

What is Vision Zero

Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all. First implemented in Sweden in the 1990s, Vision Zero has proved successful across Europe — and now it's gaining momentum in major American cities.



TRADITIONAL APPROACH

Traffic deaths are **INEVITABLE**

PERFECT human behavior

Prevent **COLLISIONS**

INDIVIDUAL responsibility

Saving lives is **EXPENSIVE**

VS

VISION ZERO

Traffic deaths are **PREVENTABLE**

Integrate **HUMAN FAILING** in approach

Prevent **FATAL AND SEVERE CRASHES**

SYSTEMS approach

Saving lives is **NOT EXPENSIVE**

High Injury Network (HIN) – What is it?

- The HIN is made up of the city streets where a high concentration of severe injuries and fatality crashes occur.
- The HIN includes severe and fatal crashes from all travel modes (motor vehicles, pedestrians, bicyclists).
- The HIN identifies locations where investments in safety are most urgent.
- The HIN helps inform the implementation strategies in the Vision Zero Action Plan.

High Injury Network

- The Vision Zero Network recommends that all Vision Zero cities research and adopt a High Injury Network, and focus resources on the corridors identified.
- Vision Zero communities have found that developing an HIN helps:
 - Identify where crashes occur repeatedly and why,
 - Strengthens multi-departmental collaboration, and
 - Affords the opportunity to prioritize scarce funding in areas where it is needed most.
- Having a HIN helps foster understanding among decision makers, including elected officials, of what's needed and where so that funds can be invested in the areas that are most impacted by death and injury.

Example HIN - Boston

Boston High Crash Network

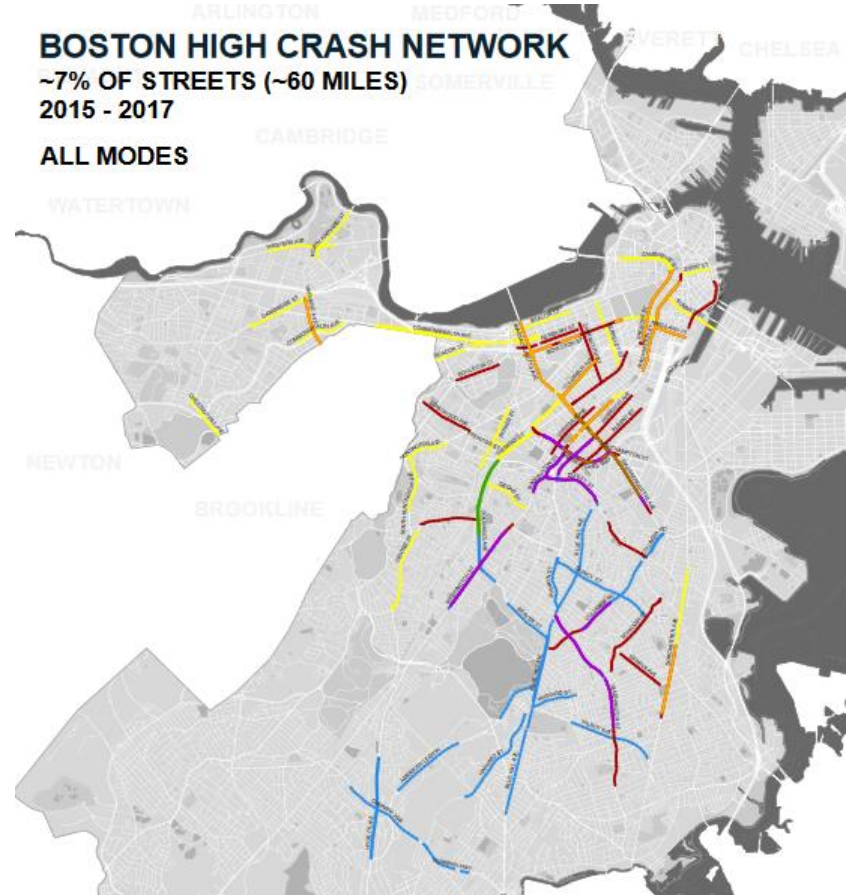
- Pedestrian
- Bicycle
- Motor Vehicle
- Pedestrian and Bicycle
- Pedestrian and Motor Vehicle
- Bicycle and Motor Vehicle
- All Modes

This map shows city-owned streets that have the highest density of injury crashes for the three-year period indicated. About twenty-five miles of streets are included for each mode, representing the top 3% of streets for each mode. Because some modal high crash network segments overlap, the combined high crash network shown in this map includes about sixty miles (about 7%) of streets.

BOSTON HIGH CRASH NETWORK

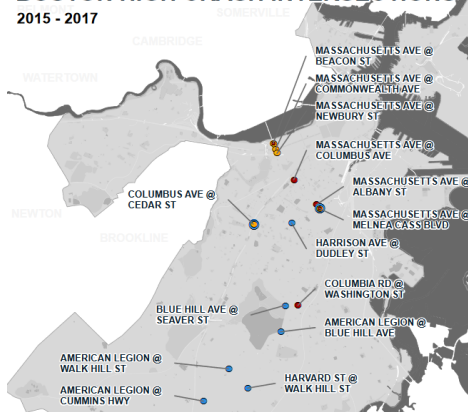
~7% OF STREETS (~60 MILES)
2015 - 2017

ALL MODES



BOSTON HIGH CRASH INTERSECTIONS

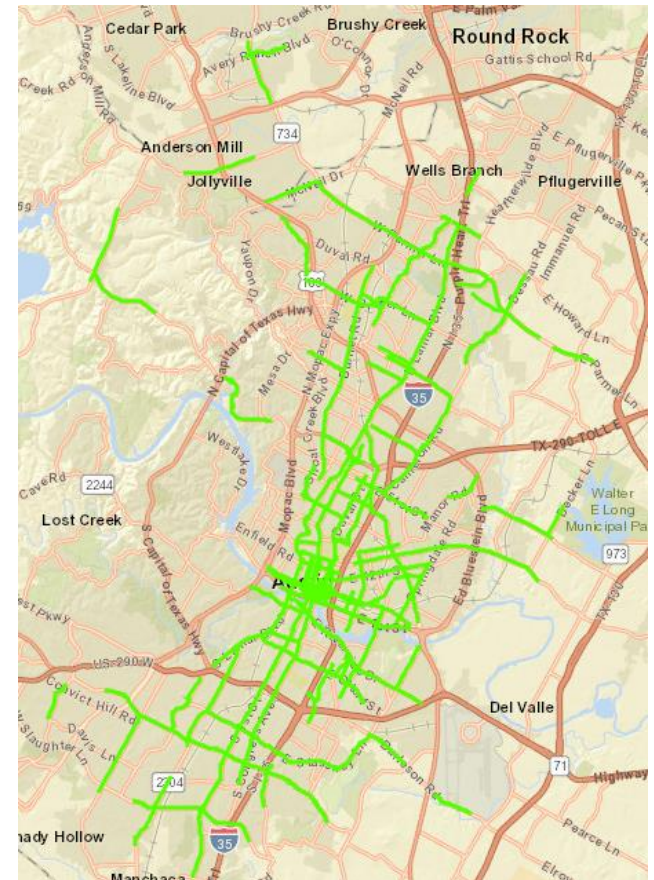
2015 - 2017



Example HIN - Austin

Austin HIN Methodology

- Austin Transportation's Vision Zero team developed separate modal High-Injury Networks for motorcycles, bicycles and pedestrians looking at moderate, severe, and fatal injury crashes.
- A separate motor vehicle HIN was developed looking exclusively at severe and fatal injuries.
- These separate networks were then combined into a single, multimodal HIN.
- Austin's Combined HIN includes just 8% of the city's street network but contains nearly 70% of all serious injury or fatal crashes for all modes.



Example HIN - Ann Arbor, Michigan

High Crash Locations

Focus Corridors

77% of all fatalities & severe injuries

37% on 7 Tier 1 Corridors

40% on 23 Tier 2 Corridors

Focus Intersections

12% of all fatalities & severe injuries

7% on 11 Tier 1 intersections

5% on 6 Tier 2 intersections

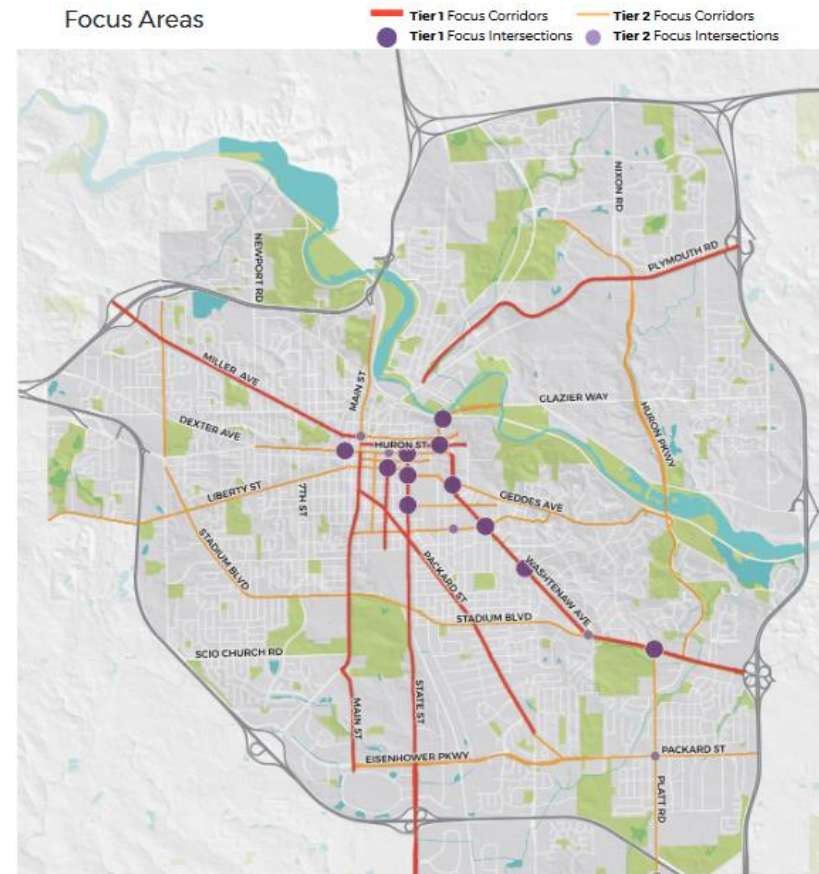
Tier 1 Focus Corridors

1. Plymouth Road (Murfin Avenue to US-23)
2. Miller Avenue (Downtown to M-14)
3. Washtenaw Avenue (Huron Street to US-23)
4. S. Main Street (Huron Street to Eisenhower Parkway)
5. S. State Street (Huron Street to Ellsworth Road)
6. Packard Street (Main Street to Stone School Road)
7. Division Street (Liberty Street to Hoover Street)

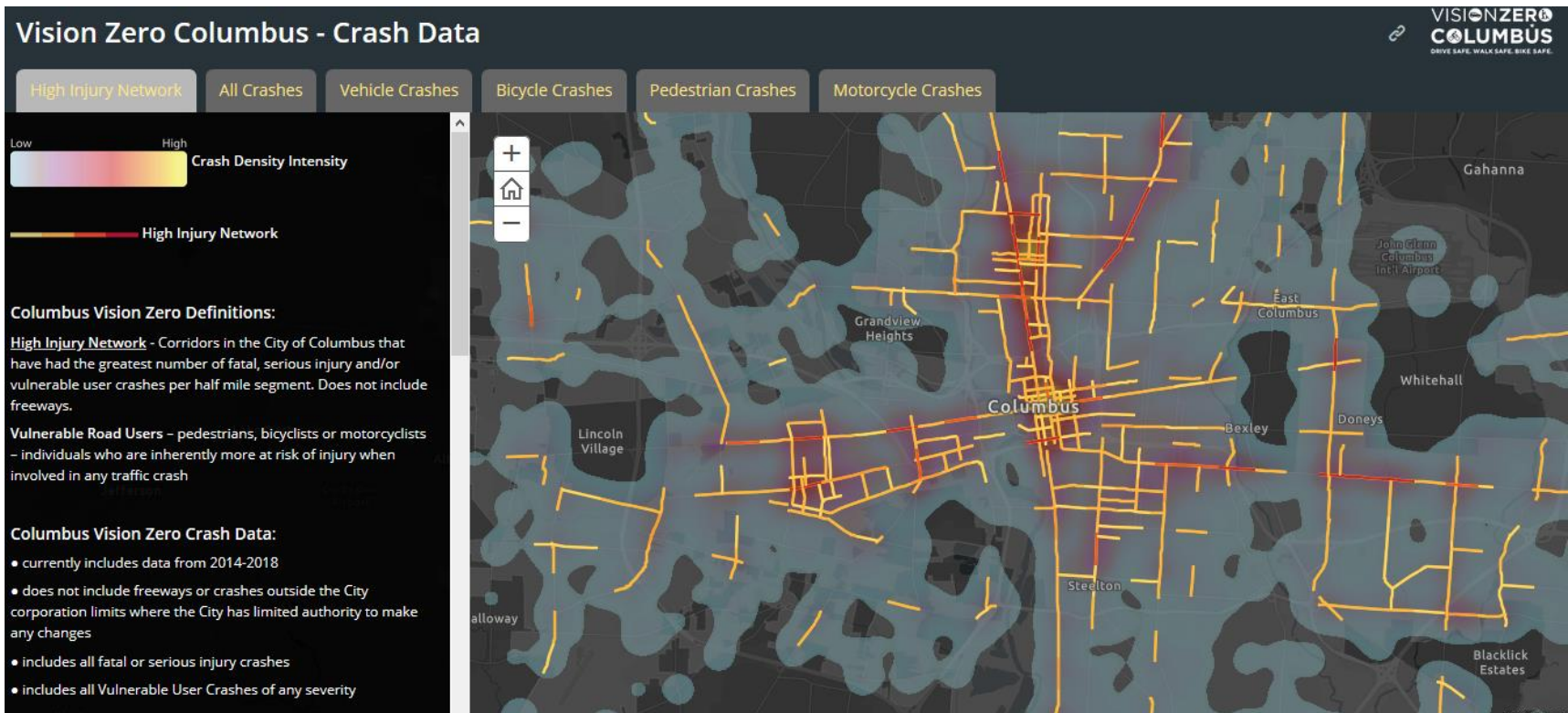
Tier 1 Focus Intersections

1. Washtenaw Avenue and Platt Street
2. Washtenaw Avenue and Devonshire Street
3. Washtenaw Avenue and Hill Street
4. Washtenaw Avenue and Geddes Avenue
5. State Street and Huron Street
6. S. State Street and N. University Avenue
7. S. State Street and S. University Avenue
8. Liberty Street and Division Street
9. Fuller Road and Glen Avenue
10. Ann Street and Glen Avenue
11. 1st Street and Huron Street

Focus Areas

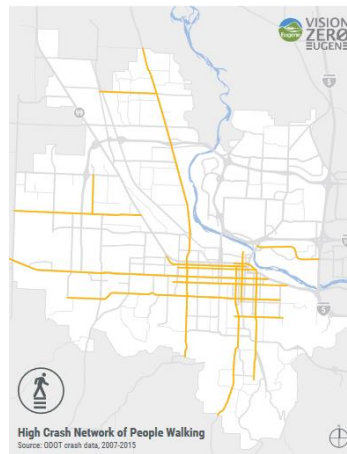
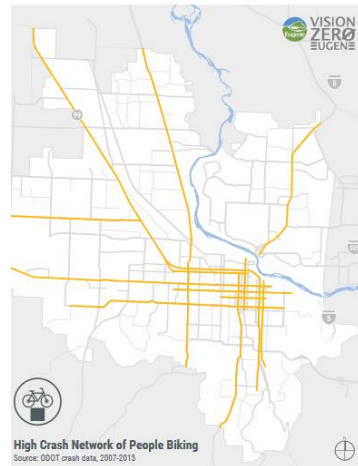
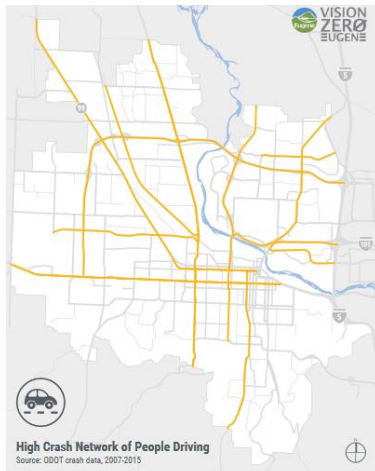


Example HIN - Columbus, Ohio



Example HIN - Eugene, Oregon

The Vision Zero high crash streets of people driving includes streets with the largest number of fatal and serious injury crashes between 2007 and 2015.



The difference between a serious and moderate injury for vulnerable users—people walking and biking—can be as little as a vehicle traveling five miles an hour more. Additionally, moderate injury crashes for these modes could be underreported.



What is the KABCO Injury Severity Scale?

This scale is a way to report injury severity at the scene of a crash.

- K – Fatal
- A – Suspected Serious Injury
- B – Suspected Minor Injury
- C – Possible Injury
- 0 – No apparent Injury

City of Madison Network Crash Information

5 Year Total					
	K	A	B	C	O
Motor Vehicle	15	223	1857	2842	16206
Bicycle	2	34	286	121	59
Pedestrian	13	84	217	110	25
5 Year Avg					
	K	A	B	C	O
Motor Vehicle	3	44.6	371.4	568.4	3241.2
Bicycle	0.4	6.8	57.2	24.2	11.8
Pedestrian	2.6	16.8	43.4	22	5

Selecting Crash Severity for HIN

- No national/international standard for developing a HIN
- Walking and biking crashes may be a small sample size if only include fatal and serious crashes

Common Methodology Considerations

- K and A crashes only
- Include B crashes for all modes
- Include B for Pedestrian & Bicycle crashes only
- Include any crash for Pedestrian & Bicycle
- Create Tier One streets with all K/A crashes and Tier Two streets that may include other Pedestrian & Bicycle crashes
- Intersections sometimes ranked separately from roadway segments

Selecting Crash Severity for HIN

- No national/international standard exists for developing a HIN
 - High Injury Networks are relatively new instruments cities use to reach their Vision Zero goals.

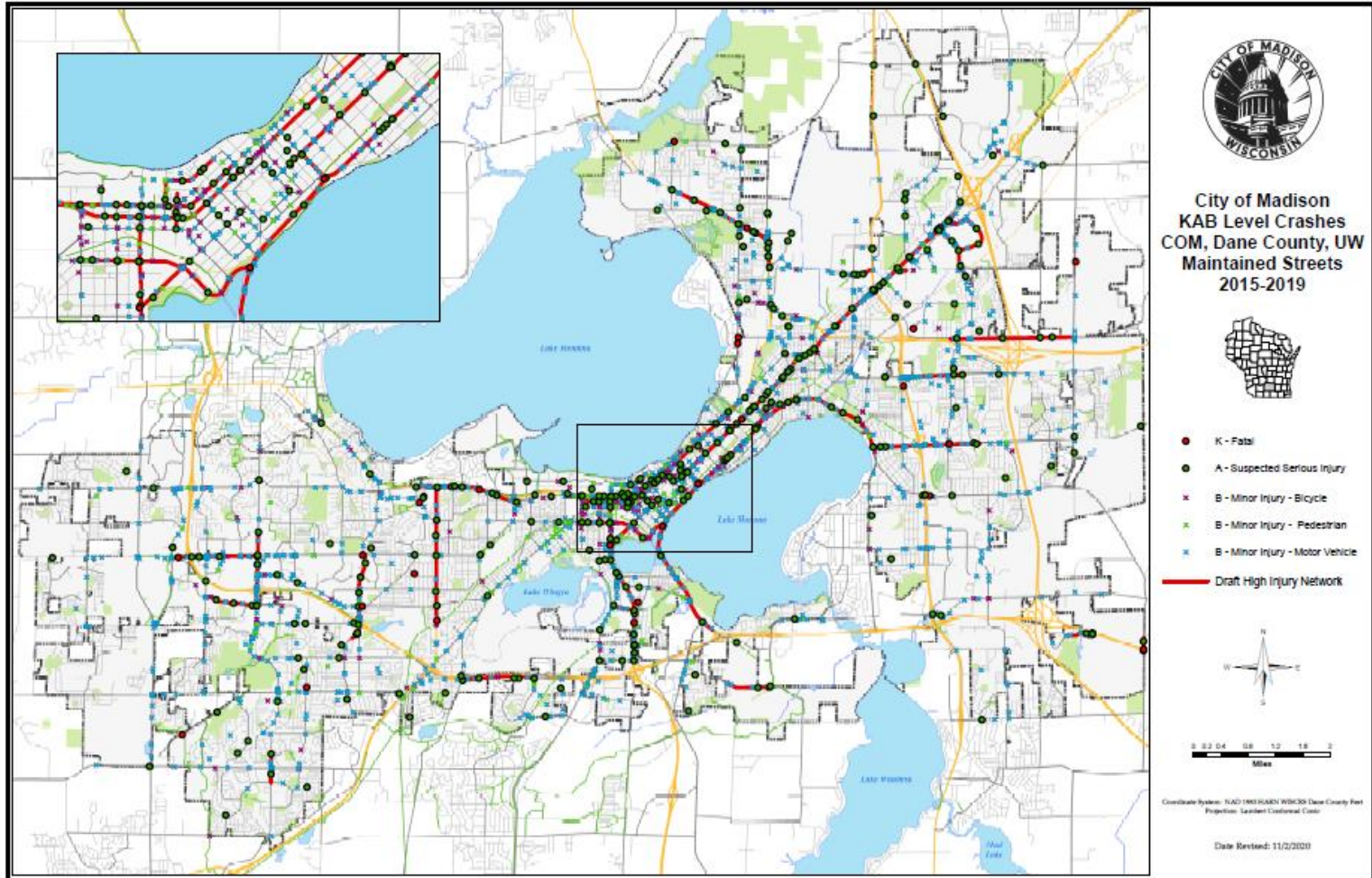
Some Considerations:

- Walking and biking crashes may be a small sample size if only include fatal and serious crashes.
- The difference between a serious and minor injury outcome for a pedestrian or bicyclist crash may be slight and people may not realize the severity of the injury at the time it happened.
- Including less serious crashes gives additional information about the crash propensity of locations with a low number of serious/fatal crashes.
- A high number of minor injuries in a location may indicate a problem that should be addressed.

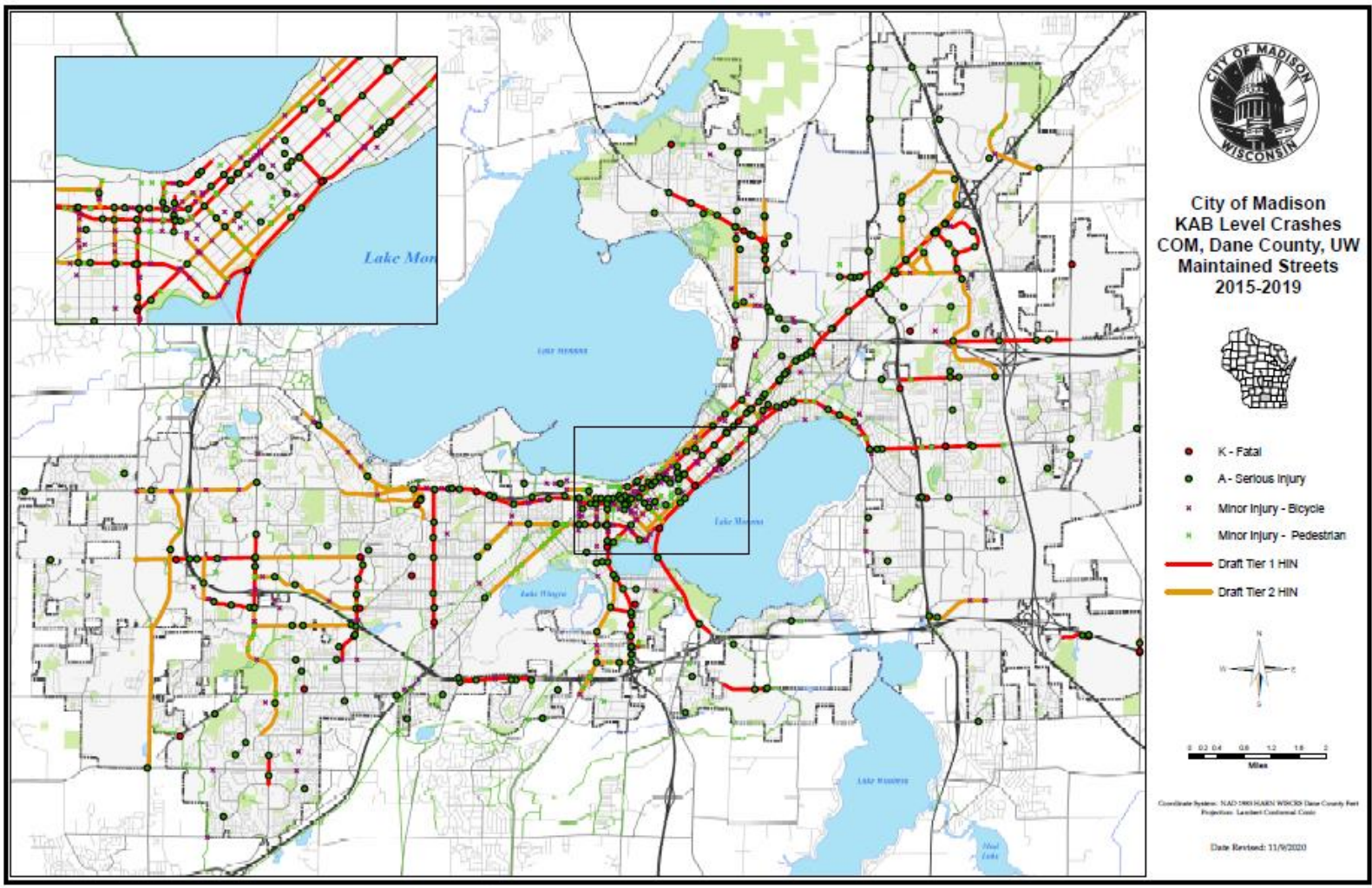
HIN Example Maps

- Example Map 1 - Lower severity crashes were filtered out, leaving only K and A level crashes.
- Example Map 2 - Bicycle and pedestrian B crashes were used to create Tier 2
- The example HIN maps were derived by using a "Hot Spot" method.
 - This was done by mapping all crashes on City maintained streets using GIS (Geographic Information System) software.
 - Clusters of these crashes were then linked together, using best judgement, to create the HIN.

Example 1 - Draft HIN Map K/A Crashes



Example 2 - Draft HIN Map Tiered Approach K/A & Ped/Bike B Crashes



Finalizing HIN Map

Next Steps

- Develop clear criteria/definition for the HIN
 - Less subjective
 - Easy to replicate annually
- Met with the UW Transportation Operations and Safety (TOPS) Lab to discuss the creation of the HIN
 - The TOPS Lab has a mission to, “improve traffic operations and safety in Wisconsin and across the Midwest through a diverse balance of service partnerships, research and training.”
 - TOPS Lab is developing a project proposal to assist City