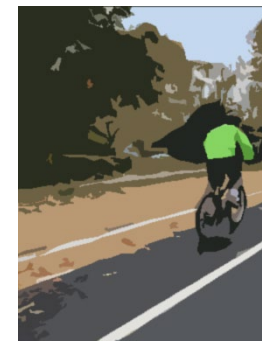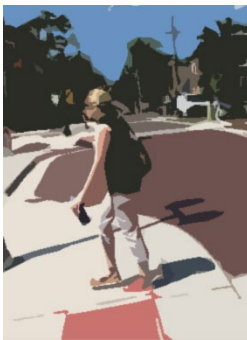City of Ann Arbor

2020 Annual Crash Review

Crash Years 2010-2019

October 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.
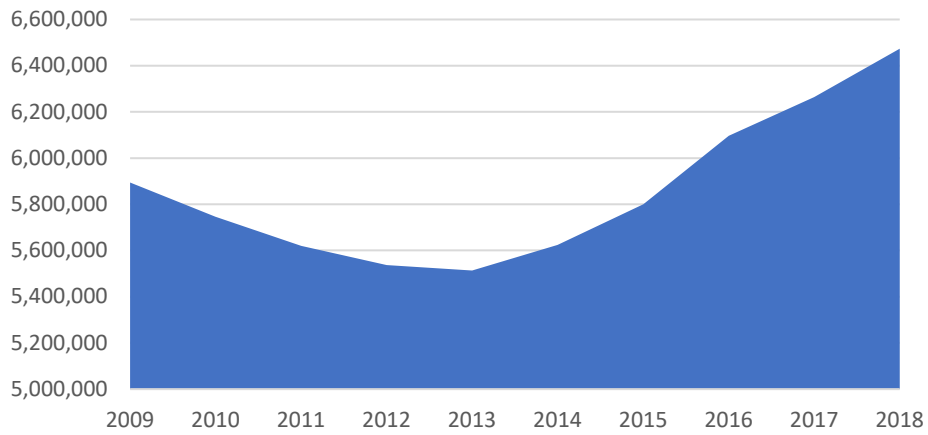
All Crashes
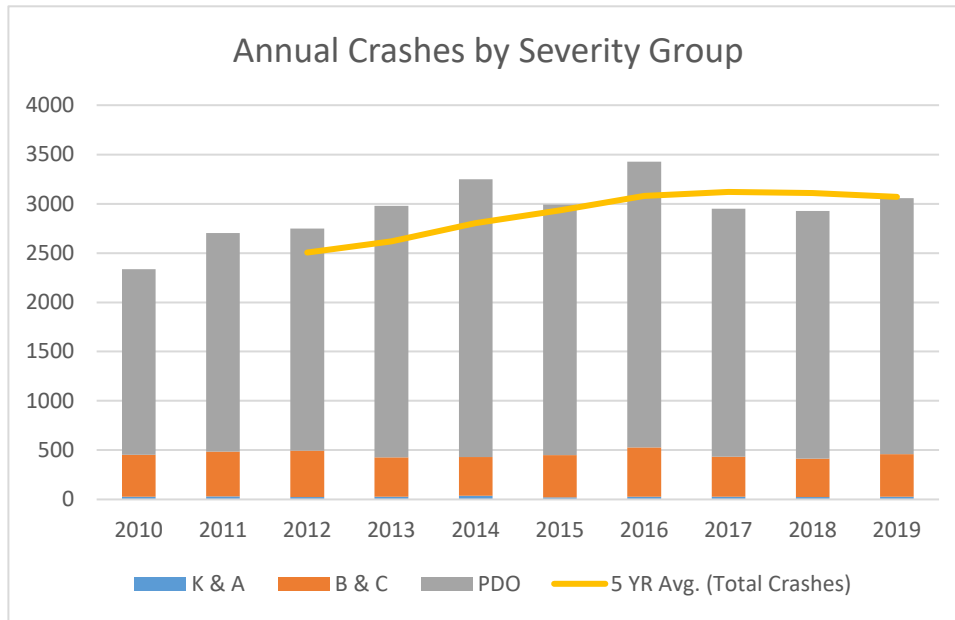
Observations:
- The rolling five-year trend line show continued stabilization through 2019.

- 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 and statewide crash trends, shown below.

Annual Crashes by Severity Group

Legend: K & A | B & C | PDO | 5 YR Avg. (Total Crashes)

National Total Crash Trends (Rolling 5 Year Average

Michigan Annual Total Crashes

Annual K+A Crashes

National Fatal Crash Trends (Rolling 5 Year Average)
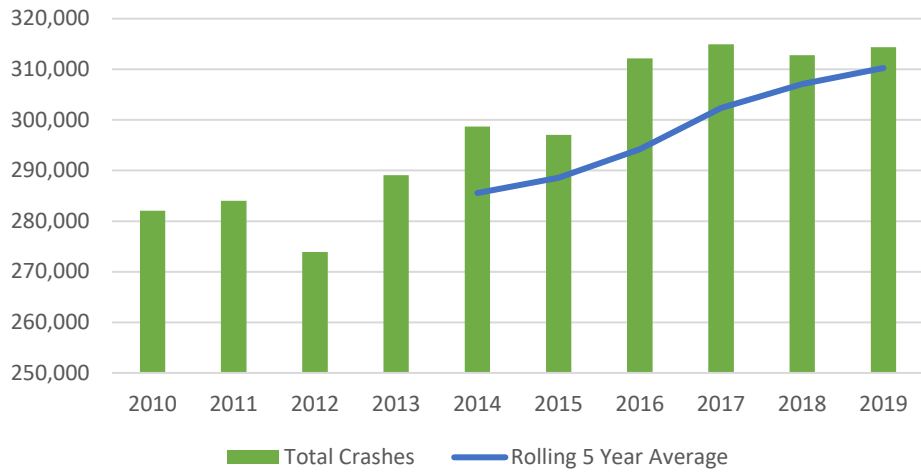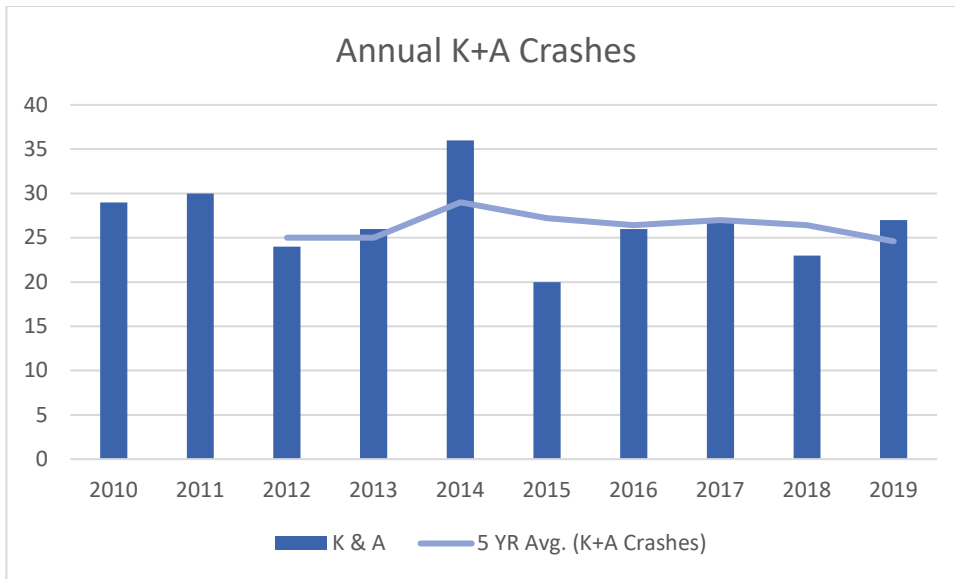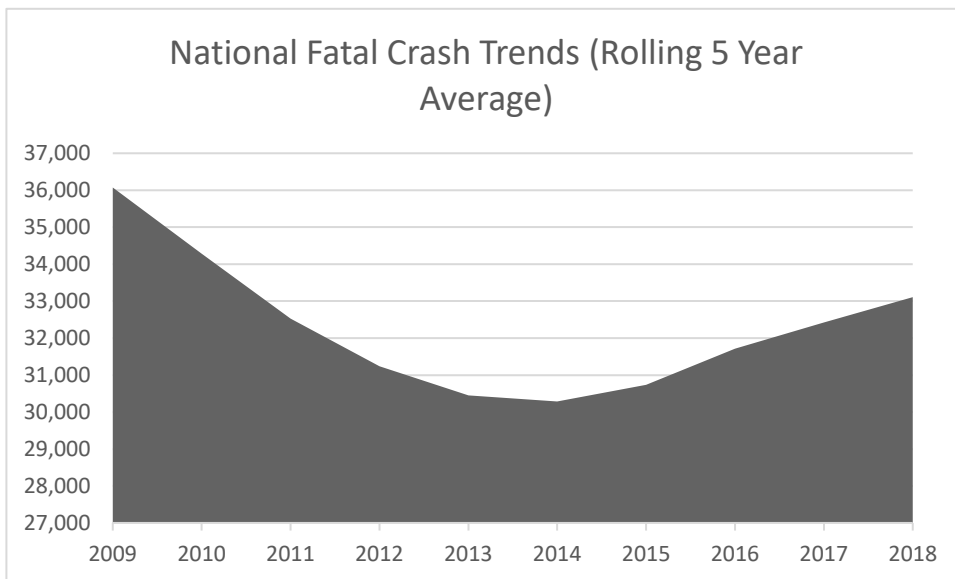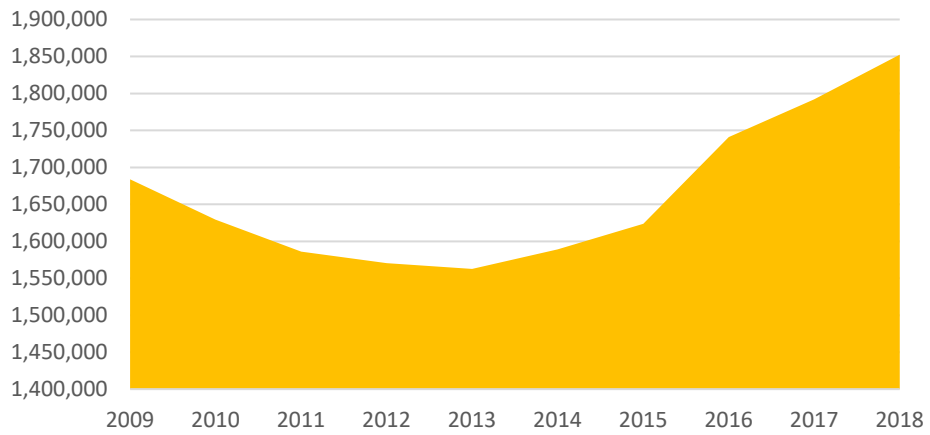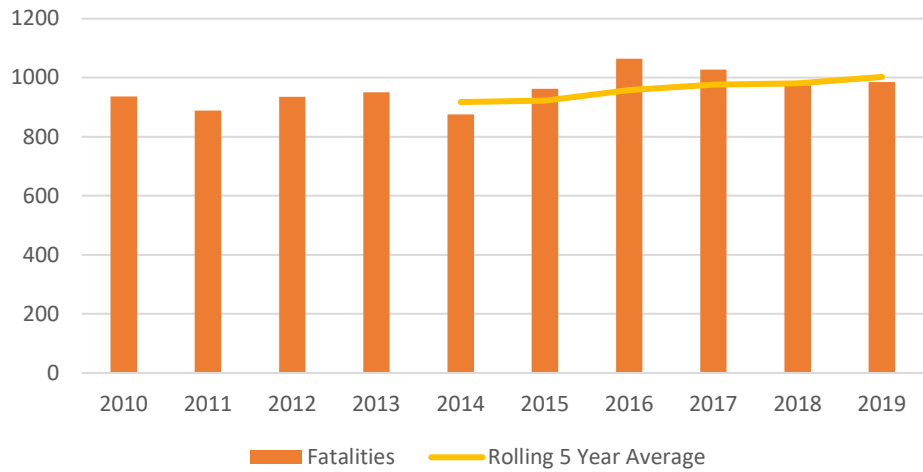

Observations:

- 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.

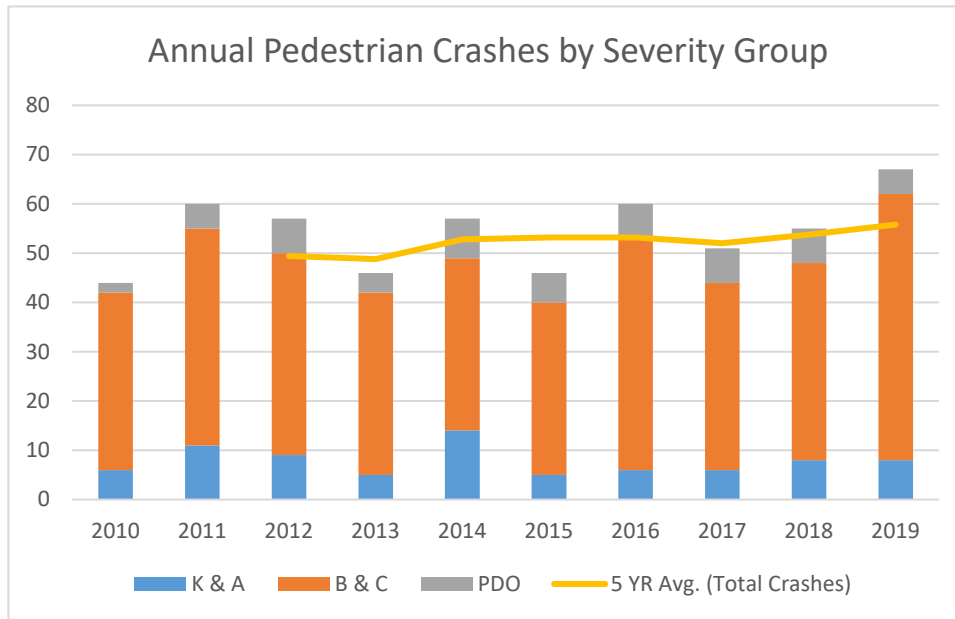- This stable trend is in stark contrast to the national experience, shown below.

National Injury Crash Trends (Rolling 5 Year Average)
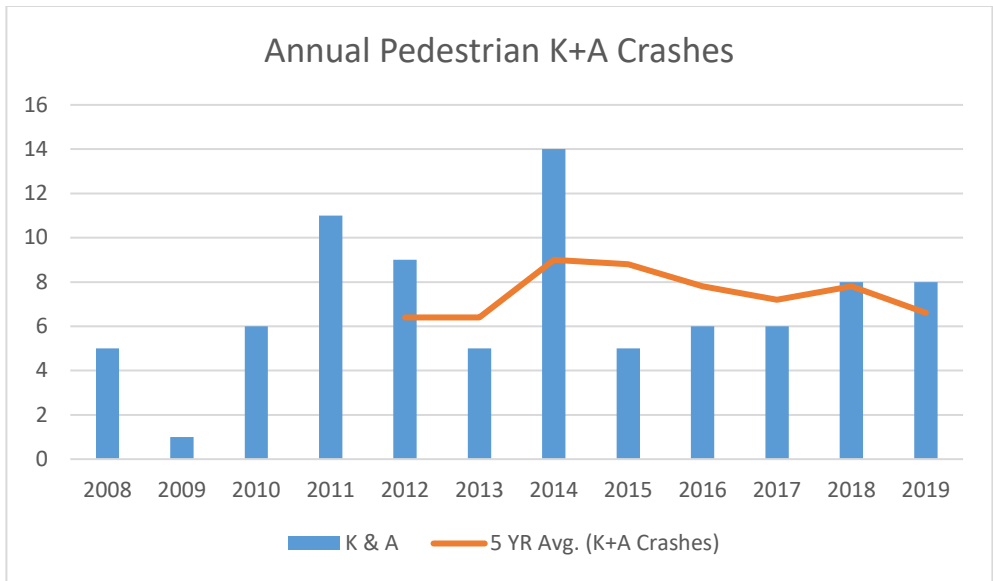

Michigan Annual Fatal Crashes

Fatalities — Rolling 5 Year Average

Pedestrian Involved Crashes
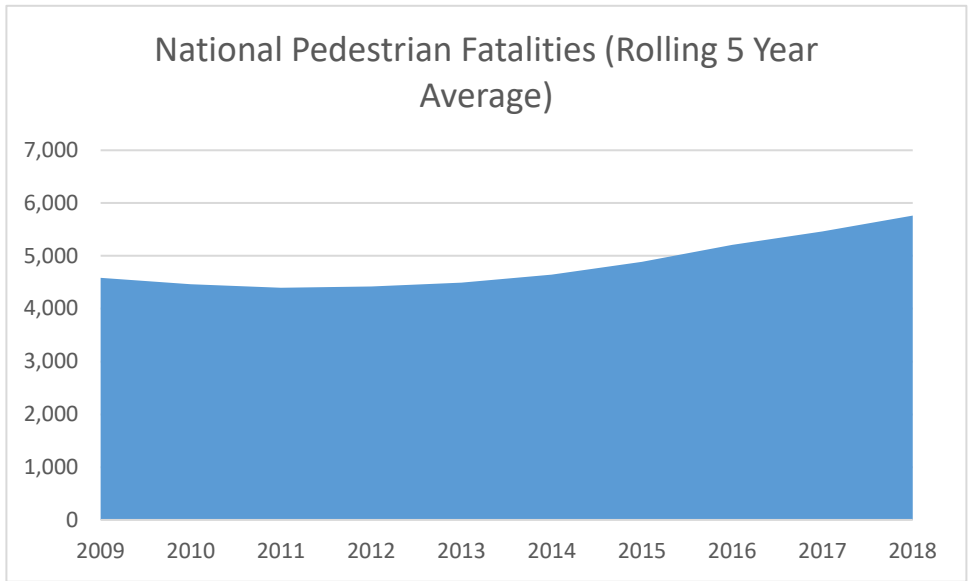

Annual Pedestrian Crashes by Severity Group

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

Annual Pedestrian K+A Crashes

Legend
K & A
5 YR Avg. (K+A Crashes)

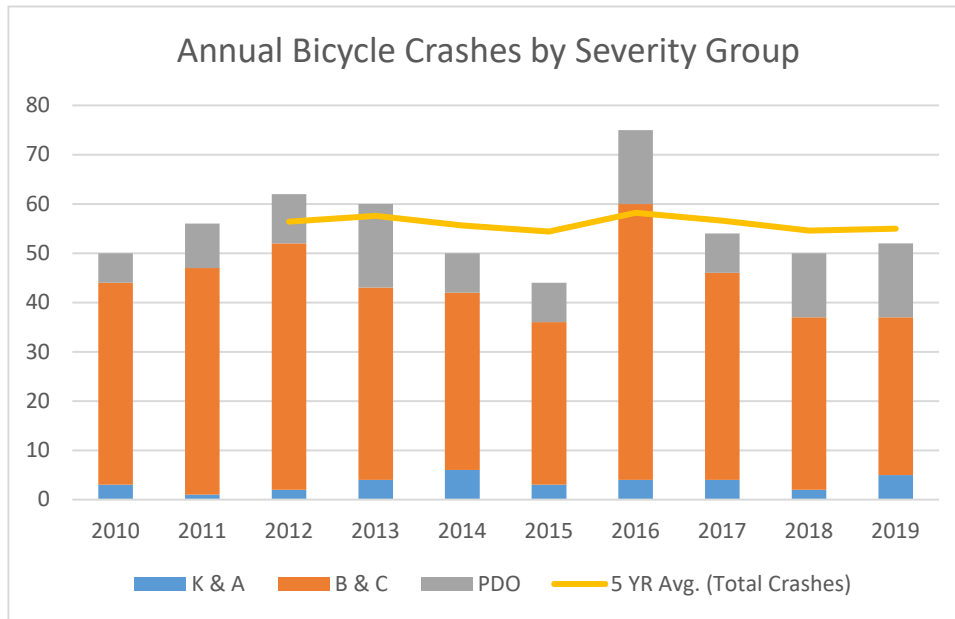## National Pedestrian Fatalities (Rolling 5 Year Average)

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 significat when compared to the national trends.

7

Bicyclist Involved Crashes

Annual Bicycle Crashes by Severity Group

Legend: K & A | B & C | PDO | 5 YR Avg. (Total Crashes)
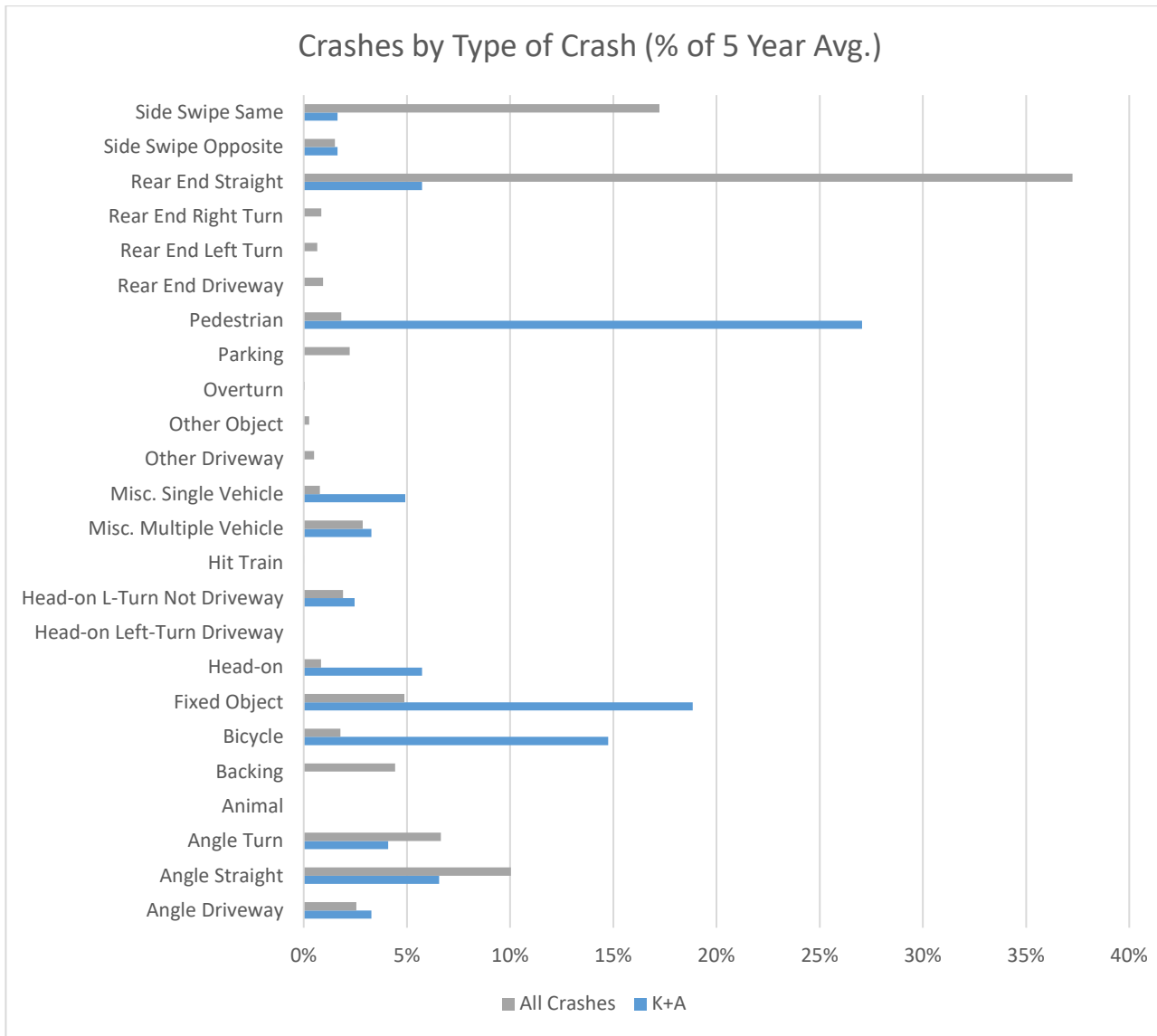
Observations:
- The overall number of bicycle crashes increased from 2018 to 2019 by two crashes. While this increase may seem significant when looking at the graph, the five-year average shifted by only 0.73%.
- The five year rolling average trend line shows a fairly stable average crash history ranging between 54 and 59 crashes in any given year.

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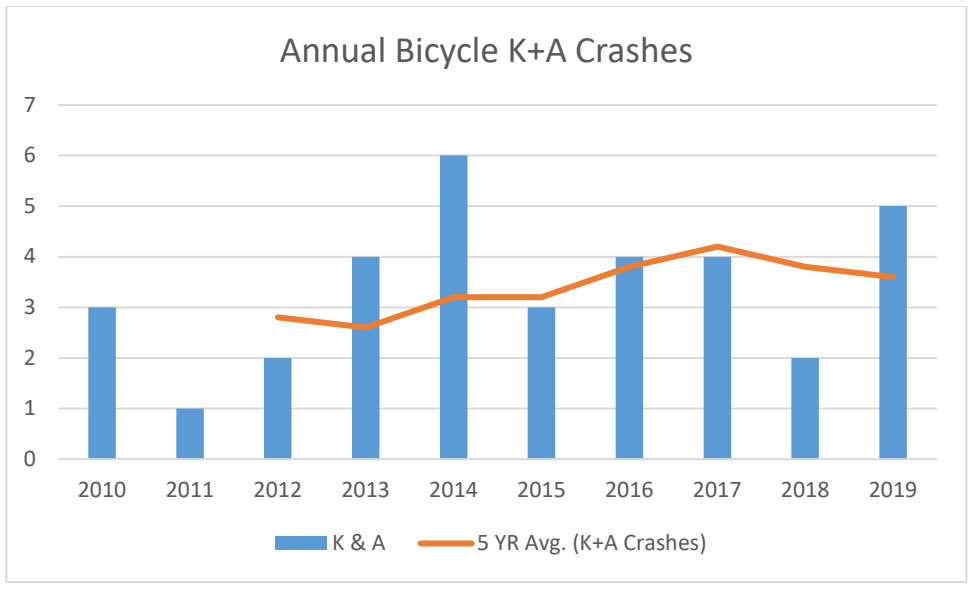
Observations:
- The overall number of serious injury crashes with people who ride bikes continues to vary widely from year to year.
- The five year rolling average trend line also shows the variability.
- Bicycle crashes should continue to be tracked, especially as the City implements higher levels of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

Crash Performance by Type


Crashes by Type of Crash (% of 5 Year Avg.)

Observations:
- The overall crash pattern continues to be dominated by rear end collisions.
- Sideswipe and angle crashes are also incident concentrations.
- Fixed object crashes will be explored in a supplemental analysis to be completed later this fiscal year.
- Pedestrian, bicyclist, and fixed object crashes are the most concentrated areas for severe injury crashes.

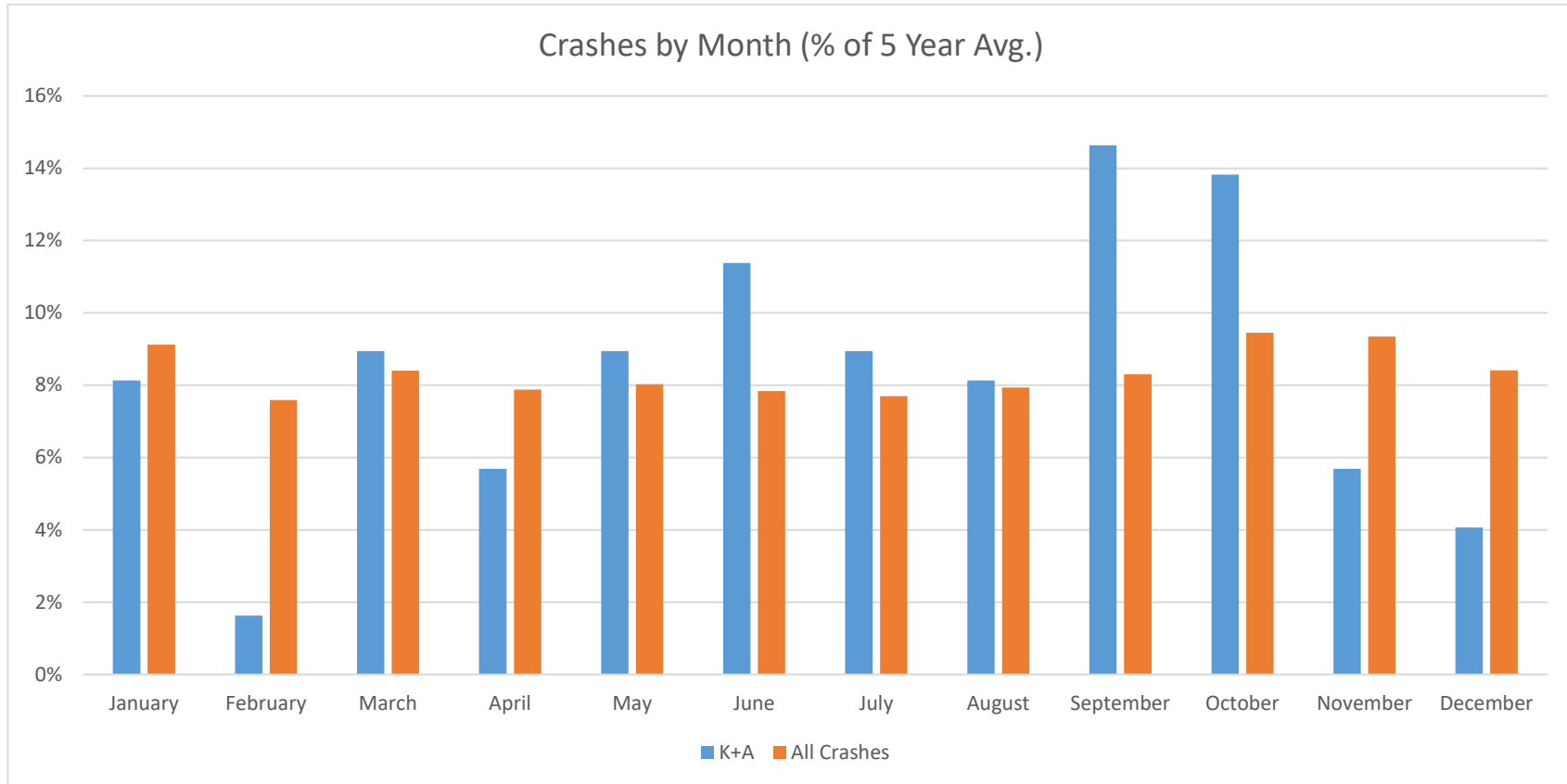# Crash Performance by Temporal Conditions

Day of Week
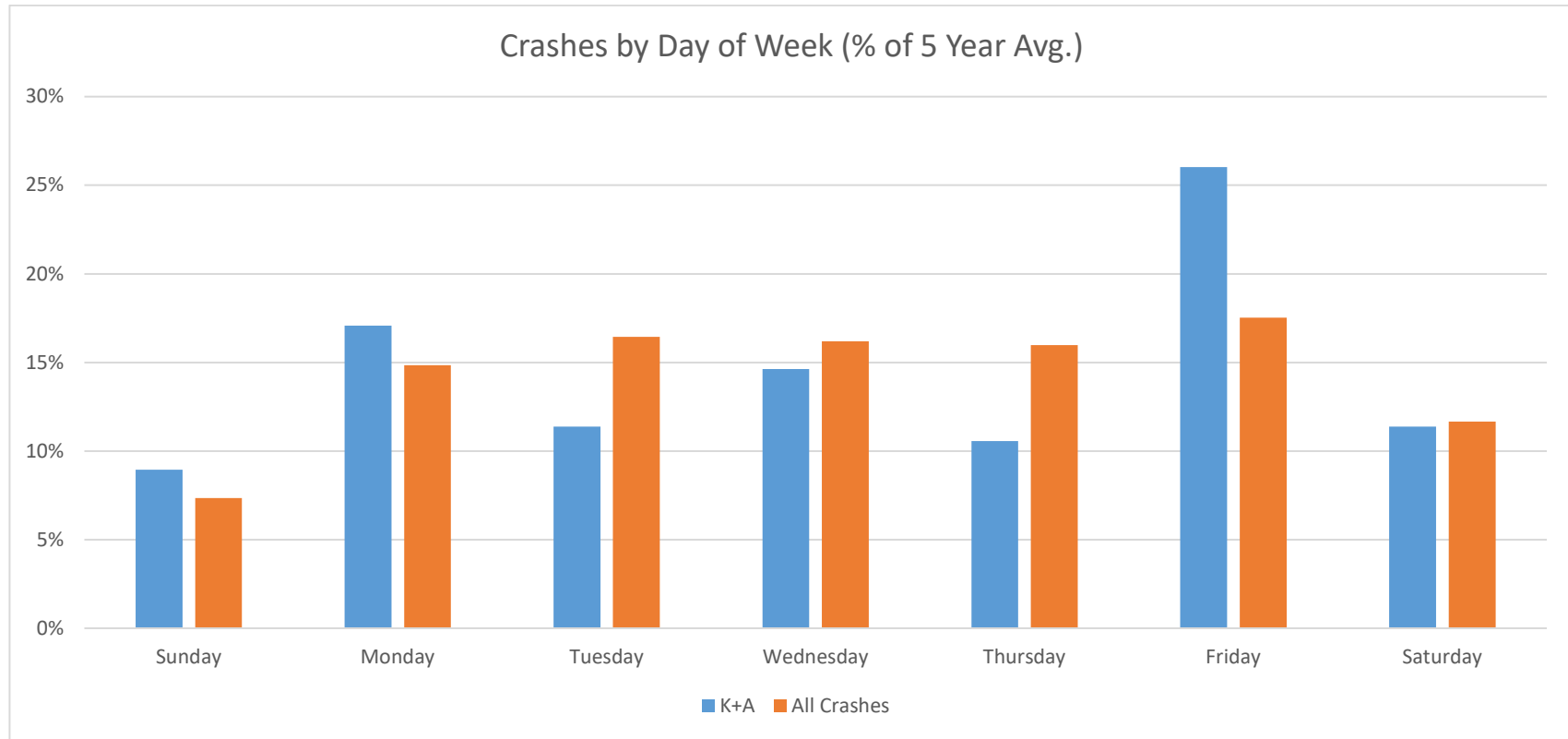
Observations:

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

Crashes by Month (% of 5 Year Avg.)

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. This normal trend is compounded in Ann Arbor by the addition of new residents and changes in residence associated the university.

Time of Day

Crashes by Time of Day (% of 5 Year Avg.)

Legend: ■ K+A ■ All Crashes
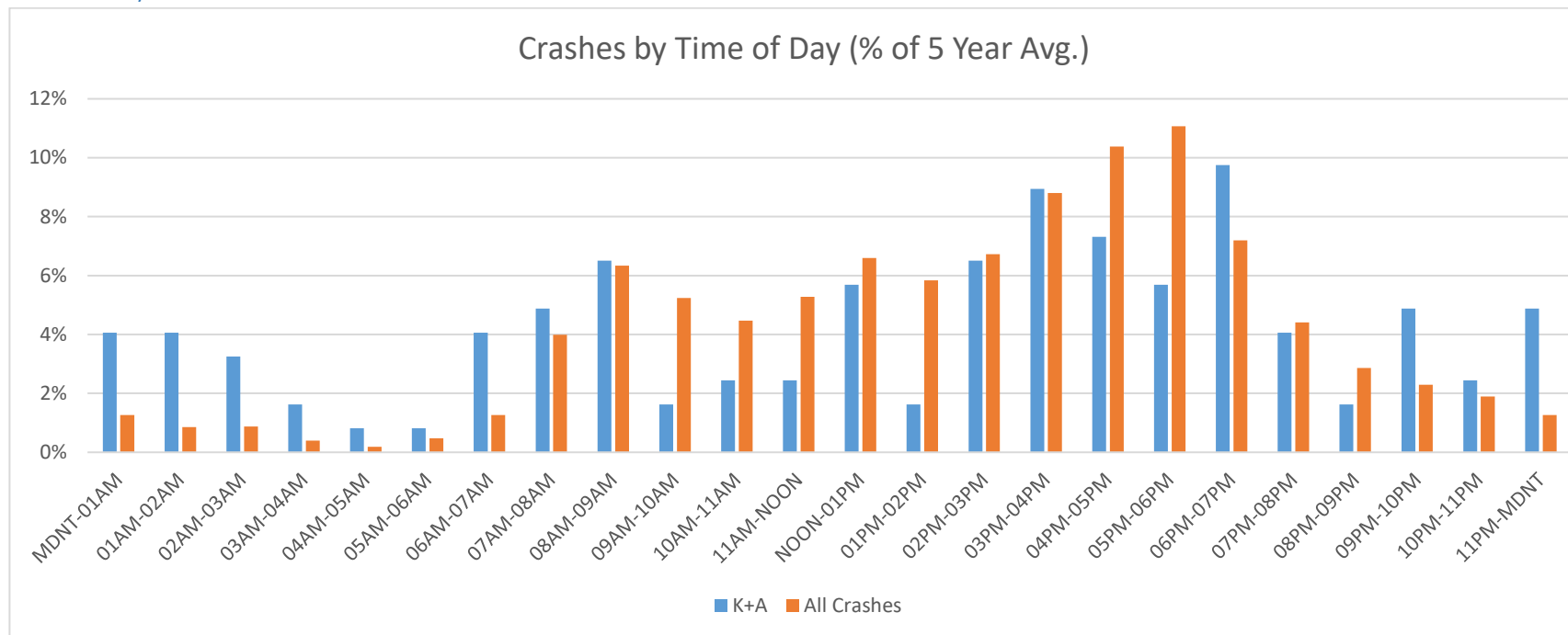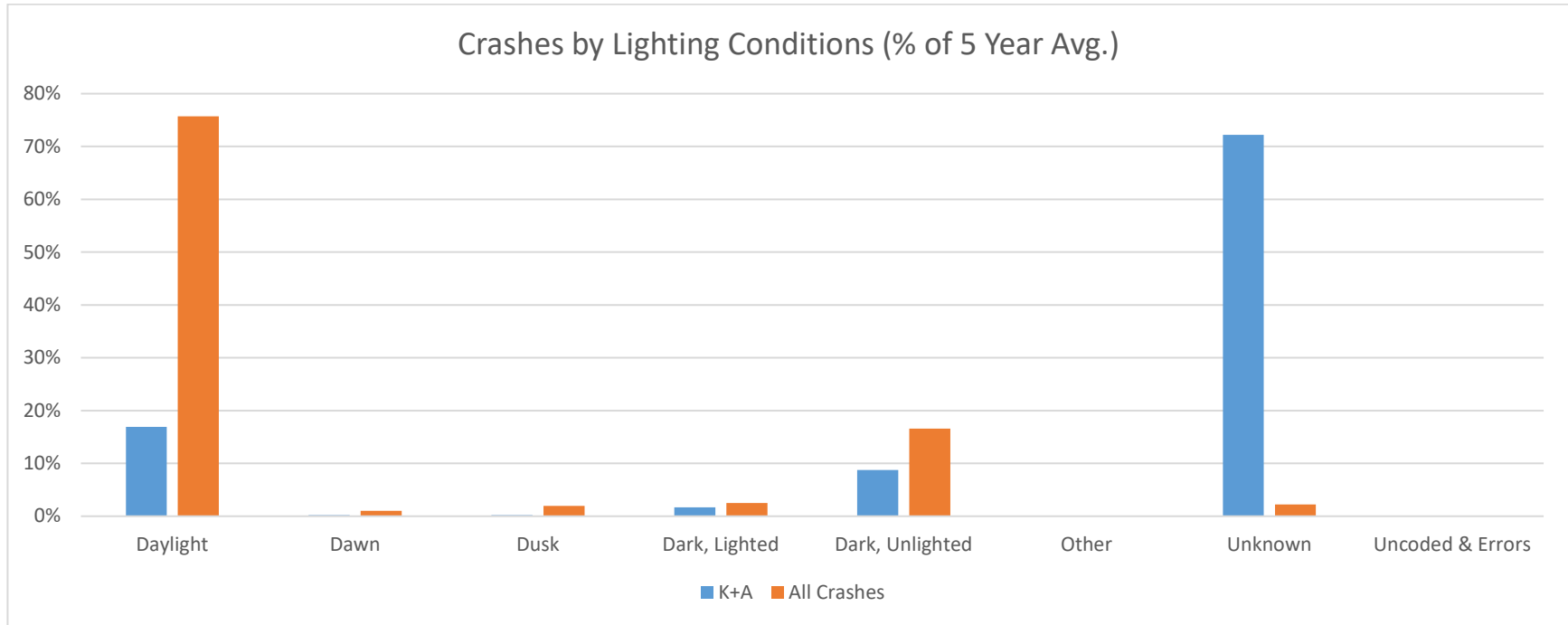
Observations:

- 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.

Crashes by Lighting Conditions (% of 5 Year Avg.)
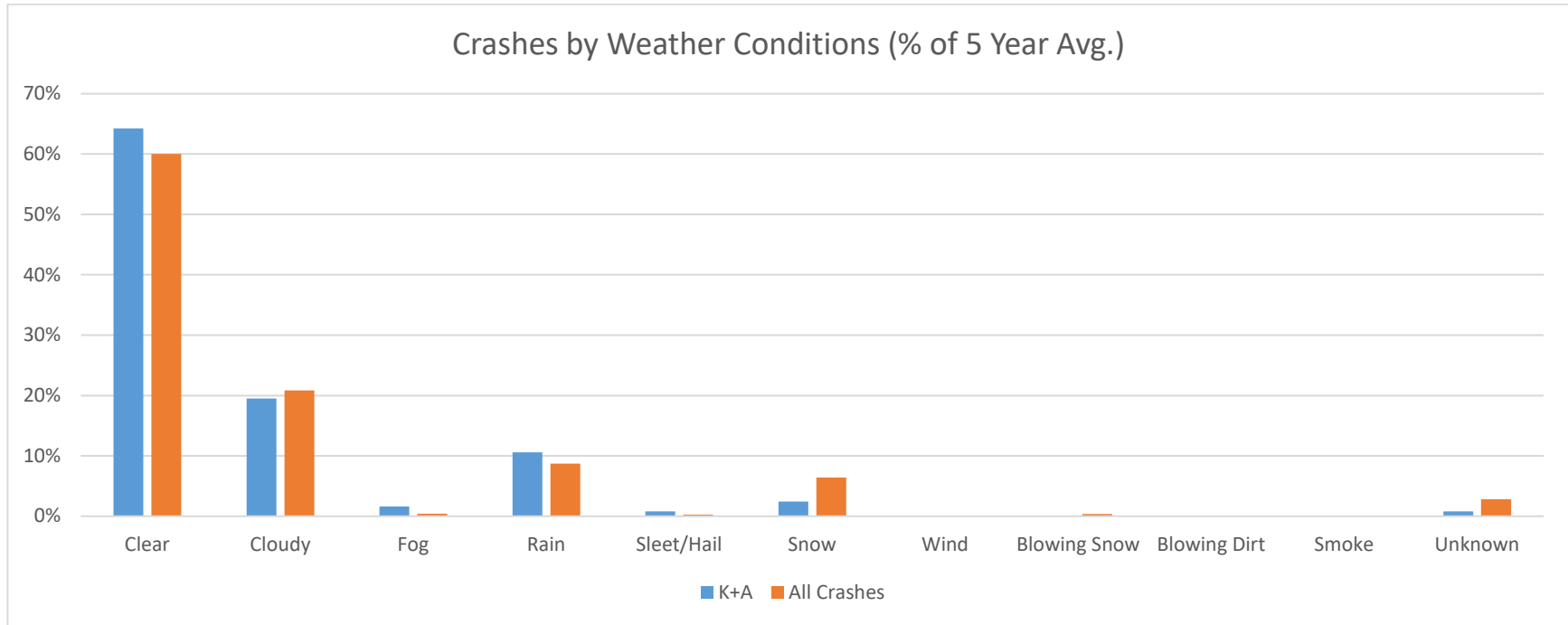
Observations:
- Most crashes occur during daylight hours
- Severe injury crashes continue to not have an accurate accounting of lighting conditions for 72% of crashes on average. In 2019 unknown lighting conditions represented 5% of overall crashes and 82% of severe injury crashes.

Crashes by Weather Conditions (% of 5 Year Avg.)
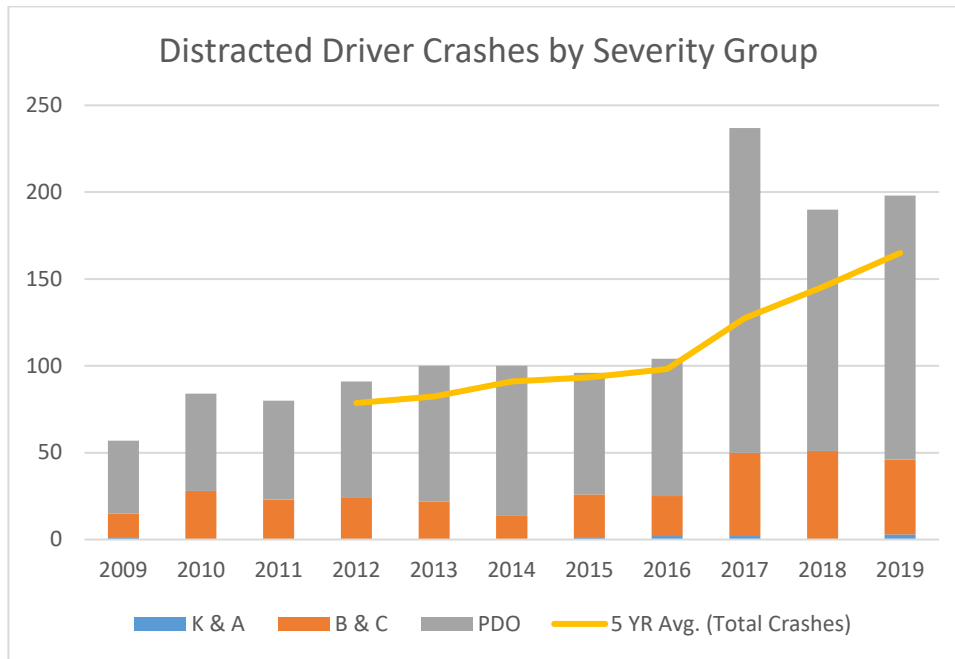

Observations:
- Most crashes continue to occur during non-inclement weather.
- Severe injury crashes continue to occur in a similar pattern.

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:

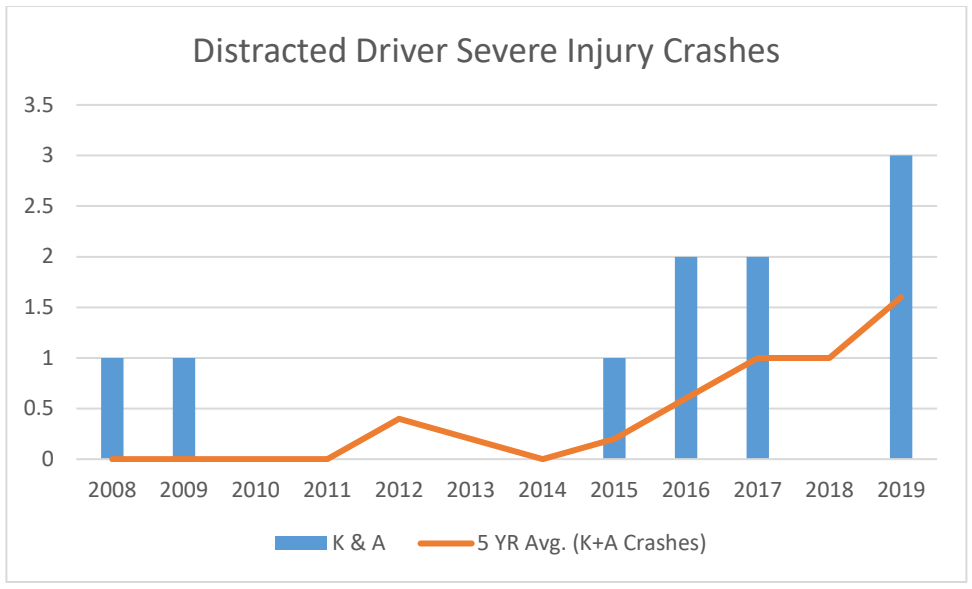- Crashes noted as including distracted driving
- Crashes by the type of violation (citation) noted
- Crashes with drug or alcohol use noted

Distracted Driving

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

Distracted Driver Severe Injury Crashes

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)

5 Year Average Crashes by Driver Violation
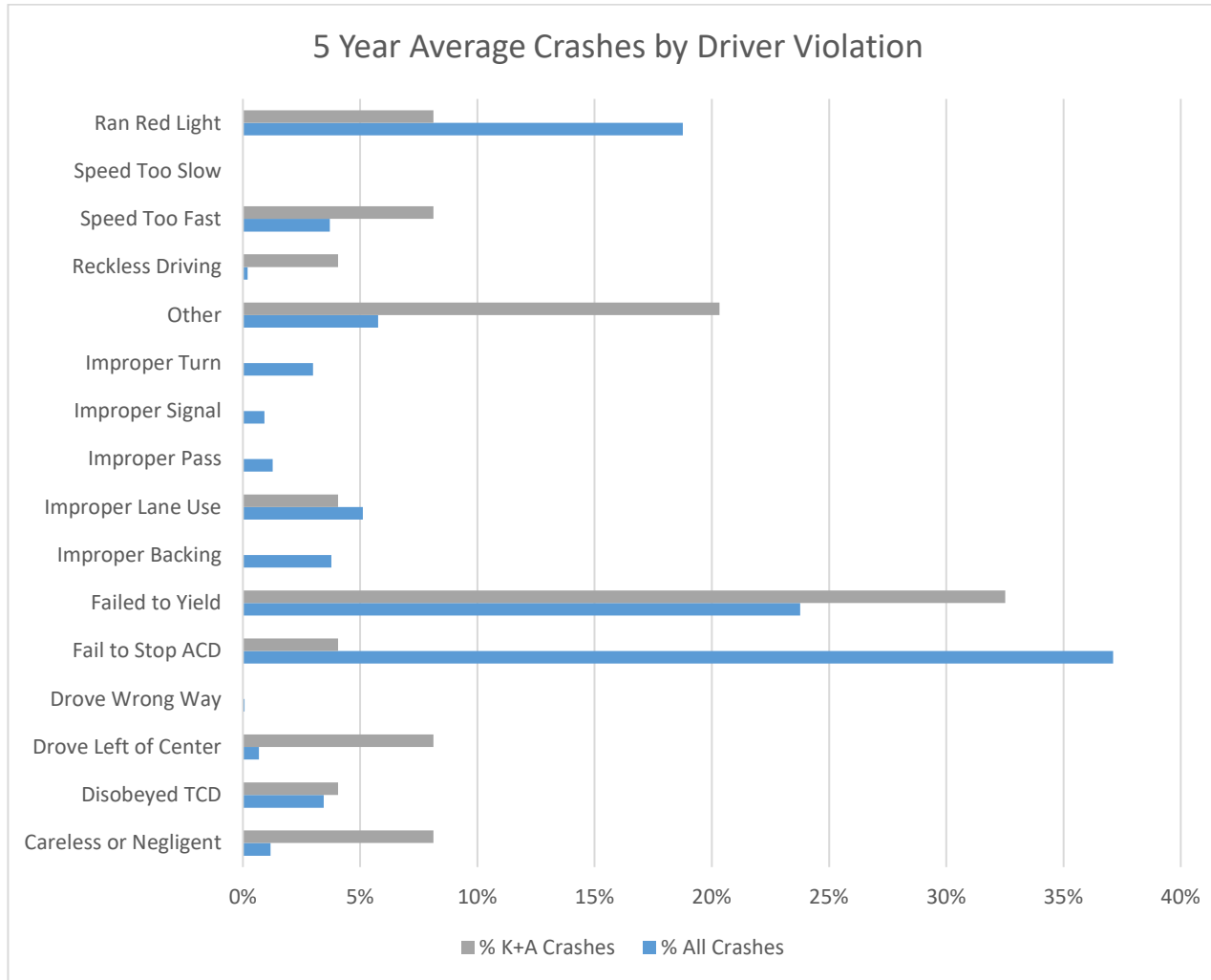
Notes:
- ACD – Assured Clear Distance
- TCD – Traffic Control Device

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

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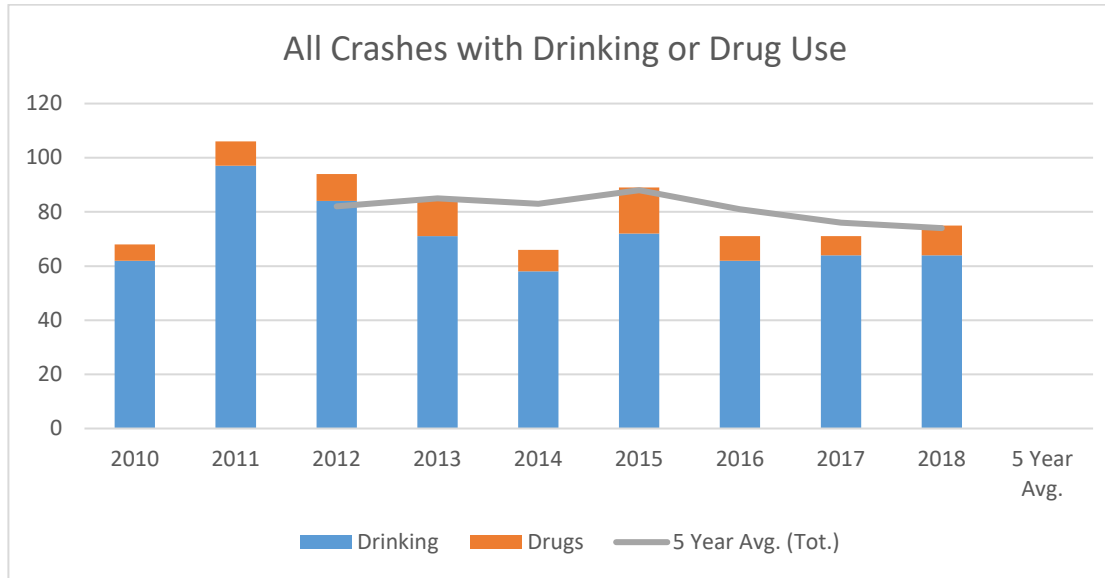
Observations:
- The number of crashes involving alcohol impairment continues to remain steady, 64-65 incidents per year over the last five years.
- 2019 experienced a doubling of crashes involving drug impairment.
- In 2019 the percentage of total crashes was:
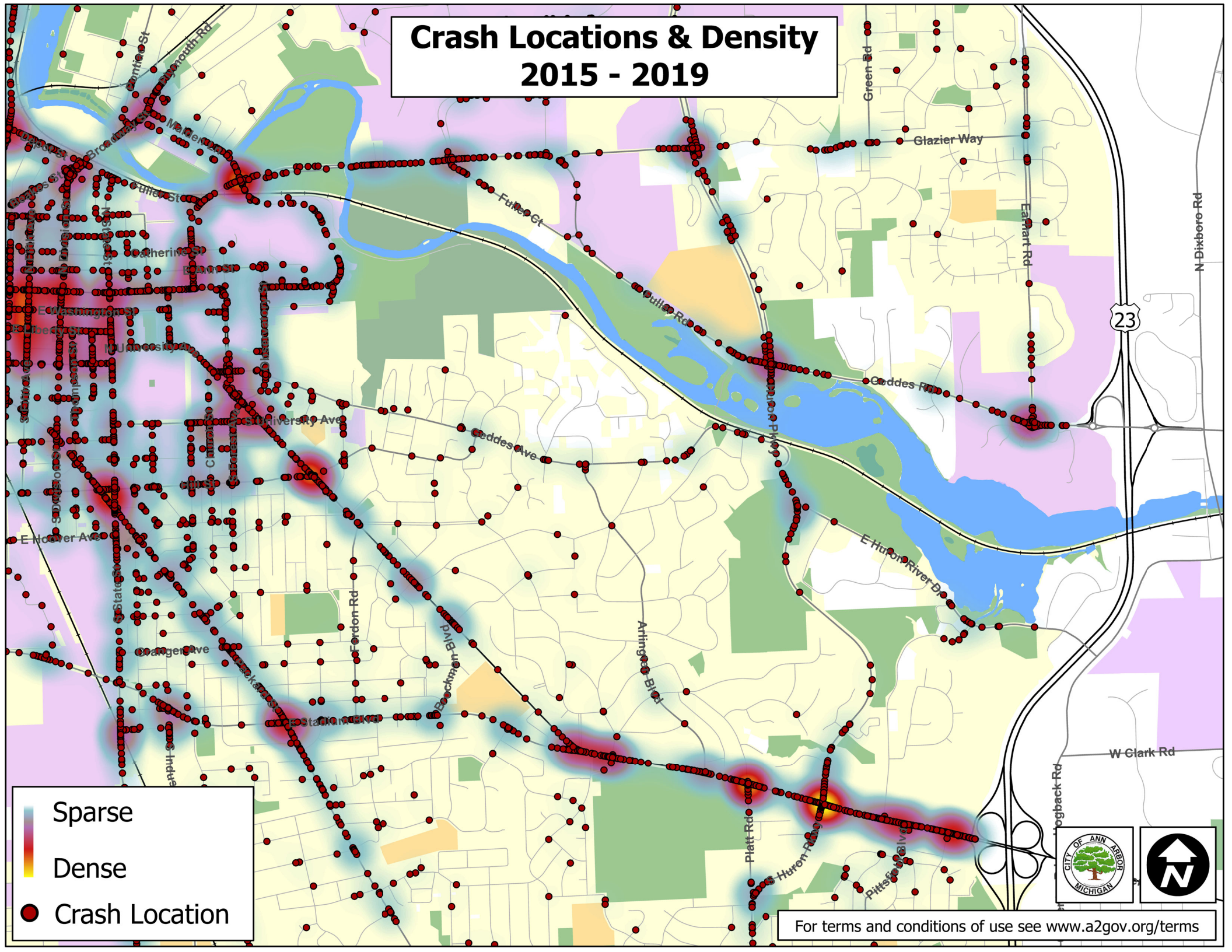 - Drinking = 2.1%
  - Drug Use = 0.7%

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

Sparse

Dense

● Crash Location

Glazier Way

Green Rd

Earhart Rd

N Dixboro Rd

23

Geddes Rd

Fuller Ct

Fuller Rd

Huron Pkwy

E Huron River Dr

Geddes Ave

Arlington Blvd

W Clark Rd

Platt Rd

S Huron Pkwy

Pittsfield Blvd

Hogback Rd

Packard St

E Stadium Blvd

Brockman Blvd

Fordon Rd

Granger Ave

E Hoover Ave

S State St

S Industrial

S Main St

S University Ave

Packard St

Church St

E Washington St

W Liberty St

E University Ave

S Fifth Ave

Broadway St

Plymouth Rd

Maiden Ln

Fuller St

Catherine St

CITY OF ANN ARBOR
MICHIGAN

N

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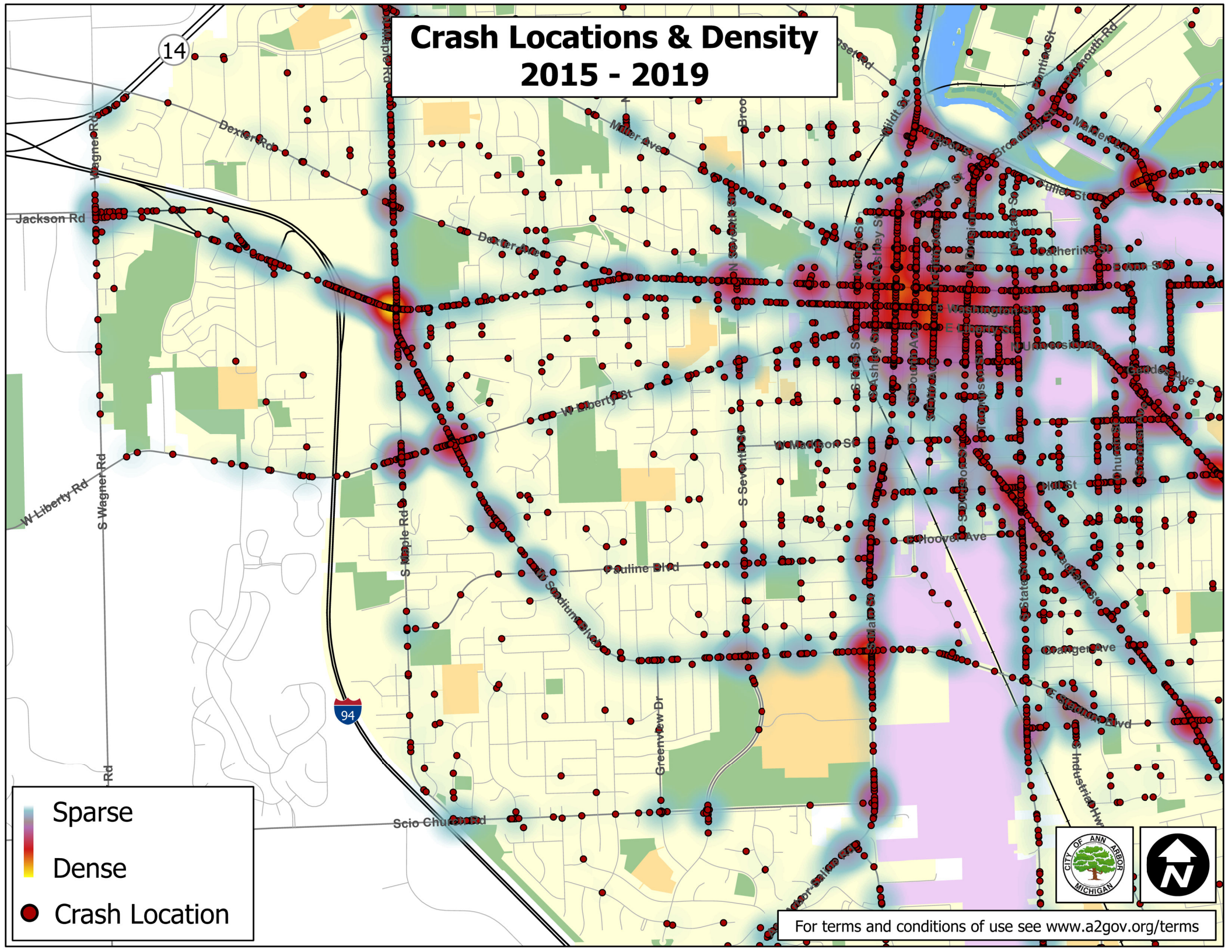
Crash Locations & Density 2015 - 2019

Sparse

Dense

● Crash Location

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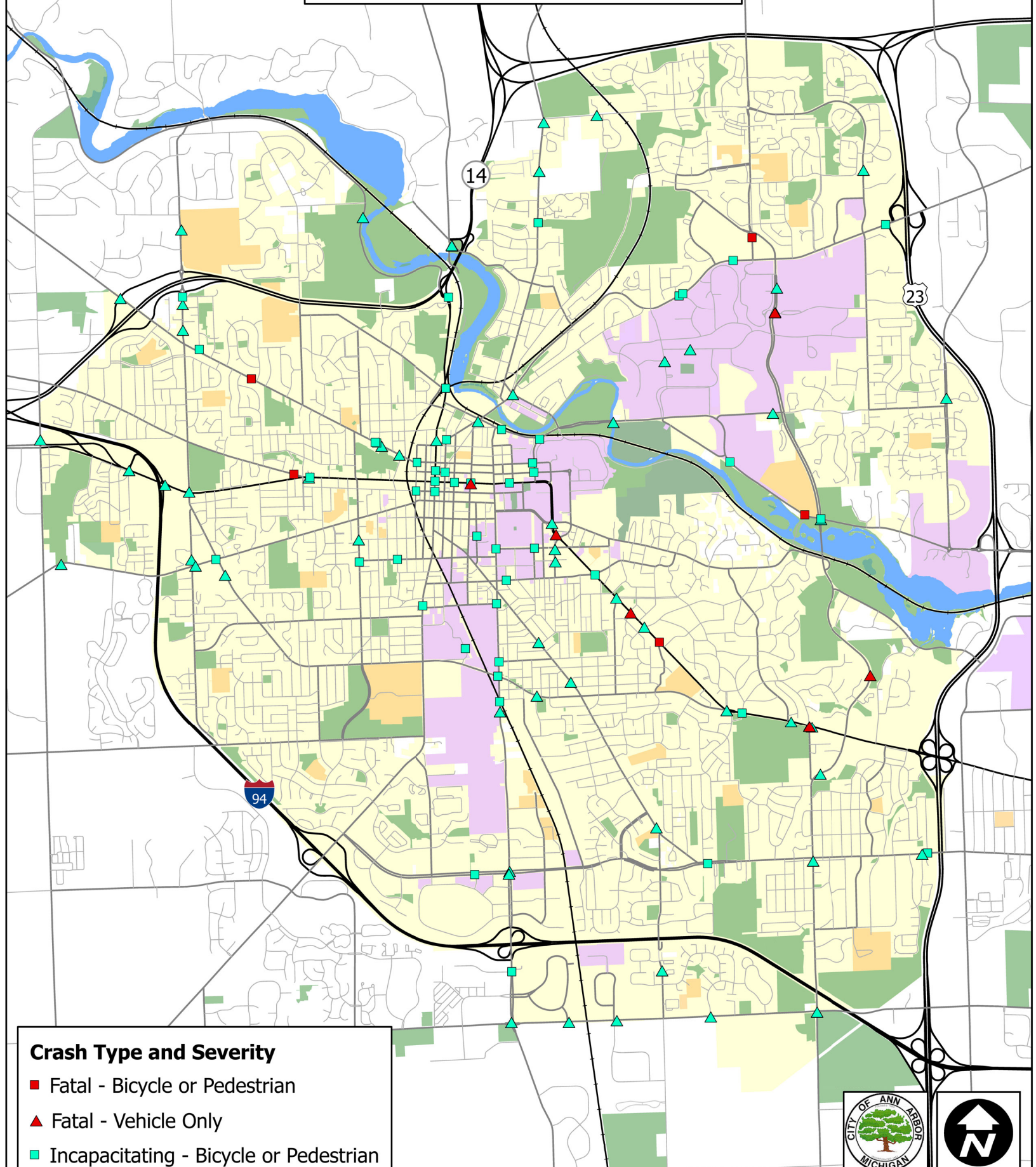
Crash Locations & Density
2015 - 2019
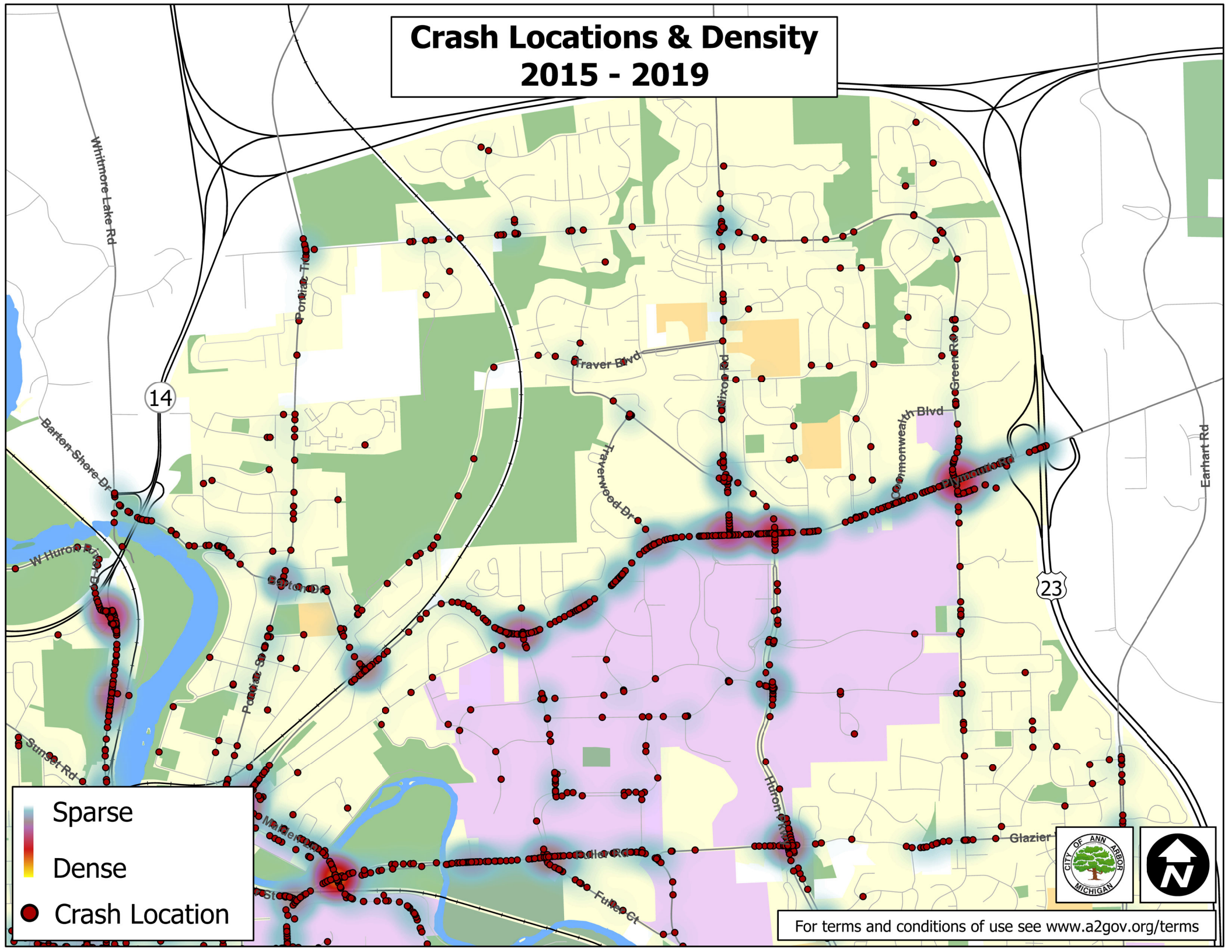
Sparse

Dense

Crash Location

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Fatal or Incapacitating Crashes 2015 - 2019

Crash Type and Severity

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

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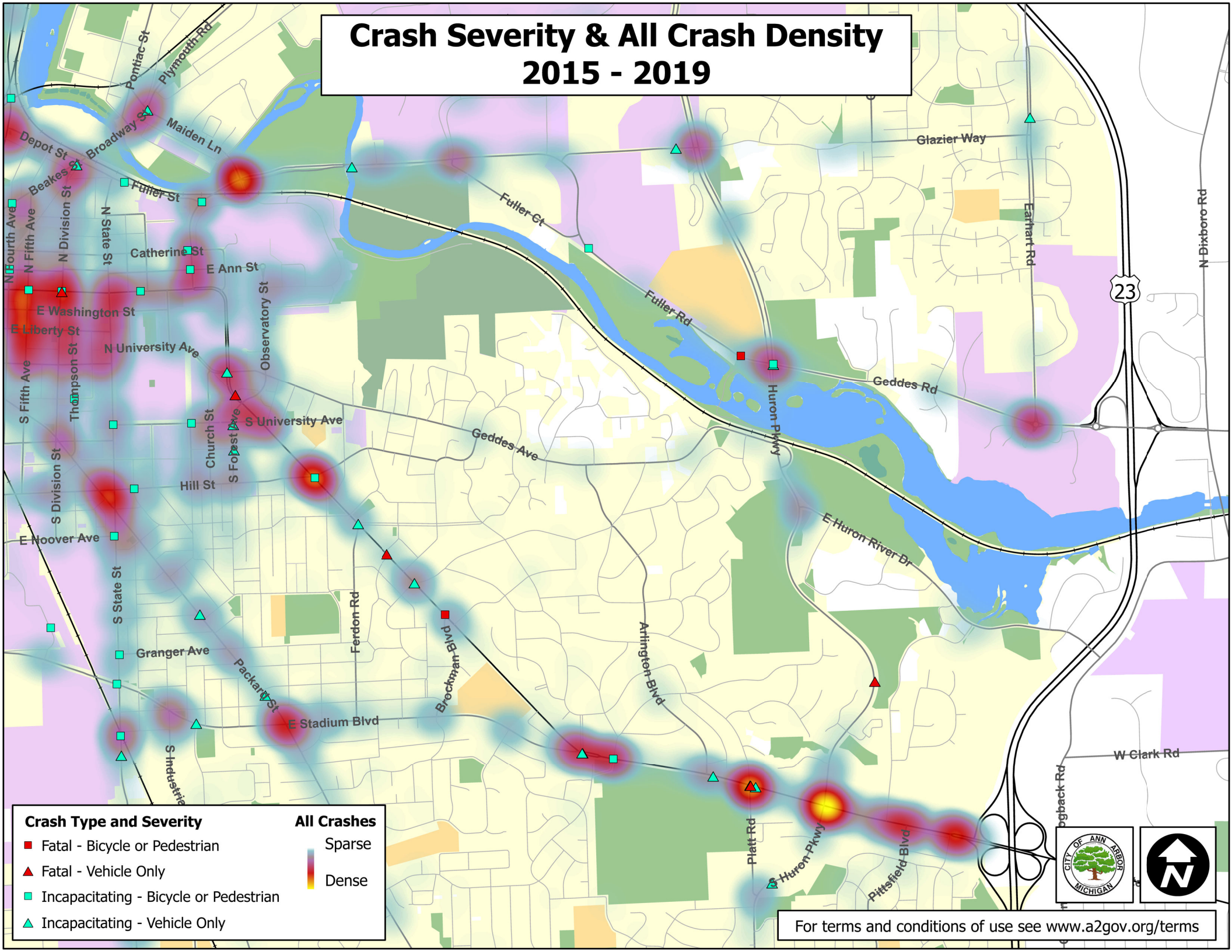
Crash Severity & All Crash Density
2015 - 2019

Crash Type and Severity

■ Fatal - Bicycle or Pedestrian

▲ Fatal - Vehicle Only

■ Incapacitating - Bicycle or Pedestrian

▲ Incapacitating - Vehicle Only

All Crashes

Sparse

Dense

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Crash Severity & All Crash Density
2015 - 2019

Crash Type and Severity

- ■ Fatal - Bicycle or Pedestrian (red square)
- ▲ Fatal - Vehicle Only (red triangle)
- ■ Incapacitating - Bicycle or Pedestrian (cyan square)
- ▲ Incapacitating - Vehicle Only (cyan triangle)

All Crashes

Sparse

Dense

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CITY OF ANN ARBOR MICHIGAN

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Crash Severity & All Crash Density
2015 - 2019

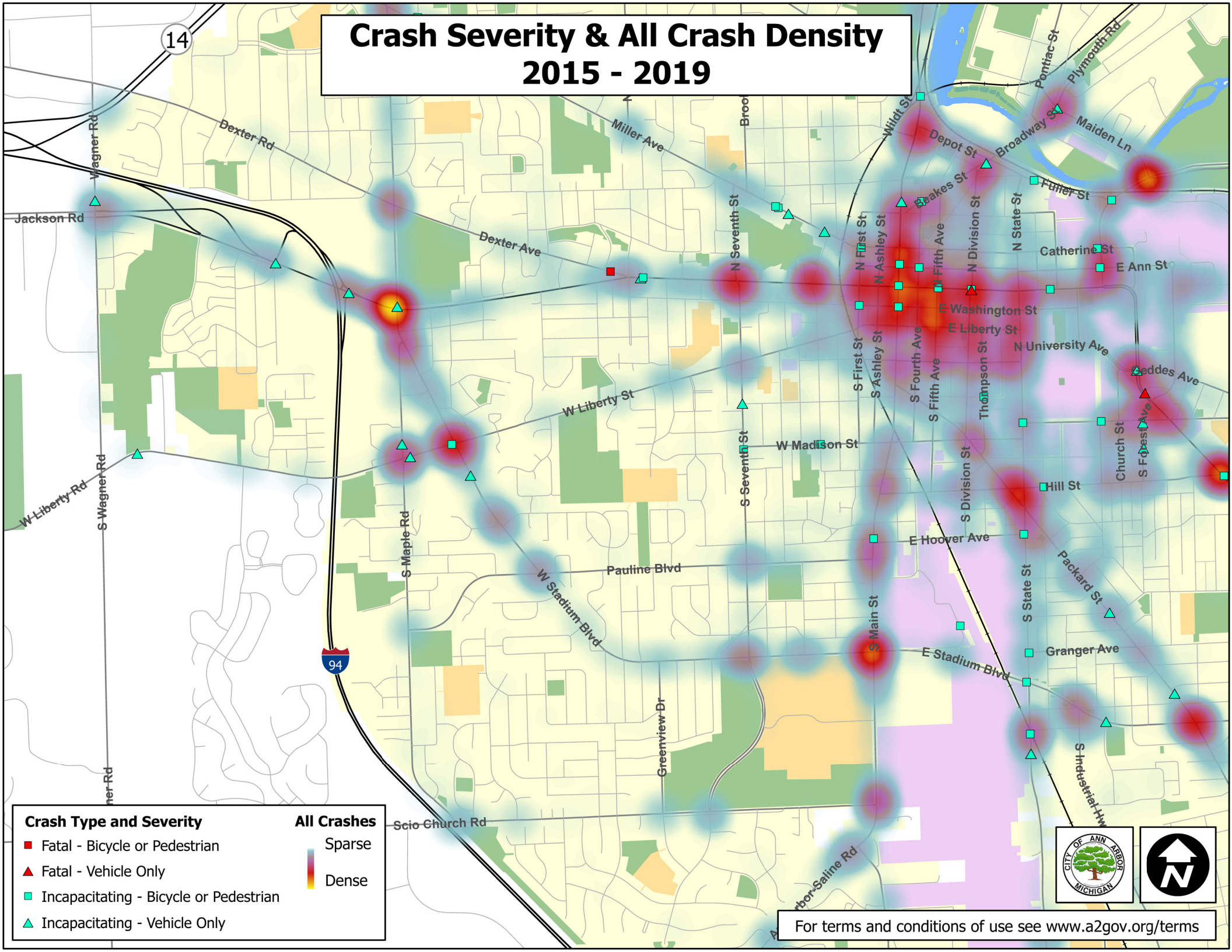**Crash Type and Severity**

■ Fatal - Bicycle or Pedestrian

▲ Fatal - Vehicle Only

■ Incapacitating - Bicycle or Pedestrian

▲ Incapacitating - Vehicle Only

All Crashes

Sparse

Dense

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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
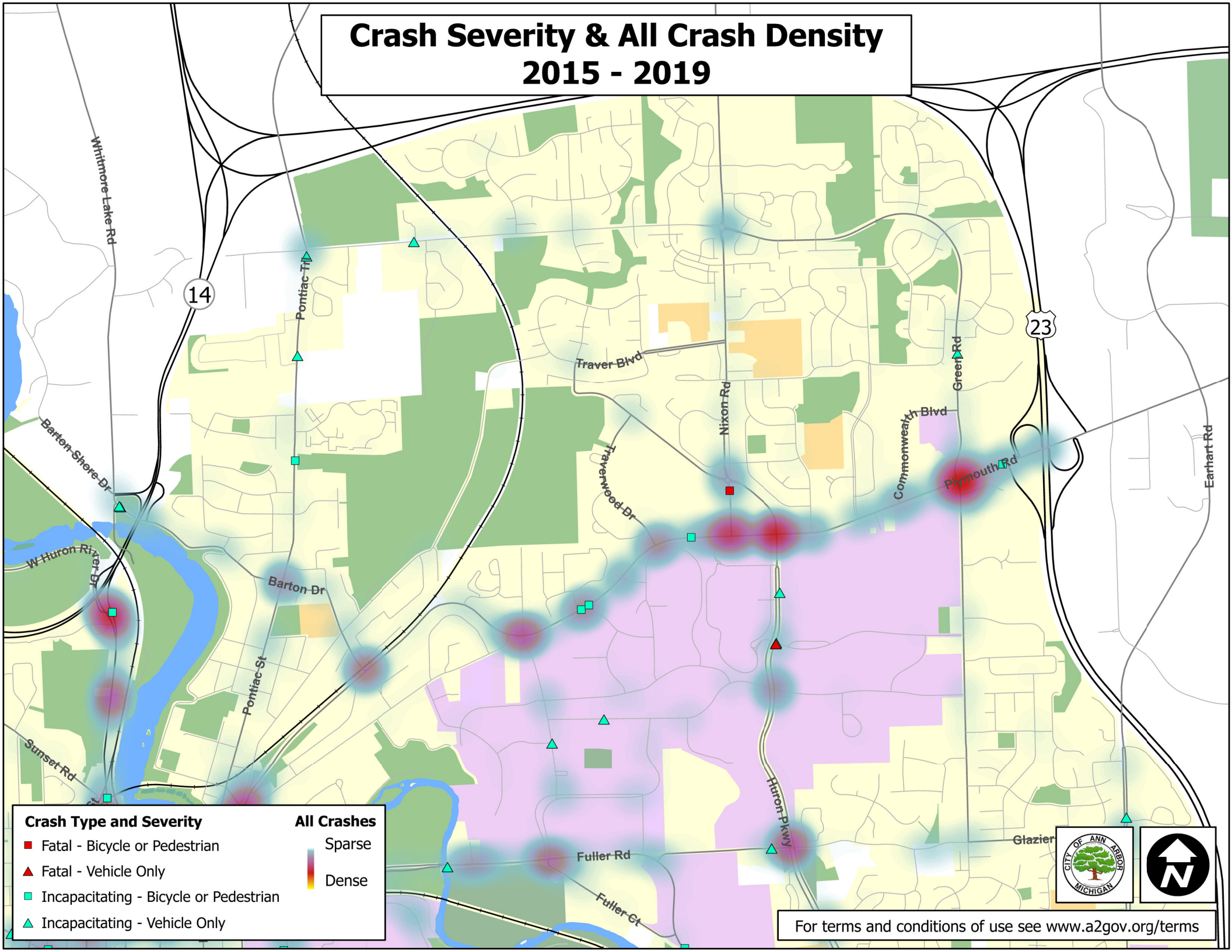- ▲ Incapacitating - Vehicle Only

All Crashes

Sparse

Dense

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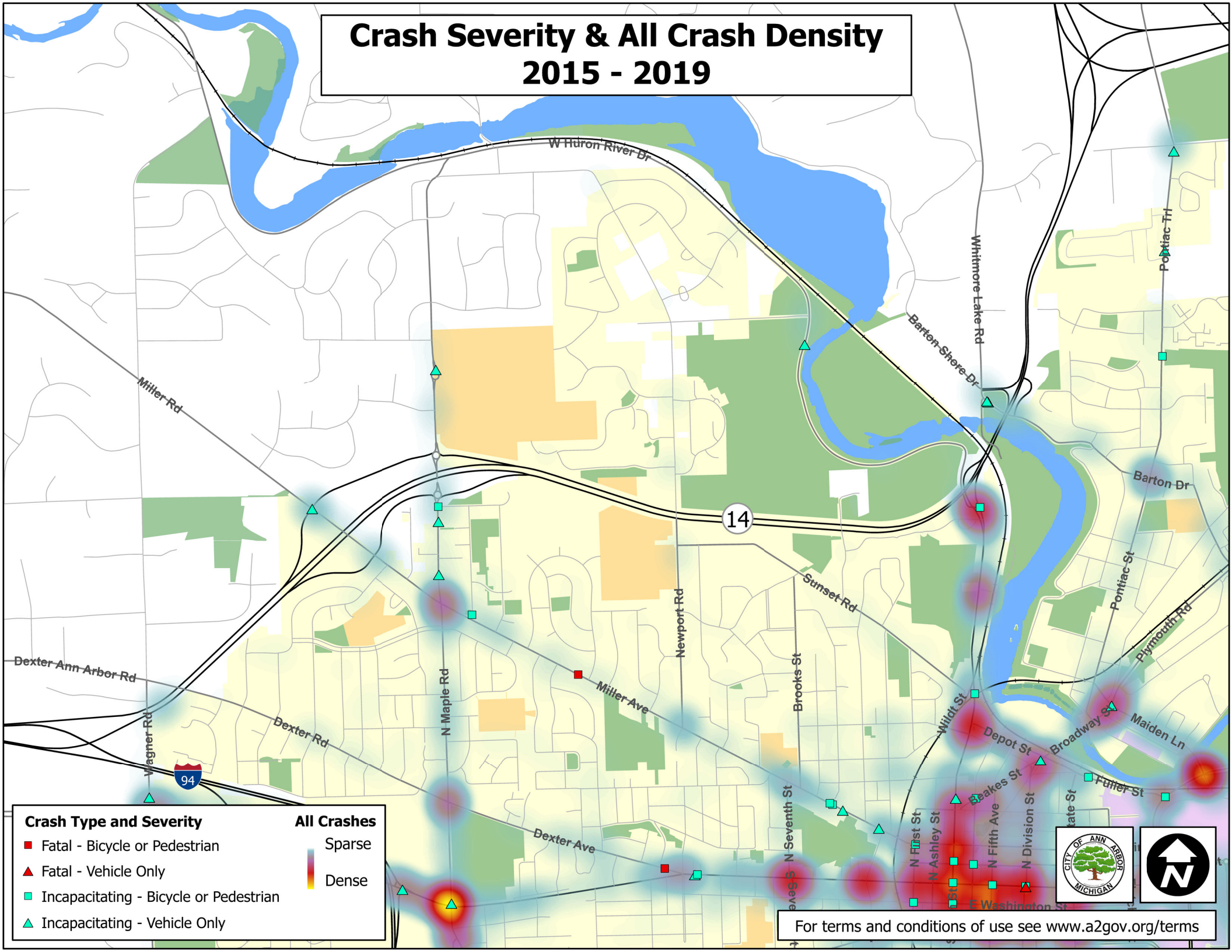# Crash Severity & All Crash Density
2015 - 2019

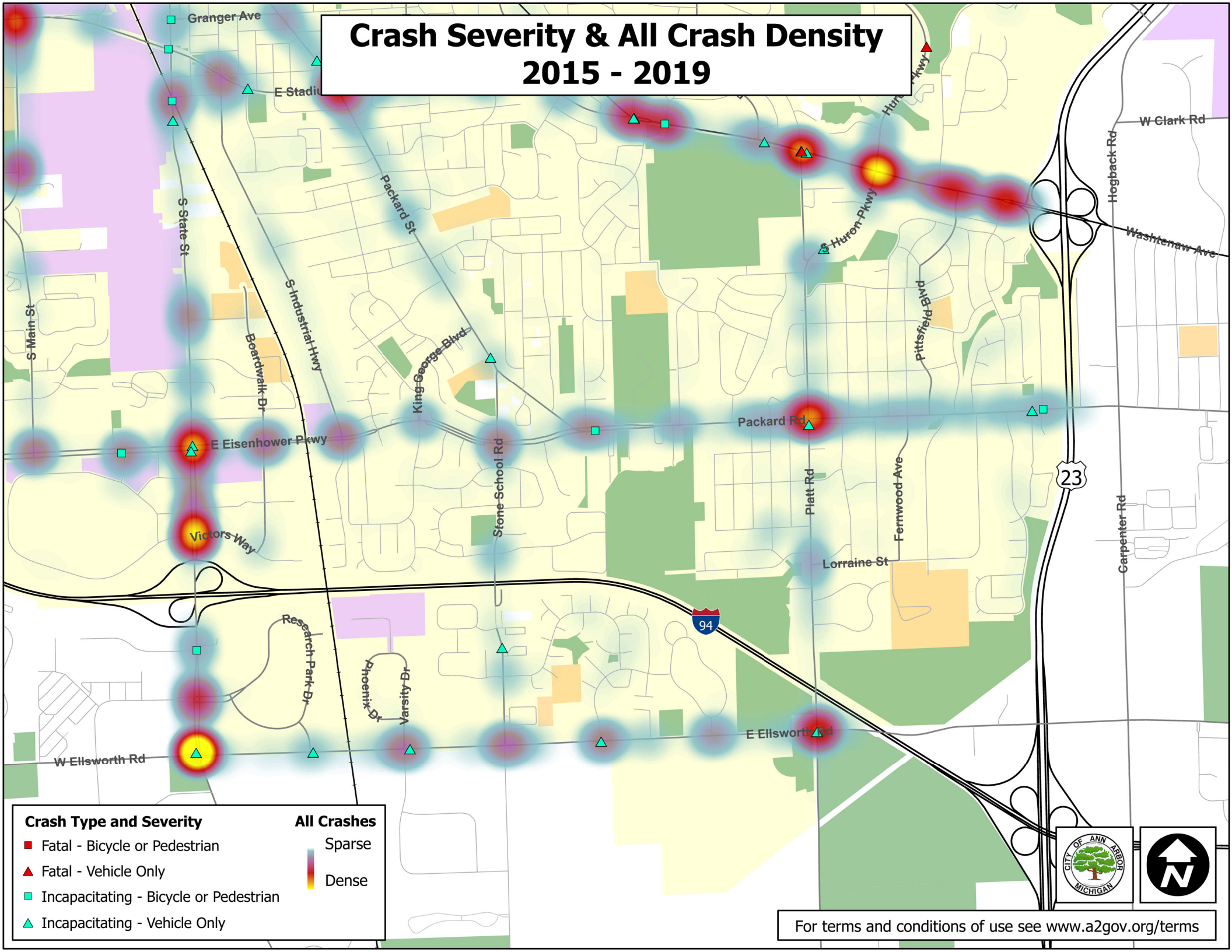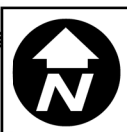**Crash Type and Severity**

- 🟥 Fatal - Bicycle or Pedestrian
- 🔺 Fatal - Vehicle Only
- 🟦 Incapacitating - Bicycle or Pedestrian
- 🔼 Incapacitating - Vehicle Only

All Crashes

Sparse

Dense

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Map labels: Granger Ave, E Stadium, 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, Packard Rd, Platt Rd, Lorraine St, Fernwood Ave, Pittsfield Blvd, S Huron Pkwy, Huron Pkwy, Hogback Rd, W Clark Rd, Washtenaw Ave, Carpenter Rd, 94, 23

CITY OF ANN ARBOR MICHIGAN

Crash Severity & All Crash Density
2015 - 2019

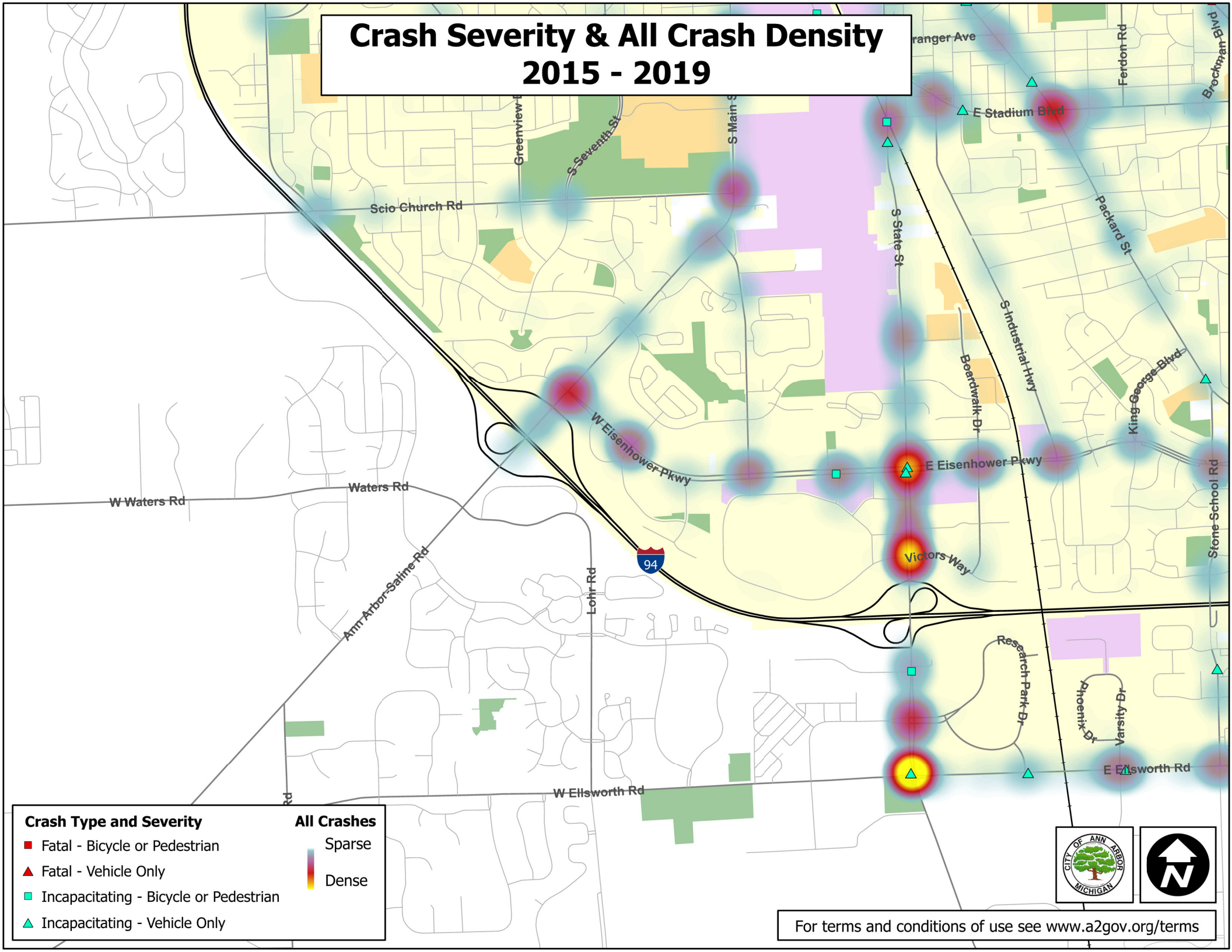**Crash Type and Severity**

■ Fatal - Bicycle or Pedestrian

▲ Fatal - Vehicle Only

■ Incapacitating - Bicycle or Pedestrian

▲ Incapacitating - Vehicle Only

All Crashes
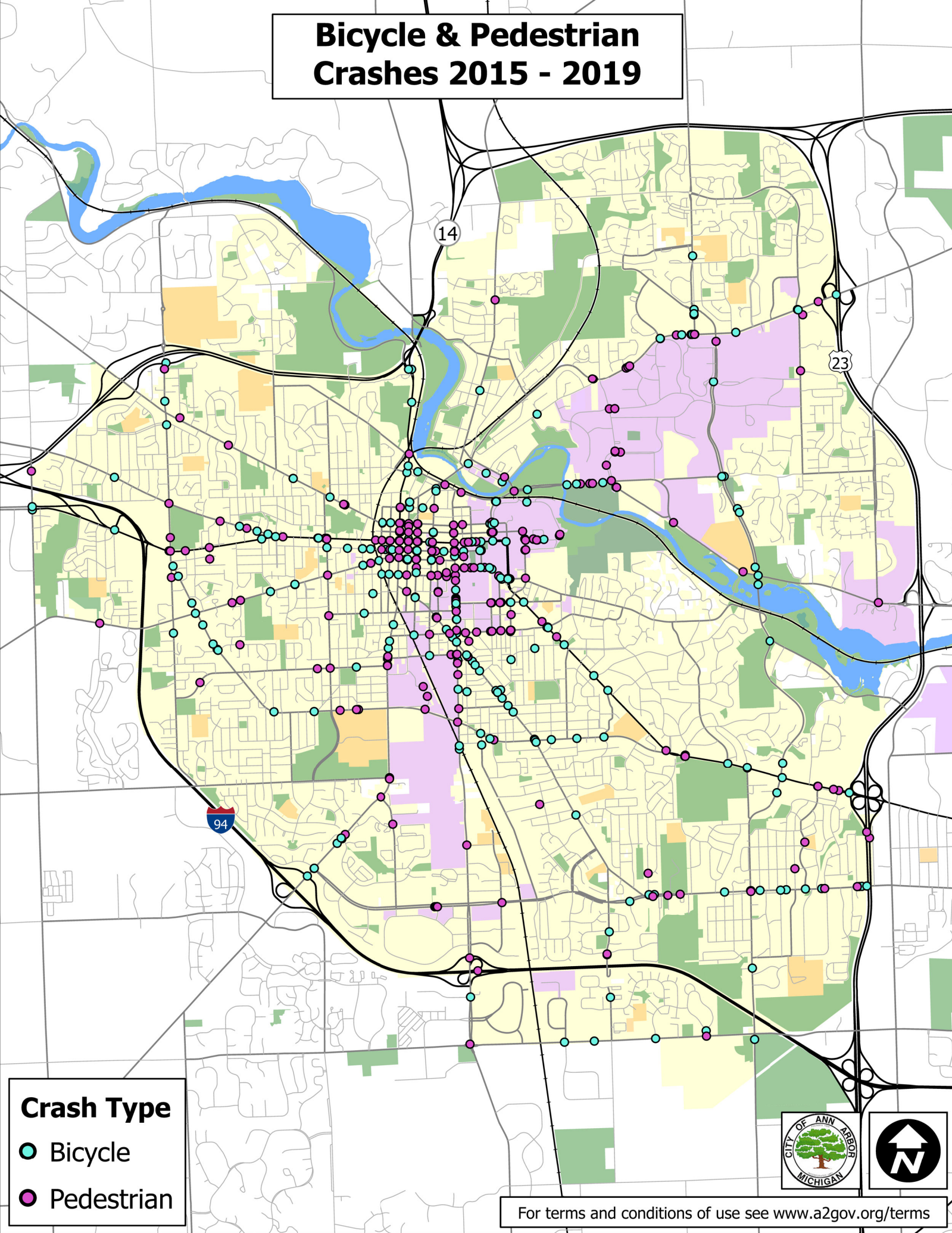
Sparse

Dense

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CITY OF ANN ARBOR MICHIGAN

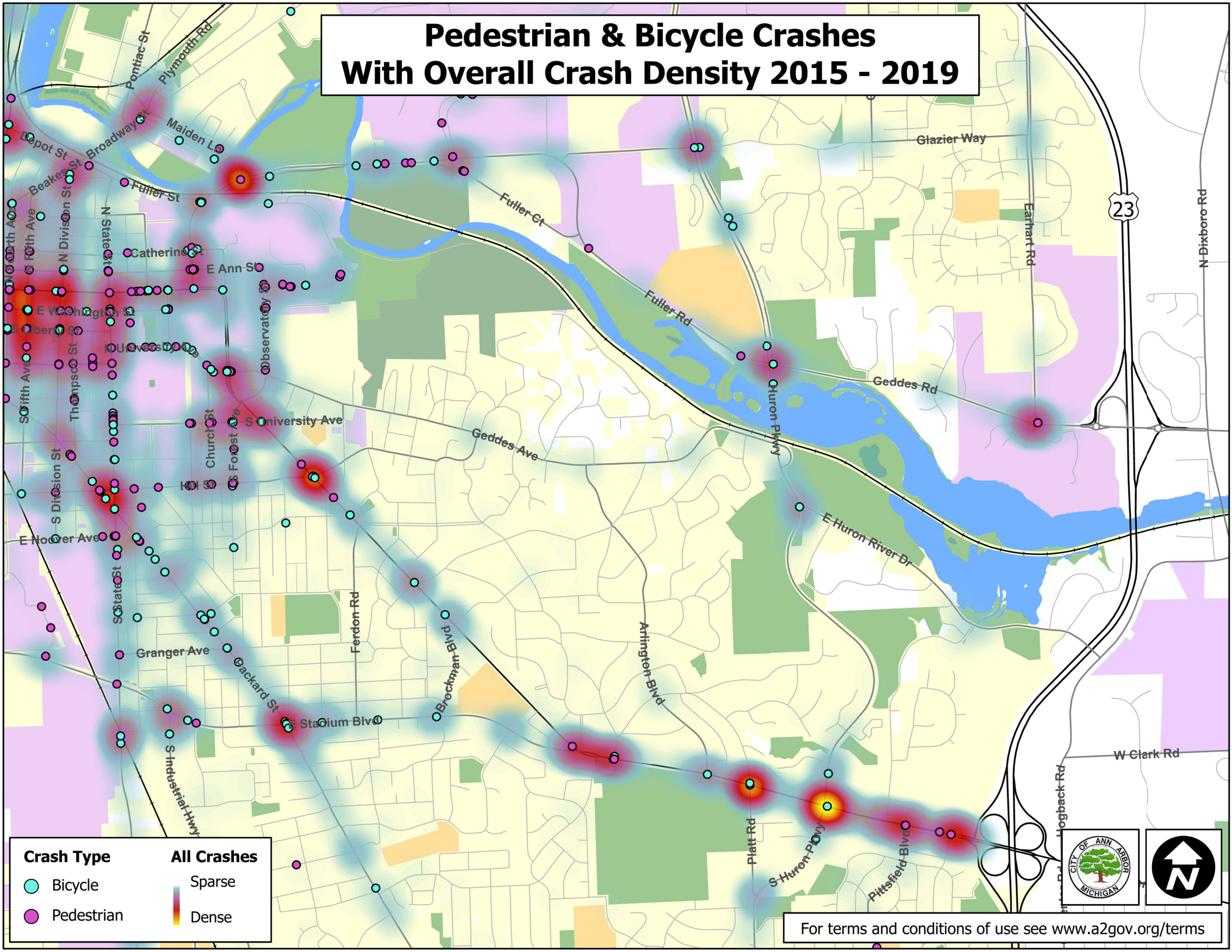# Bicycle & Pedestrian Crashes 2015 - 2019

Crash Type

- Bicycle
- Pedestrian

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Pedestrian & Bicycle Crashes
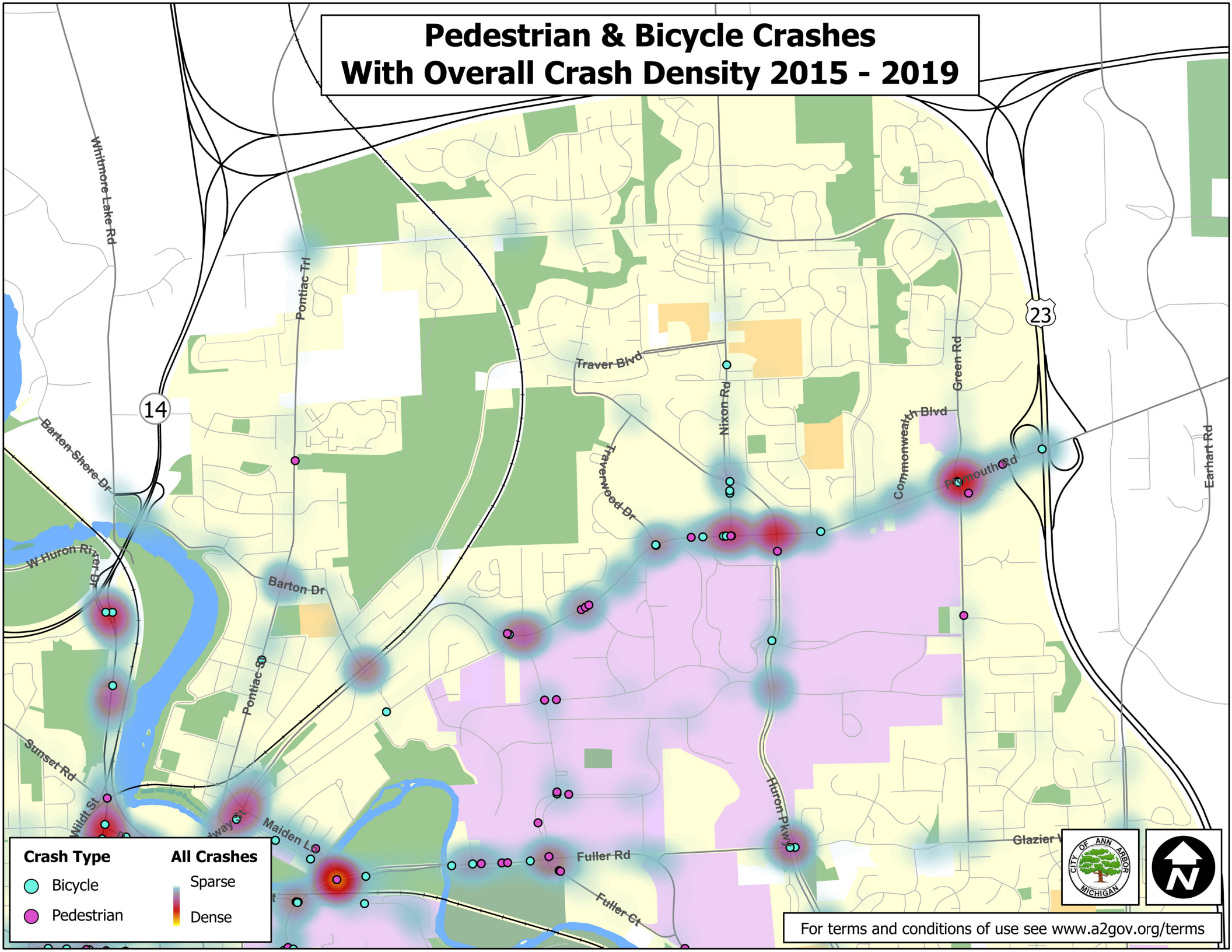# With Overall Crash Density 2015 - 2019

Glazier Way

Pontiac St

Plymouth Rd

Maiden Ln

Depot St

Beakes St

Broadway St

Fuller St

Fuller Ct

Fuller Rd

N Main St

N Fourth Ave

N Fifth Ave

N Division St

N State St

Catherine St

E Ann St

Observatory St

Earhart Rd

N Dixboro Rd

23

S Fifth Ave

Thompson St

E Washington St

Liberty St

S University Ave

Church St

S Forest Ave

Hill St

Geddes Ave

Geddes Rd

Huron Pkwy

E Huron River Dr

S Division St

E Hoover Ave

State St

Ferdon Rd

Brockman Blvd

Arlington Blvd

W Clark Rd

Granger Ave

Packard St

E Stadium Blvd

S Industrial Hwy

Platt Rd

S Huron Pkwy

Pittsfield Blvd

Hogback Rd

Crash Type

All Crashes

Bicycle

Pedestrian

Sparse

Dense

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Pedestrian & Bicycle Crashes
With Overall Crash Density 2015 - 2019

Crash Type

◯ Bicycle

◯ Pedestrian

All Crashes

Sparse

Dense

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Pedestrian & Bicycle Crashes
With Overall Crash Density 2015 - 2019

Crash Type

- ○ Bicycle
- ● Pedestrian

All Crashes

Sparse

Dense

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Map labels: Whitmore Lake Rd, Barton Shore Dr, W Huron River Dr, Sunset Rd, Wildt St, Broadway St, Maiden Ln, Pontiac St, Pontiac Trl, Barton Dr, Traver Blvd, Traverwood Dr, Nixon Rd, Commonwealth Blvd, Green Rd, Plymouth Rd, Earhart Rd, Huron Pkwy, Fuller Rd, Fuller Ct, Glazier W, 14, 23, CITY OF ANN ARBOR MICHIGAN

Pedestrian & Bicycle Crashes
With Overall Crash Density 2015 - 2019

W Huron River Dr

14

Whitmore-Lake Rd

Barton Shore Dr

Pontiac Trl

Miller Rd

Barton Dr

Sunset Rd

Newport Rd

Brooks St

Pontiac St

Plymouth Rd

Dexter Ann Arbor Rd

Miller Ave

Wagner Rd

Dexter Rd

N Maple Rd

Wildt St

Depot St

Broadway St

Maiden Ln

Jackson Rd

Dexter Ave

N Seventh St

Beakes St

Fuller St

State St

N First St

N Ashley St

N Fifth Ave

N Division St

W Washington St

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

Crash Type

- Bicycle
- Pedestrian

All Crashes

Sparse

Dense

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Pedestrian & Bicycle Crashes
With Overall Crash Density 2015 - 2019

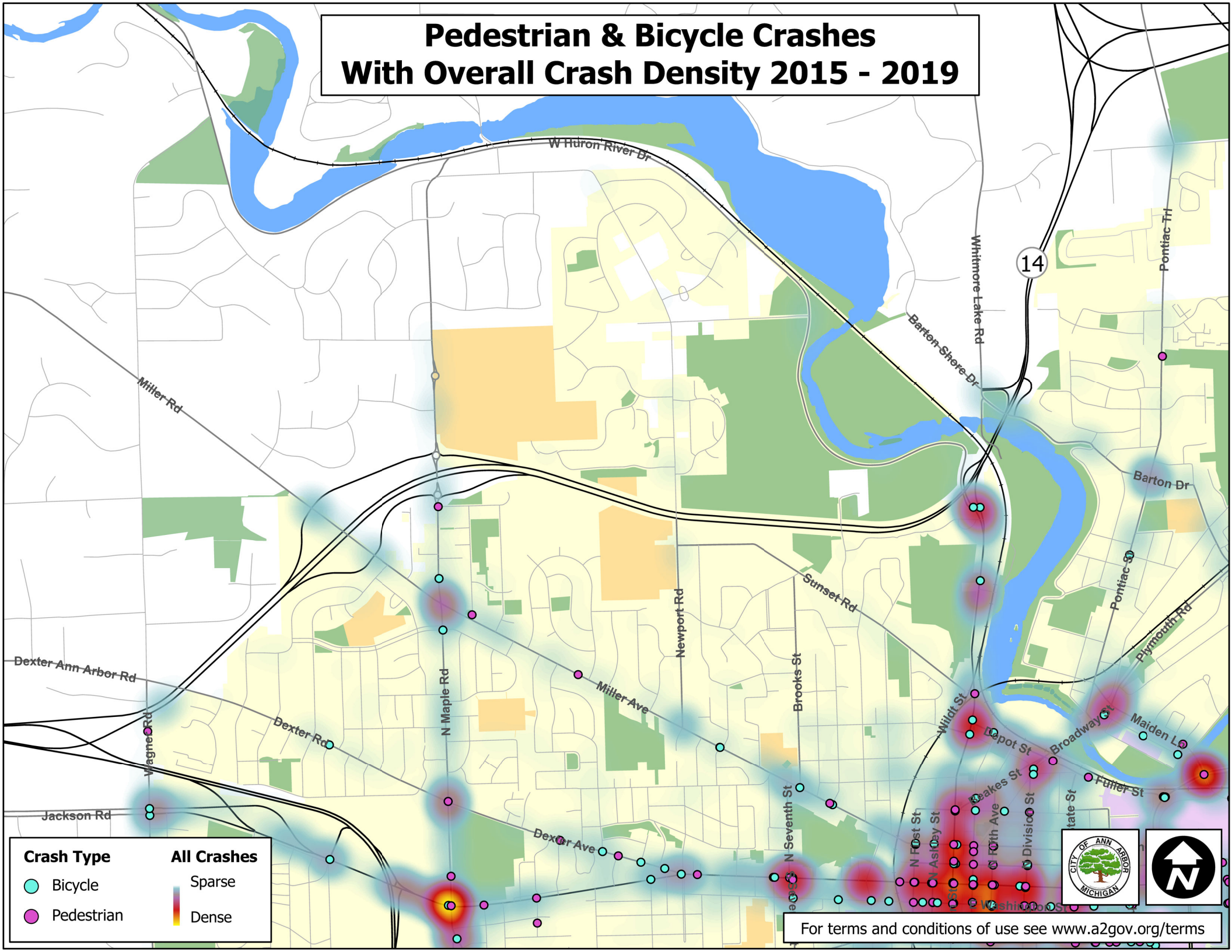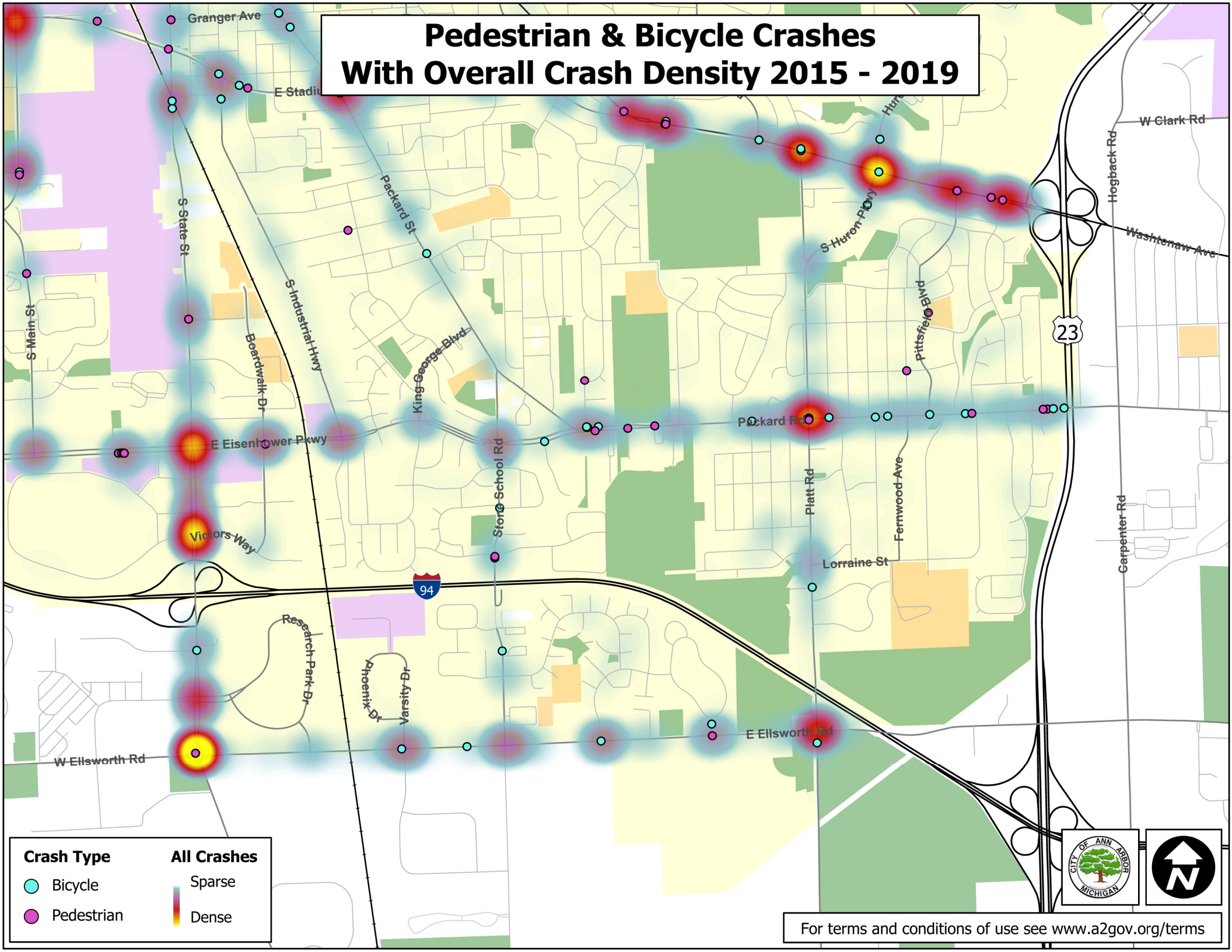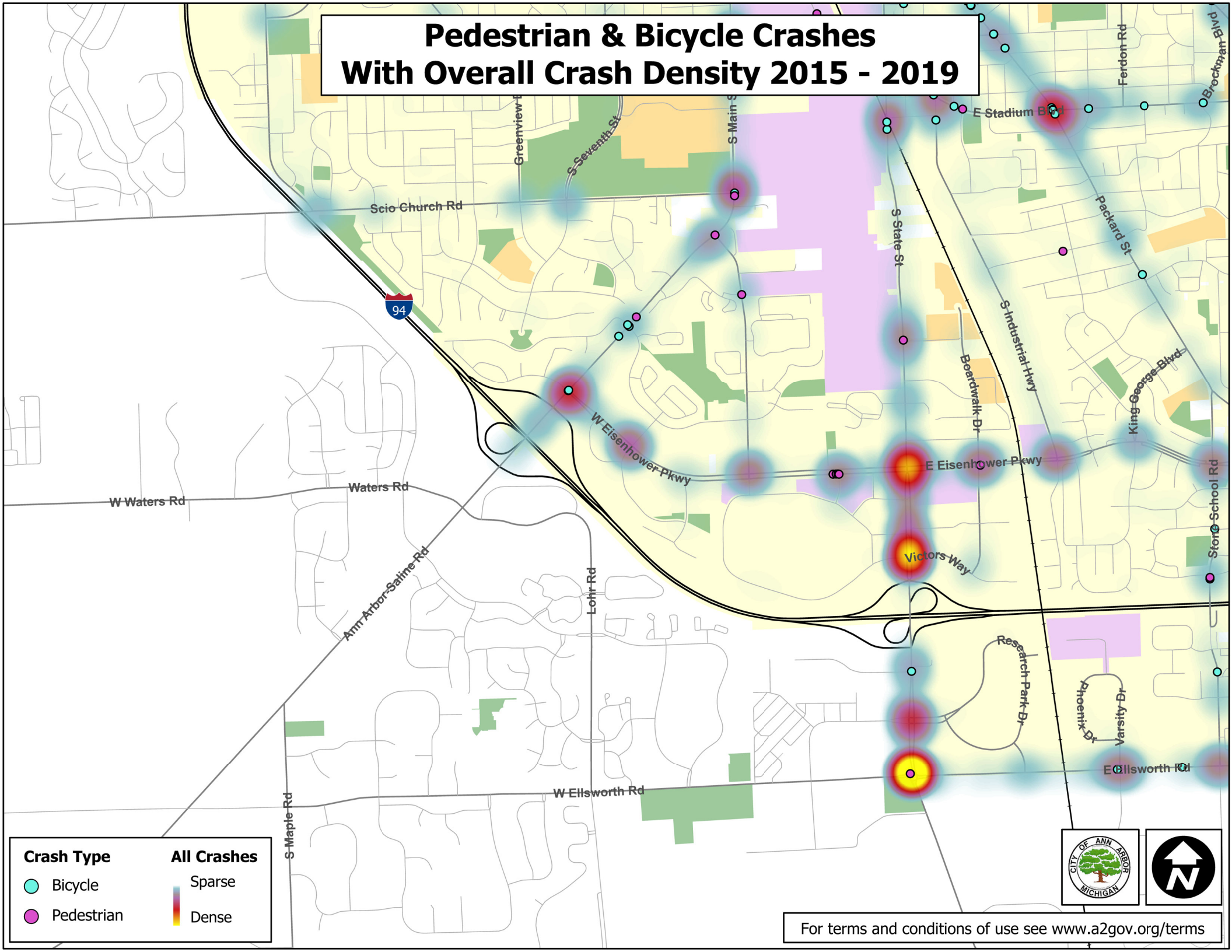**Crash Type**

○ Bicycle

○ Pedestrian

All Crashes

Sparse

Dense

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