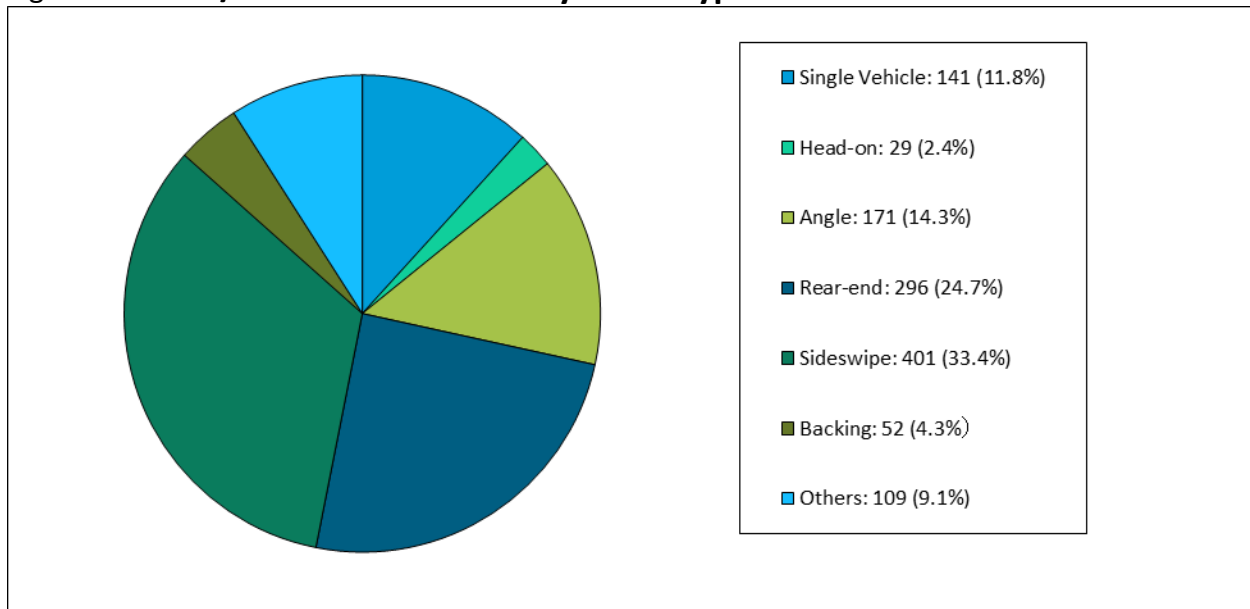


Single Vehicle: 141 (11.8%)

Head-on: 29 (2.4%)

Angle: 171 (14.3%)

Rear-end: 296 (24.7%)

Sideswipe: 401 (33.4%)

Backing: 52 (4.3%)

Others: 109 (9.1%)

Source: www.michigantrafficcrashfacts.org
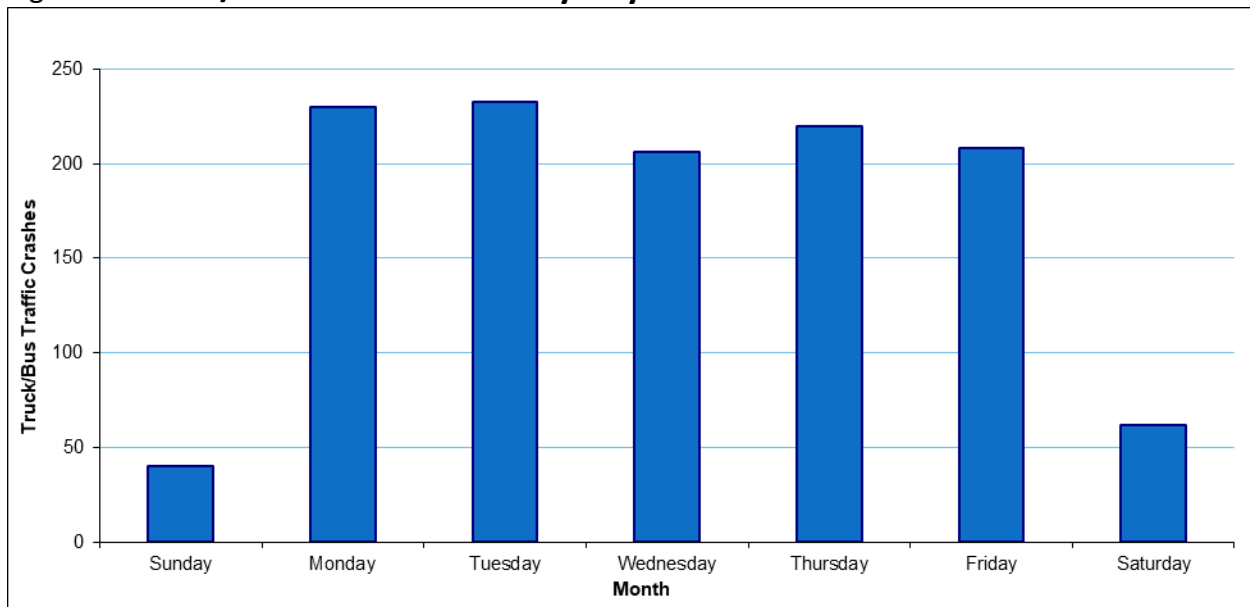
## Truck/Bus Traffic Crashes by Month, Day, and Hour

Figure 32 shows that truck/bus crashes were more likely to take place in September, and least likely to occur in March in 2021.

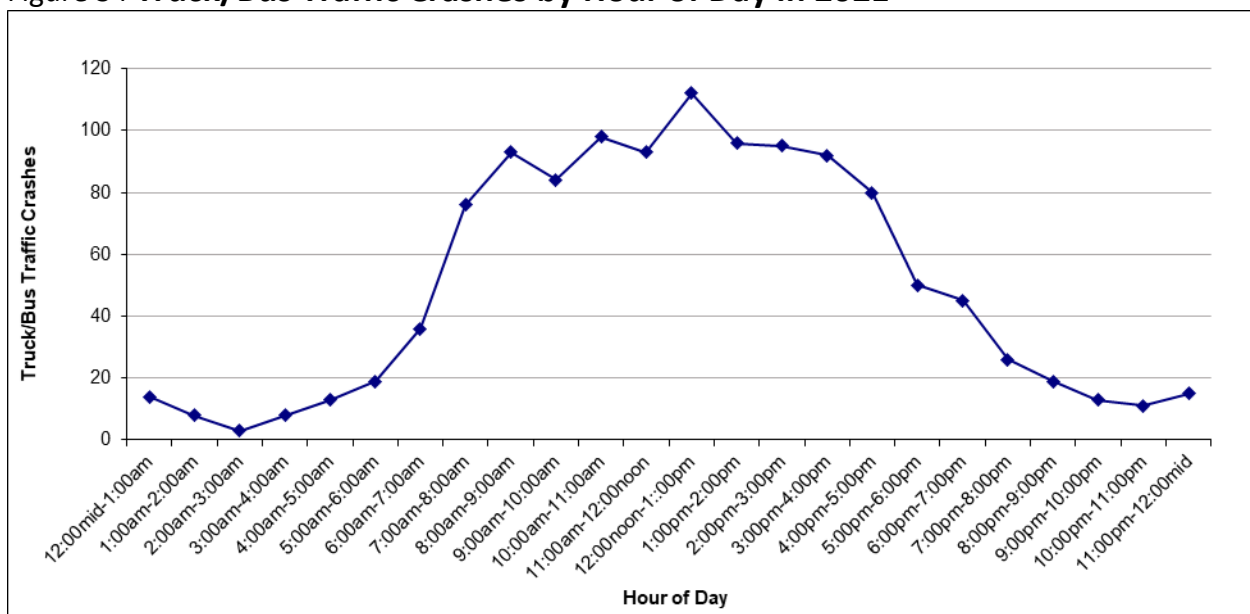Figure 32 **Truck/Bus Traffic Crashes by Month in 2021**



Source: www.michigantrafficcrashfacts.org

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Figure 33 **Truck/Bus Traffic Crashes by Day of Week in 2021**



Source: www.michigantrafficcrashfacts.org

Figure 34 **Truck/Bus Traffic Crashes by Hour of Day in 2021**



Source: www.michigantrafficcrashfacts.org