

City of Ann Arbor 2021 Annual Crash Review

Crash Years 2011-2020

November 2021

Introduction

Once again City staff have prepared this report to provide the Transportation Commission with an overview of the City's recent crash history and on-going crash trends. This report was developed by Transportation staff and is intended to provide the Transportation Commission with information to help guide policy recommendations and supplement the information provided in the Ann Arbor Moving Together transportation plan. The report provides a snapshot of recent crash history and ongoing crash trends. This report supplements and compliments the regional crash analyses produced by the Southeast Michigan Council of Governments (SEMCOG).

The crash analysis this year is broken up into two distinct sections:

- Annual trend review enclosed in this document
- Detailed subject area crash reviews that will be supplemental to this document

Data Sources

The local data used in this report comes from the Michigan Certified Crash Data. This data is available for viewing by the public through the Office of Highway Safety Planning's (OHSP) online data tool (www.michigantrafficcrashfacts.org) and SEMCOG's Transportation Crash Maps (<https://semcog.org/map-gallery>).

The City of Ann Arbor's engineering staff access these data through the Roadsoft software package and the Michigan State Police online tools through Numetric. Both packages provide a variety of analysis tools that can be used to better understand traffic crash patterns.

National crash data was obtained from the National Highway Traffic Safety Administration (NHTSA):

- Crash trend data was obtained from the Traffic Safety Facts Annual Report Tables (<https://cdan.nhtsa.gov/tsftables/tsfar.htm#>).

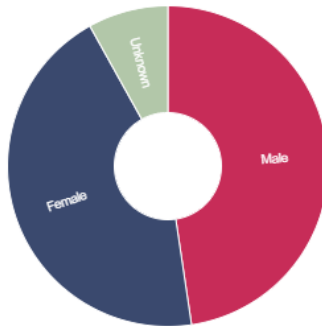


Who crashed?

Who crashed?

The following tables review the crash data based on who is experiencing crashes. The graphs in this section were developed using Numetrics.

Driver Gender



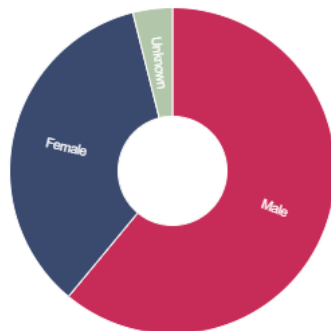
All Crashes:

- 47.43% Male
- 44.37% Female
- 8.19% Unknown

Note: This graph presents gender data as captured by the Michigan UD-10 Crash Report.

This chart shows the # and % of Drivers by their Gender.

Driver Gender



K+A Crashes:

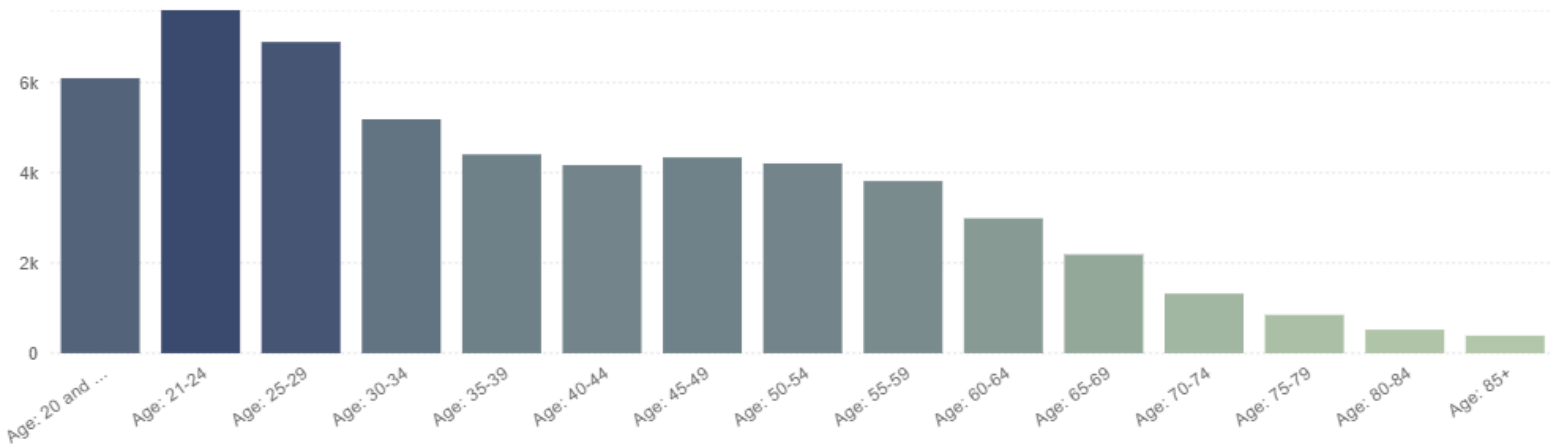
- 61.03% Male
- 35.05% Female
- 3.92% Unknown

Note: This graph presents gender data as captured by the Michigan UD-10 Crash Report.

This chart shows the # and % of Drivers by their Gender.

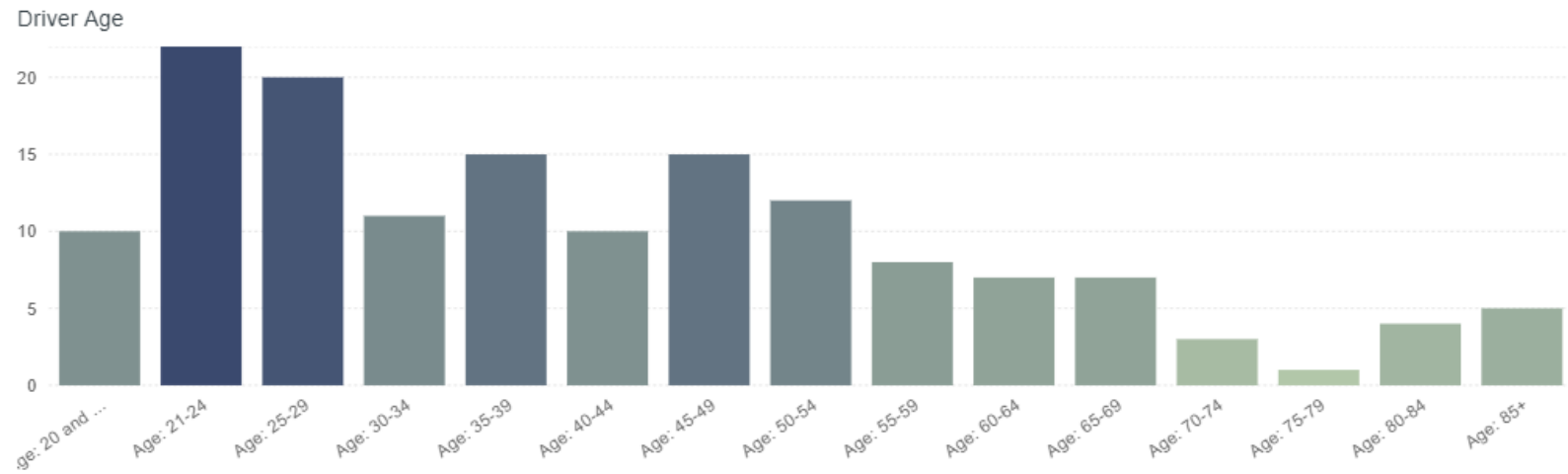
All Crashes

Driver Age



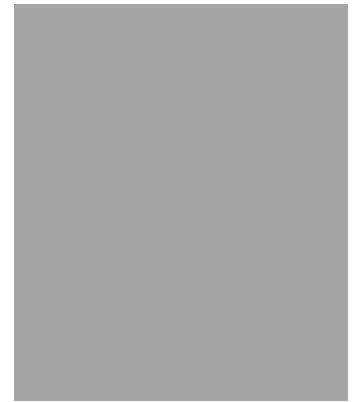
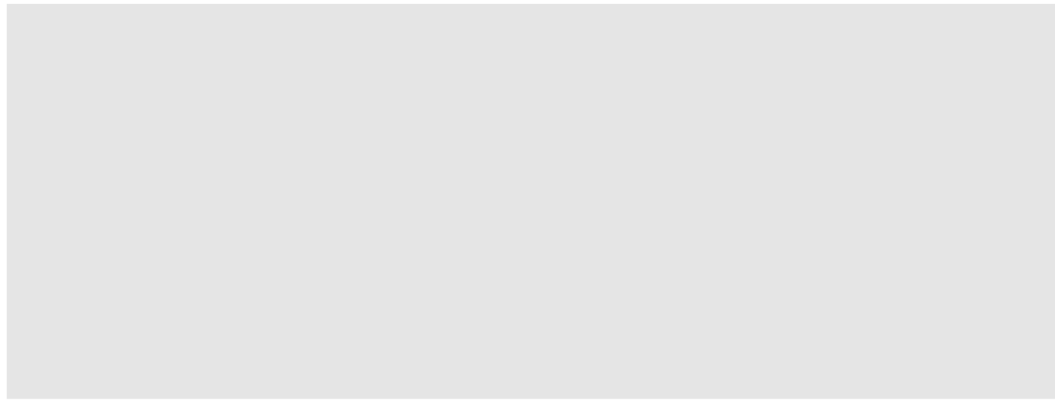
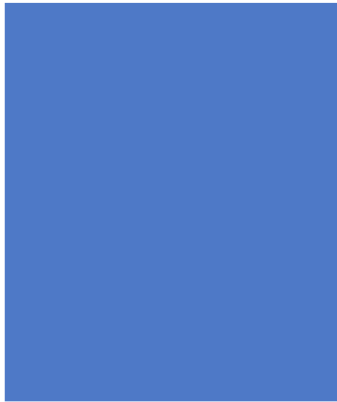
This chart shows the # and % of Drivers Involved by Driver Age Group. The Driver Age Group field also includes Pedestrians, Bicyclists, and Engineers.

K+A Crashes



This chart shows the # and % of Drivers Involved by Driver Age Group. The Driver Age Group field also includes Pedestrians, Bicyclists, and Engineers.

Where did they crash?



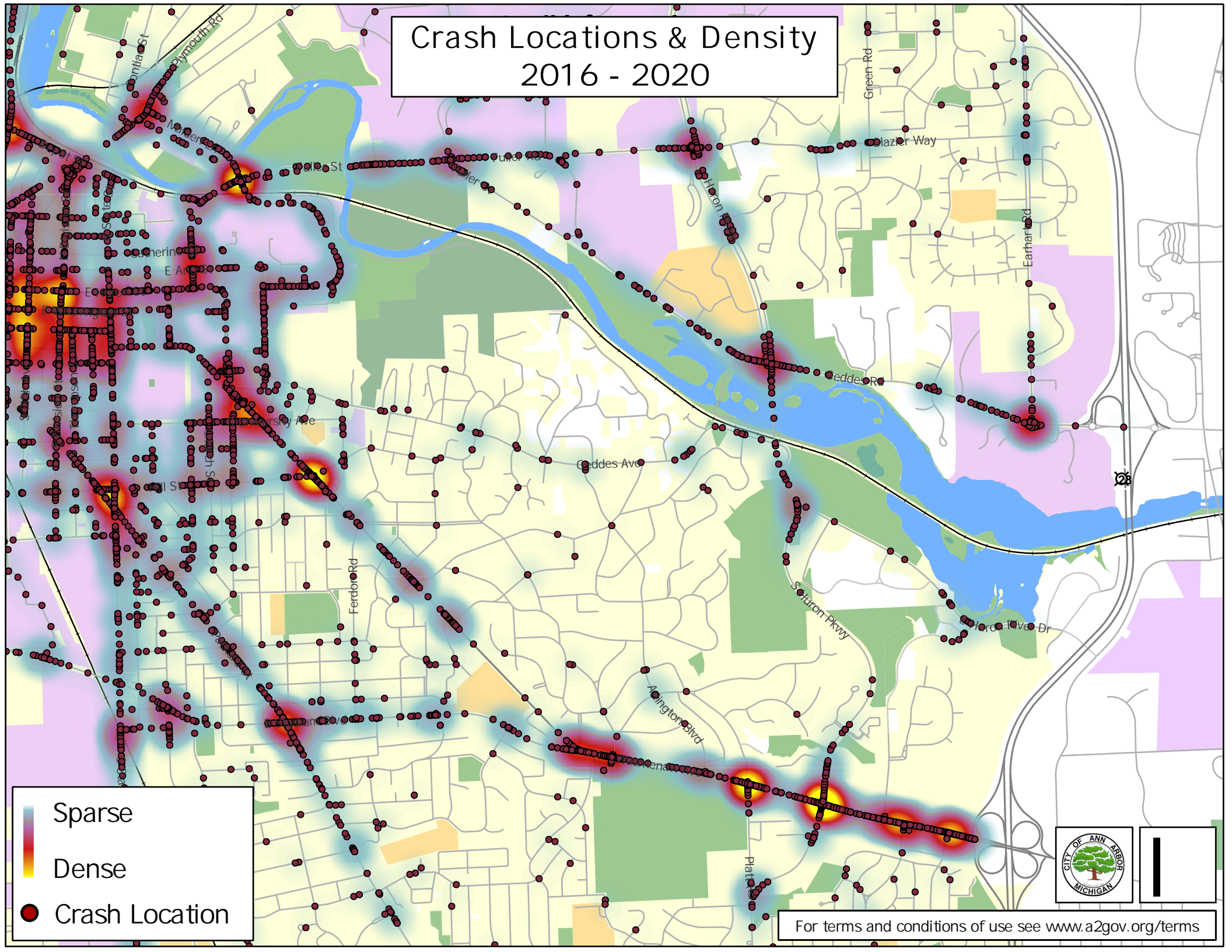
Crash Location Maps

The following maps have been produced by the City Geographical Information Services (GIS) group. The maps provide a way to visualize crash patterns throughout the City.

The first set of maps show overall crash occurrences. These maps are presented in a heat map style. Heat maps provide visual weighting to areas where higher concentrations of crashes occur by use of changing colors. The advantage these maps have over location point style maps is that the frequency of crashes is easier to quickly understand.

The second set of maps show special consideration crashes overlaid on the all-crash heat maps. The areas of special consideration include severe injury locations and non-motorized crash locations.

Crash Locations & Density 2016 - 2020



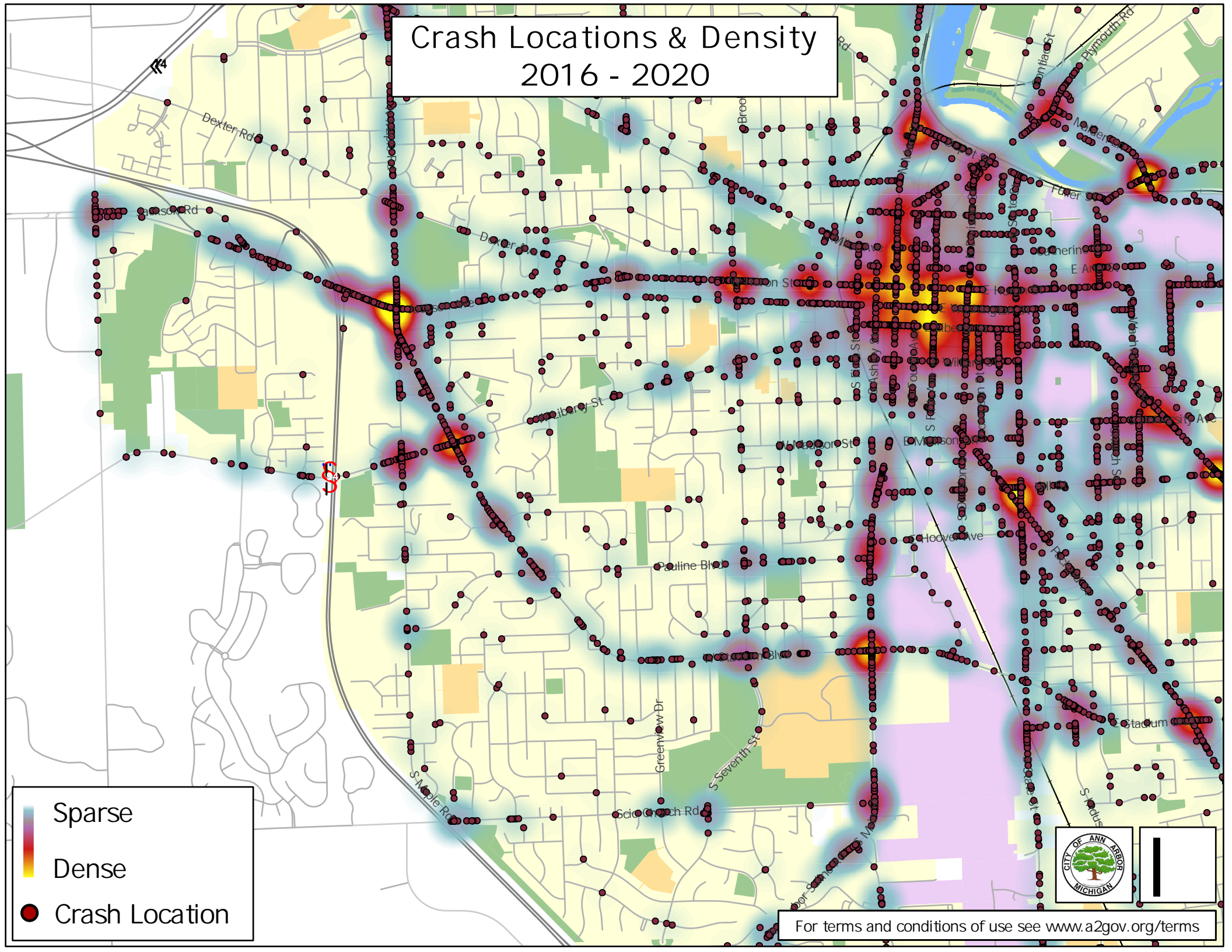
Sparse

Dense

Crash Location



Crash Locations & Density 2016 - 2020

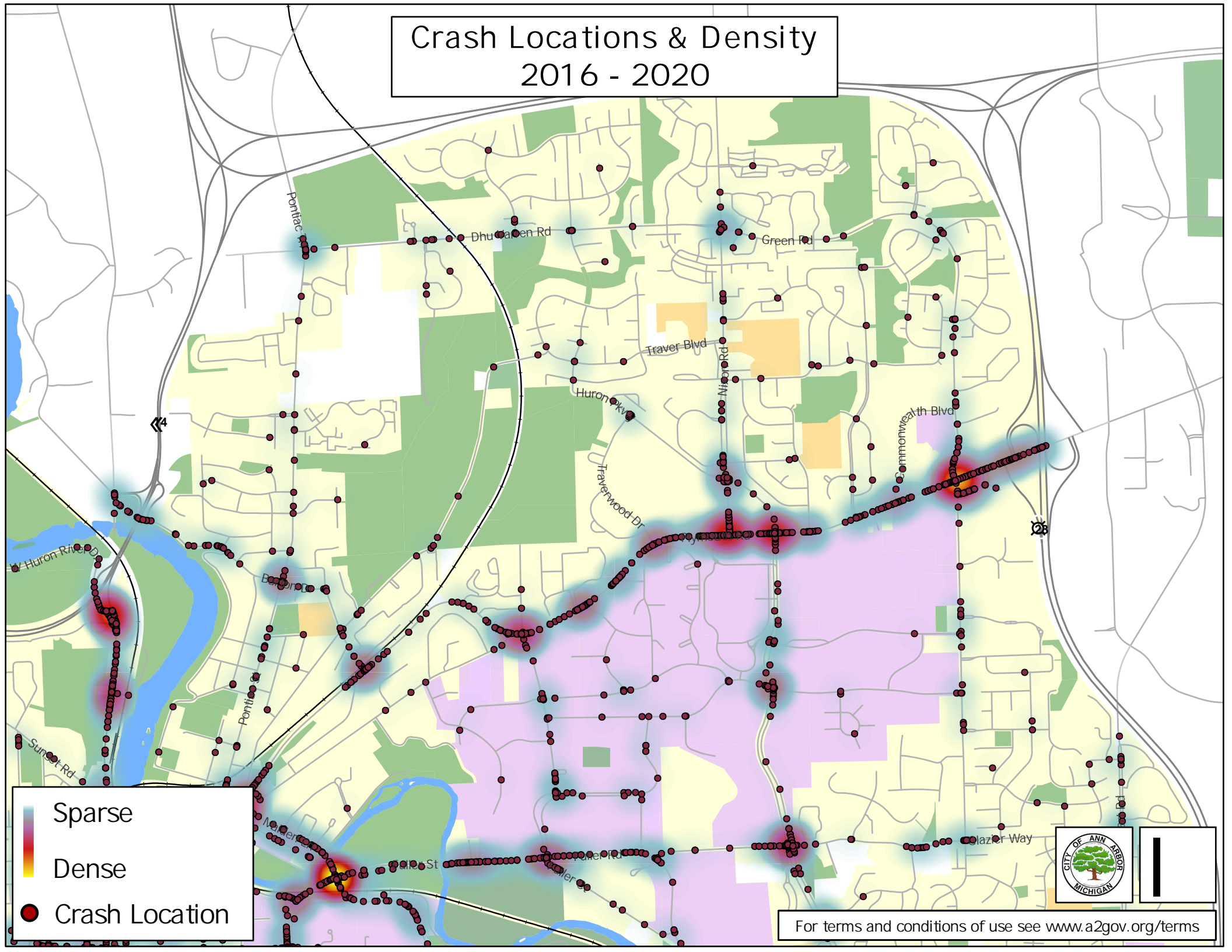


Sparse

Dense

Crash Location

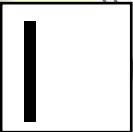
Crash Locations & Density 2016 - 2020



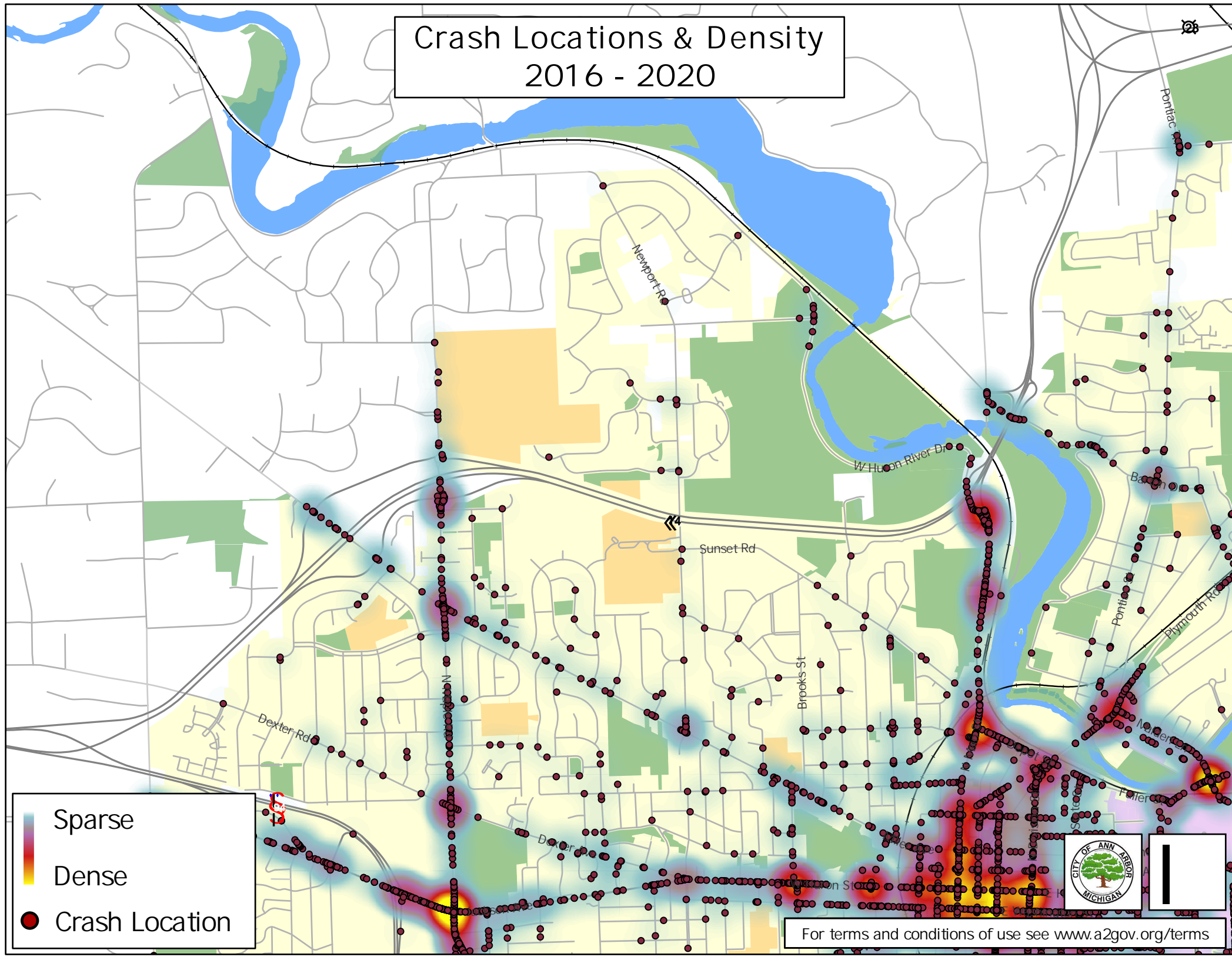
Sparse

Dense

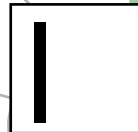
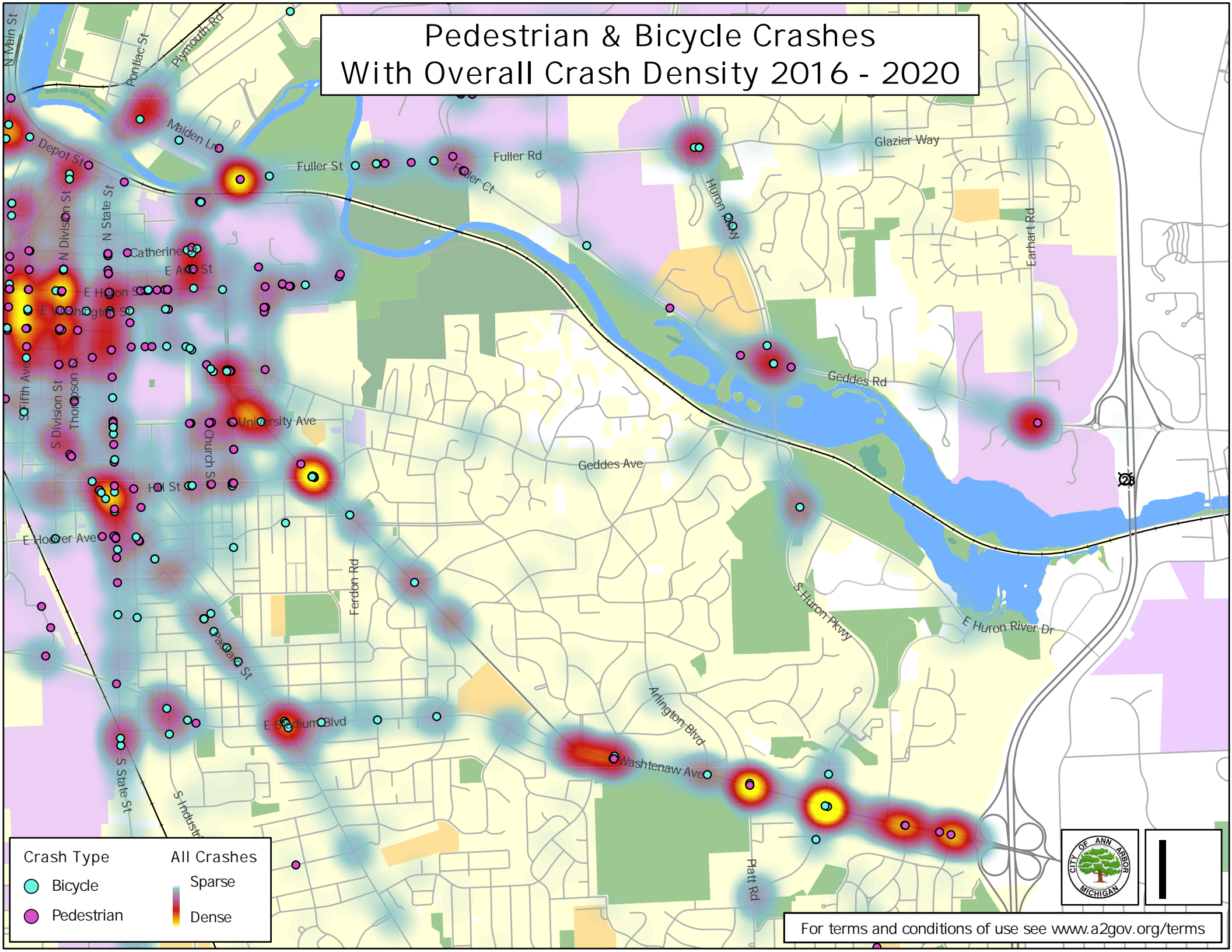
Crash Location



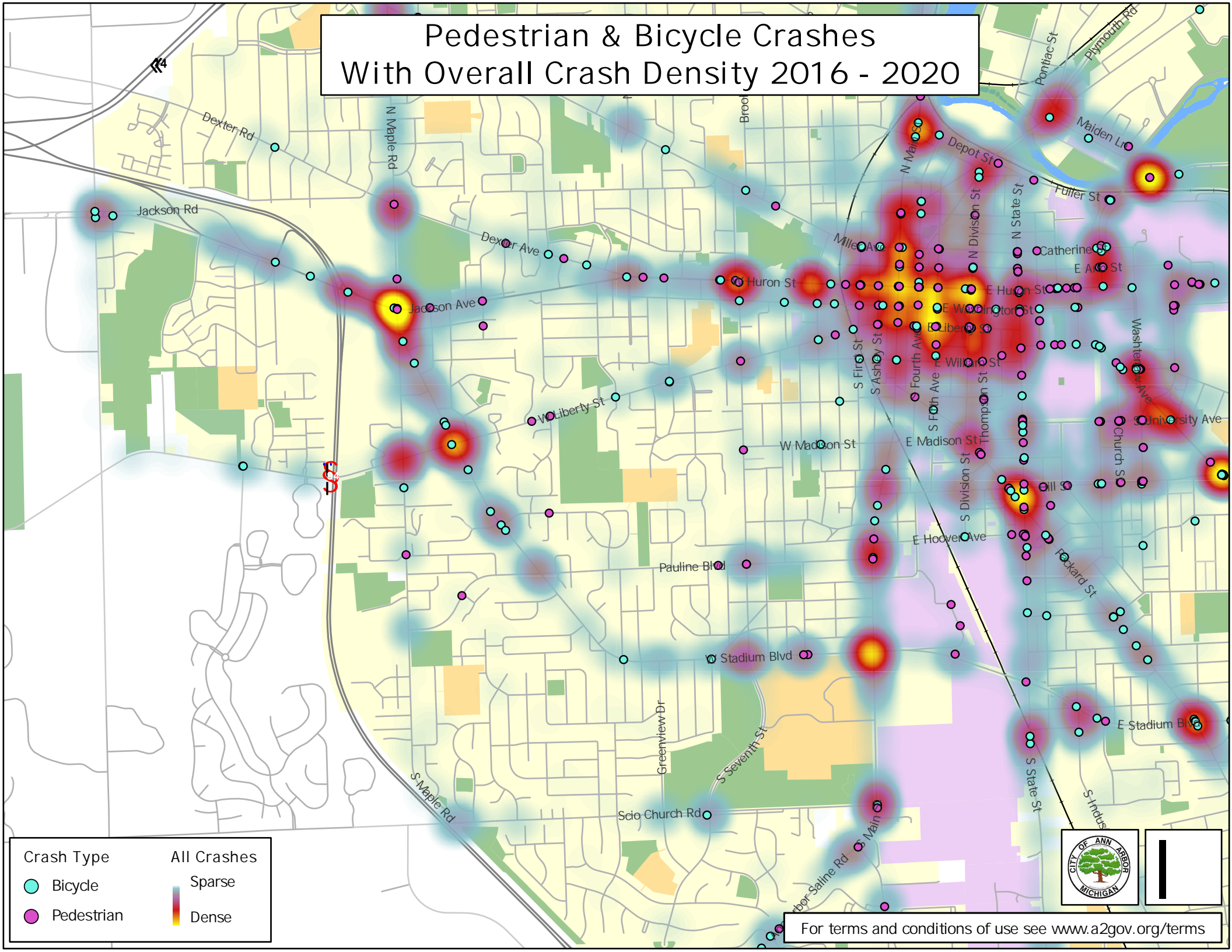
Crash Locations & Density 2016 - 2020



Pedestrian & Bicycle Crashes With Overall Crash Density 2016 - 2020



Pedestrian & Bicycle Crashes With Overall Crash Density 2016 - 2020



Crash Type

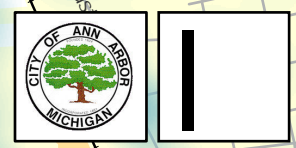
Bicycle

Pedestrian

All Crashes

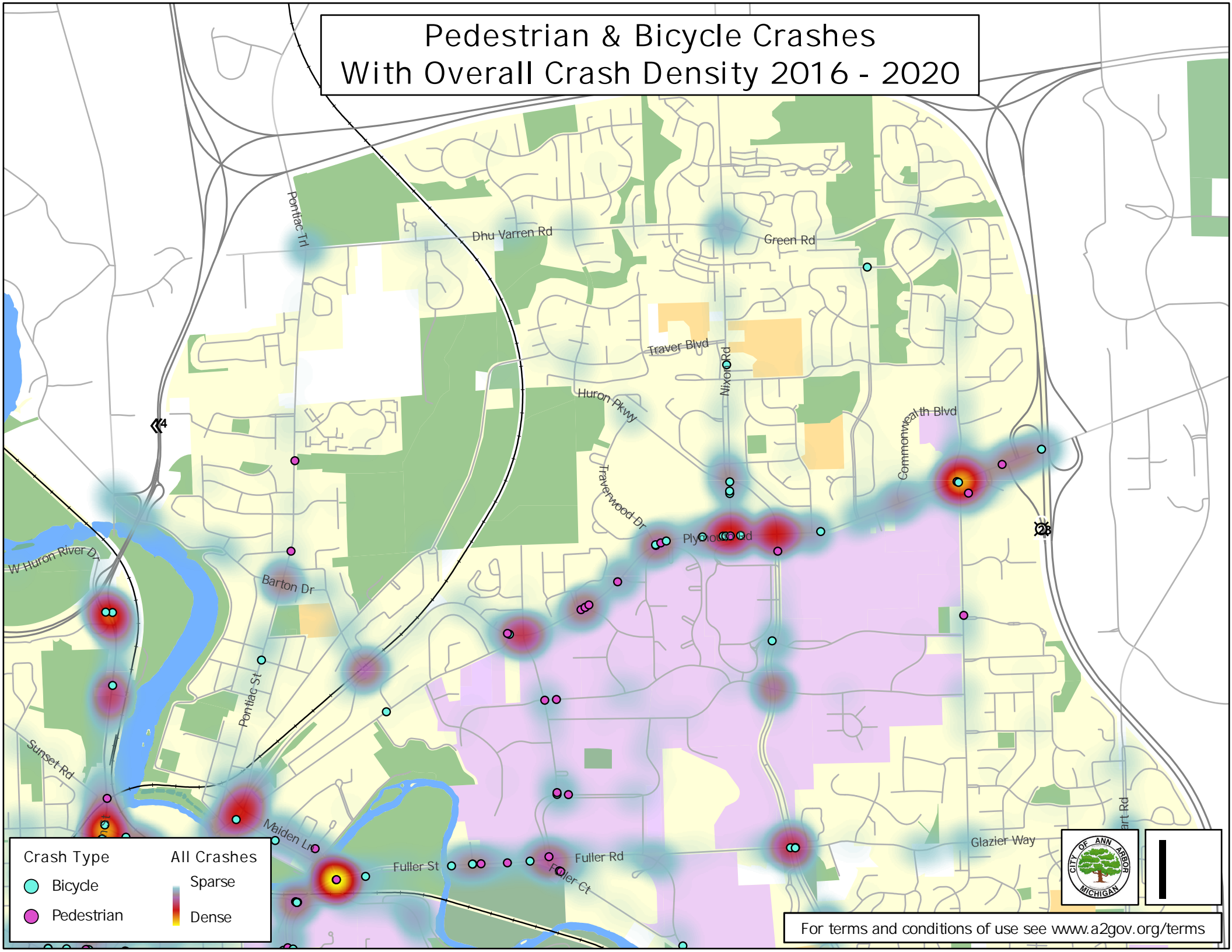
Sparse

Dense

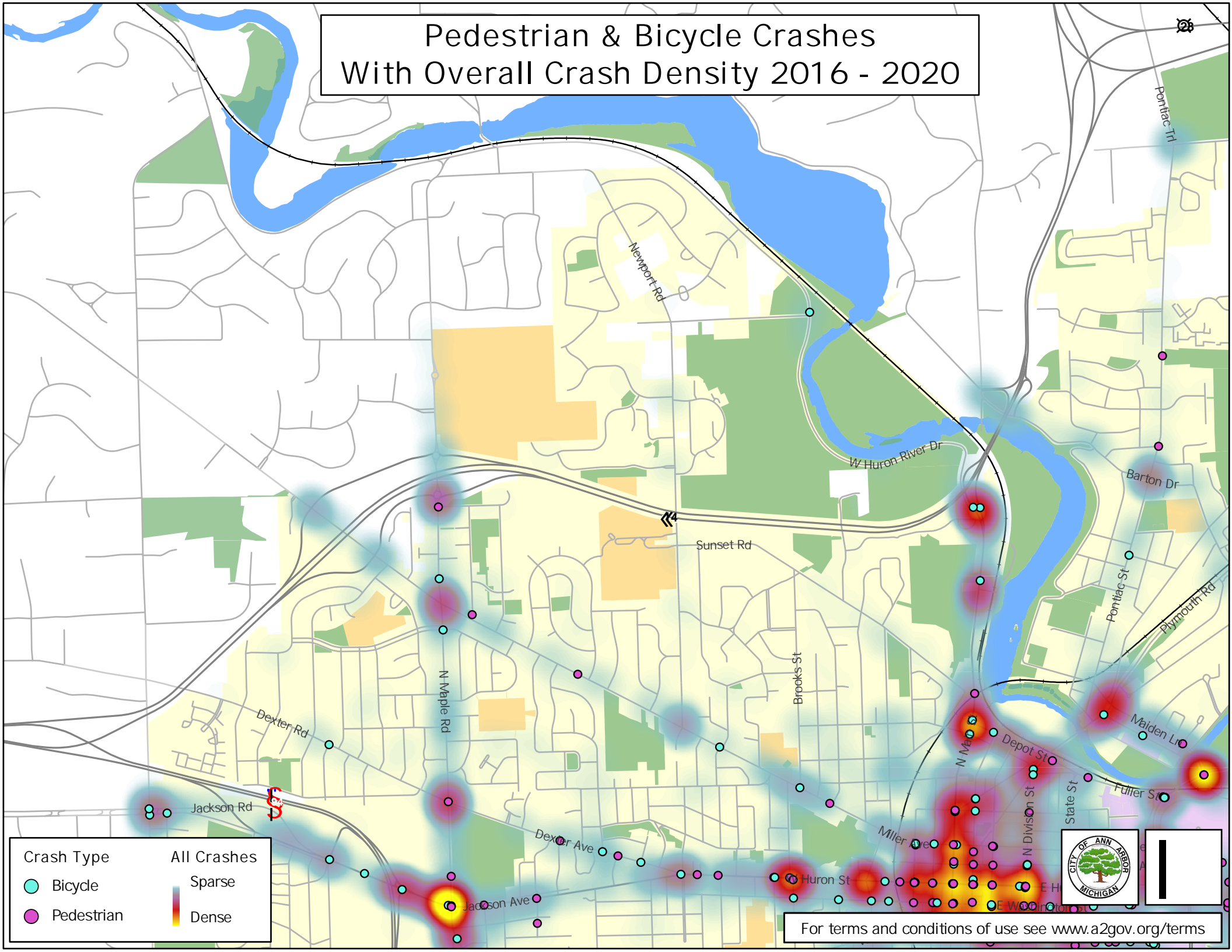


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Pedestrian & Bicycle Crashes With Overall Crash Density 2016 - 2020



Pedestrian & Bicycle Crashes With Overall Crash Density 2016 - 2020



Crash Type

Bicycle

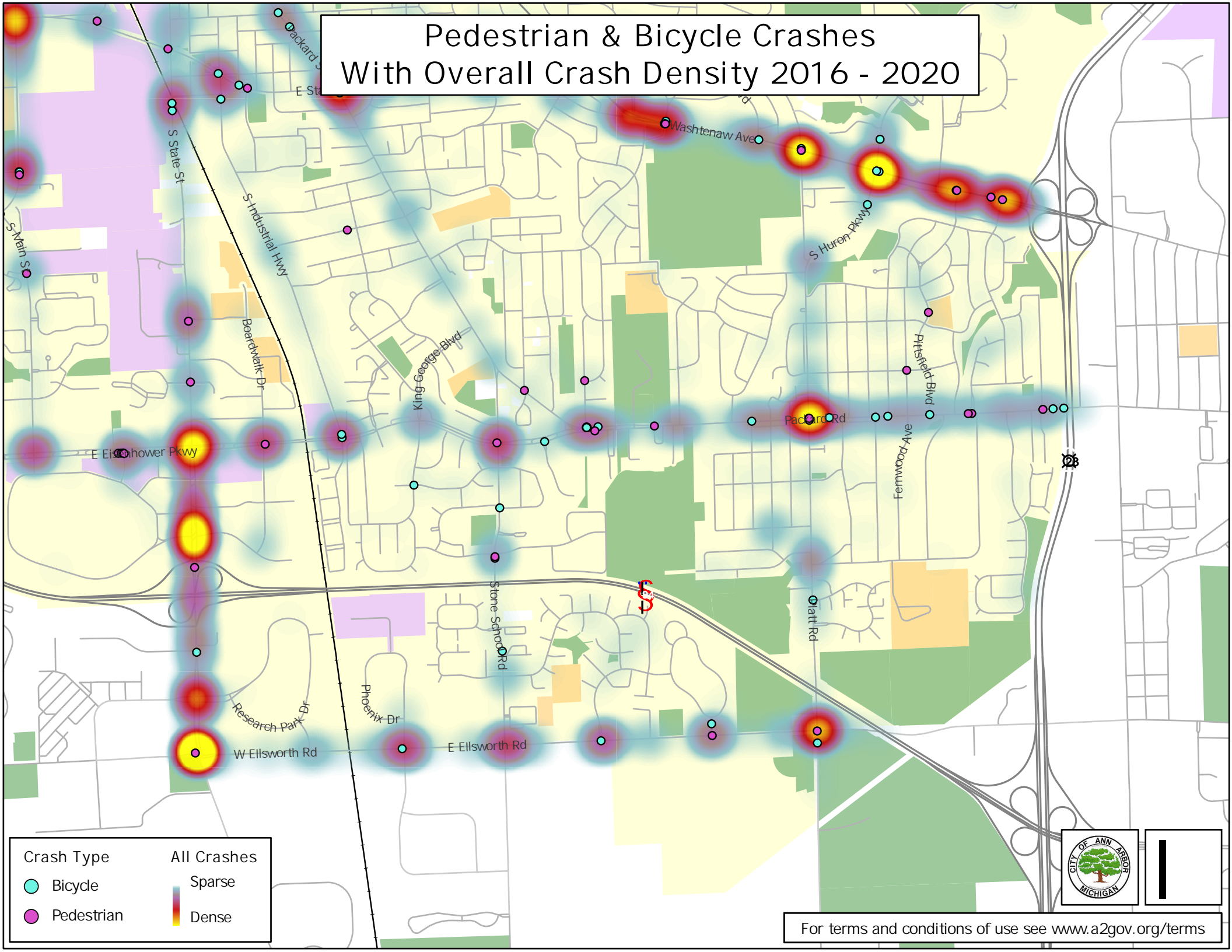
Pedestrian

All Crashes

Sparse

Dense

Pedestrian & Bicycle Crashes With Overall Crash Density 2016 - 2020



Crash Type

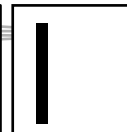
All Crashes

Sparse

Dense

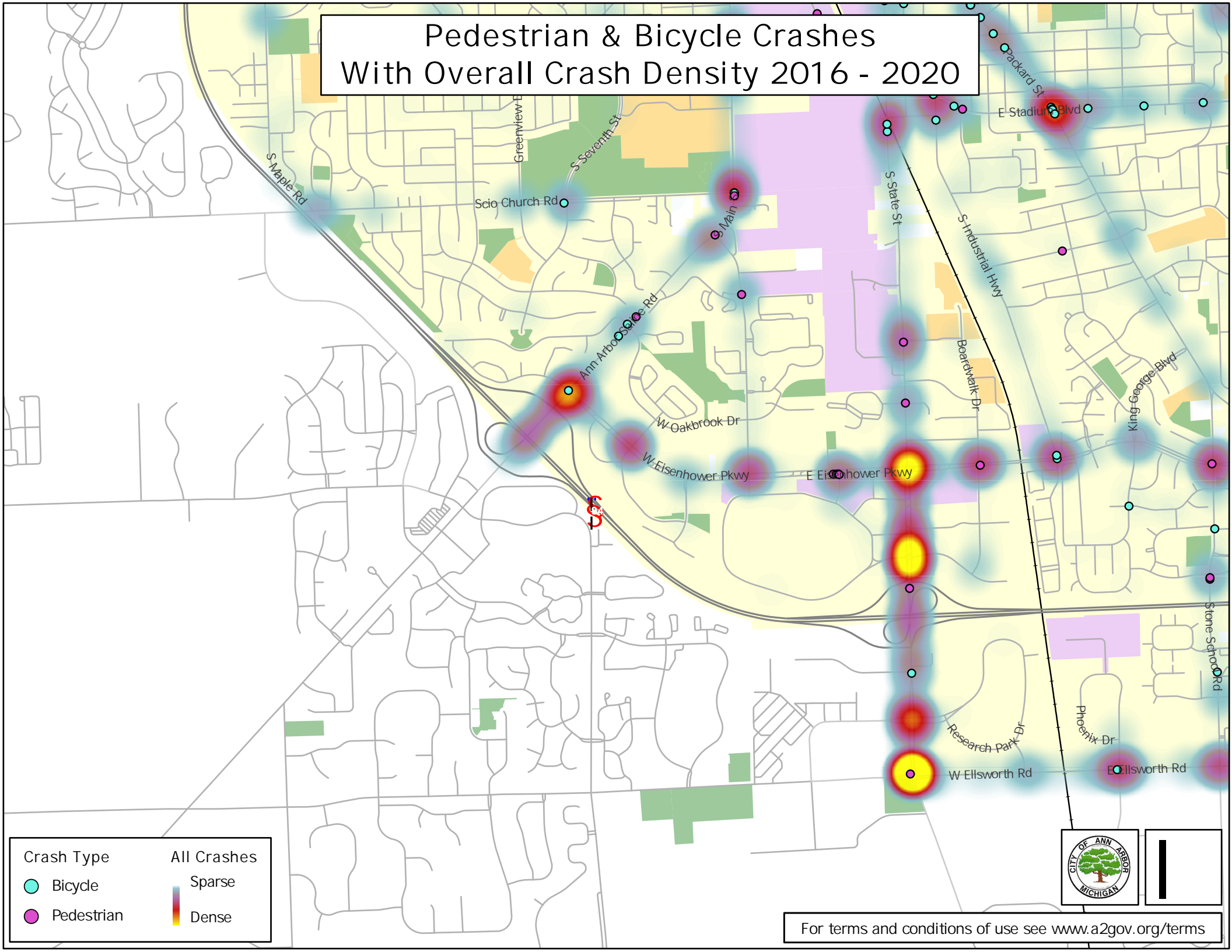
Bicycle

Pedestrian



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Pedestrian & Bicycle Crashes With Overall Crash Density 2016 - 2020



Crash Type

Bicycle

Pedestrian

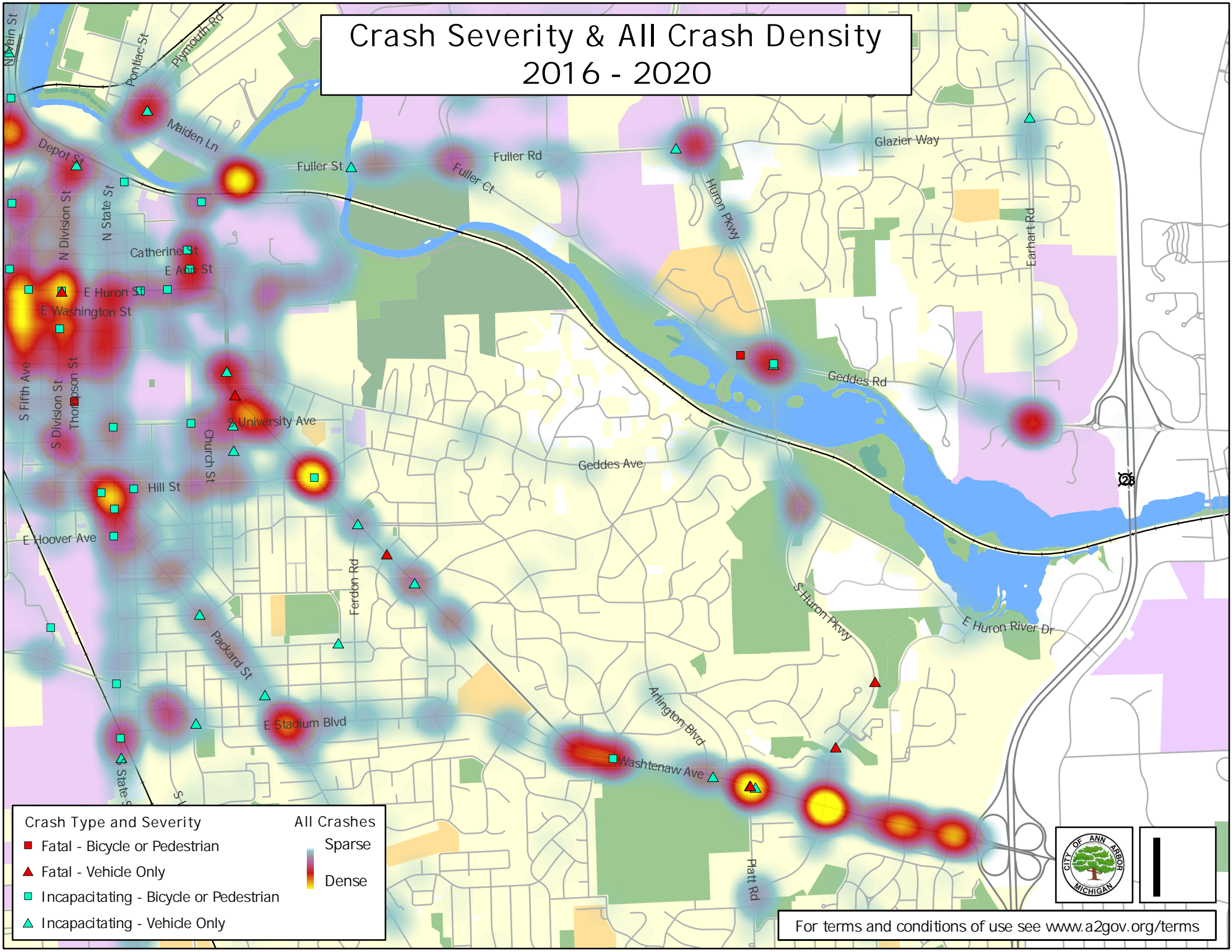
All Crashes

Sparse

Dense

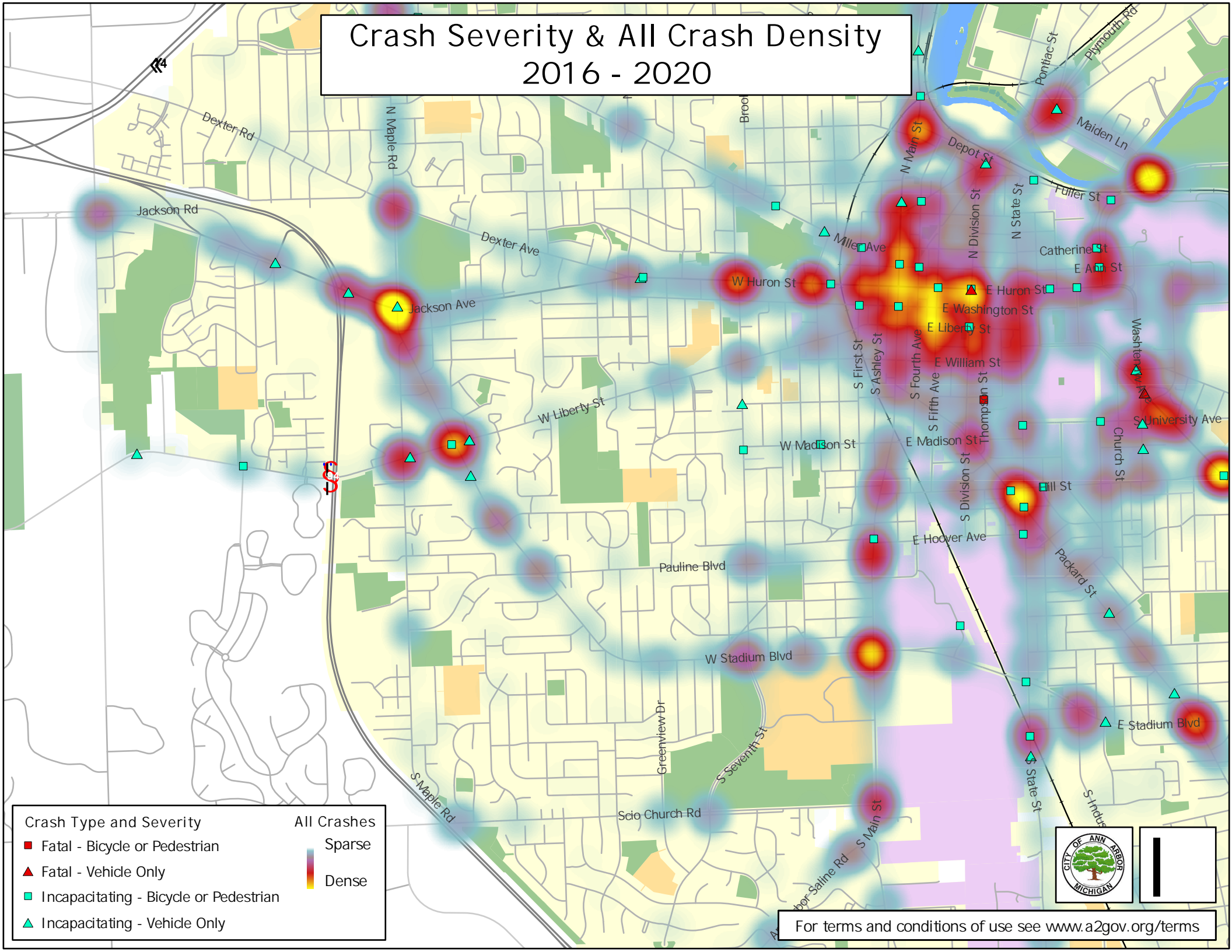


Crash Severity & All Crash Density 2016 - 2020

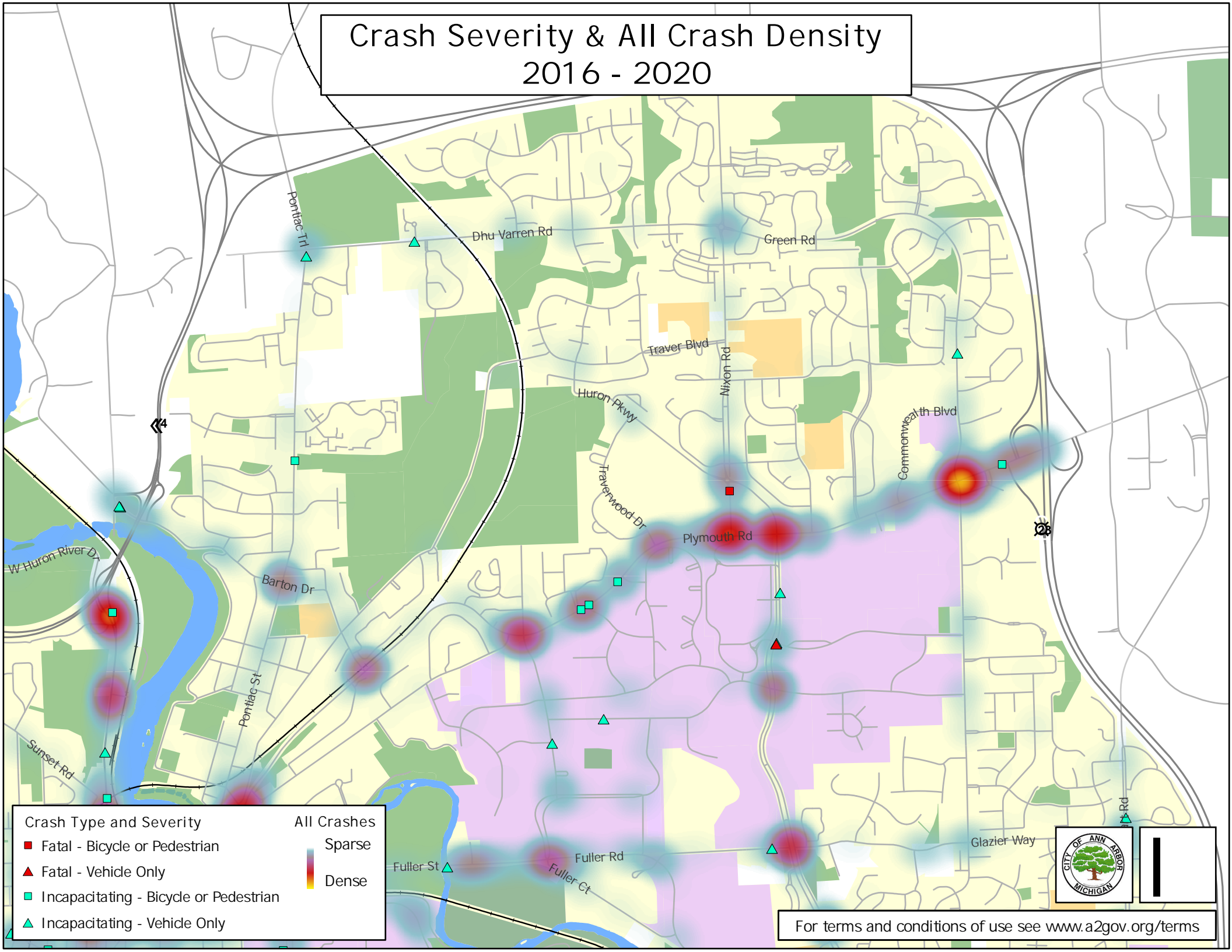


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Crash Severity & All Crash Density 2016 - 2020



Crash Severity & All Crash Density 2016 - 2020



Crash Type and Severity

- Fatal - Bicycle or Pedestrian
- ▲ Fatal - Vehicle Only
- Incapacitating - Bicycle or Pedestrian
- ▲ Incapacitating - Vehicle Only

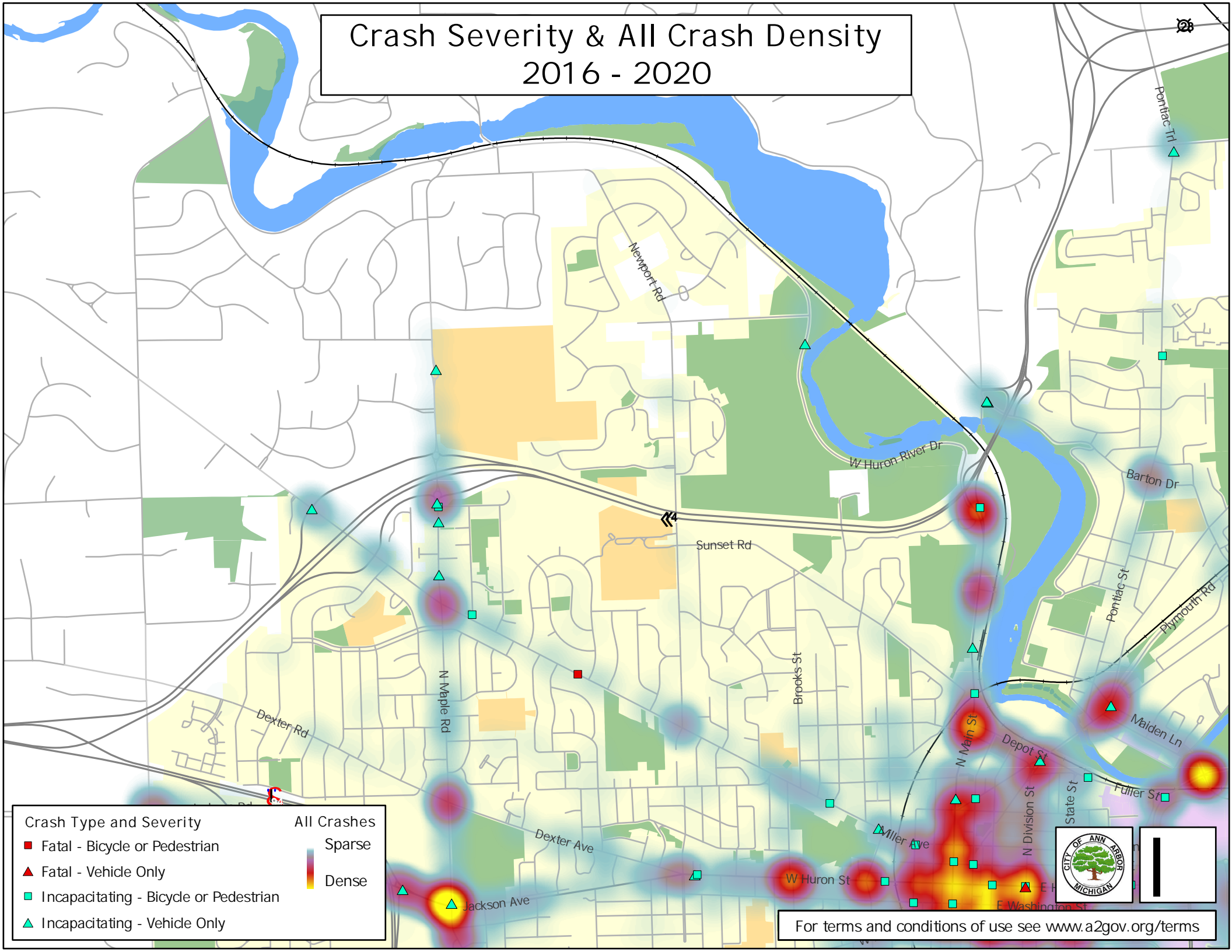
All Crashes

- Sparse
- Dense



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Crash Severity & All Crash Density 2016 - 2020



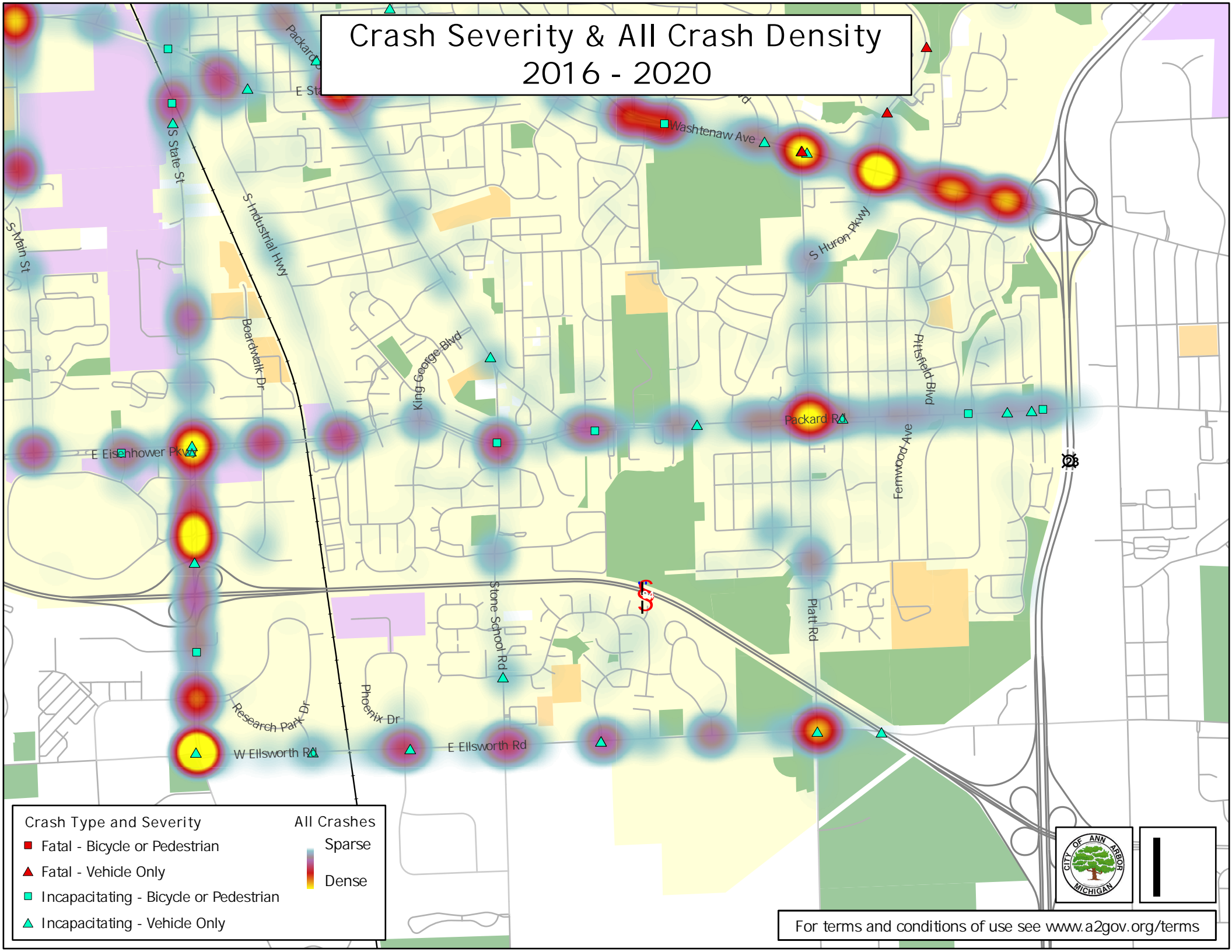
Crash Type and Severity

- Fatal - Bicycle or Pedestrian
- ▲ Fatal - Vehicle Only
- Incapacitating - Bicycle or Pedestrian
- ▲ Incapacitating - Vehicle Only

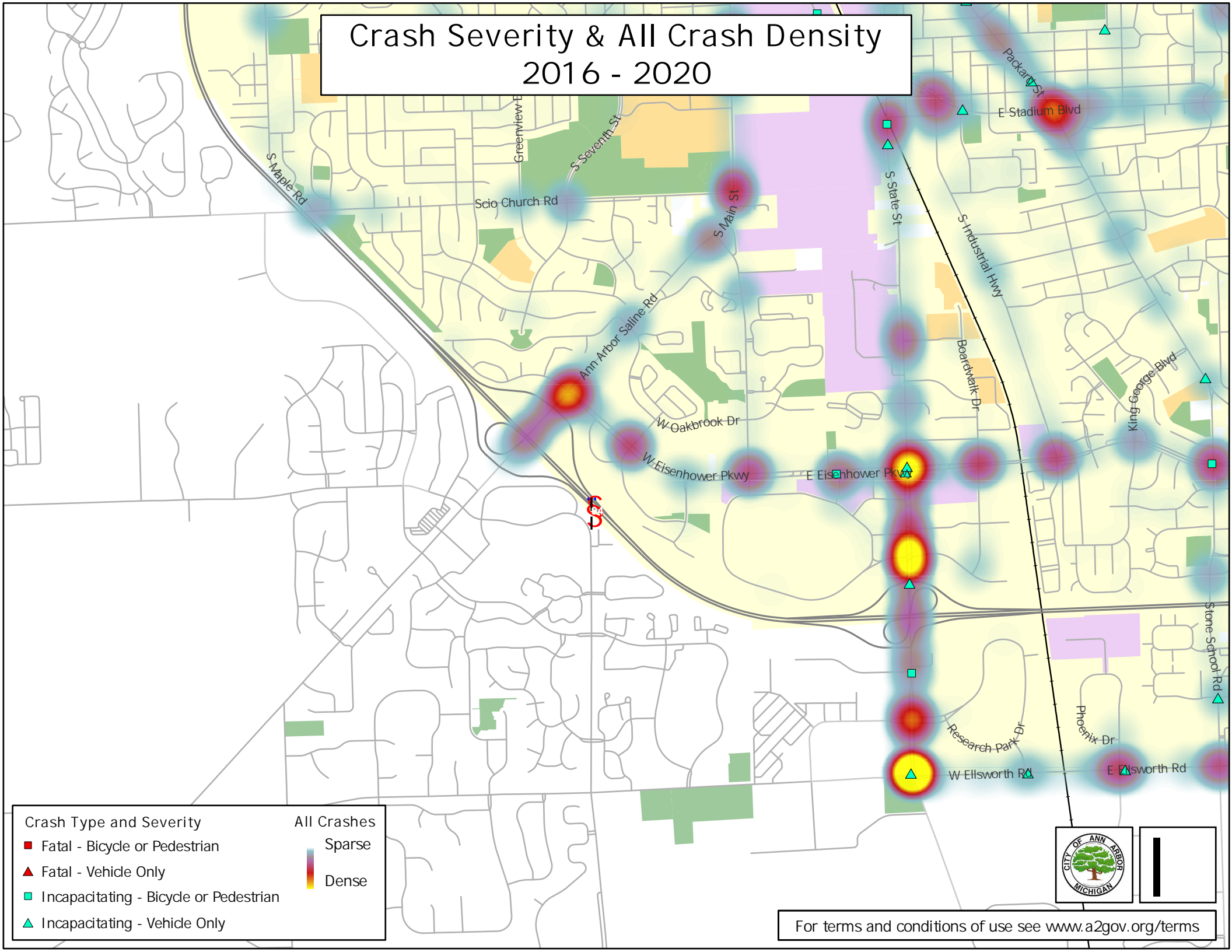
All Crashes

- Sparse
- Dense

Crash Severity & All Crash Density 2016 - 2020



Crash Severity & All Crash Density 2016 - 2020



Crash Type and Severity

- Fatal - Bicycle or Pedestrian
- ▲ Fatal - Vehicle Only
- Incapacitating - Bicycle or Pedestrian
- ▲ Incapacitating - Vehicle Only

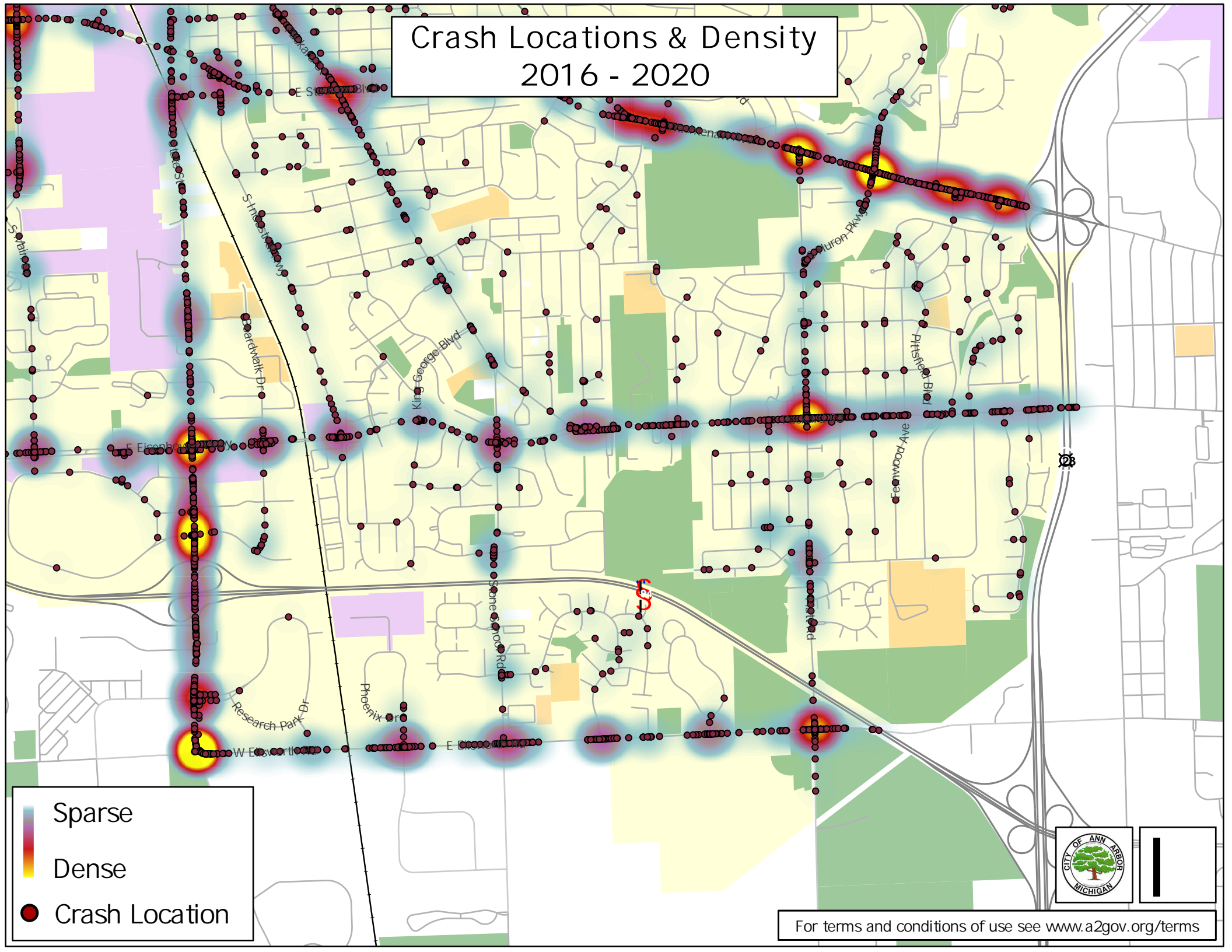
All Crashes

- Sparse
- Dense

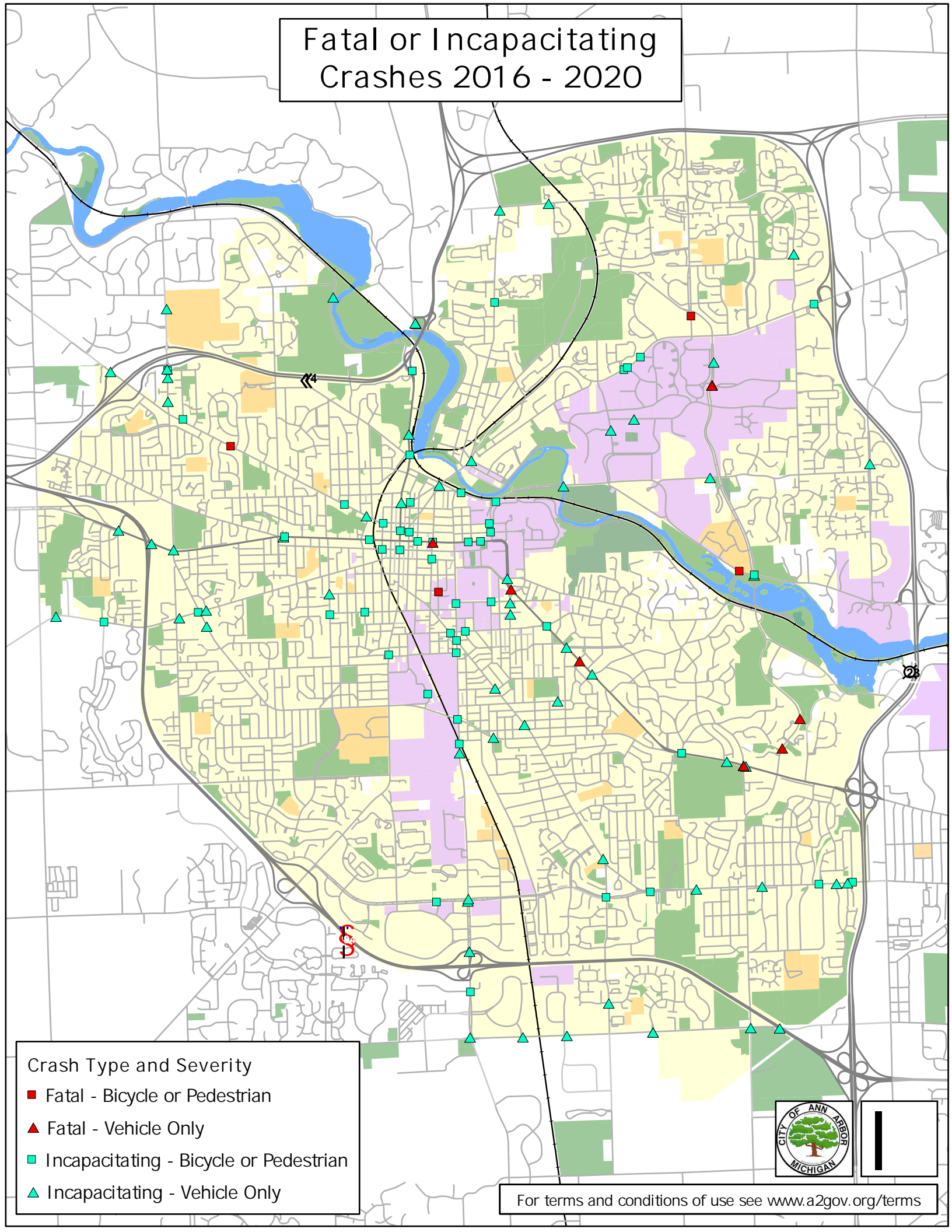


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Crash Locations & Density 2016 - 2020

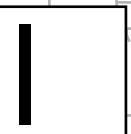


Fatal or Incapacitating Crashes 2016 - 2020



Crash Type and Severity

- Fatal - Bicycle or Pedestrian
- ▲ Fatal - Vehicle Only
- Incapacitating - Bicycle or Pedestrian
- ▲ Incapacitating - Vehicle Only



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Bicycle & Pedestrian Crashes 2016 - 2020

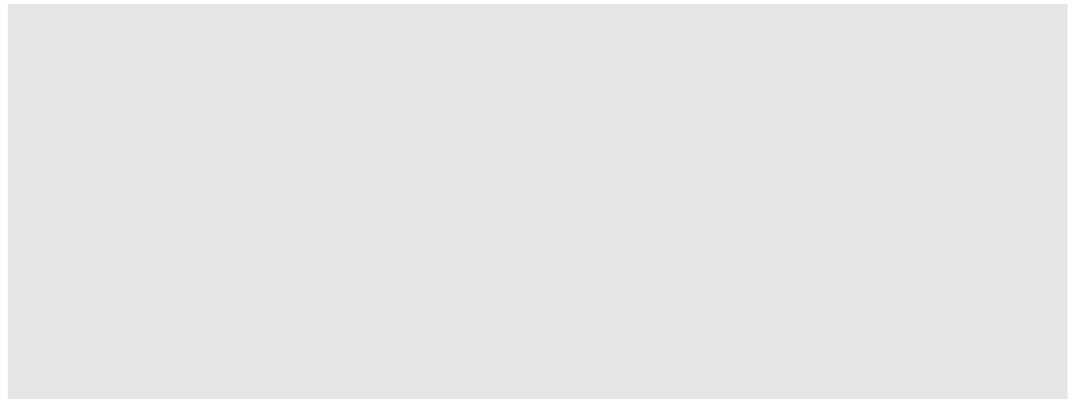
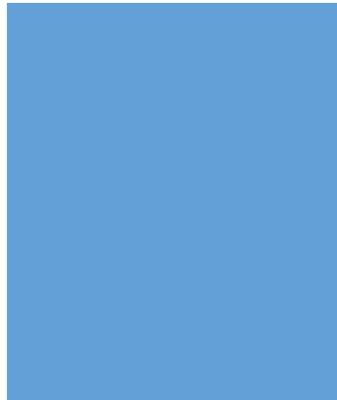
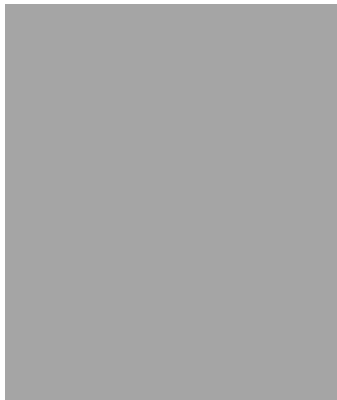
Crash Type

-  Bicycle
-  Pedestrian

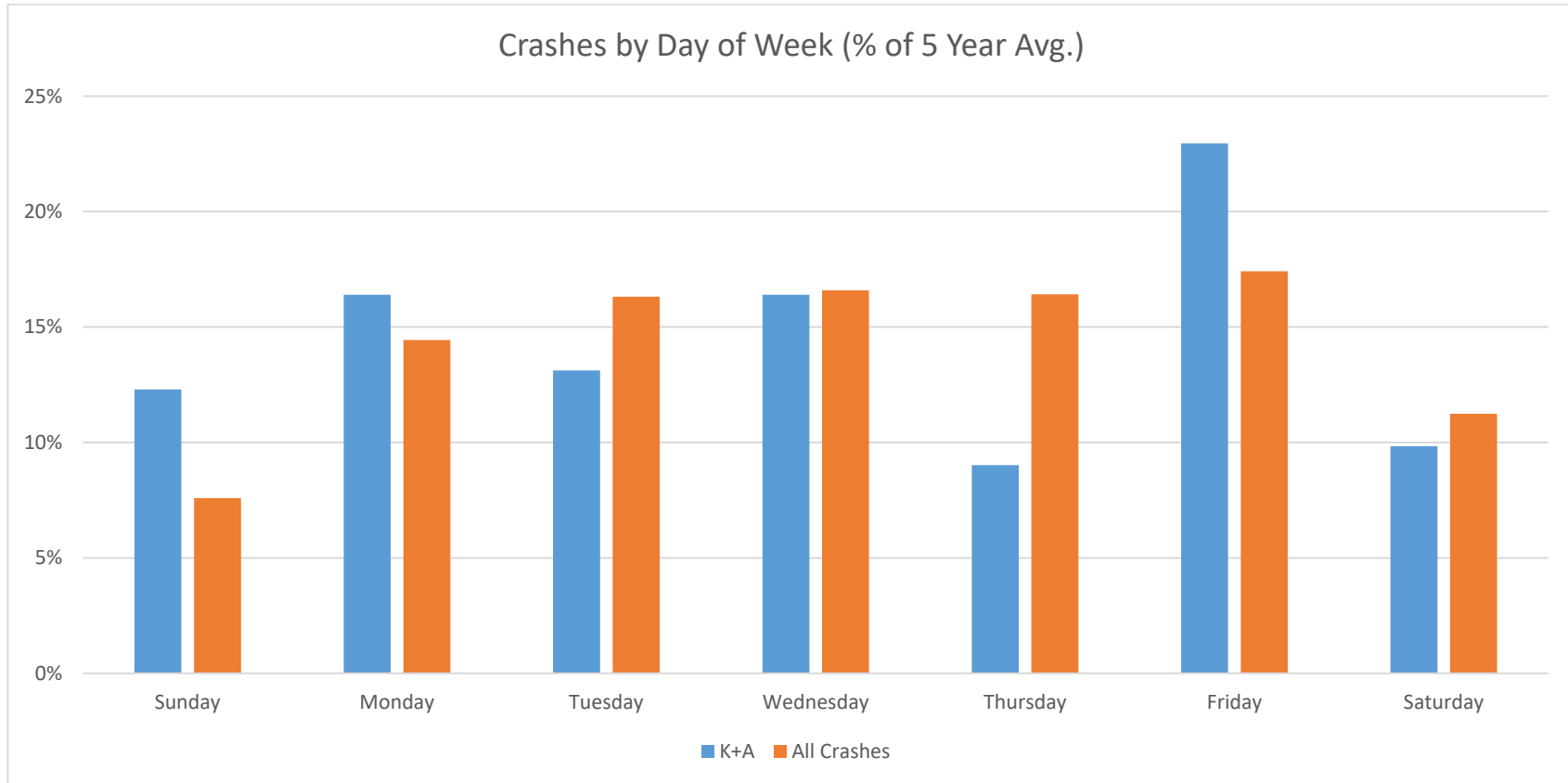


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When did they crash?



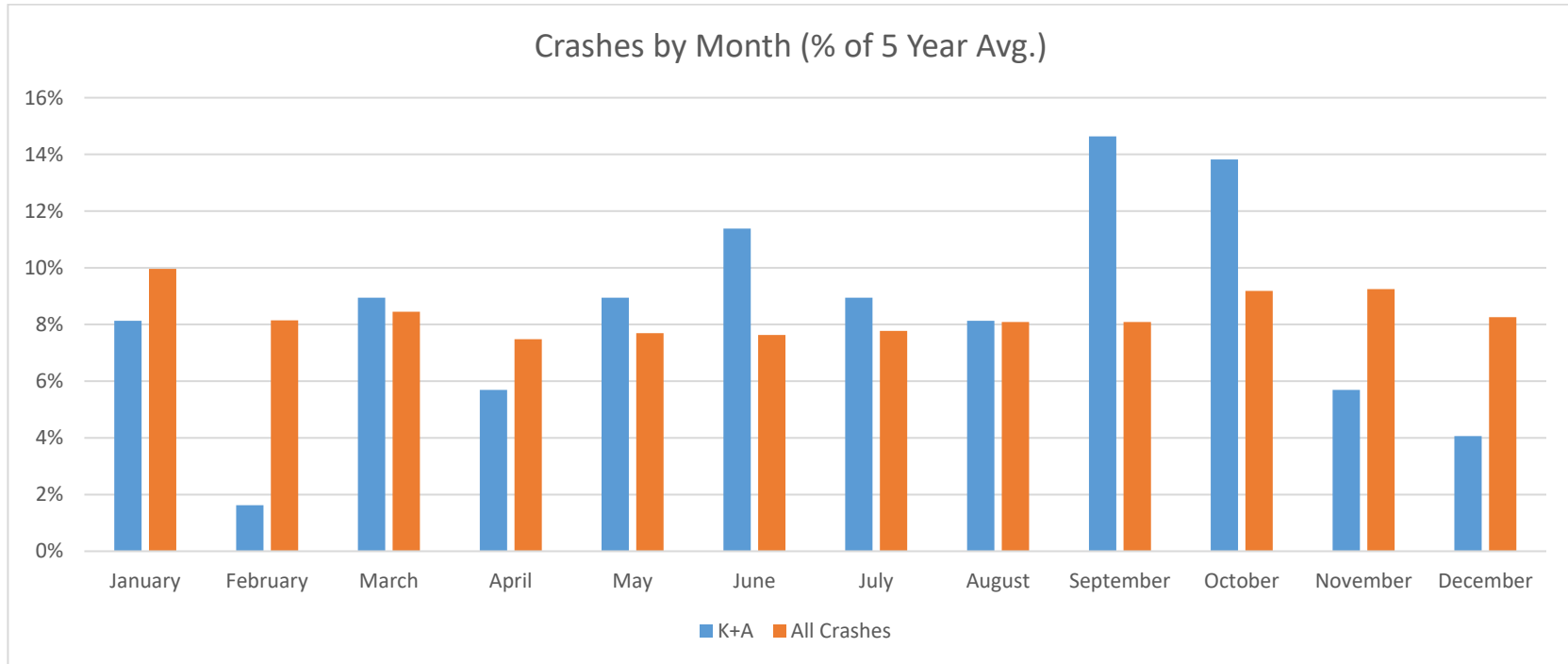
Day of Week



Observations:

- Fewer crashes occur on Sundays.
- Friday has the highest crash concentrations for serious injury crashes.
- Overall total crashes are evenly distributed throughout the week.

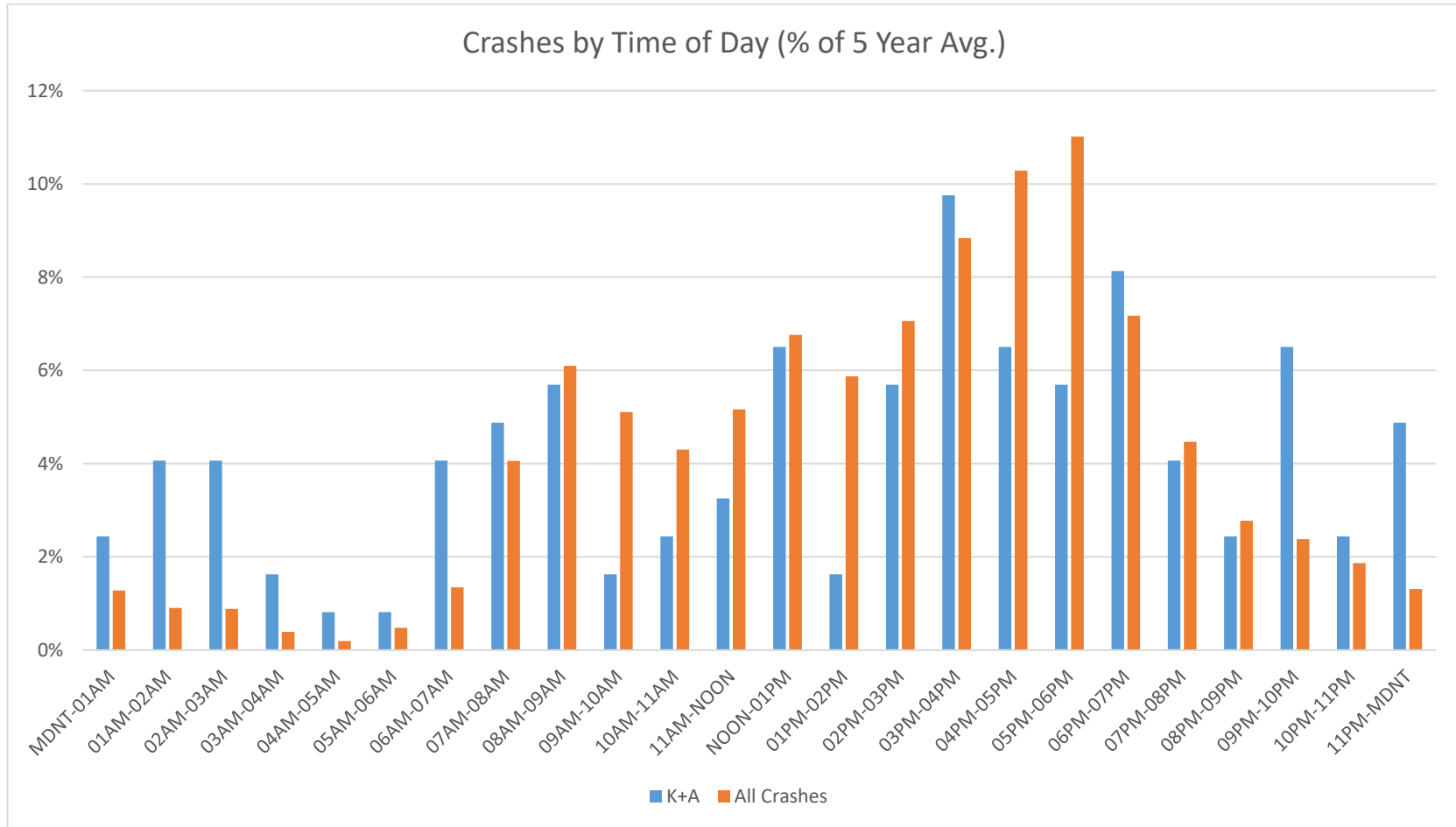
Month of Year



Observations:

- Overall crashes are evenly distributed throughout the year.
- Crash occurrences elevate in the fall, including September, October, and November. This trend is to be expected as the fall combines generally favorable weather conditions with shortened daylight hours. This normal trend is compounded in Ann Arbor by the addition of new residents and changes in residence associated the university.

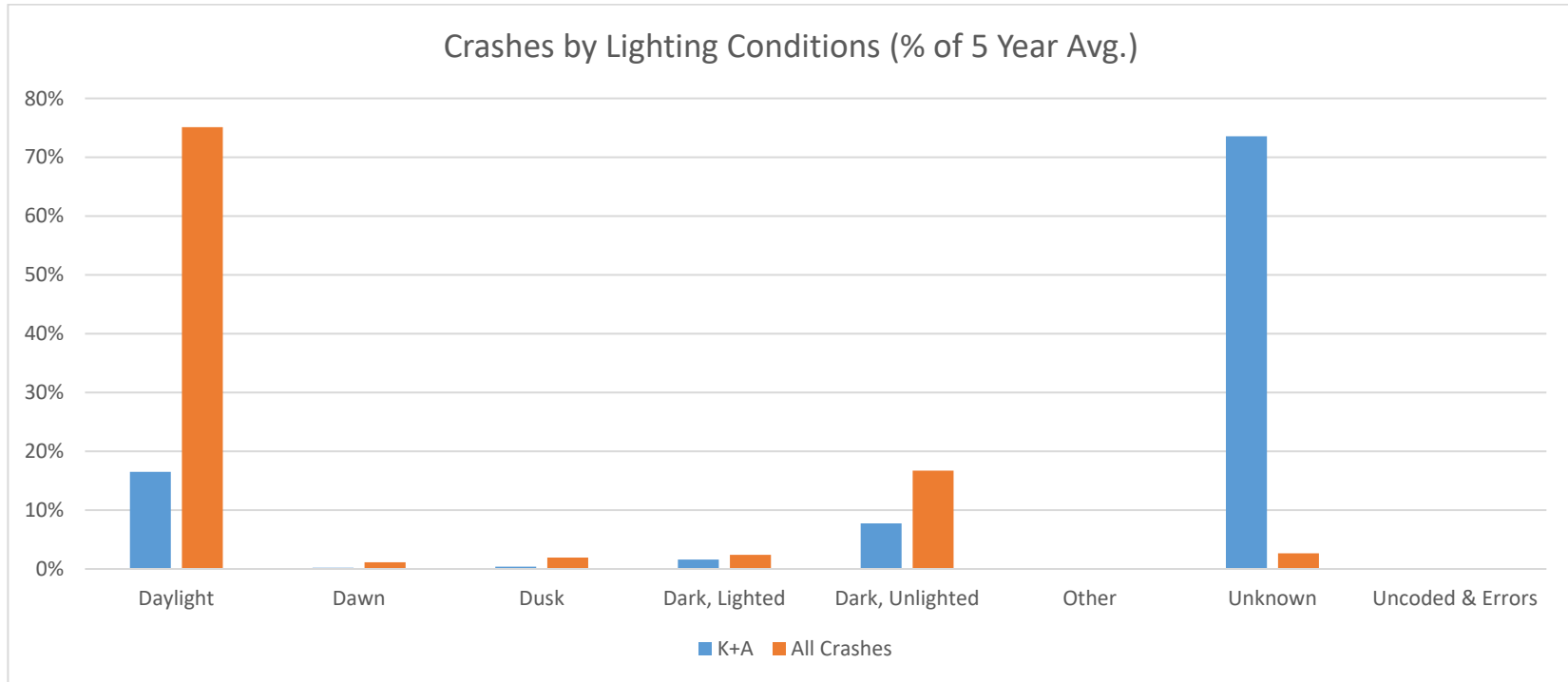
Time of Day



Observations:

- Overall crash occurrences throughout the day continue to follow a pattern consistent with the general trends of traffic volumes throughout the day.
- The highest number of total crashes occur during the hours associated with traditional PM peak travel.
- The highest concentration of severe injury crashes happens during the afternoon and evening hours.

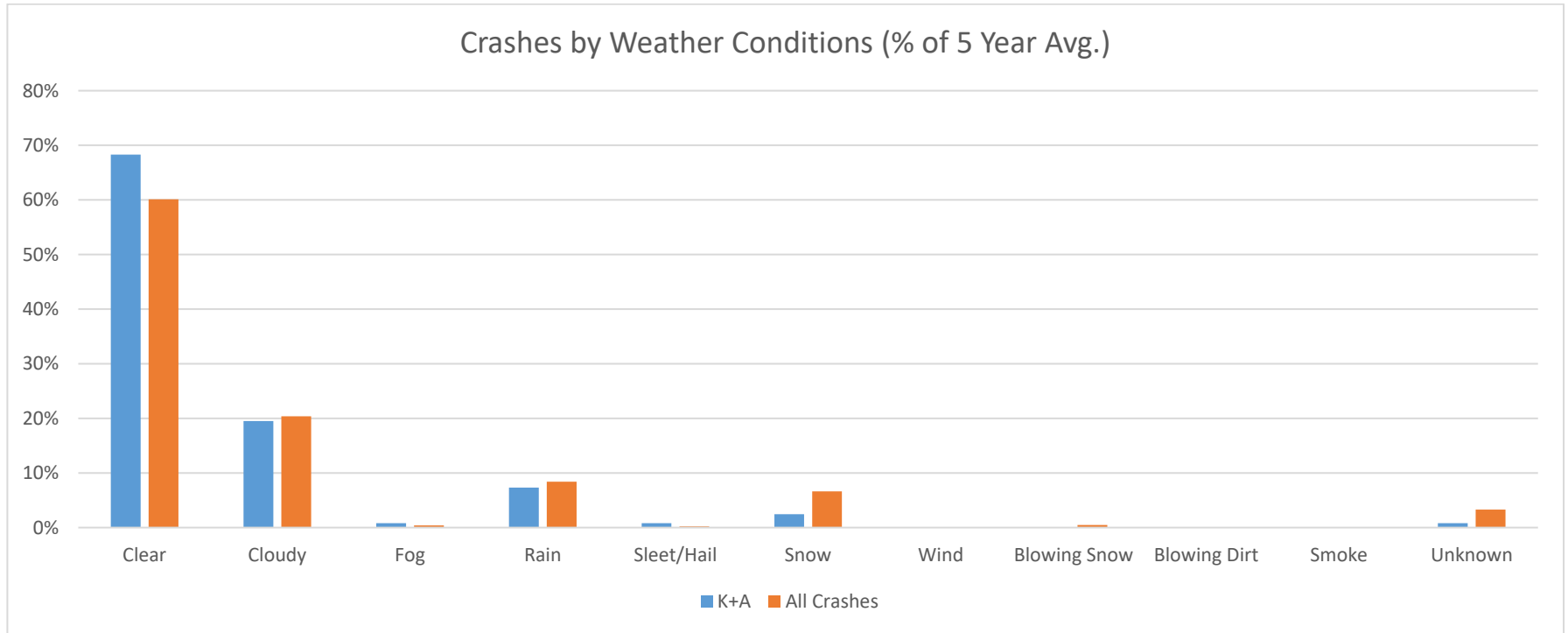
Light Conditions



Observations:

- Most crashes occur during daylight hours
- In 2020 unknown lighting conditions represented 73% of overall crashes and 82% of severe injury crashes. The marked increase in unknown lighting conditions has shifted the results of this graph. It is unknown what role pandemic protocols play into this result.

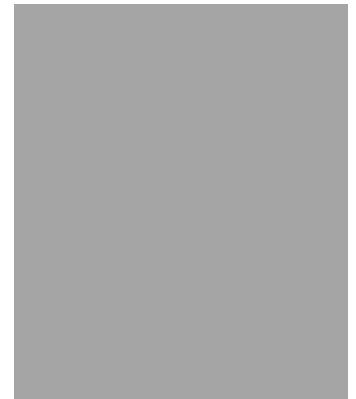
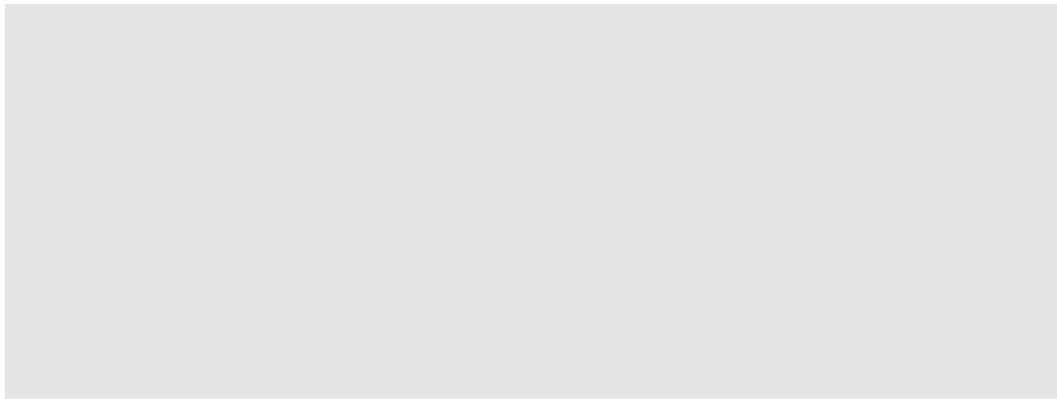
Weather Conditions



Observations:

- Most crashes continue to occur during non-inclement weather.
- Severe injury crashes continue to occur in a similar pattern.

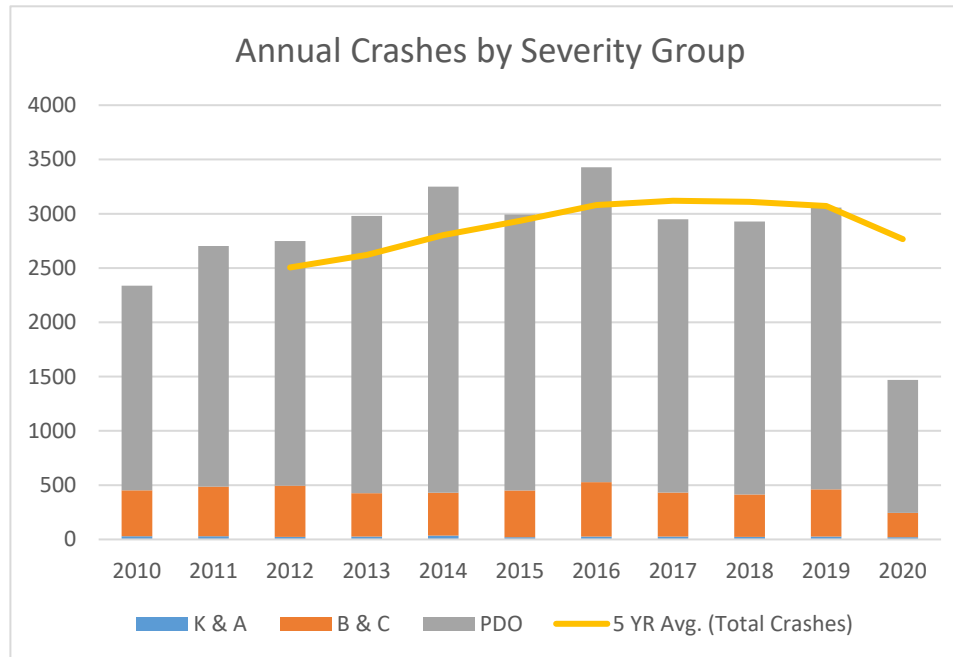
Why did they crash?



Crash Performance by Severity

The following sections review crash data based on the severity of injuries. Data are presented as all crashes, pedestrian involved crashes, and bicyclist involved crashes.

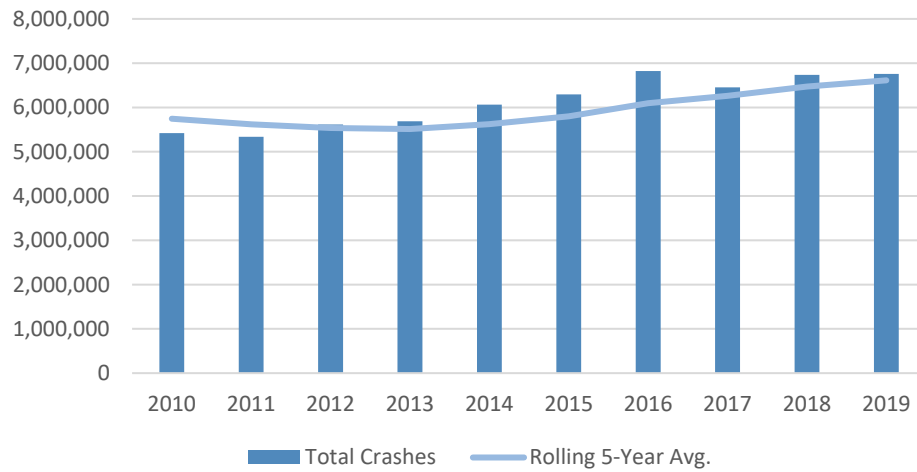
All Crashes



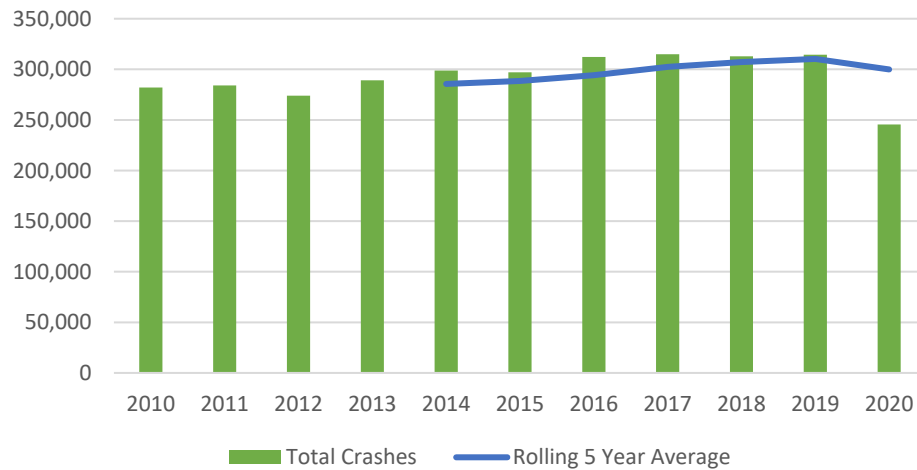
Observations:

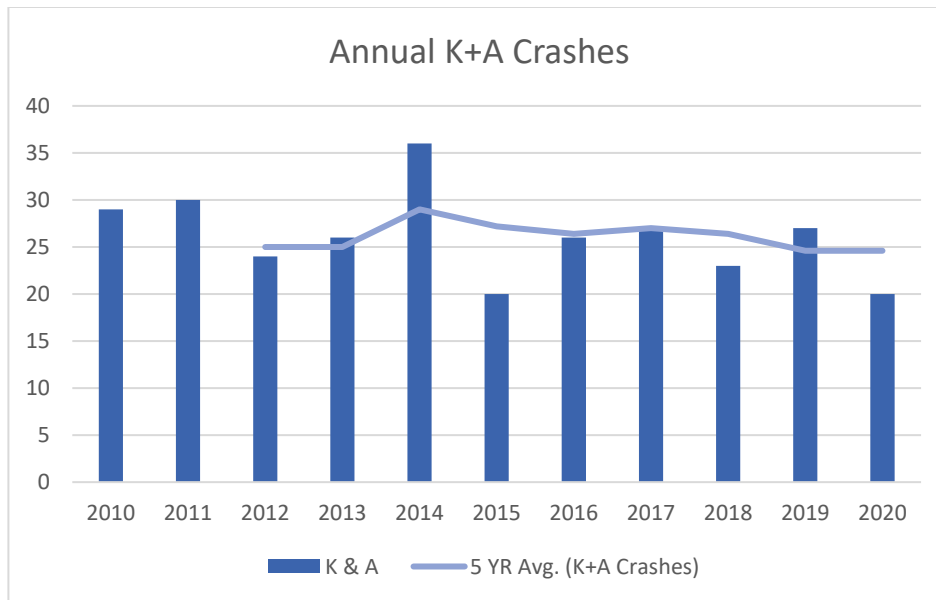
- The rolling five-year trend line shows stabilization through 2019. 2020 shows a significant decline in non-injury crashes.
- The 2020 crash performance is consistent with the statewide crash trend. The reduction in miles traveled due to the pandemic seems to have had the greatest impact on the overall number of low or non-injury crashes
- Ann Arbor's overall crash trend has a more favorable performance than national and statewide crash trends, shown below.

National Annual Total Crashes



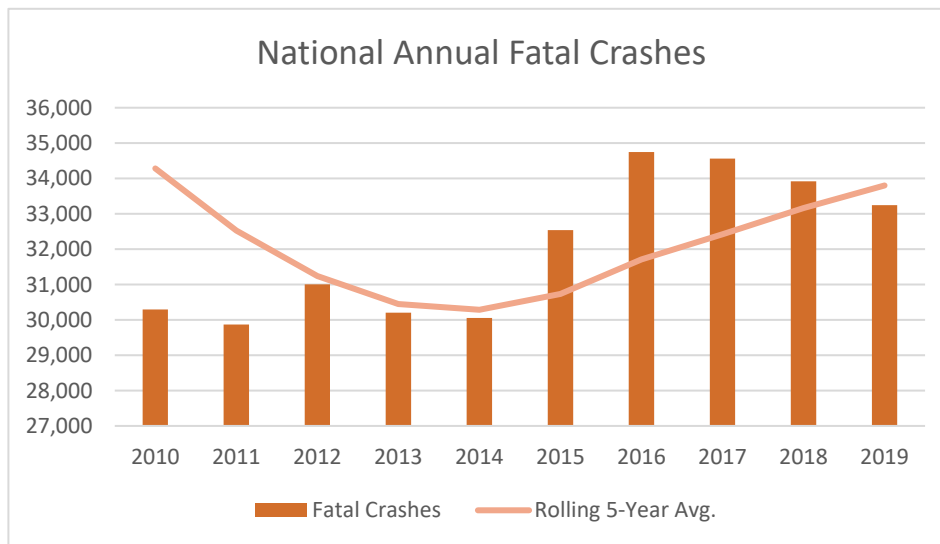
Michigan Annual Total Crashes



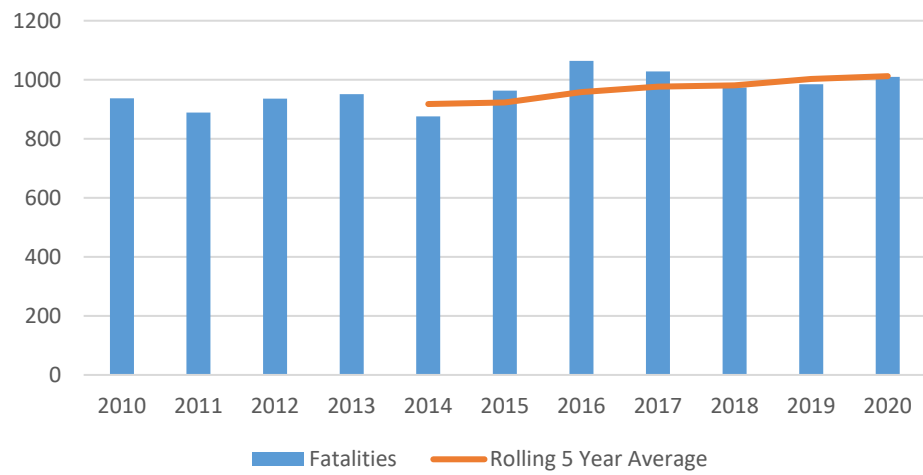


Observations:

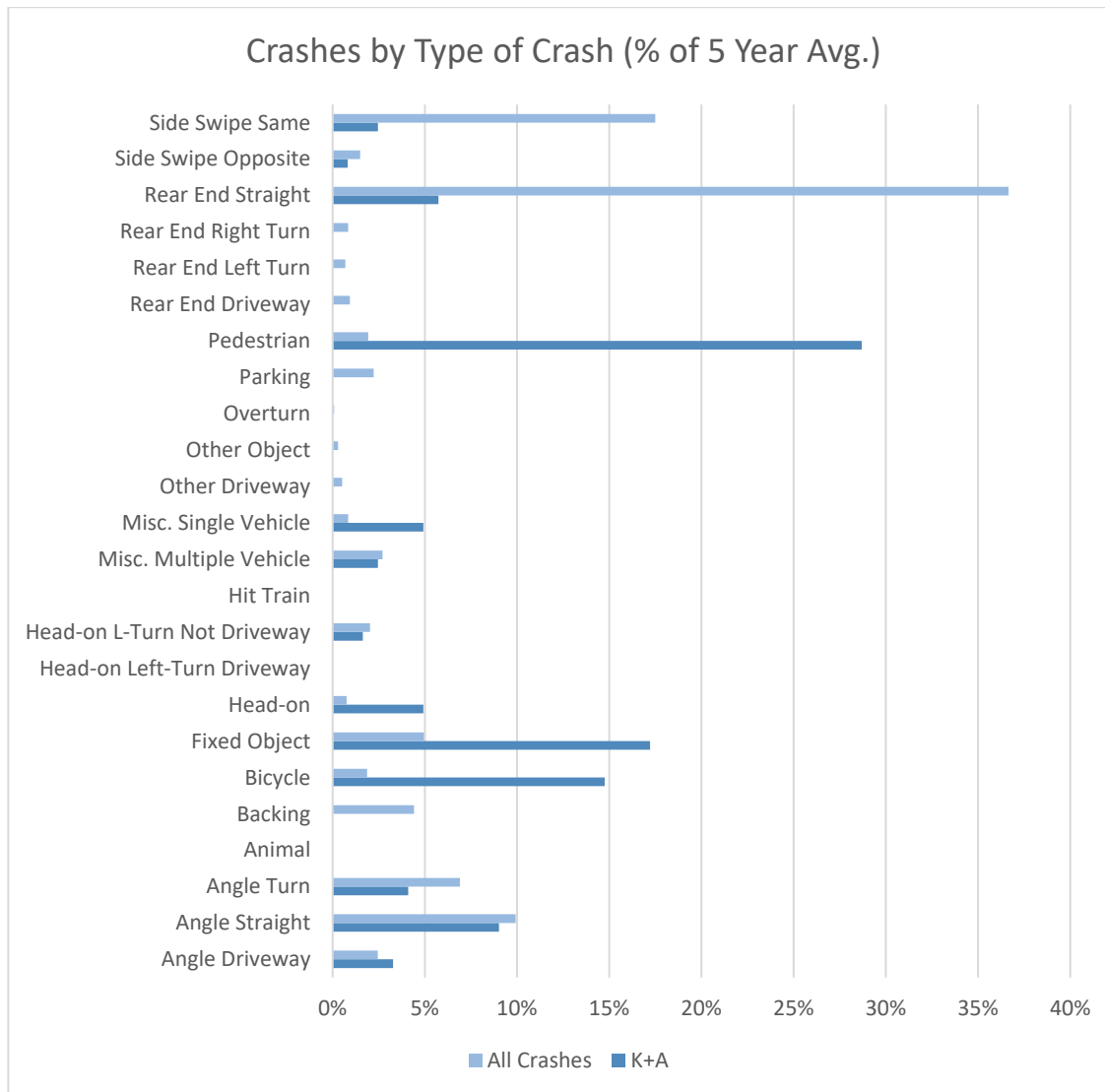
- The five-year trend shows continued stabilization for severe injury crashes.
- Severe injury crashes were down by 3 crashes last year. It is important to recognize that this fluctuation may seem significant on the graph given the low overall number of instances.
- Ann Arbor's trend continues to be stable in contrast to the national and state-wide experience as shown below.



Michigan Annual Fatal Crashes



Crash Performance by Type



Observations:

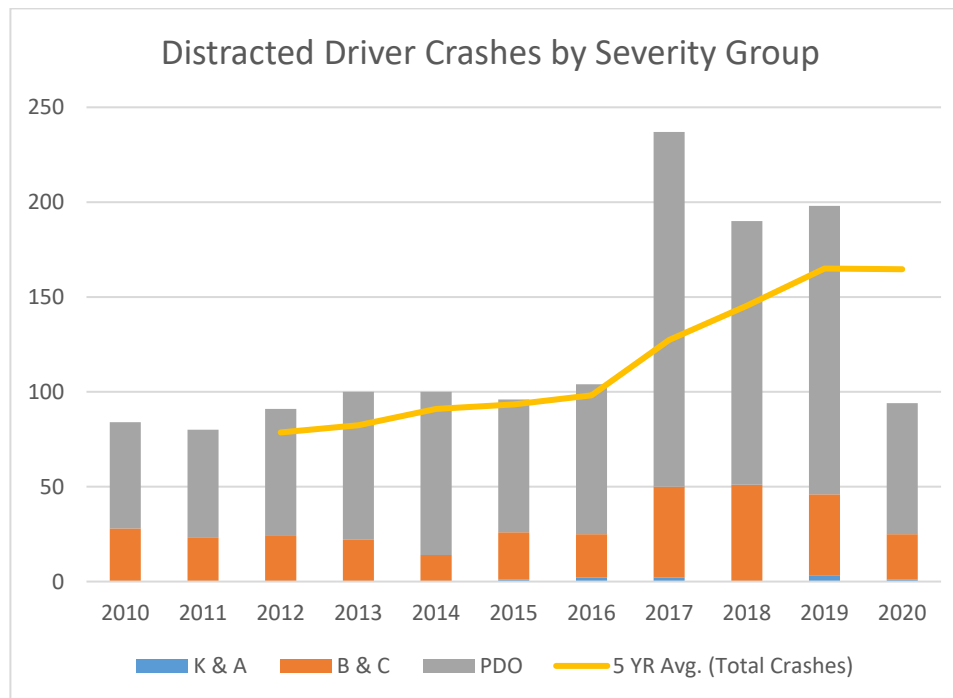
- The overall crash pattern continues to be dominated by rear end collisions.
- Sideswipe and angle crashes are also incident concentrations.
- Pedestrian, bicyclist, and fixed object crashes are the most concentrated areas for severe injury crashes.

Crash Performance by Special Consideration

The following sections present crash results by special, behavioral, considerations. These considerations are being provided at the request of the Transportation Commission. The considerations include:

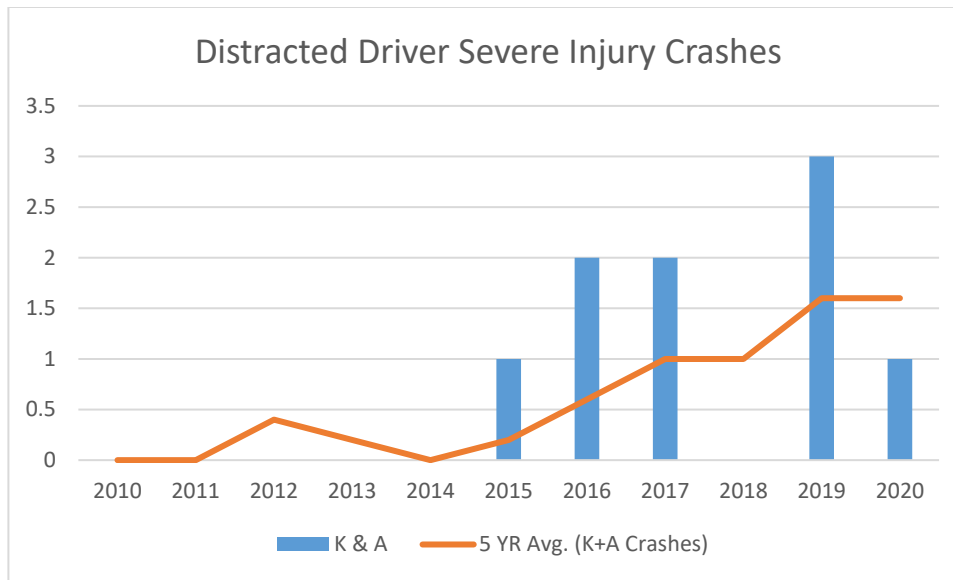
- Crashes noted as including distracted driving
- Crashes by the type of violation (citation) noted
- Crashes with drug or alcohol use noted

Distracted Driving



Observations:

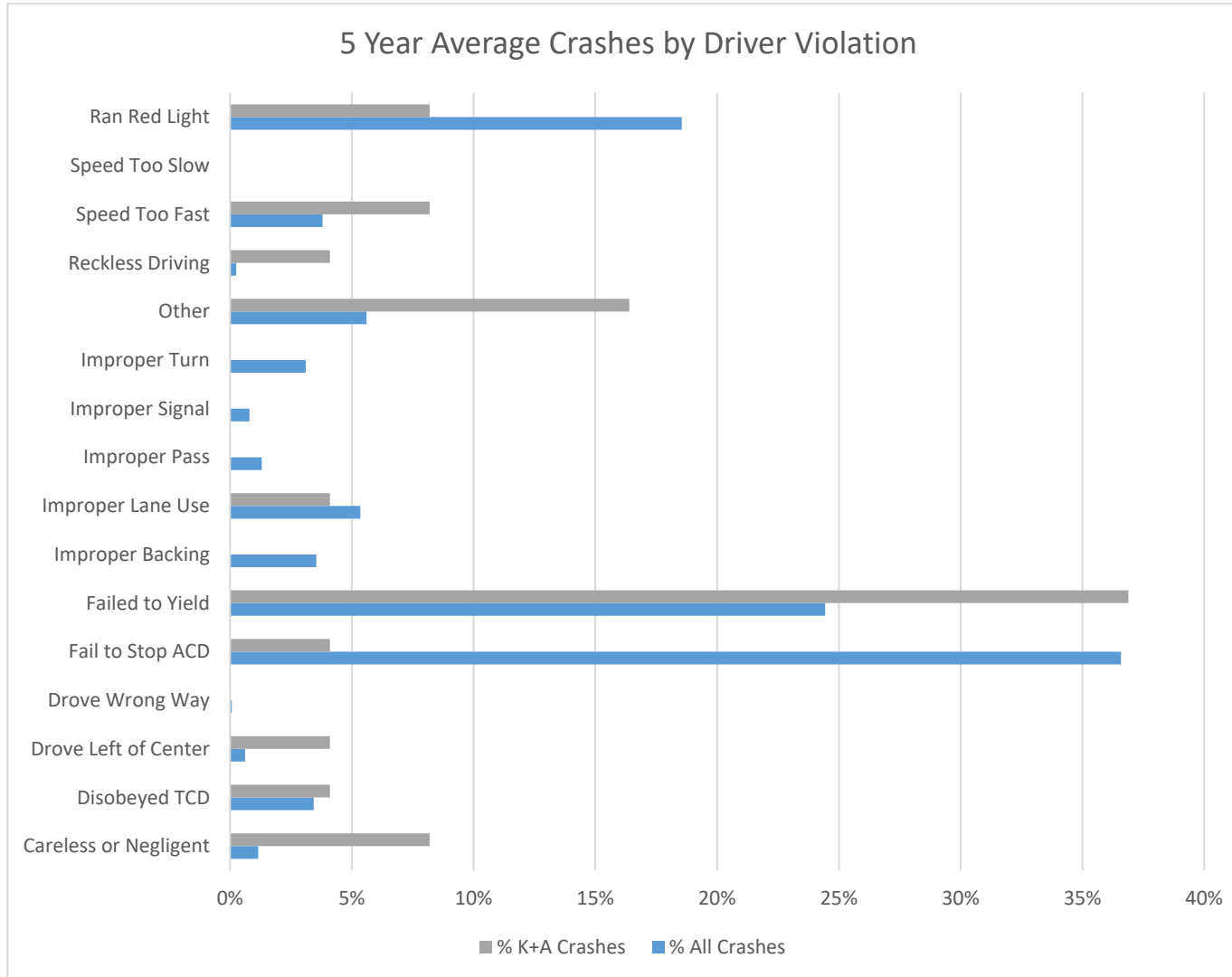
- As previously noted, the strikingly higher numbers of distracted drivers reported in 2017-2019 are likely due to an increase in reporting practice.
- Reports of distracted driving dramatically declined in 2020. It is unknown what effect pandemic protocols may have had on this result.



Observations:

- The trend continues that very few severe injury crashes are reported as involving distracted driving.

Driver Citation (Violation)



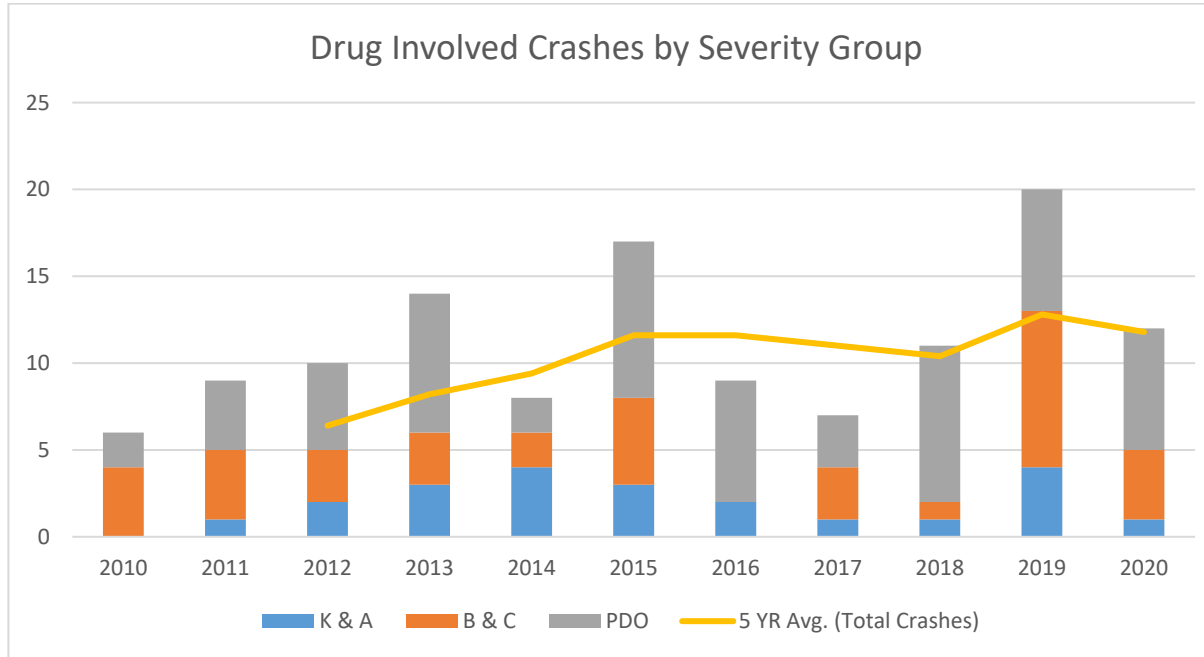
Notes:

- ACD – Assured Clear Distance
- TCD – Traffic Control Device

Observations:

- Failure to yield continues to be the most significant violation contributing to serious injury crashes.
- Failure to stop and yield as well as red light running continue to be the significant behaviors contributing to all crashes.
- Each of these categories points to distraction and not being fully engaged in the process of driving.

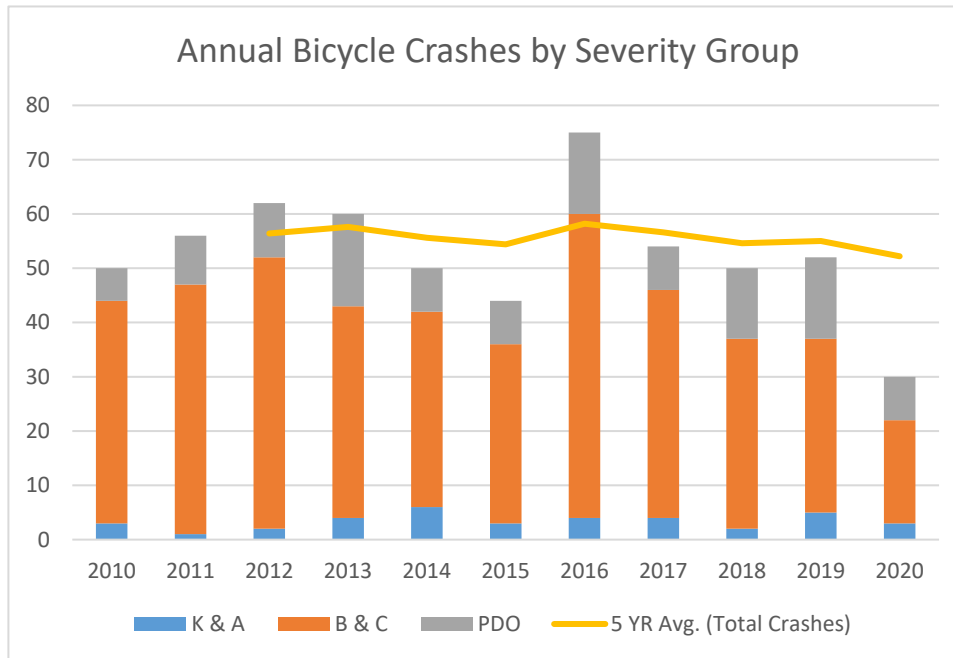
Driving While Under the Influence



Observations:

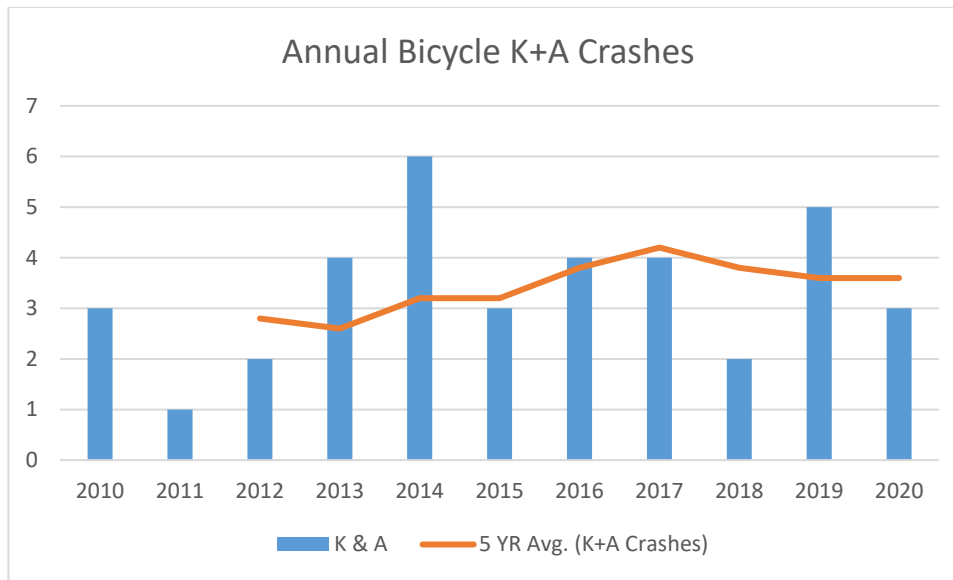
- 2019 experienced a doubling of crashes involving drug impairment.
- 2020 experienced a level of crashes involving drug impairment that is closer to the five-year average trend.

Bicyclist Involved Crashes



Observations:

- As with our pedestrian crashes the overall number of bicycle crashes decreased in 2020.
- The City has experienced significant changes in bicycling infrastructure over the last few years. Continued monitoring of crash performance will help to inform if the trend will be sustained or if the decrease was more associated with pandemic conditions.
- The five-year rolling average to be stable; however, this trend will need future monitoring.



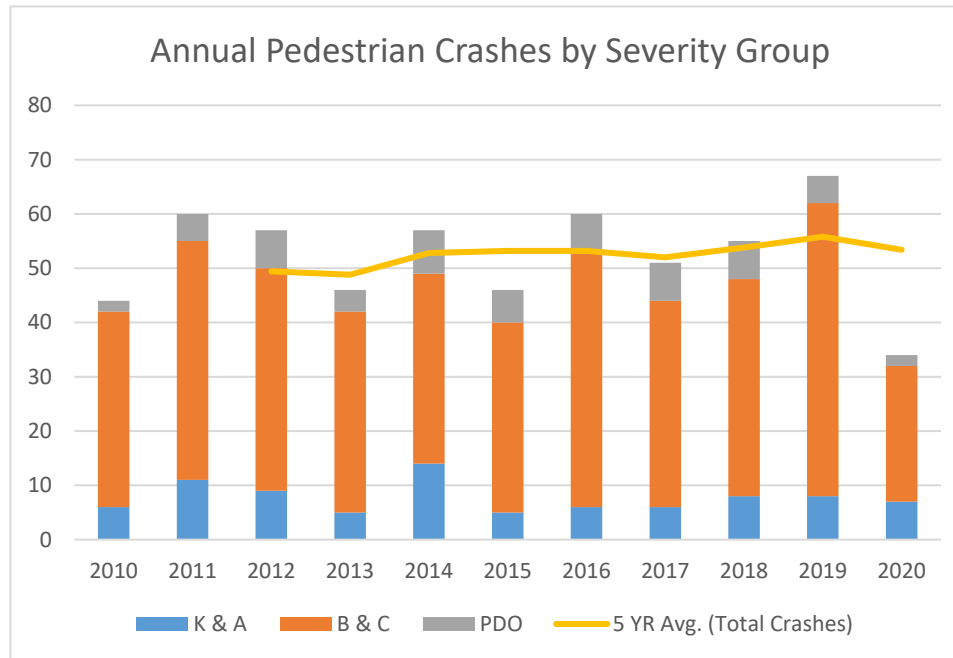
Observations:

- The overall number of serious injury crashes with people who ride bikes continues to vary widely from year to year.
- The five-year rolling average trend line also shows the variability.
- Bicycle crashes should continue to be tracked, especially as the City implements higher levels of bicycle infrastructure.

Deeper Dive:

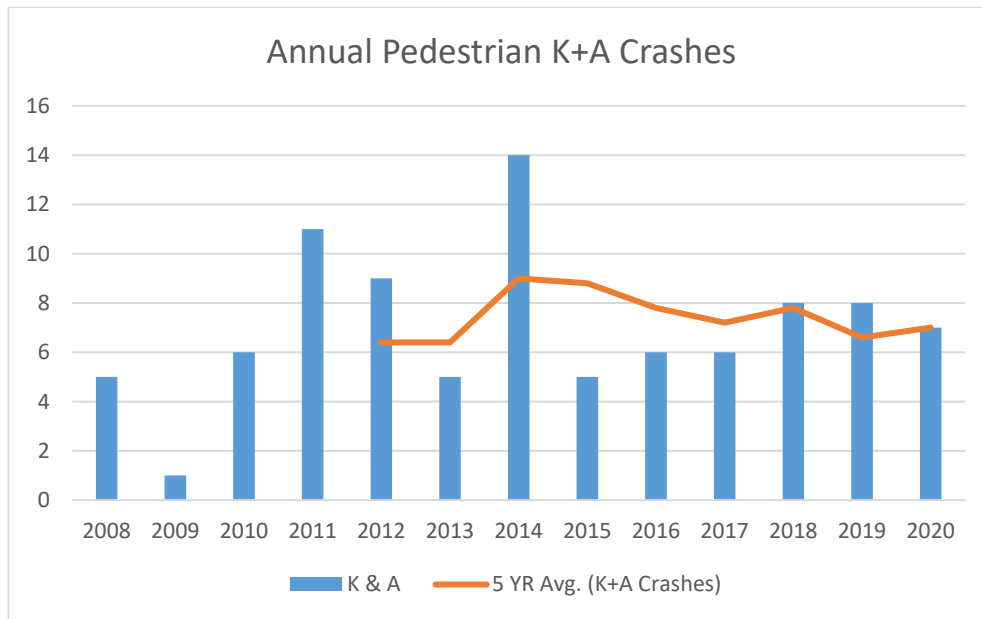
Pedestrians

Pedestrian Involved Crashes



Observations:

- The overall number of pedestrian crashes significantly decreased in 2020. As discussed in the overall crash trend, the reduction in crashes was seen in crashes that do not result in serious injury.
- One can infer that the riskiest types of driving were not diminished during the pandemic.
- 2020 five-year average crashes at a glance:
 - 10.49% result in no injury
 - 76.40% result in non-severe injury
 - 11.99% result in serious injury
 - 1.12% result in fatal injury
 - -4.30% change in average from 2019



Observations:

- The overall number of serious injury pedestrian crashes was consistent with recent years, and the rolling five-year trend shows stability.
- The years following 2014 have had significantly fewer occurrences with severe injury crashes ranging from 5-8 crashes annually.
- The stability of our severe injury continues to be meaningful when compared to the national trends and helps to inform the vision zero implementation project.

Road Name	Intersecting Road Name	Traffic Control	GreatestInjSev	Date	Time	Lighting	Weather	Pedestrian Behavior	Driver Behavior	No. Injured	RRFBs	Back to Driver	Dark	Intoxicated
E Huron St	Fletcher St	Signal	A	7/27/2020	10:54	Daylight	Cloudy	Pedestrian crossing on walk signal.	Driver stopped at traffic signal; proceeded on green. Driver admits being distracted by conversation with passenger.	1				
Ramp 008C	Jackson Rd	Signal	A	6/5/2020	16:35	Daylight	Dry	Pedestrian crossing on walk signal.	Driver stopped at traffic signal; turned right on red indication striking pedestrian in front of their vehicle. MDOT jurisdiction.	1				
Plymouth Rd	Beal Ave.	None	A	7/29/2020	17:54	Daylight	Dry	Pedestrian crossing in crosswalk after activating RRFB.	Driver stated traveling at 25 mph with traffic and pedestrian appeared suddenly.	1	X			
State St	Packard Rd	Signal	A	9/26/2020	2:16	Dark-Lighted	Dry	Pedestrian crossing east-west on walk signal in the crosswalk.	Driver was NB. Hazardous action was noted as "disregard traffic control".	1			X	
Division St	Liberty St	Signal	A	8/25/2020	17:58	Daylight	Dry	Pedestrian crossing west-east outside of the crosswalk (north) and against the FDW signal.	Driver turned left from WB Liberty to NB Division on the green signal.	1		X		
Eisenhower Pkwy	Stone School	Signal	A	5/21/2020	6:59	Daylight	Dry	Pedestrian crossing north-south against signal in the crosswalk.	Driver made left turn with protected turn green arrow. Driver stated glare from the sun decreased visibility but proceeded with green arrow.	1				
Packard Rd	Charing Cross Rd	None	A	11/7/2020	19:07	Dark-Unlighted	Dry	Pedestrian was lying in the roadway.	Driver attempted to avoid what they perceived to be debris in the road; Driver struck the pedestrian, immediately realizing that it was not just debris, stopped.	1			X	
First St	Huron St	Signal	B	3/6/2020	12:18	Daylight	Dry	Pedestrian crossing north-south was struck in southern half of crosswalk.	Driver was SB, turning left.	1		X		
First St	Huron St	Signal	B	3/6/2020	19:34	Dark-Lighted	Dry	Pedestrians were crossing north-south in the east crosswalk.	Driver was SB, turning left.	2		X	X	
Maple Rd	Jackson Ave	Signal	B	12/20/2020	18:15	Daylight	Dry	Youth pedestrian was crossing in southern crosswalk.	Driver turned right from WB, struck pedestrian, and fled the scene.	1				
Huron Rd	Crest Ave	None	B	8/27/2020	23:14	Dark-Unlighted	Dry	Pedestrian crossing mid-block, 40 feet west of intersection, not within a designated or legal crosswalk. Pedestrian was crossing south-north.	Driver was EB on Huron Street. Driver saw pedestrian step out and attempted to stop and swerve. Driver was unable to avoid striking the ped, but actions reduced the severity of injuries.	1				
Huron Rd	Division St	Signal	B	2/13/2020	18:59	Dark-Lighted	Blowing Snow	Pedestrian was crossing south-north, in crosswalk with WALK signal.	Driver was turning right and focused on 2 SB pedestrians.	1		X	X	
Washtenaw Ave	Glenwood	Signal	B	12/2/2020	9:52	Daylight	Dry	Pedestrian was crossing south-north, in crosswalk with WALK signal.	Driver was SB, turning left.	1				

Road Name	Intersecting Road Name	Traffic Control	GreatestInjSev	Date	Time	Lighting	Weather	Pedestrian Behavior	Driver Behavior	No. Injured	RRFBs	Back to Driver	Dark	Intoxicated
Pontiac Trl	Northside Ave	None	B	1/9/2020	15:05	Daylight	Dry	Pedestrian was crossing east-west at an intersection without a crosswalk.	Driver was NB. Driver did not have time to react to pedestrian. (Witnesses)	1				
Gladstone Ave	Packard Rd	Stop	B	1/10/2020	7:41	Dark-Unlighted	Dry	Pedestrian was crossing east-west in the crosswalk.	Approached Packard intending to turn left; driver did not look for nor see pedestrian in the crosswalk.	1			X	
Platt Road	Packard Rd	Signal	B	10/2/2020	20:19	Dark-Lighted	Dry	Pedestrian was crossing east-west in crosswalk with WALK signal.	Driver was turning right from WB to NB; driver failed to yield.	1		X	X	
Forest Ave	South University	None	B	10/18/2020	20:10	Dark-Lighted	Rain	Pedestrians were crossing west-east in the crosswalk.	Driver was turning left from EB to NB.	2		X	X	
Maple Rd	Pennsylvania Ave	None	B	1/11/2020	21:15	Dark-Lighted	Rain	Pedestrian was crossing west-east in crosswalk. Unknown if RRFB was activated.	Driver was turning left from SB to EB, unfamiliar with the area, and following a construction detour.	1	X		X	
Observatory St	Washington Hts	None	B	1/11/2021	18:15	Dark-Lighted	Rain	Pedestrians were crossing in the crosswalk along with other groups of pedestrians crossing in crosswalks on both sides of the intersection.	Driver had stopped to yield the right of way to pedestrians but proceeded once the near crosswalk had cleared without the far crosswalk being fully cleared.	2			X	
Liberty St	Division St	Signal	B	1/31/2020	16:02	Daylight	Dry	Pedestrian crossing north-south in the crosswalk with WALK signal.	Driver of Unit 2 was turning right from NB to EB and stopped for the pedestrian. Driver of Unit 1 collided into Unit 2 pushing Unit 2 into the pedestrian.	1				
Division St	Liberty St	Signal	B	2/2/2020	18:14	Dawn	Dry	Pedestrian crossing the west approach in the crosswalk with the WALK signal.	Driver was turning right from NB to WB.	1			X	
Fuller Ct	Fuller Rd	None	B	1/23/2020	7:44	Dawn	Dry	Pedestrian was an appropriately attired construction working standing in the street controlling traffic (flagging).	Motorist was WB and drove into pedestrian.	1			X	
Catherine St	State St	Stop	B	2/7/2020	12:00	Daylight	Unknown	Pedestrian crossing south-north in the west approach in the crosswalk.	Driver was turning left from NB to WB.	1		X		
Huron St	Division St	Signal	C	3/9/2020	23:46	Dark-Lighted	Rain	Pedestrian crossing the north approach travelling west-east in the crosswalk.	Driver was turning left from EB to NB.	1		X	X	
Huron St	Fletcher St	None	C	1/13/2020	17:14	Dusk	Dry	Pedestrians crossing the east approach north-south.	Driver was turning left from NB to WB.	3			X	
State St	Hidden Valley Club Dr	None	C	3/3/2020	6:44	Dawn	Dry	Pedestrian crossing mid-block without a crosswalk.	Driver was turning left across pedestrian's path.	1			X	
Packard Rd	Wells St	Signal	C	2/7/2020	19:30	Dark-Lighted	Dry	Pedestrian crossing in the crosswalk with WALK signal.	Driver was turning left across pedestrian's path.	1		X	X	
Observatory St	Washington Hts	None	C	8/24/2020	9:30	Daylight	Dry	Pedestrian was mid-block attempting to stop a wrong-way vehicle during the UM move-in operations.	Driver was SB, grazed the pedestrian, and left the scene.	1				
Ann St	Glen Ave	Signal	C	11/21/2020	15:19	Daylight	Dry	Pedestrian was crossing the west approach north-south.	Driver was turning left across pedestrian's path.	1		X		

Road Name	Intersecting Road Name	Traffic Control	GreatestInjSev	Date	Time	Lighting	Weather	Pedestrian Behavior	Driver Behavior	No. Injured	RRFBs	Back to Driver	Dark	Intoxicated
Hill St	Forest Ave	Stop	C	8/31/2020	14:32	Daylight	Dry	Pedestrian was crossing in the east crosswalk traveling north-south.	Driver was turning left from SB to EB. Driver stated they were focused on vehicular traffic; witness stated it didn't seem like the driver was looking for pedestrians.	1		X		
Ellsworth Rd	Platt Rd	Signal	C	11/24/2020	17:21	Dark-Lighted	Sleet/Hail	Pedestrian was crossing the north approach, east-west.	Driver was turning right from EB to NB.	1		X	X	
Fuller Ct	Fuller Rd	Signal	C	3/16/2020	8:04	Daylight	Dry	Pedestrian was crossing mid-block, not in a crosswalk, and traveling south-north.	Driver was SB turning left; driver's sight lines to the pedestrian was block by another vehicle turning right into the private drive.	1				
Church St	South University	Stop	PDO	1/24/2020	18:00	Unknown	Unknown	Pedestrian was crossing in the crosswalk on the north approach.	Driver was turning left EB to NB.	1				
Plymouth Rd	Traverwood Dr	None	PDO	3/13/2020	14:19	Daylight	Dry	Pedestrian was crossing in the mid-block location 100' east of the intersection.	Driver claimed to have not seen the pedestrian but was traveling at a slow speed.	1	X			