Bi-State Regional Commission

QUAD CITIES, KEWANEE & MUSCATINE

TRAFFIC SAFETY ACTION PLAN

May 2025

PREPARED BY:

Kaskaskia Engineering Group, LLC

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1 Leadership Commitment and Goal Setting

In 2023, the Bi-State Regional Commission (BSRC) was awarded a Safe Streets for All (SS4A) grant to create a Traffic Safety Action Plan (TSAP) for the Quad Cities of Illinois and Iowa, including the cities of Muscatine and Kewanee. The study area geography includes the counties of Henry (IL), Muscatine (IA), Rock Island (IL) and Scott (IA), including approximately thirty municipalities, and unincorporated areas. The goals, safety improvement recommendations, priority project list and early program recommendations developed through this process and contained in this report are being adopted by each study partner of the BSRC, demonstrating their dedication to safer roadways.

The BSRC and partners are also committed to improving the public's safety on roadways in the study area by following the United States Department of Transportation's (USDOT) Safe System Approach that establishes the goal of zero fatalities and zero serious injuries by the year 2040. Top crash locations can be found in Appendix A. Pending public and stakeholder comments that will be sought in spring 2025, participating agencies adopted resolutions toward the improvement of safety for all roadway users regardless of mode of travel or socio-economic background in alignment with the recommendations in this report, which can be found in Appendix B.

1.1 Safety Goal and Approach

Image Source: Canva

The TSAP is closely aligned with Vision Zero, a global movement to end traffic-related fatalities and serious injury crashes and with the Safe System Approach, which involves a systemic approach to road safety with the idea that humans are vulnerable to injury and make errors. The Safe System Approach recognizes that the responsibility to eliminate fatal and serious crashes is shared by both roadway users and those involved in the planning, design, maintenance, and operations of the transportation system. Human error is inevitable; as such, the Safe System Approach strives to design forgiving roadways that will minimize the severity of crashes and encourage a quick response of medical services when needed. It emphasizes that no traffic-related deaths are acceptable.

The Federal Highway Administration (FHWA)[1] defines a TSAP as a method to prioritize safety improvements with consideration for investments decisions. TSAPs have many benefits, including:

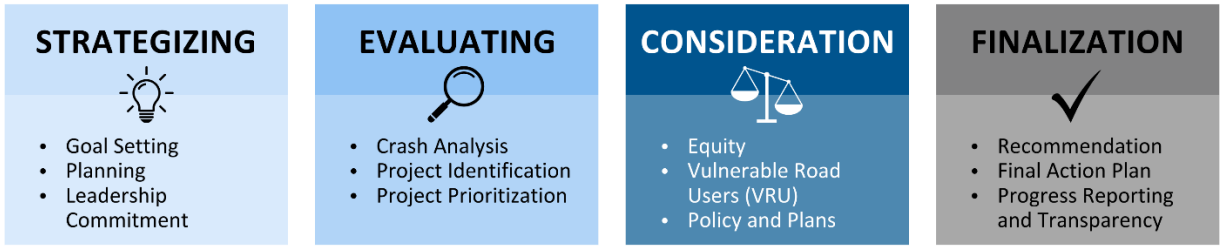
- Providing a data-driven approach to identify underlying causes of roadway fatalities and serious injuries.
- Identifying proven safety countermeasures that address targeted crash types.
- Encouraging communication between stakeholders and transportation agencies.

[1] Federal Highway Administration: https://www.transportation.gov/grants/SS4A

- Supporting opportunities to obtain funding for future infrastructure improvements.

A key component to the approach is recognizing that humans make mistakes, but those mistakes should not result in the loss of life. Study area goals included strategies to reduce targeted crash types by taking a four-step approach commonly known as the four E's: Engineering, Enforcement, Education, and Emergency Response. The major steps in the development and implementation of the TSAP are displayed in Figure 1.1.1.

Figure 1.1.1: TSAP Development Steps

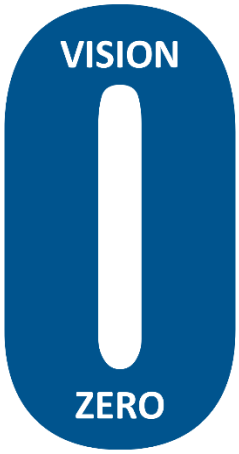


1.2 Alignment with Existing Focus Areas

The TSAP study process investigated crash types that more frequently resulted in fatalities and serious injuries for the purpose of identifying strategies. The approach aligns well with the Illinois Department of Transportation's (IDOT)[2] and the Iowa Department of Transportation's (Iowa DOT)[3] Strategic Highway Safety Plan's emphasis areas displayed in Figure 1.2.1.

[2] Illinois Department of Transportation: https://idot.illinois.gov/content/dam/soi/en/web/idot/documents/transportation-system/manuals-guides-and-handbooks/safety/strategic-highway-safety-plan-2022.pdf
[3] Iowa Department of Transportation: https://iowadot.gov/traffic/pdfs/IowaSHSP.pdf

Figure 1.2.1: Summary of IDOT and IowaDOT Emphasis Areas



The Steering Committee members have committed to a **Vision Zero** goal to achieve **zero traffic-related fatalities or serious injury crashes** through targeted safety improvements that reduce these crashes **2% annually** across the study area, based on a five-year rolling average and **reaching zero by 2040**.

The TSAP planning and analysis process incorporates a multimodal perspective – incorporating walking, pedalcycling and transit in addition to driving – in support of the SS4A program's focus on the Safe System Approach, which strives for zero fatalities and serious injuries for all modal users. The Implementation Steering Committee prioritized goals by considering the existing policies of all participating agencies, and by considering new data and stakeholder feedback obtained through the planning process for the Draft TSAP.

1.3 Existing Policies and Practices

Stakeholders provided policies and plans for review to identify alignment with transportation safety goals. Eighteen (18) documents were identified. A full policy list can be found in Appendix C. The content of these documents was utilized to identify gaps in traffic safety data, traffic safety projects and policies that were built upon in the TSAP development process.

1.4 BSRC Stakeholder Contacts

A list of diverse stakeholders was developed, including more than four hundred electronic contacts and over eight hundred physical mailing addresses. These included BSRC staff, the counties, the thirty municipalities, community support organizations, IDOT, IowaDOT, local transit organizations, public health officials, churches, economic development organizations, and safety officials. These stakeholders participated in opinion polls, workshop and information sessions, virtual public meetings, and review of study deliverables.

1.5 BSRC SS4 Steering Committee and Project Advisory Committee

A Steering Committee provided expert advice on key project components. They participated in expert opinion polls, helped set goals and policies, and reviewed the draft report, as well as attended public and project meetings. The members of the committee can be seen in Table 1.5.1.

Table 1.5.1: Steering Committee Members

First Name	Last Name	Title	Jurisdiction	State
Brent	Morlok	City Engineer	Bettendorf	IA
Brian	Schadt	City Engineer	Davenport	IA
Gary	Statz	Traffic Engineer	Davenport	IA
Tim	Kammler	City Engineer	East Moline	IL
Gary	Bradley	City Manager	Kewanee	IL
David	Dryer	City Engineer	Moline	IL
Brian	Stineman	Public Works Director	Muscatine	IA
Lucie	VanHecke	Transit Planner	Metrolink	IL
Rob	Bates	Engineer	ILDOT	IL
Doug	DeLille	Planner	ILDOT	IL
Torres-Cacho	Hector	Planner	IADOT	IA
Alan	Ho	Engineer	FHWA-IL	IL
Betsy	Tracy	Planning, Environment & Right-of-Way Team Leader	FHWA-IL	IL
Sean	Litteral	Planning and Development Team Leader	FHWA-IA	IA
Gena	McCullough	Deputy Director	BSRC	IA-IL
Nithin	Kalakuntla	Transportation Engineer	BSRC	IA-IL

A Project Advisory Committee was also created to provide a broader source of input into the development of the TSAP. Members were representatives of various transportation planning agencies, law enforcement agencies, first responders, public safety officials, and various community organizations. Additional details on the Project Advisory Committee can be found in the Stake Holder Engagement Plan (SEP) in Appendix D.

2 Community Profile

The following section discusses land use, demographics, and equity considerations in the study area. Equity is considered using a multi-lens approach to consider multiple factors.

2.1 Area Description

The study area encompassed the Quad Cities including the Cities of Kewanee (IL), Muscatine (IA), Quad Cities: Davenport (IA), Bettendorf (IA), Rock Island (IL), Moline (IL), and East Moline (IL). The area is divided by the Mississippi River with Iowa being to the west and Illinois to the east. The area is predominantly urban with the following urban center populations: Kewanee (12,222), Muscatine (23,797), Davenport (100,354), Bettendorf (39,858), Rock Island (36,132), Moline (41,965), and East Moline (20,806).

2.1.1 Land Use

The majority of the study area is urban, with small sections of undeveloped rural areas surrounding the population centers. The topography of the study area is comprised of rolling hills, bluffs and valleys. Key routes through the study area include I-74, I-80, I-88, I-280, US-6, US-34, US-61, US-67, US-150, IA-22, IL-5, IL-78, IL-81, IL-84, and IL-92.

2.1.2 Demographics

General demographics trends according to the 2020 Census[4] for each county in the study area including age, race, home ownership, and income for each are listed below in Table 2.1.

[4] United States Census Bureau: https://www.census.gov/quickfacts/fact/table/US/PST045223

Table 2.1: County Level Demographics

Muscatine County
• **5.9% under 5 years of age**
• **17.6% over 65 years of**
• **92.1% one race**
• **7.9% two or more races**
• **74.9% owner-occupied homes**
• **Mean household income $87,676**
• **Median household income $69,512**
Scott County
• **5.6% under 5 years of age**
• **17.5% over 65 years of**
• **92.6% one race**
• **7.4% two or more races**
• **69.6% owner-occupied homes**
• **Mean household income $98,308**
• **Median household income $76,822**
Rock Island County
• **5.6% under 5 years of age**
• **20.7% over 65 years of**
• **82.0% one race**
• **18.0% two or more races**
• **72.5% owner-occupied homes**
• **Mean household income $83,063**
• **Median household income $63.087**
Henry County
• **6.5% under 5 years of age**
• **12.5% over 65 years of**
• **97.7% one race**
• **2.3% two or more races**
• **67.5% owner-occupied homes**
• **Mean household income $91,842**
• **Median household income $69,912**

2.2 Equity Considerations

Image Source: Canva

Equity focuses on providing fair and just outcomes across all members of society, recognizing that some individuals or communities are disadvantaged in or have been disproportionately burdened by past decisions. Past practices did not always provide resources equitably – considering all people and all modes, sometimes implementing improvements that benefit some, while harming others, such as people with less education, more poverty, or pedalcyclists and pedestrians. Transportation investment without consideration of the varying needs of different communities and modal users can perpetuate isolation, lack of access to jobs and services, and other disadvantages which, due to the long-term effects of the transportation system, can perpetuate over generations.

Environmental justice is a related concept that focuses on the just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in decision-making and other activities that affect human health and the environment so that people:

- are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and
- have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices.

There are multiple ways of assessing transportation systems, environmental justice, and equity which typically use population and socioeconomic indicators. At the time this TSAP was initiated, the USDOT guidance for SS4A planning processes and projects required analysis of equity considerations. Furthermore, the Steering Committee agrees that there is added value in considering equity. Below are the four datasets used to consider equity in the TSAP.

2.2.1 EJScreen: Environmental Justice Screening and Mapping Tool[5]

EJScreen was an Environmental Protection Agency's (EPA)[6] environmental justice mapping and screening tool created under the Inflation Reduction Act (IRA) to provide a nationally consistent dataset and approach for combining environmental and socioeconomic indicators. The EPA Disadvantaged

[5] As of February 2025, the EJ Screen Tool is currently not available on the USEPA website

[6] Environmental Protection Agency: https://www.fema.gov/emergency-managers/practitioners/recovery-resilience-resource-library/ejscreen-environmental

Communities map on EJScreen combined multiple datasets to determine whether a community was disadvantaged for the purposes of implementing programs under the IRA. All data sets were assigned values at the Census Block Group level.
EJScreen defined environmental justice areas as spaces where environmental impacts have led to a disproportionate effect on groups of people, including minority populations, persons with limited access to transportation, households with low-income, older adults, and persons with disabilities. An environmental justice area was an area with a higher percentage of the population falling into an identified negatively environmentally impacted area that was higher than the national average.

2.2.2 Climate and Economic Justice Screening Tool[7]

The Climate and Economic Justice Screening Tool[8] provided an interactive map with datasets that indicated burdens in eight categories: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. Communities that were considered overburdened and underserved as disadvantaged. This tool was previously used by federal agencies to identify qualified communities under the Justice40 initiative, which sought to deliver 40% of the overall benefits of federal investments to disadvantaged communities.

2.2.3 Historically Disadvantaged Community[9]

A "Historically Disadvantaged Community" was defined by the Office of Management and Budget's (OMB)[10] Interim Guidance for the Justice40 Initiative and the 2023 Addendum to this Guidance. Specifically, a project was in a Historically Disadvantaged Community if it was within certain qualifying census tracts that were identified as "disadvantaged" in the Climate and Economic Justice Screening Tool.

2.2.4 Qualified Opportunity Zones

Qualified Opportunity Zones (QOZs) are a tool designed to spur economic development and job creation in distressed communities. In a QOZ, new investments may be eligible for preferential tax treatment if they meet certain conditions. Localities qualify as QOZs if they were nominated for that designation by their state and that nomination was certified by the Secretary of the U.S. Treasury[11].

3 The Path to Improvement

Existing plans and procedures for the study area were analyzed to identify current safety initiatives and document necessary modifications found as part of that analysis. The following sections discuss existing plans and policies as well as the structure and timeline of the TSAP's creation.

[7] As of February 2025, the CEJST Tool is currently not available on the U.S. White House website
[8] National Oceanic and Atmospheric Administration: https://screeningtool.geoplatform.gov/en/?mc_cid=41183d4bd5&mc_eid=90363e3ae3
[9] As of February 2025, the HDC datasets are being referred to as Areas of Persistent Poverty
[10] Office of Management and Budget: https://www.transportation.gov/grants/mpdg-areas-persistent-poverty-and-historically-disadvantaged-communities-1#:~:text=A%20%22Historically%20Disadvantaged%20Community%22%20is,is%20located%20on%20Tribal%20land.
[11] Internal Revenue Service: https://www.irs.gov/credits-deductions/businesses/opportunity-zones

3.1 Plans & Policies

Study area planning documents – including transportation plans, comprehensive plans, safety assessments, and freight studies – were analyzed to identify previously studied safety issues in order to leverage and compare prior work, prioritize safety actions and develop additional actions to increase and improve traffic safety. This section discusses how the TSAP will work in tandem with and serve as a living plan to advance goals within the region's existing plans and policies. Safety-related policies were found to be focused on separating different modes of travel versus implementing particular safety countermeasures. A list of reviewed documents can be found in Appendix C.

During the policy and plan review, 178 existing safety-related projects were identified. Examples of some of these projects include sidewalk improvements, trails, shared roadways, and bike lanes with a focus around vulnerable roadway users. Other examples include vehicle safety projects incorporating various geometric design improvements. Each project's anticipated timeframe and intervention type were noted. The list of safety related projects can be found in Appendix C.

3.2 Planning Structure

To facilitate the development of the TSAP a Project Steering Committee (PSC), Project Advisory Committee (PAC), stakeholder list, and a project timeline were established. The PSC was comprised of representatives of the BSRC, Quad Cities of Illinois and Iowa, City of Kewanee, City of Muscatine, IowaDOT, IDOT, FHWA, and the transit system. The PAC primarily consisted of members of the state and local transportation planning agencies, law enforcement, public safety and traffic safety interests, and community organizations that guided the study throughout the planning process. The composition of the PAC was determined collaboratively by the consultant and PSC.

3.3 Project Timeline

The development of the TSAP took approximately twelve months. Key tasks included public input using a web-based interactive map and virtual public meetings. Data collection consisted of obtaining crash records for the study area, obtaining GIS maps, and census data. The data analysis consisted of identifying severe crash types resulting in fatalities or incapacitating injuries, as well as their attributing factors.

Countermeasures selection involved identifying design changes that would result in the reduction of the targeted crash types. A draft report was prepared and submitted for review by the PSC and PAC before being finalized. Key milestone dates are shown in Table 3.3.1.

Table 3.3.1: General Schedule of Key Project Milestones

Kickoff meeting	March 2024
Public input meetings	July and August 2024; January 2025
Data collection	April to July 2024
Data analysis	April to December 2024
Countermeasure selection/recommendations	October 2024 to January 2025
Final report	April 2025

4 Safe System Approach

If a Safe System Approach is to be achieved, road safety must be prioritized when making decisions about investments in roadways, and there must be a culture shift that crashes resulting in fatalities and serious injuries are unacceptable. The Safe System Approach is based on five objectives and on six principles[12].

4.1 Safe System Approach Objectives

1. Safe Road Users

The first element involves making the roadway safe for all road users. This is accomplished by equitably assessing all modes of travel within the study area that may be utilized by the public, including walking, biking, driving, transit, etc. The objective is to promote safe travel behavior for individual and cognizance of other road users, including those most vulnerable to fatalities and serious injuries.

2. Safe Vehicles

The second element focuses on vehicle design. Vehicles should be designed to minimize the frequency and severity of crashes.

3. Safe Speeds

The third element focuses on speed reduction. Reducing speeds lessens the forces imposed on humans during a crash, allows vehicle operators more time to react to avoid a crash, and improves visibility to reduce the risk of a crash.

4. Safe Roads

The fourth element focuses on how roadways should be designed to allow for human mistakes. This minimizes the severity of a crash and allows for corrections to prevent a crash.

5. Post-Crash Care

The fifth element focuses on care after the crash, including providing medical treatment at the scene to stabilize injuries and transportation to appropriate facilities to ensure proper treatment. Post-crash care also involves the process of analyzing the crash site for causes and providing traffic incident management to reduce the chances of a secondary crash.

Image Source: U.S. Department of Transportation (2025)

[12] Federal Highway Administration: https://highways.dot.gov/public-roads/winter-2022

4.2 Safe System Approach Principles

Fatal and Serious Injuries Are Unacceptable

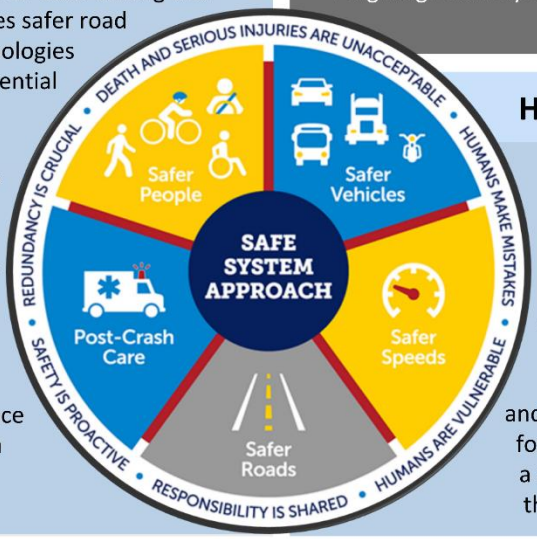
Humans make mistakes, but mistakes should not be a death sentence. Regardless of their socioeconomic status, level of ability, or preferred mode, road users should not die or suffer incapacitating injuries.

Redundancy Is Crucial

In order to deliver the maximum level of protection for roadway users, all parts of the system must be strengthened to provide layers of protection. Education campaigns focused on alert driving and avoiding bad behaviors creates safer road users. Driver assistance technologies alert distracted drivers to potential hazards. Enforcement helps maintain safe speeds. Infrastructure improvements, such as rumble strips, warn distracted drivers about a potential roadway departure. Sometimes, all these measures are not enough to prevent a crash from occurring, but efficient, rapid post-crash care can help reduce the chances of an injury crash resulting in a fatality.

Humans Make Mistakes

Human mistakes can result in crashes. The planning, design, and operation of a roadway should be done in a way that makes mistakes more forgiving. Forgiving roadways are key to reducing the severity of crashes when they occur.



Humans Are Vulnerable

The human body has a limited ability to tolerate force, and excessive force will cause severe injury or death. Not all humans can withstand the same force; the very young and old are less likely to survive crashes. Designing roadways and vehicles to limit the amount of force sustained by humans during a crash event is key to minimizing the risk of severe injury or death.

Safety Is Proactive

A proactive, data-driven approach should be used to mitigate crash risks throughout the system. Latent risks should be identified and treated prior to crash occurrence versus the traditional reactive treatment.

Responsibility Is Shared

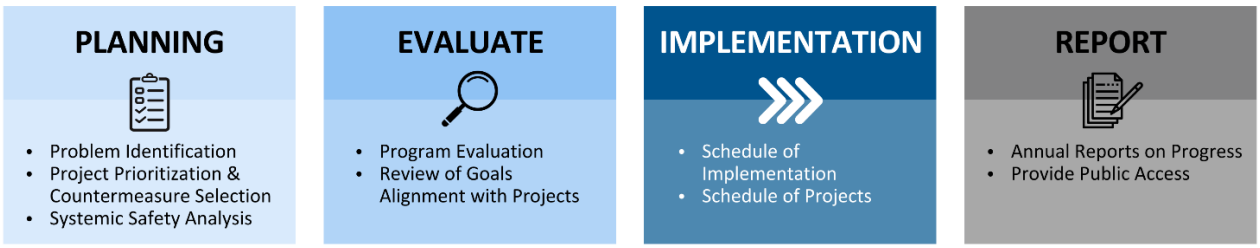
All stakeholders must work together to ensure that crashes do not result in fatal or serious injuries. These stakeholders include transportation system users and managers, vehicle manufacturers, first responders, and other transportation agencies.

Image Source: U.S. Department of Transportation (2025)

4.3 Long Term Safe System Goals

The long-term goals of a safe systems approach include planning, evaluating, implementing, and reporting on safety related projects. Key items within each of the goals are shown in Figure 4.3.1.

Figure 4.3.1: Safe System Approach Objectives



5 Community Connection

Stakeholder and public engagement were an integral part in the development of the TSAP. An SEP was developed to outline engagement activities, outreach tools, and additional methods for public input. The study team updated the SEP throughout the project, documenting public involvement and engagement activities. The following section provides a summary of the activities, topics of discussion and safety concerns identified during the engagement activities. A copy of the SEP can be found in Appendix D.

Image Source: Canva

5.1 Stakeholder Meetings and Workshops

Regular virtual meetings with stakeholders were held throughout the duration of the project to ensure key feedback was sought and utilized in the development of the TSAP. The following provides a summary of the objectives for each stakeholder meeting held during the project and safety concerns identified in each meeting. The input was used to shape the area goals and countermeasure recommendations. Meeting presentation content, accompanied by survey and polling results can be found in Appendix B in the SEP. Stakeholder feedback was utilized to inform several key aspects of the study, including:

5.1.1 Project Steering Committee Kickoff Meeting (Virtual)

March 26th, 2024

- Introduced the consulting team to the Project Steering Committee
- Overview of the project's scope
- Safe System Approach
- Project goals and deliverables.
- Proposed schedule and timeline of events.

June 27th, 2024

- Discussed the steps in creating a Traffic Safety Action Plan
- Provided an overview of the safe system approach.
- Preliminary results on top crash locations including severity levels and types were discussed.

- An interactive website including a mapping tool to report high crash risk locations was presented.
- A poll was taken to identify behavioral issues experienced by motorist/pedestrians, as well as equity concerns for the study area. Polling results and correlating discussion identified that the study area community is multimodal, with pedalcyclists and pedestrians rising to the top in addition to automobiles, as modes of transportation. All-Terrain vehicles (ATV) and golf carts were also mentioned.

Top behavioral issues identified were:

1. Speeding
2. Phone usage
3. Not adhering to signage
4. Impaired Driving

Top equity concerns identified were:

1. Elderly drivers
2. Pedalcyclists and pedestrians
3. Low -income populations
4. Roadways without sidewalks

5.1.2 Project Steering Committee Meeting (Virtual)

September 18th, 2024

- Discussed stakeholder engagement using an interactive map.
- Identified engagement plan activities.
- Discussed crash analysis results with hotspot identification in each geographic area.
- Discussed planned safety related projects and plan reviews
- Introduction to goal setting to achieve vision zero.

5.1.3 Project Advisory Committee (Virtual)

October 29th, 2024

- Provided update on stakeholder engagement activities.
- Provided current results of the interactive map.
- Discussed collision data analysis with a focus on fatal and severe injury crashes.
- Discussion was held on existing safety related projects and safety policies in the study area.
- Discussed goal setting related to vision zero, with strategies to target emphasis area.
- Obtaining stakeholder feedback. Feedback received during the PAC meeting indicated that participants felt that an annual percent (%) reduction target moving towards zero deaths and serious injuries was more realistically achievable than setting an immediate target of zero. Other key feedback received during the meeting included perspectives around roadway design

changes needed to accommodate pedestrians and pedalcyclists more safely in order to create a safer and welcoming multimodal user opportunity.

5.1.4 Focus Group Workshops (Virtual)

November 14th & November 20th, 2024

Two Focus Group workshops were hosted in November 2024, on November 14th, and November 20th. At both meetings a presentation was given providing stakeholders with detailed information regarding the following:

- Provided background on SS4A, the Safe System Approach and purpose of the TSAP
- Reviewed typical equity considerations for SS4A studies and those unique to the study area
- Identified the High Injury Network, top crash types and concentrations for Quad Cities Iowa and Illinois, and Kewanee and Muscatine
- Discussed identification of priority projects and examples of countermeasures
- Provided examples of Goal setting
- Obtained stakeholder feedback through discussion and polling. Discussions and polling show the following as the top issues to focus study goals and recommendations around:
  - Setting a target percent reduction in fatalities and serious injuries
  - Education and enforcement focus on cell phones, distracted driving and distracted walking
  - Speed reductions and speed enforcement
  - Better accommodations for pedalcyclists and pedestrians
  - Education and enforcement for impaired driving and lack of following laws
  - Participants were asked to rank the 4 E's by order of importance and the results showed opinions that placed these in the following order from highest to lowest: Engineering, Education, Enforcement, Emergency Response.

5.1.5 Traffic Safety Summit (In-Person)

January 29th, 2025

In January 2025, representatives from the Project Steering Committee, municipal agency representatives, IDOT and Iowa DOT safety officials, the BHRC, and others convened to discuss state and local safety education campaigns, review the study area top crash locations, recommended projects and countermeasures. The presentations, maps and discussions covered the following items and feedback:

- Provided overview of the Safe System Approach.
- Provided a summary of the crash analysis in the study area.
- Discussed recommended countermeasures for each of the top crash locations using a multijurisdictional approach.
- Solicited participant feedback on goal setting and the use of the 4E's approach.
- Identified additional areas for improvement.
- Identified additional countermeasures to consider at top crash locations.

- Feedback received during the Summit highlighted speeding, red light running, design challenges, education, and enforcement as key issues to address across all jurisdictions. This feedback resulted in the priority projects list, countermeasures and Early Action Recommendations found in Section 7 of the TSAP.

5.2 Public Comment via outreach and website

Public input and feedback were solicited in two primary ways. The first was virtual public events, where a presentation was given informing the public of the project and the project's website. The second was through an online interactive mapping tool where the public could provide detailed information on locations with safety-related concerns and contributing factors.

5.2.1 Focus Group Meetings Interactive Mapping Tool

An interactive mapping tool was developed and made available through the project's website. Members of the public and stakeholders provided valuable input on locations with safety concerns including the geographic coordinates and a description of the safety concerns. Each comment was reviewed and summarized into categories. The top comment was the need for intersection improvements, this accounted for 52 percent of the public comments. The second highest safety concern was related to speeding, accounting for 12 percent of the comments. The third highest comment was related to the lack of pedestrian-bicycle facilities, accounting for 5 percent of the public comments. Speeding was also mentioned in areas where intersection improvements and pedestrian-bicycle facilities improvements were needed. All categories and the frequency of each can be seen in the following graph, there were 154 unique comments from the interactive mapping tool. Figure 5.2.1.1 depicts an example of the mapping tool interface where blue indicates a single comment and red indicates multiply comments in one area. Figure 5.2.1.2 provides a summary of all public comments received.

Figure 5.2.1.1: Interactive Mapping Tool

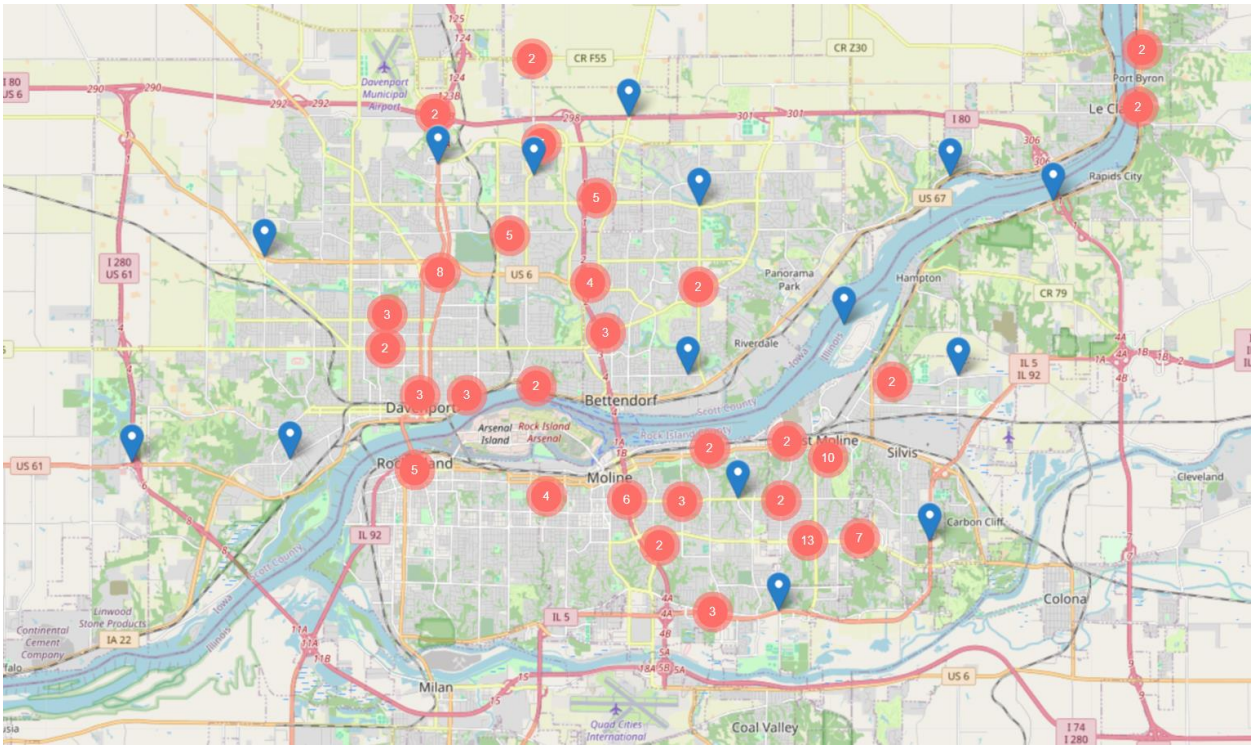
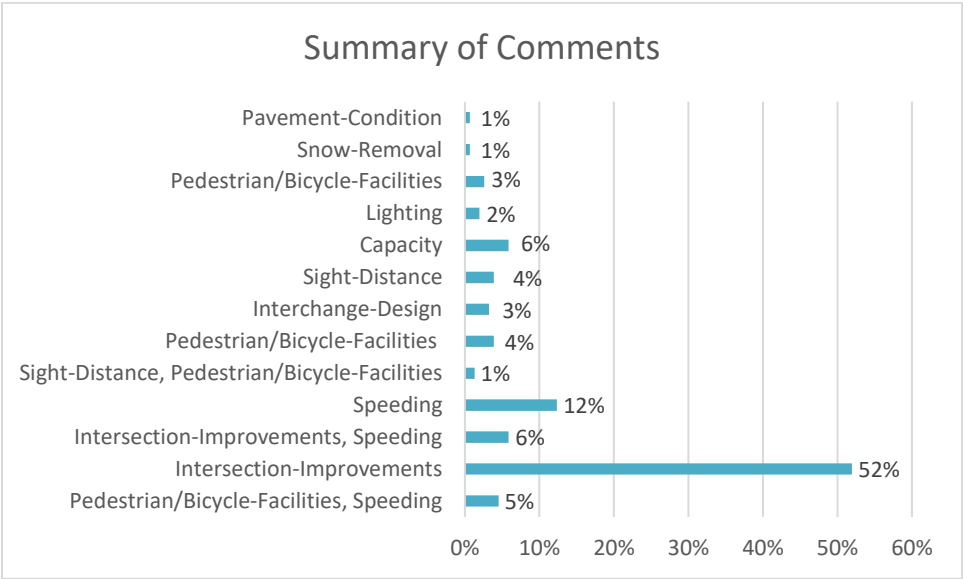


Figure 5.2.1.2: Public Comment Summary



5.2.2 Virtual Public Meeting

A draft of the TSAP was released for public review and public comment following a Virtual Public Meeting (VPM) that was held on April 30, 2025. A two-week public comment period followed the meeting, and ten public comments were received.
The presentation covered the following key elements of the Draft TSAP:

- Identification of the High Injury Network (HIN)
- Priority Crash Locations and Recommended Project Areas by Jurisdiction
- Project Ranking Matrix and Ranking Considerations
- Recommended Countermeasures
- Implementation Goals
- More detailed information can be found in the ESP in Appendix D

5.3 Press Release to Human Services

A press release was sent out to engage all possible human service groups in the study area, asking for public input to reach groups of people that may not have otherwise been informed of the study. The release provided information on the TSAP process and provided directions to access the interactive map. Stakeholders were invited and asked to get involved in the development of the TSAP. Over 150 groups were informed of the study through email communications, invited to each event, and sent notification of meetings and the draft report for release. A copy of the press release sent to the groups can be found in Appendix D. Analysis of Data

6 Analysis of Data

The following section provides details on the safety analysis, including historical crash trends, identification of the top crash locations in each participating jurisdiction, and overlaps between equity factors.

6.1 Safety Analysis

A comprehensive review of safety data was conducted and analyzed across the Quad Cities SS4A Traffic Safety Action Plan study region, which includes the Metropolitan Planning Area (MPA) boundary around metropolitan Quad Cities (Illinois and Iowa sides), along with standalone boundaries around Muscatine, IA, and Kewanee, IL, represented by the respective corporate limits. Historical crash data from 2013 through 2022 was provided by Illinois DOT and Iowa DOT and utilized to gather a large statistical summary, as well as to contrast any trend changes that occurred resulting from the COVID-19 pandemic's traffic shifts or other major disruptors. Crash types, locations, contributing circumstances, and temporal trends were analyzed across the region and within each of the subdivided areas (Illinois Quad Cities, Iowa Quad Cities, Muscatine, and Kewanee) during this 10-year period. Crashes of particular attention included those resulting in fatalities, incapacitating injuries, or involving vulnerable road users. Crash types were identified using standard adopted classifications. Iowa and Illinois use slightly different definitions for each crash type, but the general definition is consistent between both states. Those definitions are outlined in Table 6.1.1.

Table 6.1.1: Crash Definitions

Injury Types	Injury Classification Code	Illinois Definition	Iowa Definition
Fatal Injury	K	A fatal crash is a traffic crash involving a motor vehicle in which at least one person dies within 30 days of the crash.	Used when a fatal injury is any injury that results in death within 30 days after the motor vehicle crash in which the injury occurred. If the person did not die at this scene but died within 30 days of the motor vehicle crash in which the injury occurred, the injury classification should be changed from the attribute previously assigned to the attribute of fatal injury.
Incapacitating Injury	A	Any injury, other than a fatal injury, which prevents the injured person from walking, driving, or normally continuing the activities he/she was capable of performing before the injury occurred. This includes severe lacerations, broken/distorted limbs, skull injuries, chest injuries, abdominal injuries	Used when there is any injury, other than a fatal injury, which prevents the injured person from walking, driving, or normally continuing the activities the person was capable of before the injury occurred. This includes severe lacerations (exposure of underlying tissues/muscle/organs or resulting in significant loss of blood); broken or distorted limbs (arm or leg); skull, chest injuries or abdominal injuries other than bruises or minor lacerations; crush injuries; significant burns (second and third degree burns over 10 percent or more of the body); unconsciousness at or when taken from the crash scene; and unable to leave the crash scene without assistance (paralysis). This does not include momentary unconsciousness.
Non-Incapacitating Injury	B	Any injury, other than a fatal or incapacitating injury, which is evident to observers at the scene of the crash. This includes lumps on the head, abrasions, bruises, minor lacerations.	Used when a minor injury is any injury that is evident at the scene of the crash, other than fatal or serious injuries. Examples include lump on the head, abrasions, bruises, minor lacerations (cuts on the skin surface with minimal bleeding and no exposure of deeper tissue/muscle. This does not include limping.
Possible Injury	C	Any injury reported or claimed which is not listed above. This includes momentary	Used when a possible injury is any injury reported or claimed that is not fatal, suspected serious, or suspected minor injury. Examples include

		unconsciousness, claims of injuries not evident, limping, complaints of pain, nausea, hysteria.	momentary loss of consciousness, claim of injury, limping, or complaint of pain or nausea. Possible injuries are those that are reported by the person or are indicated by his/her behavior, but no wounds or injuries are readily evident.
No indication of injury - Property Damage Only	O		Used when there is no apparent injury and there is no reason to believe the person received any bodily harm from the motor vehicle crash. There is no physical evidence of injury, and the person does not report any change in normal function.

Source : https://highways.dot.gov/media/20141

Image Source: Google Earth (2019)

6.1.1 Regional Historical Crash Data

Within the study limits, 72,638 crashes were reported within the 10-year study period, which included 175 fatal crashes (“K” injury) and 1,208 incapacitating injury crashes (“A” injury). Figure 6.1.1.1 depicts the total crashes in the study area.

Figure 6.1.1.1: Map of Total Crashes, 2013 – 2022

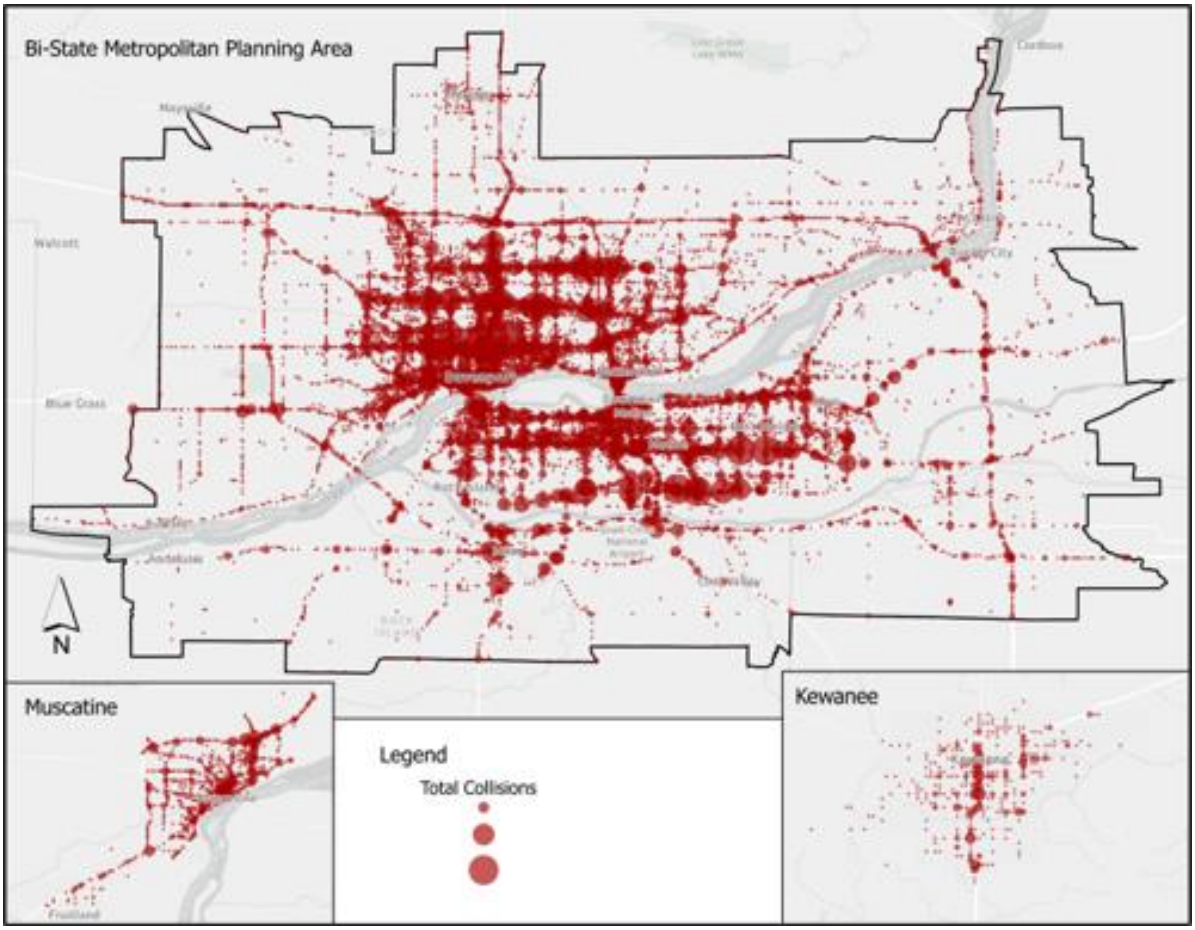
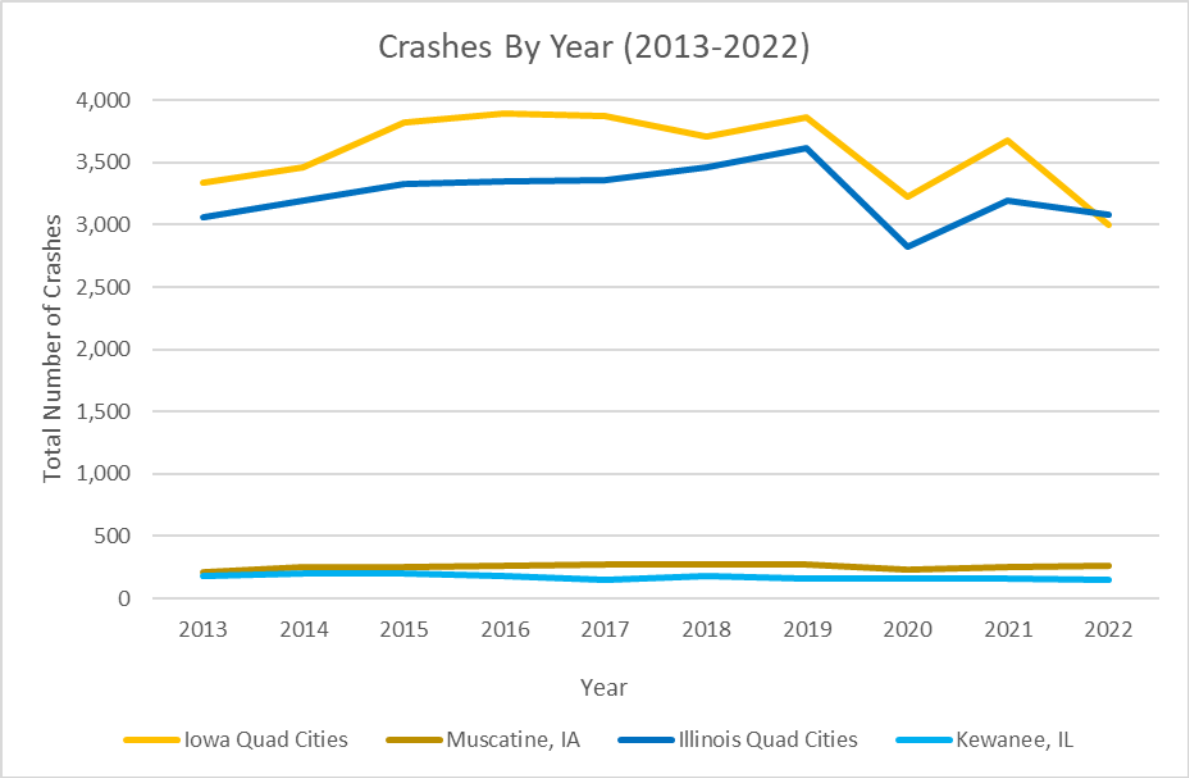


Figure 6.1.1.2 illustrates the annual reported crashes by subregion. Across all four subregions, crashes tended to follow similar trends, seeing an increase up through 2014 to 2019, but then a decrease between 2020 and 2022. Muscatine and Kewanee saw relatively flat rates overall, which is likely a result of having a smaller sample size with which to work. Note that the Y-axis is based on 'total number of crashes', so

smaller subregions like Muscatine and Kewanee will almost always appear much lower than the larger subregions like the Illinois Quad Cities or Iowa Quad Cities.

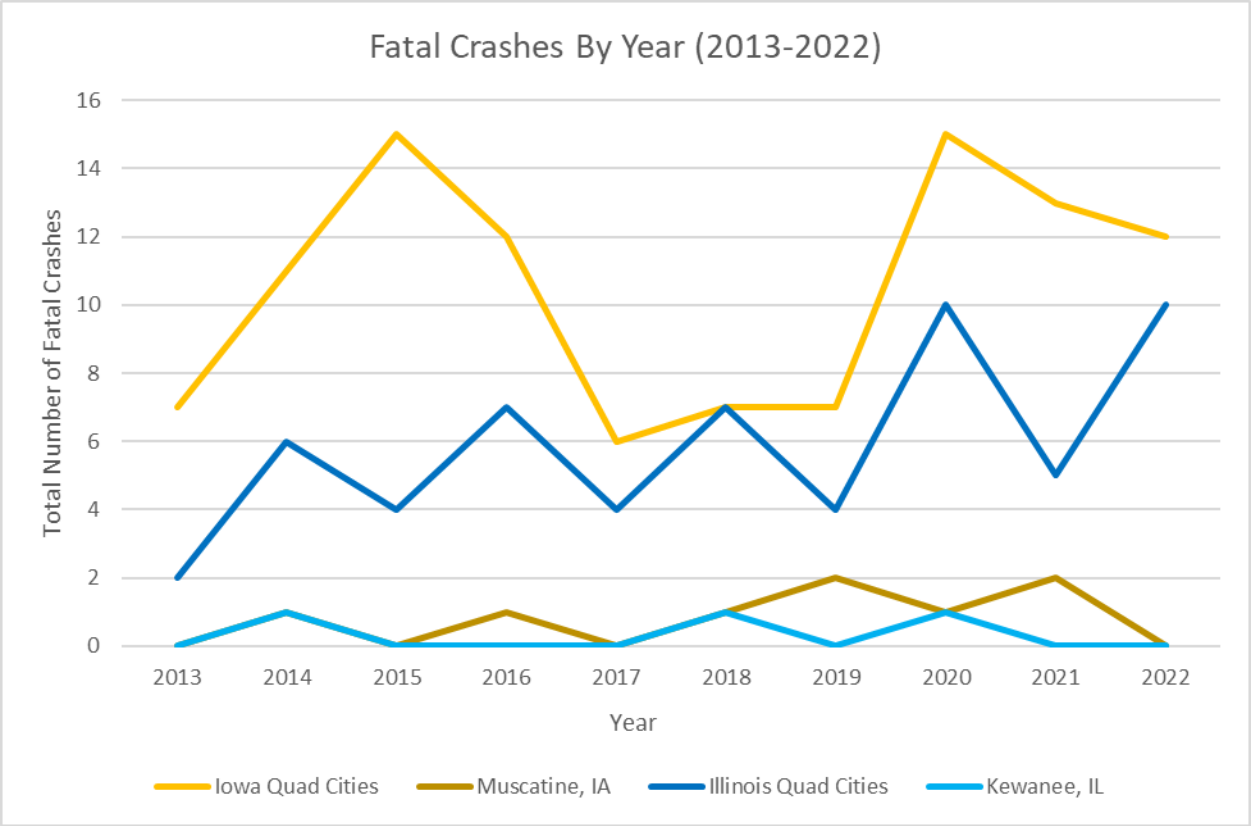
Figure 6.1.1.2: Total Number of Crashes (All Types) by Year, 2013 – 2022



Among those crashes, a total of 175 fatal ("K" injury) crashes were reported. Figure 6.1.1.3 illustrates the fatal crashes reported by year within the study area. No subregion saw more than 15 fatal crashes in a given year, which means that data trends are difficult to ascertain because of a low sample size; thus, the

chart will appear erratic year-to-year. Going into 2022, all subregions except the Illinois Quad Cities saw a downtick in crashes.

Figure 6.1.1.3: Total Number of Fatal ("K" Injury) Crashes by Year, 2013 – 2022



Among those crashes, a total of 1,208 incapacitating injury (“A” injury) crashes were reported. Figure 6.1.1.4 illustrates the incapacitating injury crashes reported by year within the study area. Trends varied

by subregion; both the Illinois Quad Cities and Kewanee saw decreasing crash quantities, while the Iowa Quad Cities and Muscatine saw slight increases in crash quantities.

Figure 6.1.1.4: Total Number of Incapacitating ("A" Injury) Crashes by Year, 2013 – 2022

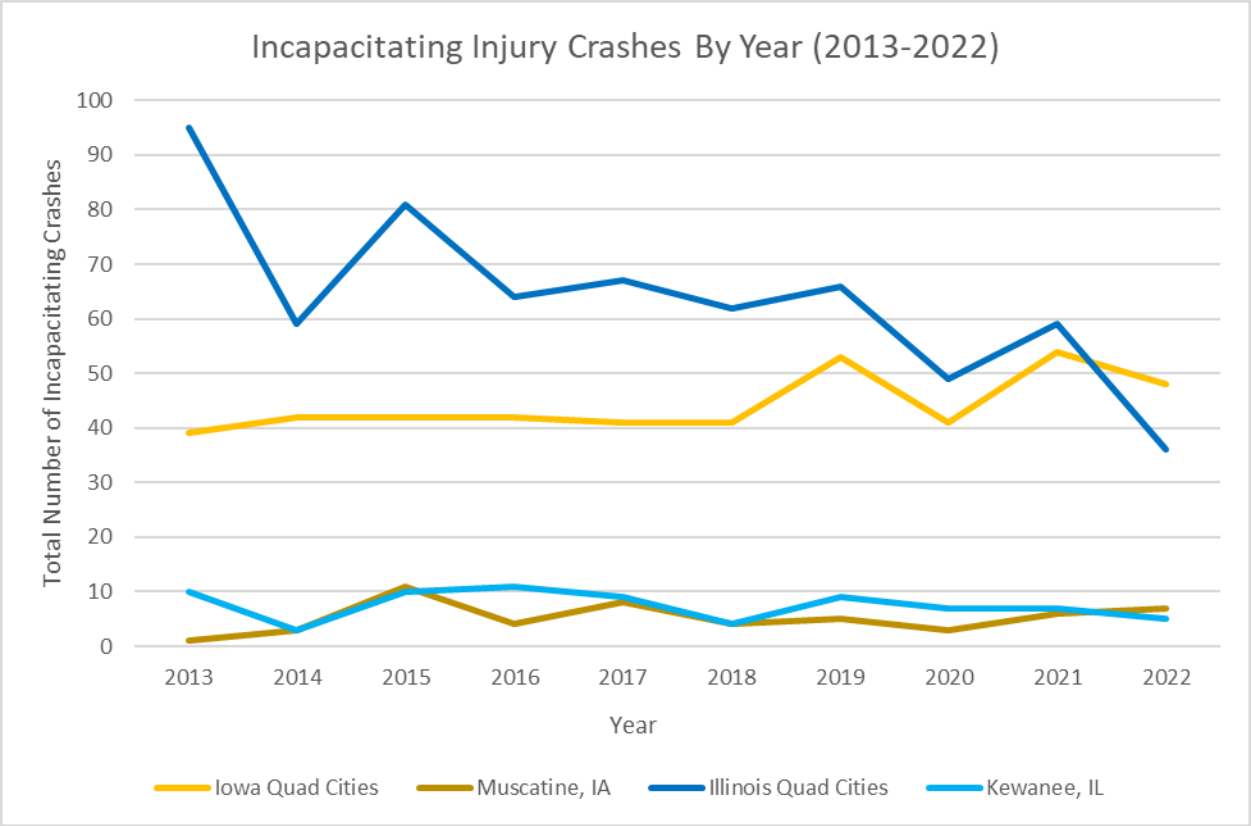
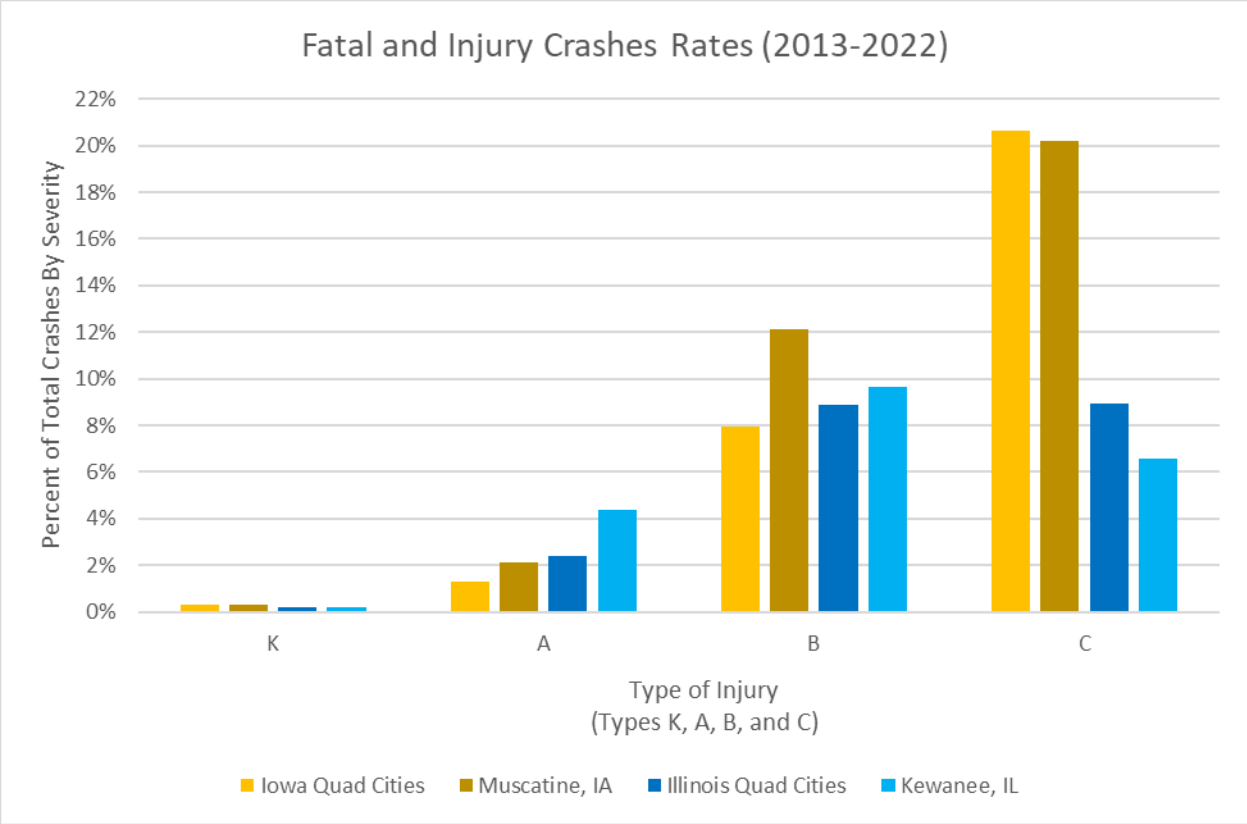


Figure 6.1.1.5 shows that fatality and injury-related crashes were distributed consistently across all four

subregions during this 10-year period. Fatal crashes represented an average of less than 1% of all crashes across the region. Incapacitated crashes (“A”) were typically 1% to 5% of all crashes, with the Illinois Quad Cities and Kewanee having a higher representation than the Iowa Quad Cities or Muscatine. Non-incapacitating crashes (“B”) were typically 8% to 12% of all crashes, with Kewanee and Muscatine having higher representation than the Quad Cities. Possible-injury crashes (“C”) had a wider range of 6% of 20%, with a significant share representation from the Iowa side of the river (Iowa Quad Cities and Muscatine).

Figure 6.1.1.5: Percent of Fatal ("K" Injury) and Injury ("A", "B", "C" Injury) Crashes Among All Crashes, 2013-2022



6.1.2 Environmental Conditions at Reported Crashes

Crashes were examined in the context of environmental circumstances present, which includes factors such as lighting, pavement surface, and weather conditions. These circumstances were examined against all crashes reporting in the 10-year period and then broken out by subregion for the respective crash types.

Figure 6.1.2.1 shows that roughly half of all crashes occurred during daylight hours, with more than 65% of all crashes occurring during this period. Crashes in darkness represented fewer than 30% of all crashes, with an average of 4% to 8% occurring in total darkness and an average of 15% to 20% occurring in darkness on a lighted road. Fewer than 5% of crashes occurred during the dusk or dawn periods. This is not unusual, as more trips are likely to occur during daylight hours even though darkness presents visibility challenges.

Figure 6.1.2.1: Distribution of Total Crashes Based on Reported Lighting, 2013 – 2022

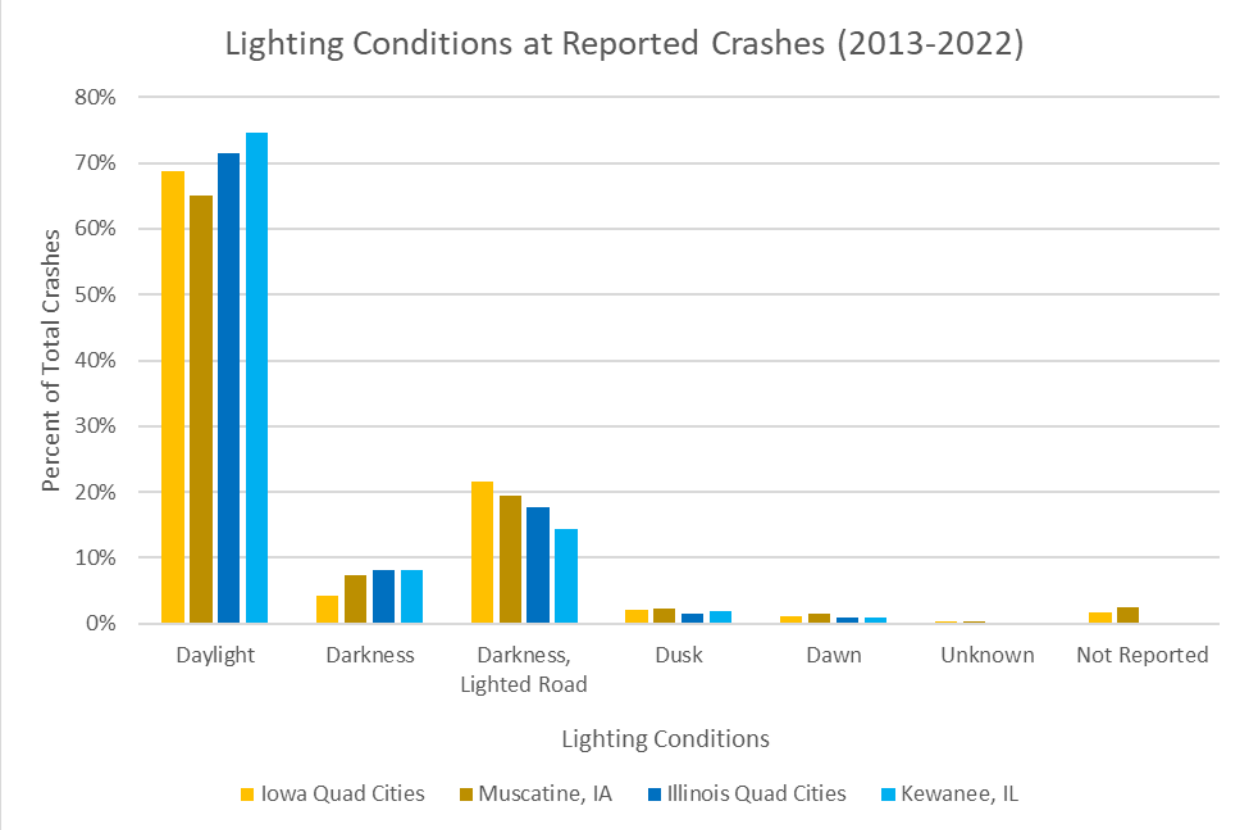


Figure 6.1.2.2 shows a divergence between fatal and incapacitating injuries most often occurred. Fatalities were split evenly between daylight and dark environments, with a slight leaning toward the dark environments. For incapacitating injuries, the prevalence was among the daylight hours. Fewer than 20 fatalities or injuries occurred in any subregion during dusk or dawn. From a rate perspective, the daylight versus darkness crashes were within 1 or 2 percentage points when comparing characteristics within a given subregion. Figure 6.1.2.3 shows that crashes during daylight hours have a comparable or lower rate of incurring a fatality and/or incapacitating injury than those during dark, dusk, or dawn hours.

Figure 6.1.2.2: Quantity of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes by Lighting Conditions, 2013 – 2022

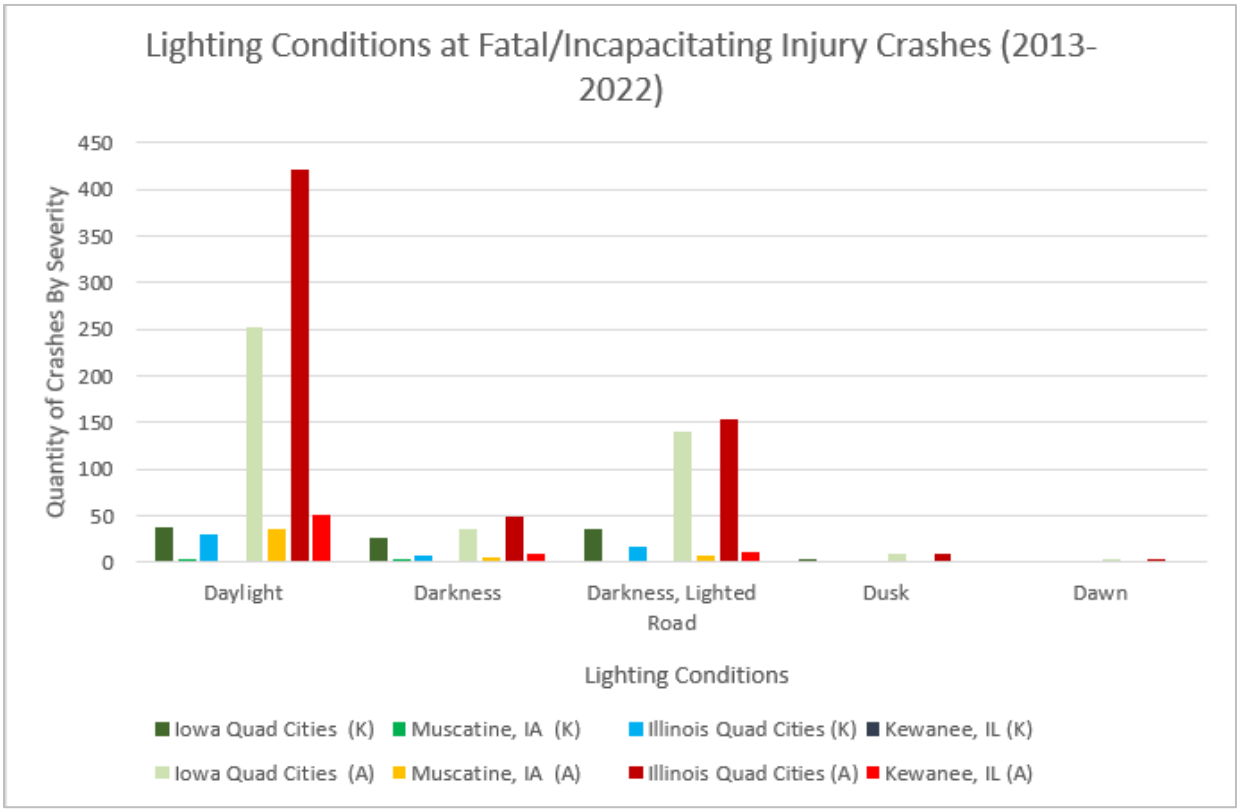
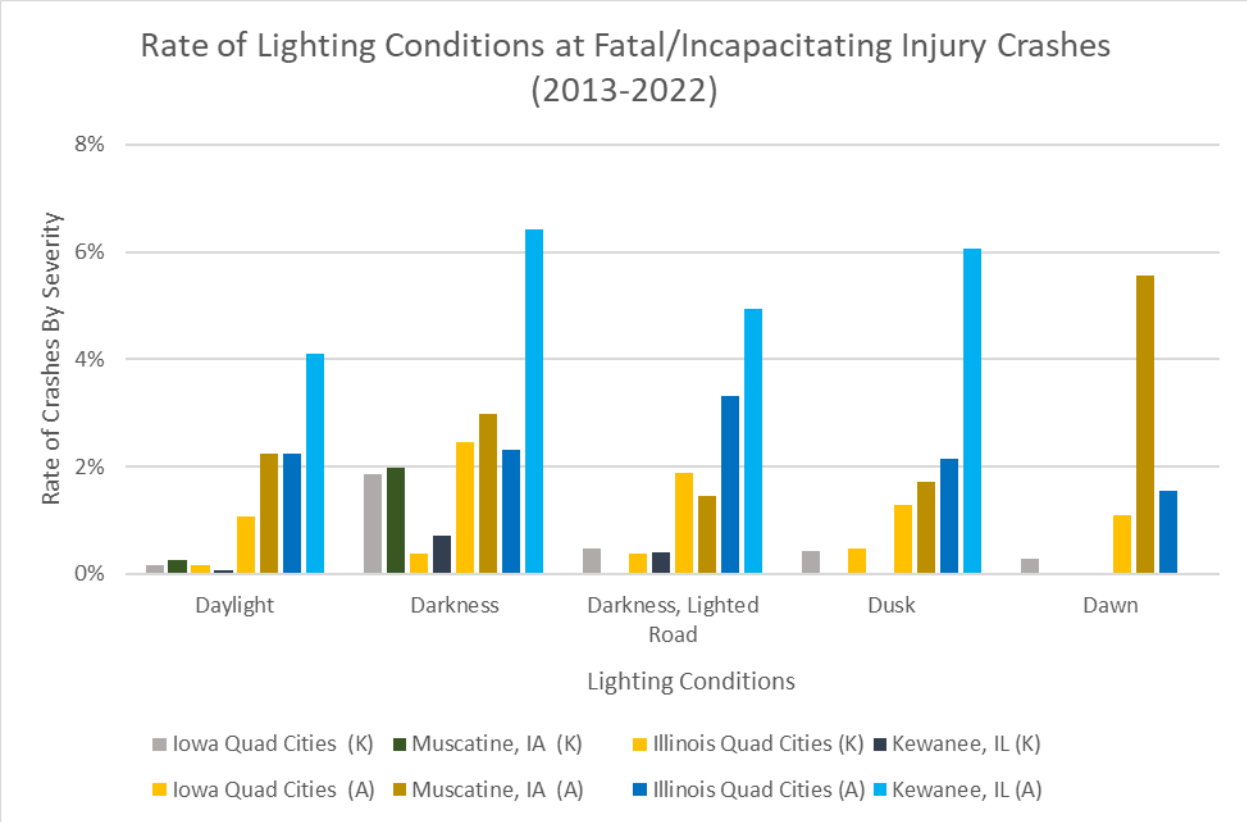


Figure 6.1.2.3: Rate of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes Among Total Crashes per Lighting Condition, 2013 – 2022



When looking at pavement surface conditions, Figure 6.1.2.4 shows that the vast majority of crashes were reported to occur when the pavement was dry. Fewer than 30% of all crashes were reported to occur on wet, icy, or snow/slushy pavement, and this pavement condition was reportedly present in fewer than 20% of all fatal and serious injury crashes.

Figure 6.1.2.4: Distribution of Total Crashes Based on Reported Surface, 2013 – 2022

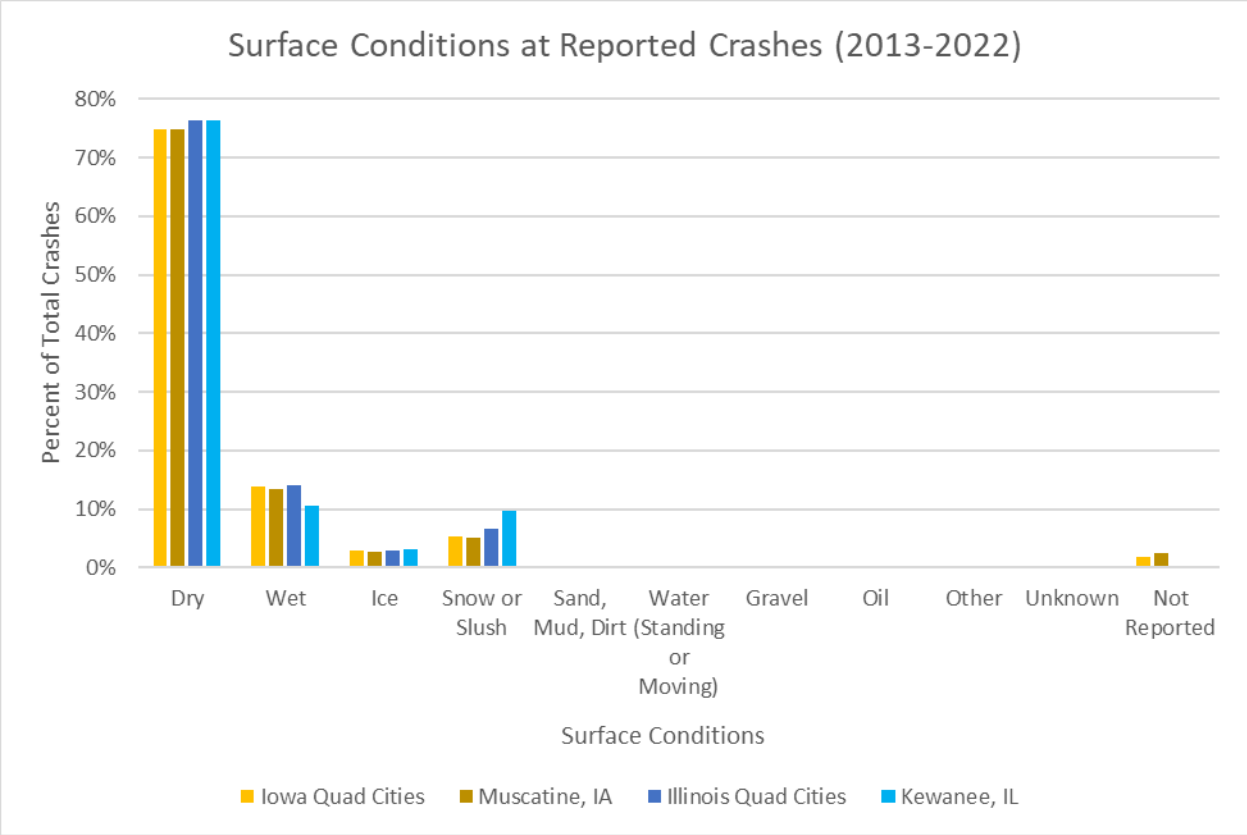


Figure 6.1.2.5 shows that fatal and incapacitating injury crashes occurred mostly in dry conditions. Wet, icy, slushy, sandy, or muddy surface conditions made up fewer than 30 fatalities and fewer than 210 incapacitating injuries. Figure 6.1.2.6 shows that, although crashes with dry surface conditions typically have a higher rate of incurring a fatality and/or incapacitating injury than those during wet, icy, or slushy conditions. A condition with sand, mud, and dirt has a higher rate than dry conditions in the Illinois Quad Cities and Kewanee subregions for incapacitating injuries based on the ten-year history.

Figure 6.1.2.5: Quantity of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes by Surface Conditions, 2013 – 2022

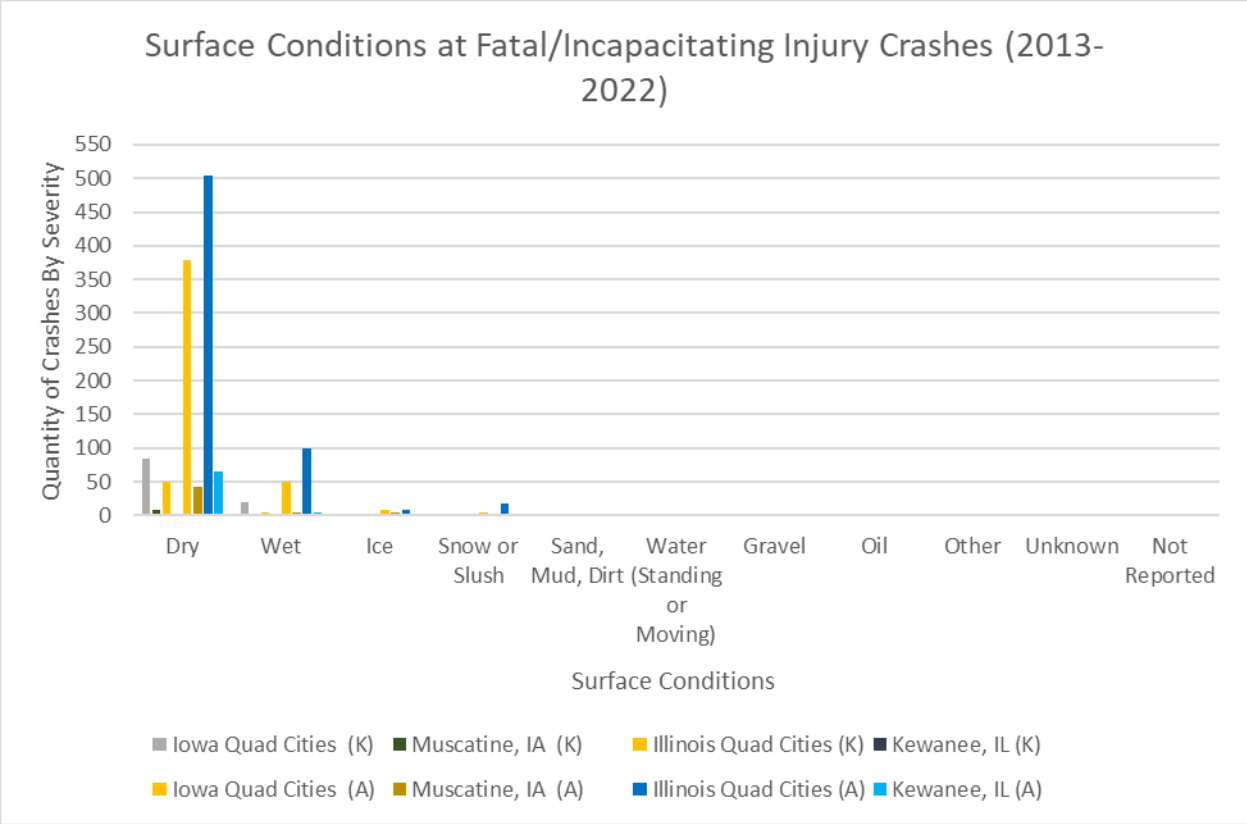


Figure 6.1.2.6: Rate of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes Among Total Crashes per Surface Condition, 2013 – 2022

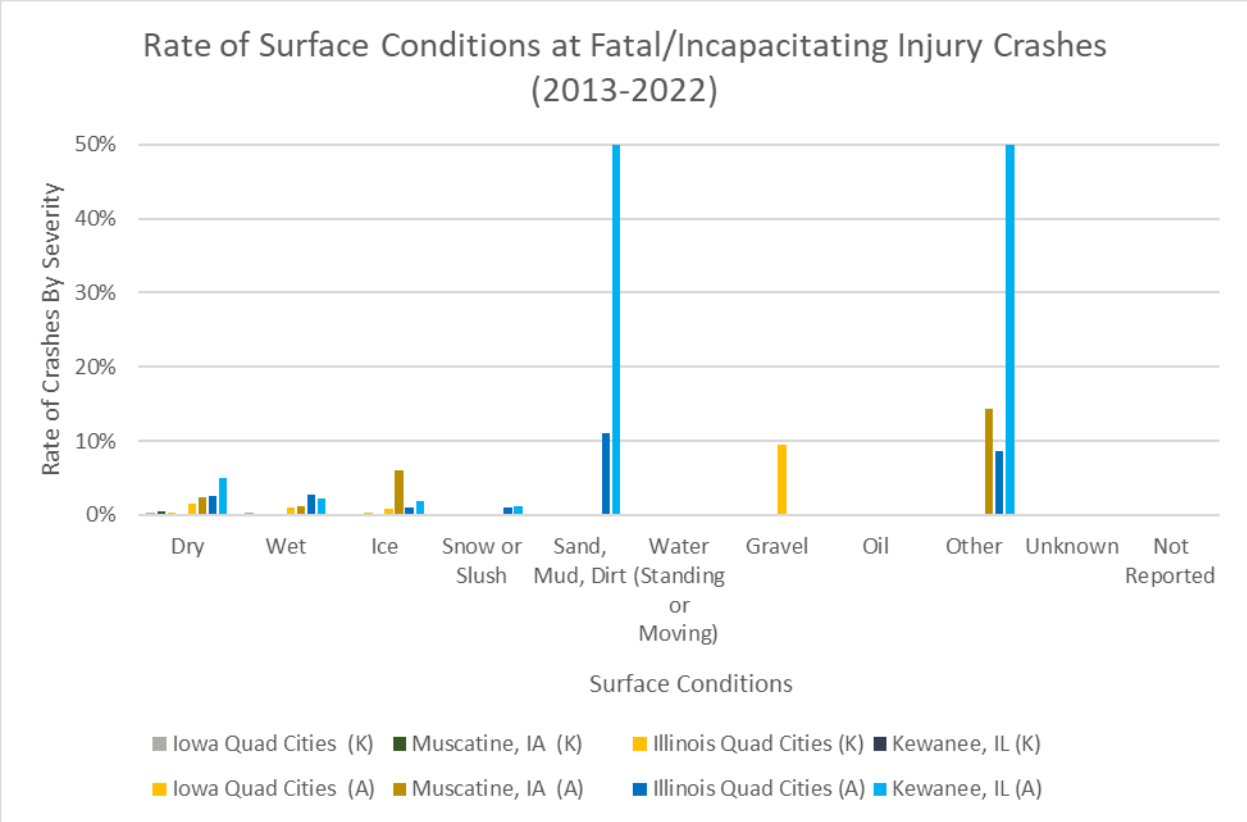


Figure 6.1.2.7 shows that meteorological conditions had comparable impacts across the region. Snow and rain were reportedly present in about 15% of all crashes, but over 60% of crashes occurred during clear weather. Less than two percent of the crashes occurred in other weather conditions. Both the Iowa Quad Cities and Muscatine had a higher reporting rate of 'cloudy' conditions.

Figure 6.1.2.7: Distribution of Total Crashes Based on Reported Meteorological Conditions, 2013 – 2022

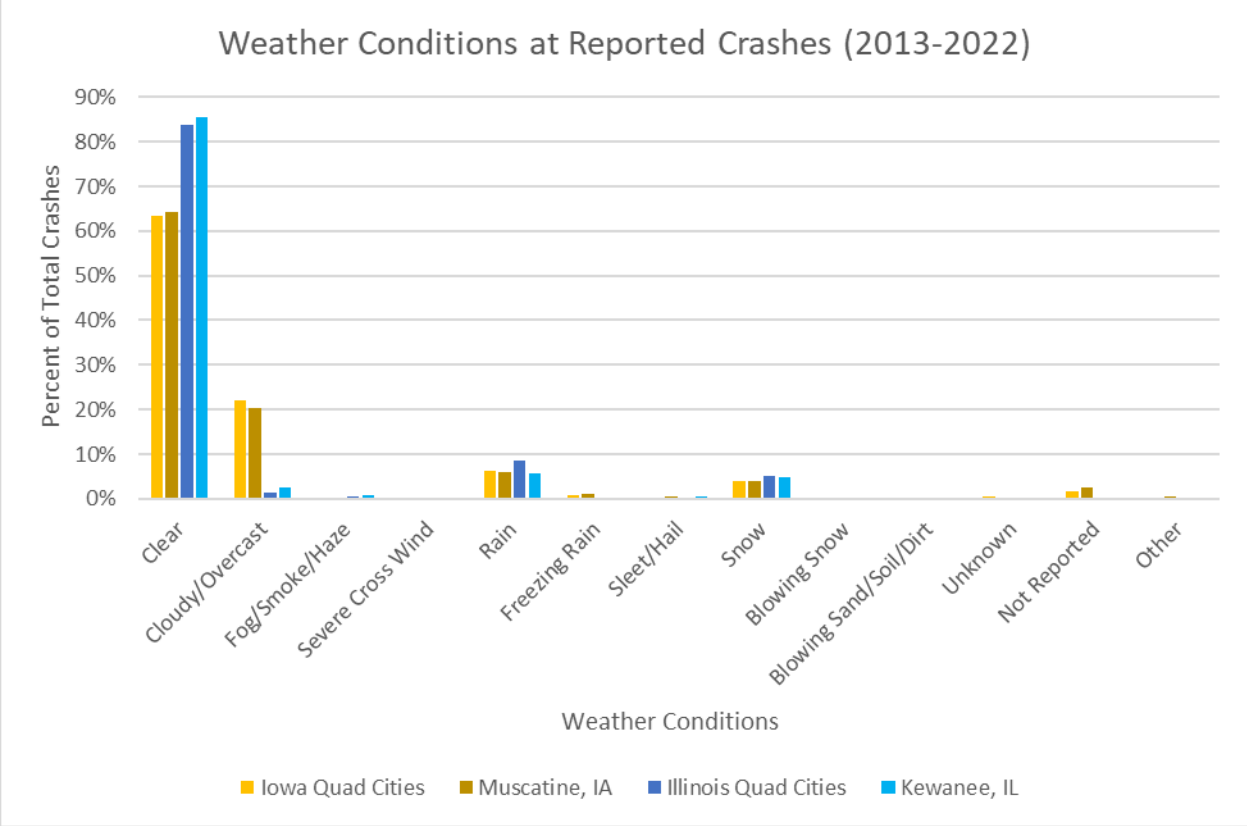


Figure 6.1.2.8 shows that fatal and incapacitating injury crashes occurred mostly in clear conditions, with over 140 fatalities and almost 1,000 incapacitating injuries reported across all subregions. Rain, snow, wind, and poor visibility made up fewer than 30 fatalities and just over 200 incapacitating injuries. Figure 6.1.2.9 shows that, among the various meteorological conditions that saw multiple crashes—specifically the clear and cloud/overcast conditions--the crash rate for a given subregion was roughly the same. Other meteorological types saw varying rates among the subregions, which appears to be a consequence of having a smaller sample size in those crash types.

Figure 6.1.2.8: Quantity of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes by Meteorological Conditions, 2013 – 2022

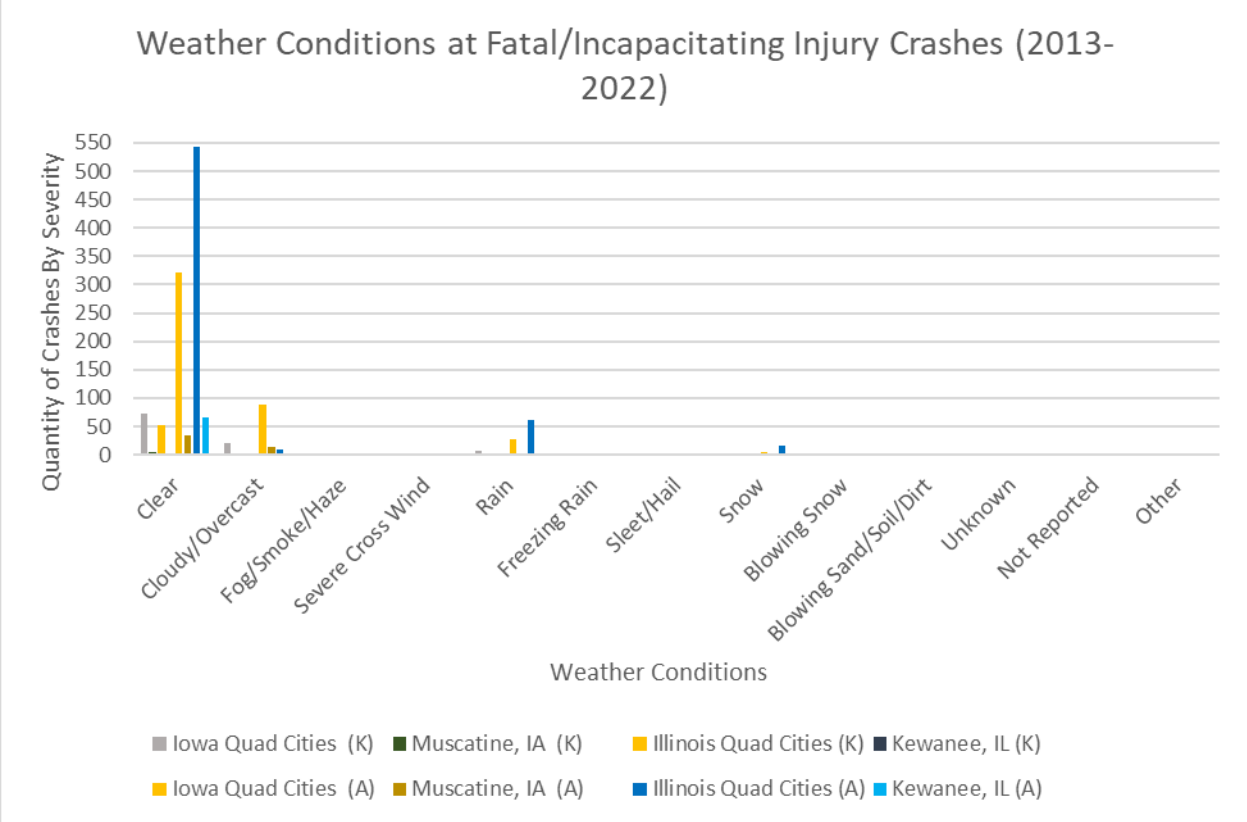
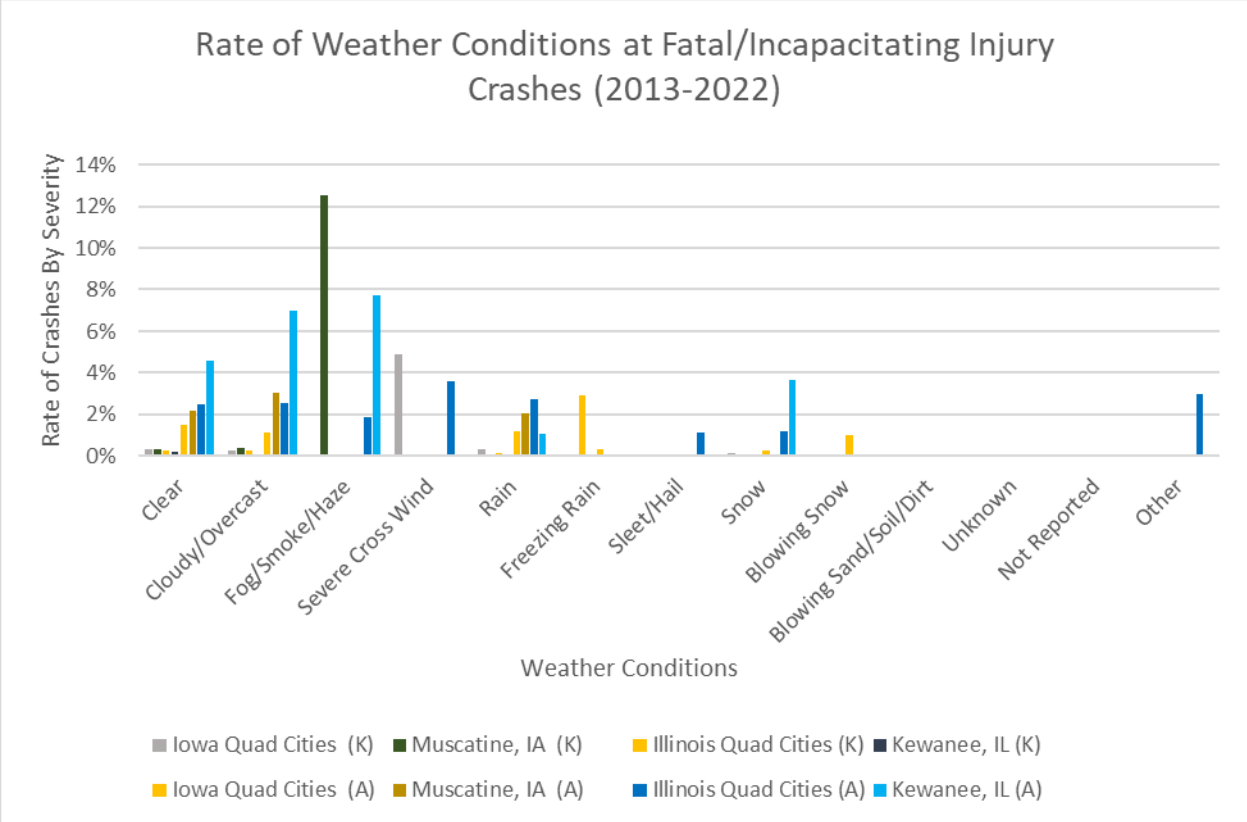


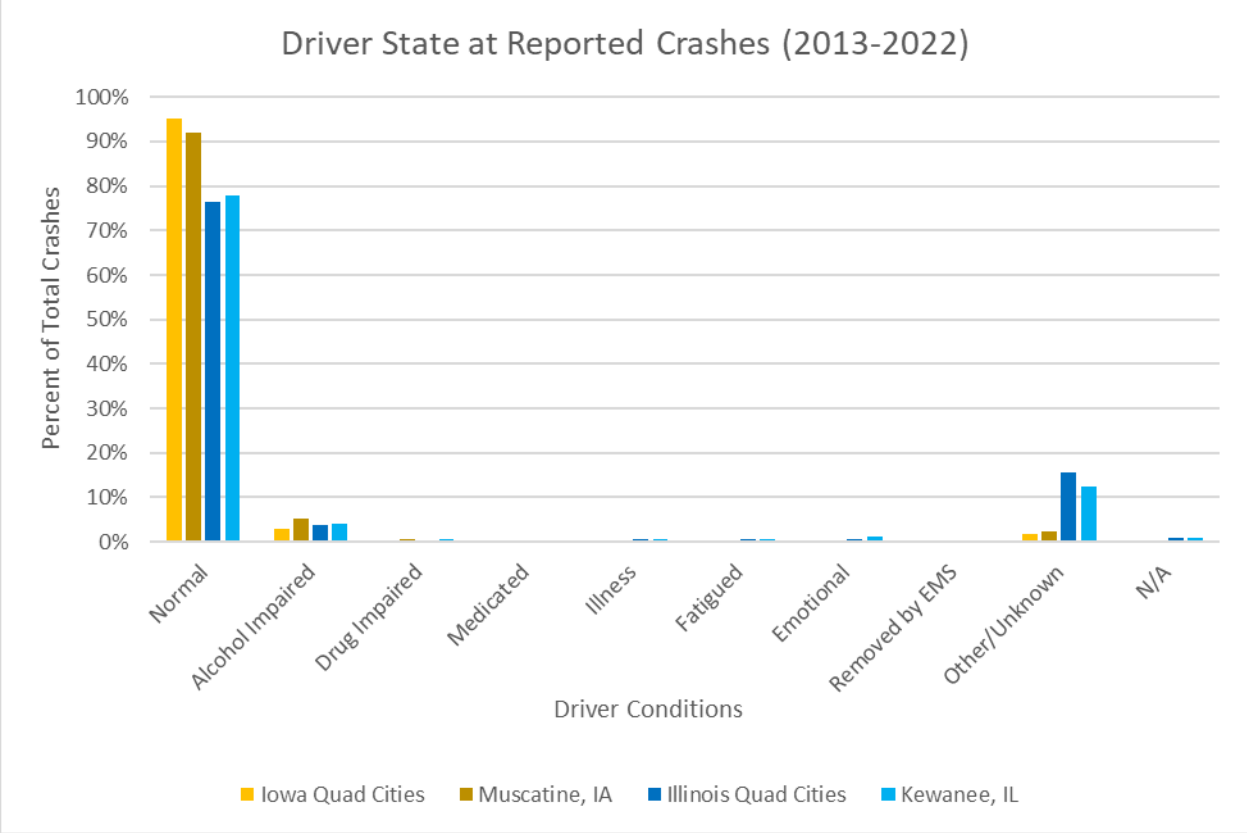
Figure 6.1.2.9: Rate of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes Among Total Crashes per Meteorological Condition, 2013 – 2022



6.1.3 Driver State Reported at Crashes

Driver state can play a major role in crashes, as an inattentive driver due to various factors can impact their ability to drive properly. Figure 6.1.3.1 shows that, in most crashes, the driver was deemed to be in a 'normal' state by the responding law enforcement officer, or no data was available to ascertain their state at the time of the crash. Across all crashes in the region, alcohol impairment was present in roughly 3% to 5% of all crashes. Drug use represented fewer than 1% of all crashes. Fatigue and illness represented no more than 2% of all crashes. While each subregion had a slight variance in the percentage of total crashes, the order of magnitude between each category was consistent with other subregions.

Figure 6.1.3.1: Distribution of Total Crashes Based on Reported Driver State, 2013 – 2022



When looking at crashes that result in fatalities or serious injuries, alcohol and drugs play a more disproportionate role. Figure 6.1.3.2 shows that a reported 'normal' driver state saw over 90 fatalities and over 800 incapacitating injuries during the 10-year period, but that is weighted heavily by the prevalence of that crash type. When looking at rates, Figure 6.1.3.3 shows that alcohol and drug impaired drivers saw higher rates of fatalities and incapacitating injuries than those in a 'normal' state. Illness, fatigue, and emotional crashes saw similarly higher rates of incapacitating injuries, as reported on the Illinois side. As expected, those deemed as "removed by EMS" generally had a high rate of incapacitating injury, as the event of EMS removal usually corresponded to very serious events.

Figure 6.1.3.2: Quantity of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes by Driver State, 2013 – 2022

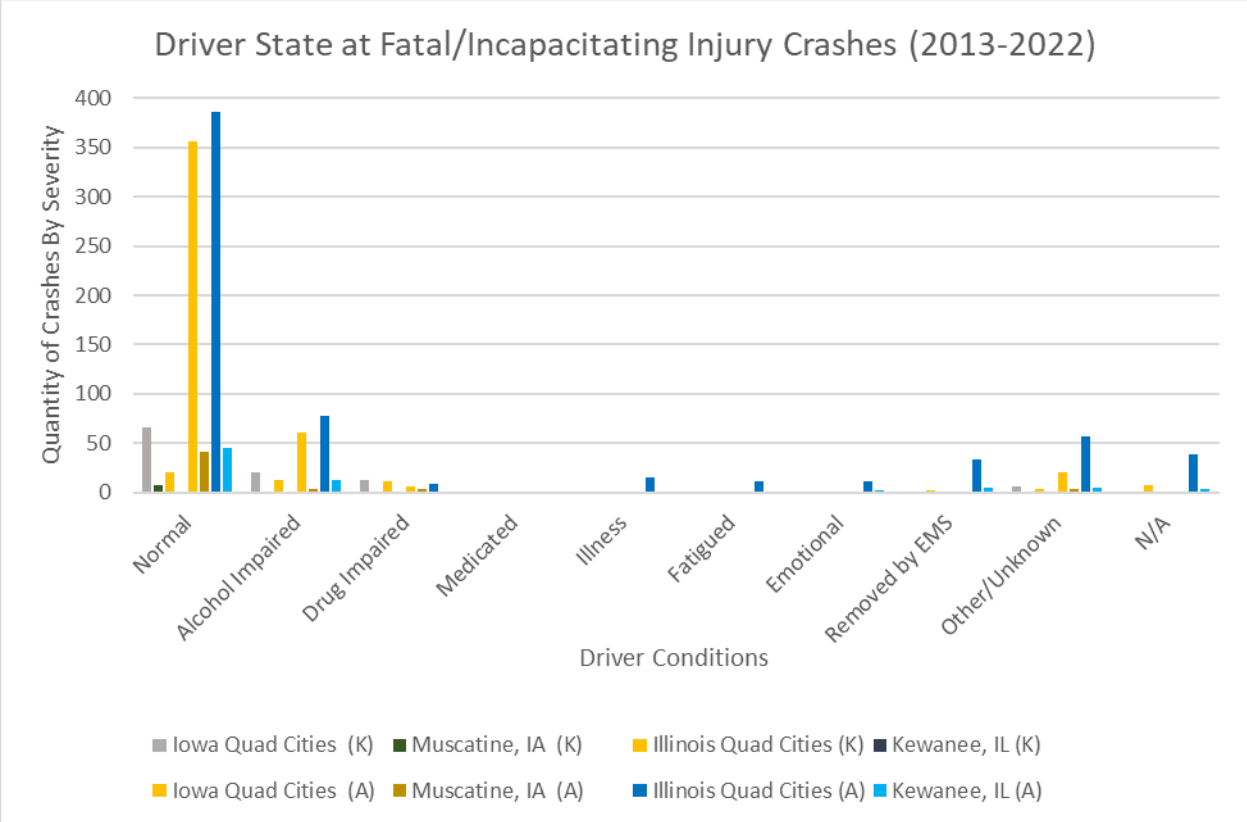
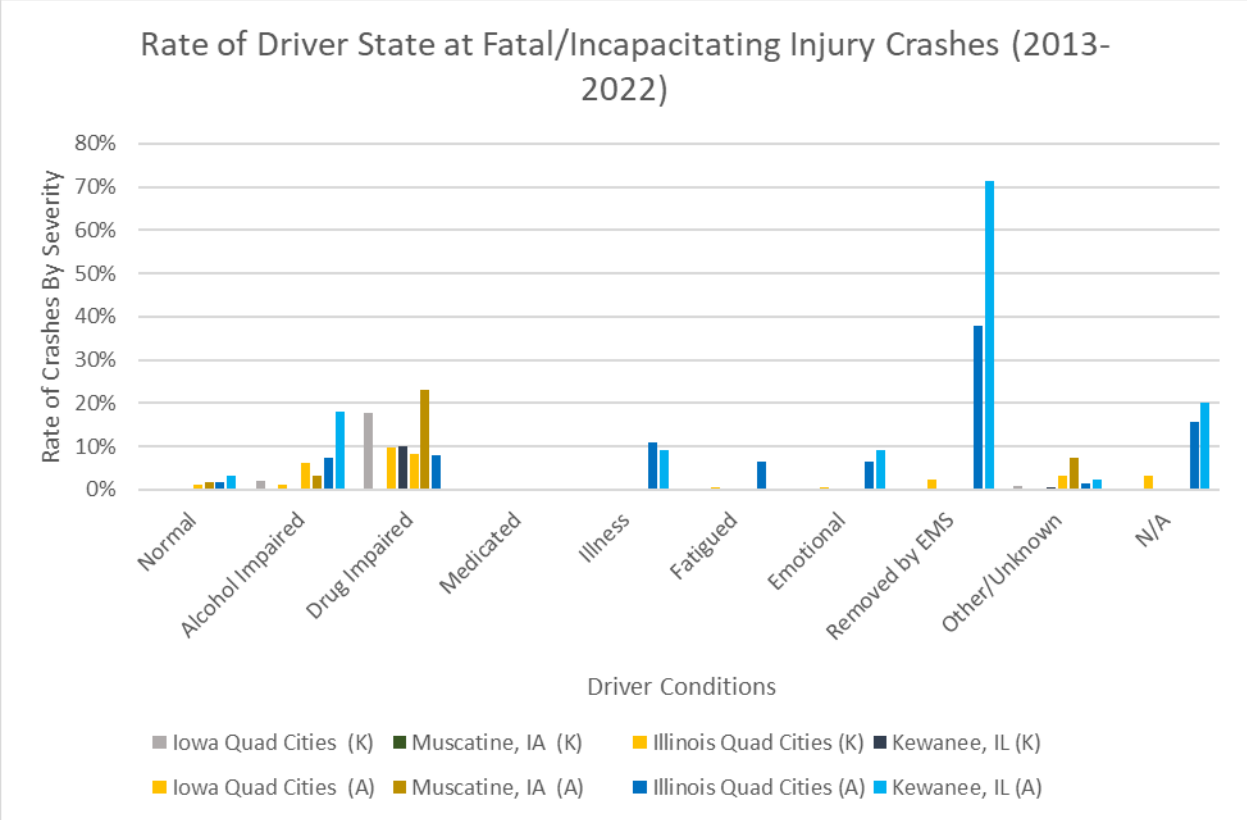


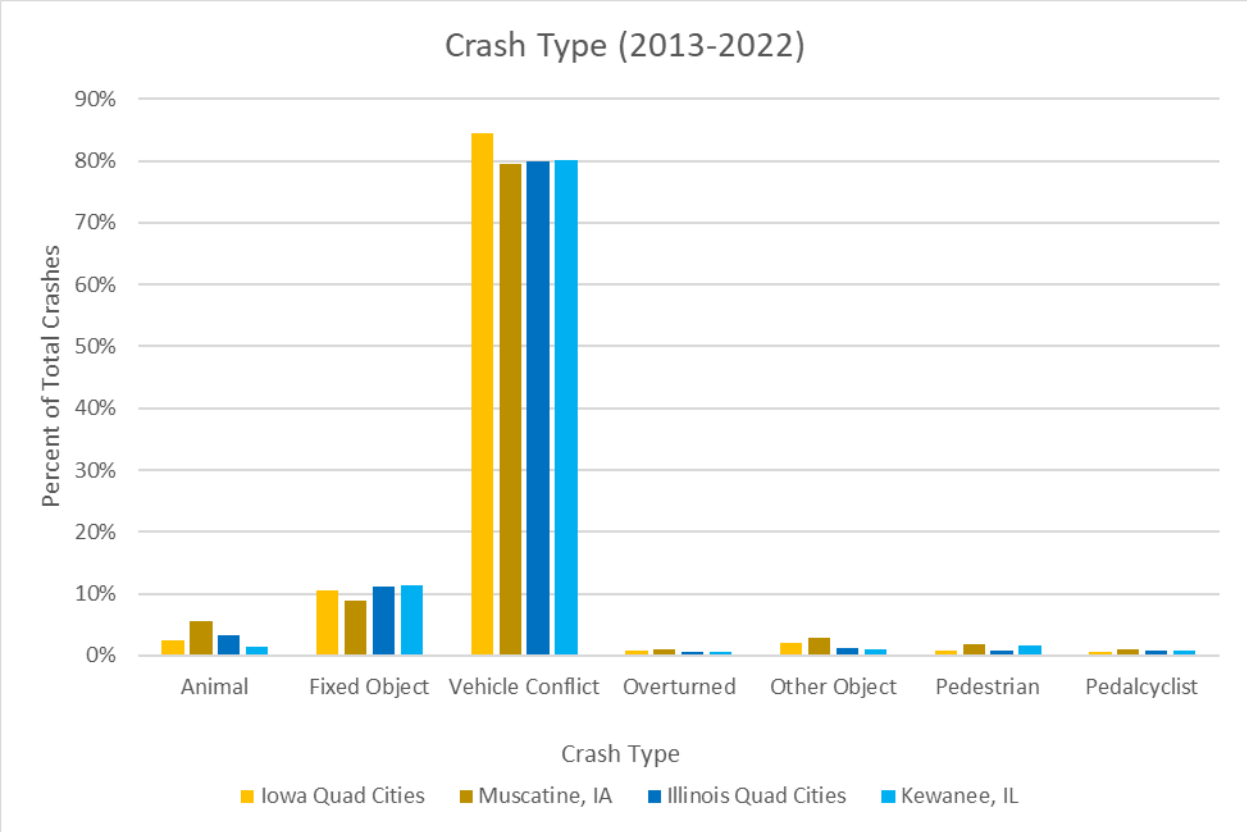
Figure 6.1.3.3: Rate of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes Among Total Crashes Per Driver State, 2013 – 2022



6.1.4 Crash Types

Figure 6.1.4.1 shows that the most common crash types are vehicle conflict and fixed objects, representing roughly 90% of all crashes in each subregion. All other crash types represent less than 10% of all crashes in any given subregion. Crashes related to vulnerable road users—namely pedestrians and pedalcyclists—represent less than 2% of all crash types in any given subregion.

Figure 6.1.4.1: Distribution of Total Crashes Based on Crash Type Within Each County, 2013 – 2022



When breaking out fatal and incapacitating injury crashes, new distributions emerge. Figure 6.1.4.2 shows that, in terms of quantity, vehicle conflict and fixed object crashes are still the most prevalent type of fatal and incapacitating injury crash, although the margin between the two is much smaller. Figure 6.1.4.3 shows that overturned crashes, although relatively infrequent among all crashes, have a higher likelihood of an incapacitating injury. Crashes involving vulnerable road users have a substantially higher likelihood of seeing a fatality or incapacitating injury than other crash types.

Figure 6.1.4.2: Quantity of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes by Crash Type, 2013 – 2022

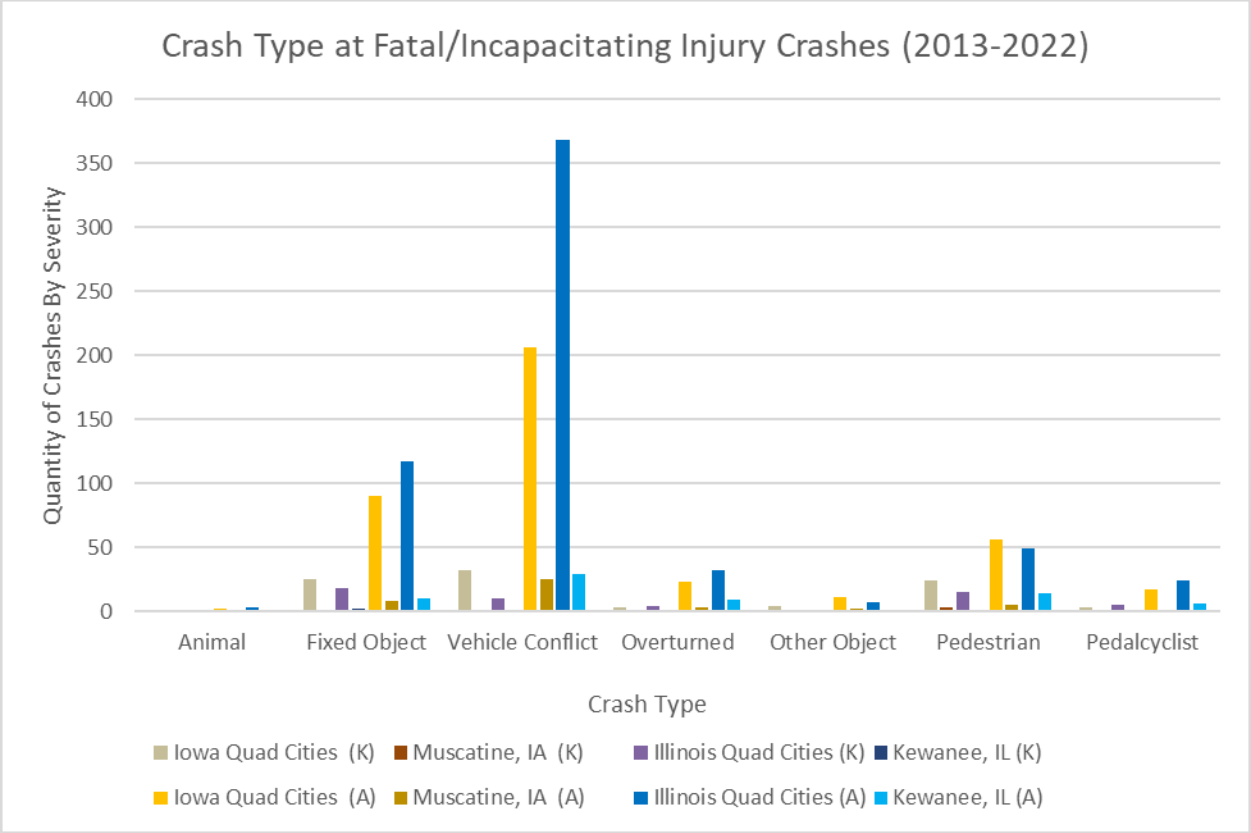
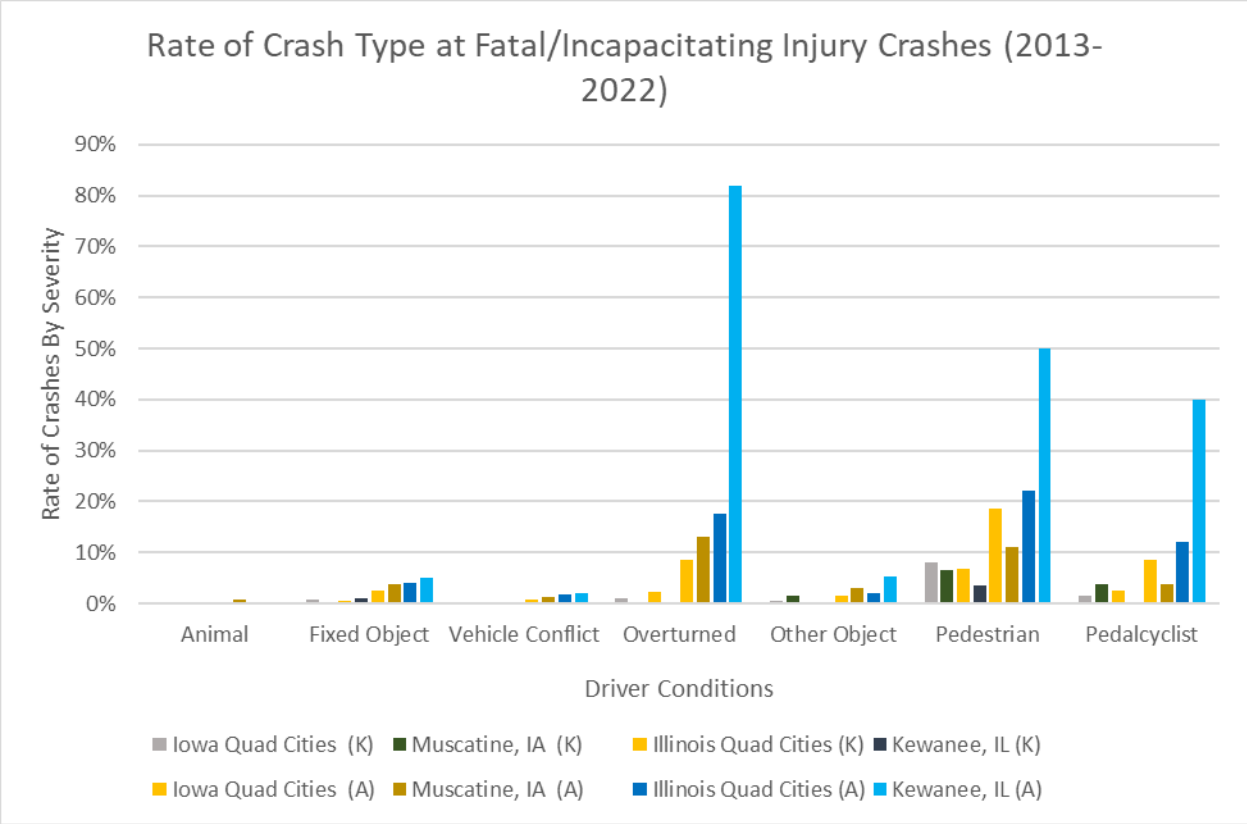
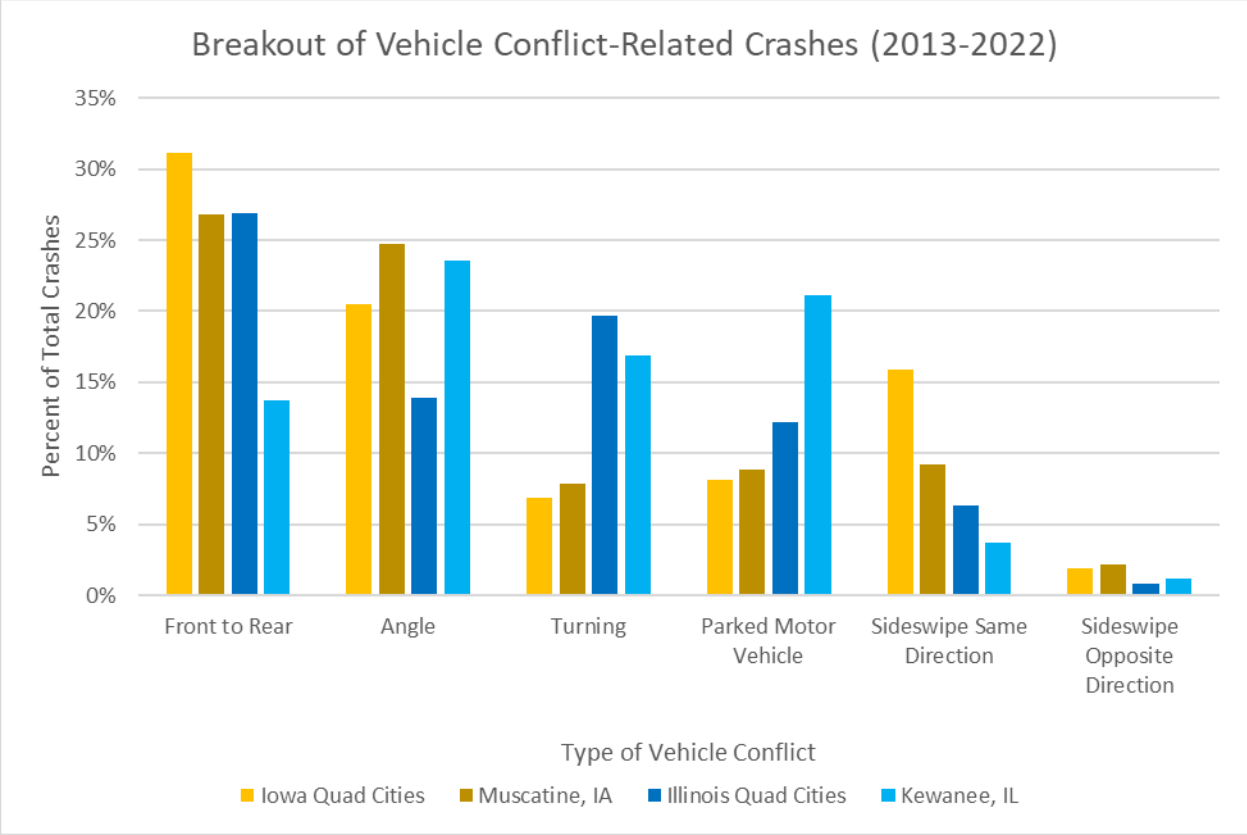


Figure 6.1.4.3: Rate of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes Among Total Crashes per Crash Type, 2013 – 2022



When splitting vehicle conflict crashes into specific vehicle-to-vehicle crash types, Figure 6.1.4.4 shows a near-even distribution among front-to-rear, angle, and turning crashes as leaders, representing over 50% of all crashes in each subregion. Parked motor vehicles and sideswipe (same direction) crashes are close secondary groups, with a high degree of variation among subregions. Sideswipe (opposite) are a fraction of the total crashes compared to the leaders, representing fewer than 5% of all crashes for each type.

Figure 6.1.4.4: Distribution of Total Vehicle Conflict-Related Crashes, 2013 – 2022



When breaking out fatal and incapacitating injury crashes, new rankings emerge. Figure 6.1.4.5 and Figure 6.1.4.6 show that angle and turning crashes see a high quantity and high rate of incapacitating injuries, but the front-to-rear crashes see significantly fewer.

Figure 6.1.4.5: Quantity of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes by Vehicle Conflict-Related Crash Type, 2013 – 2022

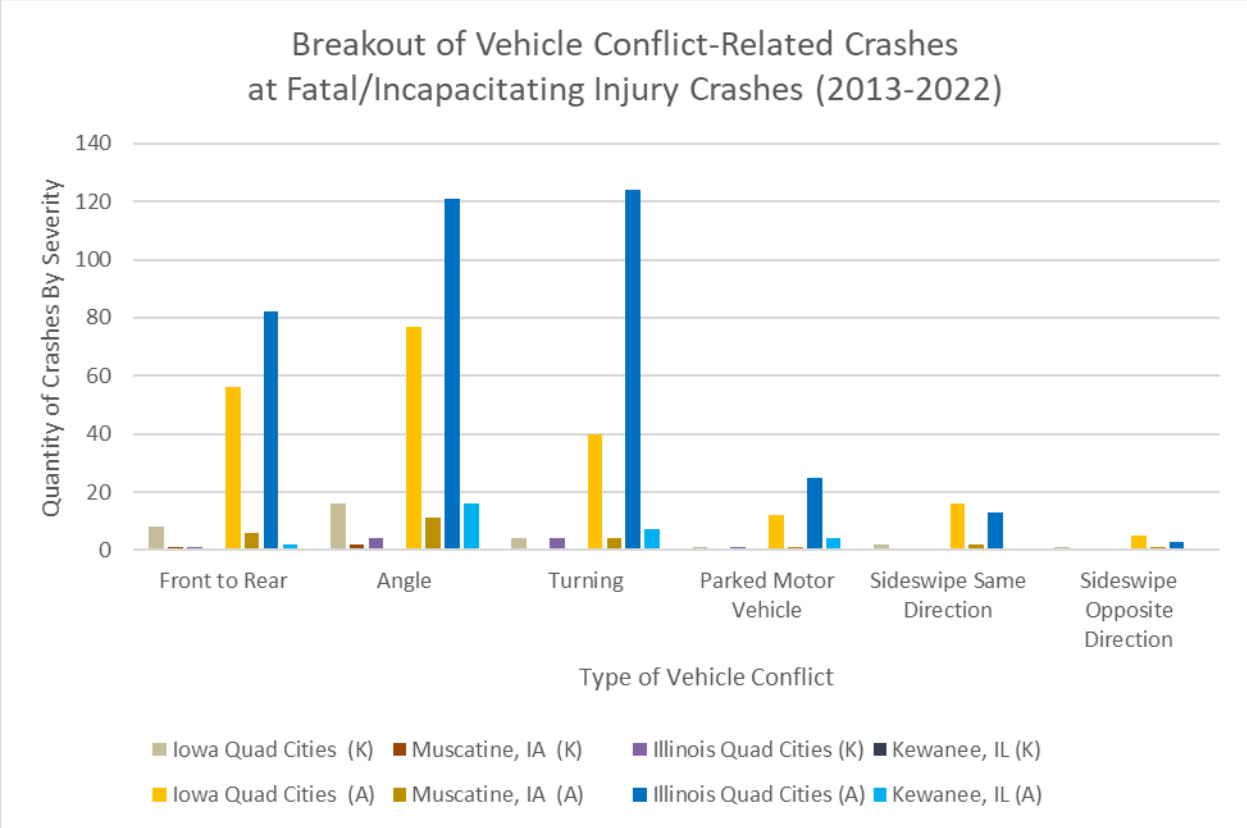
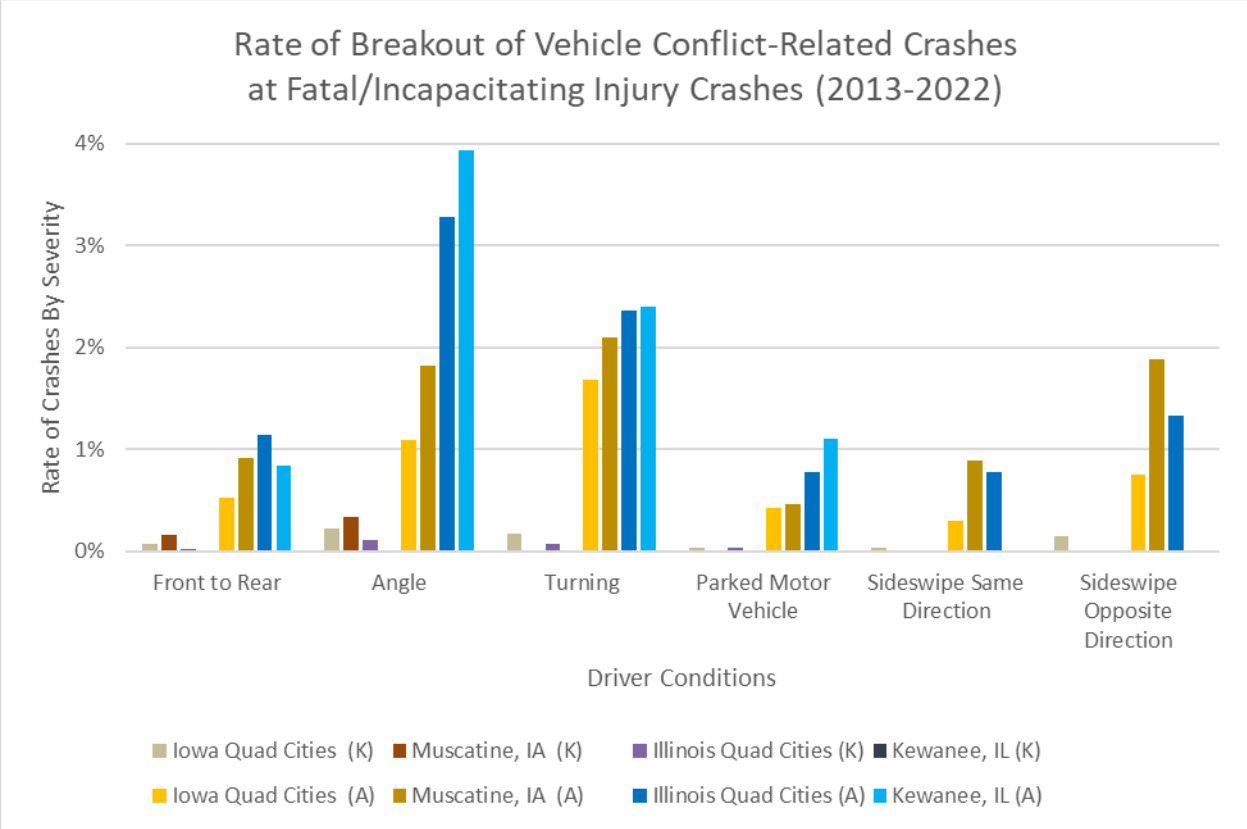


Figure 6.1.4.6: Rate of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes Among Vehicle Conflict-Related Crashes per Type, 2013 – 2022



6.1.5 Day-of-Week and Monthly Distribution of Crashes

Crashes were examined in the context of their temporal distribution, which provides a breakdown of the days of week and months in which crashes were reported over the 10-year period. This type of distribution is helpful for identifying if there is a particular day of the week that sees higher crashes (e.g. weekend days versus weekdays) or if this is a particular month of the year that sees higher crashes (e.g. summer periods when more travel occurs). Figure 6.1.5.1 shows that crash trends within a week split along weekday versus weekend trends. Mondays through Fridays in each subregion saw relatively higher crashes than on Saturday or Sunday. Within a given subregion, there is a degree of variation in terms of which days see higher crash rates, both within and between the weekly trends.

Figure 6.1.5.1: Distribution of Total Crashes by Day of Week, 2013 – 2022

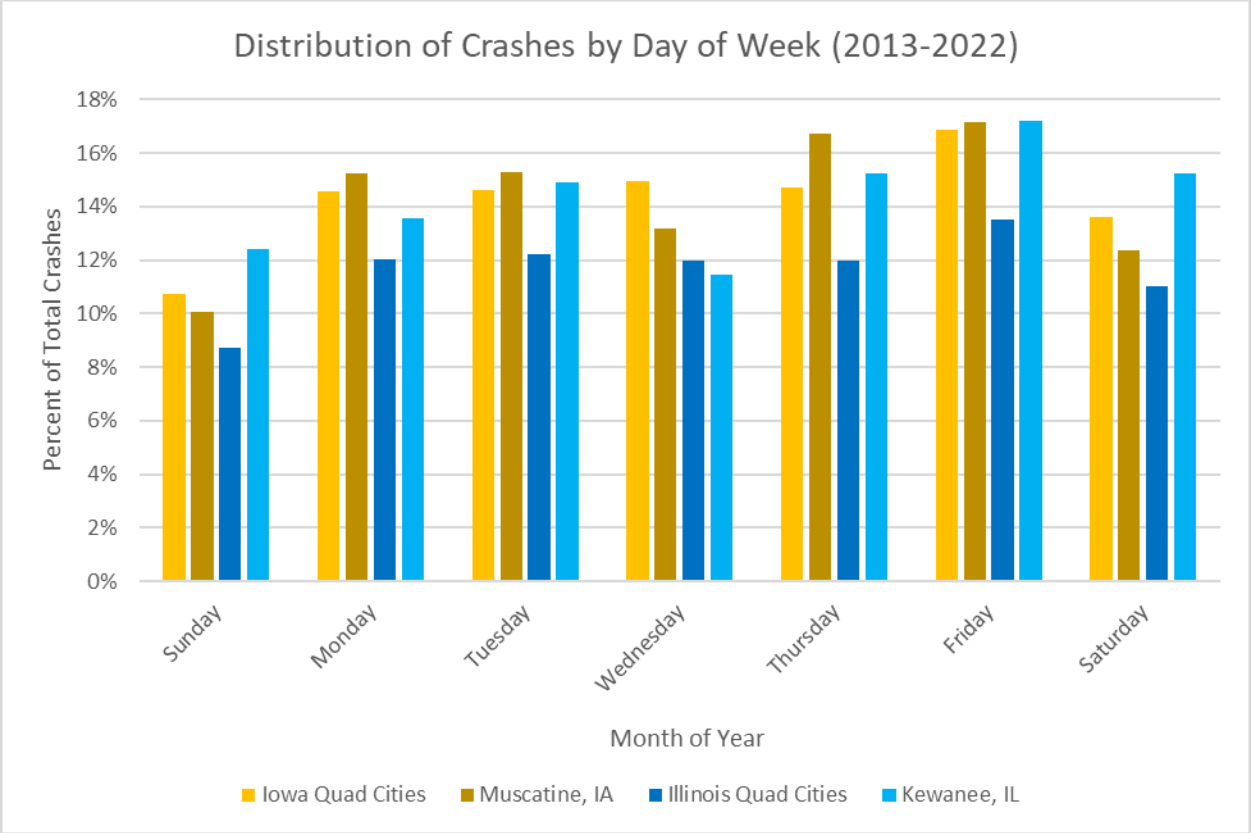


Figure 6.1.5.2 and Figure 6.1.5.3 show the breakdown of fatal and incapacitating injury crashes. Higher quantities of fatalities occur on Sundays, Mondays, and Thursday, which follows similar to the higher rates observed on those days. Incapacitating injuries see higher quantities on Fridays, Saturdays, and Sundays, which follows in alignment with higher crash rates on those days. Even though certain days see higher rates, the spread of crash rates for incapacitating injuries is only 1 to 3% of all crashes per day.

Figure 6.1.5.2: Quantity of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes by Day of Week, 2013 – 2022

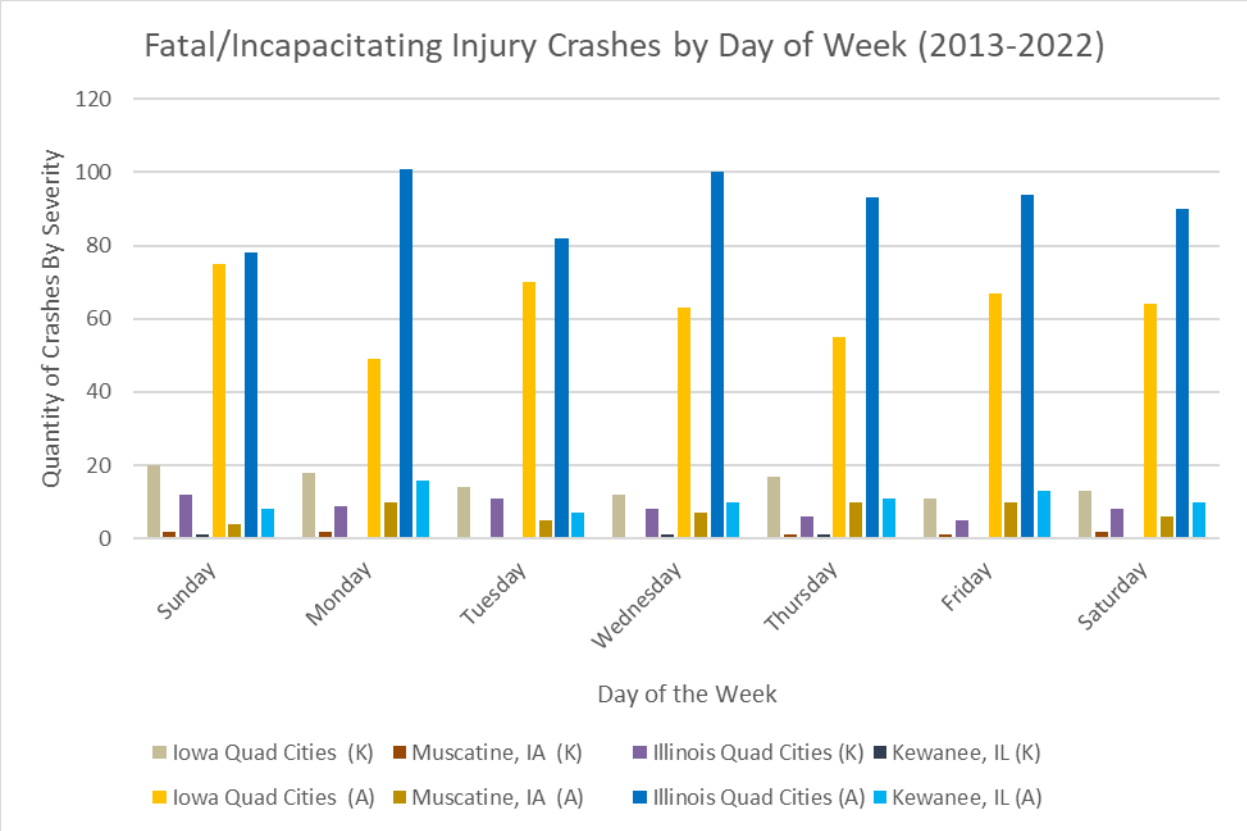
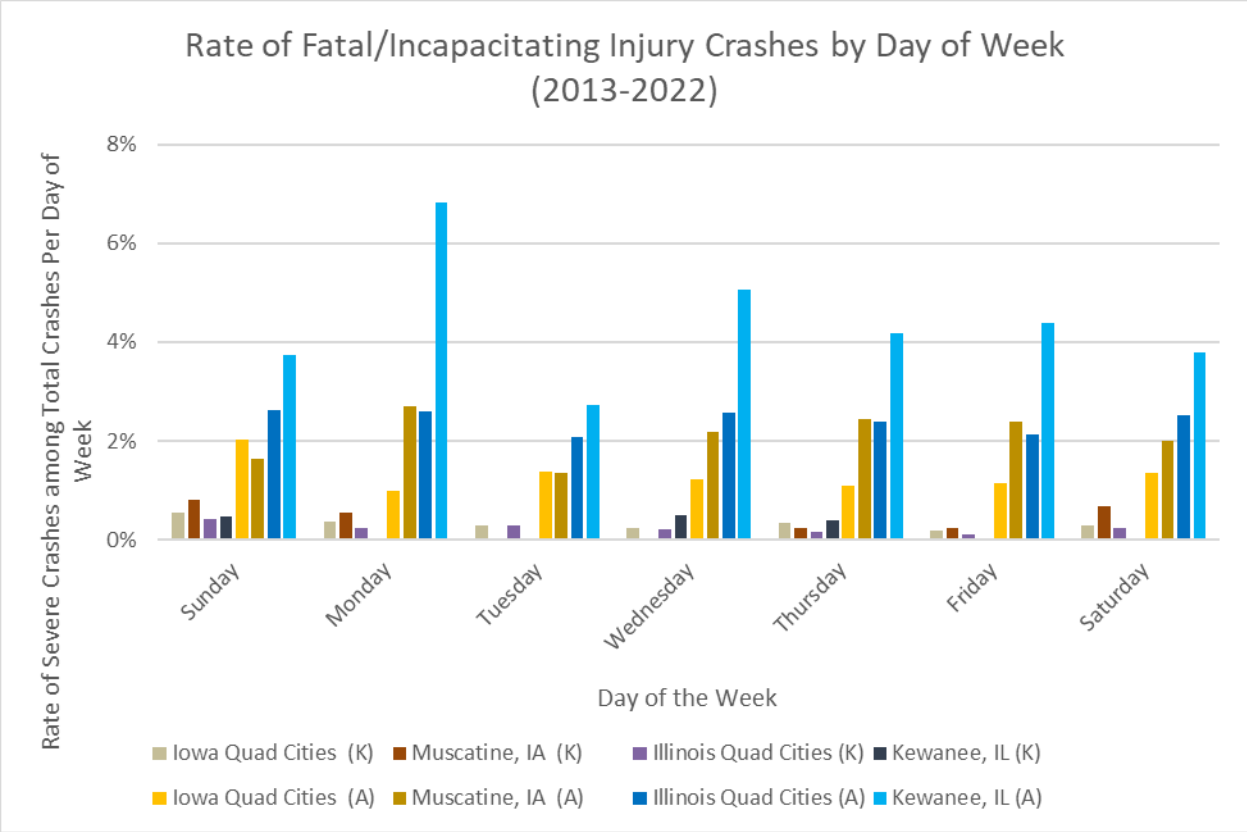


Figure 6.1.5.3: Rate of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes Among Crashes Per Day of Week, 2013 – 2022



When looking at the month of the year across each of the subregions in Figure 6.1.5.4, crashes are relatively lower between the months of March and September, and relatively higher between October and February. This is not uncommon, as daylight hours are shorter during this period and routine trips are more likely to occur during darkness when visibility is lower. Additionally, the end of daylight savings time in November is widely known to cause a higher rate of crashes in the following few days. Within a given subregion, there is a degree of variation in terms of which months see higher crash rates, both within and between the annualized trends.

Figure 6.1.5.4: Distribution of Total Crashes by Month of Year, 2013 – 2022

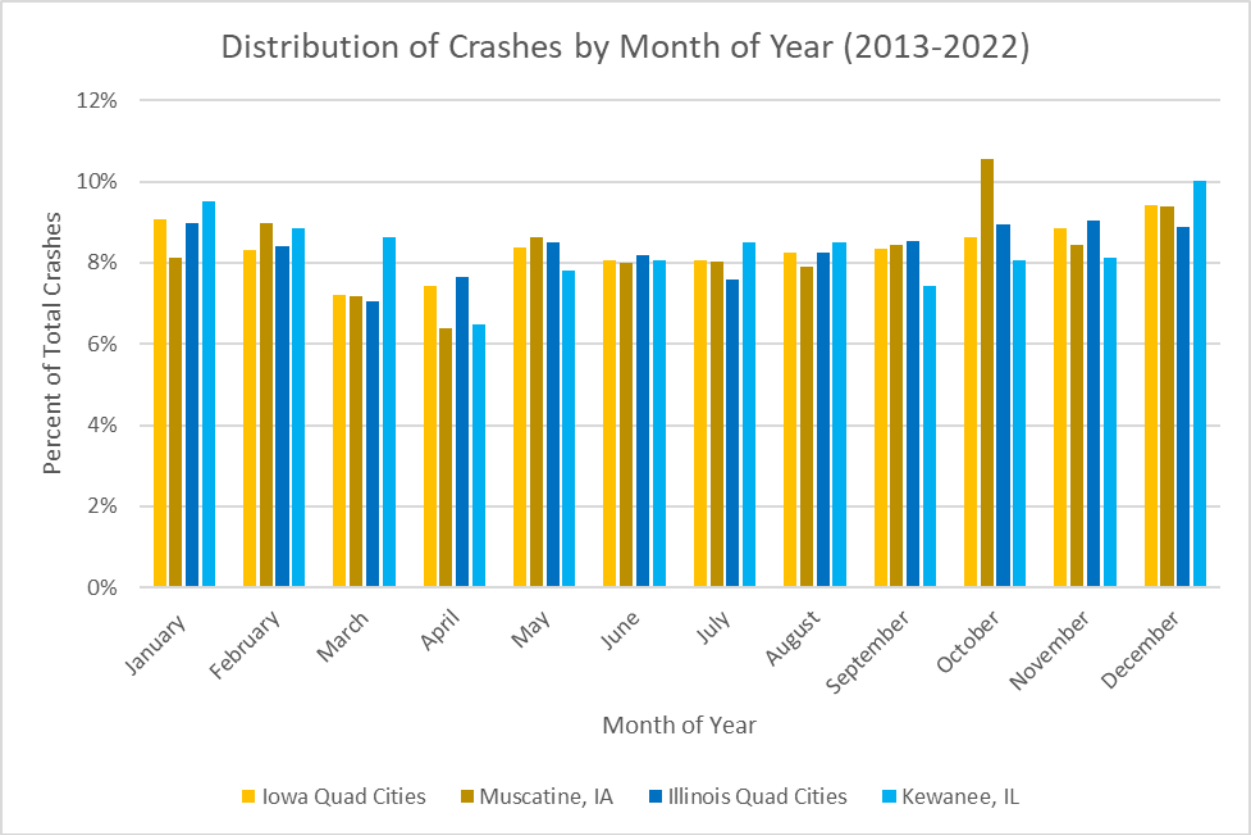


Figure 6.1.5.5 and Figure 6.1.5.6 show the breakdown of fatal and incapacitating injury crashes. Higher quantities of fatalities occur during summer months, which matches higher rates of fatal crashes when crashes occur in these months. Incapacitating injuries see higher quantities during summer months as well, whereas the highest rates occur between July and September. Winter periods, despite seeing higher rates of total crashes (in Figure 6.1.5.6), tend to see lower rates of fatal and incapacitating injury crashes, with a range of nearly 3 – 6% of crashes in a given month resulting in an incapacitating injury across the year.

Figure 6.1.5.5: Quantity of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes by Month of Year, 2013 – 2022

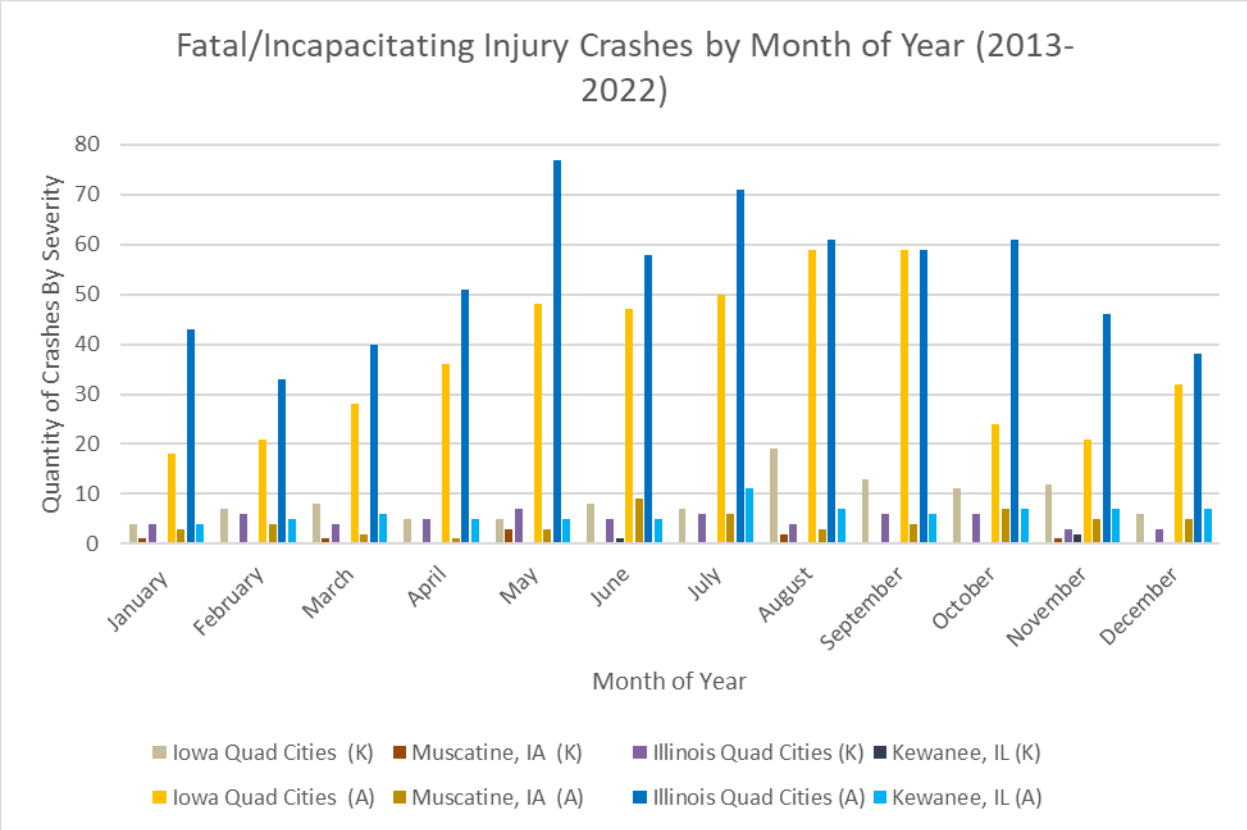
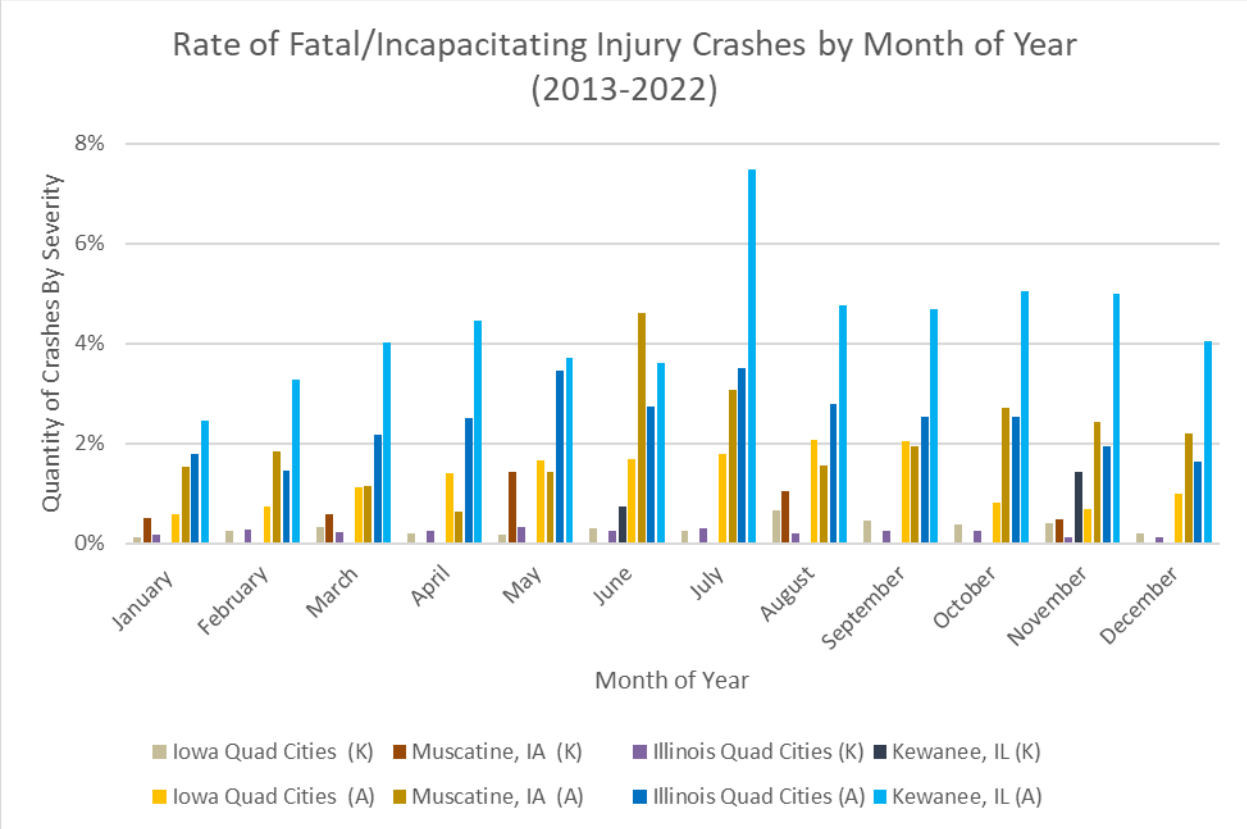


Figure 6.1.5.6: Rate of Fatal ("K" Injury) and Incapacitating Injury ("A" Injury) Crashes Among Crashes Per Month of Year, 2013 – 2022



6.1.6 Vulnerable Road User Impacts

Vehicle crashes that involve pedestrians and pedalcyclists are at a significantly lower quantity than other crash types – however, they disproportionately result in fatalities and injuries. The following Table 6.1.6.1 breaks down the fatal and incapacitating injury crashes that involved vulnerable road users by subregion over the 10-year study period by crash rate.

Table 6.1.6.1: Fatal and Incapacitating Injury Crashes Among Vulnerable Road Users by Location

	Fatal		Incapacitating Injury		Total
	Pedestrian	Pedalcyclists	Pedestrian	Pedalcyclists	Pedestrian and Pedalcyclists
Illinois Quad Cities	15	5	49	24	93
Iowa Quad Cities	24	3	56	17	100
Kewanee	1	0	6	2	9
Muscatine	3	1	5	1	10
Total	43	9	116	44	212

6.2 Safety Countermeasures

FHWA developed Proven Safety Countermeasures, a collection of 28 countermeasures and strategies effective in reducing roadway fatalities and serious injuries. Transportation agencies are strongly encouraged by FHWA to consider widespread implementation of Proven Safety Countermeasures to accelerate the achievement of local, State, and National safety goals. Countermeasures address at least one type of safety focus area such as speed management, intersections, roadway departures, or pedestrians/bicyclists – while others are crosscutting strategies that address multiple safety focus areas.

Packages of the Proven Safety Countermeasures were developed for this TSAP based on the collision history and infrastructure conditions in the study area.

A. Enhanced Signage and Pavement Markings
B. Roadway Departure Solutions
C. Divided Highway Crossing Improvements
D. Right Turn Slip Lane Improvements
E. Horizontal Curve Improvements
F. Median Barrier Improvements
G. Crosswalk Visibility Enhancements
H. Roundabouts

Enhanced Signage and Pavement Markings
Improved signage and pavement markings involve multiple low-cost countermeasures that can increase driver awareness and recognition of potential conflicts. Even if a particular location is currently meeting standards for signing and pavement marking, these extra enhancements provide targeted additional awareness and can be deployed as a treatment at many locations due to being a low-cost asset which are regularly implemented by agencies. Improvements will be location-specific: some engineering judgement will be necessary to determine if a particular signage or pavement marking improvement is useful. Estimated reductions in fatal and injury crashes are from 10% to 27%. Improvements include: • On through movements, doubled-up (left and right), oversized advance intersection or other warning signs, with supplemental street name plaques if relevant. Flashing beacons may be useful at high crash sites. At intersections that are stop-controlled, doubled-up oversized advance “Stop Ahead” intersection warning signs and stop signs can be useful. • Retroreflective sheeting on signposts. • Enhanced pavement markings that delineate through lane edge lines. • Properly placed visible stop bars at intersections • Removal of sight-line obstructions due to vegetation in right-of-way
B Roadway Departure Solutions
Roadway departure crashes often are a result of a driver misinterpreting the edge of the travel lanes for the road alignment ahead. Speed and impairment are often factors in the misjudgment of curves. Countermeasures to improve awareness of the roadway edge aid in providing a good understanding of where the vehicle is within the travel lane, reducing the likelihood of a driver veering too far to the side and losing control of the vehicle by slipping off the road. Various countermeasures can be applied to targeted crash corridors, as well as be adopted as part of a systemic improvement. Improvements include: • Wider edge lines, increasing from the normal line width of 4 inches to the maximum line width of 6 inches, improve driver perceptions of the edge of the travel lane and can provide safety benefit on all facility types (e.g., freeways, multilane divided and undivided highways, two-lane highways) in both urban and rural areas. Wider edge lines are most effective in reducing crashes on rural two-lane highways, especially for single-vehicle crashes. Reductions in fatal and injury crashes on rural roads can be up to 37%. • Longitudinal Rumble Strips and Stripes alert distracted, drowsy, or inattentive drivers who drift from their lane. Longitudinal rumble strips are milled or raised elements on pavement that alert drivers through vibration and sound if their vehicle as left the travel lane, and rumble strips are edge line or center line rumble strips where the pavement marking is placed over the rumble strip. Reductions in fatal and injury crashes on two-lane rural roads can be up to 64% with centerline rumble strips and 51% with shoulder rumble strips. • SafetyEdge technology shapes the pavement edge at approximately 30 degrees from the pavement cross slope during the pavement process to eliminate the potential for vertical drop-off at the pavement edge. Vertical drop-offs often create instability when a driver accidentally veers off the road, and SafetyEdge provides greater stability to allow a recovery. Reductions in fatal and injury crashes can be up to 11%.

C. Divided Highway Crossing Improvements
Reducing left-turn conflicts involves geometric improvements that alter how left-turn movements occur. These improvements are best utilized on major multilane divided highways that have high traffic volumes and a cross street with frequently left-turn or through movements. The two primary types of improvements can be applied depending on the conditions: For collisions involving turns from minor streets, restricted crossing U-turns, also called J-Turn, Superstreets, or Reduced Conflict Intersections modifies the direct left-turn and through movements from cross-street approaches. Minor road traffic makes a right turn followed by a downstream U-Turn at a designated location before being routed to the desired direction. These types of improvements require a large footprint in order to operate properly, but not as much of a footprint as an interchange. These improvements are best on corridors with divided highways and a high corridor-wide crash rate. Estimated reductions in fatal and injury crashes range from 22% to 63%. For collisions involving left-turning vehicles from the major street, Median U-Turn intersections modify the direct left turns from the major approaches by shifting vehicles to a U-Turn that is downstream and then subsequently routing them back to the main intersection. They are utilized for intersections with heavy through-traffic and moderate left-turn volumes. Similar to the other treatment, they require a large footprint in order to operate properly, but not as much of a footprint as an interchange. Estimated reductions in injury crashes are 30%.
D. Right Turn Slip Lane Improvements
Slip lanes installed at intersections with high volumes of right-turning vehicles can reduce delays for right-turning vehicles. These lanes can improve the outcomes of angled crashes as the angles between the vehicle are shallower than for a 90 degree turn. However, slip lanes not installed with downstream receiving lanes can result in higher crash rates as the turning vehicle has to navigate both the slip lane and the merge in a short period of time. This treatment is best applied systemically wherever slip lanes are present, where a short downstream receiving lane is added to gently merge turning vehicles into the mainline. Estimated collision reduction for right-turning vehicles is 43%.[i]

[i] https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=8429

E. Horizontal Curve Improvements
Horizontal curves inherently see higher crash rates due to the change in travel direction. Roadside design improvements at curves encompass several treatments that target the causes of roadway departures by improving awareness or implementing solutions to allow a driver to recover safely and reduce crash severity. Several treatments are available: Clear zone improvements reduce obstructions and allow a driver to stop safely if they leave the roadway. This can be a targeted or systemic improvement that avoids adding fixed objects, utility cabinets, and other assets within or outside of the clear zone, where possible. Removing roadside features can reduce crashes by up to 44%, depending on conditions. Slope flattening reduces the steepness of the sideslope to increase drivers' ability to keep the vehicle stable, regain control, and avoid obstacles. Slopes flatter than 1V:4H are considered recoverable, and slopes flatter than 1V:3H are traversable. Reductions in single-vehicle crashes can be up to 12%, depending on conditions. Adding or widening shoulders provides additional recovery area for drivers in the event of a roadway departure. Enhanced delineation signage or pavement markings help draw attention to the curve. Barrier Installation will significantly reduce roadway departures and is especially useful when the slope is steeper than 1V:3H.
F. Median Barrier Improvements
Median barriers are longitudinal barriers that physically separate opposing traffic on a divided highway and redirect vehicle striking either side of the barrier. This countermeasure is used to reduce cross-median crashes, which often involve head-on collisions with other vehicles or fixed object crashes in the median itself. Medians can be made of either cable, metal-beam, or concrete, which offer a wide variety of benefits depending on the desired deflection. Reductions in cross-median crashes can be up to 97% on rural four-lane highways.

G. Crosswalk Visibility Enhancements

With most of the highway system being designed with cars, pedestrian crossing environments can often go unnoticed and create a hazardous environment if drivers are not expecting vulnerable road users to be present. Marked crosswalks often go unnoticed in multi-lane environments with high traffic volumes, creating a hazardous environment for pedestrians who need to cross and, according to state law, have the right-of-way. Crosswalk improvements draw attention to these environments to help motorists recognize not only when a crosswalk is present, but also if vulnerable road users are utilizing it. Several treatments are available:

- High-visibility crosswalks use patterns that are visible to both the driver and the pedestrian from farther away compared to traditional traverse line crosswalks. These patterns include bar pairs, continental style, or ladder pattern, and should be considered at midblock pedestrian crossings or other crossings at uncontrolled intersections. Estimated improvements to pedestrian injury crashes can be up to 40%.
- Improved lighting illuminates the crosswalk with positive contrast to make the driver have an easier time identifying pedestrians. Estimated reduction in pedestrian crashes can be up to 42%.
- Enhanced signing and pavement markings utilize the in-street “State Law: Stop for Pedestrians” signs and supplemental pedestrian crossing signs. The exact deployment is dependent on the number of lanes and travel speeds, with the goal of boosting awareness of the crossing location. Estimated reduction in pedestrian crashes can be up to 25%.
- Rectangular rapid flash beacons are installed on the roadside and are actuated by a pedestrian, so that the rapid flash beacons are active when pedestrians are present. These beacons draw driver’s attention to the activity at the crossing and improve awareness. Estimated reduction in pedestrian crashes can be up to 47%.
- Pedestrian refuge islands are typically installed in urban or suburban areas but allow pedestrians to cautiously cross one travel direction at a time. Reductions in pedestrian crashes can be up to 56%.

H. Roundabouts

Modern roundabouts feature channelized, curved approaches that reduce vehicle speed at intersections, entry yield control that gives right-of-way to moving traffic, and counterclockwise flow around a central island that minimizes conflict points. These intersection improvements result in lower travel speeds and generally less severe crash types. Roundabouts can be implemented in both urban and rural settings in replacement of stop-controlled intersections of traffic signals, but only when traffic volumes are low to moderate and sufficient right-of-way is available. Roundabouts can reduce fatal and injury crashes by 78% to 82%, depending on existing intersection type.

Individual crash locations can display patterns which would indicate the types of countermeasures which would be most effective in reducing fatal and severe injuries. The top crash locations in each study area were reviewed for the most effective countermeasures based on their crash history.

6.3 Top Crash Locations and Indicated Countermeasure

Top specific locations where crashes occurred over the ten-year crash data period were identified based on their geographic location. Crash data by type of collision and the severity outcomes for people were summarized by location of the roadway, county and jurisdiction. Potential countermeasures were recommended for this TSAP based on the crash history, a visual assessment of conditions, and expected countermeasure effectiveness in reducing the type and severity of collision crashes at each location. The top crash locations for unincorporated areas in both Iowa and Illinois were also identified. The top crash locations can be found in Appendix A listed by latitude and longitude coordinates.

6.4 Crash Analysis Review

During the winter of 2024, summaries of crash history and potential safety countermeasures were distributed to each member of the Steering Committee for their review and feedback. The crash analysis included formation about the draft High Injury Network system, top crash locations by severity and number of crashes, potential causes of the crashes, public comment concerns that overlapped with top crash location, and a list of countermeasures to consider aimed at eliminating, reducing, or lessening the severity of future crashes at the top locations. Locations and corridors with the highest crash history resulting in injuries were shown for each jurisdiction. This culminated in the Traffic Safety Summit on January 29th where small groups at tables organized by Illinois Quad Cities, Iowa Quad Cities, Muscatine IA, and Kewanee IL provided further detailed feedback on the best ways to address traffic safety issues. Topics were wide ranging and resulted in the development of several early action systemic improvement programs identified for corridors throughout the study area's jurisdictions where the improvements would be most effective in reducing injuries. These early action projects are suites of engineering, education, enforcement and emergency services countermeasures to address specific safety issues indicated by feedback from the Summit listed below with example countermeasures:

<u>Corridor Left-Turn Improvement Program</u>

- Purpose: to reduce the amount and severity of left-turn conflicts.
- Example countermeasures: restricted left turn intersections.

<u>Right-Turn on Red Improvements</u>

- Purpose: to address crashes due to right-turn on red conflicts.
- Example countermeasures: channelized right-turn lanes.

<u>Enforcement of Red Light/Stop Sign Running</u>

- Purpose: to address red light or stop sign running issues resulting in crashes.
- Example countermeasures: targeted enforcement campaigns.

<u>Enforcement of Speeding</u>

- Purpose: to address speeding on roadways with history of severe crashes.
- Example countermeasures: targeted enforcement campaigns.

Reduction in Traffic Flow interruption

- Purpose: to address hard breaking and rear-end collisions.
- Example countermeasures: traffic signal coordination along corridors.

7 The Development Process

The following section outlines the approach taken to identify a comprehensive set of projects and strategies to address the safety areas in the Traffic Safety Action Plan. This includes an explanation of project prioritization criteria that primarily utilizes the Safe System Approach elements of safe roads, safe people, safe speeds, safe vehicles and post-crash care.

7.1 Safe System Approach Strategy

The strategy for the study area – Quad Cities, Kewanee and Muscatine to achieve the goal of reducing fatal and serious injury crashes will follow the safe system approach adhering to the following practices, aligning with the aspiration to reach zero traffic related deaths in the study area, state and nation.

1. No one should experience death or serious injury while using the transportation system.
2. The transportation system should be designed to allow for human error without resulting in death or serious injury.
3. The transportation system should be designed in a way to limit crash forces within the tolerable limits of humans.
4. All stakeholders have a responsibility to ensure crashes do not result in fatal or serious injuries.
5. A proactive approach should be taken to ensure crash risks are mitigated, vs. a responsive approach to crash history.
6. A multi-layer approach to crash risk reduction should be taken where all parts of the transportation system are strengthened.
7. All agencies within the BSRC will be required to take a safe system approach to transportation related projects.

7.2 Project Selection Method

The project team reviewed crash trends to identify sites where proven safety countermeasures would likely reduce the number of severe (incapacitating) crashes. However, characteristics other than quantitative criteria like equity are not taken into account when rating locations based on crashes that result in fatalities or serious injuries. To incorporate additional elements, a scoring matrix was developed to broaden the analysis.

7.2.1 Project Selection Matrix

The scoring matrix assigns points based on historical crash severity, vulnerable road user crash history, high injury network overlap, public comments/local context, and equity considerations. Table 7.2.1.1 provides details on the matrix and scoring system.

Table 7.2.1.1: Scoring Matrix

Criterion	Rationale	Measure	Scoring Scale (Points Possible)				
			0	5	10	15	20
Fatal and Serious Vehicle Crashes	Prioritize target crashes	Total crashes over 10-year period	No fatal or serious crashes	1 fatal or serious crashes	2 fatal or serious crashes	3 fatal or serious crashes	4 fatal or severe crashes (five points for each additional)
Vulnerable Roadway User Fatal and Serious Crashes	Prioritize Pedestrian and Pedalcyclists crashes	Total crashes over 10-year period	No fatal or serious crashes	1 fatal or serious crashes	2 fatal or serious crashes	3 fatal or serious crashes	4 fatal or severe crashes (five points for each additional)
High Injury Network	Focus on crashes in high frequency locations	Project on high injury network (HIN)	Projected not located on HIN	Fifteen points if located on High Injury Network (HIN)			
Equity[13]	Prioritize projects that benefit disadvantaged communities	Projects located in Areas of Persistent Poverty and/or Historically Disadvantaged Community's	Not located in disadvantaged community	Five points if located in an Areas of Persistent Poverty or Historically Disadvantaged Community zone			
Public Concerns	Prioritize projects that align with public safety concerns	Public input	No public safety concern	Public safety concern			

[13] See footnotes, 10, 12, 14

7.2.2 Project Ranking

Each jurisdictions' top crash locations were put into the matrix to score additional factors, such as equity and public input. Tables 7.2.2.1 to 7.2.2.11 display project rank by jurisdiction using the scoring matrix.

Table 7.2.2.1: Muscatine, Iowa

LOCID	Type	Location	Potential Countermeasure	
IA148	Non-DOT	E 5TH ST & MULBERRY AVE	Signage, enforcement of stop sign running	30
IA430	DOT	US 61/GRANDVIEW AVE & IA 92 & DICK DRAKE WAY	Signage	30
IA753	DOT	US 61 & OAKVIEW DR	Add Traffic Signal	25
IA1012	DOT	33RD ST AND US 61/GRANDVIEW AVE SB	Crossing Divided Highway	20
IA1163	Non-DOT	E 7TH ST & MULBERRY AVE	Signage, enforcement of stop sign running	15
IA583	DOT	IA 22/PARK AVE	SB Protected Left, striping	15
IA272	DOT	US 61/GRANDVIEW AVE & 49TH ST S	Crossing Divided Highway	15
IA582	Non-DOT	E 8TH ST & CEDAR ST	Signage, enforcement	10
IA687	Non-DOT	67TH AVE W	Crossing Divided Highway, enforcement of speeding	10
IA691	Non-DOT	MULBERRY AVE	Improve sight distance/increase length of turn lanes	10

Table 7.2.2.2: Kewanee, Illinois

LOCID	Type	Location	Potential Countermeasure	
IL65	DOT	IL 78 & Prospect St	Signage, move or add reflective tape or crash bumpers around poles, add protected left turns	40
IL191	DOT	IL 78 & 2nd St	Signage, move or add reflective tape or crash bumpers around poles, curve improvements	35
IL138	DOT	IL 78 & 3rd St	Signage, Striping, protected left-turn phasing, high visibility crosswalks	35
IL126	Non-DOT	Division St & Chestnut St	Signage, Crosswalk Visibility Enhancement	30
IL139	Non-DOT	Vine St & 10th St	Improved	30
IL1300	Non-DOT	Prospect St & Tremont St	Signage	25
IL2278	Non-DOT	N Chestnut St & 3rd St	Signage, speed and visibility improvements, school zone designation	25
IL151	Non-DOT	Lakeview Ave & 3rd St	Signage	25
IL867	DOT	US 34 & South St	Right Turn Slip Lane, Signage, speed enforcement	20

IL640	DOT	US 34 & McClure St	Signage, Crosswalk Visibility Enhancement, speed enforcement, roundabout candidate	20

Table 7.2.2.3: Bettendorf, Iowa

LOCID	Type	Location	Potential Countermeasure	Score
IA30	Non-DOT	Utica Ridge Rd	Signage	20
IA33	Non-DOT	Devils Glen Rd	Signage, Right Turn Slip Lane Improvement	20
IA150	DOT	US 67 / Grant St & 14th St	Signage, Striping	20
IA161	DOT	US 67 / State St & 39th St	Signage	20
IA54	Non-DOT	14th St	Signage	15
IA61	DOT	I-74 & US 6 / Spruce Hills Dr	Signage	15
IA153	DOT	US 67 / State St & Devils Glen Rd	Signage	15
IA299	DOT	US 67 / S Grant St & US 67 / River Dr & 6th St	Signage	15
IA659	Non-DOT	Middle Rd	Signage	10

Table 7.2.2.4: Davenport, Iowa

LOCID	Type	Location	Potential Countermeasure	
IA9	Non-DOT	W Locust St	Signage, Crosswalk Visibility Enhancement	50
IA12	DOT	US 6 / W Kimberly Rd	Signage, Striping	50
IA11	DOT	IA 461 / Brady St / Welcome Way & 59th St	Signage	50
IA134	DOT	IA 461 / Brady St (745' S of IA 461 / Brady St)	Variable Speed/Warning signs	50
IA3	Non-DOT	W 2nd St	Signage, Right Turn Slip Lane Improvement	45
IA42	Non-DOT	W 7th St	Signage, Crosswalk Visibility Enhancement	40
IA62	Non-DOT	Gaines St	Signage, Crosswalk Visibility Enhancement	40
IA71	Non-DOT	W Locust St & Hickory Grove Rd & N Division St	Signage	35
IA90	Non-DOT	W Pleasant St & N Division St	Signage, Crosswalk Visibility Enhancement	35
IA722	Non-DOT	N Division St (236' S of N Division St & W 17th St)	Signage	35
IA58	DOT	IA 461 / Harrison St & W 6th St	Signage	35
IA68	Non-DOT	Marquette St	Signage, Crosswalk Visibility Enhancement	30
IA77	DOT	US 6 / E Kimberly Rd & E 36th St	Crossing Divided Highway, Signage	30
IA19	Non-DOT	W Locust St & N Lincoln Ave	Signage	25
IA47	Non-DOT	N Division St	Signage	25
IA98	DOT	US 6 / E Kimberly Rd & Jersey Ridge Rd	Signage, Striping	20
IA131	DOT	US 6 / E Kimberly Rd & Bridge Ave	Signage, pedestrian crossing	20
IA276	DOT	US 6 / W Kimberly Rd & N Elsie Ave	Signage	20
IA1311	DOT	US 61 / 140 St & Co Rd Y48 / 110 Ave	Signage, Right Turn Slip Lane Improvement	20
IA2	DOT	US 6 / E Kimberly Rd	Signage, Striping	15

Table 7.2.2.5: Eldridge, Iowa

LOCID	Type	Location	Potential Countermeasure	
IA1332	DOT	127 S US 61	Roadway Departure Solution	15
IA2286	Non-DOT	E Leclaire Rd & S Scott Park Rd	Signage, Right Turn Slip Lane Improvement	10
IA3024	Non-DOT	S Buttermilk Rd & W Lincoln Rd	Signage	10
IA1540	DOT	124 N US 61	Roadway Departure Solution	10
IA3030	Non-DOT	E Iowa St & S 9th Ave	Signage	5

Table 7.2.2.6: Le Claire, Iowa

LOCID	Type	Location	Potential Countermeasure	
IA2949	Non-DOT	8th St (359' N of Davenport St & 8th St)	Signage, Speed Enforcement	10
IA6503	DOT	US 67 / Cody Rd & Eagle Ridge Rd	Signage, Striping	10
IA385	DOT	I-80	Signage	10
IA682	Non-DOT	Valley Dr (342' W of Woodland Dr & Valley Dr)	Signage, Crossing Divided Highway	5

Table 7.2.2.7: East Moline, Illinois

LOCID	Type	Location	Potential Countermeasure	
IL3	Non-DOT	Avenue of the Cities / 42nd Ave & 7th St	Right Turn Slip Lane, Signage	75
IL2	Non-DOT	Avenue of the Cities & Archer Dr	Right Turn Slip Lane, Signage	70
IL28	Non-DOT	Avenue of the Cities / 42nd Ave & Kennedy Dr	Right Turn Slip Lane, Signage - automated traffic law enforcement system	60
IL240	DOT	IL 5 & 4th Ave	Crossing Divided Highway, Right Turn Slip Lane, Signage	50
IL601	DOT	IL 92 & Kennedy Dr	Crosswalk Visibility Enhancement, Signage	35
IL487	DOT	IL 5 & Hubbard Rd	Crossing Divided Highway	20

Table 7.2.2.8: Moline, Illinois

LOCID	Type	Location	Potential Countermeasure	
IL4	DOT	IL 5 & 60th St	Right Turn Slip Lane, Signage	55
IL590	Non-DOT	19th St & 7th Ave	**Improved**	45
IL11	DOT	IL 92 & 23rd St	Signage	40
IL553	Non-DOT	Avenue of the Cities & 41st St	Signage, Striping	35
IL25	Non-DOT	River Dr & 15th St	Crosswalk Visibility Enhancement, Signage	35
IL33	DOT	IL 5 & 16th St	Right Turn Slip Lane, Signage	35
IL30	Non-DOT	7th St & 35th Ave Pl	Right Turn Slip Lane, Signage	30
IL57	DOT	IL 5 & 53rd St	Right Turn Slip Lane, Signage	30
IL98	Non-DOT	48th St Pl & 20th Ave / 53rd St	Signage, Crosswalk Visibility Enhancement	25
IL183	DOT	IL 92 (4th Ave) & 19th St	Signage	25
IL6	DOT	River Dr & US 74 Ramp	Signage	25
IL17	DOT	IL 92 (4th Ave) & 6th St	Signage	25
IL7	Non-DOT	Avenue of the Cities & 53rd St	Right Turn Slip Lane, Signage	20
IL38	Non-DOT	Avenue of the Cities & 19th St	Right Turn Slip Lane, Signage	20
IL20	Non-DOT	Avenue of the Cities & 27th St	Signage, Crosswalk Visibility Enhancement	20
IL77	Non-DOT	Avenue of the Cities & 48th St	Signage	20
IL92	Non-DOT	70th St & 34th Ave	Signage	20
IL54	DOT	IL 92 (5th Ave) & 6th St	Signage	20
IL1	DOT	IL 5 & 41st St	Right Turn Slip Lane, Signage	20
IL13	DOT	IL 5 & 38th St	Signage	20

Table 7.2.2.9: Rock Island, Illinois

LOCID	Type	Location	Potential Countermeasure	
IL44	Non-DOT	30th St & 7th Ave	Signage	35
IL187	Non-DOT	17th St & 1st Ave	Signage	35

IL8	Non-DOT	16th St & 1st Ave	Right Turn Slip Lane, Signage	35
IL43	DOT	IL 5 & 38th St	Right Turn Slip Lane, Signage	35
IL203	Non-DOT	11th St (US 67) at 18th Ave	Right Turn Slip Lane, Signage	35
IL32	DOT	IL 5 & 44th St	Right Turn Slip Lane, Signage	30
IL47	Non-DOT	30th St & 18th Ave	Signage	15
IL14	Non-DOT	38th St & 18th Ave	Signage	15
IL130	DOT	US 67 & 31st Ave	Right Turn Slip Lane, Signage	15
IL109	DOT	US 67 & 25th Ave	Signage, Striping	15
IL2830	DOT	US 280 & IL 92	Signage	15
IL203	Non-DOT	11th St (US 67) at 18th Ave	11th St (US 67) at 18th Ave	15

Table 7.2.2.10: Silvis, Illinois

LOCID	Type	Location	Potential Countermeasure	
IL270	Non-DOT	19th St & 3rd Ave Ct	Signage	40
IL1781	DOT	IL 5 & Crosstown Ave	Right Turn Slip Lane, Signage	40
IL119	Non-DOT	Crosstown Ave & 11th St	Signage	35
IL132	DOT	IL 5 & 16th Ave	Right turn and intersection geometry improvements	30

Table 7.2.2.11: Milan, Illinois

LOCID	Type	Location	Potential Countermeasure	
IL342	DOT	78th Ave & Rock Island-Milan Pkwy (IL 5)	Right Turn Slip Lane	30
IL248	Non-DOT	1st St & 20th Ave	Crossing Divided Highway	20
IL407	DOT	US 67 & Rock Island-Milan Pkwy	Right Turn Slip Lane, Signage	20
IL27	Non-DOT	1st St & 4th Ave	Signage	15
IL127	Non-DOT	1st St & 28th Ave	Crossing Divided Highway	15
IL51	DOT	IL 78 (Rock Island-Milan Pkwy) & Tech Dr	Right Turn Slip Lane	15
IL244	DOT	78th Ave & Rock Island-Milan Pkwy (IL 5)		10

7.3 Early Action Systemic Improvements

The following early action systemic improvements were developed based on the input from participants in the Traffic Safety Summit that occurred on January 29th, 2025. The early action improvement near-term actions to bring safety benefits to the transportation system through systemic programs where

improvements can be implemented across multiple locations and jurisdictions to address similar safety challenges.

In the summary of improvement programs, the location of crashes is identified by the state (Iowa: IA and Illinois: IL) and an identifier number (ID). Corridor locations on the High Injury Network have an additional "HIN" to distinguish corridor locations from singular, spot locations or clusters of crash locations. The corridors also are described by the roadway limits of the corridor. The intersections/clusters are identified by their primary roadway, which was included in the Iowa collision data and was geospatially joined to the Illinois collision data. These early action systemic improvements are programs that are recommended for development among corridor agencies and regional partners to address the safety emphasis areas developed through this TSAP.

7.3.1 Corridor Left-Turn Improvement Program

A program to review and prioritize improvements for left-turning vehicles through providing protected or enhanced turning conditions as well as the potential for limiting left-turns at some locations. Safety countermeasures to address the top safety emphasis area include Reduced Left-Turn Conflict Intersections, Prohibited Left-Turns, Protected Left-Turn Phasing, Left-Turn Pockets, and Signalization. Both corridor and cluster/intersection locations are identified as part of this program. In some cases, clusters/intersections are within identified corridors, and in some cases, they are isolated locations with especially high issues as identified by this program. Maps showing the Left-Turn Improvement Program Locations can be found in Figures 7.3.1.1 and 7.3.1.3. The top individual locations (intersections) can be found in Tables 7.3.1.1 to 7.3.1.6.

Overall, in the study area nine corridors in the Iowa Quad Cities, eight in the Illinois Quad Cities, and one each in Kewanee and Muscatine as having a relatively high percentage of crashes involving left-turning vehicles. In addition, 56 intersections with a relatively high percentage of crashes involving left-turning vehicles—30 of the 56 intersections are located within the identified corridors.

Figure 7.3.1.1: Left-Turn Improvement Program Locations – Quad Cities

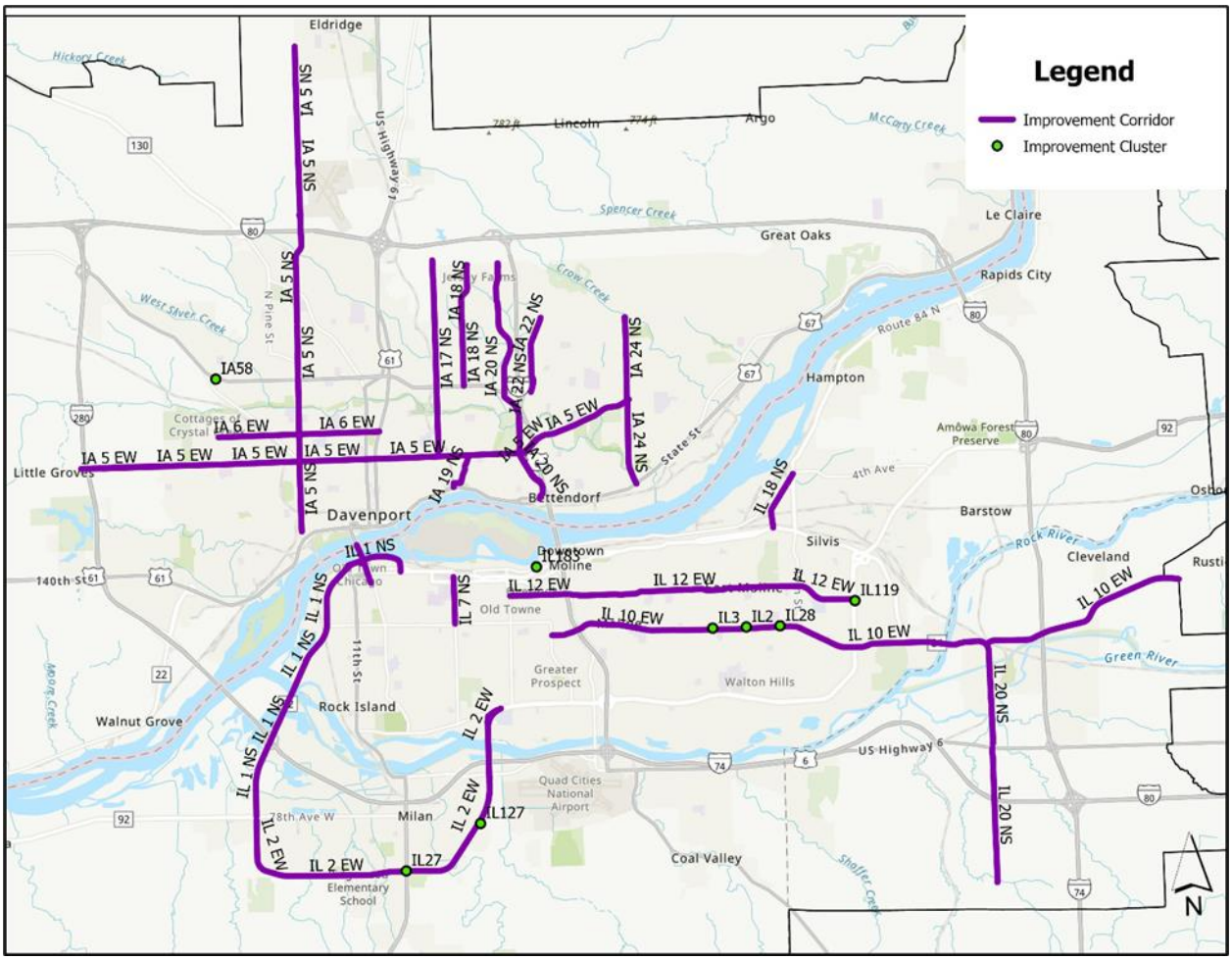


Figure 7.3.1.2: Left-Turn Improvement Program Locations – Muscatine

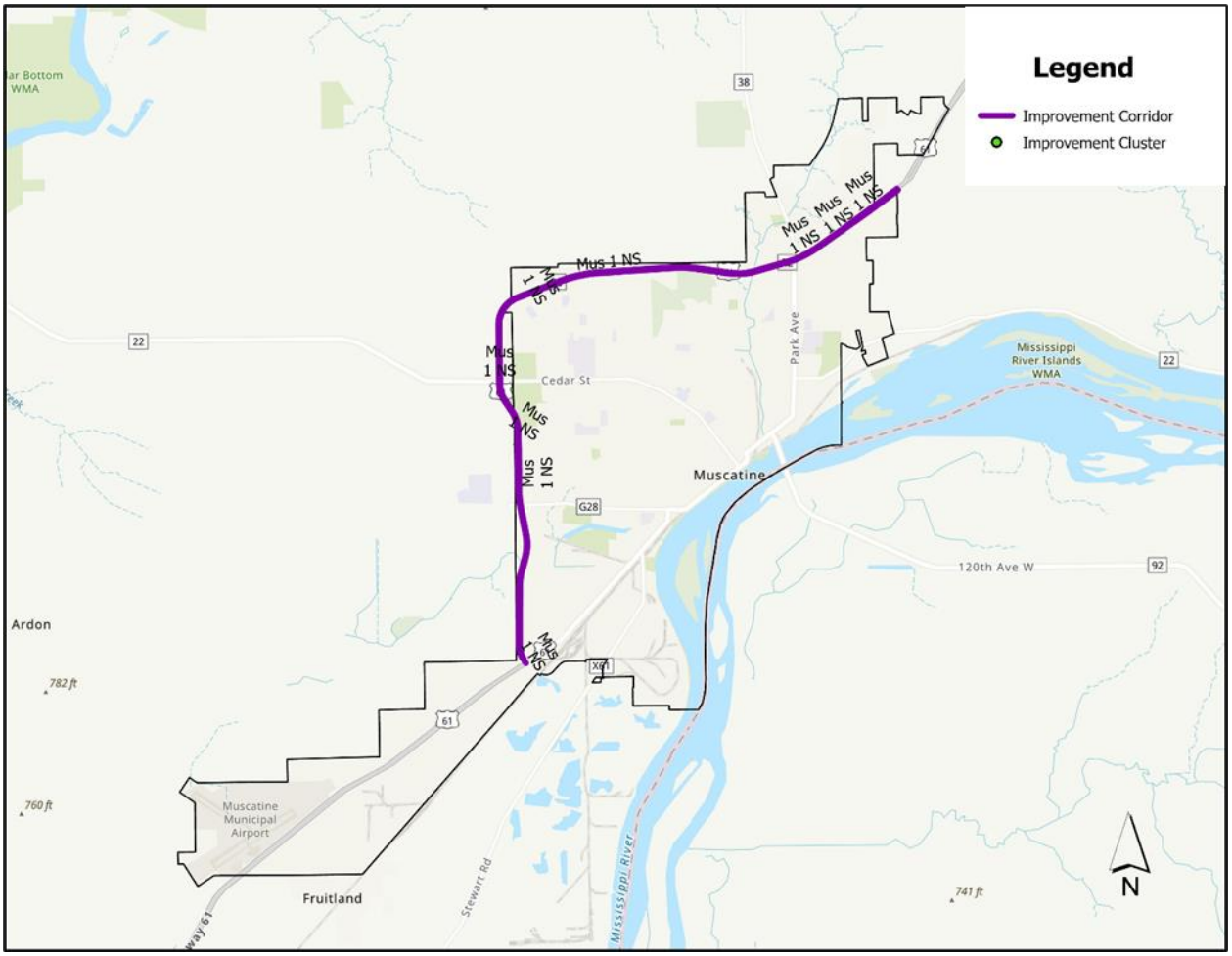


Figure 7.3.1.3: Left-Turn Improvement Program Locations – Kewanee

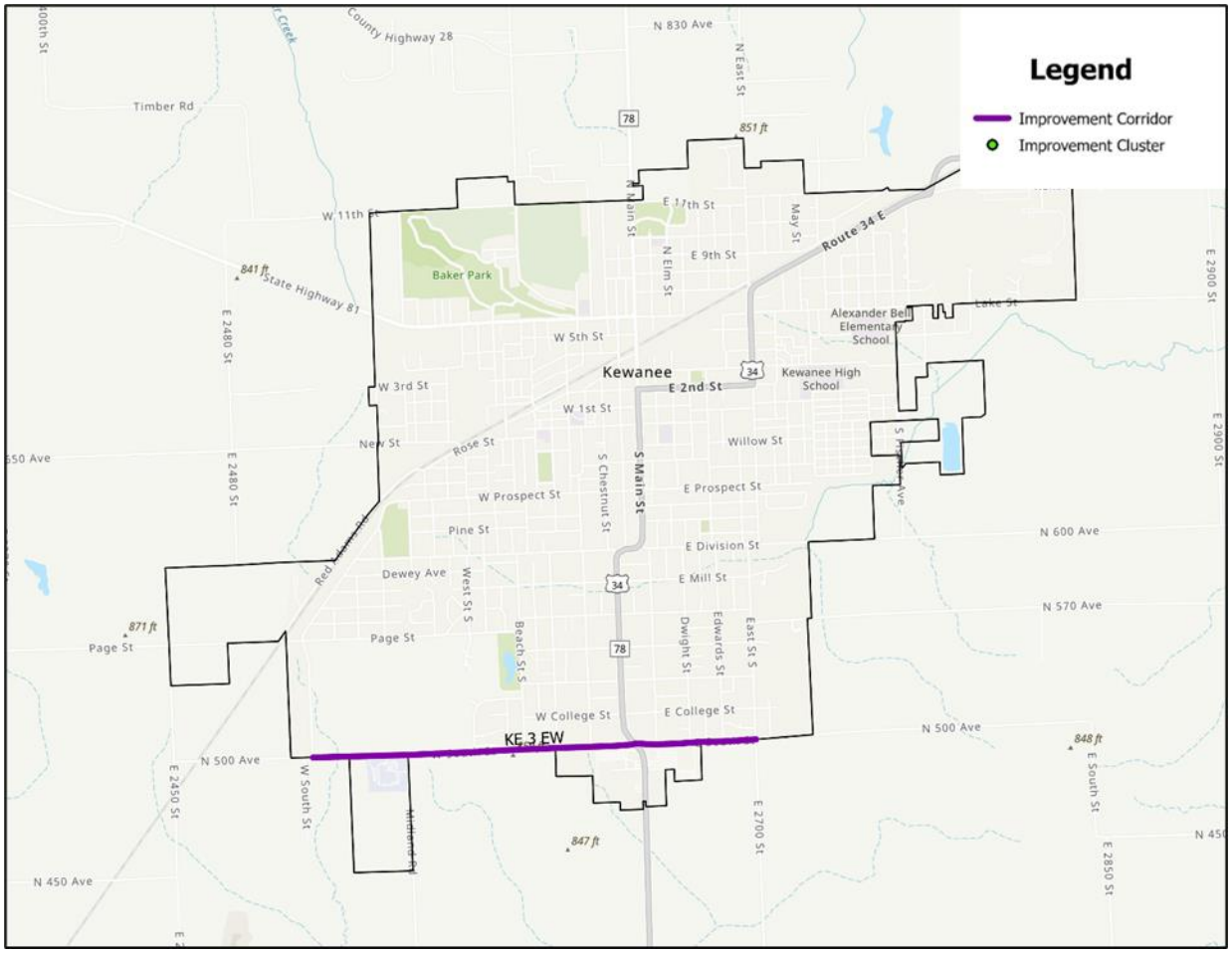


Table 7.3.1.1: Illinois Signalized Corridors for Left-Turn Improvements

Corridor	HIN	Corridor Length (Miles)	Corridor Crashes	Percent Left-Turning Vehicle Crashes
Centennial Expressway / Milan Beltway from 78th Avenue West to 52nd Avenue	IL 2 EW	8.1	306	19%
Avenue of the Cities/Colona Road from 16th Street to Cleveland Road, Cleveland Road/Wolf Road from Avenue of the Cities to City Line	IL 10 EW	12.1	2,268	16%
12th Avenue / 30th Avenue / Crosstown Avenue from 7th Street to John Deere Expressway	IL 12 EW	6.4	890	13%
1st Avenue/Centennial Expressway/IL 92W from 5th Avenue to 35th Street West	IL 1 NS	6.8	34	12%
US 67 / 15th Street from Mississippi River Bridge to 7th Avenue	IL 4 NS	0.75	456	11%
13th Street 18th Avenue to 19th Street	IL 18 NS	1.1	122	11%
38th Street from 7th Avenue to 18th Avenue	IL 7 NS	0.9	949	10%

Note: Table corresponds to Figure 8.3.1.1 where segment or intersection is associated with the High Injury Network (HIN) identifier

Table 7.3.1.2: Illinois Unsignalized / Uncontrolled Corridors for Left-Turn Improvements

Corridor	HIN	Corridor Length	Corridor Crashes	Percent Left-Turning Vehicle Crashes
East/West South Street East City Limit to County Highway 41	KE 3 EW	1.9	24	25%
1st Street / East 400th Street from Cleveland Road to North 1850th Avenue	IL 20 NS	4.3	87	9%

Note: Table corresponds to Figures 8.3.1.2 (Illinois Quad Cities) and 8.3.1.3 (Kewanee) where segment of intersection is associated with the High Injury Network (HIN) identifier

Table 7.3.1.3: Iowa Corridors for Left-Turn Improvements

Corridor	HIN	Corridor Length (Miles)	Corridor Crashes	Percent Left-Turning Vehicle Crashes
Utica Ridge Road from Spruce Hills Drive/US 6 to East 53rd Street	IA 22 NS	1.4	182	23%
W Central Park Avenue from North Fairmount Street to Brady Street	IA 6 EW	2.9	558	18%
Jersey Ridge Road from Veterans Memorial Parkway to East Kimberly Road	IA 18 NS	2.2	85	15%
Devils Glen Road from 53rd Avenue to State Street	IA 24 NS	3.3	263	15%
US 61	Mus 1 NS	16.7	290	13%
Locust Street / Middle Road from I-280/US 61 to Devils Glen Road	IA 5 EW	11.8	3045	13%
Kimberly Road /Elmore Avenue from Grant Street to Veterans Memorial Parkway	IA 20 NS	5.5	798	11%
Jersey Ridge Road, East 11th Street, Mound Street from East River Drive to East Locust Street	IA 19 NS	0.7	191	11%
Eastern Avenue from East Locust Street to Veterans Memorial Parkway	IA 17 NS	3.7	591	11%
South Buttermilk Road /North Division Street from West Spring Street to West 3rd Street	IA 5 NS	8.9	878	10%

Note: Table corresponds to Figure 8.3.1.1 (Iowa Quad Cities) or 8.3.1.2 (Muscatine) where segment or intersection is associated with the High Injury Network (HIN) identifier

Table 7.3.1.4: Illinois Signalized Intersections for Left-Turn Improvements

Primary Roadway at Intersection (State Highways Only)	City	ID	HIN	City	Total Crashes	Percent Left Turns
-	Moline	IL292		Moline	25	68%
IL768	Moline	IL1278	IL 12 EW	Moline	12	58%
-	Unincorporated	IL148		Unincorporated	16	50%
-	Unincorporated	IL827		Unincorporated	16	50%
US067	Milan	IL27	IL 2 EW	Milan	127	46%
IL756	Moline	IL183	IL 15 EW	Moline	22	45%
US08 B	East Moline	IL238		East Moline	27	44%
IL005	Silvis	IL132		Silvis	39	44%
-	East Moline	IL28	IL 10 EW	East Moline	100	42%
-	East Moline	IL2	IL 10 EW	East Moline	229	41%
-	Unincorporated	IL246	IL 3 EW	Unincorporated	29	38%
-	Moline	IL49		Moline	56	38%
-	Moline	IL42		Moline	69	36%
-	Moline	IL50	IL 12 EW	Moline	90	36%
IL849	East Moline	IL3	IL 10 EW	East Moline	261	35%
US006	Unincorporated	IL669	IL 20 NS	Unincorporated	23	35%
US067	Rock Island	IL203	IL 4 NS	Rock Island	32	34%
IL084	Unincorporated	IL1639		Unincorporated	12	33%
-	Silvis	IL438	IL 10 EW	Silvis	21	33%
IL005	Silvis	IL119	IL 8 EW	Silvis	33	33%
US067	Milan	IL167	IL 4 NS	Milan	48	33%
IL793	Milan	IL127	IL 1 EW	Milan	51	33%

Table 7.3.1.5: Illinois Unsignalized / Uncontrolled Intersections for Left-Turn Improvements

Primary Roadway at Intersection (State Highways Only)	City	ID	HIN	Total Crashes	Percent Left-Turn Crashes
-	Moline	IL250		12	50%
IL771	Moline	IL307	IL 7 EW	14	43%

IL814	Milan	IL1428		10	40%
-	Rock Island	IL448		11	36%
-	Moline	IL1548		11	36%
IL773	Moline	IL540	IL 10 EW	14	36%
IL330*	Moline	IL566		15	33%

Table 7.3.1.6: Iowa Intersections for Left-Turn Improvements

Primary Road of Intersection	City	ID	HIN	Total Crashes	Percent Left Turns
US 61 & Mulberry Ave	Muscatine	177	Mus 1 NS	36	58%
Co Rd F55/210 ST & Co Rd Y68/S Scott Park Rd	Davenport	426	-	19	53%
Utica Ridge Rd	Davenport	383	-	21	48%
Crow Creek Rd	Davenport	261	-	28	46%
Lincoln Rd & Kimberly Rd	Bettendorf	389	IA 20 NS	20	45%
E 35TH Ct & Elmore Ave	Davenport	86	-	61	44%
Utica Ridge Rd	Davenport	336	IA 22 NS	23	43%
I-80 & IA 130/New Liberty Rd	Davenport	78	-	66	41%
W Locust St	Davenport	234	IA 5 EW	30	40%
Elmore Ave	Davenport	883	IA 20 NS	10	40%
Deerbrook Dr & Devils Glen Rd & Halcyon Dr	Bettendorf	422	-	19	37%
US 61 & University Dr	Muscatine	229	-	30	37%
US 67/NW Loop	Davenport	771	-	11	36%
210 ST	Davenport	822	-	11	36%
Utica Ridge Rd	Davenport	619	IA 22 NS	14	36%
US 61	Muscatine	586	Mus 1 NS	14	36%
US 6/W Kimberly Rd & Fairmount St	Davenport	489	-	17	35%
W 38TH ST & N Division St	Davenport	486	IA 5 NS	17	35%
E 53RD ST & Ekstein Dr	Davenport	491	IA 8 EW	17	35%
Eastern Ave	Davenport	95	IA 17 NS	57	35%
US 6/W Kimberly Rd	Davenport	58	IA 7 EW	74	34%
IA 22/Park Ave	Muscatine	430	-	18	33%
W Central Park Ave & Clark St	Davenport	318	-	24	33%
IA 92/Grandview Ave & Warren St	Muscatine	688	-	12	33%
W Locust St	Davenport	445	IA 5 EW	18	33%
US 61 / University Ave	Muscatine	692	Mus 1 NS	12	33%
Middle Rd	Bettendorf	52	IA 5 EW	79	33%

The Iowa crash data set does not include information about the type of traffic control (signalized or unsignalized) at crash locations.

7.3.2 Right Turn on Red Improvements

These improvements provide for safer right turns at signalized intersections and include the potential safety countermeasures of Prohibit Right Turn on Red, Overlap Signal Phase, and Right-Turn Pockets. Tables 7.3.2.1 and 7.3.2.2 show the locations with 10 percent or greater proportion of right turn on red vehicles involved in collisions at signalized intersections, summarized by State and percent of collisions with right-turn on red involved collisions. A map showing the locations with the top right turn on red crash clusters/intersections can be seen in Figure 7.3.2.1.

Sixteen intersections with a high percentage of collisions involving right-turn on red collisions—thirteen intersections in the Illinois Quad Cities and three in the Iowa Quad Cities.

Figure 7.3.2.1: Right-Turn on Red Improvement Program Locations – Quad Cities

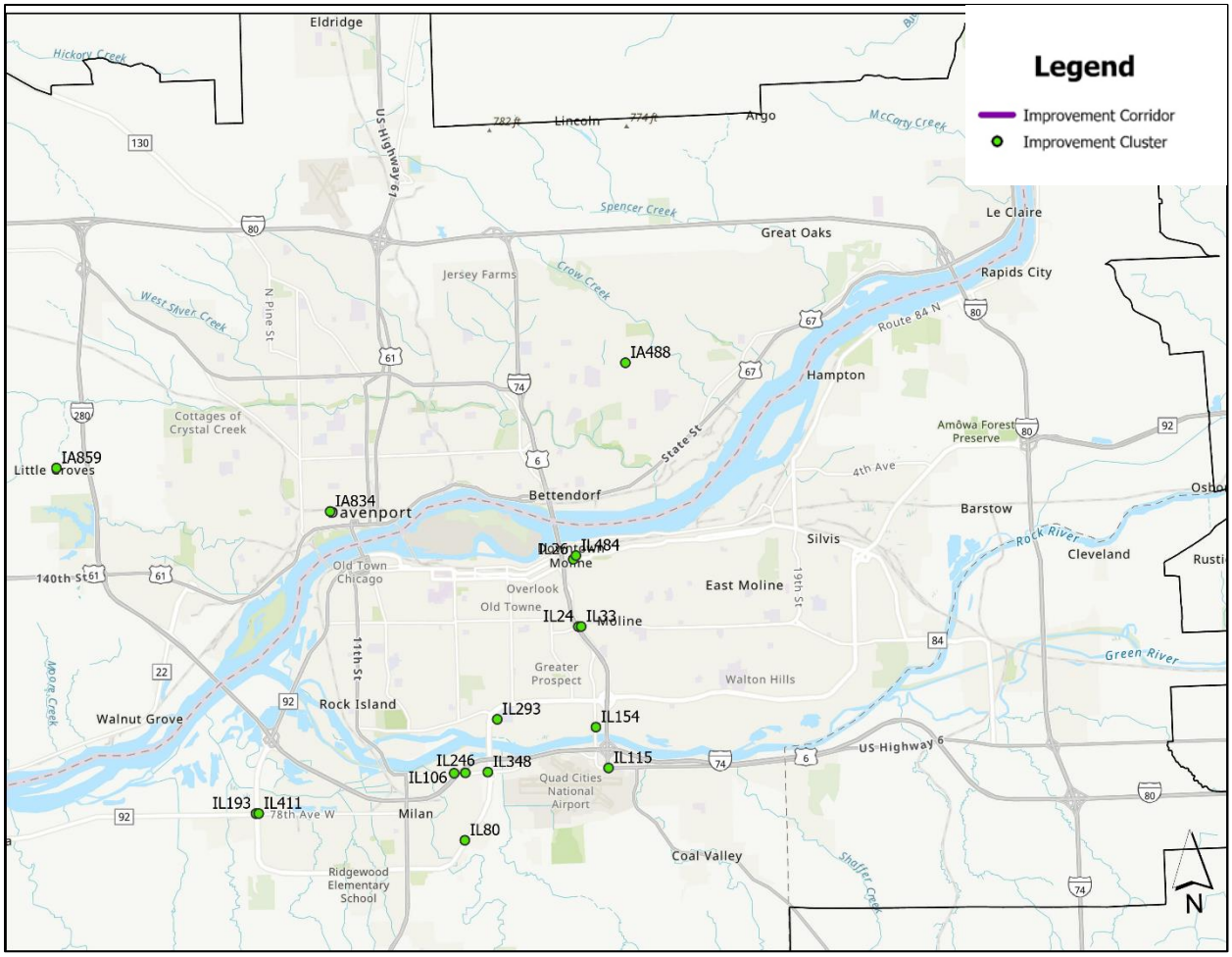


Table 7.3.2.1: Illinois Signalized Intersections for Right Turn on Red Improvements

Primary Roadway at Intersection (State Highways Only)	City	ID	Lat	Long	Total Crashes	Percent Right Turn on Red
IL092	Moline	IL26	41.509	-90.505	167	26%
IL822	Milan	IL348	41.453	-90.538	27	19%
US006	Moline	IL115	41.453	-90.495	69	16%
IL792	Unincorporated	IL80	41.435	-90.547	46	15%
-	Moline	IL293	41.467	-90.534	21	14%
IL092	Unincorporated	IL411	41.444	-90.62	14	14%
-	Unincorporated	IL106	41.453	-90.55	45	13%
IL092	Unincorporated	IL193	41.444	-90.621	31	13%
-	Moline	IL33	41.491	-90.503	84	11%
-	Unincorporated	IL246	41.453	-90.546	29	10%
IL834	Moline	IL24	41.491	-90.504	100	10%
IL834	Moline	IL154	41.464	-90.499	40	10%
-	Moline	IL484	41.51	-90.504	10	10%

Table 7.3.2.2 Iowa Signalized Intersections

Corridor	City	ID	HIN	Crashes	Percent Right Turn on Red
Tanglefoot Ln & Devils Glen Rd	Bettendorf	488	IA 24 NS	17	12%
Co Rd F65/160 St & Co Rd Y48/110 Ave	Davenport	859	0	10	10%
Marquette St Measuring 88 Feet North from W 4 1/2 St & Marquette St	Davenport	834	IA 7 NS	10	10%

7.3.3 Enforcement of Red Light/Stop Sign Running

These are locations that have a high percentage of collisions due to control device violation (Iowa) or had a high percentage of angle collisions where the first vehicle was moving straight ahead at a signalized location (Illinois). Due to a difference in the data used to identify these locations between the two states, the percent threshold used was 15 percent in Iowa and 10 percent in Illinois for corridors and 40 percent in Iowa and 35 percent in Illinois for cluster (intersection) locations. Potential safety countermeasures identified with the highest potential to reduce crashes related to red light running include Improved Signage and Striping, Signal Timing Adjustments, Enforcement, and Automated Traffic Enforcement. Both corridor and cluster/intersection locations are identified as part of this program. In some cases, clusters/intersections are within identified corridors, and in some cases, they are isolated

locations with especially high issues as identified by this program. A map of the locations can be seen in Figures 7.3.3.1 and 7.3.3.2.

Thirteen corridors with a high percentage of red-light/stop-sign involved crashes were identified: six in the Iowa Quad Cities and seven in the Illinois Quad Cities. In addition, 37 individual locations were identified including 16 in Iowa Quad Cities, three in Muscatine, and 18 in the Illinois Quad Cities. No locations were identified in Kewanee. Tables 7.3.3.1 and 7.3.3.3 show the corridors and intersections identified as having the highest percentage of collisions due to red light violations.

Figure 7.3.3.1: Red Light/Stop Sign Improvement Program Locations – Quad Cities

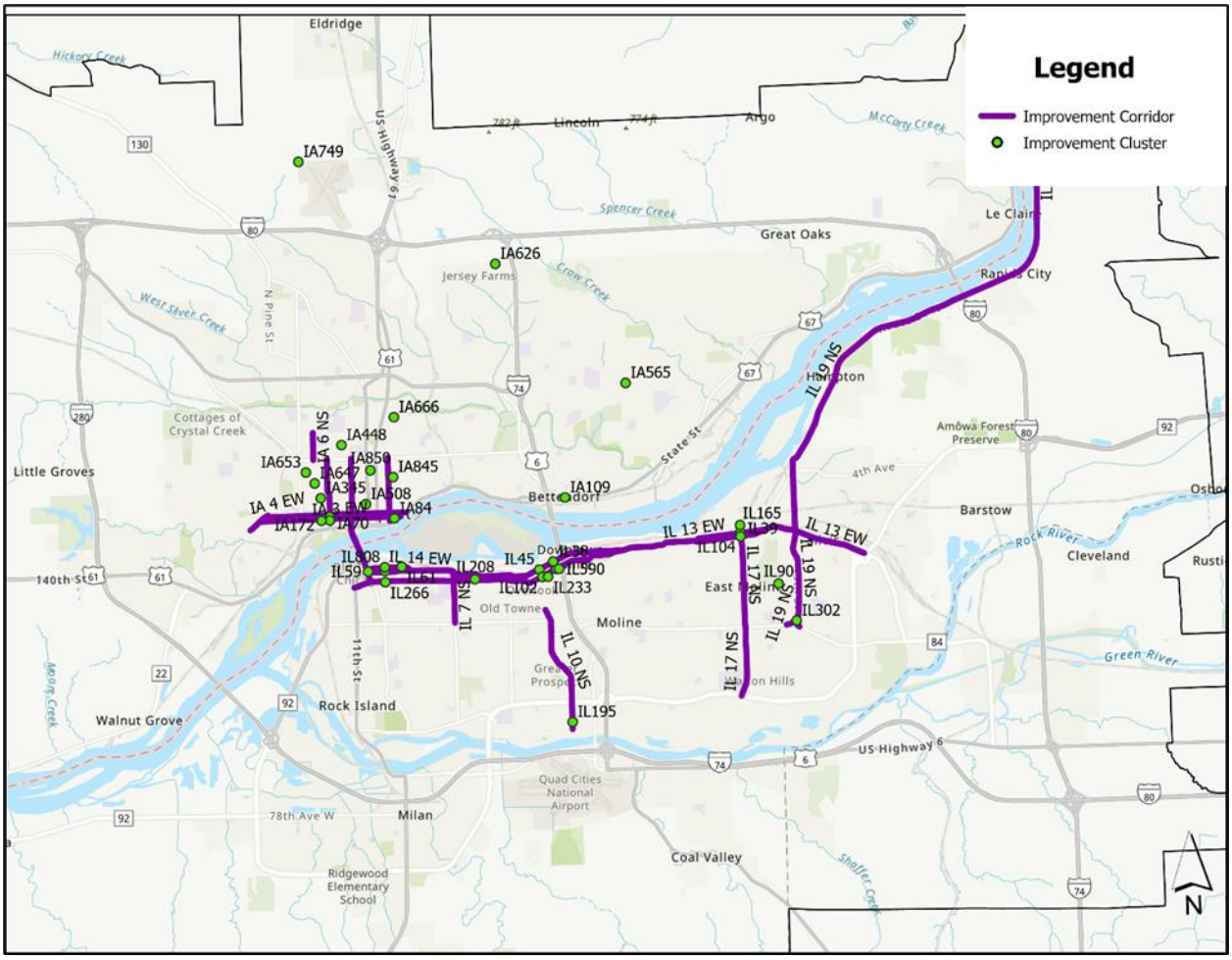


Figure 7.3.3.2: Red Light/Stop Sign Improvement Program Locations – Muscatine

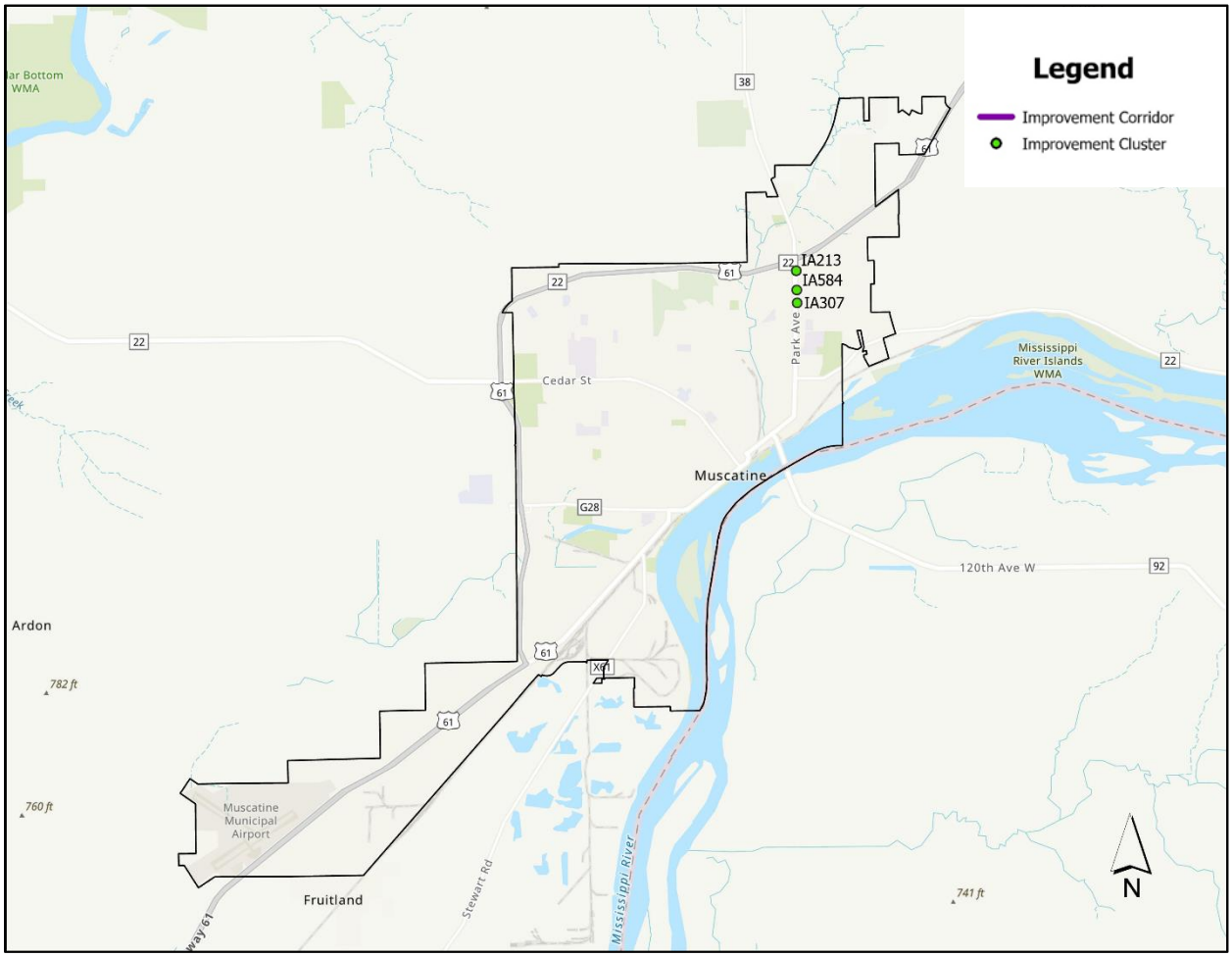


Table 7.3.3.1: Illinois Corridors

Corridor	HIN	Corridor Length (Miles)	Total Crashes	Percent Angle Collisions, by Straight Ahead Vehicles at Signalized Intersections
5th Avenue (IL 92)/6th Avenue/4th Avenue (Westbound) from 26th Street to East of 34th Street	IL 14 EW	5.9	189	26%
38th Street from 7th Avenue to 18th Avenue	IL 7 NS	0.9	949	15%
16th Street from 19th Avenue to 52nd Avenue	IL 10 NS	2.3	320	13%
7th Street/70th Street from 12th Avenue to John Deere Road (IL 5)	IL 17 NS	3.2	298	12%
IL 92: 7th Avenue/5th Avenue/6th Avenue/4th Avenue/16th Avenue/1st Avenue (Eastbound only for a portion) from 11th Street/US 67 to IL 5	IL 13 EW	11.1	396	12%
US 67 / 15th Street from Mississippi River Bridge to 7th Avenue	IL 4 NS	0.7	456	11%
North High Street/20th Street from 129 Avenue North to 20th Street and 19th Street from 20th Street to Avenue of the Cities	IL 19 NS	14.3	1715	10%

Table 7.3.3.2: Iowa Intersections

Primary Road of Intersection	City	ID	HIN	Total Crashes	Percent Control Device Violation
W 6th St	Davenport	508	-	16	63%
W 12th St & Washington St	Davenport	647	-	13	54%
E 29th St & Farnam St	Davenport	666	-	13	54%
W 4th St & Marquette St	Davenport	49	IA 4 EW	80	53%
US 67/Grant St & 18th St	Bettendorf	109	-	51	51%
IA 22/Park Ave & Ford Ave	Muscatine	584	-	14	50%
Sloper Town Rd	Davenport	749	-	12	50%
W 15th St & Main St	Davenport	850	IA 14 NS	10	50%
IA 22/Park Ave & Cleveland St	Muscatine	213	-	32	47%
W 15th St & Sturdevant St	Davenport	653	-	13	46%
W 3rd **St** & Marquette St	Davenport	70	IA 7 NS	68	46%
W Lombard St & Warrern St	Davenport	448	-	18	44%
Veterans Memorial Prky & Elmore Ave	Davenport	626	IA 9 EW	14	43%
IA 22/Park Ave & Lake Park Blvd	Muscatine	307	-	24	42%
W 8th St & Fillmore St	Davenport	345	-	22	41%
W 3rd St & Fillmore St	Davenport	172	IA 3 EW	37	41%
E 3rd St & Le Claire St	Davenport	84	IA 3 EW	62	40%
Devils Glen Rd & Belmont Rd	Bettendorf	565	IA 24 NS	15	40%
E 13th St & Le Claire St	Davenport	845	-	10	40%

Table 7.3.3.3: Illinois Intersections

City	ID	HIN	Total Crashes	Percent Angle Collisions, by Straight Ahead Vehicles at Signalized Intersections
Moline	IL233	IL 10 NS	15	60%
East Moline	IL39	IL 19 NS	43	59%
Moline	IL38	IL 19 NS	40	51%
Rock Island	IL384	IL 14 EW	8	50%
Moline	IL45	IL 19 NS	32	48%
Moline	IL102	IL 7 NS	24	47%
Rock Island	IL808	IL 14 EW	6	46%
Moline	IL195	IL 10 NS	15	45%
East Moline	IL104	IL 17 NS	25	45%
Moline	IL590	IL 7 NS	30	43%
Rock Island	IL59	IL 4 NS	25	43%
Unincorporated	IL165	IL 15 EW	11	42%
East Moline	IL90	IL 12 EW	18	42%
Rock Island	IL208	IL 7 NS	10	42%
East Moline	IL302	IL 19 NS	9	41%
Moline	IL15	IL 7 NS	28	39%
Rock Island	IL61	IL 14 EW	14	37%
Rock Island	IL266	IL 13 EW	5	36%

7.3.4 Enforcement of Speeding

These are locations with a high percentage of speeding by the first vehicle (Iowa) or a high percent of collisions where the first vehicle was proceeding straight ahead or braking (Illinois). Due to a difference in the data used between states the threshold percent of speeding in corridors in Iowa used was 10 percent and in Illinois was 60 percent. For intersection locations the percentage threshold used was 29 percent at Iowa locations and 80 percent at Illinois locations. Potential safety countermeasures identified with the highest potential to reduce crashes related to speeding include Improved Signage and Striping, Signal Timing Adjustments, Enforcement, Automated Traffic Enforcement, and Education. Both corridor and cluster/intersection locations are identified as part of this program. In some cases, clusters/intersections are within identified corridors, and in other cases they are isolated locations with especially high issues as identified by this program. A map of the locations can be seen in Figures 7.3.4.1 through 7.3.4.3. Tables 7.3.4.1 through 7.3.4.4 show the corridors and intersections identified as having the highest percentage of collisions due to speeding.

Overall, 19 corridors were identified as having high levels of speeding contributing to collisions: 11 corridors in the Illinois Quad Cities, six corridors in the Iowa Quad Cities and one each in Kewanee and Muscatine. In addition, 39 clusters/intersections were identified with high levels of speeding contributing to crashes: 26 in Illinois and 13 in Iowa. These locations were predominantly located in the corridors identified for speeding conditions.

Figure 7.3.4.1: Enforcement of Speeding Improvement Program Locations – Quad Cities

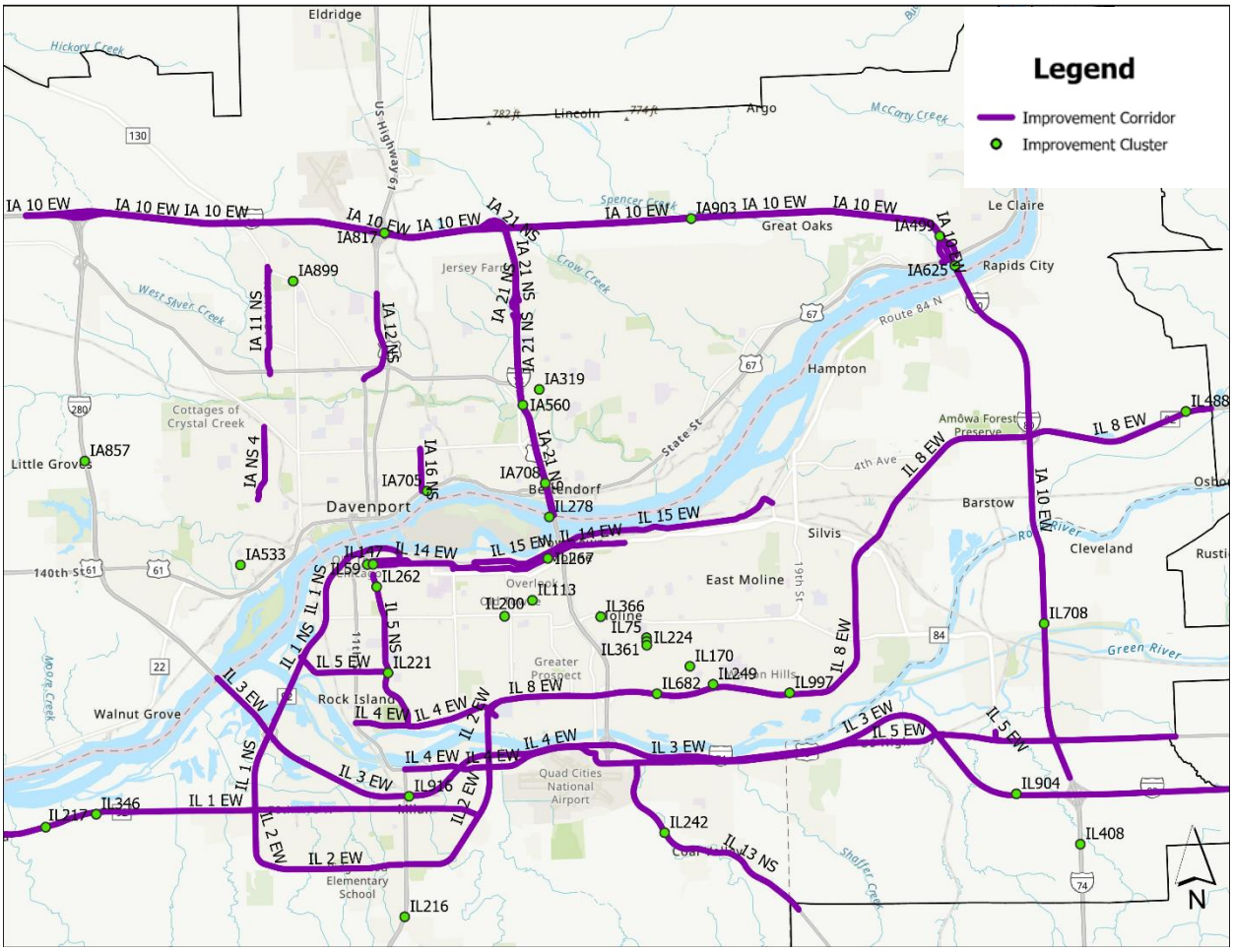


Figure 7.3.4.2: Enforcement of Speeding Improvement Program Locations – Muscatine

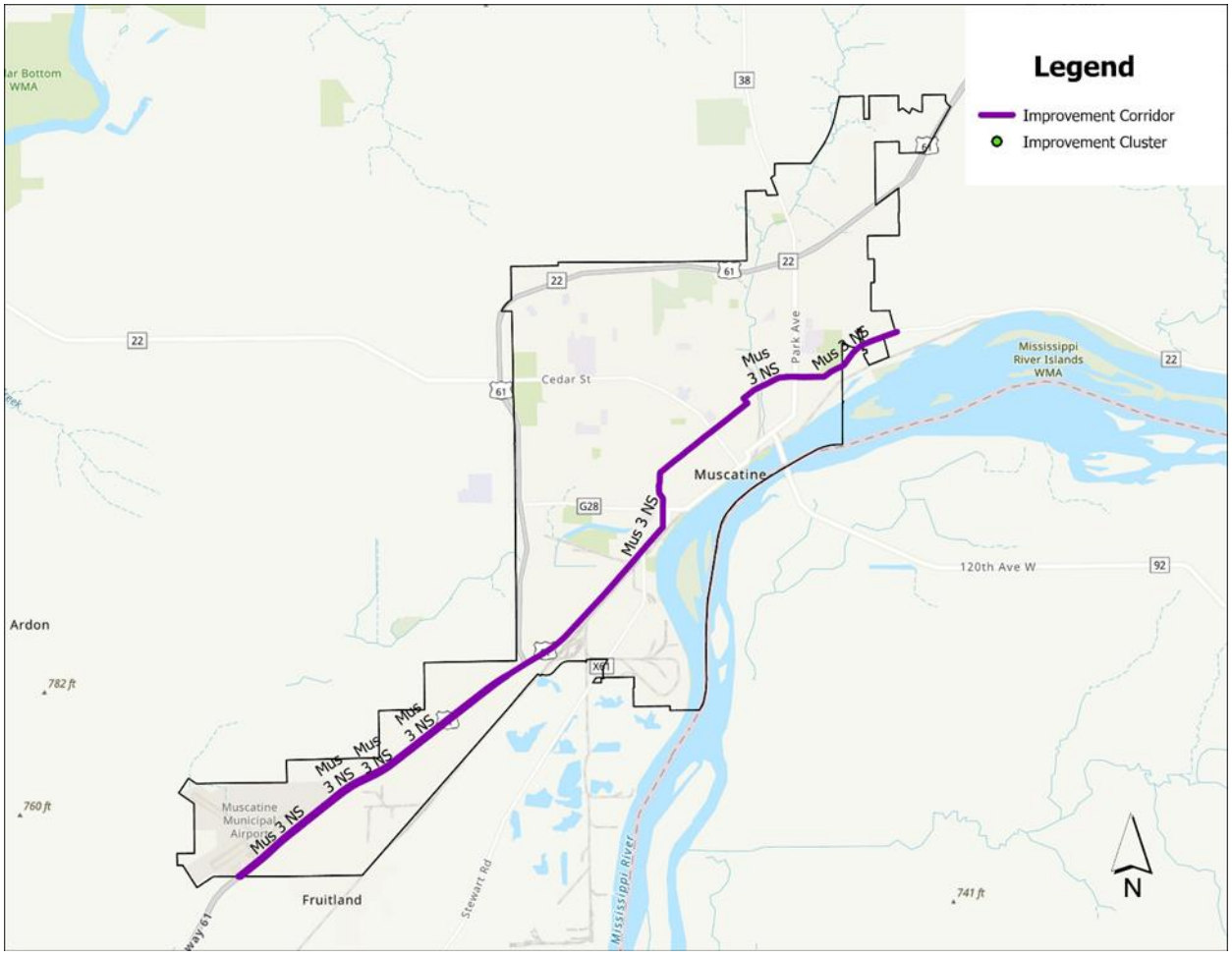


Figure 7.3.4.3: Enforcement of Speeding Improvement Program Locations – Kewanee

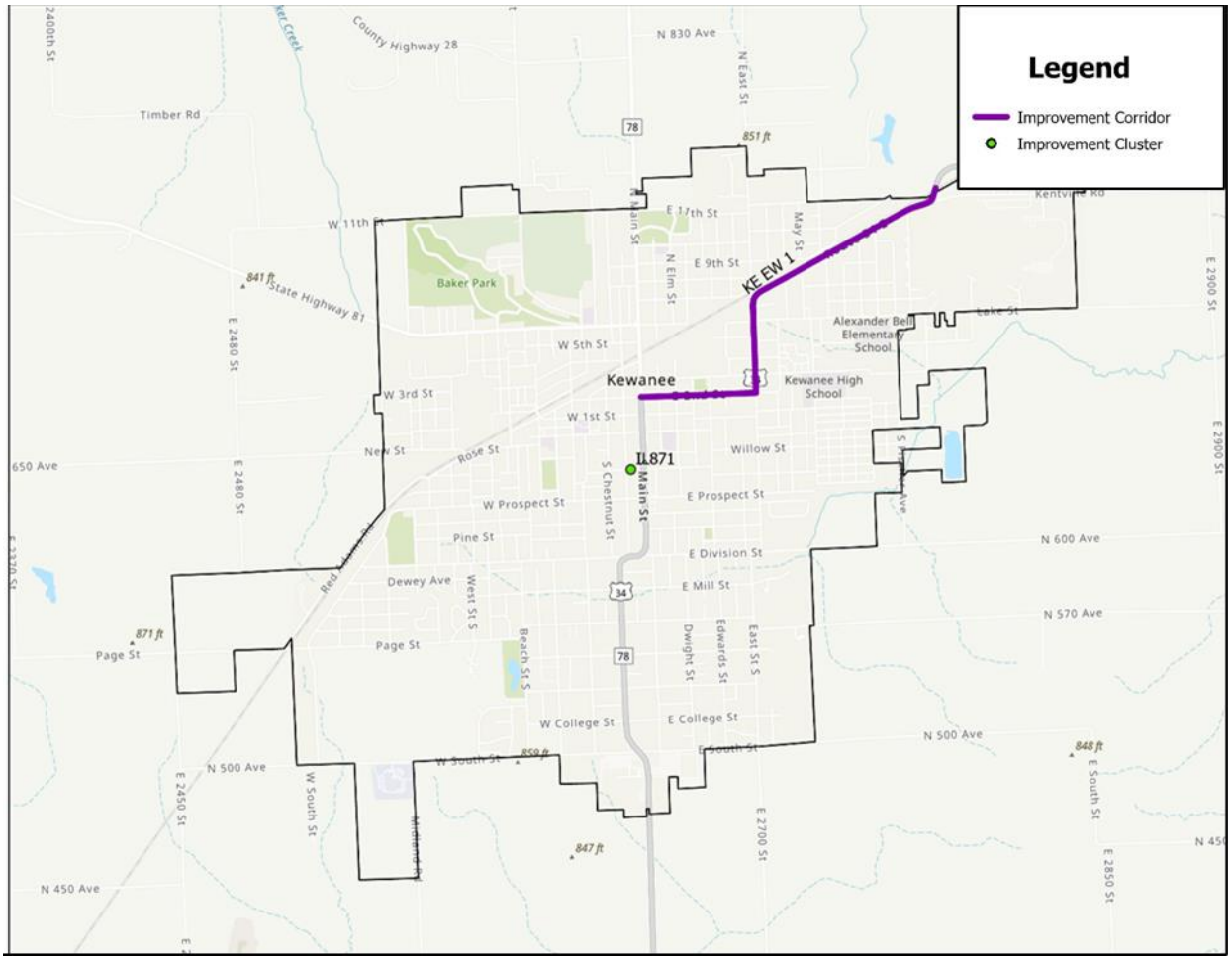


Table 7.3.4.1: Iowa Corridors Speed Enforcement

Corridor	HIN	Corridor Length (Miles)	Total Crashes	Percent Due to Speeding
I-74	IA 21 NS	13.4	722	15%
North Lincoln Avenue from Waverly Road to West Central Park Avenue	IA NS 4	1.3	120	13%
Bridge Avenue from East Locust Street to East River Drive	IA 16 NS	0.8	114	11%
Welcome Way / Harrison Street from West 53rd Street to West River Drive	IA 12 NS	1.7	154	11%
North Pine Street from Northwest Boulevard to West Kimberly Road	IA 11 NS	2.2	114	11%
I-80 from I-280 to Fred Schwengel Memorial Bridge (Mississippi River)	IA 10 EW	46.7	1160	11%
Muscatine: US 61/IA 92 Grandview Avenue/West 8th Street / Washington Street / Highway 22	Mus 3 NS	13.0	245	10%

Table 7.3.4.2: Illinois Corridors

Corridor	HIN	Corridor Length (miles)	Total Crashes	Percent Straight Ahead or Breaking
US 150 South of US 6	IL 13 NS	4.5	200	78%
Milan Beltway/92nd Avenue West from 35th Street West to 52nd Street	IL 3 EW	21.2	1380	71%
24th Street from Blackhawk Road (IL 5)	IL 5 NS	3.0	224	67%
1st Avenue/Centennial Expressway/IL 92W from 5th Avenue to 35th Street West	IL 1 NS	6.8	34	65%
US 34 from Kewanee Township Road to North Main Street (IL 78)	KE EW 1	1.9	110	65%
IL 5/IL 92/I-88	IL 8 EW	12.4	2185	63%
6th Avenue/7th Avenue (IL 92)/18th Avenue from Andalusia to Milan Beltway	IL 1 EW	10.6	925	62%

4th Avenue/River Drive/12th Avenue from 4th Street to 13th Street	IL 15 EW	5.8	542	61%
5th Avenue (IL 92)/6th Avenue/4th Avenue (Westbound) from 26th Street to East of 34th Street	IL 14 EW	5.9	189	61%
East 1st Street/Airport Road from 1st Street West (US 67) to 27th Street	IL 4 EW	6.3	457	61%
Centennial Expressway / Milan Beltway from 78th Avenue West to 52nd Avenue	IL 2 EW	8.1	306	61%
Sunset Lane/31st Avenue from Centennial Expressway to 17th Street	IL 5 EW	12.9	638	60%

Table 7.3.4.3: Iowa Intersections/Clusters

Primary Road of Intersection	City	ID	HIN	Total Crashes	Percent Due to Speeding
Rockingham Rd	Davenport	533	IA 2 EW	15	60%
Interstate 80/NE Loop	Davenport	817	IA 10 EW	11	45%
I-74	Bettendorf	708	IA 21 NS	12	42%
I-80	Le Claire	625	IA 10 EW	14	36%
I-80	Le Claire	499	IA 10 EW	17	35%
Summit Hills Dr & Spruce Hills Dr	Bettendorf	319	IA 7 EW	24	33%
I-74	Bettendorf	560	IA 21 NS	15	33%
US 67/E River Dr & College Ave	Davenport	705	IA 1 EW	12	33%
W Locust St & Interstate 280	Davenport	857	IA 5 EW	10	30%
Northwest Blvd	Davenport	899	IA 9 NS	10	30%
I-80	Bettendorf	903	-	10	30%
I-80	Unincorporated	907	-	10	30%
I-74	Bettendorf	374	IA 21 NS	21	29%

Table7.3.4.4: Illinois Intersections/Clusters

Primary Road of Intersection (if State Highway)	City	ID	HIN	Total Crashes	Percent Straight Ahead or Breaking
IL841	Moline	IL224	IL 14 NS	16	100%
IL092	Unincorporated	IL346	IL 1 EW	17	94%
-	Moline	IL361	IL 14 NS	17	94%
-	Kewanee	IL871	-	15	93%
IL95	Unincorporated	IL997	-	18	89%
IL092	Unincorporated	IL217	IL 1 EW	18	89%
-	Rock Island	IL147	IL 14 EW	26	88%
-	Moline	IL682	IL 8 EW	17	88%
IL771	Moline	IL200	IL 7 EW	23	87%
-	Moline	IL170	-	35	86%
US067	Unincorporated	IL216	IL 4 EW	26	85%
I 074	Unincorporated	IL904	IL 3 EW	18	83%
-	Rock Island	IL221	IL 5 NS	23	83%
I 4 B*	Unincorporated	IL408	IL 3 EW	17	82%
IL841	Moline	IL75	IL 14 NS	72	82%
I 080	Unincorporated	IL708	IL 3 EW	16	81%
I 4 B*	Moline	IL278	IL 3 EW	16	81%
I 280	Milan	IL916	IL 3 EW	16	81%

IL99	Rock Island	IL59	IL 4 NS	58	81%
-	Rock Island	IL262	IL 5 NS	21	81%
US150	Unincorporated	IL242	IL 13 NS	21	81%
-	Moline	IL113	IL 9 NS	35	80%
IL092*	Moline	IL267	IL 19 NS	20	80%
-	Unincorporated	IL488	IL 8 EW	15	80%
IL773	Moline	IL366	IL 10 EW	15	80%
-	Moline	IL249	IL 16 NS	30	80%

7.3.5 Reduction in Traffic Flow Interruption

These are locations where a lack of signal coordination, closely spaced signals or multiple driveways can cause collisions from closely following vehicles. For collisions in Iowa, a metric of following too closely was used with a threshold of 15 percent for corridors and 60 percent for intersections was used. For collisions in Illinois, a metric of front to rear collisions was used with a threshold of 30 percent for corridors and 65 percent for intersections was used. Potential safety countermeasures identified with the highest potential to reduce crashes related to traffic flow interruptions include Traffic Signal Coordination, Intersection Control Design Modification, Turning Pocket Installation, Access Management, Enforcement, and Education. Both corridor and cluster/intersection locations are identified as part of this program. In some cases, clusters/intersections are within identified corridors, and in other cases they are isolated locations with especially high issues as identified by this program. A map of the locations can be seen in Figures 7.3.5.1 through 7.3.5.3. Tables 7.3.5.1 through 7.3.5.4 show the corridors and intersections identified as having the highest percentage of collisions due to red light violations.

Overall, 27 corridors with high levels of traffic flow interruption contributing to collisions were identified: 12 in the Iowa Quad Cities, 13 in the Illinois Quad Cities, and one in each of Muscatine and Kewanee. There are 51 individual clusters/intersections identified with traffic flow interruption contributing to crashes: 17 in the Iowa Quad Cities, 33 in the Illinois Quad Cities, and one in Kewanee.

Figure 7.3.5.1: Traffic Flow Improvement Program Locations – Quad Cities

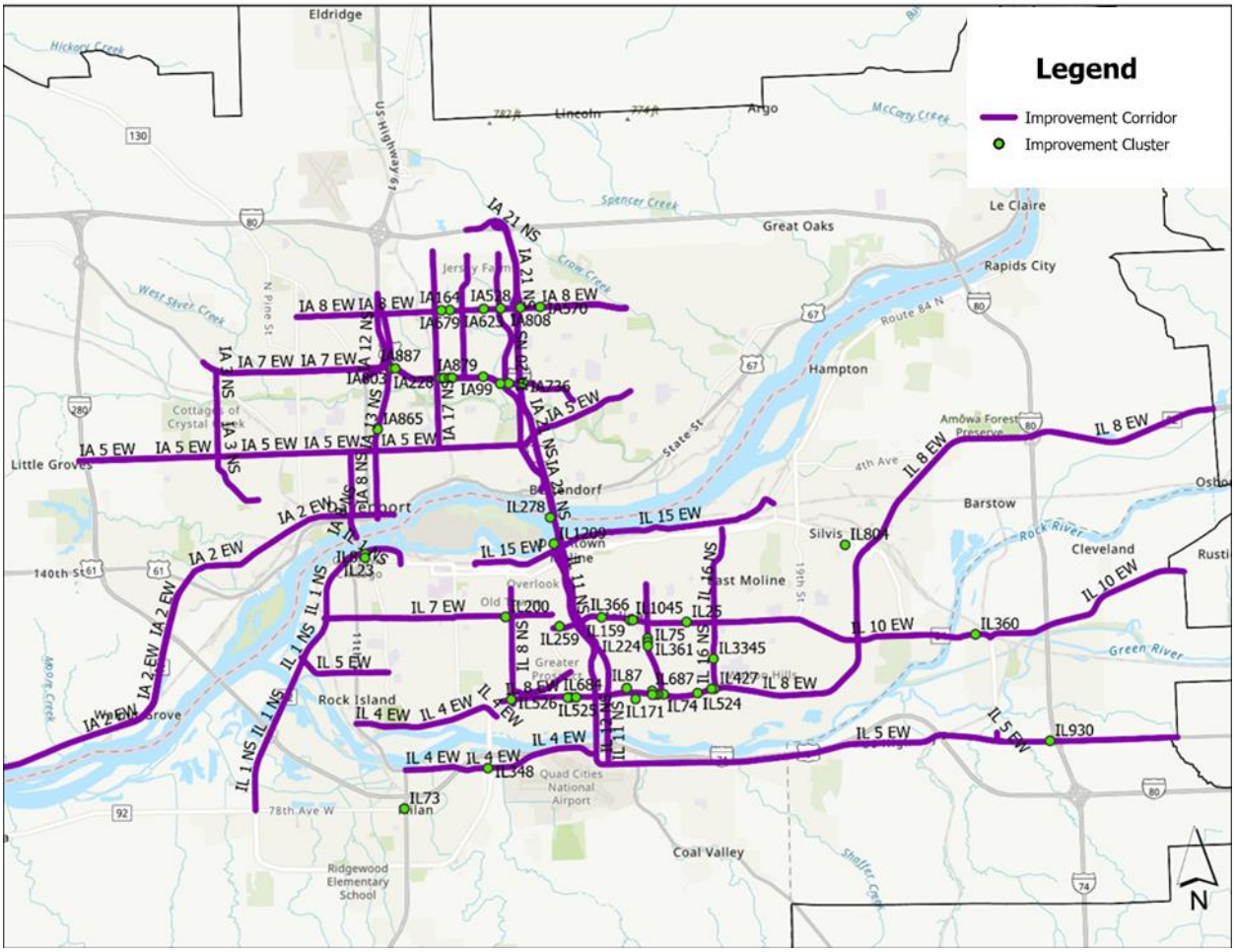


Figure 7.3.5.2: Traffic Flow Improvement Program Locations – Muscatine

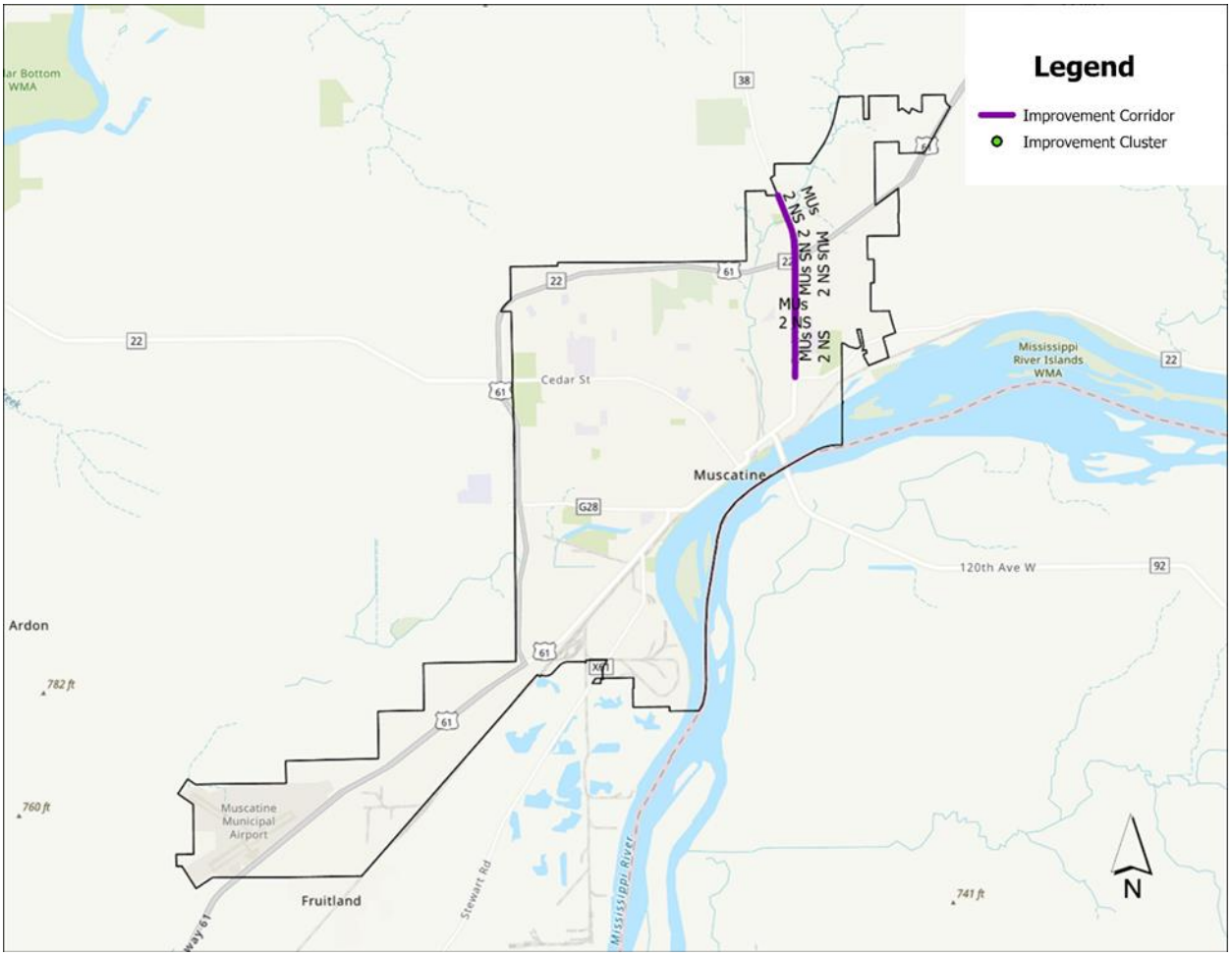


Figure 7.3.5.3: Traffic Flow Improvement Program Locations – Kewanee

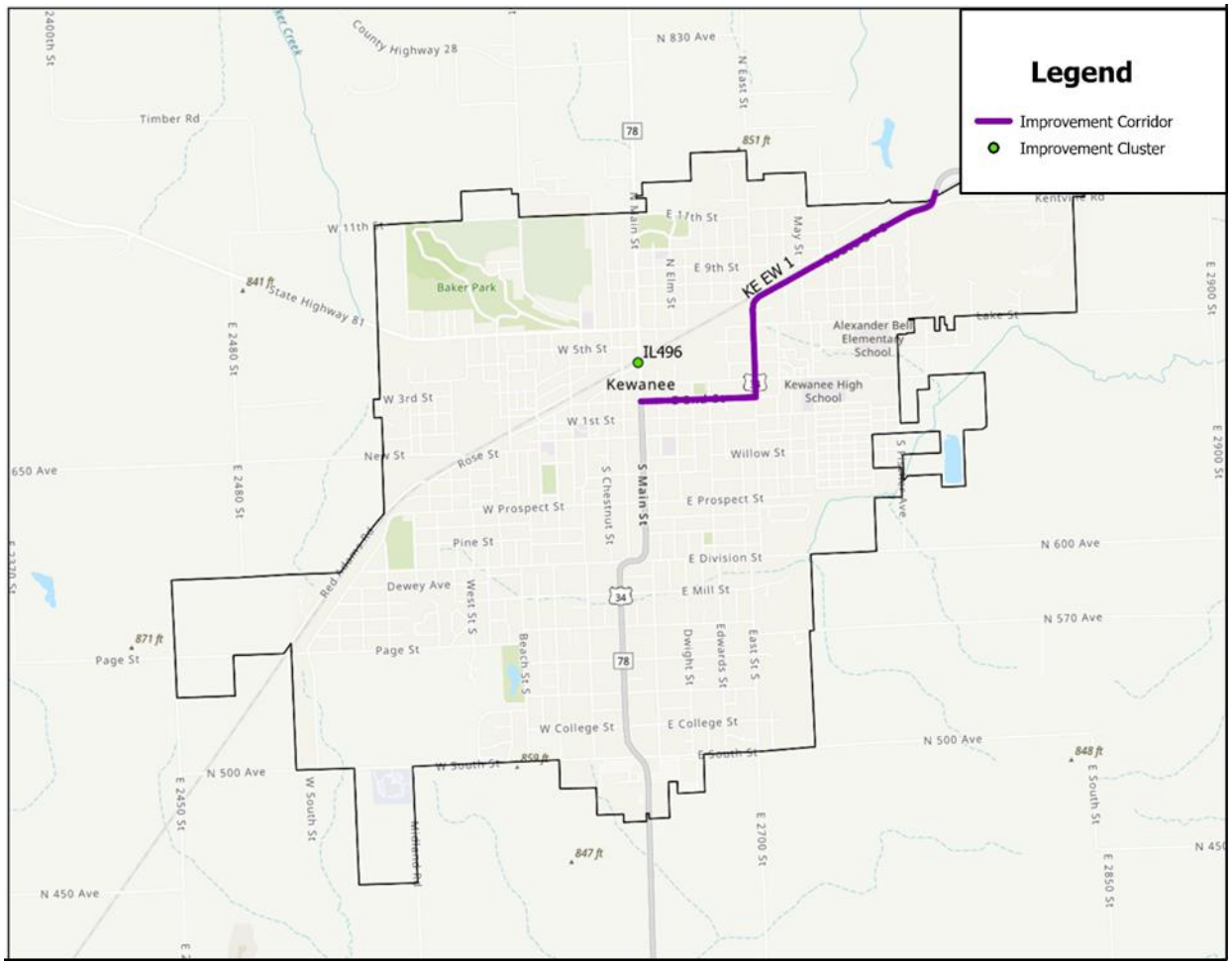


Table 7.3.5.1: Iowa Corridors (Following Too Closely)

Corridor	HIN	Corridor Length (Miles)	Total Crashes	Percent Following Too Close
53rd Street from North Division Street to Devils Glen Road	IA 8 EW	8.1	2147	37%
US 6/West Kimberly Road from Hickory Grove Road to I-74 and Spruce Hills Drive to 18th Street	IA 7 EW	12.7	1675	31%
Jersey Ridge Road from Veterans Memorial Parkway to East Kimberly Road	IA 18 NS	2.2	85	26%
Eastern Avenue from East Locust Street to Veterans Memorial Parkway	IA 17 NS	3.7	591	24%
Muscatine: Park Avenue / IA 38	MUs 2 NS	2.9	72	24%
I-74	IA 21 NS	13.4	722	21%
Locust Street / Middle Road from I-280/US 61 to Devils Glen Road	IA 5 EW	11.8	3045	21%
Kimberly Road /Elmore Avenue from Grant Street to Veterans Memorial Parkway	IA 20 NS	5.5	798	19%
Brady Street from West 53rd Street to West River Drive	IA 13 NS	4.1	1287	18%
Welcome Way / Harrison Street from West 53rd Street to West River Drive	IA 12 NS	1.7	154	18%
Waverly Road / North Fairmount Street from North Lincoln Avenue to US 6	IA 3 NS	2.8	156	17%
Gaines Street (US 67) from Mississippi River Bridge to West Locust Street	IA 8 NS	2.0	473	17%
2nd Street/ Rockingham Road (US 6)	IA 2 EW	16.2	950	16%

Table 7.3.5.2: Illinois Corridors (Front to Rear Crashes)

Corridor	HIN Corridor	Length (Miles)	Total Crashes	Percent Front to Rear
41st Steet from 12 Avenue to IL 5: John Deere Road	IL 14 NS	2.1	991	49%
35th Avenue Place from 7th Street 16th Street	IL 6 EW	1.2	229	48%
IL 5/IL 92/I-88	IL 8 EW	12.4	2185	43%
Avenue of the Cities/Colona Road from 16th Street to Cleveland Road, Cleveland Road/Wolf Road from Avenue of the Cities to City Line	IL 10 EW	12.1	2268	40%
18th Avenue/19th Avenue from IL 92 to 15th Street/16th Street	IL 7 EW	4.2	915	39%
4th Avenue/River Drive/12th Avenue from 4th Street to 13th Street	IL 15 EW	5.8	542	39%
US 6 from Mississippi River Bridge to 19th Street	IL 11 NS	6.1	26	38%
27th Street 19th Street from Airport Road to 2nd Avenue	IL 12 NS	5.2	666	37%
US 34 from Kewanee Township Road to North Main Street (IL 78)	KE EW 1	1.9	110	36%
1st Avenue/Centennial Expressway/IL 92W from 5th Avenue to 35th Street West	IL 1 NS	6.8	34	35%
East 1st Street/Airport Road from 1st Street West (US 67) to 27th Street	IL 4 EW	6.3	457	33%
7th Street from 12th Avenue to John Deere Road (IL 5)	IL 8 NS	2.1	681	32%
Sunset Lane/31st Avenue from Centennial Expressway to 17th Street	IL 5 EW	12.9	638	30%
Kennedy Drive/60th Street from 16th Avenue to John Deere Road (IL 5)	IL 16 NS	2.9	231	30%

Table 7.3.5.3: Iowa Clusters/Intersections (Following Too Closely)

Primary Road of Intersection	City	ID	HIN	Crashes	Percent Following Too Close
E 53rd St	Davenport	528	IA 8 EW	16	81%
US 6/E Kimberly Rd	Davenport	614	IA 7 EW	14	79%
E 53rd St Measuring 550 Feet East from Lorton Ave & E 53rd St	Davenport	623	IA 8 EW	14	79%
E 53rd St Measuring 511 Feet East from Eastern Ave & E 53rd St	Davenport	679	IA 8 EW	13	77%
US 6/Spruce Hills Dr	Davenport	227	IA 7 EW	31	74%
US 6/E Kimberly Rd	Davenport	228	IA 7 EW	31	71%
US 6/E Kimberly Rd	Davenport	879	IA 7 EW	10	70%
US 6/E Kimberly Rd	Davenport	887	IA 7 EW	10	70%
E 53RD ST & Belle Ave	Davenport	164	-	39	67%
US 6/ Spruce Hills Dr	Bettendorf	736	IA 7 EW	12	67%
US 6/E Kimberly Rd	Davenport	260	IA 7 EW	28	64%
Kimberly Rd	Davenport	612	IA 7 EW	14	64%
E 53rd St	Davenport	808	IA 8 EW	11	64%
US 6/E Kimberly Rd	Davenport	803	IA 7 EW	11	64%
US 6/E Kimberly Rd & Forest Rd	Davenport	99	-	54	61%
E 53rd St Measuring 145 Feet West from E 53rd St & Utica Ridge Rd	Davenport	570	IA 8 EW	15	60%
IA 461/Brady St	Davenport	865	IA 13 NS	10	60%

Table 7.3.5.4: Illinois Clusters/Intersections (Front to Rear Crashes)

Primary Road of Intersection (if State Highway)	City	ID	HIN	Crashes	Percent Front to Rear
IL841	Moline	IL224	IL 14 NS	16	100%
IL95	Moline	IL525	IL 8 EW	12	92%
US067	Rock Island	IL8	-	165	88%
IL95	Moline	IL155	IL 8 EW	23	87%
IL773	Moline	IL366	IL 10 EW	15	87%
I 2 B	Kewanee	IL496	KE 1 NS	14	86%
-	Moline	IL687	-	12	83%
-	Moline	IL361	IL 14 NS	17	82%
-	Moline	IL682	IL 8 EW	17	82%
IL95	Moline	IL1547	IL 8 EW	11	82%
IL005	Moline	IL427	IL 8 EW	20	80%
IL95	Moline	IL683	IL 8 EW	14	79%
US067	Rock Island	IL23	-	68	76%
I 4 B*	Moline	IL278	IL 3 EW	16	75%
US010	Silvis	IL804	-	12	75%
IL005	Moline	IL74	IL 8 EW	37	73%
IL005	Moline	IL974	IL 8 EW	11	73%
IL95	Moline	IL524	IL 8 EW	11	73%
IL822	Milan	IL348	IL 4 EW	28	71%
-	Moline	IL259	IL 10 EW	14	71%
IL95	Moline	IL526	IL 8 EW	17	71%
-	Unincorporated	IL3345	IL 16 NS	10	70%
IL005	Moline	IL684	IL 8 EW	10	70%
IL773	Moline	IL1045	IL 10 EW	10	70%
IL841	Moline	IL75	IL 14 NS	72	69%
I 074	Moline	IL1209	-	16	69%
US067	Milan	IL73	IL 4 EW	36	67%
IL95	Moline	IL171	-	27	67%
IL95	Colona	IL360	IL 10 EW	21	67%
US006	Colona	IL930	IL 5 EW	12	67%
IL844	Moline	IL25	IL 10 EW	108	66%

IL773	Moline	IL159	IL 10 EW	29	66%
-	Moline	IL87	IL 6 EW	26	65%
IL771	Moline	IL200	IL 7 EW	23	65%

7.3.6 Additional Early Action Systemic Countermeasures

In addition to the site-specific early action systemic countermeasure programs listed above additional early action countermeasures were identified and are recommended for implementation at the system level. These countermeasures include Road Diets, School Resource Officer Programs, Emergency Service Access, and Safe Route to School Programs. FHWA's Proven Safety Countermeasures[14] and the FHWA description of the safety planning process[15] are resources for further explaining and determining the applicability of safety countermeasures and programs.

7.3.7 Kewanee Specific Programs

Additionally specific programs for the city of Kewanee were identified and recommended that would improve safety along major roadways in the city limits. Countermeasures that were identified to improve safety within the city limits of Kewanee include utility pole relocation or reflective marking if relocation is unattainable, speed reducing designs, speed enforcement, and pedestrian and bicycle facilities. Table 7.3.7.1 lists locations that were identified for countermeasure implementation and include the need for a traffic study along East Street.

Table 7.3.7.1: Kewanee Specific Programs and Locations

Kewanee Main Street (IL 78) Pole Program
Kewanee East Street Traffic Study
Kewanee IL 34 Speed Reduction and Enforcement Program
Kewanee Lake Street Sidewalk Installation

7.4 Performance Measures

To assess their effectiveness, improvements must be tracked. The committee will monitor and assess the crash history after a countermeasure is put in place to see if the anticipated decrease in crashes has been achieved. If certain site features make it impossible to achieve the crash reduction, further countermeasures might be taken into consideration.

[14] https://highways.dot.gov/safety/proven-safety-countermeasures
[15] https://highways.dot.gov/tsp-and-zero-deaths-vision-guide-metropolitan-planning-organizations-and-local-communities/chapter

In order to address the Zero Vision Goal for 2040, tracking five year rolling averages of crash history will be compiled to monitor toward the 2 percent per year reduction in crashes.

8 Taking Action with Comprehensive Traffic Safety

Obtaining the goal of improving safety on roadways for all users is a shared responsibility of both public agencies and roadway users. Goals were established to offer a structured plan to obtain the desired reduction in fatal and serious injury crashes in the study area and are outlined in the following section.

8.1 Four E's Approach

A comprehensive traffic safety strategy looks beyond engineering alone to the 4Es: Engineering, Enforcement, Education, and Emergency Response. Examined below, each of the 4Es includes key strategies to maximize the impact of reducing severe crashes in the study area.

4 E's Approach

Engineering

Design roadways for all users, focus on safety improvements, and facilitate collaboration between roadway planners, designer engineers, maintenance, and operations personnel.

Project Based: Deploy project-based safety improvements at intersections or roadway segments with a high concentration of severe crashes.

Systemic Based: A systemic approach can help experts understand what roadway characteristics elevate severe crash risk. Regardless of the site's crash history, proven countermeasures can be implemented to proactively address serious crashes on roads with those higher risks.

Enforcement

Conduct targeted enforcement operations in areas with a high crash history or where driver habits are known to enhance the likelihood of a serious injury crash.

Enforcement Campaigns: Deploy targeted enforcement campaigns around driver behaviors that increase crash likelihood and severity such as speeding, seatbelt use, distracted driving, and driving under the influence.

Visibility Campaigns: Increase visibility of patrols to change road user behavior.

Education

Educate or re-educate the public on the importance of safe behaviors and the lasting impact of non-compliance. Education campaigns should focus on vulnerable road users, high-risk groups, and vehicle-based laws.

Action Items: Public education on safe behaviors such as intersection and railroad crossings, helmet and seatbelt use, speed limit compliance, and DUI/DWI.

Steps: Advertisements on safe behaviors and lasting impacts of non-compliance including billboards, targeted social media, mailers and school visits.

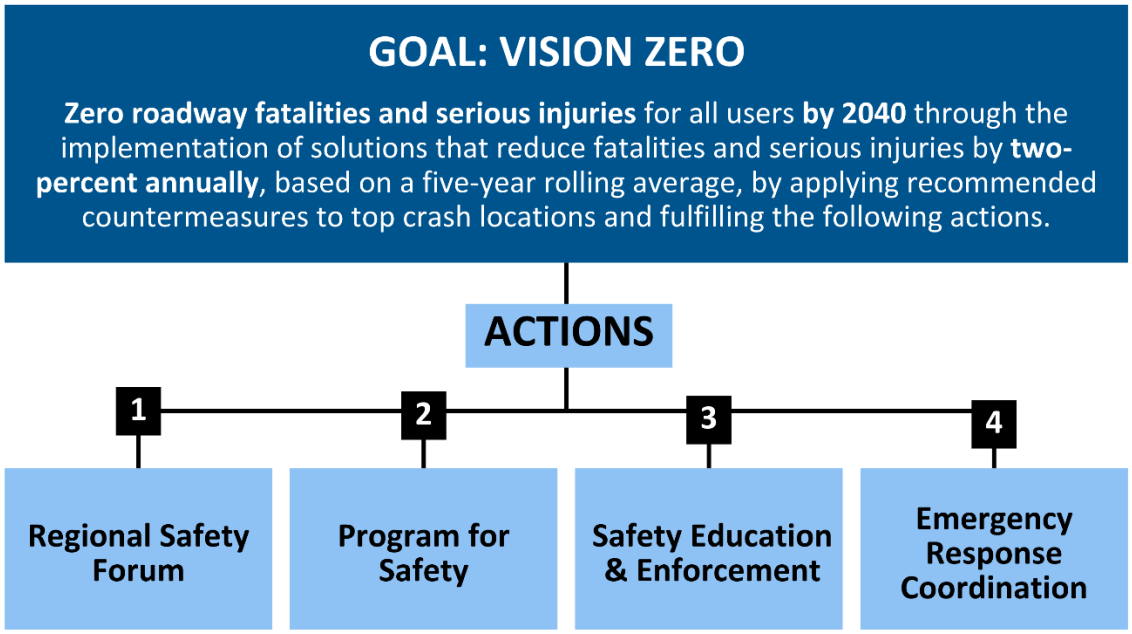
Emergency Response

Continue to improve emergency response systems such as equipment, communication, and agency collaboration.

Equipment: Ensure equipment is in working order and modernized. Create and regularly update capital plans to maintain and replace equipment as necessary.
Incident Management: Practice good Incident Command during responses by collaborating among agencies, dispatching only required resources, and quickly clearing crash scenes to reduce chances of secondary crashes.
Response Time: Ensure detailed information is given to responding agencies. Create and regularly update response and patient evacuation plans to reduce time to treatment center.

8.2 Regional Goals

Based on the study findings performed as part of this TSAP, the Steering Committee members have committed to a Vision Zero goal to achieve zero traffic-related fatalities or serious injuries through targeted safety improvements and implementation of the following goals:



Action 1: Regional Safety Forum

Create a forum utilizing existing partnerships that will meet twice-yearly hosted by the Bi-State Regional Commission where the Illinois and Iowa Departments of Transportation, regional Counties, Municipal representatives and Township representatives meet to discuss priority safety projects, regional safety education campaign messaging, funding options and partnerships needed to address top crash locations. The forum will be utilized for programing safety, safety education and enforcement, and emergency response coordination.

Action 2: Program for Safety

i. Cooperatively, and individually by jurisdiction, pursue and devote funding to the implementation of projects to eliminate incapacitating and fatal injuries to support each States' respective traffic safety reduction targets.

ii. Prioritize the implementation of safety projects that focus on preventing accidents for pedal cyclists and pedestrians because of the increased likelihood of a death or serious injury occurring.

iii. Implement proven safety countermeasures based on local and systemic conditions and cost-effectiveness with a focus on the early-action program areas.

iv. Prioritize project funding and countermeasure applications equitably, considering areas where impacts have been disproportionate over time, particularly in economically depressed, underserved or disadvantaged communities.

v. Identify and prioritize areas where speed reductions, lane reductions and traffic enforcement may have positive safety benefits, using the data analysis provided in this plan, and through subsequent data analysis in the future.

vi. Prioritize safety in school areas by developing and implementing Safe Routes to School plans to address improving signage and striping for crosswalks and access and egress, reducing vehicle speeds, and establishing consistent enforcement practices in these areas.
vii. Implement more protection for turns, such as left-turn exclusive signals, prohibition of conflicting movements, and improved signage and striping.
viii. Adjust traffic signal timing and implement signal synchronization coordination to manage speed and/or delays in corridors.
ix. Monitor the effectiveness of applied countermeasures for crash reduction to determine if the expected crash reduction was accomplished and review potential additional interventions if expected crash reduction was not met, such as through traffic safety audits.

Action 3: Safety Education and Enforcement

Work with the diverse representatives of the TSAP Project Advisory Committee (PAC) to utilize existing groups or partnerships of health and safety professionals, educators, emergency responders, and other local and regional representatives to establish priority areas for the establishment and adoption of region wide safety education and enforcement campaigns to increase driver awareness of regional safety priorities and encourage safe practices. The regional forum can be used to bring partners together to incorporate and build upon existing traffic safety committees at the jurisdictional level where safety education and enforcement campaigns may already be underway or in discussion.

Action 4: Emergency Response Coordination

Identify stakeholders and use the regional traffic safety forum or utilize existing groups or partnerships, such as county emergency planning committees, to assess and address emergency response times and partnerships, personnel and equipment needed to improve areas of concern. This emergency response coordination should incorporate and build upon existing emergency response organizations and committees where emergency response coordination and improvements may already be underway or in discussion to reduce duplication and to extend beneficial efforts toward Vision Zero.

The study area crash history currently averages 176.3 fatal or severe injuries per year but sees variability of 20-30 fatalities and severe injuries on an annual basis, so the use of a five-year rolling average to assess the performance of the TSAP implementation is intended to smooth out data over a reasonable time period to provide for the implementation of countermeasures and programs. By applying the Proven Safety Measure effectiveness to the indicated potential countermeasures at each of the top crash locations by jurisdiction, and using an assumption each jurisdiction can implement one safety improvement per year at a local location and one state location, in conjunction with IDOT, per year, a three-year average reduction in fatal and severe (incapacitating) injuries would be 2 percent per year.

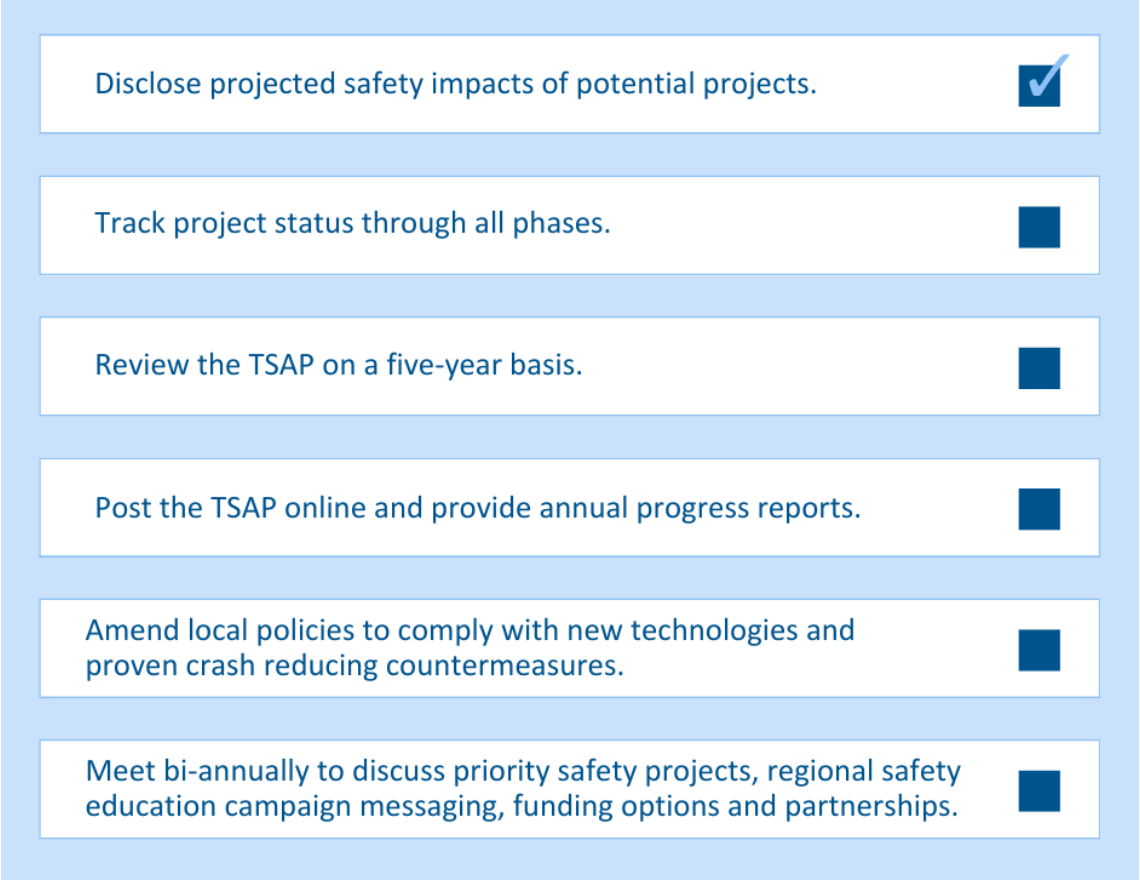
9 Monitoring Implementation and Effectiveness

As part of the goals and expectations set in this TSAP, progress will be regularly monitored and publicly disclosed. The following section outlines this process, which includes keeping the public informed, tracking project status and measuring effectiveness, regularly updating the TSAP, regularly reviewing

current policies for necessary changes, implementing proven countermeasures, and bi-annual meetings of the safety forum.

9.1 Progress and Transparency

The following steps are recommended to monitor progress and transparency in realizing the TSAP goals and will serve as a guide to the safety forum:



9.2 Goal Review and Tracking

To support fulfillment of Vision Zero, the following TSAP goals will be tracked and evaluated for effectiveness and progress annually:

1. Vision Zero: Ensure there is a two percent annual reduction of fatalities and serious injuries crashes (based on a five-year rolling average), trending towards zero in 2040.
2. Regional Traffic Safety Forum: Hold two yearly productive forums discussing priority safety projects, regional safety education campaign messaging, funding options and partnerships needed to address top crash locations across jurisdictions.
3. Program for Safety: Cooperatively pursue funding for safety projects, prioritize safety projects, implement safety countermeasures, prioritize vulnerable roadway users, prioritize safety in school areas, prioritize speed management, review the success of countermeasures.
4. Safety Education and Enforcement: Address system wide safety through education and enforcement activities via the regional traffic safety forum or via safety education partners. Establish priority areas for application of education and enforcement.
5. Emergency Response Coordination: Maintain the developed regional traffic safety forum to regularly assess and address emergency response times, agency partnerships, personnel and equipment needs.

The Commitment that the Quad Cities – Illinois and Iowa, and the Cities of Kewanee and Muscatine have made to programming for safety and working towards Vizion Zero through the development of this TSAP can have lifesaving outcomes for the years to come. The collaboration of municipalities, counties, IDOT, IowaDOT, enforcement and emergency responders, and citizens is essential to achieve the outlined TSAP goals and to continually improve traffic safety, with the overall goal of working towards zero fatalities and serious injury crashes in the study area.

Appendix A Top Crash Locations

This appendix provides insight into the top crash areas located outside of the study participant boundaries. Geographic coordinates are provided for both the Iowa and Illinois top unincorporated crash locations in the following tables.

Appendix B County Resolutions

This appendix displays county resolutions that were adopted as part of the commitment to the safe system approach.

Appendix C Existing Plans and Policies and Planned Projects

This appendix provides lists of the plans, policies and planned projects that were identified in the study area through a review of documents provided by the participating agencies. The first table shows the existing plans and policies that were identified in the study area. The second table shows the list of planned projects in the study area that were identified to have a safety component. The locational information, general timeframe and intervention type are also included in the planned project table. This information was used to examine a baseline set of conditions prior to the recommendations of the TSAP being identified.

Appendix D Stakeholder Engagement Plan