



# Iowa Vulnerable Road User (VRU) Safety Assessment



# Overview

- New requirement from the Bipartisan Infrastructure Law
- Must be approved by the governor or designee



**“All states are required to develop a Vulnerable Road User Safety Assessment as part of their Highway Safety Improvement Program (HSIP) in accordance with 23 U.S.C. 148(1).”**



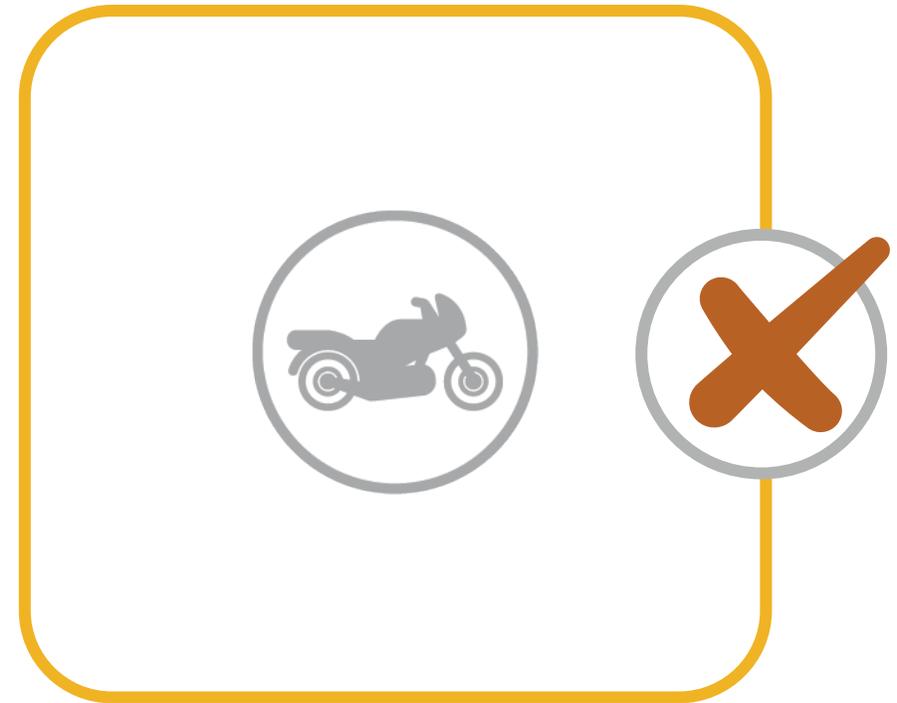
# Goal of VRU Safety Assessment?



- Identify areas of higher risk for bicyclist and pedestrian crashes
- Provide insight on areas of necessary infrastructure improvements on Iowa roads
- Furthering the objective of achieving zero fatalities on the nation's roads

# What is a VRU?

The definition of “vulnerable road user” is provided in 23 U.S.C. 148(a)(15) as “a nonmotorist.”



## IOWA-SPECIFIC GUIDANCE

In Iowa, motorized bicycles (mopeds) that exceed a certain speed are considered motorcycles. Because motorcycles are excluded from the definition of VRUs, it is imperative to clearly define what is considered to be a motorcycle. The following guidance outlines how these types of devices are classified in Iowa:



### Bicycle

**NOT ABLE TO EXCEED 20 MILES PER HOUR**  
when powered solely by an electric motor of  
less than 750 watts (one horsepower)



### Mopeds

**ABLE TO EXCEED 20 MILES PER HOUR**  
as defined for bicycles  
**NOT ABLE TO EXCEED 39 MILES PER HOUR**  
as defined for motorcycles

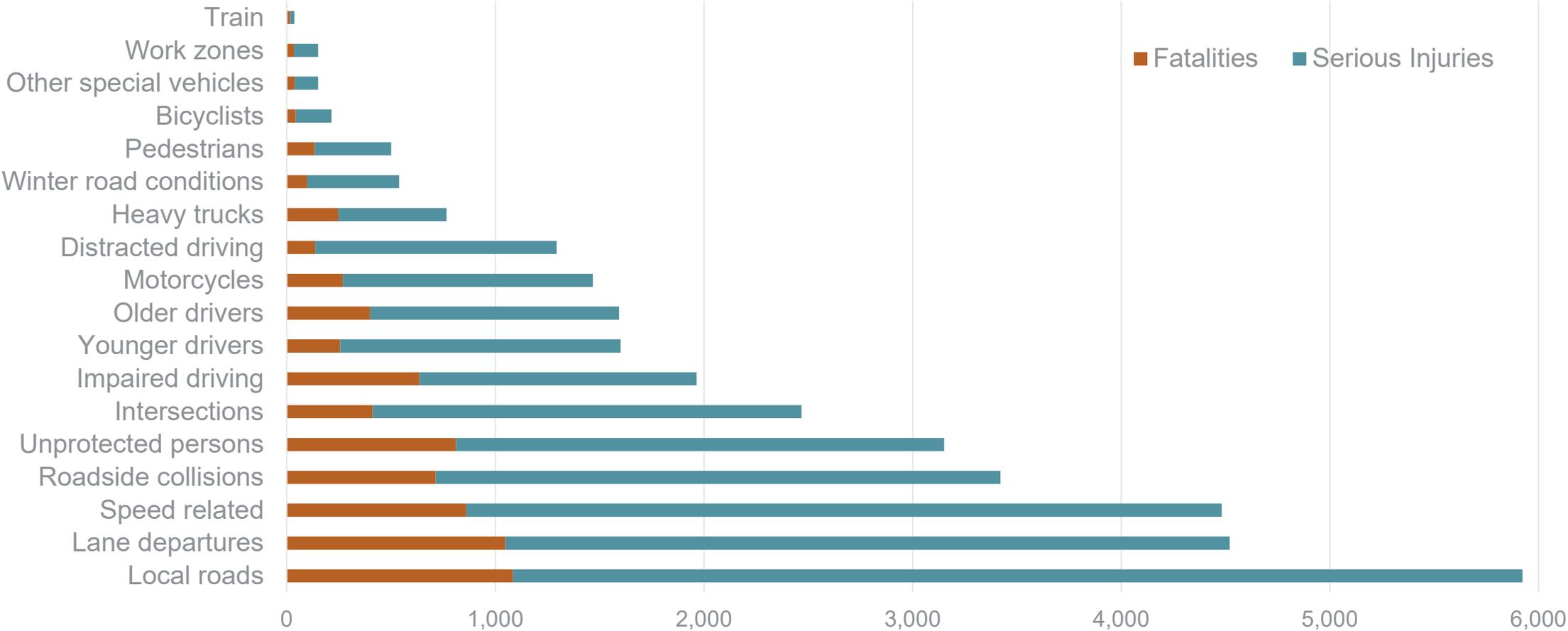


### Motorcycles

**ABLE TO EXCEED 39 MILES PER HOUR**  
on level ground unassisted by human power

# Crash Analysis

Fatalities and Serious Injuries by Emphasis Area (2017 - 2021)



Note: Fatalities and serious injuries can include multiple emphasis areas.

# VRU Fatalities and Serious Injuries

FIGURE 2.1: VRU FATALITIES AND SERIOUS INJURIES (2016-2022)

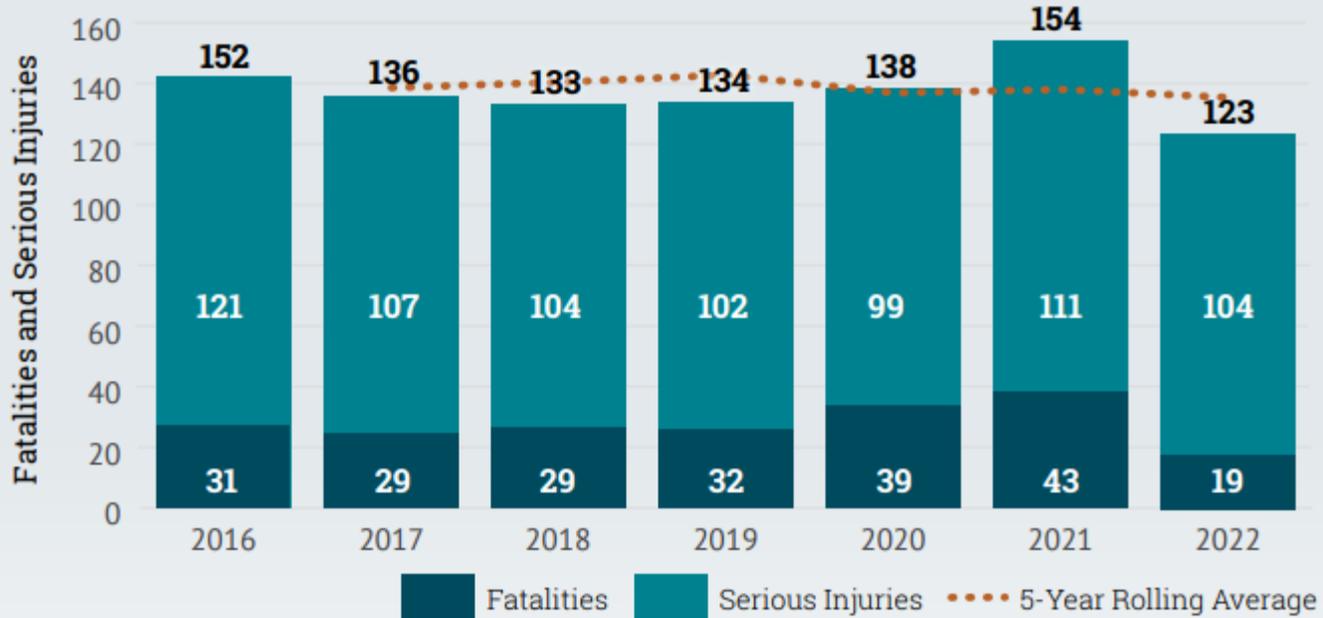
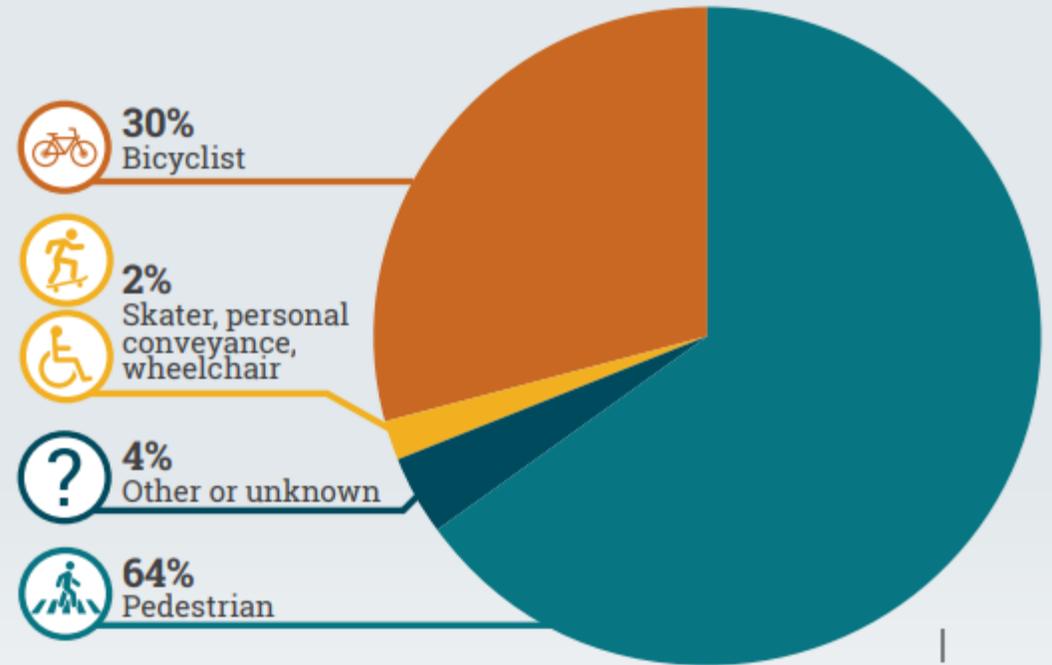
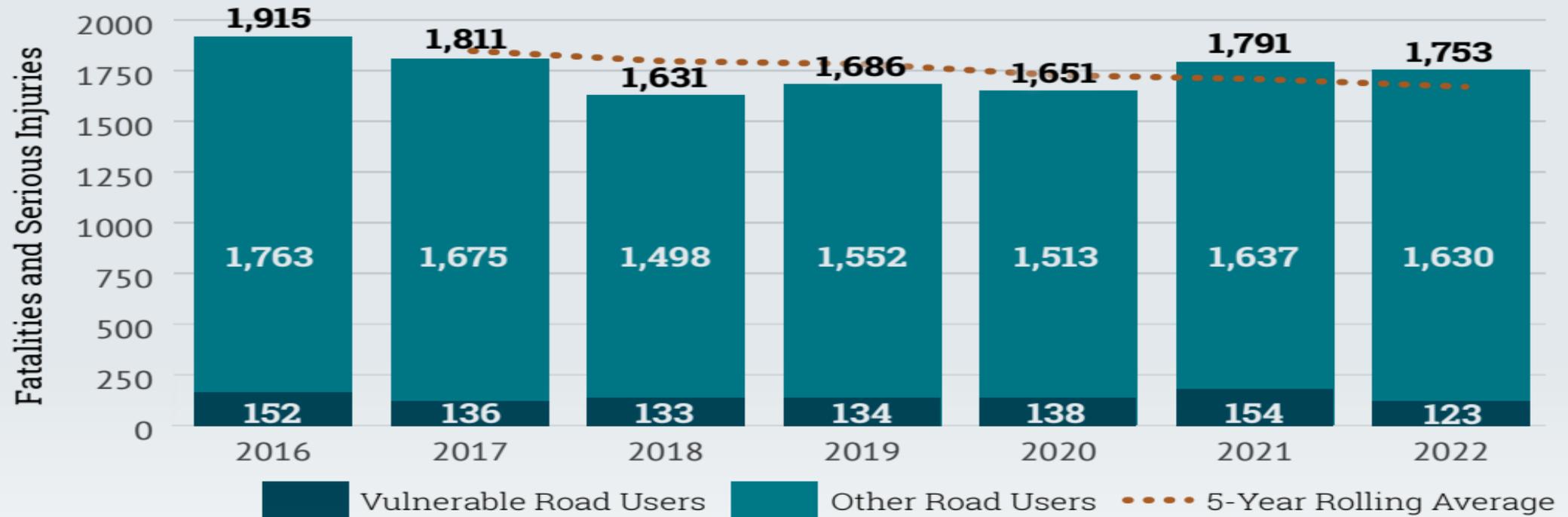


FIGURE 2.2: VRU FATALITIES AND SERIOUS INJURIES BY USER TYPE (2016-2022)



# Fatalities and Serious Injuries All Road Users



**-8%**

of all fatalities and serious injuries in Iowa are VRUs

**-20%**

of all fatalities and serious injuries in the U.S. are VRUs

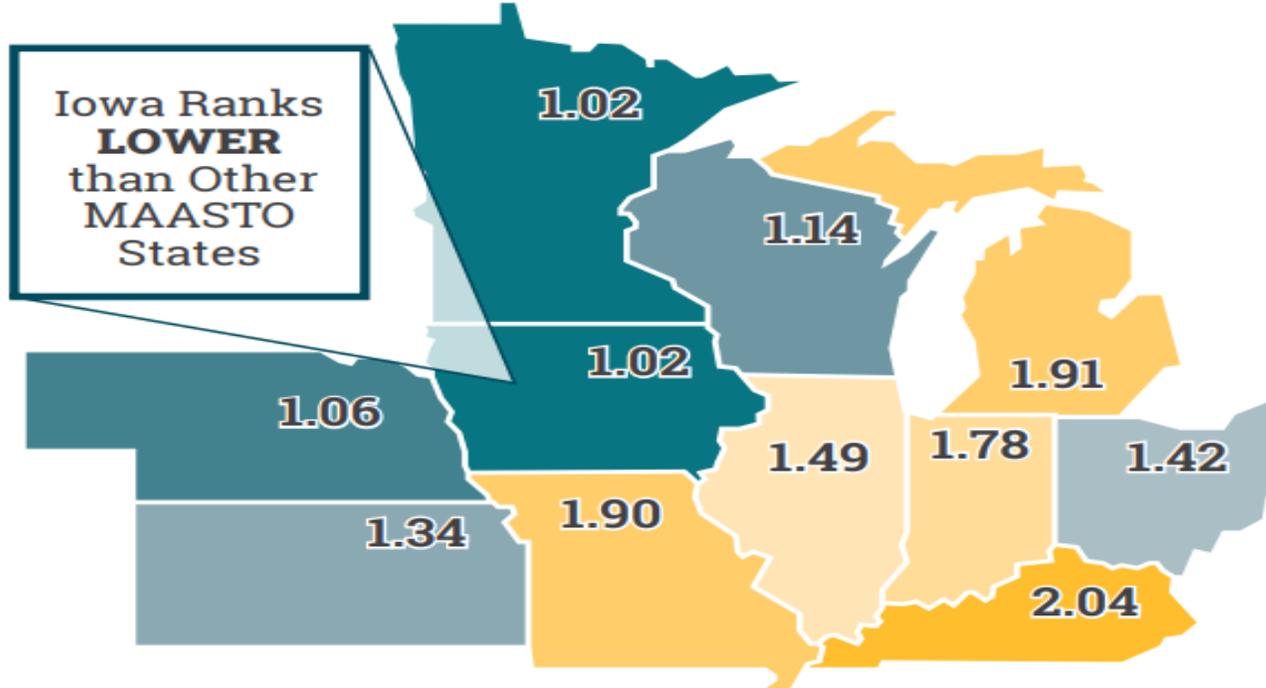
*Based on 2016-2020 Fatality Analysis Reporting System (FARS)*

## IOWA VRU FATALITY TRENDS

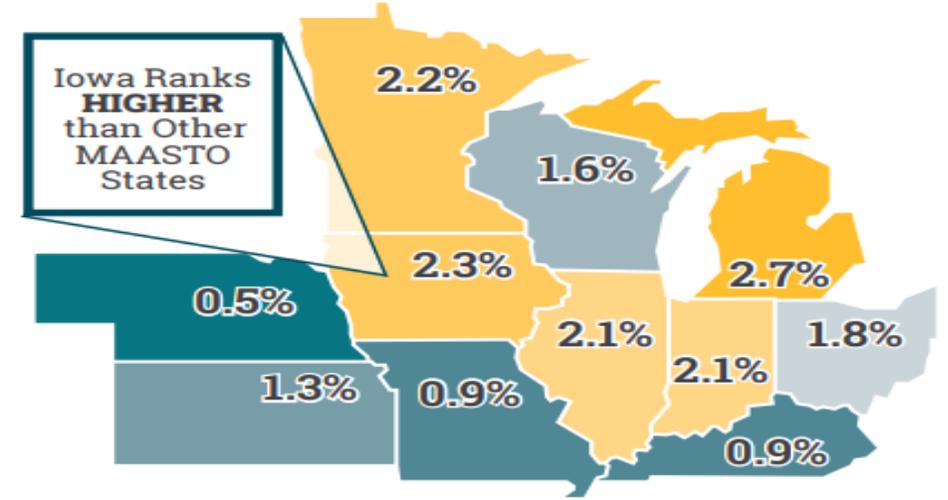
Iowa is one of the 10 states that are included in Mid America Association of State Transportation Officials (MAASTO), which includes the following states Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. Nebraska is also a helpful comparison state for Iowa due to its geographical proximity and its similarities in demographics and population. **Figures 2.4, 2.5, and 2.6** provide a comparison of various VRU fatality data within these states based on 2016-2020 fatality data in FARS.

Low  High

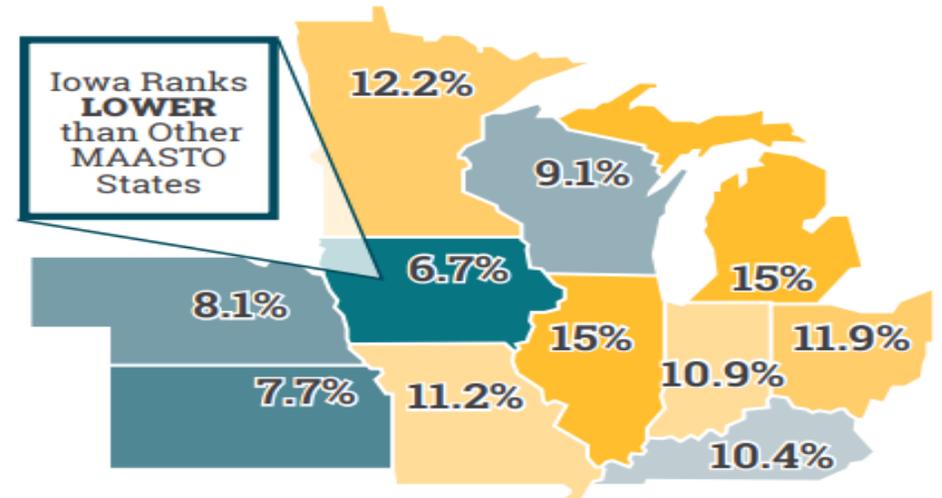
**FIGURE 2.4: VRU FATALITY RATE PER 100,000 POPULATION**



**FIGURE 2.5: BIKE PERCENTAGE OF TOTAL FATALITIES**



**FIGURE 2.6: PEDESTRIAN PERCENTAGE OF TOTAL FATALITIES**



Note: Fatalities and serious injuries can include multiple emphasis areas.

# Safe System Approach



# SAFE SYSTEM

## APPROACH

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



Source:  
<https://highways.dot.gov/safety/zero-deaths>

# Emphasis Areas

- Grouping based on the Safe System Approach

| Safer People  | Post-Crash Care        | Safer Vehicles   | Safer Speeds                        | Safer Roads  |
|---|------------------------|--|-------------------------------------|--|
| <p><b>Occupant Protection (37%) *</b></p> <p><b>Impairment Involved (23%) *</b></p> <p><b>Distracted Driving (15%) *</b></p> <p>Younger Drivers (19%)</p> <p>Older Drivers (19%)</p> <p>Bicyclists (3%)</p> <p>Pedestrians (6%)</p> | <p>Post Crash Care</p> | <p>Heavy Trucks (9%)</p> <p>Motorcycles (17%)</p> <p>Other Special Vehicles (2%)</p> <p>Train (0.4%)</p> | <p><b>Speed-related (52%) *</b></p> | <p><b>Local Roads (69%) *</b></p> <p><b>Lane Departures (53%) *</b></p> <p><b>Intersections (29%) *</b></p> <p>Roadside Collisions (40%)</p> <p>Winter Road Conditions (6%)</p> <p>Work Zones (2%)</p> |

*Percent indicates percentage of fatalities and serious injuries associated with the Emphasis Area. Note: Fatalities and serious injuries can include multiple Emphasis Areas.*

*\* Indicates Key Emphasis Areas*

# Risk Factor Assessment

- Builds off previous *Statewide Bicycle Pedestrian Systemic Safety Analysis 2020*
- Utilizes 7 years of crash data (January 1, 2016 through December 31, 2022)
- Adds equity data analysis
- Identifies strategies to address safety risks for VRU
- Develops high-level recommendations for selected locations



Based on the statewide risk assessment of the roadway network and feedback obtained via stakeholder engagement, recommendations have been identified for high-risk locations on the Iowa DOT system, and strategies have been developed to assist with educating the public about VRU safety and funding VRU safety projects.

## PROJECTS IN HIGH-RISK LOCATIONS

High-level recommendations/improvement options were developed for each of the urban and rural high-risk locations on **Figure 5.1**. The recommendations developed as part of this assessment will be discussed and refined with each agency. Based on FHWA guidance, recommendations focused on prioritizing countermeasures and strategies that align with the Safe System Approach to improve safety for people walking, biking, and rolling include:

- » Separating users in space (e.g., separated bicycle lanes, walkways, pedestrian refuge islands)
- » Implementing physical features to slow traffic (e.g., self-enforcing roads, 4- to 3-lane conversions)
- » Separating users in time (e.g., leading pedestrian interval)
- » Increasing attentiveness and awareness (e.g., crosswalk visibility enhancements, pedestrian hybrid beacons ([PHBs], lighting)
- » Implementing speed enforcing strategies (e.g., speed safety cameras)

FIGURE 5.1: HIGH-RISK PROJECT LOCATIONS



**Table 5.1** provides a list of the highest-ranking urban and rural locations. These locations are only along state routes or intersections with at least one roadway being a state route. Detailed project information sheets for each location, including location scoring, screening details, recommendations, and aerial images, can be found in **Appendix E**.

While the Step 2 screening focuses on high-risk state facilities, all paved facilities in Iowa, excluding those with a minimum speed limit, were scored in Step 1 of the assessment. **Appendix B** provides the 25 highest-risk locations for each of the eight category bins split into the six Iowa DOT districts. For more detailed scoring, contact the Iowa DOT.

**TABLE 5.1 HIGH-RISK PROJECT LOCATIONS**

| Context | Bike or Ped                  | Location No. | Intersection or Segment                                      | County        | City/Nearest City | Mainline   | Minor Road/ Start of Segment  | End of Segment                                      |
|---------|------------------------------|--------------|--|---------------|-------------------|--|---|---|
| Urban   | Both<br>Both<br>Bike<br>Bike | 1            | Segment<br>Segment<br>Intersection<br>Intersection           | Webster       | Fort Dodge        | Kenyon Rd (US 20/US 169)<br>S 8th St<br>IA 926<br>IA 926 | S 12th St<br>4th Ave S<br>3rd Ave S<br>4th Ave S                    | Avenue C<br>Kenyon Rd<br>N/A<br>N/A                 |
|         | Ped<br>Ped                   | 2            | Segment<br>Intersection                                      | Pottawattamie | Council Bluffs    | E Kaneshville Blvd<br>E Kaneshville Blvd                 | Hillsdale Dr<br>Sherwood Dr   | Railroad Hwy<br>N/A                                 |
|         | Bike<br>Bike<br>Bike<br>Bike | 3            | Intersection<br>Intersection<br>Intersection<br>Intersection | Pottawattamie | Council Bluffs    | S 6th St<br>S 6th St<br>S 7th St<br>S 7th St             | 5th Ave<br>Willow Ave<br>Willow Ave<br>5th Ave                      | N/A<br>N/A<br>N/A<br>N/A                            |
|         | Ped<br>Ped                   | 4            | Intersection<br>Intersection                                 | Scott         | Davenport         | US 61<br>US 61   | Brown St<br>Marquette St  | N/A<br>N/A  |
|         | Ped                          | 5            | Segment  | Des Moines    | Burlington        | US 61  | Mount Pleasant St   | Agency St   |
|         | Both<br>Bike<br>Ped<br>Ped   | 6            | Segment<br>Segment<br>Intersection<br>Intersection           | Johnson       | Iowa City         | US 6<br>US 6<br>IA 1/Burlington St<br>IA 1/Burlington St | 1st Ave<br>Newton Rd<br>Front St<br>S Capitol St                    | Newton Rd<br>South of W Burlington St<br>N/A<br>N/A |
|         | Bike                         | 7            | Intersection   | Jasper        | Newton            | US 6   | E 5th St  | N/A   |
| Rural   | Bike<br>Bike<br>Bike         | 1            | Segment<br>Intersection<br>Intersection                      | Lucas         | Chariton          | US 34<br>US 34<br>US 34                                  | Albia Rd<br>472nd Ln<br>Red Haw State Park                          | Lake Ellis Culvert<br>N/A<br>N/A                    |
|         | Ped<br>Ped<br>Both<br>Both   | 2            | Segment<br>Intersection<br>Intersection<br>Intersection      | Pottawattamie | Council Bluffs    | IA 92<br>IA 92<br>IA 92<br>IA 92                         | Valley View Dr<br>Valley View Dr<br>Pine Terrace Dr<br>Somerset Ave | Somerset Ave<br>N/A<br>N/A<br>N/A                   |
|         | Ped                          | 3            | Segment  | Scott         | Davenport         | US 67  | Mound St  | Greenwood Ave                                       |
|         | Bike                         | 4            | Segment  | Muscatine     | Muscatine         | US 61  | Savannah Ave  | Old US 61 Frontage Rd                               |
|         | Ped                          | 5            | Segment  | Polk          | Ankeny            | US 69  | SW Oralabor Rd  | NE 72nd Ave   |

# STRATEGIES

The following strategies have been identified to address VRU safety within Iowa.



## Public Education Campaign

The Iowa DOT recently developed educational videos on the following topics that can be shared through public educational campaigns:

- » Rectangular Rapid Flashing Beacons (RRFBs)
- » PHBs
- » 4- to 3-lane conversions
- » Roundabouts



## Funding Opportunities

A variety of funding opportunities are available through the Iowa DOT to assist with funding VRU-related projects in Iowa:

### HSIP-Local

The Iowa DOT HSIP-Local program provides Federal-Aid Swap (State) funds to counties and cities for low- to medium-cost systemic safety improvements. HSIP-Local program funding is \$5 million/year for FY 2023-2027. The program aims to reduce two types of crashes: lane departure crashes and intersection crashes.

### Traffic Safety Improvement Program (TSIP)

TSIP funding can be used to treat a single location based on demonstrated crash history. TSIP awards cannot exceed \$500,000 per project. Example projects include but are not limited to:

- » RRFBs
- » Speed feedback signs
- » Leading Pedestrian Intervals (LPIs)
- » Painted crosswalks



## Discretionary Grants

The following discretionary grants are most-applicable for VRU projects and can be considered by those looking to implement projects to improve VRU safety in Iowa:

- » Safe Streets for All (SS4A): Iowa DOT is providing a funding match for counties to develop Safety Action Plans (\$5,000 per county) and for MPO/RPA (\$12,000 per MPO/RPA)
- » Rebuilding American Infrastructure with Sustainability and Equity (RAISE)
- » If the project meets the appropriate criteria the following grants could be utilized:
  - Reconnecting Communities and Neighborhoods (RCN)
  - Railroad Crossing Elimination (RCE)
  - Consolidated Rail Infrastructure and Safety Improvements (CRISI)
  - Strengthening Mobility and Revolutionizing Transportation (SMART)

*\*List is not all-inclusive go to:*

[https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/funding/](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/funding/)

<https://iowadot.gov/traffic/shsp/home>

## Contact

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