AMATS Crash Report

Traffic Crashes and Safety Performance Measures 2018-2020

Cover Photos Courtesy of the Akron Police Department

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Akron Metropolitan Area Transportation Study
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Section 1: A New Approach – The Dawn of "Safe Systems"

Overview

The Ohio Department of Transportation (ODOT) is making major changes to its Highway Safety Improvement Program (HSIP) to focus limited funding on fatal and serious injury crashes. The department is also creating a new program to encourage systemic or proactive safety investments to prevent specific high-severity crash types. AMATS aims to align our safety program with ODOT's in order to rank and fund locations of concern. Appendix A on page 25 defines the new ODOT Safety Programs.

These changes are happening because traffic deaths in Ohio have risen six of the past seven years. Focusing on severity and specific crash types and safety improvements will help us better target these crashes and align our investments with federal safety requirements focused on reducing fatalities and serious injuries.

These changes are also part of a national movement to adopt a Safe System approach. Safe System is a paradigm shift from eliminating crashes to eliminating fatal and serious injuries.

Safe System acknowledges that people make mistakes and engineers have a responsibility to reduce crash severity by being more aggressive in using roadway design and operational changes instead of relying on drivers to change their behavior. Safe System also strives for a greater transportation balance that serves the needs of all road users, not just motorists.

The Safe System approach differs from conventional safety practice by being human-centered and by fully integrating the needs of all users (pedestrians, bicyclists, older, younger, disabled, etc.) of the transportation system. Safe Systems provide a safety-net for the user by:

1. Anticipating Human Error – A Safe System is designed to anticipate and accommodate errors by drivers and other road users.

   Example: Even a momentary distraction can prevent a driver from seeing vulnerable road users or vice-versa. Separating vulnerable road users, such as pedestrians and bicyclists, from traffic wherever possible reduces the likelihood that such predictable errors will lead to a deadly collision.

   Example: On rural highways the application of rumble strips can recapture the driver's attention when they drift out of the lane due to distraction or fatigue. In newer vehicles, lane-keeping technologies can provide similar benefit.

2. Accommodating Human Injury Tolerance – A Safe System is designed to reduce or eliminate opportunities for crashes resulting in forces beyond human endurance.

   Example: Where pedestrians and vehicles need to occupy the same space – such as urban crosswalks – reducing vehicle speeds using lower speed limits combined with road design changes can reduce the likelihood of fatal collisions with pedestrians or bicyclists.

   Example: Breakaway designs on traffic control devices installed in the right-of-way can reduce the force of impact when struck by an errant vehicle.

When we take a Safe System approach, we may employ some of our current safety practices, but by taking a human-centered approach we will often make different decisions than we would have otherwise.

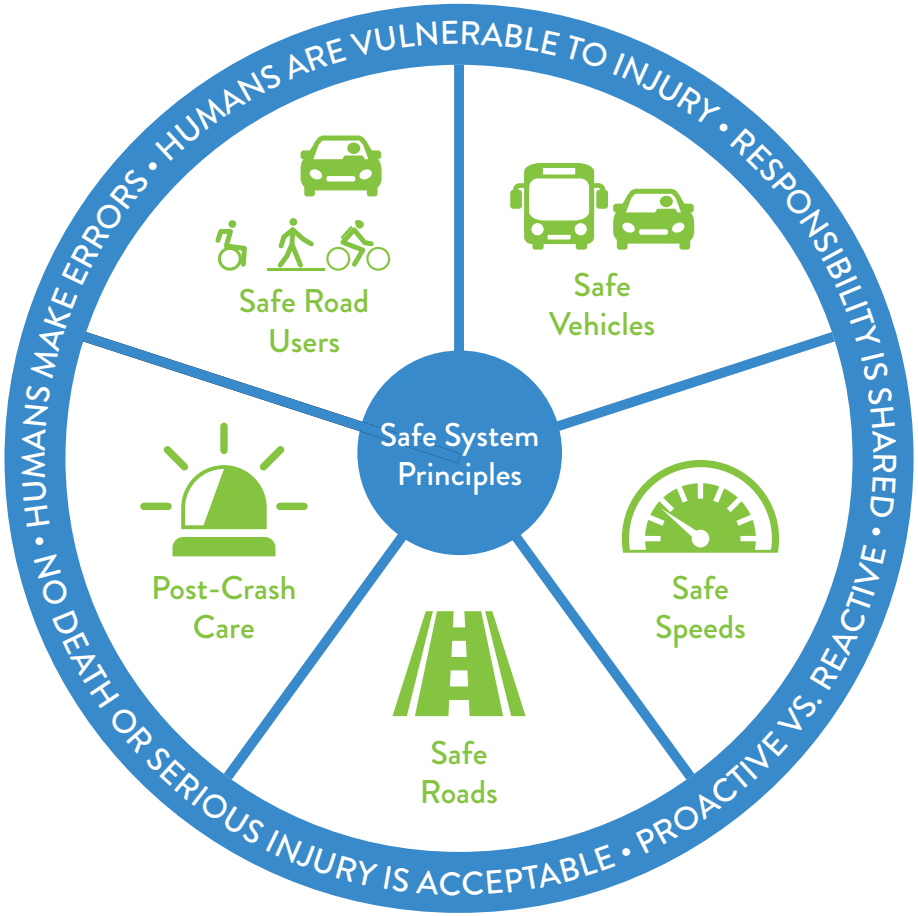


**diagram adapted from original by Federal Highway Administration (FHWA)*

Anticipating Human Error

Recognizing that humans are human and that they will continue to make errors when traveling. One way to implement a Safe System strategy is to reduce the opportunity for error by:

- Separating Users in Space – This approach segregates the physical space to provide travelers with a dedicated part of the right-of-way. Typically, travelers moving at different speeds – pedestrians, bicyclists, etc. (e.g., sidewalks, cycle tracks) – or different directions (e.g., turning vehicles in separate turn lanes) are separated in space to minimize conflicts with other users.
- Separating Users in Time – This approach assumes that users will need to occupy the same physical space on the roadway but creates a safer environment by separating the users in time and reducing vehicle interactions with vulnerable road users. An example is a pedestrian scramble phase at an intersection. During this phase pedestrians have exclusive access to the intersection without having to worry about vehicle encroachment.
- Increasing Attentiveness and Awareness – This approach seeks to alert users to potential hazards and/or the presence of other users. These techniques can be vehicle, user or infrastructure based. There are a variety of areas to be explored, including:

  Increasing Visibility
  - "Daylighting" intersections by removing parking at the corners to allow greater visibility between drivers and pedestrians.
  - Street lighting that increases nighttime visibility of users.
  - Vehicle, scooter or bicycle lights or retroreflective clothing that allows users to be visible to one another.

  Increasing Attentiveness
  - Rumble strips and in-vehicle lane departure systems that alert inattentive or drowsy drivers that they are leaving their lanes.
  - Rectangular Rapid Flashing Beacons that warn drivers of the presence of crossing pedestrians.

  Reducing Impairment
  - Alcohol detection and ignition interlock systems that help prevent intoxicated drivers from operating a motor vehicle.
  - In-vehicle systems that help prevent use of cell phones while the vehicle is moving to minimize distraction.
  - Applications and programs that incentivize and reward safe behaviors.

Accommodating Human Injury Tolerance

The laws of physics dictate that greater harm will occur at higher speeds and that, typically, the greater the mass of a vehicle, the more harm that it will inflict on others.

- Reduce Speeds - For vulnerable users, speed is a determining factor in survivability – a human's chance of surviving being struck by a vehicle increases from 20% at 40 miles per hour to 60% at 30 miles per hour to 90% at 20 miles per hour. Reducing speed in the presence of vulnerable users is a key Safe System strategy. Approaches include:
  - Physical roadway designs (width, horizontal alignment) to limit free flow speeds,
  - Traffic calming treatments that induce slower speeds,
  - Traffic signal timing that minimizes high speed flow,
  - Traditional or automated enforcement that discourages speeding.
- Reduce Impact Forces – A variety of methods can be used to increase crash survivability by reducing the impact forces. These include:
  - Intersection Design – alternative intersections, such as roundabouts, reduce the angle and speeds of entering vehicles to limit impact forces. Designs which limit right-angle conflicts can also achieve this goal.
  - Occupant Protection – this can include interior design of the vehicle, seat belts, air bags, etc. Much work has been done in this area in recent decades.
  - Exterior Vehicle Design – the aggressiveness of the exterior of the vehicle can affect the consequences of a collision. Increasing size of vehicles in recent years has worked against this goal, but recent innovations in vehicle front-end design offer the potential to create softer vehicle-to-vulnerable user impacts.
  - Automated Braking – automated braking systems have been introduced to detect other users or objects and slow or stop vehicles prior to a collision.
  - Roadside Crashworthiness – this can include clear zones, breakaway supports, etc. Much work has been done in this area in recent decades.

Section 2: AMATS Area Crashes

Overview

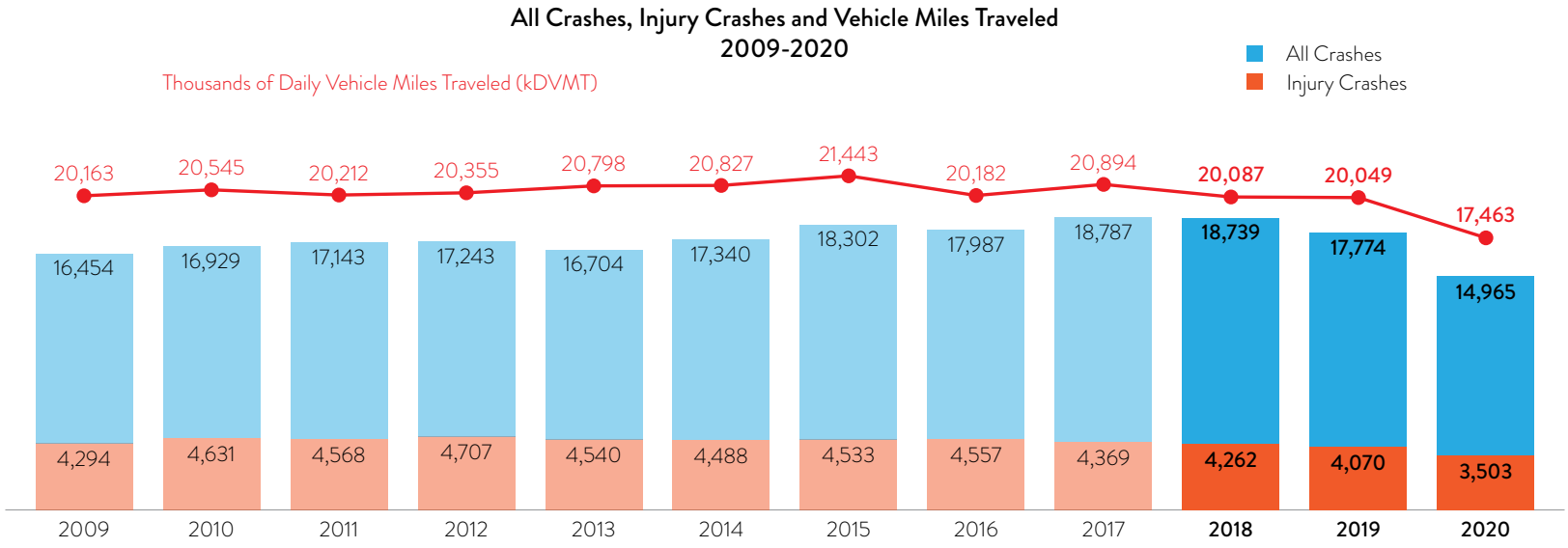
The 2018-2020 Crash Report was prepared by reviewing 51,478 crash records obtained from the Ohio Department of Transportation (ODOT). Animal crashes and construction zone crashes were removed and not included in the analysis since they do not relate to the characteristics of the roadway. The data is then imported into GIS and plotted. It is carefully checked for location accuracy and then categorized as section or intersection crashes. The roadway section and intersection locations are further analyzed and then ranked. In Section 3 Bicycle and Pedestrian Crashes are discussed. Section 4 highlights Safety Performance Measures and Targets. Freeway crashes are not included in this report and instead are analyzed and ranked by ODOT.

Trends

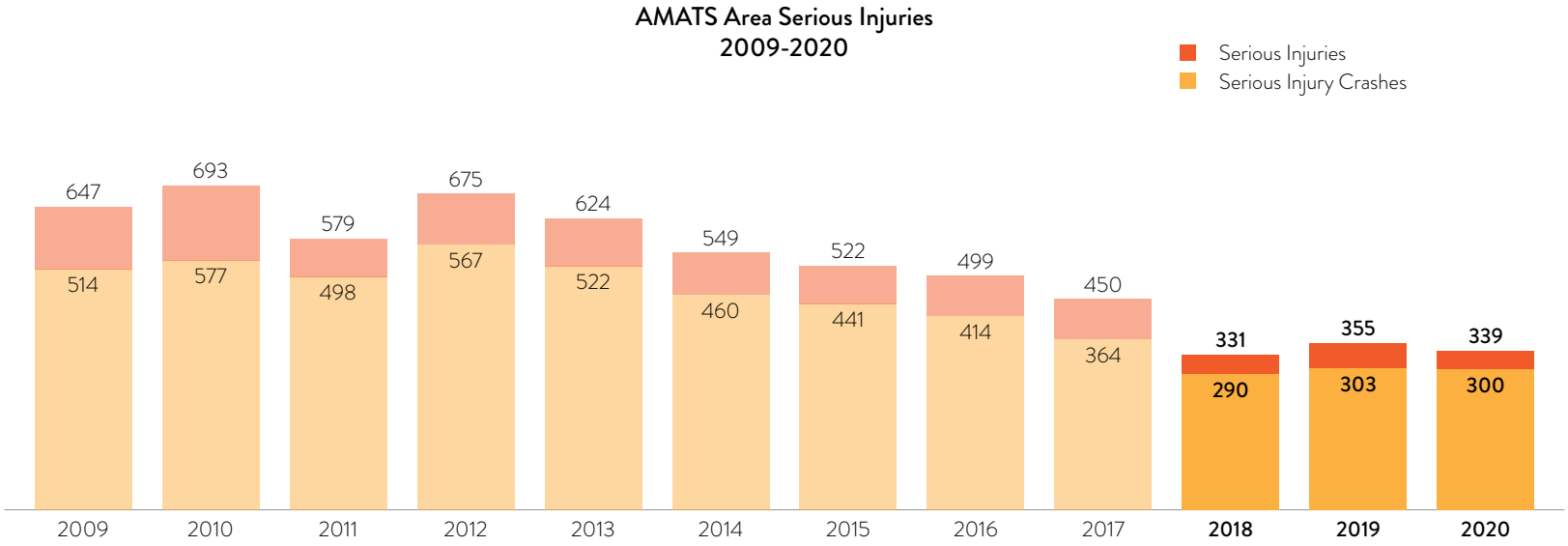
The pandemic in 2020 created a substantial decrease in Vehicle Miles Traveled (VMT) and in overall crashes. However, the number of fatalities in 2020 went up significantly. There is no clear explanation for this phenomenon other than speculation that less traffic led to higher speeds and more fatal crashes.

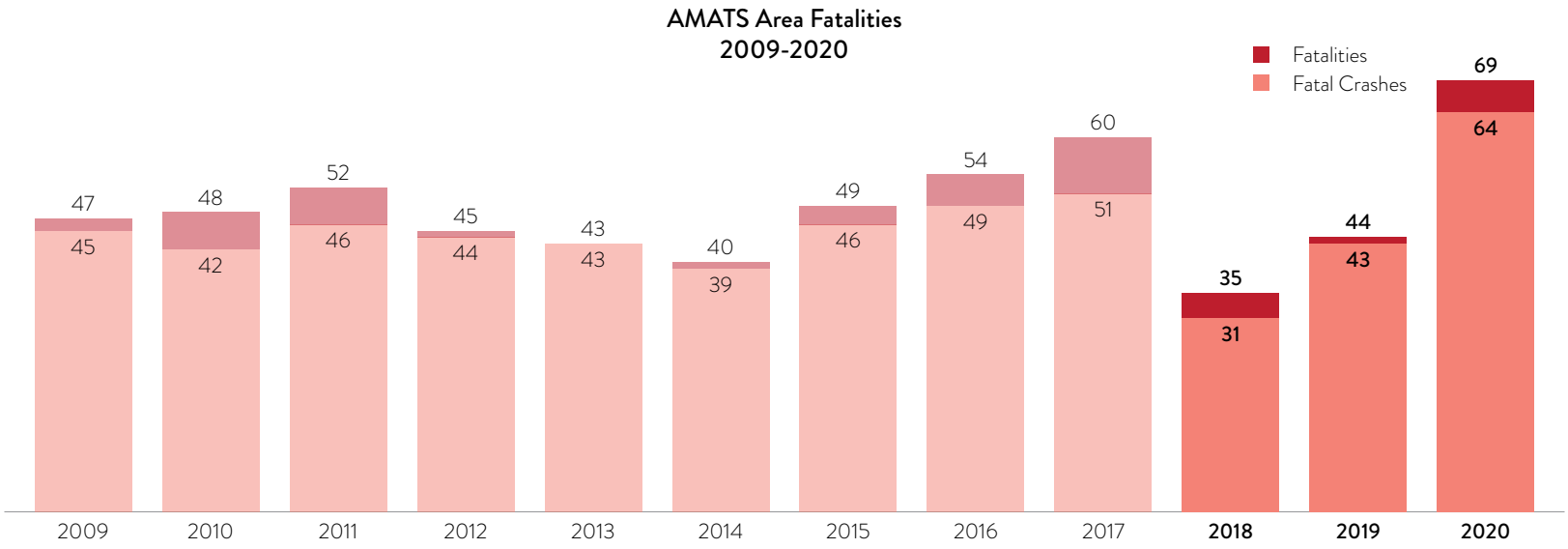
In 2020, the overall number of crashes in the AMATS area decreased by 2,809. This is nearly a 16% decrease from 2019. Injury crashes decreased by 567 or 14%, but fatal crashes increased by 21 or 49%.

The following graph shows the number of total crashes in the AMATS area between 2009 and 2020. The red line at the top shows thousands of daily vehicle miles traveled (kDVMT) in the AMATS area. This data was obtained from the ODOT Office of Technical Services. In 2020 kDVMT in the AMATS area decreased by 12.9% from 2019.



The following graphs show the number of serious injury crashes and fatal crashes as well as the resulting serious injuries and fatalities between 2009 and 2020. A crash is one event, but it may involve multiple vehicles or multiple occupants and result in multiple injuries or fatalities. Serious injury crashes and fatal crashes are hard to graph on the previous graph because they are such a small percentage of all crashes.





Methodology

The 2018-2020 Crash Report uses Geographic Information System (GIS) coordinates to plot crashes. Sometimes the coordinates are not correct in the imported data and crashes must be manually moved to their proper location based on the description on the police report. This is time-consuming, but necessary for an accurate report.

Another challenge is determining if a crash should be considered section or intersection related. Not all crashes that occur near an intersection are classified as intersection related. An example would be a single vehicle departing the roadway and hitting a tree at a location that just happens to be near an intersection. If the intersecting street is used as a reference, the crash then appears to be intersection related when, in reality, it wasn't. Most of the time the police officer's crash report must be reviewed to gain a better understanding of these types of crashes. The final decision is based on the location of the vehicles and the nature of the crash.

Once crashes are properly identified as intersection or section related, the crash is assigned a unique identification number for sorting of the crashes. The final step in GIS is to sum up all the crashes that occur within each unique intersection or section.

Once the analysis in GIS is done, a list of high crash sections and intersections is produced. This criterion has also changed since our last crash report. One of the most significant changes is not having a minimum crash rate and instead adding the criteria that 30 percent of the crashes at a location be fatal or injury related.

- The high crash criterion for roadway sections is 3 or more crashes per mile per year.
- The high crash criterion for intersections is 9 or more crashes in the three-year period.
- A minimum of 30 percent of the crashes at a location must be fatal or injury related for both roadway sections and intersections to be considered a high crash location.

Once the locations that meet the minimum criteria are obtained a final score is calculated based on where the location ranked according to number of crashes and where it ranked according to number of fatal and injury crashes.

High Crash Sections

A "section" is defined as a length of roadway between two logical termini such as intersections with other roadways. The length of a section is usually shorter in urban areas and could be miles long in a rural area. All roads in the AMATS area were considered, including those that are not federally classified.

- AMATS identified 160 high crash roadway sections that have 3 or more crashes per mile per year and at least 30 percent of the crashes are fatal or injury related over the three-year period.
- Table 1 on page 6 lists the 160 high crash roadway sections ranked by composite score. This table also notes if any crashes were bicycle or pedestrian related. Map 1 on page 10 shows the top 50 high crash roadway sections. A location in red font indicates at least one fatality.

Table 1: High Crash Sections 2018-2020

Rank	Roadway Section	Length (miles)	Average Daily Traffic	Total Crashes	Crashes per Mile per Year	Crashes per Mile per Year Rank	Percent Injury & Fatal	Injury & Fatal Rank	Sum of Rank Score	Bike Related	Ped Related	Location
1	M.L. King Blvd (SR 59) from W Market St Overpass to N Broadway St	0.35	20,088	27	26	3	44%	30	33	0	0	Akron
2	S Prospect St from Ravenna SCL to Lake Ave	0.19	9,959	6	11	29	50%	9	38	0	0	Ravenna
3	SR 59 from Brady Lake Rd (CR 162) to Ravenna West Corp Line	0.45	11,290	13	10	34	54%	5	39	0	0	Portage Co-Ravenna Twp
4	Wooster Rd W from Johnson Rd to 31st St	0.29	12,970	7	8	42	57%	3	45	0	0	Barberton
5	S Cleveland-Massillon Rd from I-77 to Rosemont Blvd/Elgin Dr	0.53	21,780	45	28	2	42%	48	50	0	0	Fairlawn
6	S Lincoln St from E Summit St to E Main St (SR 59)	0.26	6,970	6	8	45	50%	9	54	0	2	Kent
7	SR 44 from Tallmadge Rd (CR 18) to SR 5 (NB off from I-76)	0.63	12,347	41	22	6	41%	52	58	0	0	Portage Co-Rootstown Twp
8	Vernon Odom Blvd (SR 261) from East Ave (SR 93) to Rhodes Ave	0.50	8,916	13	9	38	46%	24	62	3	0	Akron
9	Massillon Rd (SR241) from Krumroy Rd (CR 130) to Oaks Dr / Akron SCL	0.29	8,752	5	6	61	60%	2	63	0	0	Summit Co-Springfield Twp
10	Copley Rd (SR 162) from Storer Ave to East Ave	0.36	12,430	22	20	8	41%	57	65	0	0	Akron
11	Barber Rd from Norton Ave to I-76	1.11	9,892	25	8	46	48%	20	66	0	0	Norton
11	E Highland Rd (CR111) from Chamberlin Rd (CR128) to Hadden Rd (TR129)	0.88	3,442	16	6	57	50%	9	66	0	0	Summit Co-Twinsburg Twp
13	SR 43 from Kent North Corp Line to Streetsboro South Corp Line	2.40	15,206	78	11	25	42%	46	71	0	0	Portage Co-Franklin Twp
14	Prospect St (CR 74) from Hayes Rd (CR 138) to Ravenna South Corp Line	0.43	9,640	7	5	72	57%	3	75	0	1	Portage Co-Ravenna Twp
14	SR 14 from SR 303 (E) to Diagonal Rd	2.01	18,606	110	18	10	39%	65	75	0	0	Streetsboro
16	SR 59 from SR 261 to Brady Lake Rd (CR 162)	2.55	16,334	81	11	27	42%	49	76	0	2	Portage Co-Ravenna Twp
17	5th St NE (SR 619) from Robinson Ave to State St	1.15	10,237	30	9	37	43%	40	77	0	2	Barberton
18	Cleveland Rd from Ravenna North Corp Line to Highland Ave	0.18	2,610	8	15	16	38%	73	89	2	0	Ravenna
19	E Tallmadge Ave (SR 261) from Home Ave to Brittain Rd	1.16	16,690	39	11	23	38%	67	90	0	2	Akron
19	SR 14 from Diagonal Rd to Streetsboro East Corp Line	1.30	18,250	34	9	36	41%	54	90	0	0	Streetsboro
21	N Forge St from Fountain St to N Arlington St	0.70	4,275	10	5	82	50%	9	91	0	1	Akron
21	State Rd from Cuyahoga Falls Corp Line to Broad Blvd	0.66	14,700	41	21	7	37%	84	91	1	0	Cuyahoga Falls
23	W Hopocan Ave from 8th St NW to Wooster Rd N	0.53	4,523	9	6	64	44%	30	94	0	0	Barberton
23	E Turkeyfoot Lake Rd (SR 619) from S Main St to Arlington Rd	1.56	11,970	36	8	44	42%	50	94	0	0	Green
25	SR 59 from Alpha Dr to SR 261	0.41	19,184	13	11	28	38%	67	95	0	0	Portage Co-Franklin Twp
26	N Aurora Rd (SR 43) from Treat Rd to Aurora NCL	0.78	14,329	14	6	59	43%	41	100	0	0	Aurora
27	Brittain Rd from Independence Ave to Howe Ave	0.56	6,530	9	5	75	44%	30	105	0	0	Akron
27	Arlington Rd from Greensburg Rd to Turkeyfoot Lake Rd (SR 619)	1.68	15,203	34	7	51	41%	54	105	0	0	Green
29	W Main St (SR 59) from Ravenna West Corp Line to Diamond St	0.57	11,290	19	11	24	37%	82	106	0	1	Ravenna
30	Gorge Blvd from Tallmadge Ave (SR 261) to Cuyahoga Falls Ave	0.95	6,605	20	7	49	40%	58	107	0	0	Akron
30	State Rd from Steels Corners Rd to Wyoga Lake Rd	1.79	10,949	25	5	87	48%	20	107	0	0	Cuyahoga Falls
30	SR 43 from SR 303 to Frost Rd	1.51	17,586	73	16	11	36%	96	107	0	1	Streetsboro
33	SR 585 from Benner Rd to SR 57	1.20	7,911	17	5	85	47%	23	108	0	0	Wayne Co-Milton Twp
33	SR 14 from Streetsboro East Corp Line to Cleveland Rd (CR 171)	2.23	16,812	41	6	56	41%	52	108	0	0	Portage Co-Ravenna Twp
35	SR 14/44 from Ravenna NE Corp Line to SR 59	1.00	14,406	42	14	18	36%	93	111	0	0	Portage Co-Ravenna Twp
36	W Summit St from Mogadore Rd to S Water St (SR 43)	0.16	6,300	2	4	103	50%	9	112	0	1	Kent
37	S Hawkins Ave from Vernon Odom Blvd (SR 261) to Copley Rd (SR 162)	1.31	9,813	32	8	41	38%	73	114	0	2	Akron
38	E Wilbeth Rd (SR 764) from S Main St to Brown St	0.87	7,088	14	5	74	43%	41	115	1	0	Akron
39	W Exchange St from Work Dr/S Portage Path to Rhodes Ave	0.36	10,460	11	10	31	36%	85	116	1	0	Akron
39	S Maple St from Glendale Ave to W Market St (SR 18)	0.27	4,710	15	19	9	33%	107	116	0	0	Akron
41	Wooster Rd W from 31st St to 14th St NW	1.01	12,657	46	15	15	35%	102	117	0	0	Barberton
42	Mogadore Rd from Cherry St to W Summit St	0.84	5,960	10	4	109	50%	9	118	0	0	Kent
43	SR 585 from Fulton Rd to Benner Rd	1.61	9,633	26	5	73	42%	46	119	0	1	Wayne Co-Milton Twp
44	Goodyear Blvd from Brittain Rd to Newton St	0.35	4,785	4	4	112	50%	9	121	0	0	Akron
44	Manchester Rd (SR 93) from SB Ramp to old Manchester Rd to East Ave	1.35	5,425	26	6	54	38%	67	121	0	1	Akron
46	Massillon Rd (SR 241) from Turkeyfoot Lake Rd (SR 619) to Killian Rd	1.50	10,246	19	4	100	47%	22	122	0	0	Green
47	SR 303 from Infirmary Rd (CR 164) to SR 44	1.19	5,500	13	4	118	54%	5	123	0	0	Portage Co-Shalersville Twp
48	Frederick Blvd from Vernon Odom Blvd (SR 261) to Diagonal Rd	0.18	8,510	2	4	115	50%	9	124	0	0	Akron

** Ranking is based on scoring system consisting of: number of crashes and percent of injury/fatal crashes. ** Red text denotes a section in which at least one fatal crash occurred.*

Table 1: High Crash Sections 2018-2020 (Continued)

Rank	Roadway Section	Length (miles)	Average Daily Traffic	Total Crashes	Crashes per Mile per Year	Crashes per Mile per Year Rank	Percent Injury & Fatal	Injury & Fatal Rank	Sum of Rank Score	Bike Related	Ped Related	Location
48	Medina Rd (SR 18) from Medina Line Rd (CR 2) to S Hametown Rd (CR253)	1.00	29,920	18	6	58	39%	66	124	0	0	Summit Co-Bath Twp/Copley Twp
48	Manchester Rd (SR 93) from State St (CR162) to Robinson Ave (CR 54)	0.89	14,406	35	13	20	34%	104	124	0	1	Summit Co-Coventry Twp
51	Main St from Howe Ave to Newberry St	0.45	11,370	11	8	40	36%	85	125	0	0	Cuyahoga Falls
52	W Aurora Rd (SR 82) from Cuyahoga County Line to Olde Eight Rd (CR 16)	2.69	13,057	40	5	81	43%	45	126	0	0	Summit Co-Sagamore Hills Twp
53	Frost Rd from Aurora-Hudson Rd to SR 43	1.56	9,960	20	4	98	45%	29	127	0	0	Streetsboro
54	Akron Rd (SR 585) from Wadsworth Rd (SR 57) to Easton (SR 604)/Mt Eaton (SR 94)	1.70	9,730	23	5	90	43%	39	129	0	0	Wayne Co-Chippewa Twp
55	SR 183 from German Church Rd (TR 49) to Waterloo Rd (US 224)	2.48	3,933	32	4	96	44%	36	132	0	0	Portage Co-Atwater Twp
55	S Water St (SR 43) from SR 261 to Cherry St	0.48	17,292	37	26	4	32%	128	132	0	1	Kent
55	N Main St (SR 91) from N River Rd to Munroe Falls North Corp Line	0.52	15,720	7	4	91	43%	41	132	0	0	Munroe Falls
58	Akron Rd (SR 585) from Mt Eaton Rd N Jct (SR 94) to Doylestown Rd (CR 70)	1.71	8,640	18	4	124	50%	9	133	0	0	Wayne Co-Chippewa Twp
59	Norton Ave/Fairview Ave from Wooster Rd N to 5th St NE (SR 619)	0.33	5,270	5	5	79	40%	58	137	0	0	Barberton
60	W Streetsboro Rd (SR 303) from Boston Heights WCL to Akron-Cleveland Rd	1.43	9,400	24	6	65	38%	73	138	1	0	Boston Heights
61	Rand Ave from Vernon Odom Blvd (SR 261) / Opportunity Pkwy to W Cedar St	0.48	3,860	8	6	66	38%	73	139	0	0	Akron
61	SR 14 from I-76 to SR 183	0.78	13,049	20	9	39	35%	100	139	0	0	Portage Co-Edinburg Twp
63	Cuyahoga St from N Howard St to Memorial Pkwy/E Tallmadge Ave	0.76	4,360	9	4	110	44%	30	140	0	0	Akron
63	Waterloo Rd from Wooster Rd N to Barberton Corp Line	0.35	5,435	5	5	82	40%	58	140	0	0	Barberton
63	Silver Meadows/Spaulding Dr from W Main St (SR 59) to Fairchild Ave	0.97	2,650	11	4	114	45%	26	140	0	0	Kent
66	Wooster Rd W from ramp to NB SR 21 to Johnson Rd	1.19	8,832	13	4	118	46%	24	142	0	0	Norton
66	Wall St (CR 159) from Red Brush Rd (CR 158) to Cleveland Rd (CR 171)	1.30	7,630	16	4	106	44%	36	142	0	0	Portage Co-Ravenna Twp
66	Ravenna Rd from Shepard Rd to Chamberlin Rd	0.79	11,994	21	9	35	33%	107	142	0	0	Twinsburg
69	S Hawkins Ave from Mull Ave Circle to W Market St (SR 18)	0.81	12,325	17	7	50	35%	97	147	0	1	Akron
70	Medina Rd (SR 18) from I-77 centerline to Cleveland-Massillon Rd (CR 17)	0.70	30,889	125	60	1	30%	148	149	0	1	Summit Co-Bath Twp/Copley Twp
71	W State St from W Bowery St to S Main St	0.40	2,533	4	3	141	50%	9	150	0	1	Akron
71	Brittain Rd from E Market St (SR 18) to Newton St	0.74	9,157	35	16	13	31%	137	150	0	1	Akron
73	Kent Rd (SR 59) from Darrow Rd (SR 91) to Fishcreek Rd	2.22	16,793	98	15	17	32%	134	151	1	1	Stow
74	Goodyear Blvd from Newton St to Eastwood Ave	0.84	4,008	8	3	151	75%	1	152	0	0	Akron
75	S Seiberling St from Triplett Blvd (SR 764) to Martha Ave	0.85	4,010	9	4	123	44%	30	153	0	0	Akron
76	S Canton Rd (SR 91) from E Market St (SR 18) to Mogadore Rd	0.55	10,588	12	7	48	33%	107	155	0	0	Akron
76	Diagonal Rd (CR 155) from SR 303 to Menonite Rd	2.91	3,608	58	7	52	34%	103	155	0	0	Portage Co-Shalersville Twp
78	SR 5 from SR 59 to Rock Spring Rd (CR 52)	3.01	9,310	32	4	122	44%	36	158	0	1	Portage Co-Charlestown Twp
78	SR 5 from SR 14 to SR 59	0.62	4,806	6	3	149	50%	9	158	0	0	Portage Co-Ravenna Twp
78	SR 43 from Stark County Line to US 224	2.74	7,279	26	3	153	54%	5	158	0	0	Portage Co-Suffield Twp
81	Euclid Ave from Diagonal Rd to Dart Ave	0.84	2,200	14	6	66	36%	93	159	0	0	Akron
81	E Main St (SR 59) from Prospect St to Freedom St (SR 88)	0.42	11,876	16	13	21	31%	138	159	0	0	Ravenna
83	W&E Tallmadge Ave from Cuyahoga Falls Ave to N Main St	0.43	9,365	16	12	22	31%	138	160	1	2	Akron
83	Lake St from N Water St to Kent ECL	1.08	6,240	11	3	134	45%	26	160	0	0	Kent
83	Ravenna Rd from Chamberlin Rd to Aurora Rd (SR 82)/Cannon Rd	3.03	9,638	31	3	132	45%	28	160	0	1	Twinsburg
86	Diagonal Rd from S Hawkins Ave to Superior Ave	0.59	4,940	8	5	89	38%	73	162	0	0	Akron
86	SR 14/44 from SR 59 to SR 5 (end SR 14 overlap)	0.39	17,345	27	23	5	30%	157	162	0	0	Portage Co-Ravenna Twp
88	Mogadore Rd (CR 81) from Tallmadge Rd (CR 18) to SR 261	2.52	7,770	43	6	62	35%	101	163	0	0	Portage Co-Brimfield Twp
88	W Market St (SR 18) from Smith Rd to Ghent Rd	0.71	20,490	33	15	14	30%	149	163	0	0	Fairlawn
90	Darrow Rd (SR 91) from Stow South Corp Line to Kent Rd (SR 59)	0.50	15,720	16	11	26	31%	138	164	0	0	Stow
91	Grace Ave from Stoner St to Copley Rd (SR 162)	0.41	4,820	5	4	107	40%	58	165	0	0	Akron
92	N Broadway St (SR 261) from E Market St (SR 18) to M.L. King Blvd (SR 59)	0.17	3,724	3	6	60	33%	107	167	0	0	Akron
92	SR 82 from Town Line Rd (TR 258) to SR 44	4.20	5,789	38	3	159	53%	8	167	0	1	Portage Co-Mantua Twp
94	S Arlington St from E Archwood Ave to 2nd Ave	1.18	12,335	57	16	12	30%	156	168	0	2	Akron
95	Wooster Rd N from Norton Ave to State St	0.50	11,850	20	13	19	30%	151	170	0	0	Barberton
96	Massillon Rd/Geo Washington (SR 241) from Oaks Dr/Akron Corp Line to E Waterloo Rd (US 224)	0.55	8,752	16	10	33	31%	138	171	0	0	Akron

** Ranking is based on scoring system consisting of: number of crashes and percent of injury/fatal crashes. ** Red text denotes a section in which at least one fatal crash occurred.*

Table 1: High Crash Sections 2018-2020 (Continued)

Rank	Roadway Section	Length (miles)	Average Daily Traffic	Total Crashes	Crashes per Mile per Year	Crashes per Mile per Year Rank	Percent Injury & Fatal	Injury & Fatal Rank	Sum of Rank Score	Bike Related	Ped Related	Location
96	SR 303 from Diagonal Rd (Streetsboro) to Diagonal Rd (Shalersville Twp)	0.90	6,670	9	3	141	44%	30	171	0	0	Portage Co-Shalersville Twp
98	Cherry St from Franklin Ave to S Water St (SR 43)	0.18	3,820	3	6	66	33%	107	173	0	0	Kent
98	W Turkeyfoot Lake Rd (SR 619) from State St to New Franklin East Corp Line	0.81	11,030	11	5	88	36%	85	173	0	1	New Franklin
98	N Chestnut St from Main St (SR 59) to Highland Ave	0.18	6,534	3	6	66	33%	107	173	0	0	Ravenna
101	Darrow Rd (SR 91) from Newton St to Akron Corp Line	0.85	13,883	26	10	30	31%	145	175	0	0	Akron
102	Smith Rd (CR116) from Owasso Ave to Sand Run Rd	0.96	14,210	29	10	32	31%	144	176	0	0	Summit Co-Bath Twp
103	Goodyear Blvd from Kelly Ave to Brittain Rd	0.70	5,449	7	3	138	43%	41	179	0	0	Akron
104	Massillon Rd (SR 241) from Greensburg Rd to Boettler Rd	1.91	16,104	37	6	53	32%	128	181	0	0	Green
105	Hazel St from N Arlington St to Eastwood Ave/Garry Rd	0.95	3,410	10	4	124	40%	58	182	0	0	Akron
105	SR 14 from Infirmary Rd (CR 164) to N Chestnut St/SR 44	0.86	14,946	19	7	47	32%	135	182	0	0	Portage Co-Ravenna Twp
107	E Turkeyfoot Lake Rd (SR 619) from Massillon Rd (SR 241) to Green East Corp Line	2.51	10,921	39	5	76	33%	107	183	0	1	Green
108	SR 14/44 from N Freedom St/SR 88 to Ravenna NE Corp Line	0.58	14,406	9	5	77	33%	107	184	0	0	Ravenna
109	Grant St from E South St to E Exchange St	0.88	5,375	11	4	104	36%	85	189	0	1	Akron
110	Stow Rd from Ravenna St to E Streetsboro St (SR 303)	0.98	8,405	10	3	133	40%	58	191	0	0	Hudson
111	Lauby Rd from Mt Pleasant Rd to Greensburg Rd	1.70	7,390	17	3	139	41%	54	193	0	0	Green
112	W State St from Wooster Rd N to Barberton Corp Line	0.86	8,154	20	8	43	30%	151	194	0	0	Barberton
113	Massillon Rd (SR 241) from Green South Corp Line to Greensburg Rd	1.67	9,490	19	4	113	37%	82	195	0	0	Green
114	Darrow Rd (SR 91) from Aurora Rd (SR 82) to Twinsburg NCL	2.62	12,373	35	4	92	34%	104	196	0	0	Twinsburg
115	S Main St from Center Rd to Turkeyfoot Lake Rd (SR 619)	2.24	10,120	37	6	71	32%	128	199	0	1	Green
115	SR 44 from SR 14 to SR 303	4.27	7,356	56	4	93	34%	106	199	0	0	Portage Co-Shalersville Twp
117	W Wilbeth Rd from Kenmore Blvd to Maryland Ave	0.77	3,875	8	3	127	38%	73	200	0	0	Akron
118	Graybill Rd from Massillon Rd (SR 241) to Mayfair Rd	1.55	5,840	16	3	128	38%	73	201	0	0	Green
118	W&E Main St from Mantua St to Water St	0.23	10,130	3	4	94	33%	107	201	0	1	Kent
120	N Chestnut St from Highland Ave to SR 14/SR 44	1.33	7,610	22	6	70	32%	132	202	0	1	Ravenna
120	SR 59 from SR 14/SR 44 to SR 5	0.78	4,898	8	3	129	38%	73	202	0	0	Portage Co-Ravenna Twp
122	SR 5/44 from Prospect St to SR 14	3.04	10,121	30	3	145	40%	58	203	0	0	Portage Co-Rootstown Twp
123	Barber Rd/Summit Rd from I-76 to Wadsworth Rd (SR 261)	1.02	6,299	11	4	120	36%	85	205	0	0	Norton
124	SR 183 from US 224 to Clark Rd (TR 121)	2.60	3,477	24	3	156	42%	50	206	0	1	Portage Co-Atwater Twp
125	SR 303 from SR 44 to SR 88	4.48	4,617	45	3	137	38%	72	209	0	0	Portage Co-Freedom Twp
125	Albrecht Ave (CR 44) from Akron ECL to S Cleveland Ave (SR532)	1.66	4,170	21	4	102	33%	107	209	0	0	Summit Co-Springfield Twp
127	Fishcreek Rd from Darrow Rd (SR 91) to Stow Rd	1.40	9,385	27	6	55	30%	157	212	0	0	Stow
128	Mayfair Rd from Graybill Rd to Turkeyfoot Lake Rd (SR 619)	1.34	5,985	13	3	147	38%	67	214	0	0	Green
129	S Hawkins Ave from Copley Rd (SR 162) to Mull Ave Circle	1.06	7,800	16	5	80	31%	138	218	0	0	Akron
129	E Highland Ave from N Chestnut St to Freedom St (SR 88)	0.51	5,350	6	4	111	33%	107	218	0	0	Ravenna
131	N Cleveland Ave (SR 532) from Mogadore Rd to Mogadore North Corp Line	1.08	6,821	11	3	134	36%	85	219	0	2	Mogadore
132	Massillon Rd (SR241) from Killian Rd (CR135) to Krumroy Rd (CR130)	1.39	10,682	13	3	154	38%	67	221	0	0	Summit Co-Springfield Twp
133	Springside Dr (CR537) from Medina Rd (SR 18) to Cleveland-Massillon Rd	0.81	3,830	9	4	115	33%	107	222	0	0	Summit Co-Bath Twp
133	Portage Trail/High St/School St from Newberry St/Munroe Falls Ave to Bailey Rd	0.54	4,180	6	4	115	33%	107	222	0	0	Cuyahoga Falls
135	Second St from Front St to Broad Blvd	0.83	3,873	8	3	150	38%	73	223	0	1	Cuyahoga Falls
135	E Streetsboro St (SR 303) from Main St (SR 91) to Hayden Pkwy	0.84	8,180	13	5	78	31%	145	223	0	0	Hudson
135	SR 43 from Streetsboro South Corp Line to SR 303	2.58	15,505	44	6	63	30%	160	223	0	0	Streetsboro
138	Bellows St from N Firestone Blvd to Crosier St	1.13	2,120	16	5	86	31%	138	224	0	1	Akron
139	S Chillicothe Rd (SR 43) from Mennonite Rd to Aurora-Hudson Rd	1.10	13,340	11	3	141	36%	85	226	0	0	Aurora
139	US422 from Geauga County Line to Trumbull County Line	1.93	10,778	25	4	95	32%	131	226	0	0	Portage Co-Nelson Twp
141	Copley Rd (SR162) from Medina Line Rd (CR 2) to SR 21 centerline	1.66	6,445	17	3	130	35%	97	227	0	0	Summit Co-Copley Twp
141	Waterloo Rd (CR450) from US224 to Portage Line Rd (CR 5)/(CR 7)	1.66	3,975	17	3	130	35%	97	227	0	0	Summit Co-Springfield Twp
143	Mogadore Rd from Gilchrist Rd to Cleveland Ave (SR 532)	0.28	7,020	3	4	121	33%	107	228	0	0	Mogadore
144	Portage Lakes Dr (CR 75) from Manchester Rd (SR 93) to S Turkeyfoot Rd (CR123)	1.38	7,673	14	3	136	36%	93	229	0	0	Summit Co-Coventry Twp

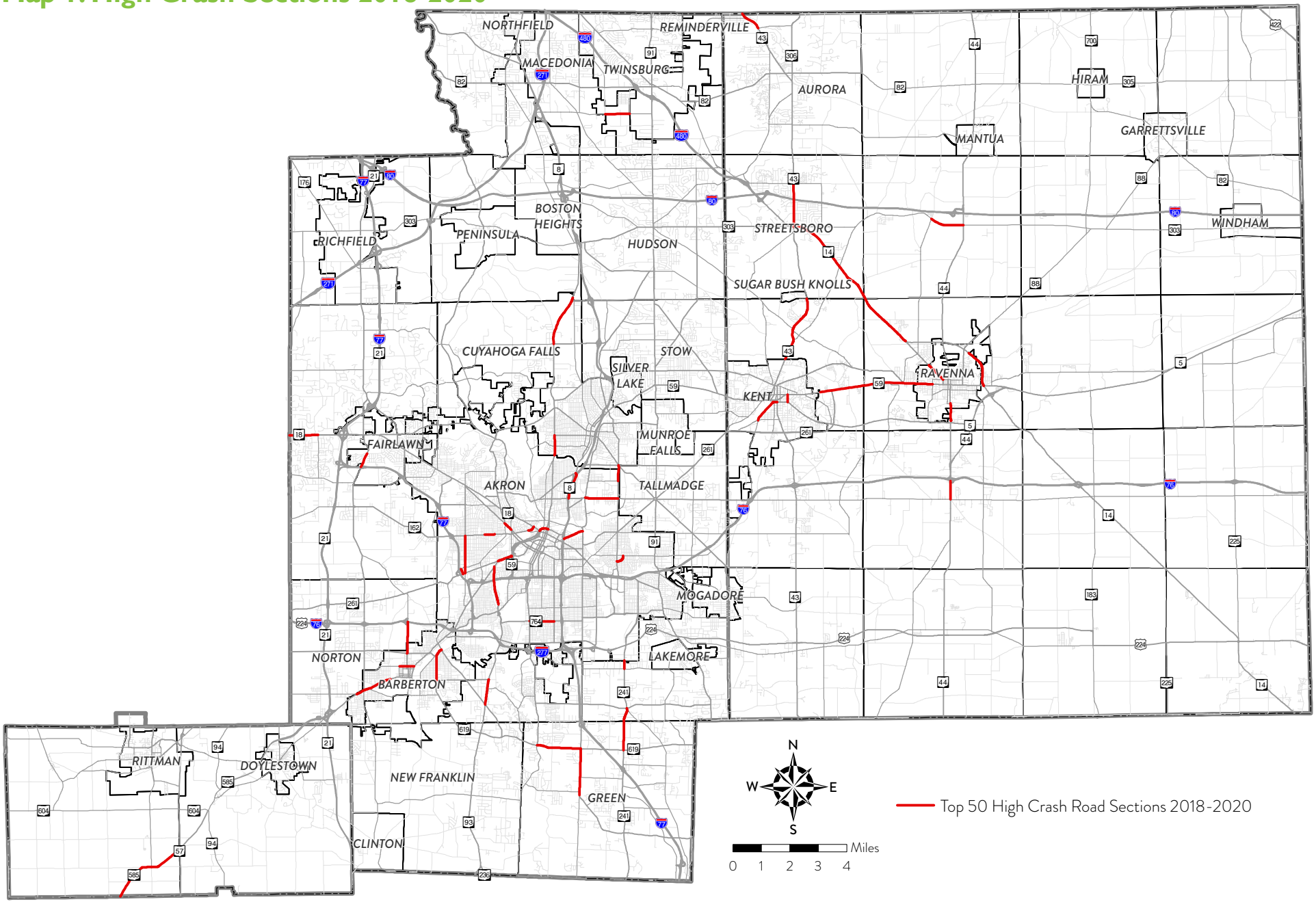
** Ranking is based on scoring system consisting of: number of crashes and percent of injury/fatal crashes. ** Red text denotes a section in which at least one fatal crash occurred.*

Table 1: High Crash Sections 2018-2020 (Continued)

Rank	Roadway Section	Length (miles)	Average Daily Traffic	Total Crashes	Crashes per Mile per Year	Crashes per Mile per Year Rank	Percent Injury & Fatal	Injury & Fatal Rank	Sum of Rank Score	Bike Related	Ped Related	Location
145	Munroe Falls Ave from Munroe Falls West Corp Line to Main St	0.57	7,970	6	4	124	33%	107	231	0	0	Munroe Falls
146	Albrecht Ave from Canton Rd (SR 91) to Akron Corp Line	0.70	8,830	10	5	82	30%	151	233	0	0	Akron
147	Ghent Rd (CR 98) from Smith Rd (CR116) to Cleveland-Massillon Rd (CR 17)	1.76	13,200	22	4	104	32%	132	236	0	0	Summit Co-Bath Twp
148	W Bath Rd from Akron/Cuy Falls CL to Northampton Rd	1.18	3,872	11	3	155	36%	85	240	0	0	Cuyahoga Falls
149	Boettler Rd from Arlington Rd to Massillon Rd (SR 241)	1.50	10,725	15	3	139	33%	107	246	1	0	Green
149	Manchester Rd (SR 93) from Canal Fulton Rd (SR 236) to Center Rd	2.56	8,243	33	4	97	30%	149	246	0	1	New Franklin
149	Valley View Rd (CR 25) from Sagamore Rd (TR 1) to Olde Eight Rd (CR 16)	3.63	9,723	46	4	99	30%	147	246	0	0	Summit Co-Sagamore Hills Twp
152	Hillsdale Ave/W Hopocan Ave from Shannon Ave to 8th St NW	0.91	3,417	9	3	144	33%	107	251	0	0	Barberton
153	SR 14/44 from N Chestnut St/SR 44 to N Freedom St/SR 88	0.79	12,150	10	4	101	30%	151	252	0	0	Ravenna
154	Tallmadge Rd (CR 18) from SR 43 to Sandy Lake Rd (CR 89)	1.53	7,175	15	3	146	33%	107	253	0	0	Portage Co-Brimfield Twp
155	N Firestone Blvd from Brown St to Arlington St	0.99	2,113	9	3	157	33%	107	264	0	0	Akron
156	Firestone Blvd from S Main St to N/S Firestone Blvd	0.33	3,879	3	3	158	33%	107	265	0	0	Akron
156	Darrow Rd (SR 91) from Stow Rd to Fishcreek Rd	2.22	12,440	27	4	108	30%	157	265	0	0	Stow
158	W Bath Rd from Northampton Rd to Akron Corp Line	1.00	6,340	9	3	160	33%	107	267	0	0	Cuyahoga Falls
159	Summit Rd (CR 148) from SR 261 to Lakewood Rd (CR 151)	1.96	8,065	19	3	148	32%	135	283	0	0	Portage Co-Franklin Twp
160	N Cleveland-Massillon Rd (CR 17) from Ghent Rd (CR 98) to W Bath Rd (CR114)	1.05	13,265	10	3	151	30%	151	302	0	0	Summit Co-Bath Twp

** Ranking is based on scoring system consisting of: number of crashes and percent of injury/fatal crashes. ** Red text denotes a section in which at least one fatal crash occurred.*

Map 1: High Crash Sections 2018-2020



High Crash Intersections

Crashes that occur within a radius of 250 feet from the center of an intersection and involve at least two vehicles are usually considered an intersection related crash. Exceptions to this rule were driveway related crashes and crashes that had non-intersection characteristics such as departing from the intersection. All intersections in the AMATS area were considered, including those of roads that are not federally classified.

- AMATS identified 202 intersections (186 overall ranks) that have a minimum of 9 crashes and at least 30 percent of the crashes are fatal or injury related over the three-year period.
- Table 2 on page 12 lists the 202 high crash intersections ranked by composite score. This table also notes if any crashes were bicycle or pedestrian related. Map 2 on page 17 shows the top 50 high crash intersections. A location in red font indicates at least one fatality.

Once the locations that meet the minimum criteria are obtained a final score is calculated based on where the location ranked according to number of crashes and where it ranked according to number of fatal and injury crashes.

High Crash Freeway Locations

The analysis of freeway crashes in the AMATS area is done by the central office of the Ohio Department of Transportation (ODOT) in Columbus. ODOT's analysis of freeways is done using methodology from the Highway Safety Manual. The freeway system is divided into rural and urban and is analyzed by examining segments that are one-tenth of a mile long. ODOT only considers the top 50 rural and top 50 urban locations statewide for further study. For further information about top freeway crash locations along with other 2018 HSIP Priority Locations from ODOT please follow the accompanying link presented below. Please note that 2019 HSIP Priority Locations have not yet been released.

http://www.dot.state.oh.us/Divisions/Planning/ProgramManagement/HighwaySafety/HSIP/Pages/Priority-Lists-Initiatives.aspx

Table 2: High Crash Intersections 2018-2020

Rank	Street and Intersecting Street(s)	Approach Average Daily Traffic	Total Crashes	Total Crashes Rank	Percent Injury & Fatal	Injury & Fatal Rank	Sum of Rank Score	Bike Related	Ped Related	Location
1	US 224 and SR 225	8,338	25	22	60%	11	33	0	0	Portage Co-Deerfield Twp
2	SR 14 and SR 44/N Chestnut St	22,175	32	15	47%	38	53	0	1	Ravenna
3	SR 82 and Mantua Center Rd	10,720	18	55	61%	9	64	0	0	Portage Co-Mantua Twp
3	SR 14 and Cleveland Rd	8,755	18	55	61%	9	64	0	0	Portage Co-Ravenna Twp
5	SR 88 and SR 305	4,743	22	38	50%	28	66	0	0	Portage Co-Hiram Twp
6	Copley Rd (SR 162) and Madison Ave	14,005	18	55	56%	16	71	0	1	Akron
7	SR 585 and Eastern Rd	17,404	24	28	46%	48	76	0	0	Norton
8	SR 14 and Infirmary Rd	7,650	16	70	63%	7	77	0	0	Portage Co-Ravenna Twp
9	Diagonal Rd and Mennonite Rd	4,800	17	63	59%	15	78	0	0	Portage Co-Mantua Twp
9	SR 14 and Mondial Pkwy/Singletary Dr	27,030	57	3	42%	75	78	0	0	Streetsboro
11	US 224 and Portage Line Rd (SR 532)	19,400	19	52	47%	35	87	0	0	Portage Co-Suffield Twp
11	E Aurora Rd (SR 82) and Hadden Rd/Wilcox Dr	20,299	22	38	45%	49	87	0	0	Twinsburg
13	N Howard St and Glenwood Ave	8,775	25	22	44%	67	89	0	0	Akron
13	SR 43 and E Howe Rd	20,970	25	22	44%	67	89	0	0	Portage Co-Brimfield Twp
15	Wadsworth Rd (SR 261) and S Hametown Rd	7,354	14	92	71%	2	94	0	0	Norton
15	Cleveland Massillon Rd and Eastern Rd	7,182	14	92	71%	2	94	0	0	Norton
17	SR 261 and Franklin Ave/Sunnybrook Rd	10,762	15	86	60%	11	97	0	0	Kent
17	SR 82 and Chamberlain Rd	7,650	14	92	64%	5	97	0	0	Portage Co-Mantua Twp
19	SR 57 and SR 585	15,522	16	70	50%	28	98	0	0	Wayne Co-Chippewa Twp
19	Darrow Rd (SR 91) and Terex Rd	25,550	35	11	40%	87	98	0	0	Hudson
21	Riverview Rd and Ira Rd	5,266	17	63	47%	36	99	0	0	Cuyahoga Falls
21	S Miller Rd and Chamberlain Rd	14,970	17	63	47%	36	99	0	0	Fairlawn
23	S Maple St (SR 162) and W Cedar St	13,820	27	19	41%	86	105	0	1	Akron
24	S Arlington St (SR 764) and Triplett Blvd (SR 764)	19,950	18	55	44%	53	108	0	0	Akron
24	SR 43 and Old Forge Rd	12,350	18	55	44%	53	108	0	0	Portage Co-Brimfield Twp
24	Broad Blvd and 2nd St	19,720	18	55	44%	53	108	0	0	Cuyahoga Falls
27	Bellows St and Crosier St	3,230	25	22	40%	87	109	0	0	Akron
27	Triplett Blvd (SR 764) and Kelly Ave/Lindsay Ave	15,507	25	22	40%	87	109	0	0	Akron
29	Medina Rd (SR 18) and Medina Line Rd	16,033	13	102	62%	8	110	0	0	Summit Co-Bath Twp/Copley Twp
30	US 224 and SR 43	14,150	21	42	43%	71	113	0	0	Portage Co-Suffield Twp
31	Rhodes Ave and W Thornton St	8,930	14	92	50%	28	120	0	0	Akron
31	Middleton Rd and Stow Rd	9,399	14	92	50%	28	120	0	0	Hudson
33	S Arlington St and S Case Av/Johnston St	15,285	38	8	37%	114	122	0	0	Akron
33	SR 14 and Market Square Dr	33,700	38	8	37%	114	122	0	0	Streetsboro
35	Kent Rd (SR 59) and Darrow Rd (SR 91)	22,175	22	38	41%	85	123	1	0	Stow
36	Eastern Rd and Portage St/Wooster Rd W	4,700	15	86	47%	39	125	0	0	Wayne Co-Chippewa Twp
36	State Rd and Valley Rd	18,765	15	86	47%	39	125	0	1	Cuyahoga Falls
36	SR 59 and Brady Lake Rd/Hoover Rd	19,170	15	86	47%	39	125	0	0	Portage Co-Ravenna Twp
36	SR 43 and Randolph Rd	10,238	15	86	47%	39	125	0	0	Portage Co-Suffield Twp
40	Brittain Rd and Newton St	16,610	13	102	54%	25	127	0	0	Akron
40	N Main St (SR 261) and Olive St	15,620	13	102	54%	25	127	0	1	Akron
40	Steels Corners Rd and Wyndham Ridge Dr	15,270	13	102	54%	25	127	0	0	Stow
43	Wadsworth Rd (SR 57) and Easton Rd (SR 604)	7,619	12	125	67%	4	129	0	0	Wayne Co-Chippewa Twp
44	E Wilbeth Rd (SR 764) and Brown St	15,620	24	28	38%	102	130	0	0	Akron
44	Wooster Rd N and Wooster Rd W/Robinson Ave	16,623	23	35	39%	95	130	0	0	Barberton
44	Manchester Rd (SR 93) and Robinson Ave	24,680	24	28	38%	102	130	0	2	Summit Co-Coventry Twp
44	Massillon Rd (SR 241) and E Turkeyfoot Lake Rd (SR 619)	23,098	24	28	38%	102	130	0	0	Green
44	SR 21 and Eastern Rd	21,130	24	28	38%	102	130	0	1	Norton

** Ranking is based on scoring system consisting of: number of crashes and percent of injury/fatal crashes. ** Red text denotes an intersection at which at least one fatal crash occurred.*

Table 2: High Crash Intersections 2018-2020 (Continued)

Rank	Street and Intersecting Street(s)	Approach Average Daily Traffic	Total Crashes	Total Crashes Rank	Percent Injury & Fatal	Injury & Fatal Rank	Sum of Rank Score	Bike Related	Ped Related	Location
49	S Broadway St and Rosa Parks Dr	13,618	58	2	34%	130	132	0	0	Akron
50	W Market St (SR 18) and Smith Rd	24,604	30	17	37%	117	134	0	0	Fairlawn
50	SR 5/44 and Lynn Rd	11,842	30	17	37%	117	134	0	0	Portage Co-Rootstown Twp
52	S Broadway St and E Miller Ave	16,680	42	6	33%	133	139	0	3	Akron
52	SR 261 and Mogadore Rd	14,930	16	70	44%	69	139	0	0	Kent
52	SR 44 and Tallmadge Rd	13,865	16	70	44%	69	139	0	0	Portage Co-Rootstown Twp
55	N Howard St and North St	23,192	35	11	34%	132	143	0	2	Akron
55	S Arlington Rd and Nimisila Rd	5,470	11	142	73%	1	143	0	0	Green
57	Eastwood Ave and Morningview Ave	8,290	13	102	46%	43	145	0	0	Akron
57	Brown St and E Thornton St	6,570	17	63	41%	82	145	0	0	Akron
57	S Arlington St and 2nd St/Martin St/I-76 WB Off-ramp	14,160	17	63	41%	82	145	0	0	Akron
57	W Hopocan Ave and 15th St NW	7,000	13	102	46%	43	145	1	0	Barberton
57	SR 59 and Rhodes Rd/Ashton Ln	18,497	13	102	46%	43	145	0	0	Portage Co-Franklin Twp
57	E Main St and Depeyster St	8,900	13	102	46%	43	145	0	2	Kent
57	US 224 and E Waterloo Rd	16,580	13	102	46%	43	145	0	0	Summit Co-Springfield Twp
57	Kent Rd (SR 59) and Marsh Rd	19,340	17	63	41%	82	145	0	1	Stow
65	S Miller Rd and Ridgewood Rd /I-77 Ramps	28,552	32	15	34%	131	146	0	0	Fairlawn
66	E Market St (SR 18) and Main St	27,289	33	14	33%	133	147	1	1	Akron
67	Waterloo Rd and Portage Line Rd	11,080	11	142	64%	6	148	0	0	Portage Co-Suffield Twp
68	E Waterloo Rd and Coventry St/I-77 SB Off-ramp	15,440	18	55	39%	96	151	0	0	Akron
69	Vernon Odom Blvd (SR 261) and Superior Ave	13,265	27	19	33%	133	152	0	0	Akron
70	Vernon Odom Blvd (SR 261) and Rand St/Rhodes Ave	9,069	22	38	36%	119	157	0	0	Akron
71	SR 14/SR 303 and SR 43	41,044	102	1	32%	157	158	0	0	Streetsboro
72	S Maple St (SR 162) and Rhodes Ave	13,195	24	28	33%	133	161	1	0	Akron
72	SR 14/44 and N Freedom St (SR 88)	21,190	24	28	33%	133	161	0	0	Ravenna
74	E Wilbeth Rd (SR 764) and Sylvan Ave	10,034	11	142	55%	21	163	0	0	Akron
74	Diagonal Rd and East Ave	7,270	14	92	43%	71	163	1	0	Akron
74	E Exchange St and Fountain St	13,400	11	142	55%	21	163	0	0	Akron
74	E Market St (SR 18) and Goodkirk St	19,910	14	92	43%	71	163	0	0	Akron
74	Howe Ave and Cliffside Dr	24,955	11	142	55%	21	163	0	0	Cuyahoga Falls
74	SR 59 and Apple Blossom Dr	14,570	11	142	55%	21	163	0	1	Portage Co-Franklin Twp
74	S Water St (SR 43) and Beryl Dr	17,992	14	92	43%	71	163	0	0	Kent
81	Archwood Ave and Inman St	9,760	19	52	37%	114	166	0	0	Akron
82	Copley Rd (SR 162) and Noble Ave	13,520	10	156	60%	11	167	0	0	Akron
82	Portage Trail and 3rd St	22,750	10	156	60%	11	167	0	1	Cuyahoga Falls
82	S Arlington Rd and Arlington Ridge	22,860	41	7	32%	160	167	0	1	Green
85	Wooster Rd W and 31st St	21,810	34	13	32%	157	170	0	2	Barberton
86	Smith Rd and Sand Run Rd	12,770	16	70	38%	102	172	0	0	Akron
86	W Market St (SR 18) and Hampshire Rd	17,540	16	70	38%	102	172	0	0	Fairlawn
86	Cleveland Massillon Rd and Elgin Rd/Rosemont Blvd	16,515	16	70	38%	102	172	0	0	Fairlawn
86	N Chestnut St and Loomis Pkwy	9,410	16	70	38%	102	172	0	0	Ravenna
86	Massillon Rd (SR 241) and Krumroy Rd	13,305	16	70	38%	102	172	0	0	Summit Co-Springfield Twp
86	Killian Rd and Pickle Rd	9,500	16	70	38%	102	172	0	0	Summit Co-Springfield Twp
86	West Ave (SR 261) and Thomas Rd	15,937	16	70	38%	102	172	0	1	Tallmadge
86	E Aurora Rd (SR 82) and Ravenna Rd (SR 82)/Cannon Rd/Ravenna Rd	24,120	16	70	38%	102	172	0	0	Twinsburg
94	S Arlington St and 5th Ave	14,700	20	45	35%	128	173	0	1	Akron
94	State Rd and Broad Blvd	22,010	20	45	35%	128	173	0	0	Cuyahoga Falls
96	Buchtel Ave and Goodkirk St	24,240	21	42	33%	133	175	0	0	Akron

** Ranking is based on scoring system consisting of: number of crashes and percent of injury/fatal crashes.* *** Red text denotes an intersection at which at least one fatal crash occurred.*

Table 2: High Crash Intersections 2018-2020 (Continued)

Rank	Street and Intersecting Street(s)	Approach Average Daily Traffic	Total Crashes	Total Crashes Rank	Percent Injury & Fatal	Injury & Fatal Rank	Sum of Rank Score	Bike Related	Ped Related	Location
96	W Exchange St and Rand Ave	14,630	21	42	33%	133	175	1	0	Akron
98	E Market St (SR 18) and Canton Rd (SR 91)/Robindale Ave	19,416	25	22	32%	159	181	0	0	Akron
99	Kenmore Blvd and 12th St	9,670	10	156	50%	28	184	1	0	Akron
99	Brown St and Stanton Ave	7,400	10	156	50%	28	184	0	0	Akron
99	MLK Jr. Blvd (SR 59) and N Broadway St (SR 261)	22,402	43	5	30%	179	184	0	0	Akron
99	Massillon Rd (SR 241) and Graybill Rd	20,639	10	156	50%	28	184	0	0	Green
103	Portage Trail and 2nd St	29,350	36	10	31%	176	186	1	0	Cuyahoga Falls
104	S Main St and Wilbeth Rd (SR 764)	20,443	26	21	31%	166	187	1	0	Akron
105	S Arlington Rd and Boettler Rd	18,685	18	55	33%	133	188	0	0	Green
106	Broad Blvd and Front St	12,473	17	63	35%	127	190	1	1	Cuyahoga Falls
107	Brittain Rd and Chapman Dr	14,990	11	142	45%	49	191	0	0	Akron
107	Hines Hill Rd and SR 8 SB Off Ramp/Dean Memorial Pkwy	8,270	11	142	45%	49	191	0	0	Boston Heights
107	Graham Rd and Lillis Dr	10,160	11	142	45%	49	191	0	0	Cuyahoga Falls
110	N Main St and Iuka Ave	11,720	9	183	56%	16	199	0	1	Akron
110	E Market St (SR 18) and Union St	19,835	13	102	38%	97	199	1	0	Akron
110	S Hawkins Ave and Stoner St	10,985	13	102	38%	97	199	0	0	Akron
110	SR 14 and Alliance Rd	10,350	9	183	56%	16	199	0	0	Portage Co-Atwater Twp
110	Wooster Rd W and 6th St NW	12,000	9	183	56%	16	199	0	0	Barberton
110	E Turkeyfoot Lake Rd (SR 619) and Cottage Grove Rd	22,625	13	102	38%	97	199	0	0	Green
110	Olde Eight Rd and Twinsburg Rd	8,755	13	102	38%	97	199	0	0	Summit Co-Northfield Ctr Twp
110	SR 5/44 and Sandy Lake Rd	7,733	9	183	56%	16	199	0	0	Portage Co-Rootstown Twp
110	Myersville Rd and Killian Rd	6,810	13	102	38%	97	199	0	0	Summit Co-Springfield Twp
119	Copley Rd (SR 162) and Wildwood Ave	13,410	12	125	42%	76	201	0	0	Akron
119	Bellows St and Archwood Ave	10,034	12	125	42%	76	201	0	0	Akron
119	Memorial Pkwy and Aquaduct St/Royal Ave	11,840	12	125	42%	76	201	0	0	Akron
119	S Arlington Rd and Krumroy Rd/Thierry Ave	16,240	12	125	42%	76	201	0	0	Summit Co-Coventry Twp
119	Darrow Rd (SR 91) and Barlow Rd	28,552	12	125	42%	76	201	0	0	Hudson
119	N Chestnut St and Highland Ave	9,050	12	125	42%	76	201	0	0	Ravenna
125	MLK Jr. Blvd (SR 59) and N High St (SR 261)	25,308	47	4	30%	202	206	0	0	Akron
126	W Cedar St and Dart Ave	12,600	23	35	30%	177	212	0	0	Akron
126	SR 43 and Tallmadge Rd	19,640	23	35	30%	177	212	0	1	Portage Co-Brimfield Twp
128	SR 303 and SR 8 NB Off Ramp	20,971	19	52	32%	161	213	1	0	Boston Heights
129	Steels Corners Rd and Bridgewater Pkwy/Steels Pointe	21,776	14	92	36%	125	217	0	0	Stow
129	SR 14 and Superior Ave	25,085	14	92	36%	125	217	0	0	Streetsboro
131	SR 261 and Middlebury Rd	10,385	15	86	33%	133	219	0	0	Tallmadge
132	S Maple St (SR 162) and W Exchange St	18,367	20	45	30%	180	225	1	0	Akron
132	Medina Rd (SR 18) and Heritage Woods Dr	33,290	20	45	30%	180	225	0	0	Summit Co-Bath Twp/Copley Twp
132	Cleveland Massillon Rd and Brookwall Dr	22,105	20	45	30%	180	225	0	0	Fairlawn
132	Fishcreek Rd and Stow Rd	18,855	20	45	30%	180	225	0	0	Stow
132	SR 14 and SR 303 (E Jct)/Ranch Rd	24,680	20	45	30%	180	225	0	0	Streetsboro
137	Darrow Rd (SR 91) and Newton St	17,595	16	70	31%	162	232	0	1	Akron
137	S Main St and N Turkeyfoot Rd	31,551	16	70	31%	162	232	0	0	Summit Co-Coventry Twp
137	Brookmont Dr and Brookwall Dr	6,020	16	70	31%	162	232	0	0	Fairlawn
137	Cleveland Canton Rd (SR 43) and Frost Rd	22,500	16	70	31%	162	232	0	0	Streetsboro
141	Garman Rd and Castle Blvd	10,320	9	183	44%	53	236	0	0	Akron
141	Wooster Rd N and Oakwood St	18,820	9	183	44%	53	236	0	0	Barberton
141	Broad Blvd and 4th St	16,700	9	183	44%	53	236	0	0	Cuyahoga Falls
141	Mayfair Rd and Wise Rd	19,740	9	183	44%	53	236	0	0	Green

** Ranking is based on scoring system consisting of: number of crashes and percent of injury/fatal crashes. ** Red text denotes an intersection at which at least one fatal crash occurred.*

Table 2: High Crash Intersections 2018-2020 (Continued)

Rank	Street and Intersecting Street(s)	Approach Average Daily Traffic	Total Crashes	Total Crashes Rank	Percent Injury & Fatal	Injury & Fatal Rank	Sum of Rank Score	Bike Related	Ped Related	Location
141	S Arlington Rd and Greensburg Rd	28,390	9	183	44%	53	236	0	0	Green
141	W Aurora Rd (SR 82) and Boyden Rd	17,640	9	183	44%	53	236	0	0	Summit Co-Sagamore Hills Twp
141	Valley View Rd and Acada Dr/Boyden Rd	12,290	9	183	44%	53	236	0	0	Summit Co-Sagamore Hills Twp
141	Cleveland Canton Rd (SR 43) and Seasons Rd	15,530	9	183	44%	53	236	0	0	Streetsboro
141	Randolph Rd and Martin Rd	6,730	9	183	44%	53	236	0	0	Portage Co-Suffield Twp
141	E Aurora Rd (SR 82) and Dutton Dr	17,070	9	183	44%	53	236	0	0	Twinsburg
141	Ravenna Rd and Ofr Joshua T. Miktarian Memorial Pkwy	12,280	9	183	44%	53	236	1	0	Twinsburg
152	N Main St (SR 261) and York St	8,840	10	156	40%	87	243	0	0	Akron
152	SR 59 and 6th Ave	20,834	10	156	40%	87	243	0	0	Portage Co-Franklin Twp
152	E Main St (SR 59) and Linden St	17,150	10	156	40%	87	243	0	0	Ravenna
152	S Prospect St and Sandy Lake Rd	10,460	10	156	40%	87	243	0	0	Portage Co-Rootstown Twp
152	Canton Rd and Tisen Rd	13,350	10	156	40%	87	243	0	0	Summit Co-Springfield Twp
157	W Exchange St and S Portage Path/Work Dr	13,280	12	125	33%	133	258	0	0	Akron
157	W Market St (SR 18) and Frank Blvd	12,335	12	125	33%	133	258	1	0	Akron
157	N Arlington St and Hazel St	7,445	12	125	33%	133	258	0	0	Akron
157	S High St and Bartges St	17,170	12	125	33%	133	258	0	0	Akron
157	White Pond Dr and I-77 SB Ramps	16,305	12	125	33%	133	258	0	0	Akron
157	Old Forge Rd and Mogadore Rd	4,280	12	125	33%	133	258	0	0	Portage Co-Brimfield Twp
157	W Summit St and Franklin Ave	11,615	12	125	33%	133	258	0	0	Kent
157	Canton Rd and Sanitarium Rd	12,615	12	125	33%	133	258	0	1	Lakemore
157	SR 44 and Pioneer Trail	8,140	12	125	33%	133	258	0	0	Portage Co-Mantua Twp
157	Streetsboro Rd (SR 303) and Mt Vernon Dr/Superior Ave	8,530	12	125	33%	133	258	0	0	Streetsboro
167	Innovation Way (SR 241) and 3rd Ave/I-76 WB ramps	9,330	11	142	36%	119	261	0	0	Akron
167	Portage Trail and 13th St (W Jct)	15,390	11	142	36%	119	261	1	0	Cuyahoga Falls
167	Gougler Ave (SR 43) and River (SR 43)/W Main St	16,325	11	142	36%	119	261	0	0	Kent
167	SR 14 and Portage Pointe Dr	20,990	11	142	36%	119	261	0	0	Streetsboro
167	SR 14 and Deer Meadow Blvd	18,500	11	142	36%	119	261	0	0	Streetsboro
172	Bartges St and Dart Ave	6,845	13	102	31%	166	268	0	0	Akron
172	S Hawkins Ave and Mull Ave	10,535	13	102	31%	166	268	1	0	Akron
172	Kelly Ave and Archwood Ave	11,760	13	102	31%	166	268	0	0	Akron
172	Wooster Rd N and Burt St	11,360	13	102	31%	166	268	0	0	Barberton
172	Hudson Dr and Terex Rd	13,820	13	102	31%	166	268	0	0	Hudson
172	Mantua St (SR 43) and W Main St	11,570	13	102	31%	166	268	0	0	Kent
172	SR 44 and SR 303	11,833	13	102	31%	166	268	0	0	Portage Co-Shalersville Twp
172	Ravenna Rd and Bellmeadow Dr/Chamberlin Rd	12,410	13	102	31%	166	268	0	0	Twinsburg
172	E Aurora Rd (SR 82) and I-480/SR 14 EB Ramps	21,950	13	102	31%	166	268	0	0	Twinsburg
181	W Market St (SR 18) and Bryden Dr	21,900	9	183	33%	133	316	0	1	Akron
181	US 224 and SR 183 (N Jct)	8,570	9	183	33%	133	316	0	0	Portage Co-Atwater Twp
181	E Streetsboro Rd (SR 303) and Oviatt St	9,700	9	183	33%	133	316	0	0	Hudson
181	Darrow Rd (SR 91) and Beech Rd	10,417	9	183	33%	133	316	0	0	Stow
181	Darrow Rd (SR 91) and Highland Rd	17,660	9	183	33%	133	316	0	0	Twinsburg
186	W Market St (SR 18) and Rhodes Ave	16,230	10	156	30%	180	336	0	0	Akron
186	Manchester Rd (SR 93) and I-277 EB On-ramp	19,730	10	156	30%	180	336	0	0	Akron
186	S Arlington St and Lovers Lane	15,950	10	156	30%	180	336	0	0	Akron
186	E Wilbeth Rd (SR 764) and S Firestone Blvd	9,830	10	156	30%	180	336	0	0	Akron
186	East Ave and Battles Ave/Anna Ave	10,170	10	156	30%	180	336	0	1	Akron
186	Merriman Rd and Weathervane Lane	19,500	10	156	30%	180	336	0	0	Akron
186	Darrow Rd (SR 91) and Eastlawn St	19,760	10	156	30%	180	336	0	0	Akron

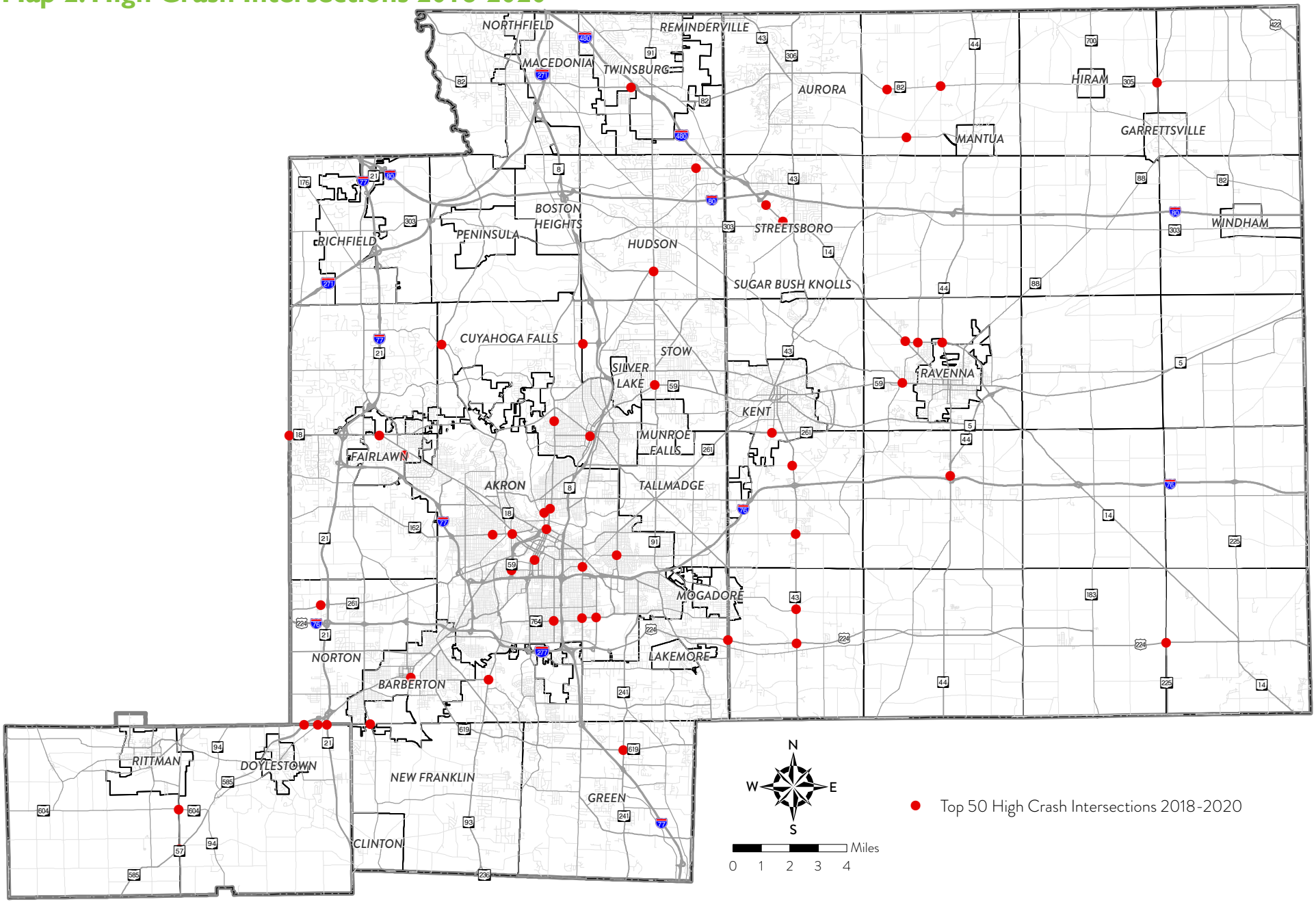
** Ranking is based on scoring system consisting of: number of crashes and percent of injury/fatal crashes. ** Red text denotes an intersection at which at least one fatal crash occurred.*

Table 2: High Crash Intersections 2018-2020 (Continued)

Rank	Street and Intersecting Street(s)	Approach Average Daily Traffic	Total Crashes	Total Crashes Rank	Percent Injury & Fatal	Injury & Fatal Rank	Sum of Rank Score	Bike Related	Ped Related	Location
186	E Exchange St and Arc Dr	17,190	10	156	30%	180	336	0	2	Akron
186	Smith Rd and Bath Hills Blvd/Corunna Ave	13,870	10	156	30%	180	336	0	0	Fairlawn
186	S Arlington Rd and Interstate Pkwy	19,000	10	156	30%	180	336	0	0	Green
186	Graybill Rd and Mayfair Rd	9,770	10	156	30%	180	336	0	0	Green
186	Fairchild Ave and N Water St	21,962	10	156	30%	180	336	0	0	Kent
186	Summit St and Janik Dr/Morris Rd	12,325	10	156	30%	180	336	0	1	Kent
186	E Aurora Rd (SR 82) and Crow Rd/Park Rd	15,790	10	156	30%	180	336	0	0	Macedonia
186	Wadsworth Rd (SR 261) and Medina Line Rd	12,190	10	156	30%	180	336	0	0	Norton
186	W Main St (SR 59) and Diamond St	15,560	10	156	30%	180	336	0	0	Ravenna
186	SR 14 and SR 303 (W Jct)	33,345	10	156	30%	180	336	0	0	Streetsboro

** Ranking is based on scoring system consisting of: number of crashes and percent of injury/fatal crashes. ** Red text denotes an intersection at which at least one fatal crash occurred.*

Map 2: High Crash Intersections 2018-2020



Section 3: Bicycle and Pedestrian Crashes

Overview

As biking and walking becomes a more popular and viable means of transportation, there is growing concern about the safety of bicycle riders and pedestrians. Determining how and where these incidents occur can help plan for future bicycle lanes, sidewalks, lighting, and educational outreach. Bicycle and pedestrian related crashes tend to happen more randomly and usually do not have the characteristic of being concentrated at specific locations like other vehicular crashes. Because of this it is sometimes more practical to make improvements to a corridor rather than a specific location.


Photo Courtesy of the Akron Police Department

Education is an important tool to help curb bicycle and pedestrian related crashes. Many bicycle riders and pedestrians, especially those under the driving age, may not be aware of the rules that they must observe.

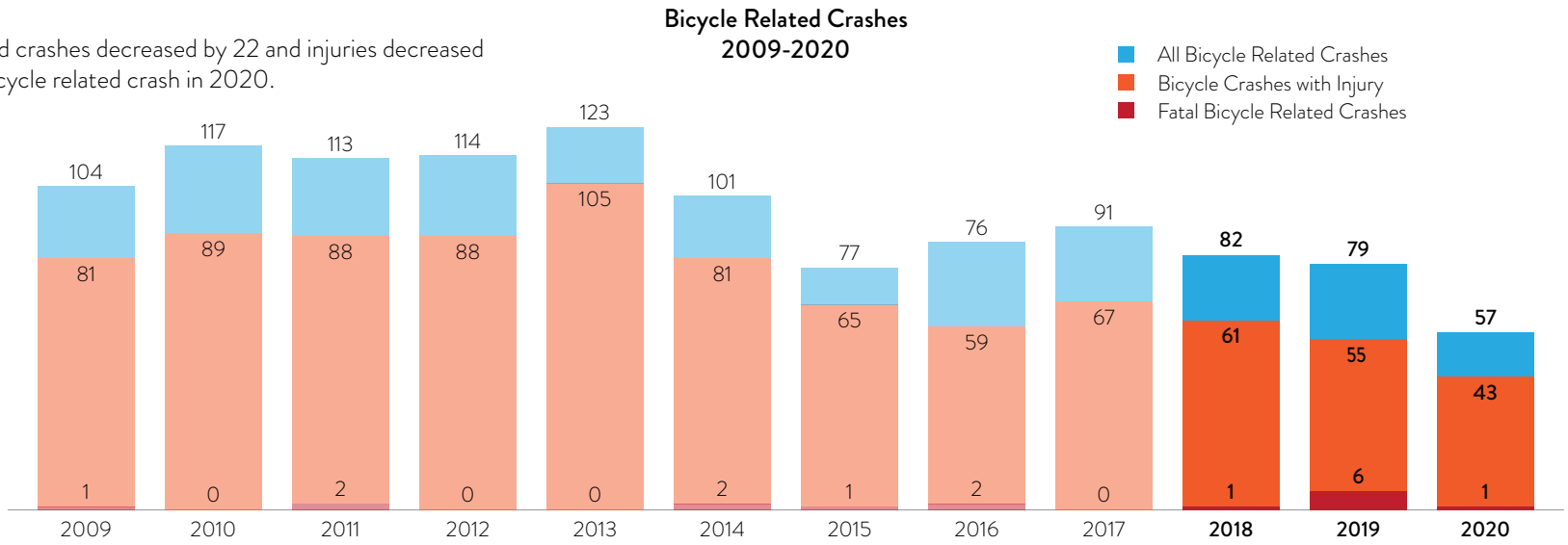
Bicycle and pedestrian related crashes have a high percentage of injuries.

- Out of the 218 bicycle related crashes that occurred between 2018 and 2020, 159 of them or 73% resulted in an injury and eight of them in a fatality.
- There were 413 pedestrian related crashes in this same time period with 340 or 82% of them resulting in an injury and 23 of them in a fatality. Pedestrians accounted for over 16% of all fatalities that occurred between 2018 and 2020.

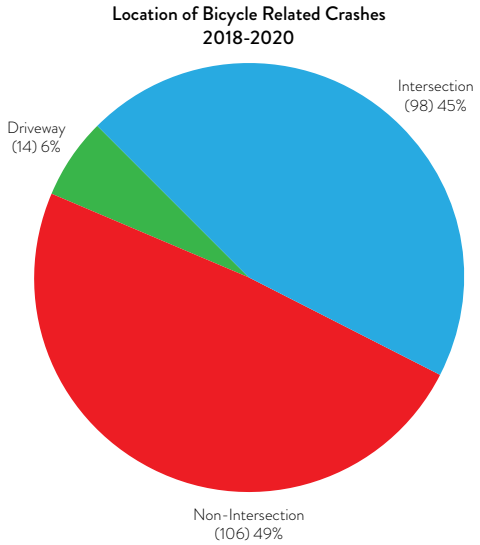
Once the locations that meet the minimum criteria are obtained a final score is calculated based on where the location ranked according to number of crashes and where it ranked according to number of fatal and injury crashes.

Bicycle related Crashes

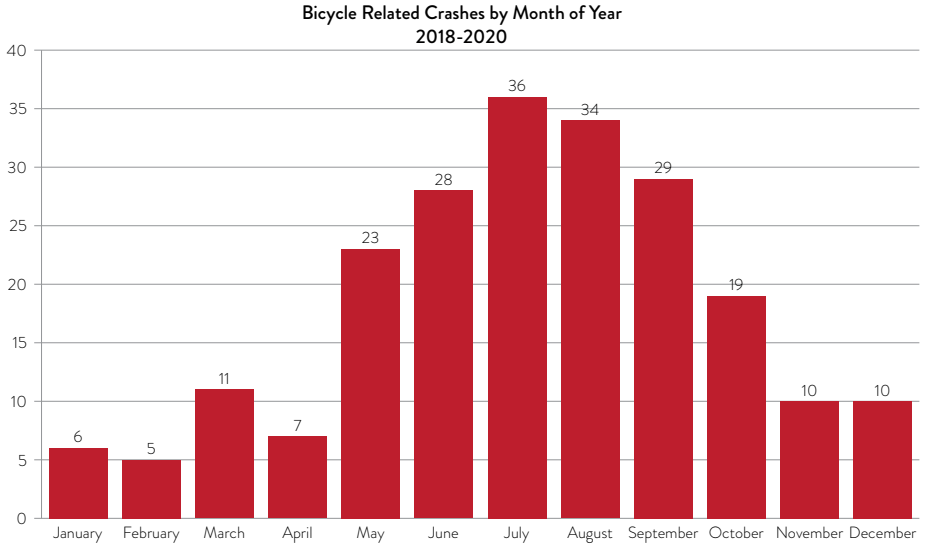
In 2020, total bicycle related crashes decreased by 22 and injuries decreased by 12. There was one fatal bicycle related crash in 2020.



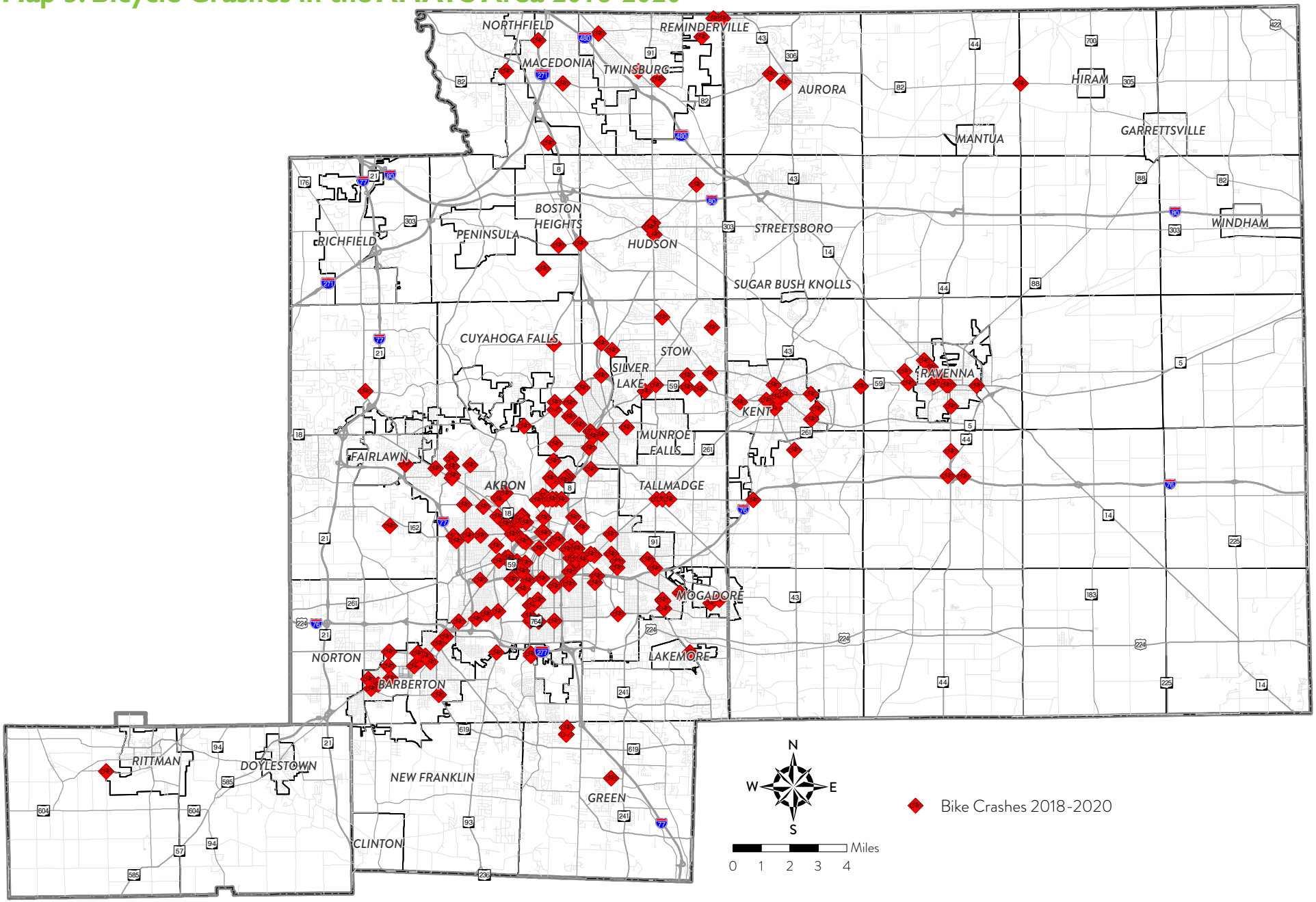
The chart below shows where most bicycle related crashes occur. They are nearly split evenly between intersection and non-intersection locations. Many bicycle riders, especially younger ones, may not obey stop signs and traffic signals which leads to intersection related crashes. Often a vehicle does not see a bicycle because of their narrow profile and turns into it or pulls in front of it. Often a driver is not expecting a bicycle in the crosswalk or misjudges its approach speed. If a bicycle rider is biking against traffic a driver may not look that direction when turning into or pulling out of another street or driveway. Map 3 on page 20 shows where the bicycle related crashes occurred in the AMATS area.



This chart shows that most crashes occur in summer and early fall when bicycle riding conditions are most favorable. Unlike other crashes, those involving bicycles tend to be concentrated in the summer season.

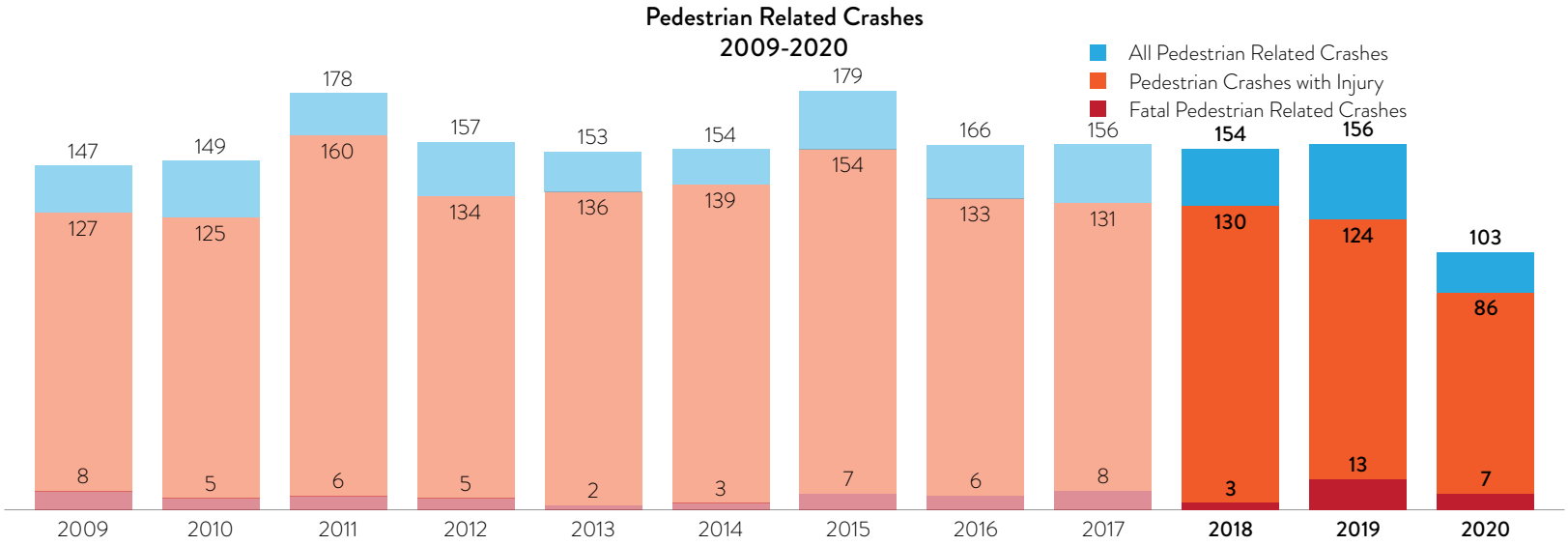


Map 3: Bicycle Crashes in the AMATS Area 2018-2020

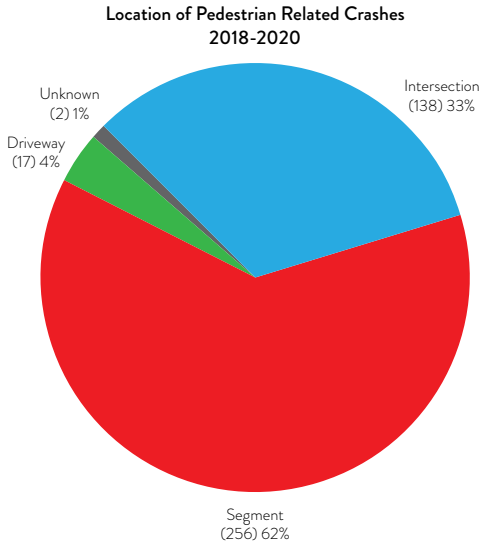


Pedestrian related Crashes

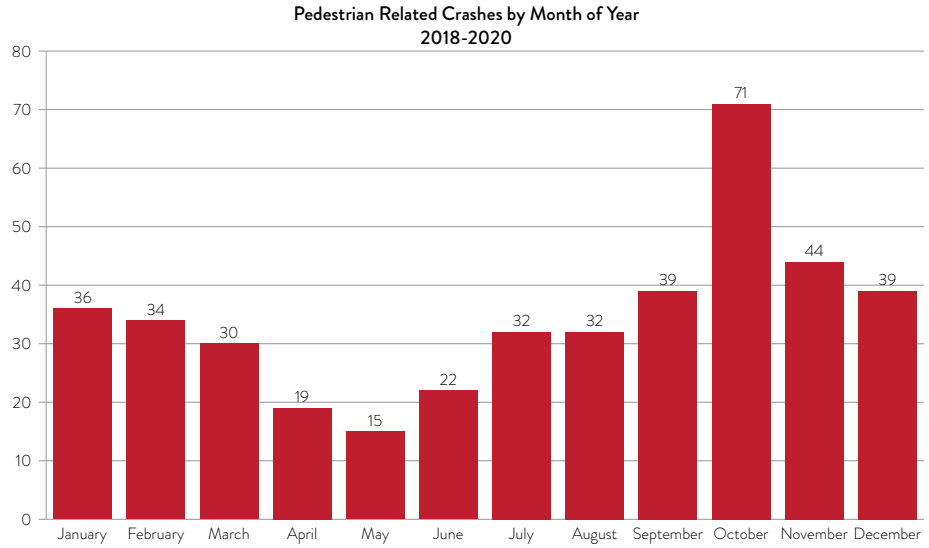
The number of pedestrian related crashes and injuries were down significantly in 2020. Between 2018 and 2020 there were 413 pedestrian related crashes with 340 injuries and 23 fatalities. The following graph shows pedestrian related crashes in the AMATS area since 2008. Pedestrian fatalities accounted for 17% of all fatalities over the three-year period.



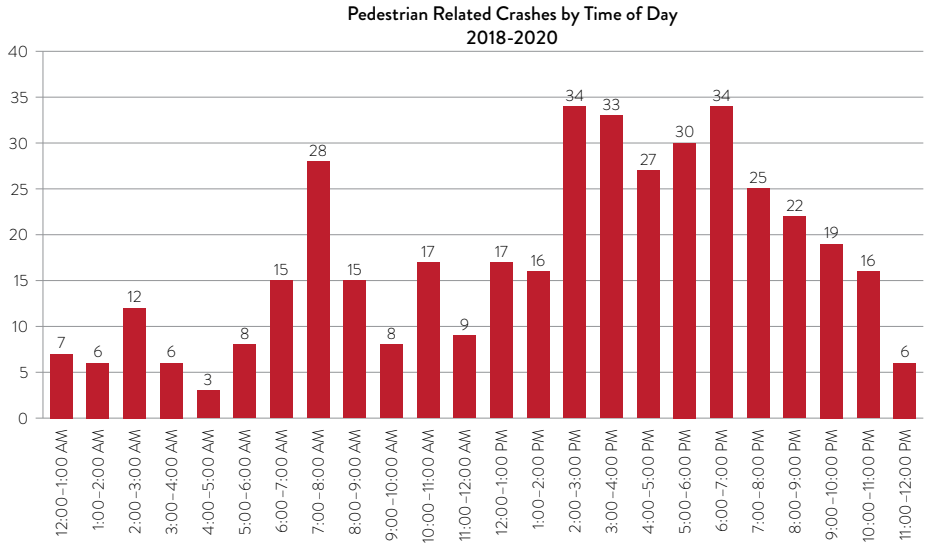
Pedestrian crashes occur more often away from intersections. Many of those that are intersection related occur when a vehicle making a turn and does not see the pedestrian or a pedestrian was crossing the street against the signal. Map 4 on page 23 shows where pedestrian related crashes occurred in the AMATS area.



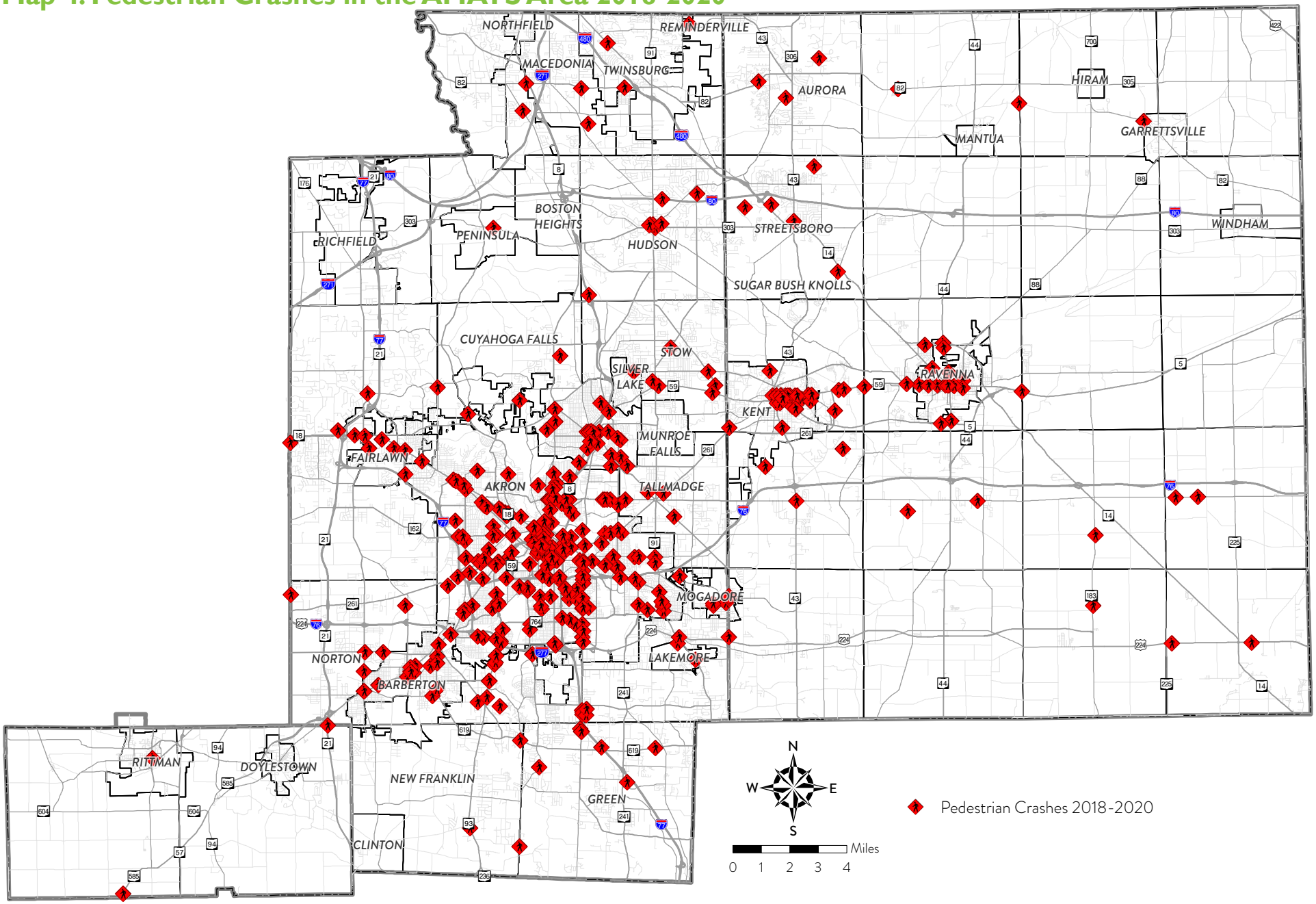
The following graph shows the month that pedestrian related crashes occurred. October is traditionally the month with the most incidents. One might think that most of these incidents occur around Halloween; however, after examining the data closer, AMATS found that they are spread out throughout the month. One speculation about why October has the most incidents is the decreasing amount of daylight along with weather that is still reasonably nice. Pedestrians are still active, but are harder to see in darkness even if streetlights are present.



There is a spike in morning pedestrian related crashes from 7-8 a.m. It is likely that this is a time when many pedestrians are commuting to work or school, often in dark conditions. Pedestrian crashes peak again in the afternoon and evening hours as seen in the table below.



Map 4: Pedestrian Crashes in the AMATS Area 2018-2020



Section 4: Safety Performance Measures and Targets

Overview

Safety performance management is part of the overall Transportation Performance Management (TPM) program. The Federal Highway Administration (FHWA) is requiring state DOTs and agencies like AMATS to develop a strategic approach that uses system information to make investment and policy decisions in order to achieve national performance goals.

Recent federal legislation requires ODOT and AMATS to establish performance measures and set targets that demonstrate fatal and serious injury reductions on all public roads. The required performance measures for safety are:

- Number of fatalities
- Fatality rate
- Number of serious injuries
- Serious injury rate
- Number of non-motorized fatalities and serious injuries

AMATS is required to establish safety performance measures. There are two options available for satisfying this requirement: commit to a quantifiable target for each measure within the metropolitan area or approve of ODOT's statewide targets and agree to plan and program projects so that they contribute toward the accomplishment of those goals. AMATS is committed to support the goals set forth by ODOT for the entire state, rather that develop separate targets and goals for our area.

After reviewing historical crash trends, external factors and through consultation with the state's Metropolitan Planning Organizations (MPOs), ODOT is recommending a 2 percent annual reduction target across all five safety categories. A state is considered to have met or made significant progress if at least four of the five targets are better than the baseline.

In accordance with federal regulations, AMATS used a five-year average to calculate the initial safety targets in 2015. These averages will become the benchmark to which all future calculations will be compared. All future values will also be calculated using five years of data. This five-year rolling average is used to smooth out short-term, year-to-year fluctuations in data.

The table below shows the calculation of the AMATS rolling averages for the five safety performance measures. The 2015 averages are the benchmark values that the 2020 values are compared to. In three out of the five safety performance measures, AMATS has far exceeded the ODOT goal of reducing each category by two percent when compared to 2015 averages.

	2015 5-Year Average	2016 5-Year Average	2017 5-Year Average	2018 5-Year Average	2019 5-Year Average	2020 5-Year Average	Percent Change
Number of Fatalities	46	46	49	48	48	52	14%
Fatalities Per 100 Million Vehicle Miles Traveled	0.60	0.61	0.64	0.63	0.64	0.74	22%
Number of Serious Injuries	590	574	529	470	431	395	-49%
Serious Injuries per 100 Million Vehicle Miles Traveled	7.79	7.58	6.94	6.20	5.73	5.47	-42%
Number of Non-Motorized Fatalities and Serious Injuries	57.4	54.4	51.4	50.8	48.8	45.2	-21%

Appendix A: ODOT Safety Programs

Abbreviated Applications

- Priority will be given to locations with a higher severity of crashes or the potential for these crashes.
- Locations must have a minimum of three crashes per year.
- Projects must be *$250,000 or less*.
- Funding is available for construction only and must be completed within two years.
- Applications will be reviewed once every quarter.

Formal Applications

- The minimum threshold for submitting a safety application will be *three crashes per year with 30% of the crashes involving a fatality or injury*.
- Projects with higher severity will get more points.
- ODOT will set target amounts for funding awarded each application cycle. The amount will be announced in advance of each round and based on available funding.
- ODOT will also expand opportunities for communities with fewer financial resources. Projects in communities with higher levels of poverty can receive up to 10 points toward the project score and may also be eligible for reduced local match.
- ODOT will accept formal applications one time. *The deadline this year will be August 31, 2022*.

Systemic Safety Application

- Focus on preventing pedestrian and roadway departure crashes through systemic infrastructure improvements.
- These are the two crash types linked to high severity crashes in Ohio.
- Systemic safety improvements are meant to be proactive and widely implemented based on roadway features that have been associated with specific crash types.
- Project sponsors can request up to *$2 million for pedestrian* and *$5 million for roadway departure* safety improvements.

Speed Policies

- ODOT is Incorporating bicycles and pedestrians into the speed study process.
- Agencies may use a lower threshold for calculating driver speeds (50th vs. 85th percentile)

Design Practices

- ODOT is also finalizing a new multi-modal design guide that Ohio agencies can use to consider the impact of roadway design on all road users – especially bicycles and pedestrians.
- Designs that incorporate bike lanes, curb bump outs, reduced curb radii, and leading pedestrian intervals have been shown to reduce speed related crashes and improve safety for everyone.
- The guide is expected to be published in the summer of 2022.

Highway Safety District Coordinators

- ODOT District 3 – Julie Cichello, 419-207-7168, julie.cichello@dot.ohio.gov
- ODOT District 4 – David Griffith, 330-786-4941, david.griffith@dot.ohio.gov

The *AMATS Crash Report - Traffic Crashes and Safety Performance Measures 2018-2020* is published by:
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