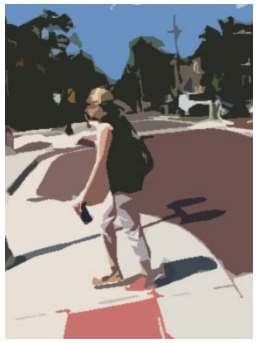
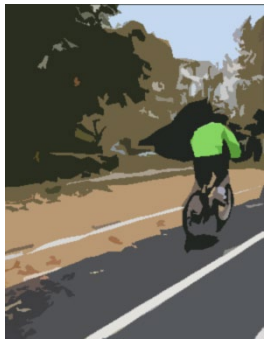
City of Ann Arbor

2020 Annual Crash Review

DRAFT

Calendar Years 2010-2019





September 2020

Introduction

City staff have prepared this report to provide the Transportation Commission with an understanding of the City's recent crash history and crash trends. This report was developed by Transportation staff and is intended to provide the Transportation Commission with information to help guide policy recommendations. 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 continue to utilize these data through the Roadsoft software package. Roadsoft provides a variety of analysis tools that can be used to better understand traffic crash patterns. The City's engineering staff have confirmed that the ranking methodology used through Roadsoft provides prioritization and ranking results consistent with the Tier I and Tier II safety improvement corridors and intersections identified through the ongoing transportation plan update.

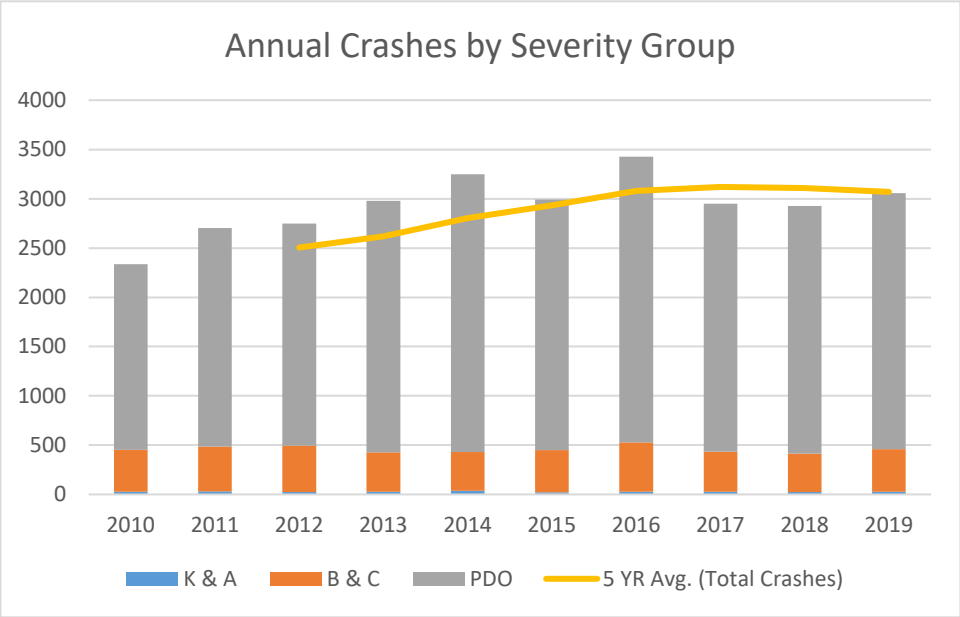
National crash data was obtained from the National Highway Traffic Safety Administration (NHTSA):

- Overall crash trend data was obtained from the Traffic Safety Facts Annual Report Tables (https://cdan.nhtsa.gov/tsftables/tsfar.htm#).
- Pedestrian crash data was obtained from the National Safety Council Analysis of the NHTSA pedestrian data (https://injuryfacts.nsc.org/motor-vehicle/road-users/pedestrians/data-details/#:~:text=National%20Safety%20Council%20analysis%20of,compared%20to%206%2C075%20in%202017).

Crash Performance by Severity

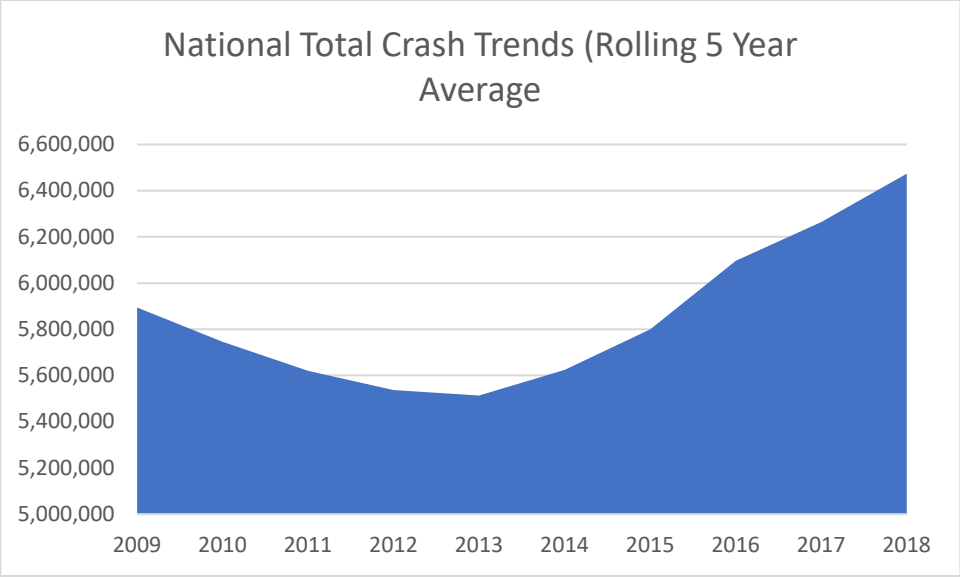
The following sections review crash data based on the severity of injuries. Data are presented as all crashes, pedestrian involved crashes, and bicyclist involved crashes.

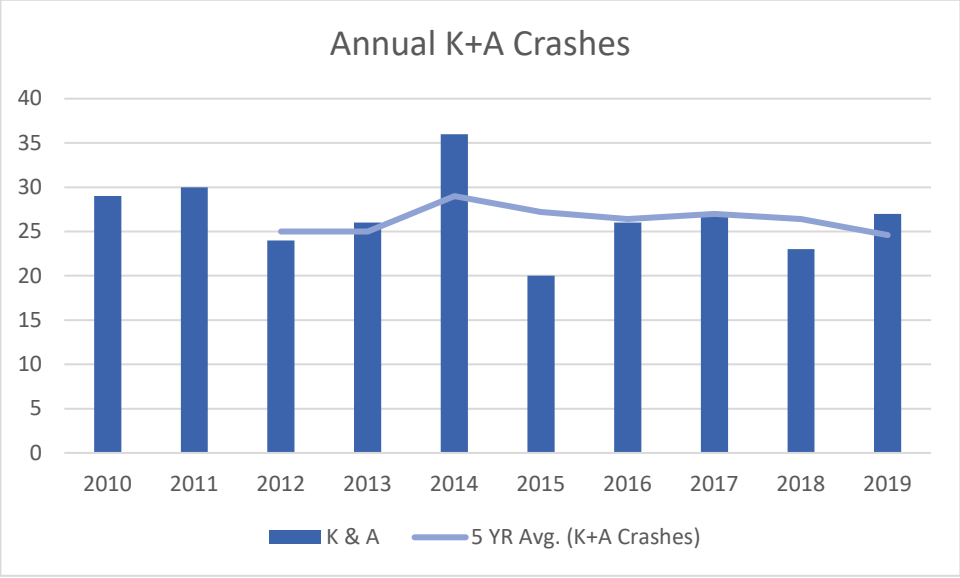
All Crashes



Observations:

- The rolling five-year trend line show continued stabilization through 2019.
- 2019 five-year average crashes at a glance:
  - 84.53% result in no injury
  - 14.13% result in non-severe injury
  - 0.73% result in serious injury
  - 0.07% result in fatal injury
  - -1.24% change in average from 2018
- Ann Arbor's overall crash trend has a more favorable performance than national crash trends, shown below.

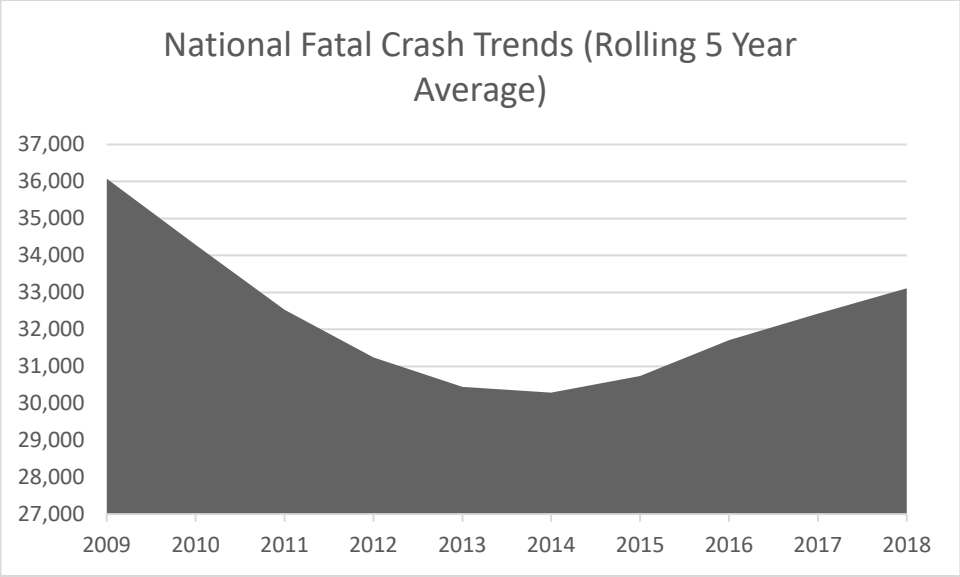


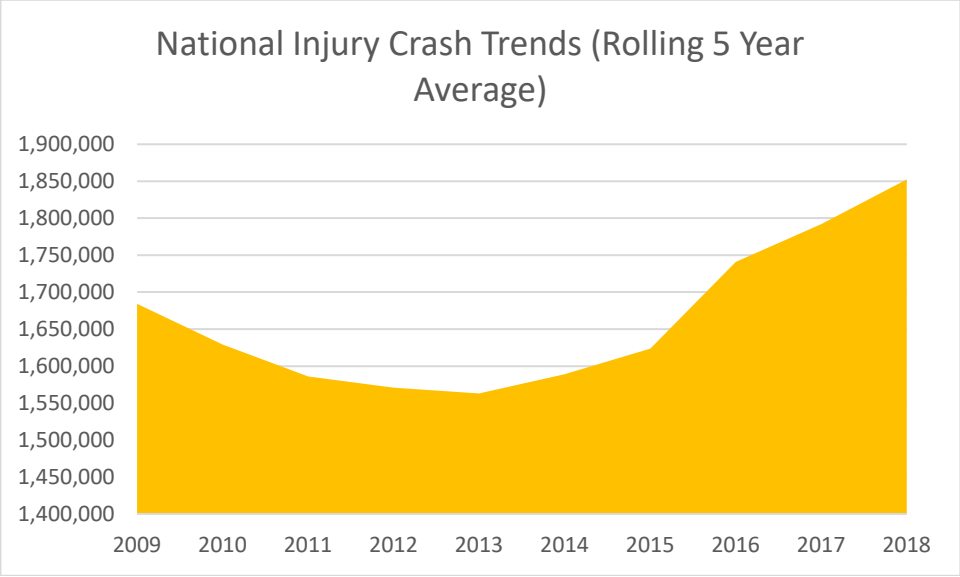


Observations:

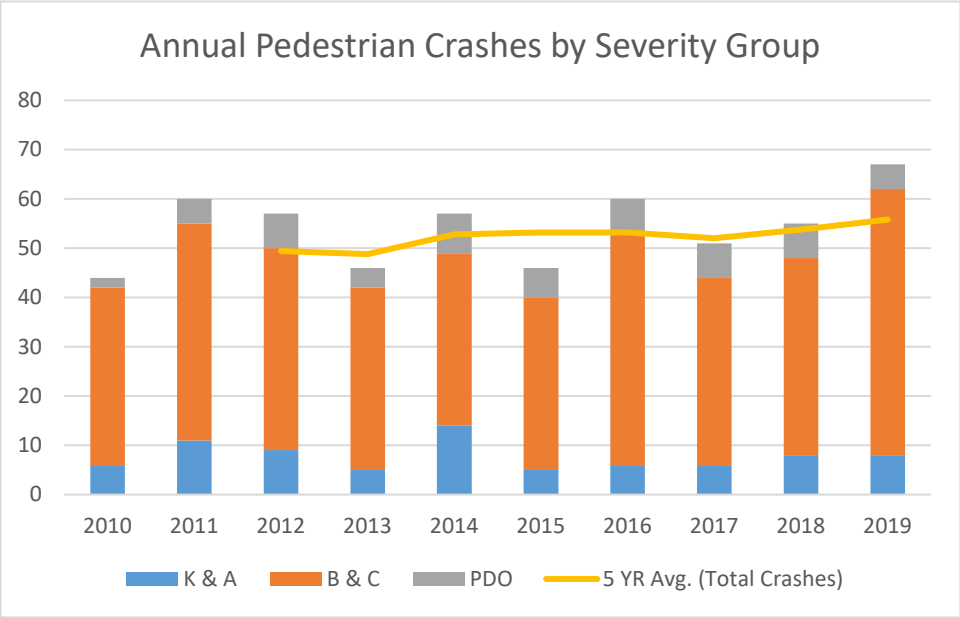
- The five-year trend shows continued stabilization for severe injury crashes.
- Severe injury crashes were up last year by 4 crashes. It is important to recognize that this fluctuation may seem significant on the graph given the low overall number of instances.

- This stable trend is in stark contrast to the national experience, shown below.


National Fatal Crash Trends (Rolling 5 Year Average)
37,000
36,000
35,000
34,000
33,000
32,000
31,000
30,000
29,000
28,000
27,000
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018


National Injury Crash Trends (Rolling 5 Year Average)
1,900,000
1,850,000
1,800,000
1,750,000
1,700,000
1,650,000
1,600,000
1,550,000
1,500,000
1,450,000
1,400,000
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018

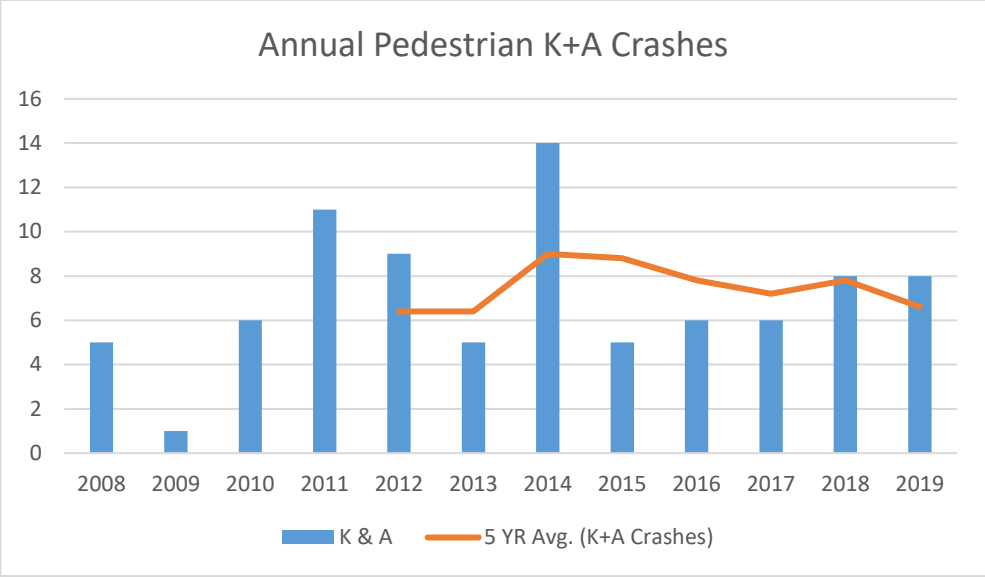
Pedestrian Involved Crashes

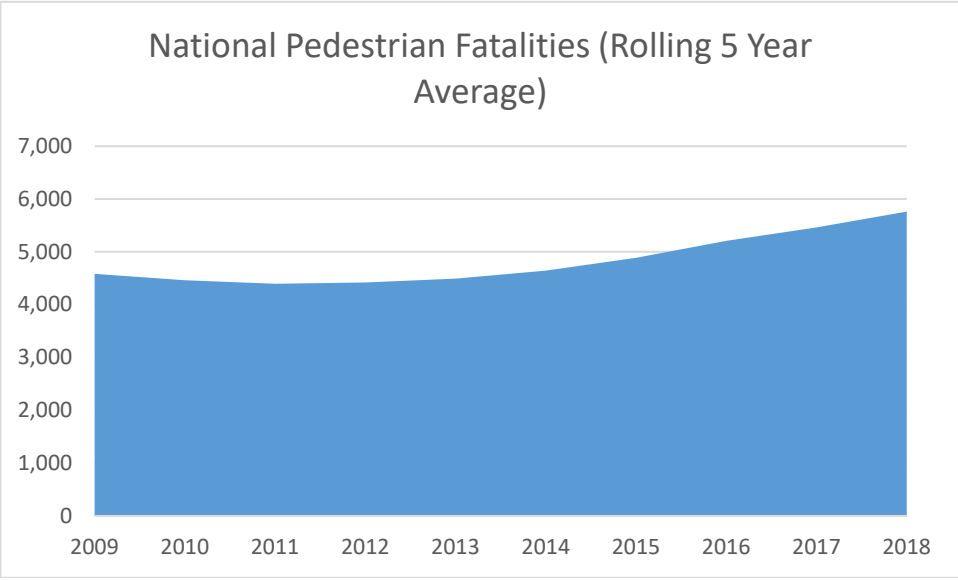


Observations:

- The overall number of pedestrian crashes increased in 2019. This increase represents 12 additional crashes.

- 2019 five-year average crashes at a glance:
  - 11.47% result in no injury
  - 76.70% result in non-severe injury
  - 11.11% result in serious injury
  - 0.72% result in fatal injury
  - 3.72% change in average from 2018

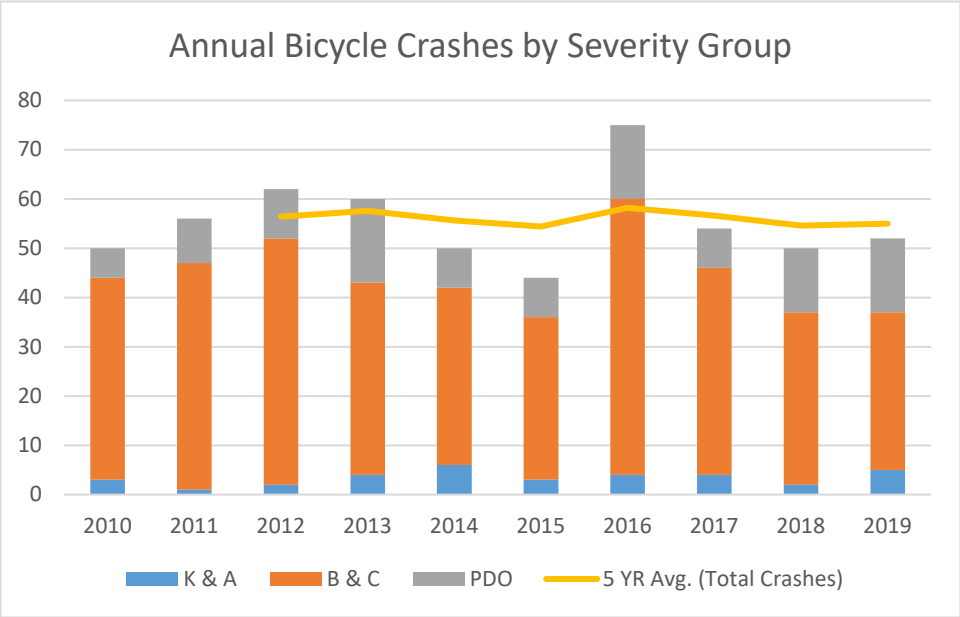




Observations:

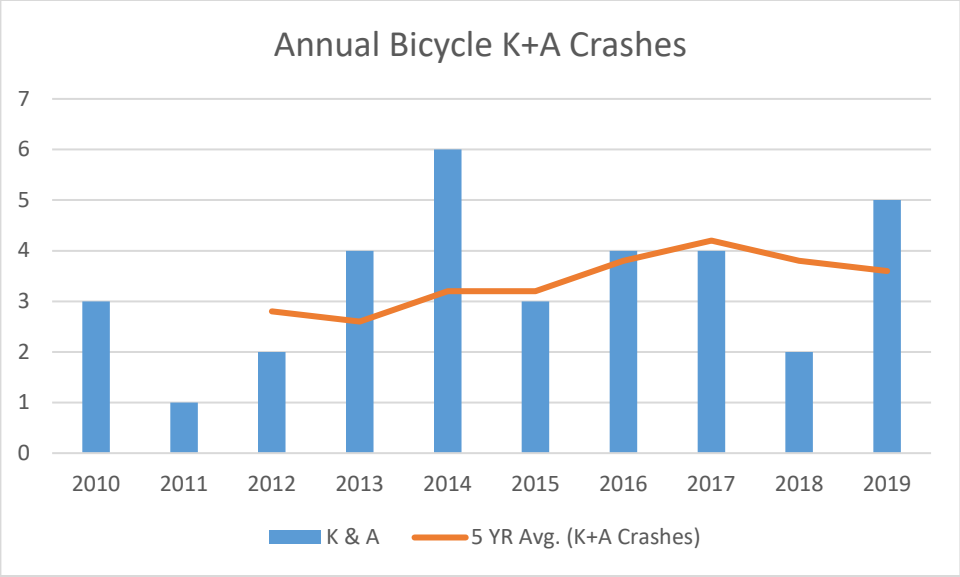
- Although the overall number of pedestrian crashes was up in 2019. The rolling five-year trend analysis shows stability.
- The years following 2014 have had significantly fewer occurrences with severe injury crashes ranging from 5-8 crashes annually.
- The stability of our severe injury crashes is signification when compared to the national trends.

Bicyclist Involved Crashes



Observations:

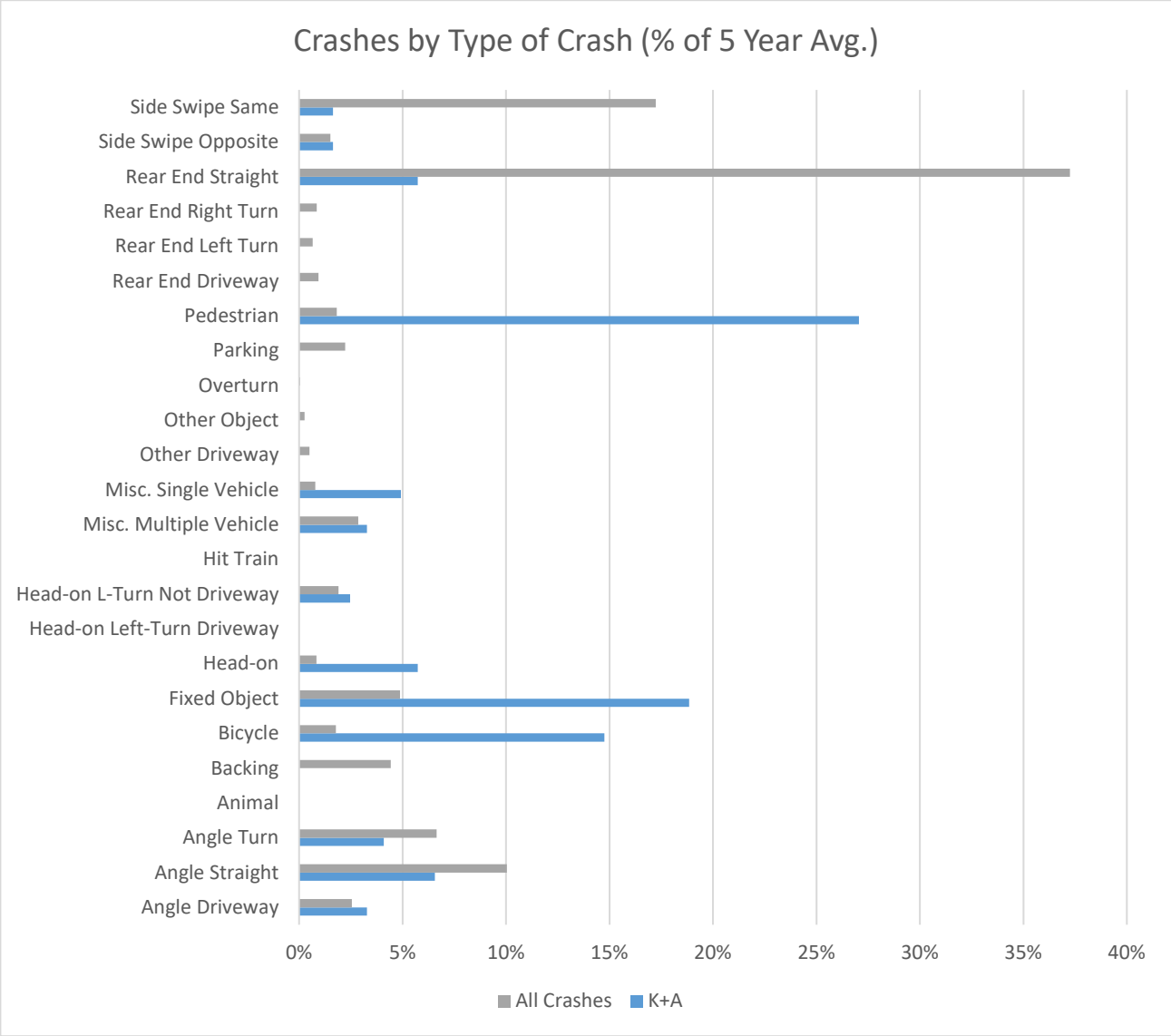
- The overall number of bicycle crashes increased from 2018 to 2019 by two crashes. While this increase may seem significant when looking at the graph, the five-year average shifted by only 0.73%.
- The five year rolling average trend line shows a fairly stable average crash history ranging between 54 and 59 crashes in any given year.



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.

Crash Performance by Type



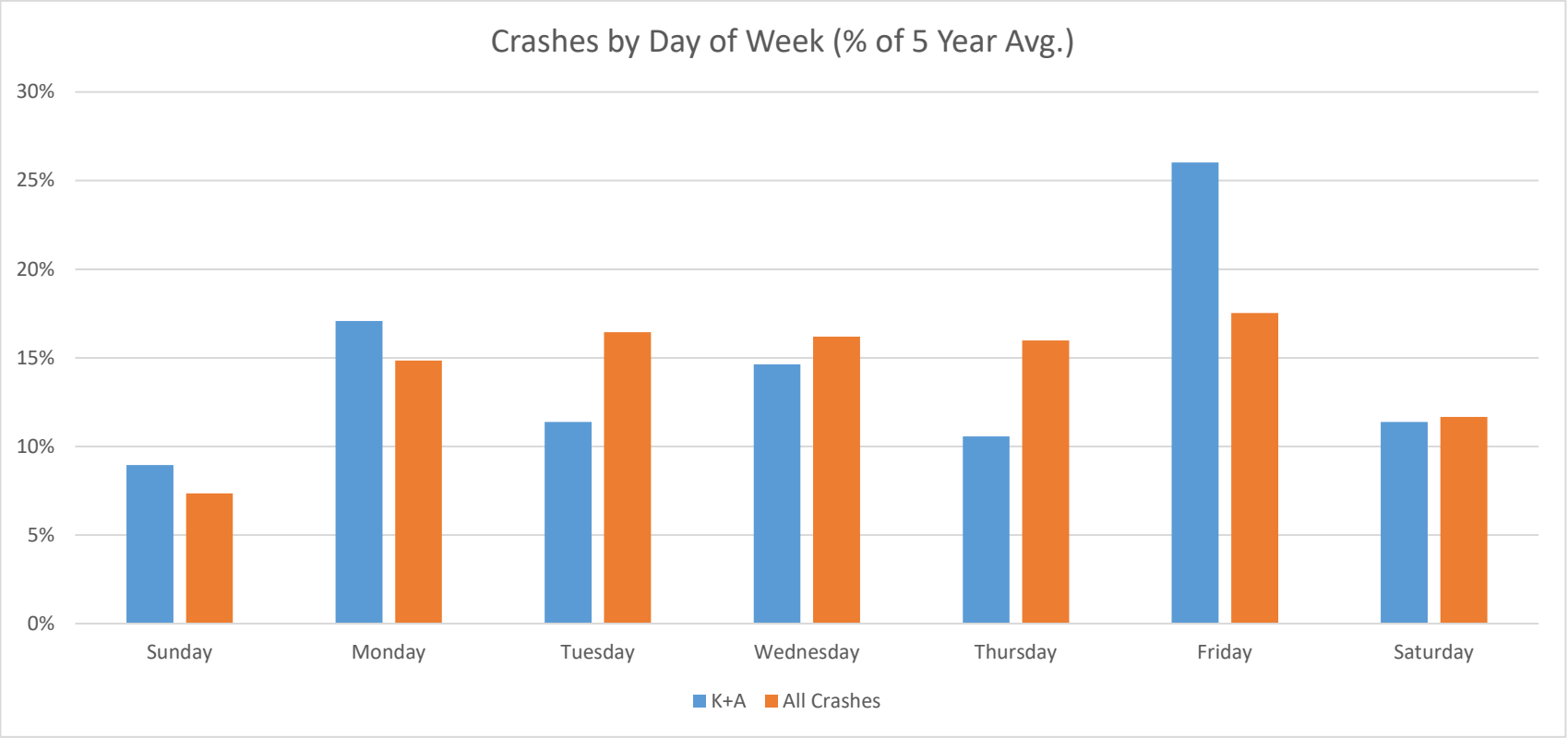
Observations:

- The overall crash pattern continues to be dominated by rear end collisions.
- Sideswipe and angle crashes are also indecent concentrations.
- Fixed object crashes will be explored in a supplemental analysis.

- Pedestrian, bicyclist, and fixed object crashes are the most concentrated areas for severe injury crashes.

Crash Performance by Temporal Conditions

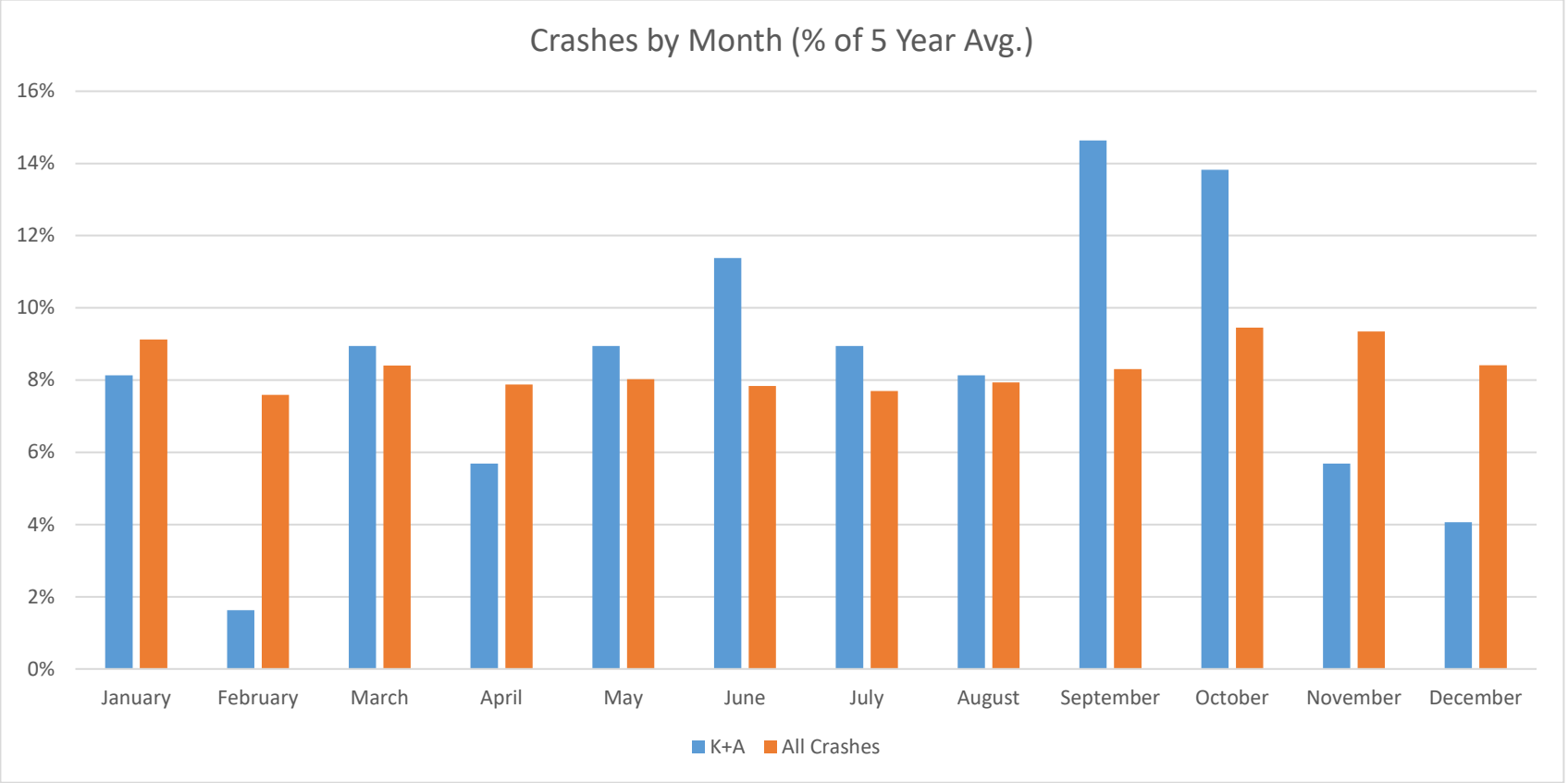
Day of Week



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.

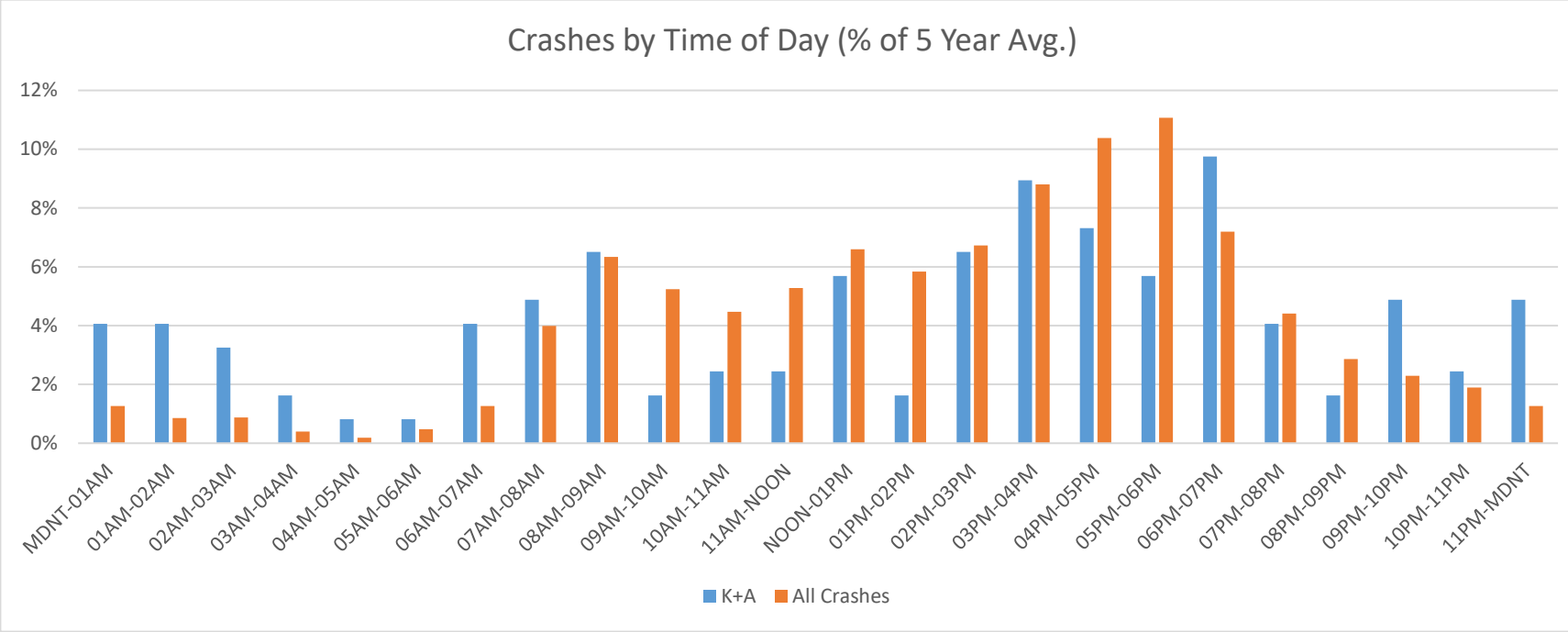
Month of Year



Observations:

- Overall crashes are evenly distributed throughout the year with a slight increase in occurrences during the fall.
- 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.

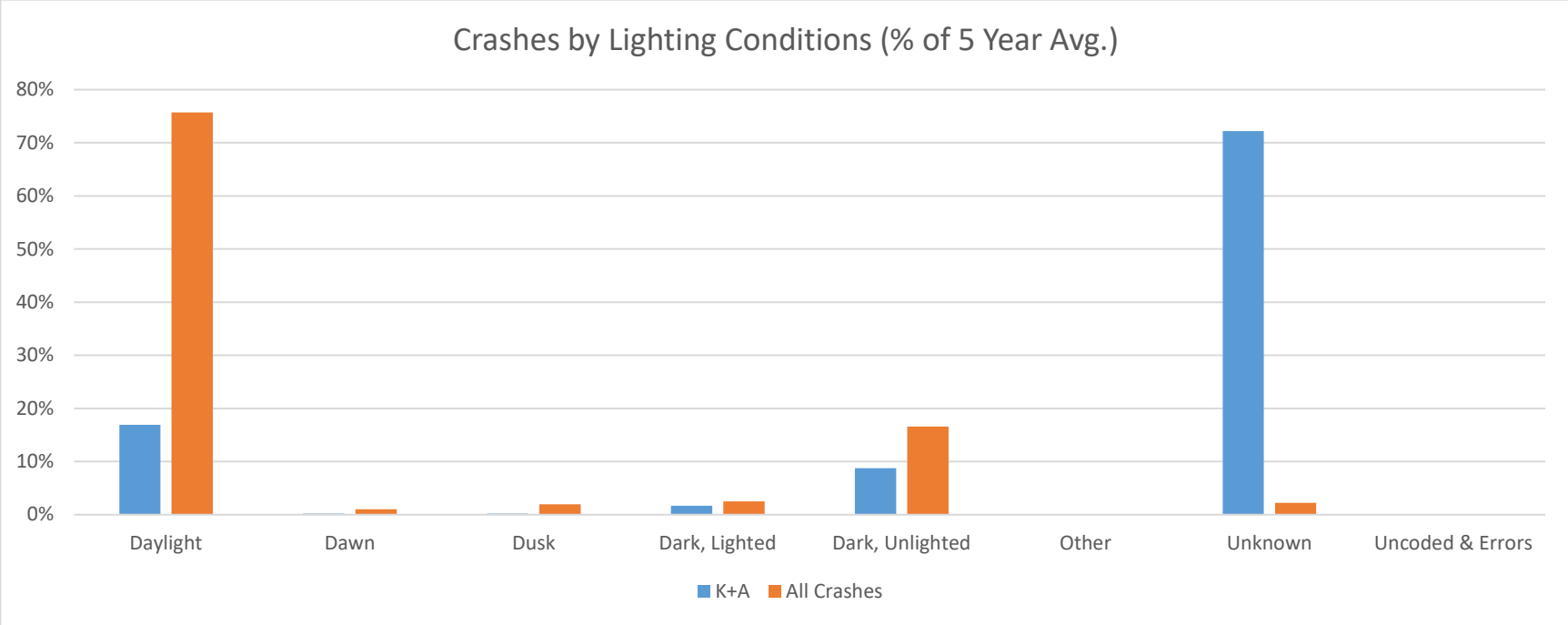
Time of Day



Observations:

- Overall crash occurrences throughout the day 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.

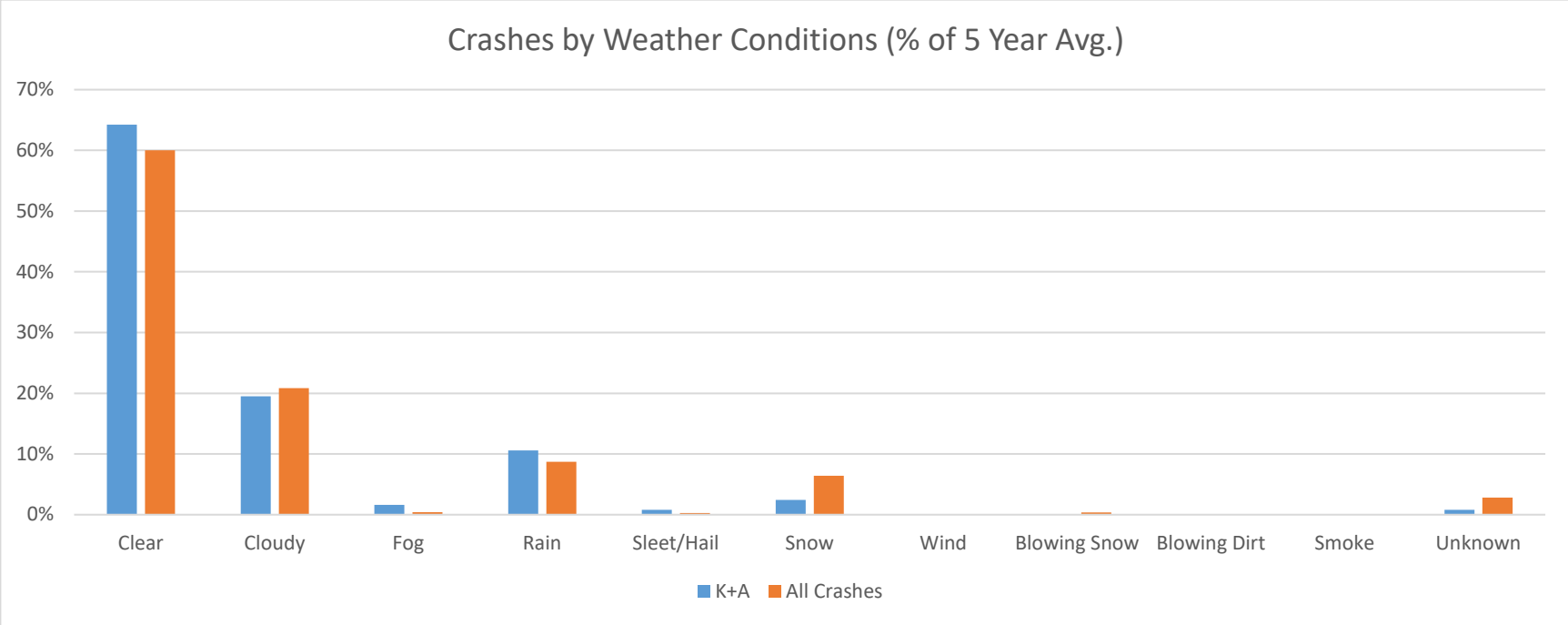
Light Conditions



Observations:

- Most crashes occur during daylight hours
- Severe injury crashes continue to not have an accurate accounting of lighting conditions for 72% of crashes on average. In 2019 unknown lighting conditions represented 5% of overall crashes and 82% of severe injury crashes.

Weather Conditions



Observations:

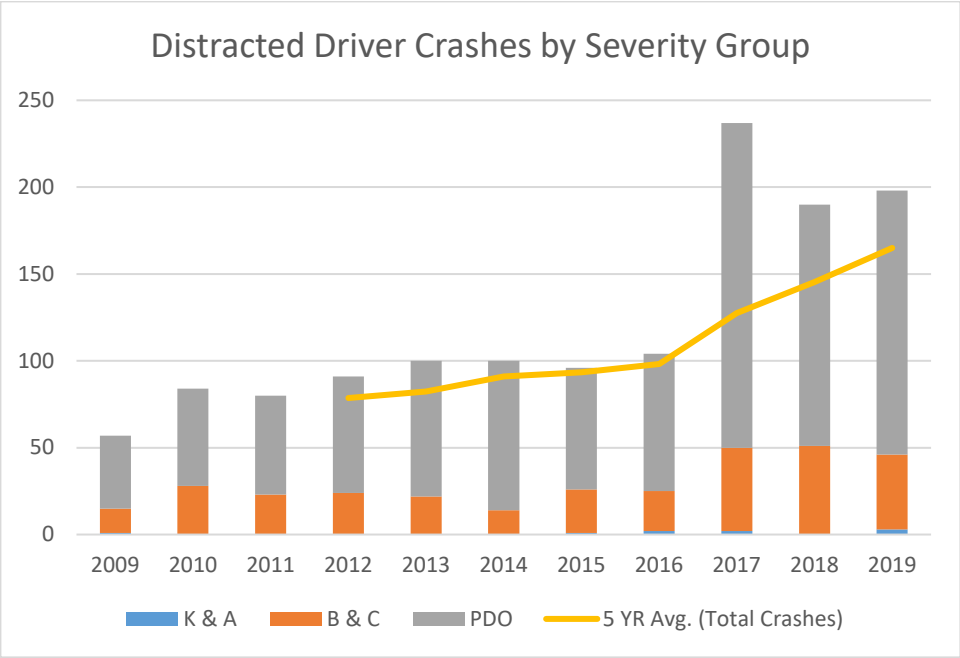
- Most crashes continue to occur during non-inclement weather.
- Severe injury crashes continue to occur in a similar pattern.

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:

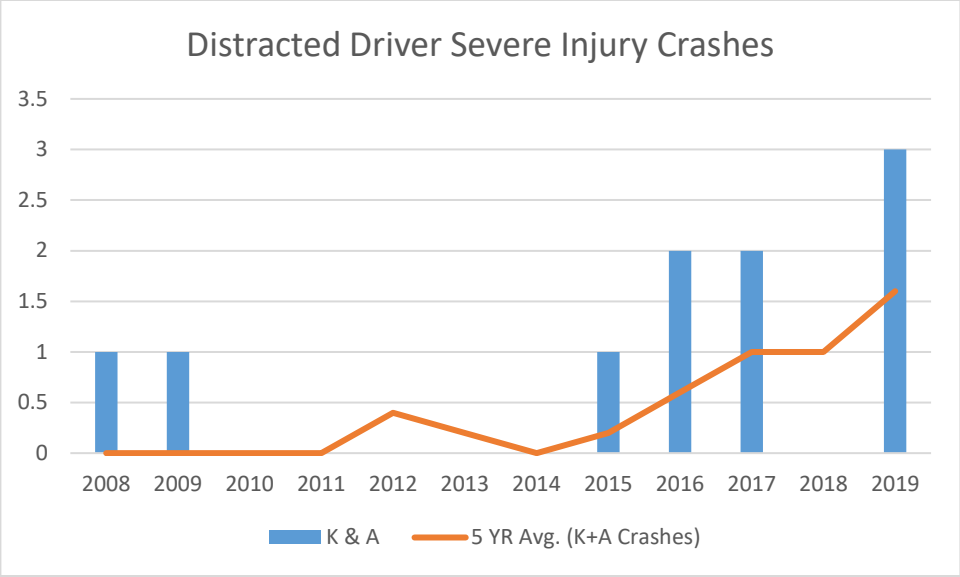
- Crashes noted as including distracted driving
- Crashes by the type of violation (citation) noted
- Crashes with drug or alcohol use noted

Distracted Driving



Observations:

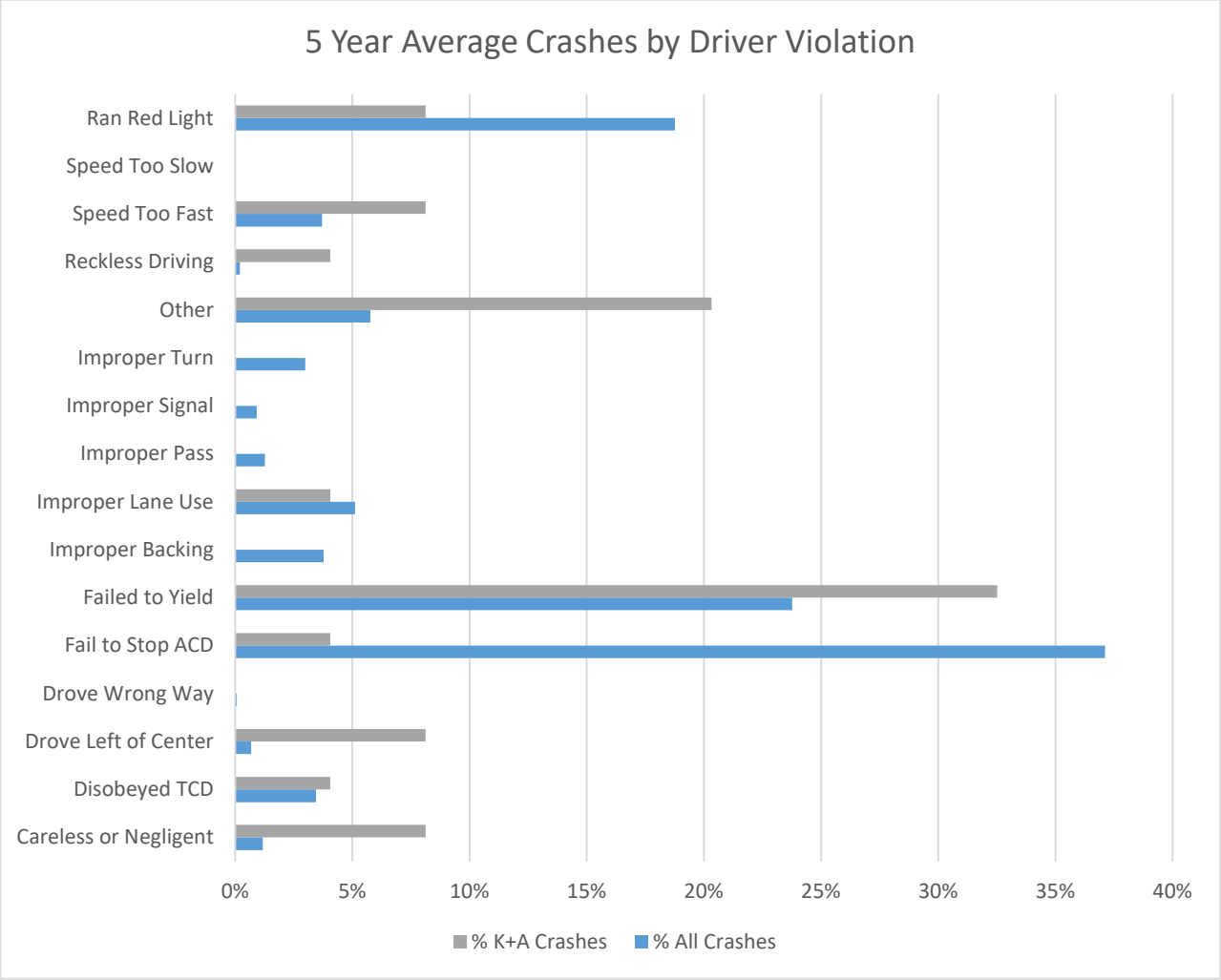
- As previously noted, the strikingly higher numbers of distracted drivers reported in 2017-2019are likely due to an increase in reporting practice.
- Reported distraction contributed to 6.5% of all crashes in 2019.



Observations:

- Very few severe injury crashes are reported as involving distracted driving.
- In 2019 only 3 severe injury crashes were noted as involving distraction.

Driver Citation (Violation)



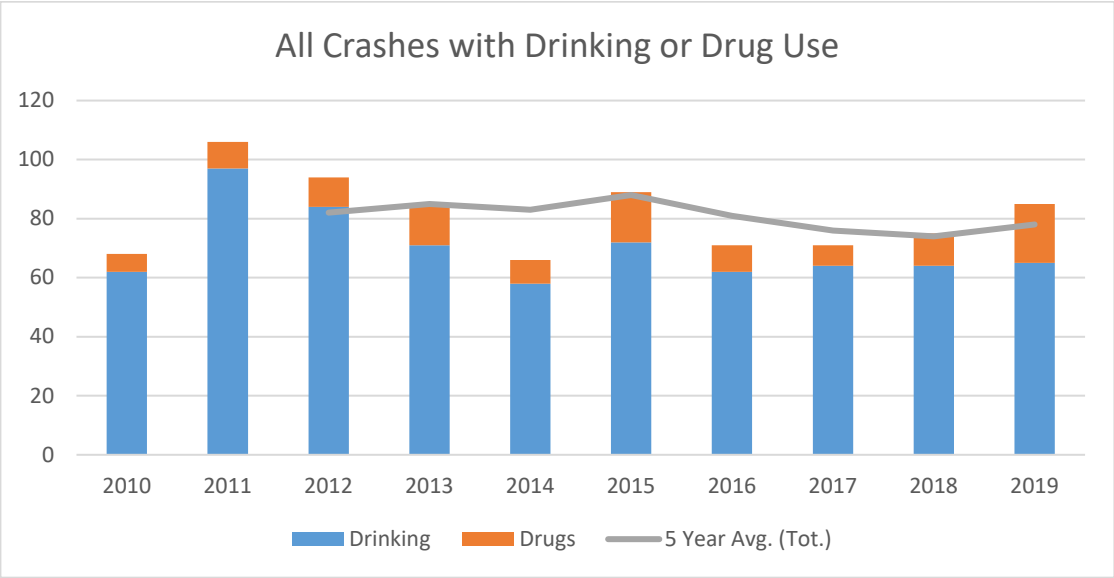
Notes:

- 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:

- The number of crashes involving alcohol impairment continues to remain steady, 64-65 incidents per year over the last five years.
- 2019 experienced a doubling of crashes involving drug impairment.
- In 2019 the percentage of total crashes was:
  - Drinking = 2.1%
  - Drug Use = 0.7%

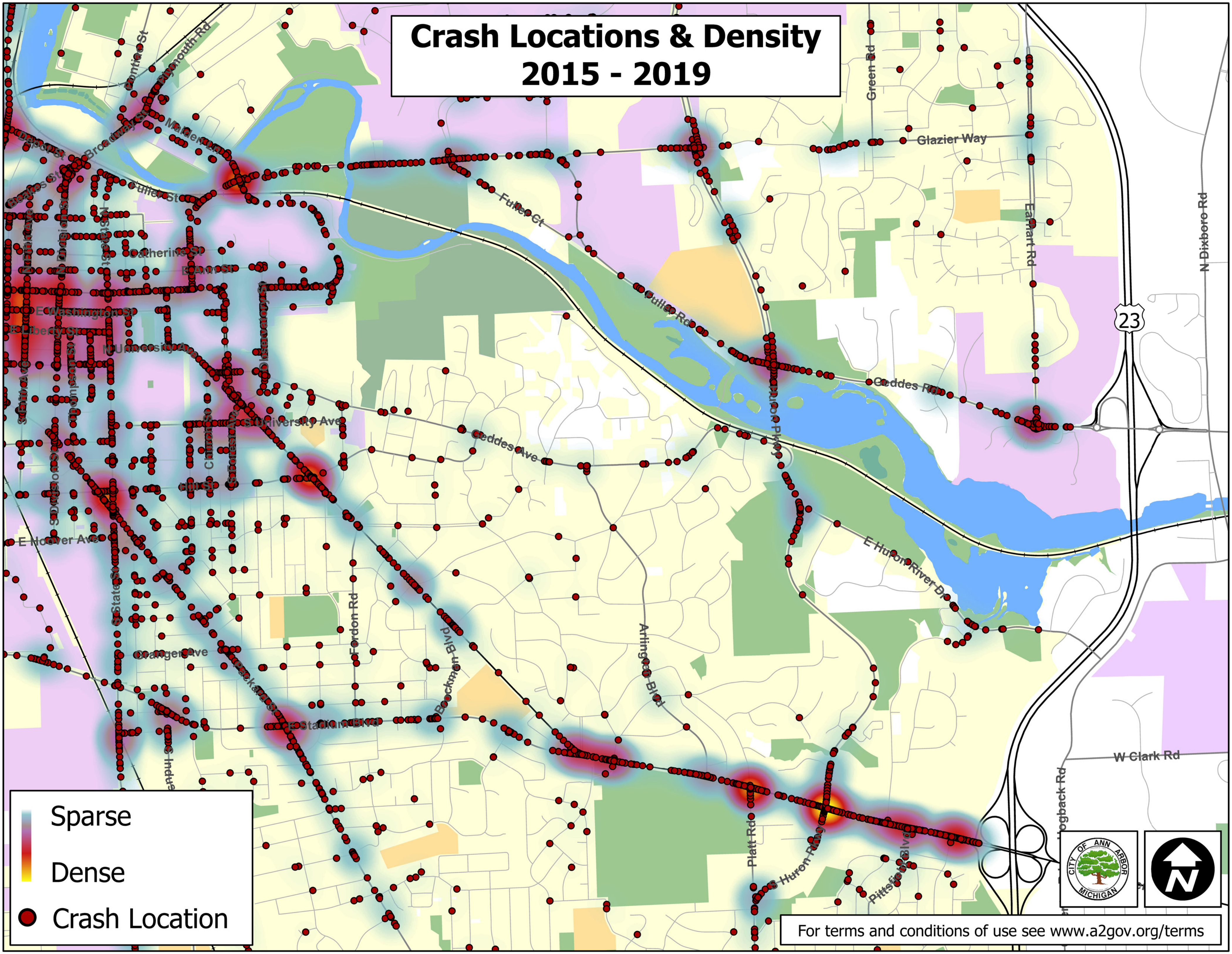
Crash Location Maps

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 2015 - 2019



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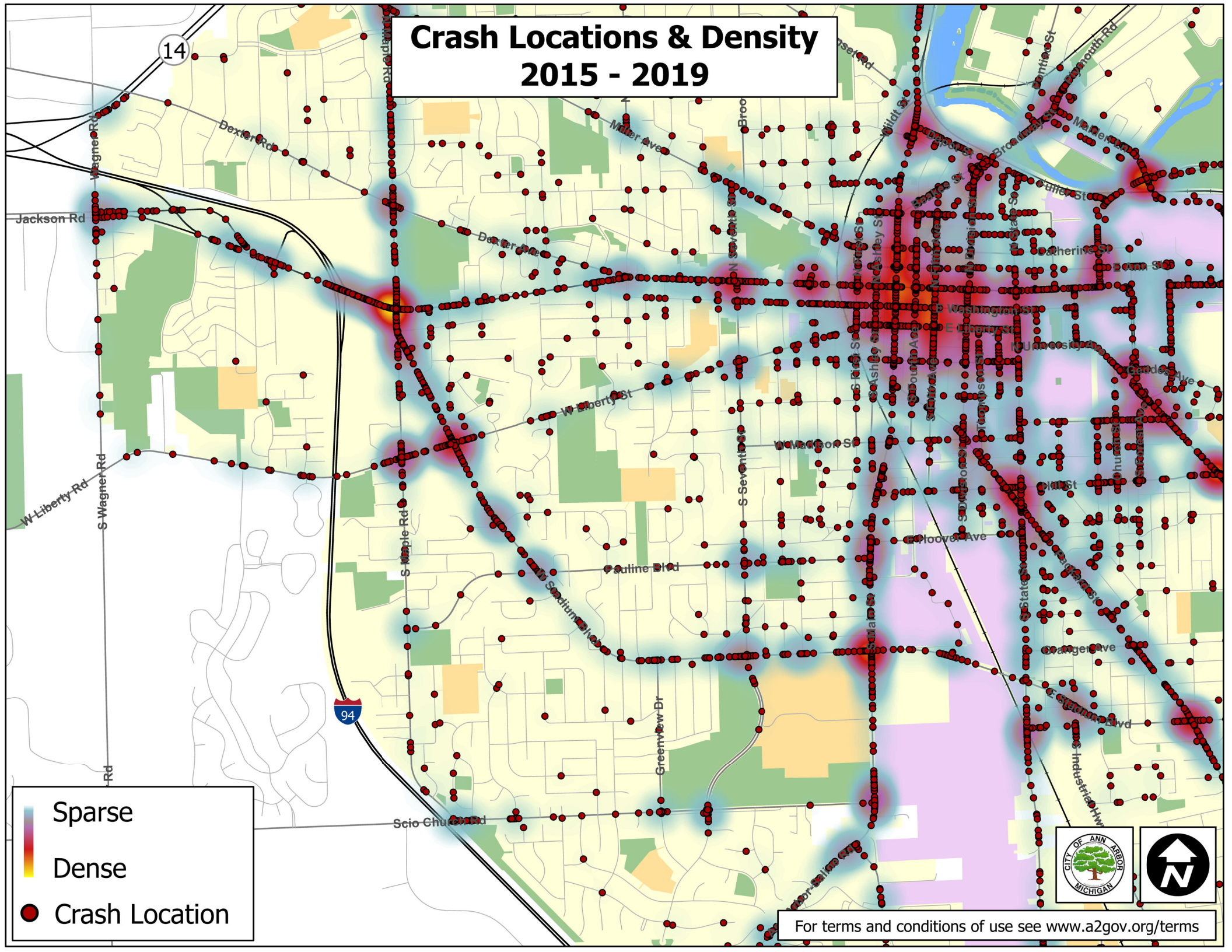
Crash Locations & Density
2015 - 2019
Sparse
Dense
Crash Location
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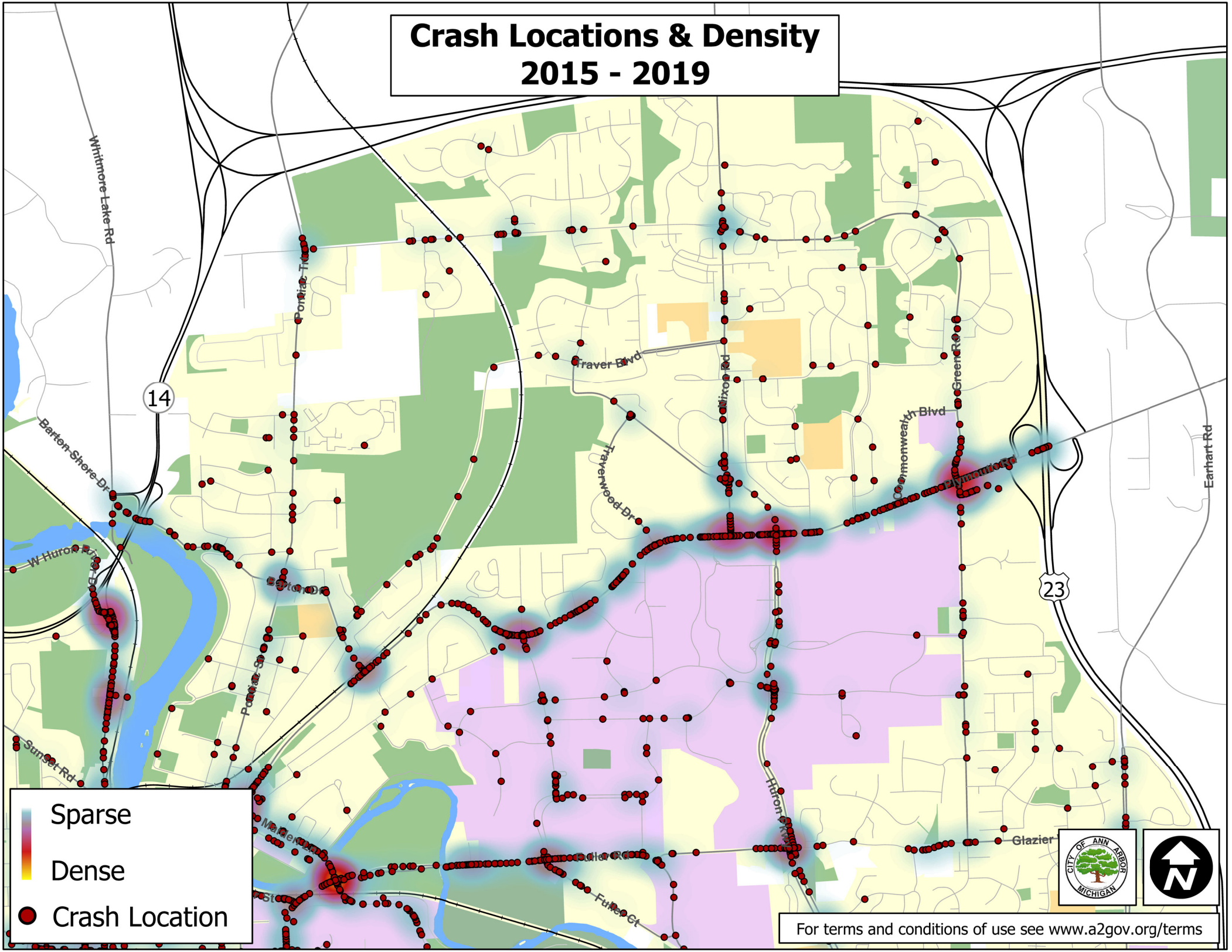
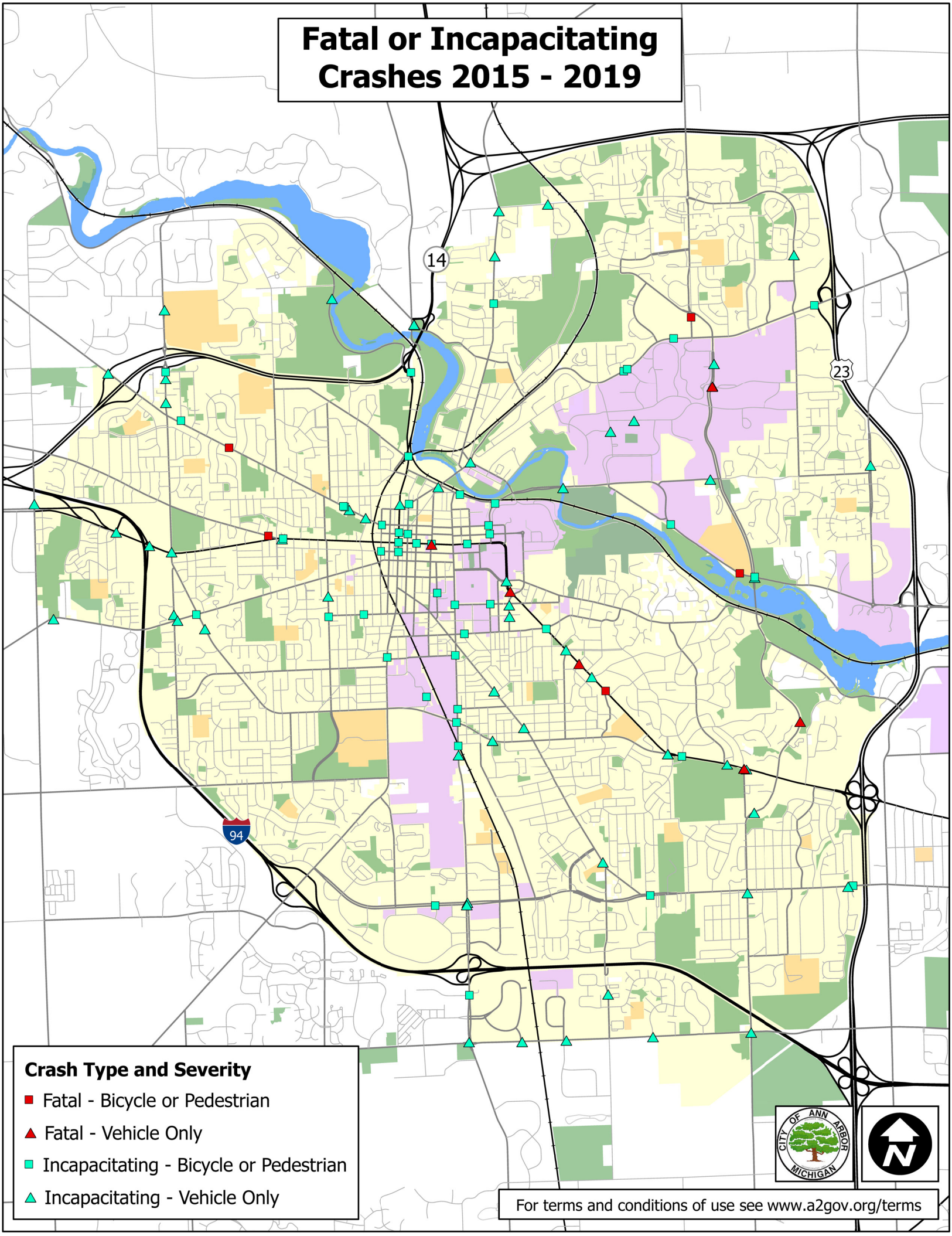
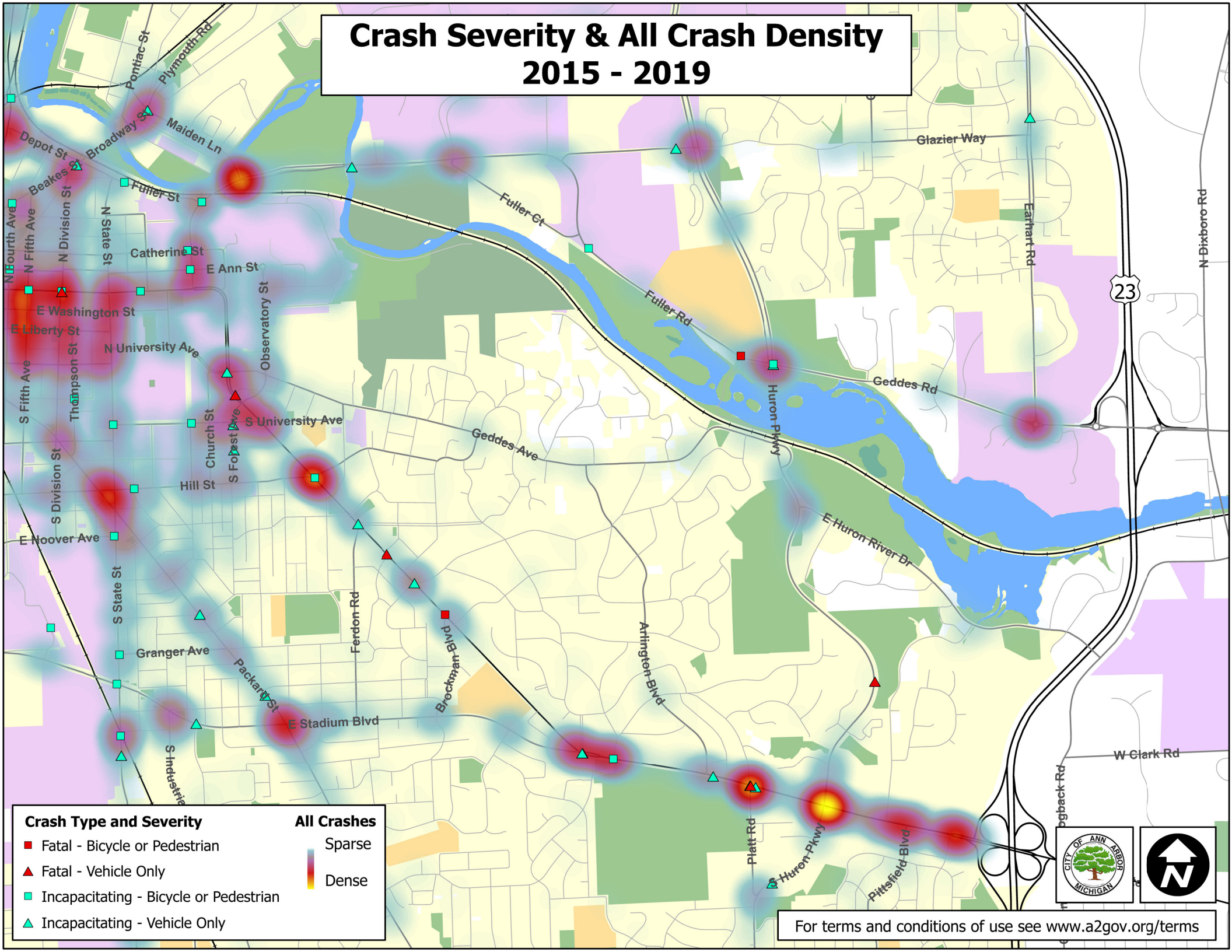
Crash Locations & Density
2015 - 2019

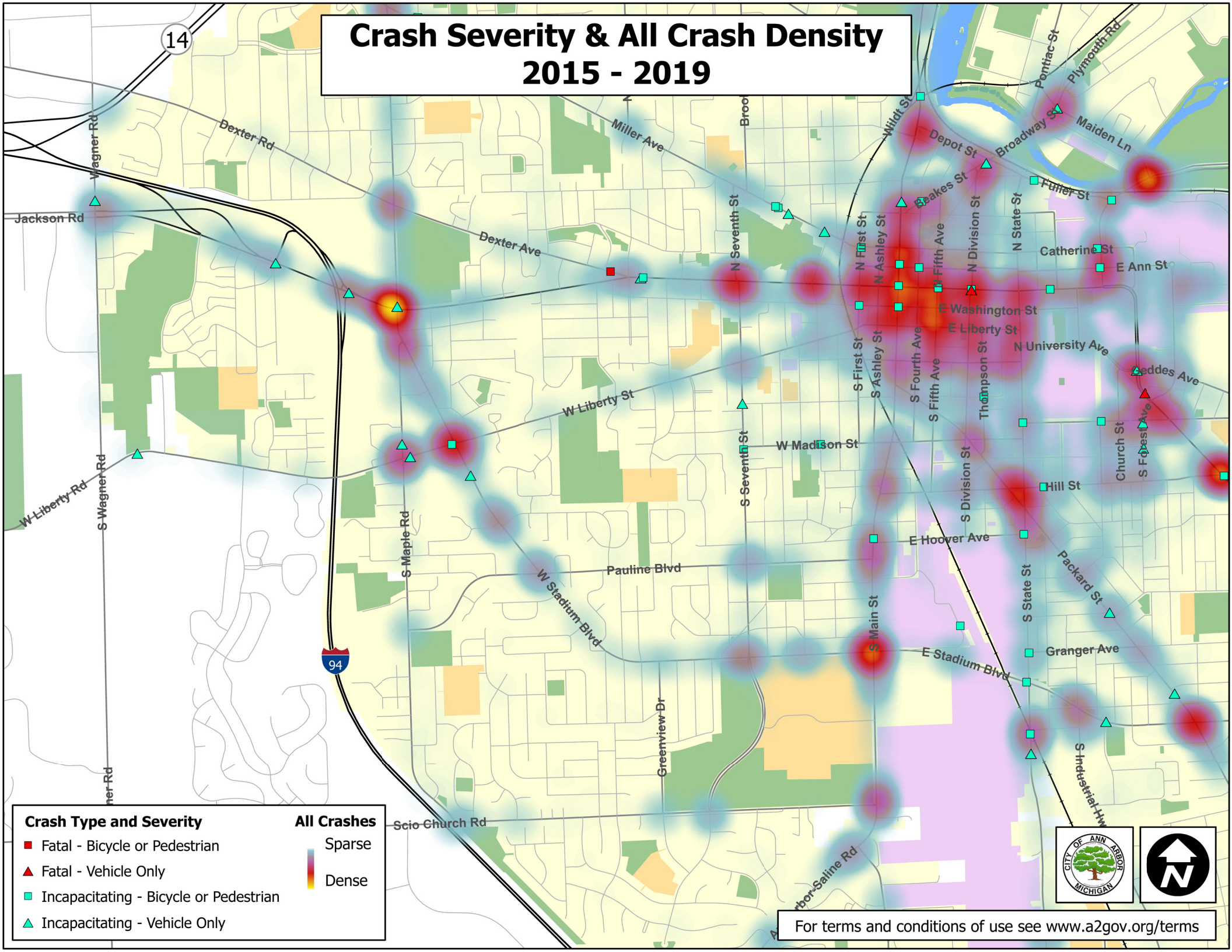


Fatal or Incapacitating Crashes 2015 - 2019



Crash Severity & All Crash Density
2015 - 2019




Crash Severity & All Crash Density
2015 - 2019
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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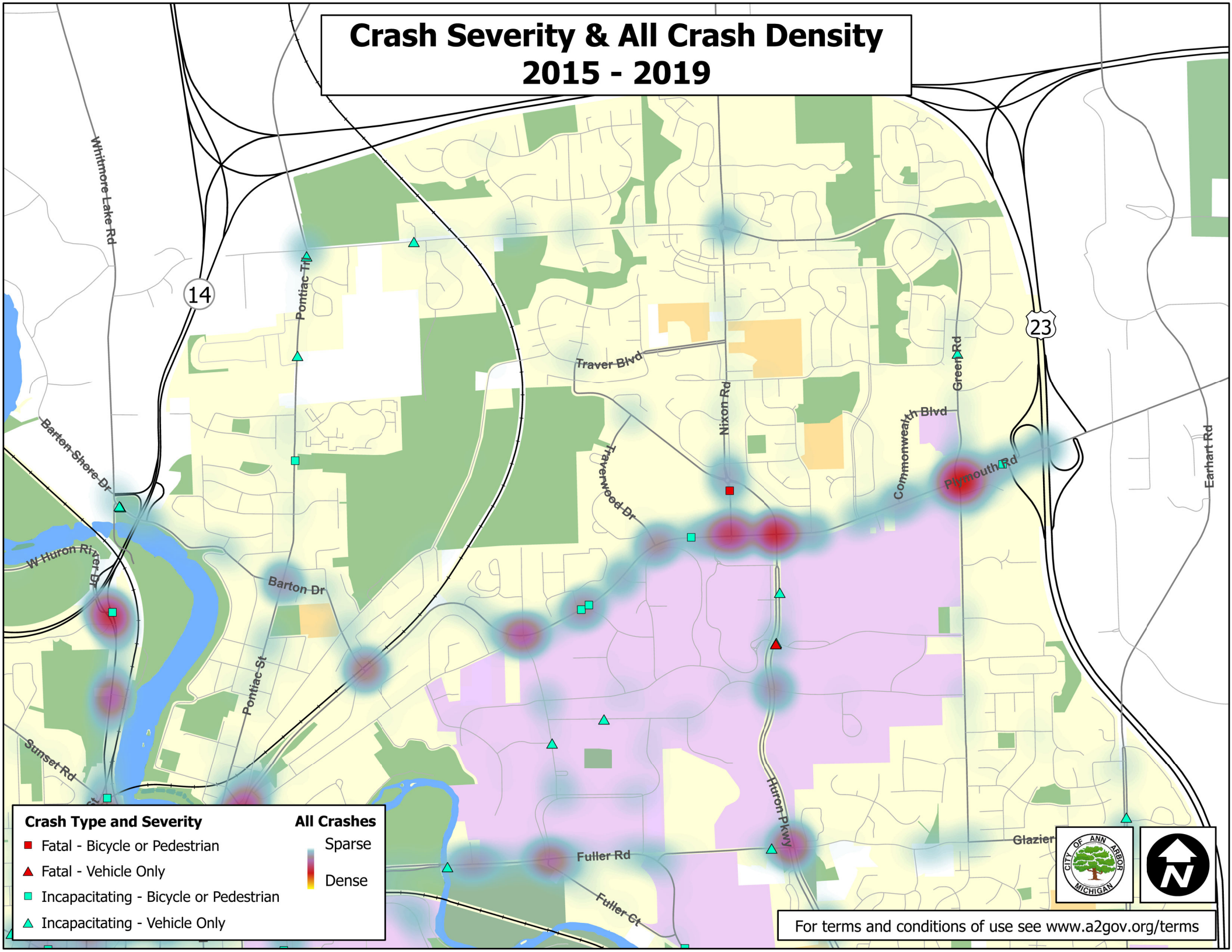
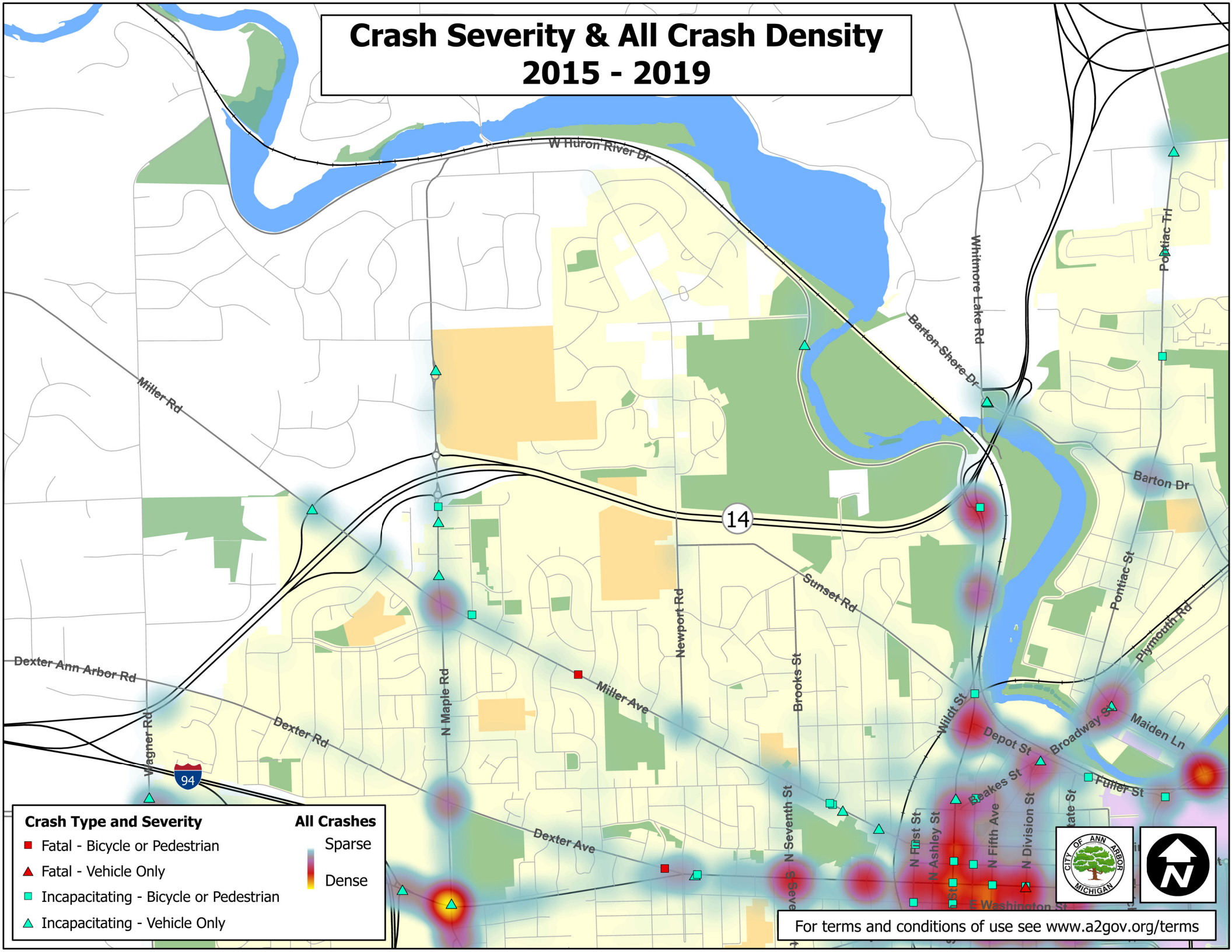
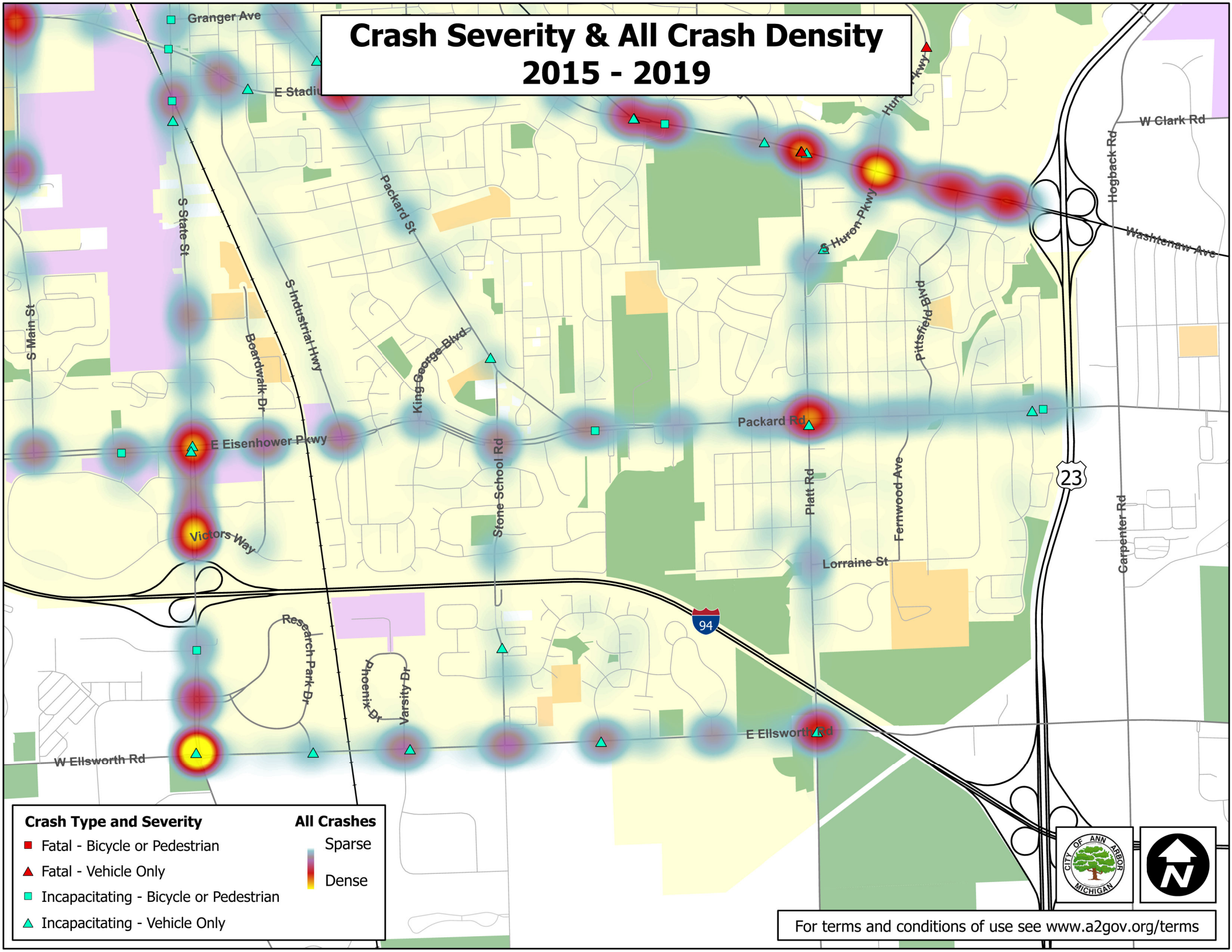
14
94
Dexter Rd
Dexter Ave
Jackson Rd
Wagner Rd
S Wagner Rd
W Liberty Rd
W Liberty St
Miller Ave
N Seventh St
S Seventh St
S Maple Rd
W Madison St
Pauline Blvd
W Stadium Blvd
Greenview Dr
Scio Church Rd
Depot St
Broadway St
Maiden Ln
Pontiac St
Plymouth Rd
Wildt St
Beakes St
Fuller St
N First St
N Ashley St
N Fifth Ave
N Division St
N State St
Catherine St
E Ann St
E Washington St
E Liberty St
N University Ave
Geddes Ave
S First St
S Ashley St
S Fourth Ave
S Fifth Ave
Thompson St
S Division St
Church St
S Forest Ave
Hill St
E Hoover Ave
Packard St
S State St
S Main St
E Stadium Blvd
Granger Ave
S Industrial Hwy
Ann Arbor-Saline Rd

Crash Severity & All Crash Density
2015 - 2019



Crash Severity & All Crash Density
2015 - 2019




Crash Severity & All Crash Density
2015 - 2019
Granger Ave
E Stadium Blvd
S State St
S Main St
Packard St
S Industrial Hwy
Boardwalk Dr
King George Blvd
Stone School Rd
E Eisenhower Pkwy
Victors Way
Research Park Dr
Phoenix Dr
Varsity Dr
W Ellsworth Rd
E Ellsworth Rd
S Huron Pkwy
Packard Rd
Platt Rd
Fernwood Ave
Pittsfield Blvd
Lorraine St
94
23
W Clark Rd
Hogback Rd
Washtenaw Ave
Carpenter Rd
Crash Type and Severity
Fatal - Bicycle or Pedestrian
Fatal - Vehicle Only
Incapacitating - Bicycle or Pedestrian
Incapacitating - Vehicle Only
All Crashes
Sparse
Dense
CITY OF ANN ARBOR MICHIGAN
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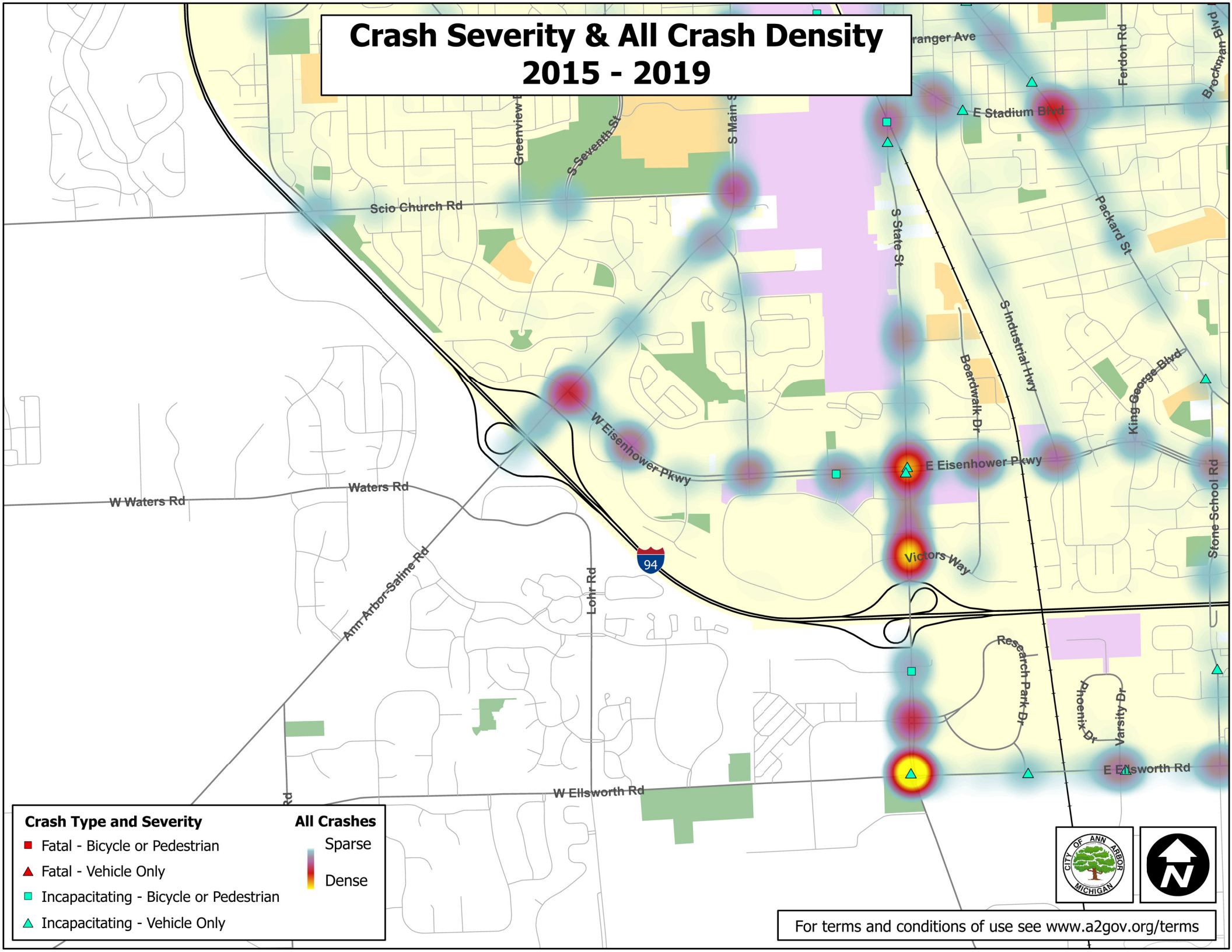
Crash Severity & All Crash Density
2015 - 2019



Crash Type and Severity

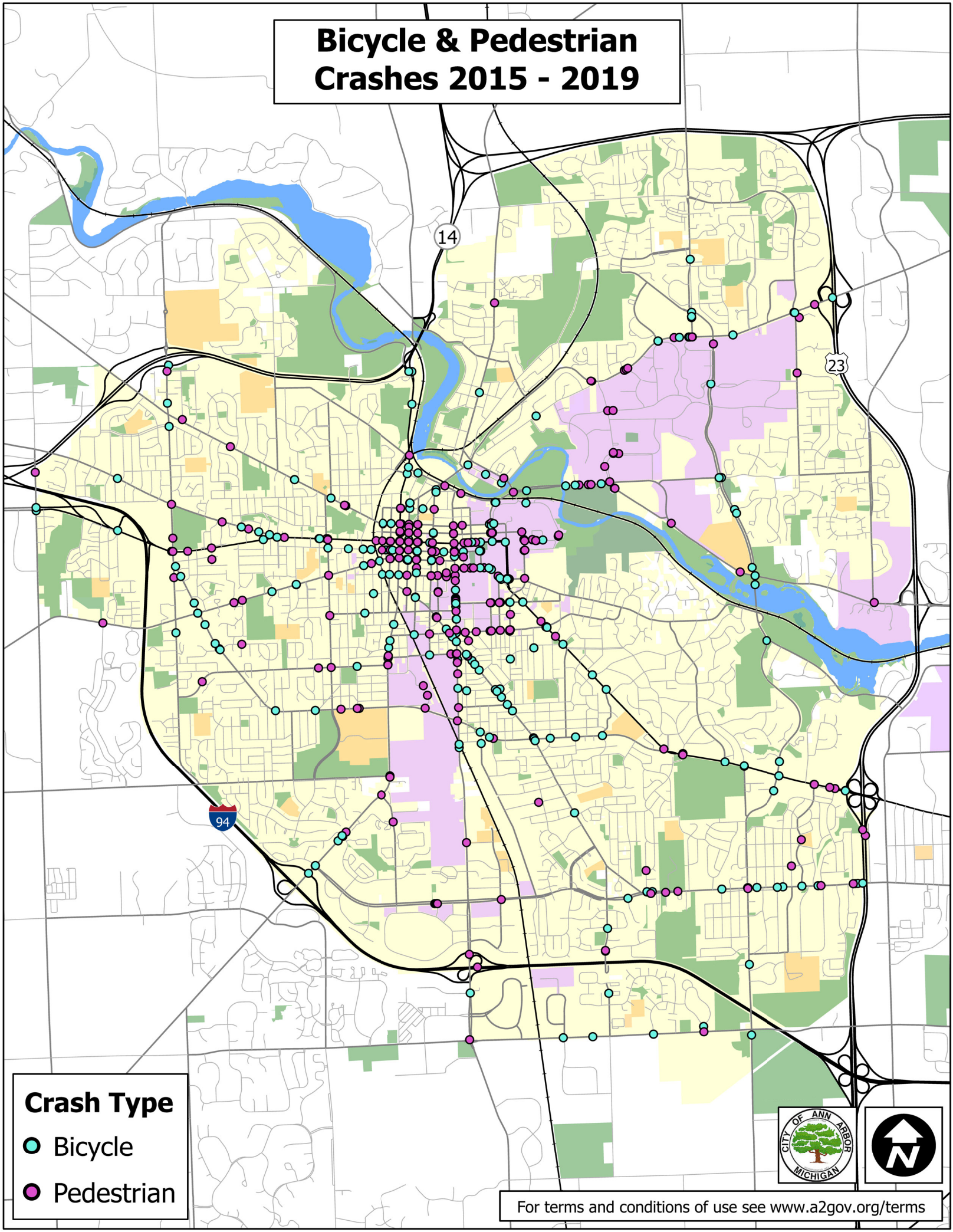
- Fatal - Bicycle or Pedestrian
- Fatal - Vehicle Only
- Incapacitating - Bicycle or Pedestrian
- Incapacitating - Vehicle Only

All Crashes

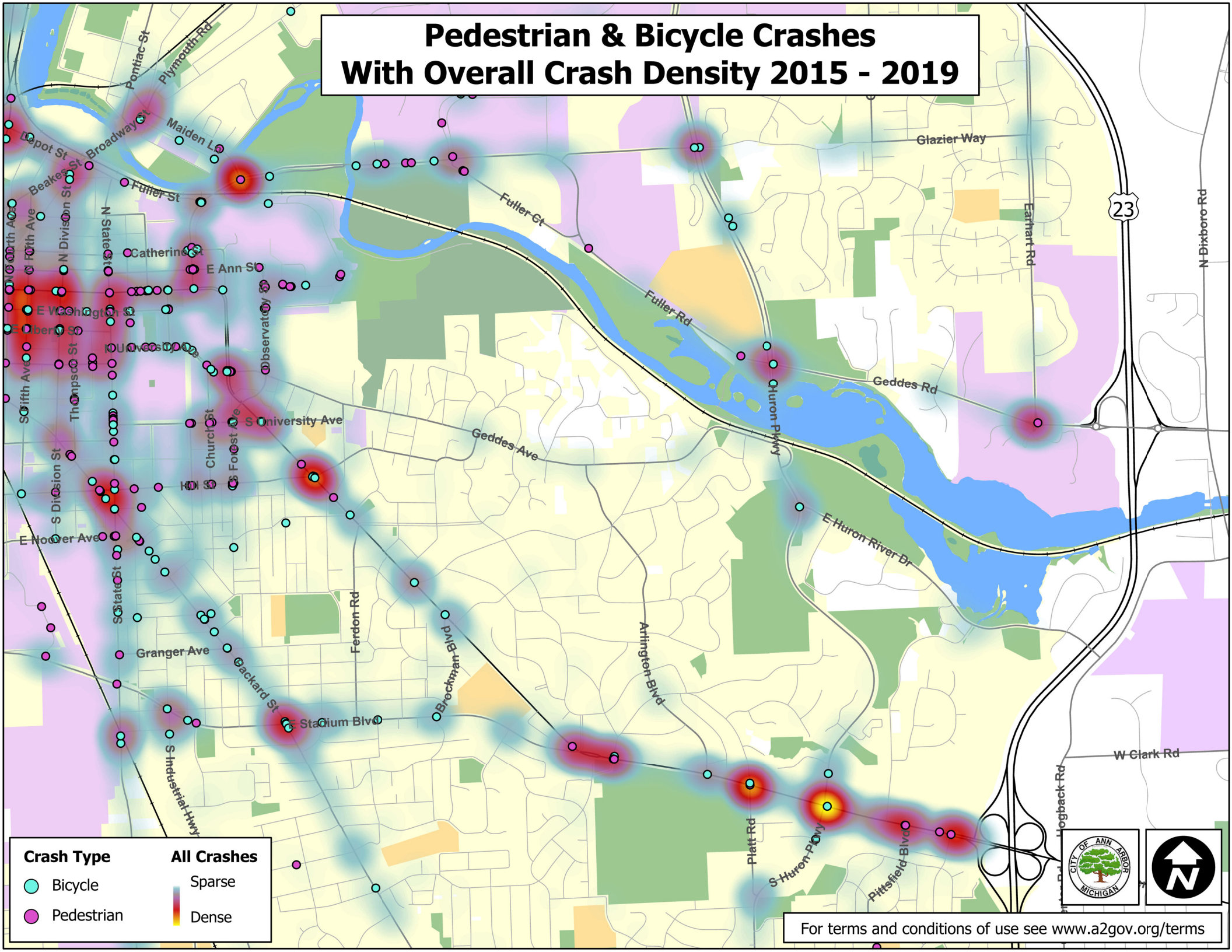
Sparse

Dense

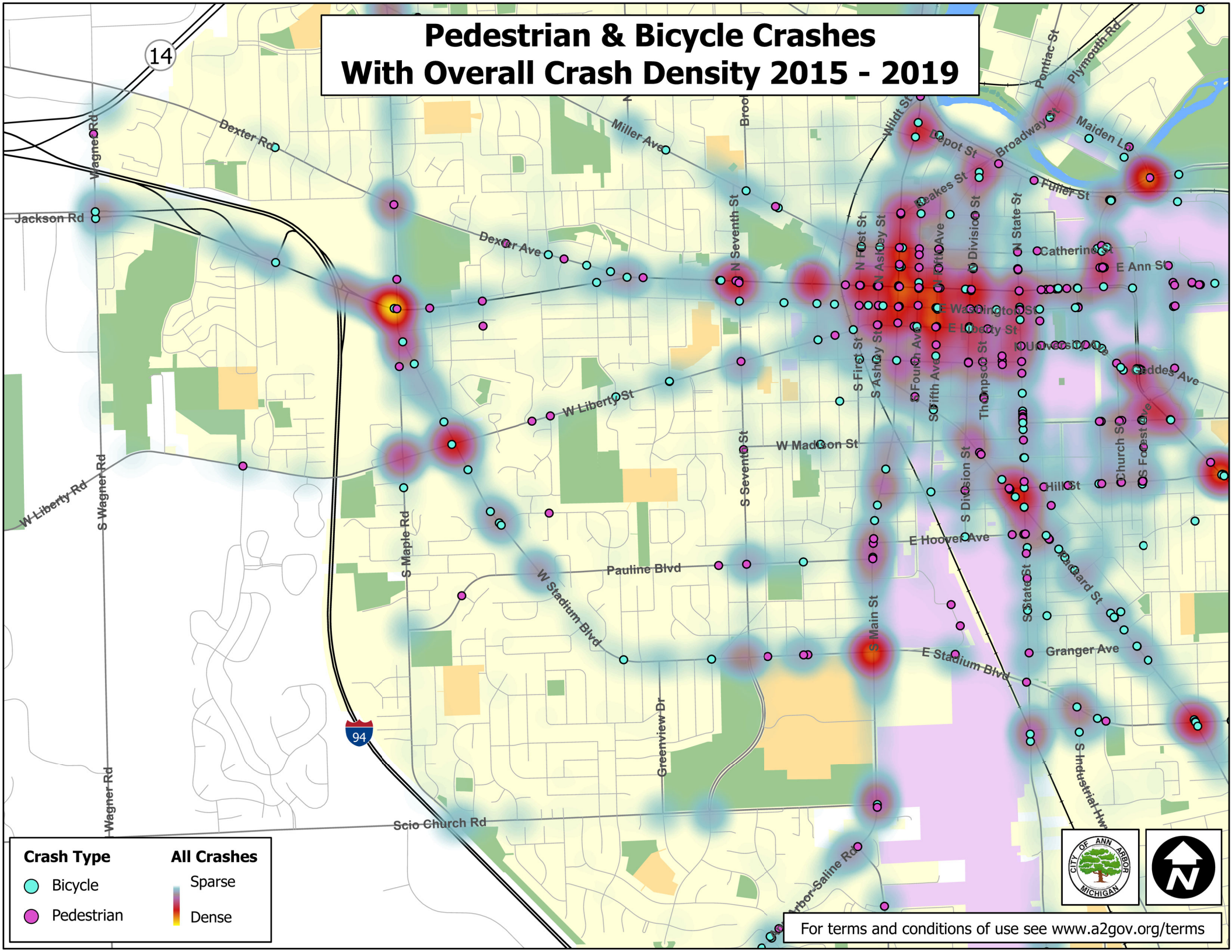
Bicycle & Pedestrian Crashes 2015 - 2019



Pedestrian & Bicycle Crashes With Overall Crash Density 2015 - 2019



Pedestrian & Bicycle Crashes With Overall Crash Density 2015 - 2019



Crash Type

- Bicycle
- Pedestrian

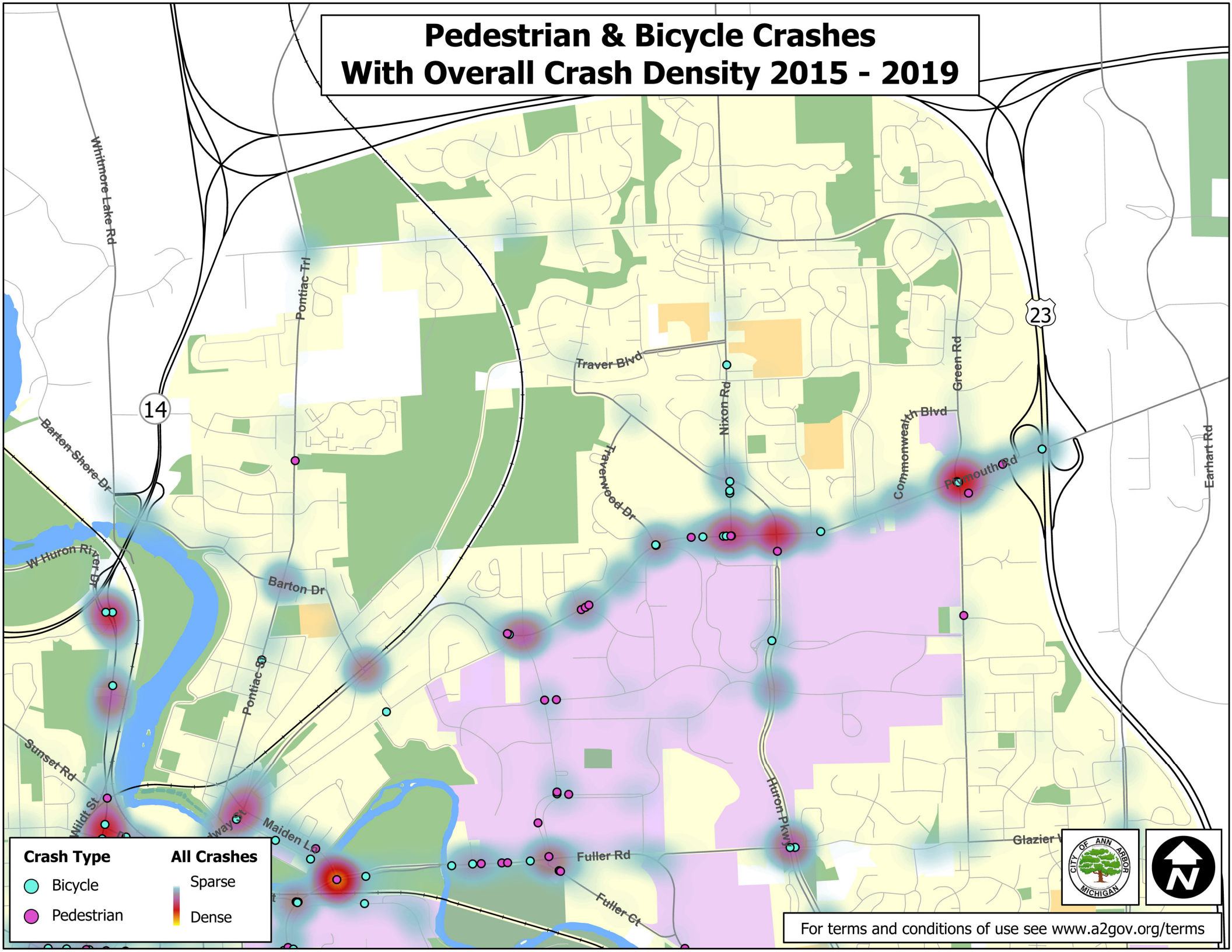
All Crashes

Sparse

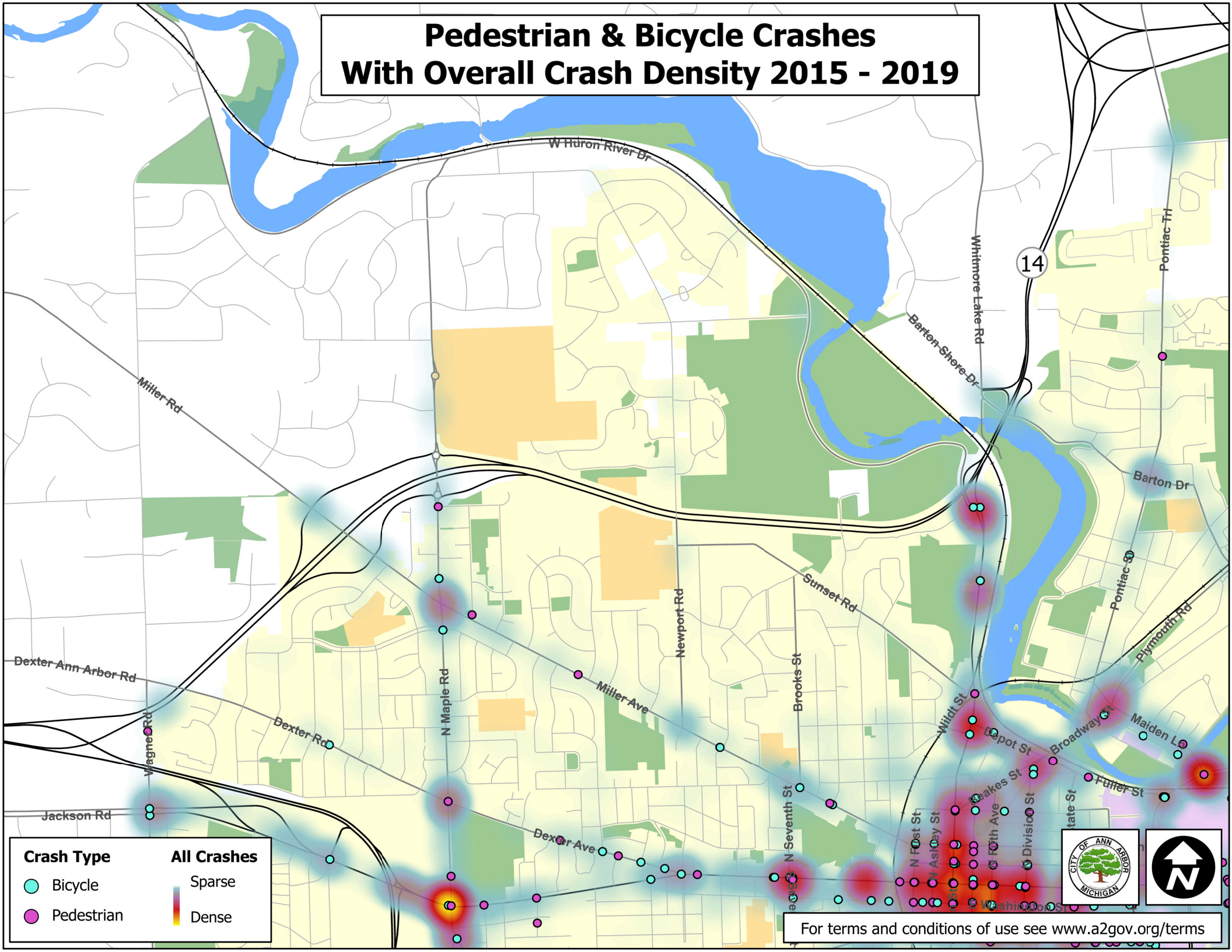
Dense

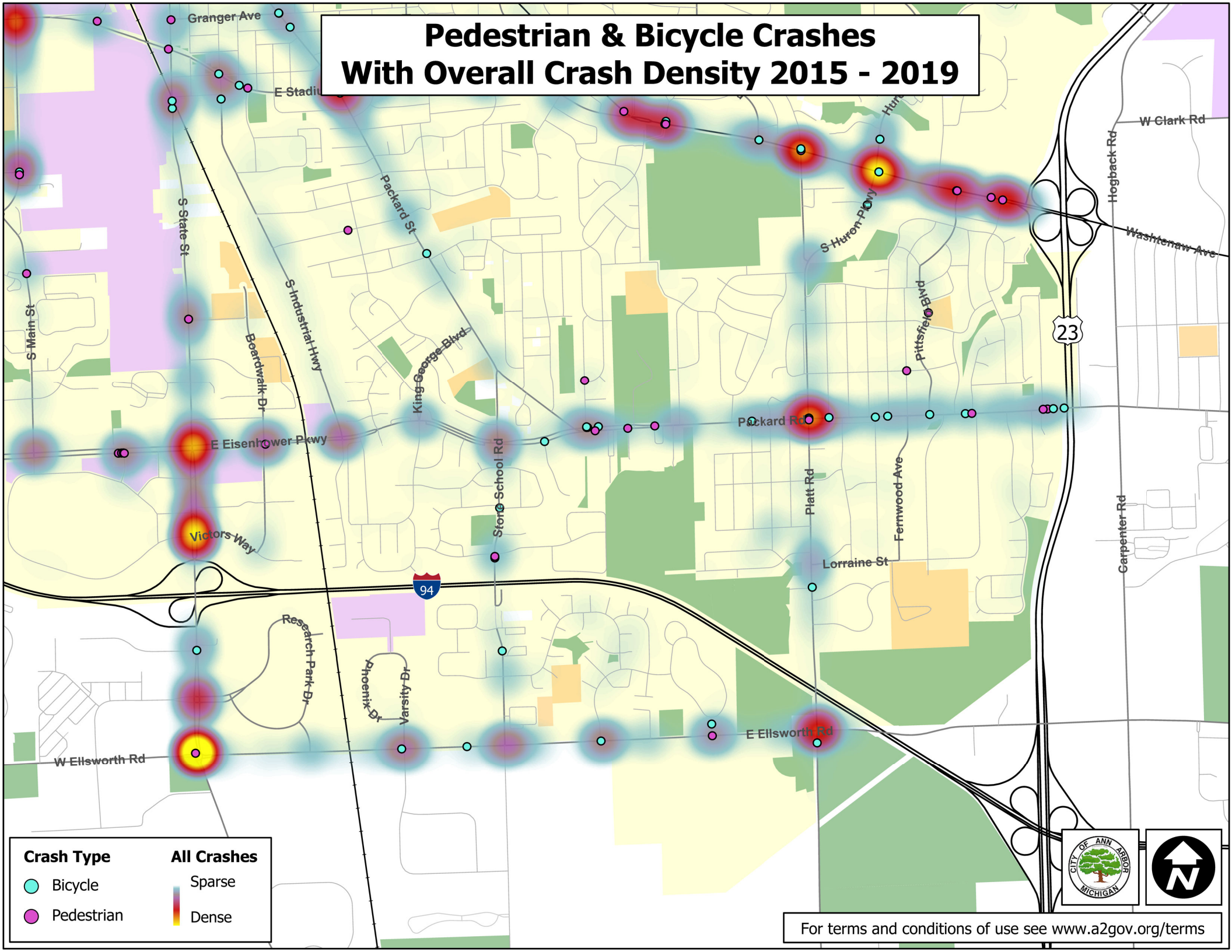
CITY OF ANN ARBOR MICHIGAN

Pedestrian & Bicycle Crashes With Overall Crash Density 2015 - 2019



Pedestrian & Bicycle Crashes With Overall Crash Density 2015 - 2019




Pedestrian & Bicycle Crashes
With Overall Crash Density 2015 - 2019
Granger Ave
E Stadium Blvd
S State St
S Main St
Packard St
S Industrial Hwy
Boardwalk Dr
King George Blvd
E Eisenhower Pkwy
Victors Way
Stone School Rd
94
Research Park Dr
Phoenix Dr
Varsity Dr
W Ellsworth Rd
E Ellsworth Rd
Lorraine St
Platt Rd
Fernwood Ave
Packard Rd
S Huron Pkwy
Pittsfield Blvd
23
Hogback Rd
W Clark Rd
Washtenaw Ave
Carpenter Rd
Crash Type
Bicycle
Pedestrian
All Crashes
Sparse
Dense
CITY OF ANN ARBOR MICHIGAN
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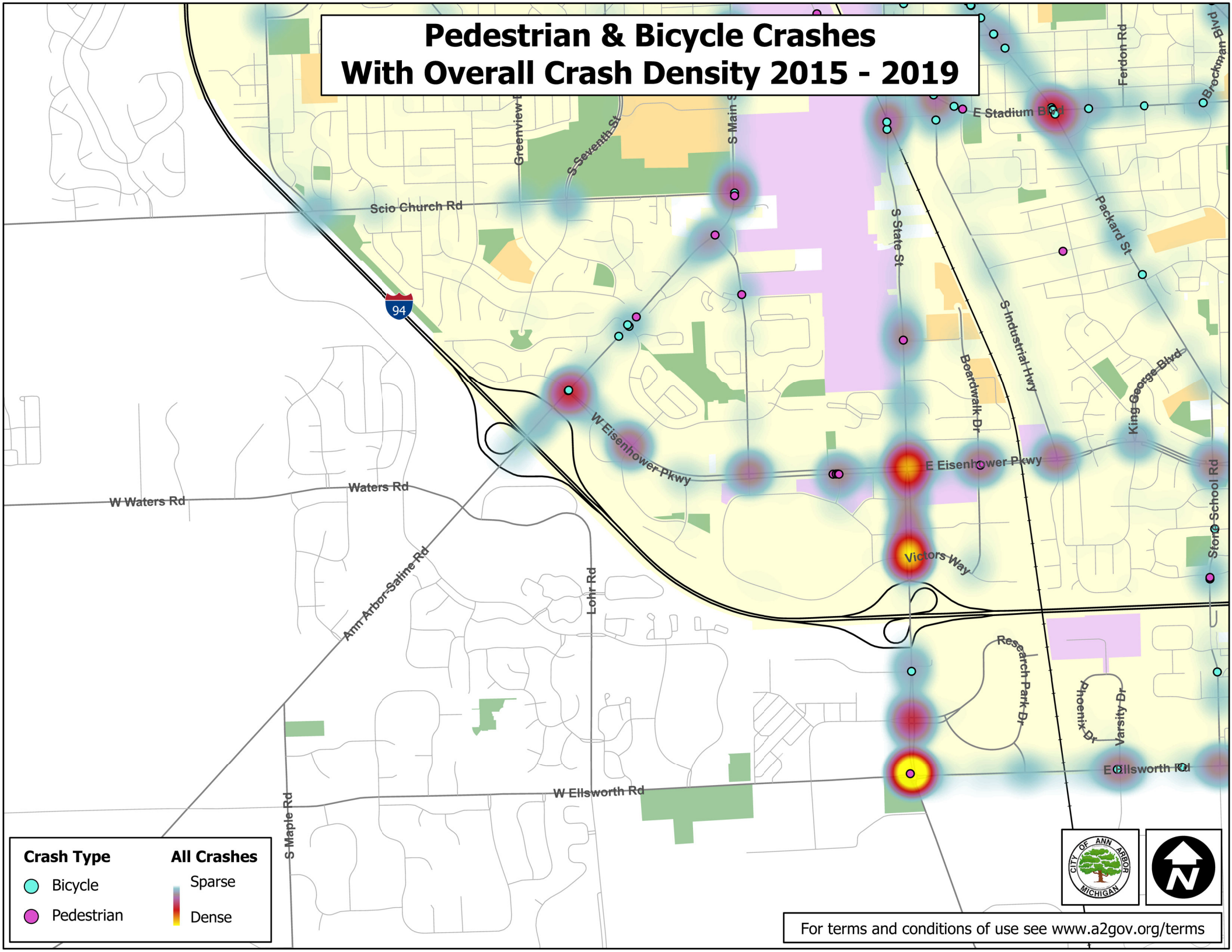
Pedestrian & Bicycle Crashes
With Overall Crash Density 2015 - 2019
Scio Church Rd
94
W Eisenhower Pkwy
E Eisenhower Pkwy
Waters Rd
W Waters Rd
Ann Arbor-Saline Rd
Lohr Rd
S Maple Rd
W Ellsworth Rd
E Ellsworth Rd
Victors Way
Research Park Dr
Phoenix Dr
Varsity Dr
Boardwalk Dr
S Industrial Hwy
King George Blvd
Stone School Rd
S State St
Packard St
E Stadium Blvd
Ferdon Rd
Brockman Blvd
Greenview Dr
S Seventh St
S Main St
Crash Type
Bicycle
Pedestrian
All Crashes
Sparse
Dense
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