

Central Massachusetts Regional Vision Zero Action Plan

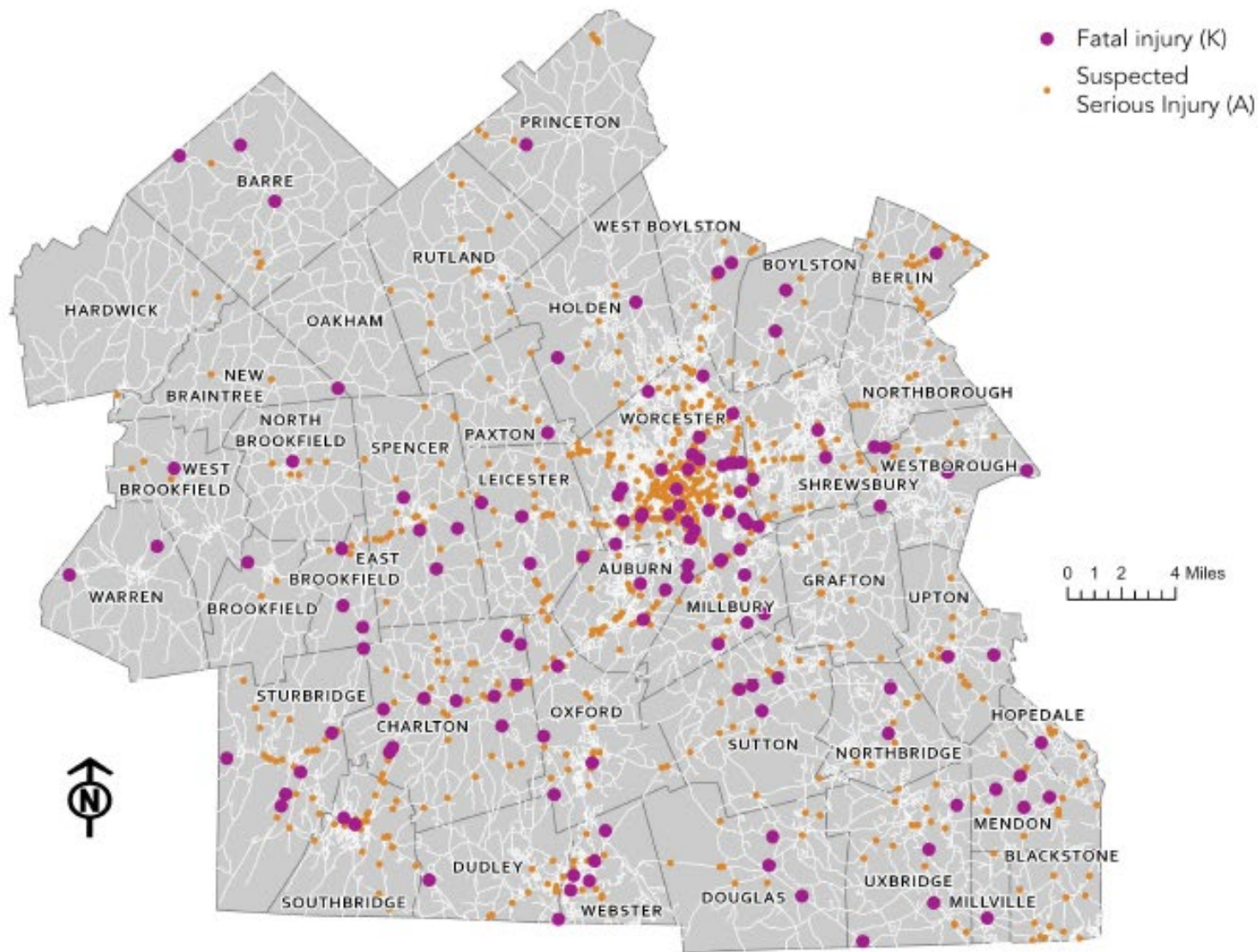


Fatal and Serious Injuries 2020-2024

131
Fatal Crashes

1,035
Serious Injury Crashes

Excluding Interstates and Limited Access Roadways



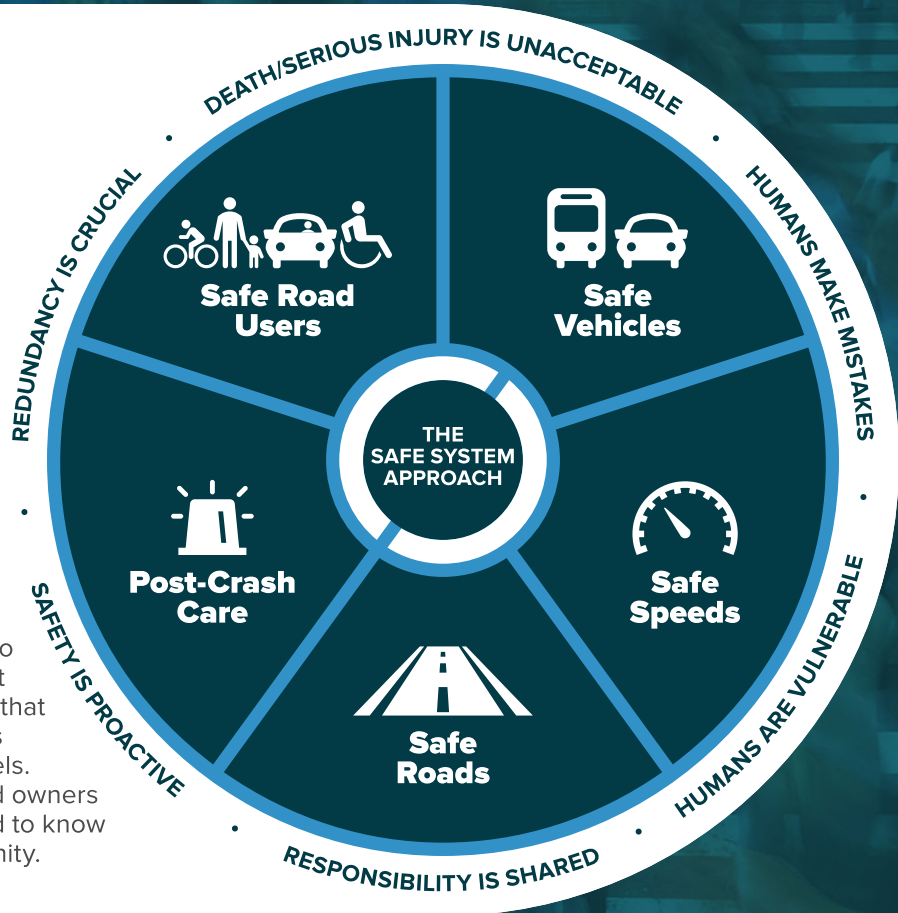


SAFE SYSTEM

APPROACH

Zero is our goal. A Safe System is how we will get there.

Imagine a world where nobody has to die from vehicle crashes. The Safe System approach aims to eliminate fatal & serious injuries for all road users. It does so through a holistic view of the road system that first anticipates human mistakes and second keeps impact energy on the human body at tolerable levels. Safety is an ethical imperative of the designers and owners of the transportation system. Here's what you need to know to bring the Safe System approach to your community.



SAFE SYSTEM PRINCIPLES



Death/Serious Injury is Unacceptable

While no crashes are desirable, the Safe System approach prioritizes crashes that result in death and serious injuries, since no one should experience either when using the transportation system.



Humans Make Mistakes

People will inevitably make mistakes that can lead to crashes, but the transportation system can be designed and operated to accommodate human mistakes and injury tolerances and avoid death and serious injuries.



Humans Are Vulnerable

People have limits for tolerating crash forces before death and serious injury occurs; therefore, it is critical to design and operate a transportation system that is human-centric and accommodates human vulnerabilities.



Responsibility is Shared

All stakeholders (transportation system users and managers, vehicle manufacturers, etc.) must ensure that crashes don't lead to fatal or serious injuries.



Safety is Proactive

Proactive tools should be used to identify and mitigate latent risks in the transportation system, rather than waiting for crashes to occur and reacting afterwards.



Redundancy is Crucial

Reducing risks requires that all parts of the transportation system are strengthened, so that if one part fails, the other parts still protect people.



U.S. Department of Transportation
Federal Highway Administration

FHWA-SA-20-015



Safe Roads for a Safer Future
Investment in roadway safety saves lives

SAFE SYSTEM ELEMENTS

Making a commitment to zero deaths means addressing every aspect of crash risks through the five elements of a Safe System, shown below. These layers of protection and shared responsibility promote a holistic approach to safety across the entire transportation system. The key focus of the Safe System approach is to reduce death and serious injuries through design that accommodates human mistakes and injury tolerances.



Safe Road Users

The Safe System approach addresses the safety of all road users, including those who walk, bike, drive, ride transit, and travel by other modes.



Safe Vehicles

Vehicles are designed and regulated to minimize the occurrence and severity of collisions using safety measures that incorporate the latest technology.



Safe Speeds

Humans are unlikely to survive high-speed crashes. Reducing speeds can accommodate human injury tolerances in three ways: reducing impact forces, providing additional time for drivers to stop, and improving visibility.



Safe Roads

Designing to accommodate human mistakes and injury tolerances can greatly reduce the severity of crashes that do occur. Examples include physically separating people traveling at different speeds, providing dedicated times for different users to move through a space, and alerting users to hazards and other road users.



Post-Crash Care

When a person is injured in a collision, they rely on emergency first responders to quickly locate them, stabilize their injury, and transport them to medical facilities. Post-crash care also includes forensic analysis at the crash site, traffic incident management, and other activities.

THE SAFE SYSTEM APPROACH VS. TRADITIONAL ROAD SAFETY PRACTICES

Traditional

- Prevent crashes → Prevent deaths and serious injuries
- Improve human behavior → Design for human mistakes/limitations
- Control speeding → Reduce system kinetic energy
- Individuals are responsible → Share responsibility
- React based on crash history → Proactively identify and address risks

Safe System

Whereas traditional road safety strives to modify human behavior and prevent all crashes, the Safe System approach also refocuses transportation system design and operation on anticipating human mistakes and lessening impact forces to reduce crash severity and save lives.

WHERE ARE
YOU ON THE
SAFE SYSTEM
JOURNEY?

Implementing the Safe System approach is our shared responsibility, and we all have a role. It requires shifting how we think about transportation safety and how we prioritize our transportation investments. Consider applying a Safe System lens to upcoming projects and plans in your community: put safety at the forefront and design to accommodate human mistakes and injury tolerances. Visit safety.fhwa.dot.gov/zerodeaths to learn more.

Proven Safety Countermeasures

SPEED MANAGEMENT



Speed Safety Cameras



Variable Speed Limits



Appropriate Speed Limits for All Road Users

ROADWAY DEPARTURE



Wider Edge Lines



Enhanced Delineation for Horizontal Curves



Longitudinal Rumble Strips and Stripes on Two-Lane Roads



SafetyEdgeSM



Roadside Design Improvements at Curves



Median Barriers

INTERSECTIONS



Backplates with Retroreflective Borders



Corridor Access Management



Dedicated Left- and Right-Turn Lanes at Intersections



Reduced Left-Turn Conflict Intersections



Roundabouts



Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections



Yellow Change Intervals

PEDESTRIANS/BICYCLES



Crosswalk Visibility Enhancements



Bicycle Lanes



Rectangular Rapid Flashing Beacons (RRFB)



Leading Pedestrian Interval



Medians and Pedestrian Refuge Islands in Urban and Suburban Areas



Pedestrian Hybrid Beacons



Road Diets (Roadway Reconfiguration)



Walkways

CROSSCUTTING



Pavement Friction Management



Lighting

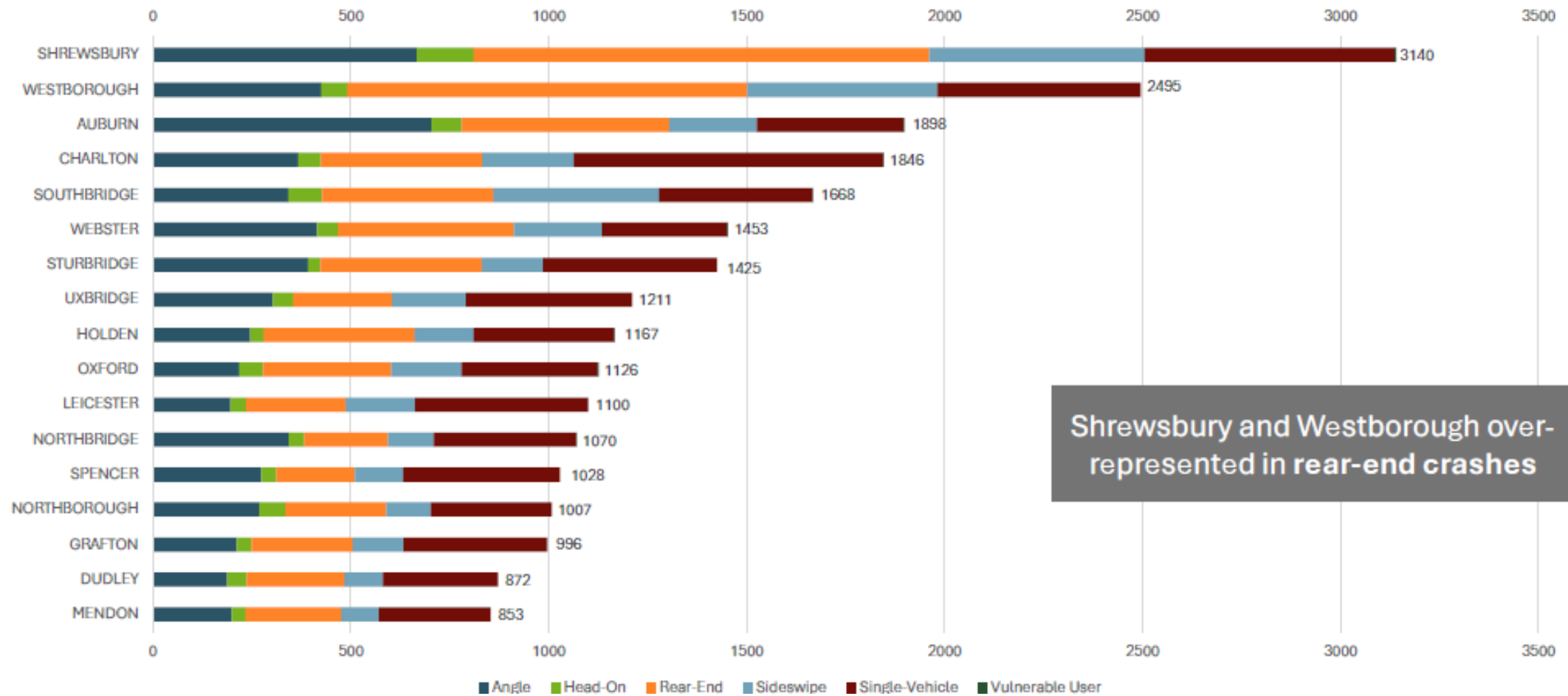


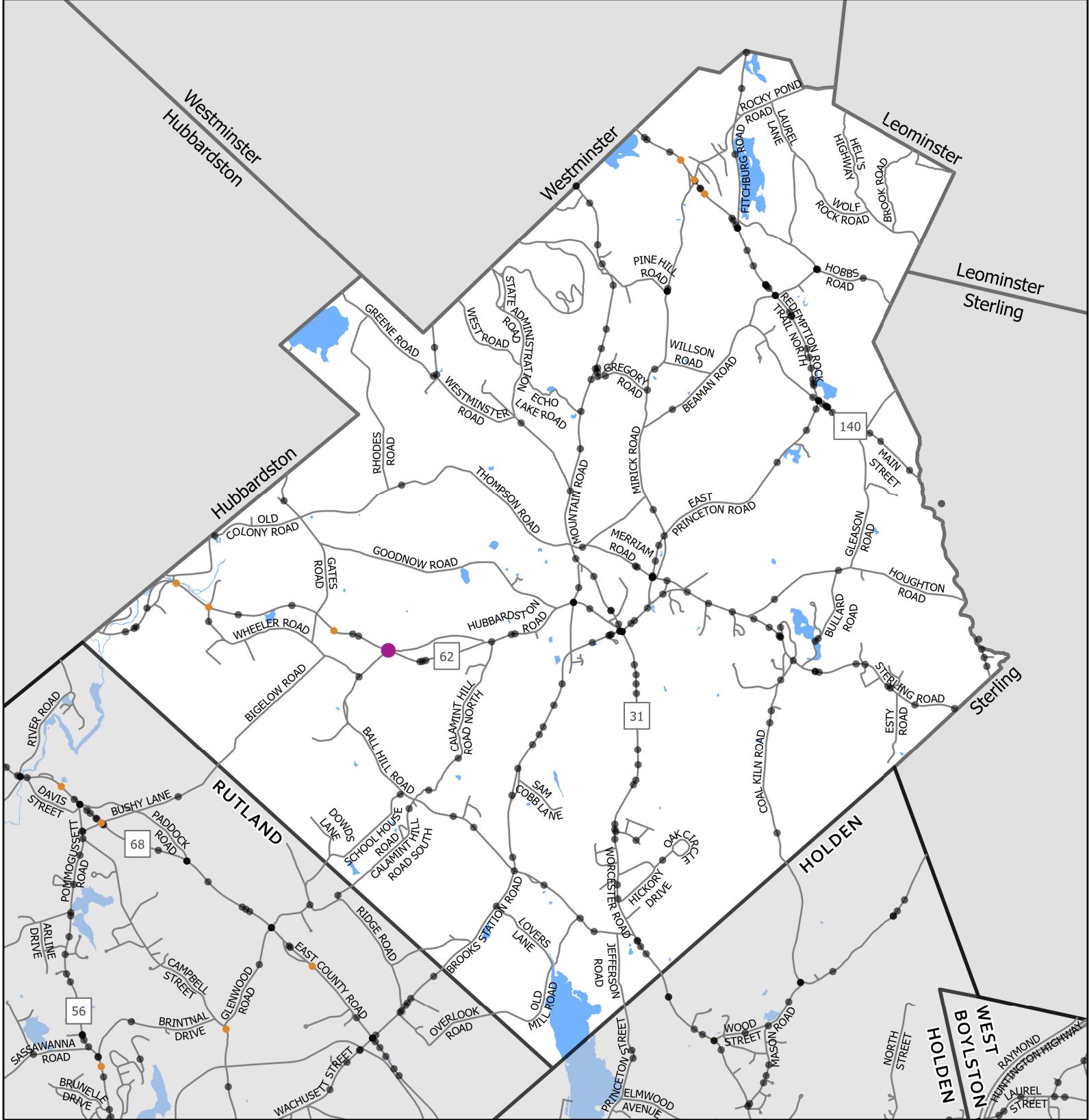
Local Road Safety Plans



Road Safety Audit

Crashes by Community – Communities with Over 800 crashes, excluding Worcester



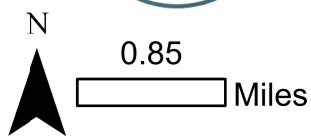


Fatal and Serious Injury Map: PRINCETON

2020 - 2024

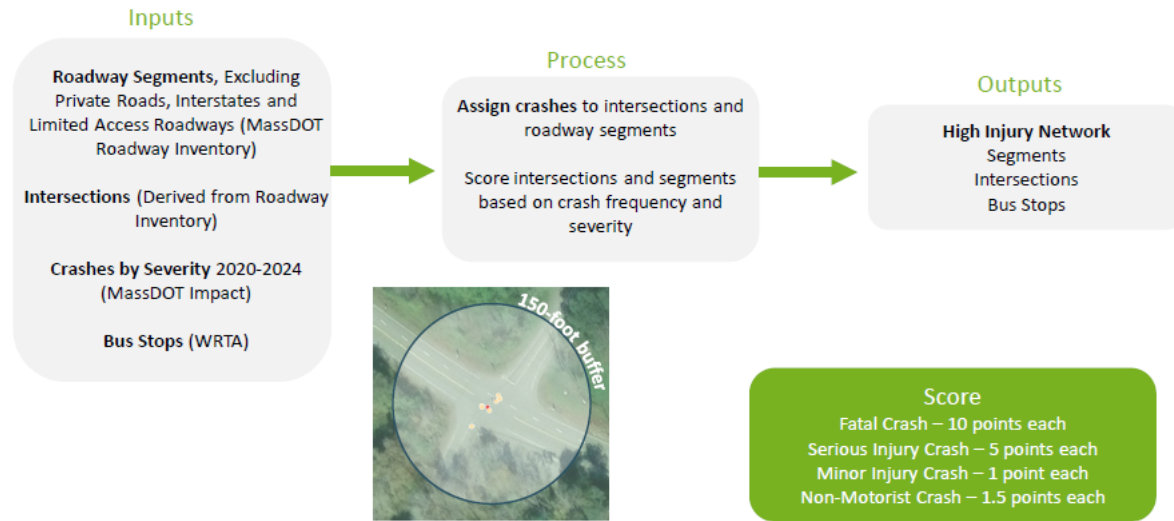


- Max Injury Severity Reported
 - Fatal Injury
 - Serious Injury
- All Crashes - Excluding Limited Access
- HYDRO_Water Bodies_25k



Methods

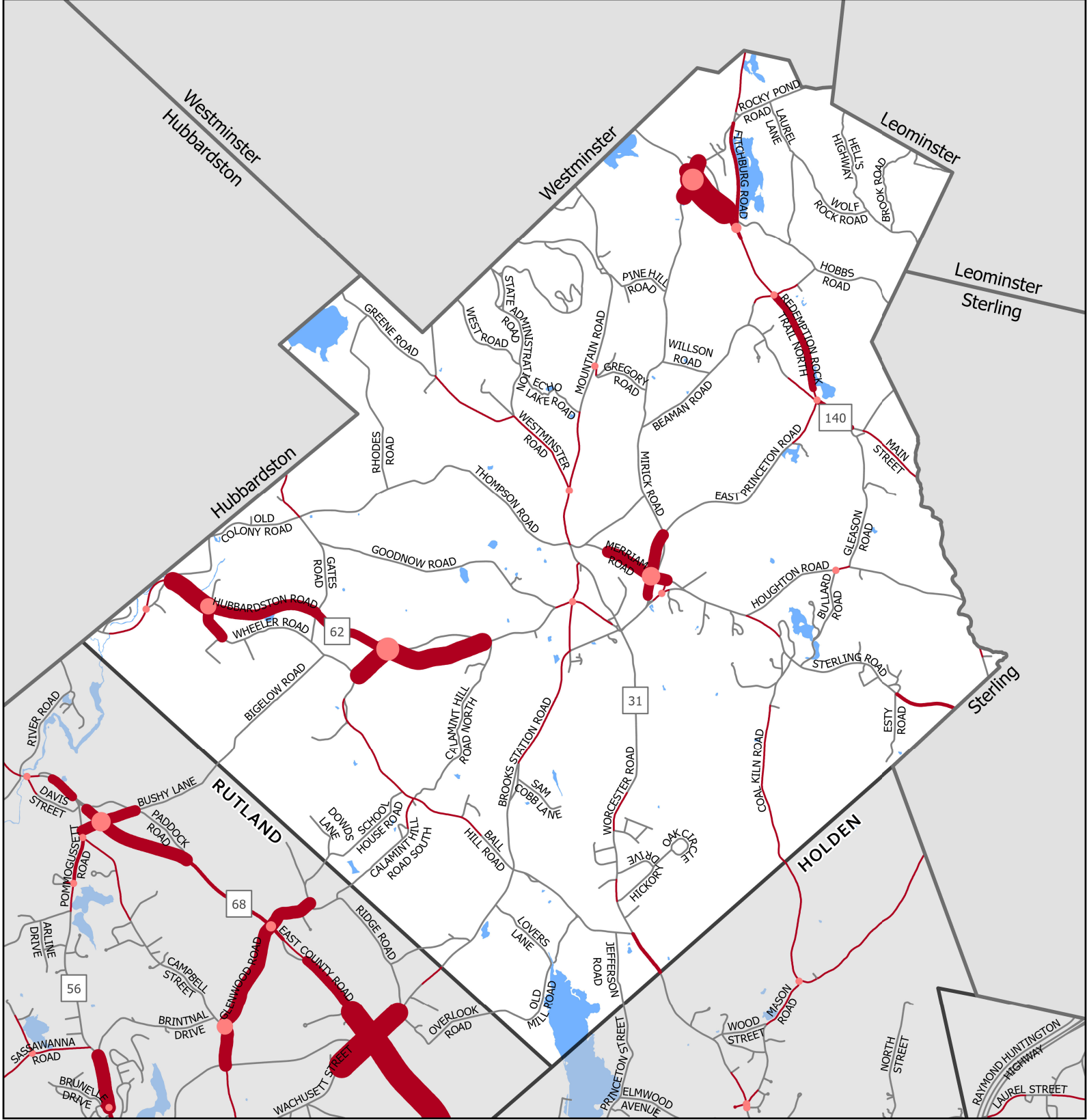
Trends-Based High Injury Network



Risk-Based High-Injury Network

Methodology

Risk-Based Factor	Score / Weight
Proximity to Bike Trails (within 0.25 Miles)	2 Points
Proximity to Schools (within 0.25 Miles)	3 Points
Proximity to Transit Stop (within 0.25 Miles)	3 Points
EJ Criteria Area – Block Group (MassDOT EJ)	1 Point per EJ Criteria (Up to 3 Points)
High Speed Corridor - Speed Limit	2 Points for 35 MPH+, 3 Points for 50 MPH+
High Volume Corridor - 4+ Lanes	2 Points
Proximity to TIP funded project that improves roadway safety	-2 Points
TOTAL SCORE	-2 to 16 Points



High Injury Network: PRINCETON

2020 - 2024



Intersections



Transit Stops



Segments



0.85

Miles

SS4A Community Meeting Questions

- Do the locations we have prioritized as part of our High Injury and High-Risk network make sense to you?
- Any intersection(s) and roadway segments that you think should be added to the list that aren't on our list?
 - Are there locations where there haven't been a lot of reported crashes historically, but where there are issues and/or near misses?
 - Any thoughts on improvements?
 - Are there any certain times of day this intersection/roadway is the most dangerous?
 - Heavy volumes of trucks?
 - During school release times?
- Any projects in the area in design or construction we should know about not on the TIP, part of a Complete Streets or Safe Routes to School project?
- What type of issues do you see consistently contributing to crashes?
 - Examples: Speeding, sight distance and visibility, distraction, high pedestrian activity
- What safety improvements have you seen in town that you want to see more of? Have you seen a marked improvement since they were implemented?
- What safety improvements have you seen in other communities that have been effective and would like to see in your community?
- Do you see opportunities for recommending programs, policies, and education (bicycle training for children)? Coordination with Safe Routes to School?
- Are there any standards and guidelines you follow when it comes to roadway maintenance, accommodating emergency vehicles, complete streets etc. that you would like to share with us?

Thank You!

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