CITY OF OSKALOOSA

Local Road Safety Plan

Kimley»Horn

2020

City of Oskaloosa IOWA

LOCAL ROAD SAFETY PLAN
CITY OF OSKALOOSA

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EXECUTIVE SUMMARY

In the United States, over 37,000 people lost their lives in motor vehicle crashes in 2017. There was an average of 2.7 fatal and serious injury crashes per year on city Local Road Safety Plan (LRSP) study roads in Oskaloosa from 2008 to 2017, resulting in a LRSP road fatal and serious injury crash rate of 4.01 crashes per Hundred Million Vehicle Miles Traveled (HMVMT), less than the 4.99 statewide average fatal and serious injury crash rate over the same period. Oskaloosa's fatal and serious injury crash rate is also less than the 4.32 average of all cities in Iowa with a population of less than 40,000.

In the past, many efforts have focused on safety for higher volume roads and reactionary or "black spot" analysis of high-crash locations. However, there is a growing trend across the United States to focus on proactive safety improvements.

The Iowa Department of Transportation (DOT) developed a Strategic Highway Safety Plan (SHSP) to provide technical assistance in prioritization and deployment of safety countermeasures within various jurisdictions throughout the state. The LRSP concept is designed to build on the foundation established by the SHSP. The LRSP provides the basis for proactive implementation of safety countermeasures specific to individual cities across Iowa. This allows the city to leverage the road safety planning process to meet city-specific needs.

E.1. What is an LRSP?

An LRSP is a document that provides a basis for systemic safety improvements along a roadway network. Rather than addressing "black spots," the city LRSP process identifies safety improvements at intersections based on a risk factor analysis of the intersections within the city. LRSPs not only assist local practitioners in understanding the types of crashes occurring on local roadways, but they also define a locally focused plan for practitioners to make informed, prioritized safety decisions. Additional benefits of LRSPs include:

- Coordination between various agencies within the city
- Use of the results of the analysis to leverage and apply for funding
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E.1.1. Five E's of Safety

In some states, LRSPs generally focus on engineering improvements to mitigate crashes at the local level, but in Iowa, LRSPs are also assessing what efforts are taking place at the city or county level to address all of the Five E's of safety.

While engineering improvements can make the roadways safer, engineering improvements alone cannot prevent all motor vehicle crashes. According to the National Highway Traffic Safety Administration (NHTSA), over 90% of all crashes are the result of driver-related factors. Because such a high percentage of crashes are a result of driver-related factors, making roadways safer requires all of the Five E's to be involved.

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The LRSP identifies a prioritized list of safety improvement projects that can be implemented within the city to address specific crash characteristics identified during the data collection portion of the project. The recommendations in this plan focus on transportation improvements with a high benefit of crash reductions by applying the principles established in the SHSP and through a systemic ranking process performed specifically for the City of Oskaloosa. The recommended improvements take into consideration constraints within the city roadway network and incorporate feedback from the city and local stakeholders.

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Figure E-1 illustrates the cities and the counties completed in Phases 1, 2, 3, and 4 with respect to the state of Iowa.

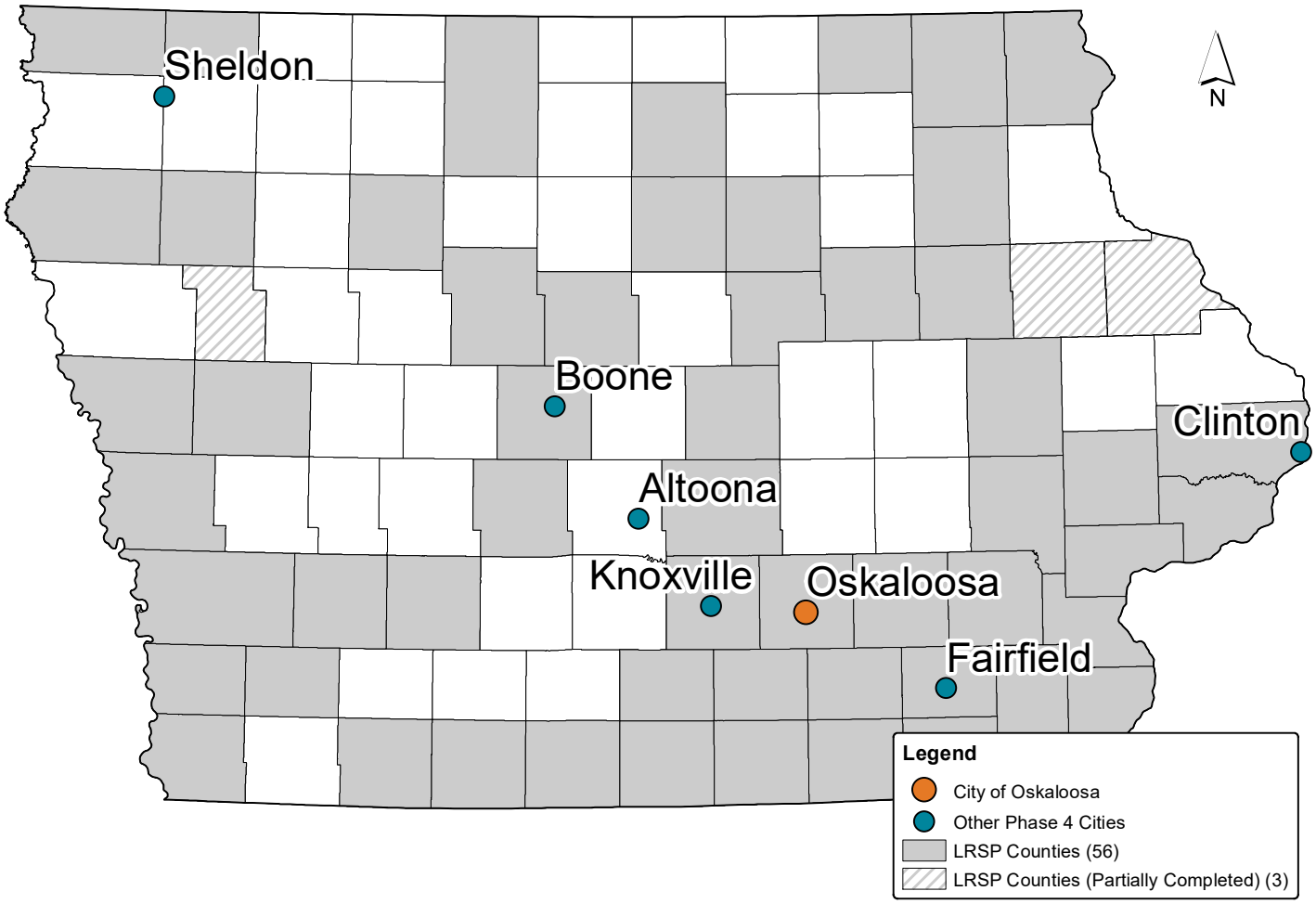

Figure E-1 – Location of LRSP Cities and Counties with Respect to Iowa

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The City of Oskaloosa is located in southeastern Iowa. It is the county seat of Mahaska County. Oskaloosa was a national center of coal mining in the late 1800's. According to the 2010 census, the population of Oskaloosa is 11,502; the US Census estimates the 2018 population at 11,426.

Of the approximately 88 miles of roadways that the city maintains, 28 miles were selected in coordination with the city for analysis of intersections along them as part of this LRSP study. From 2008 to 2017 there were 1,589 crashes on city LRSP study roads in Oskaloosa, of which 27 crashes resulted in fatal and serious injuries.

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The LRSP project includes eight primary task assignments. The following sections include a brief description of the tasks associated with this project, with a more detailed description of each task in subsequent sections of this document. **Figure E-2** illustrates the LRSP project process and timeline.

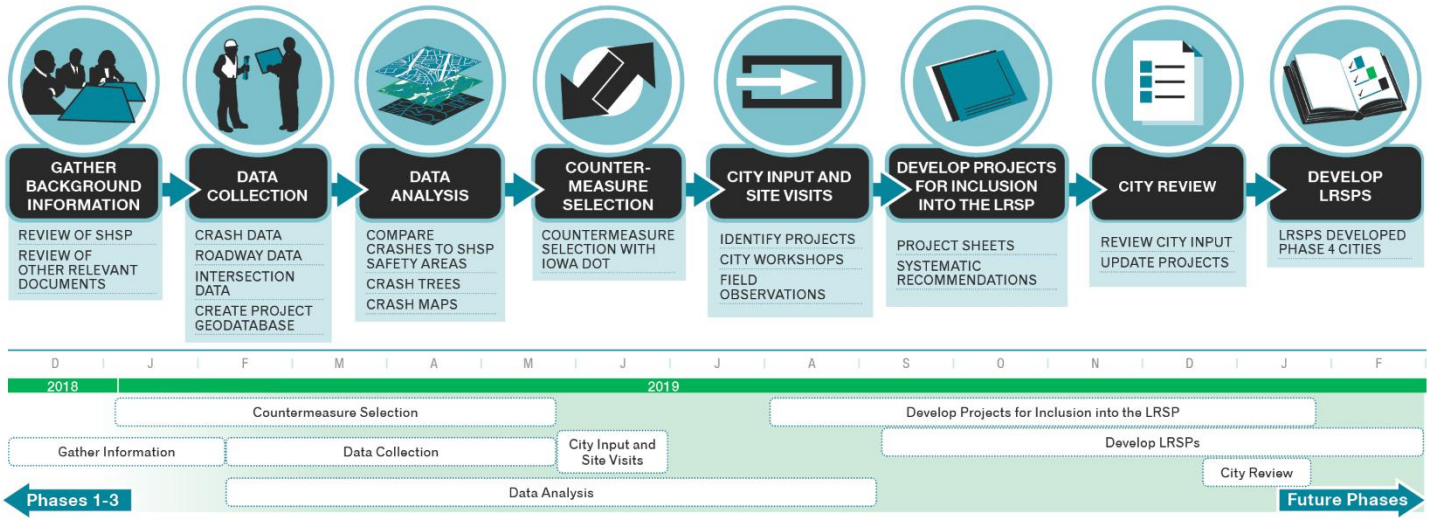


Figure E-2 – LRSP Project Process

E.4.1. Gather Background Information

Under this task, relevant documents were reviewed including the Iowa SHSP and potential funding sources. In coordination with the city and with the Iowa DOT, the city selected roads for inclusion in the LRSP study and verified the location of signalized and unsignalized intersections.

E.4.2. Data Collection

A comprehensive Geographic Information System (GIS) project database was developed utilizing the following databases as provided by the Iowa DOT, the city, or collected as part of this project:

- Crash database
- Roadway database
- Intersection database
- School, transit, and trails databases

E.4.3. Data Analysis

After development of the comprehensive GIS project database, the crash data was analyzed for the City of Oskaloosa. Crashes were compared to the Safety Emphasis Areas for the State of Iowa (as defined in the SHSP) and crash trees and maps were prepared. Relevant information from the crash data analysis is included in **Section 4** of this document.

E.4.4. Countermeasure Selection

In coordination with the Iowa DOT, a list of engineering-related safety countermeasures was developed for use as recommendations in the LRSP project. These countermeasures are discussed in **Section 5** of this document.

E.4.5. City Input and Site Visits

A workshop and field review were held with the safety stakeholders of the City of Oskaloosa on Friday, May 17, 2019. Prior to the workshop, a list of safety topics was developed and distributed to the city to foster discussion at the workshop on driver-related safety countermeasure

implementation. The results of the data analysis were also provided and the city selected intersections for further analysis. During this workshop, the following items were discussed:

- The background and purpose of the LRSP
- The Five E's of safety
- Crash data
- Driver-related countermeasures
- Review of candidate intersection selection methodology
- Potential intersection improvements

Driver-related countermeasures were reviewed, and stakeholders discussed existing and proposed driver-related countermeasures. A summary of the countermeasures currently underway in the city are included within this document.

Site visits with city staff were also conducted at the identified intersections and safety improvements were selected specific to the needs of each intersection.

E.4.6. Develop Projects for Inclusion into the LRSP

A risk factor ranking process was developed for city LRSP intersections. Vehicle, bicycle, and pedestrian risk factors were calculated for all unsignalized intersections along the LRSP roads and the Safety Intersection Candidate Location (SICL) crash analysis methodology was used to calculate a ranking for each signalized intersection. Risk factors included roadway features such as traffic volumes, number of approach lanes, skew, and lighting. After conducting the risk factor analysis, the city chose their top locations of interest for further evaluation. Recommended safety improvements were discussed during the site visits to each location of interest. Improvements included items such as additional signage, pavement markings, and geometric modifications.

E.4.7. City Review

Countermeasures for each location of interest were selected in-field allowing the city staff to use engineering judgment and site-specific knowledge to recommend safety countermeasures at the identified/prioritized locations. Project sheets detailing the recommended safety improvements at specific locations were then provided to the city staff for review.

E.4.8. Develop LRSPs

An LRSP was developed for the city including a summary of the LRSP process along with recommended safety projects for implementation by the city.

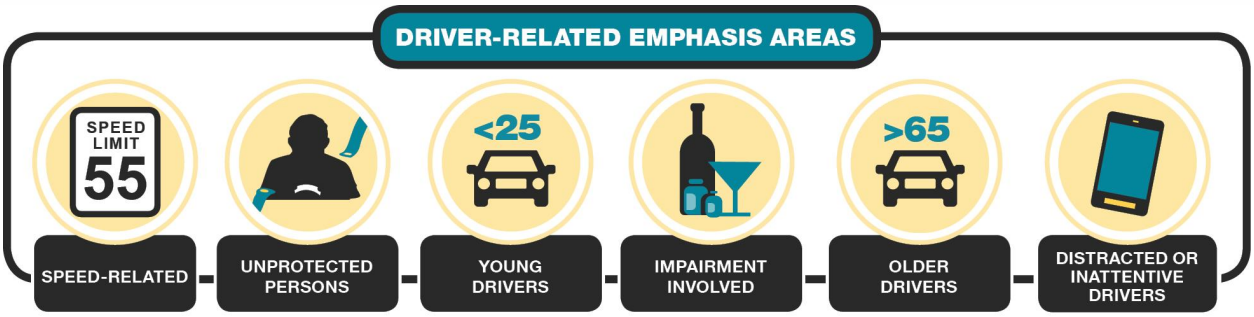
E.5. Recommendations

This LRSP identifies both driver-related and engineering-related countermeasures. The following sections summarize the recommended countermeasures and improvements for the city.

E.5.1. Driver-Related Countermeasures

The 2019 Iowa SHSP has eight priority safety emphasis areas, of which six are driver-related emphasis areas:

- Speed-related
- Unprotected persons
- Young drivers
- Impairment involved
- Older drivers
- Distracted or inattentive drivers



During the workshop, attendees were provided information regarding fatal and serious injury crashes within the city and how that data aligned with the Iowa SHSP priority safety emphasis areas. Potential countermeasures from the *National Cooperative Highway Research Program (NCHRP) Report 500 Series, Toward Zero Deaths* documents, and the results from previous Iowa LRSP Phases were provided to stakeholders to facilitate discussion on what action items were currently underway in the city with respect to driver-related crashes. The following statuses of implementation for the various driver-related countermeasures were defined based on the results of the discussion at the city workshop:

- Underway/Ongoing (currently being done);
- Area for Improvement (ongoing, but could be enhanced);
- Opportunity (not being done, but could be implemented); or
- Completed in the Past (has been completed in the past, but not planned to be implemented in the future).

Table E-1 provides a summary of the status of implementation of the driver-related countermeasures within the City of Oskaloosa. It is recommended that the city continue to implement countermeasures that are currently underway/ongoing and look for opportunities to implement additional countermeasures not currently being implemented. This will require input from and coordination with all of the Five E's of safety. **Section 5.5** provides details on the implementation of the driver-related countermeasures.

Table E-1 – City Driver-Related Countermeasure Summary

Countermeasure	Status
Speed-Related	
Conduct targeted speed enforcement	Underway/Ongoing
Prosecute and impose sanctions on drivers not obeying school bus stop bars	Underway/Ongoing, Opportunity
Unprotected Persons	
Conduct targeted enforcement of restraint use	Underway/Ongoing
Check for proper child restraint use in all motorist encounters	Underway/Ongoing
Instruction in proper child restraint use	Underway/Ongoing
Positive reinforcement	Underway/Ongoing
Young Drivers	
Enforcement of Graduated Driver's License (GDL) laws	Underway/Ongoing
Additional education	Underway/Ongoing
Impairment Involved	
Conduct Operating While Intoxicated (OWI) enforcement	Underway/Ongoing
Conduct high-visibility saturation patrols	Underway/Ongoing
Compliance checks for alcohol sales	Underway/Ongoing
Alternative transportation choices	Underway/Ongoing
Prosecute, impose sanctions on, and treat OWI offenders	Underway/Ongoing
Older Drivers	
Promote safe mobility choices	Underway/Ongoing
Encourage external reporting of at-risk drivers to licensing authorities	Opportunity
Distracted or Inattentive Drivers	
Visibly enforce existing statutes to deter distracted driving	Underway/Ongoing
Agency policy for hands-free devices	Area for Improvement

E.5.2. Engineering Countermeasures

In addition to driver-related countermeasures, a list of safety engineering projects was developed for prioritized intersections along the LRSP roads. Intersection projects included improvements such as intersection lighting, upgrading signs and pavement markings, and major geometric projects. **Table E-2** provides a consolidated cost summary of the recommended safety improvements developed for the city. **Section 6** of the LRSP and the **Appendix A** include detailed project information.

Table E-2 – Engineering Countermeasures Cost Summary

Number of Locations	Estimated Project Cost
11	$ 5,234,000

While conducting the field review at the 11 intersections, it was observed that some of the sign heights throughout the city did not appear to meet the Manual on Uniform Traffic Control Devices (MUTCD) requirements for sign heights. It is recommended that the city review signs throughout the city and reinstall them as per MUTCD requirements. Based on discussions in the workshop, the city would like to add retroreflective strips to all stop signs posts. The city should consider a plan to install the retroreflective strips to stop sign posts throughout the city.

E.6. Implementation

One of the goals of the LRSP project is to provide a document that is usable and can be frequently consulted by the city to aid in requesting funding and in the completion of traffic safety improvement projects at city intersections. This section describes some recommendations on how this plan can be implemented within the city.

The project sheets developed and provided in **Appendix A** are intended to be used as a straightforward way to apply for safety improvement funding through the following state programs listed in **Section 2.2**:

- Traffic Safety and Engineering Programs
  - Sign Replacement Program for Cities and Counties (SRPFCC)
  - Urban-State Traffic Engineering Program (U-STEP)
  - Traffic Engineering Assistance Program (TEAP)
  - Traffic Safety Improvement Program (TSIP)
  - Pedestrian Curb Ramp Construction
- Road, Street, and Bridge Programs
  - Iowa Clean Air Attainment Program (ICAAP)
- Trails, Enhancement, and Youth Programs
  - Recreational Trails Program

Additionally, there is a ranking of high-crash signalized intersection locations contained within **Appendix D** of this document as described in **Section 6.3**. It is recommended that the city consider applying for Traffic Safety Improvement Program (TSIP) funding at these locations because TSIP funding considers benefit-cost analysis. The city staff can review these locations to determine if safety improvements, similar to the ones outlined within **Section 5.4** are applicable and develop a TSIP application based on the recommended improvements.

The city staff should also review the planned or proposed roadway projects and consider including safety recommendations from the project sheets into those projects, where applicable. In future planning cycles, it is recommended that the safety projects included on the project sheets be considered for inclusion.

The city should also consider consulting the LRSP when developing a project for design or addressing a maintenance issue, in order to incorporate the types of safety improvement recommendations in the LRSP and in the project sheets. Doing so can help prioritize projects and emphasize safety in design and maintenance.

Finally, the LRSP can be consulted during routine maintenance activities such as striping and mowing (clearing and grubbing). The document can be used to provide instruction or education to maintenance crews about the safety implications of their work.

E.7. Next Steps

Project sheets containing the prioritized list of projects have been provided in **Appendix A**, to aid the city in obtaining funding for safety improvements and/or for incorporating recommendations into planned intersection improvement projects. These sheets may require updating for funding applications in future years. The city may also make changes to the prepared project sheets based on local knowledge of the site, available funding, and/or specific needs.

It is recommended that the city continue to foster cooperation with other stakeholders and look for opportunities to improve and expand implementation of driver-related countermeasures. The city should continue its history of implementing a number of safety improvement projects annually. Based on current funding levels, it is anticipated that many of the engineering improvements listed in this plan could be implemented within five to ten years, or sooner. Additionally, this LRSP should be updated within five to ten years to reflect improvements that have been implemented, additional availability of roadway feature data, and changes in crash types and patterns.

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List of Abbreviations

A	Serious Injury
AASHTO	American Association of State Highway and Transportation Officials
ADT	Average Daily Traffic
ARIDE	Advanced Roadside Impaired Driving Enforcement
CDL	Commercial Driver's License
CMF	Crash Modification Factor
CRF	Crash Reduction Factor
CPST	Child Passenger Safety Technician
DARE	Drug Abuse Resistance Education
DEV	Daily Entering Vehicles
DOT	Department of Transportation
DRE	Drug Recognition Expert
EMS	Emergency Medical Services
FHWA	Federal Highway Administration
Five E's	Engineering, Emergency response, Education, Enforcement, and Everyone
FTYROW	Failure to Yield Right-of-Way
GDL	Graduated Driver's License
GIMS	Geographic Information Management System
GIS	Geographic Information System
GTSB	Governor's Traffic Safety Bureau
HSM	Highway Safety Manual
HMVMT	Hundred Million Vehicle Miles Traveled
ICAAP	Iowa Clean Air Attainment Program
ICAT	Iowa Crash Analysis Tool
ICE	Intersection Configuration Evaluation
ICWS	Intersection Conflict Warning System
InTrans	Institute for Transportation at Iowa State University
K	Fatality
LRSP	Local Road Safety Plan
LRTF	Living Roadway Trust Fund
LTAP	Local Technical Assistance Program
MDST	Multi-Disciplinary Safety Team
MUTCD	Manual on Uniform Traffic Control Devices
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
OWI	Operating While Intoxicated
RAMS	Roadway Asset Management System
RRFB	Rectangular Rapid-Flashing Beacon
RSA	Road Safety Assessment
SHSP	Strategic Highway Safety Plan
SICL	Safety Improvement Candidate Location
SRPFCC	Sign Replacement Program for Cities and Counties
sTEP	Special Traffic Enforcement Program
TEAP	Traffic Engineering Assistance Program
TSIP	Traffic Safety Improvement Program
U-STEP	Urban-State Traffic Engineering Program

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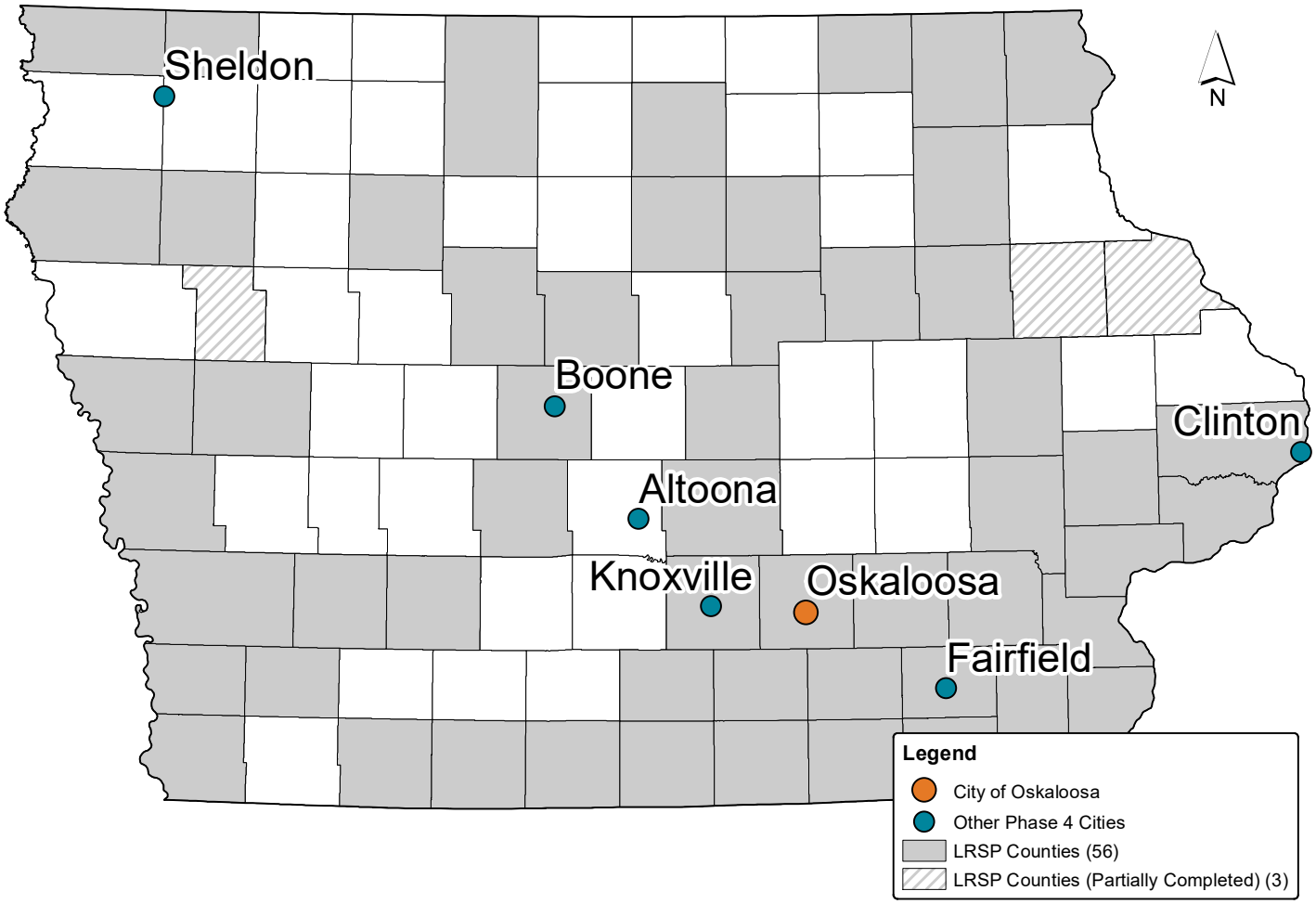

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1.4. LRSP Project Overview

The LRSP project includes eight primary task assignments. The following sections include a brief description of the tasks associated with this project, with a more detailed description of each task in subsequent sections of this document. **Figure 2** illustrates the LRSP project process and timeline.

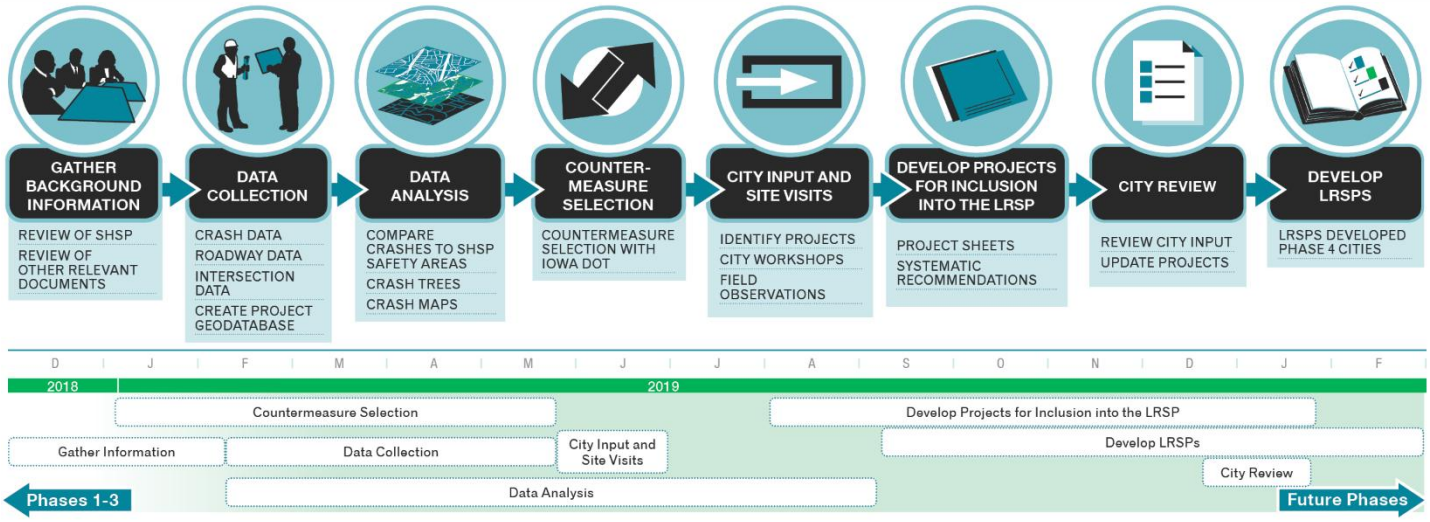


Figure 2 – LRSP Project Process

1.4.1. Gather Background Information

Under this task, relevant documents were reviewed including the Iowa SHSP and potential funding sources. In coordination with the city and with the Iowa DOT, the city selected roads for inclusion in the LRSP study and verified the location of signalized and unsignalized intersections.

1.4.2. Data Collection

A comprehensive Geographic Information System (GIS) project database was developed utilizing the following databases as provided by the Iowa DOT, the city, or collected as part of this project:

- Crash database
- Roadway database
- Intersection database
- School, transit, and trails databases

1.4.3. Data Analysis

After development of the comprehensive GIS project database, the crash data was analyzed for the City of Oskaloosa. Crashes were compared to the Safety Emphasis Areas for the State of Iowa (as defined in the SHSP) and crash trees and maps were prepared. Relevant information from the crash data analysis is included in **Section 4** of this document.

1.4.4. Countermeasure Selection

In coordination with the Iowa DOT, a list of engineering-related safety countermeasures was developed for use as recommendations in the LRSP project. These countermeasures are discussed in **Section 5** of this document.

1.4.5. City Input and Site Visits

A workshop and field review were held with the safety stakeholders of the City of Oskaloosa on Friday, May 17, 2019. Prior to the workshop, a list of safety topics was developed and distributed to the city to foster discussion at the workshop on driver-related safety countermeasure

implementation. The results of the data analysis were also provided and the city selected intersections for further analysis. During this workshop, the following items were discussed:

- The background and purpose of the LRSP
- The Five E's of safety
- Crash data
- Driver-related countermeasures
- Review of candidate intersection selection methodology
- Potential intersection improvements

Driver-related countermeasures were reviewed, and stakeholders discussed existing and proposed driver-related countermeasures. A summary of the countermeasures currently underway in the city are included within this document.

Site visits with city staff were also conducted at the identified intersections and safety improvements were selected specific to the needs of each intersection.

1.4.6. Develop Projects for Inclusion into the LRSP

A risk factor ranking process was developed for city LRSP intersections. Vehicle, bicycle, and pedestrian risk factors were calculated for all unsignalized intersections along the LRSP roads and the Safety Intersection Candidate Location (SICL) crash analysis methodology was used to calculate a ranking for each signalized intersection. Risk factors included roadway features such as traffic volumes, number of approach lanes, skew, and lighting. After conducting the risk factor analysis, the city chose their top locations of interest for further evaluation. Recommended safety improvements were discussed during the site visits to each location of interest. Improvements included items such as additional signage, pavement markings, and geometric modifications.

1.4.7. City Review

Countermeasures for each location of interest were selected in-field allowing the city staff to use engineering judgment and site-specific knowledge to recommend safety countermeasures at the identified/prioritized locations. Project sheets detailing the recommended safety improvements at specific locations were then provided to the city staff for review.

1.4.8. Develop LRSPs

An LRSP was developed for the city including a summary of the LRSP process along with recommended safety projects for implementation by the city.

1.5. Document Organization

This document is organized into the following sections:

- **Section 1** presents the introduction, project background, and purpose of the LRSP
- **Section 2** provides a summary of relevant information reviewed as part of the study
- **Section 3** summarizes the data collected and geodatabase developed for the analysis
- **Section 4** describes the city crash data analysis
- **Section 5** provides a summary of potential countermeasures and a summary of the driver-related countermeasure selection portion of the workshop
- **Section 6** describes the methodology for project selection and safety improvement recommendations for unsignalized and signalized intersection and provides a summary of the project selection portion of the workshop and site visits
- **Section 7** provides a summary of the LRSP recommendations
- **Appendices** include detailed city intersections project sheets, as well as summary sheets including all unsignalized and signalized intersections, that were analyzed as part of this LRSP

2. BACKGROUND

Under this task, relevant documents were reviewed including the Iowa SHSP, funding sources, and other documents provided by the city. The following sections summarize the background information that was gathered and reviewed as part of the LRSP.

2.1. Iowa SHSP

At the beginning of the LRSP project, the most current Iowa SHSP was the 2013 SHSP, which was in effect until December 31, 2016. The Iowa DOT recently published the 2019 SHSP which was reviewed, documenting progress in transportation safety and identifying older drivers and motorcycle-related severe injuries as rising trends. As part of the 2019 Iowa SHSP, five years of crash data for crashes resulting in fatalities and serious injuries were separated into 18 safety emphasis areas, which are generally defined by the American Association of State Highway and Transportation Officials (AASHTO) SHSP. This process determined the safety emphasis areas with the greatest number of crashes within Iowa and resulted in the focused opportunities for safety improvements on Iowa roadways.

There are eight priority safety emphasis areas that were determined by a data-driven process that took into account fatal and serious injury crashes by emphasis area, but also investigated trends within the emphasis areas. Identifying safety emphasis areas allows stakeholders to develop and prioritize strategies that can reduce fatal and serious injury crashes on Iowa roadways. Eight of the key safety emphasis areas which were defined in the 2013 SHSP are also identified in the 2019 SHSP as priorities. The two that are no longer a prioritized focus are: Traffic Safety Culture and Local Roads. It was noted that the Iowa DOT has been conducting LRSPs since 2014 to address local roads. Also, the emphasis areas of Lane Departures and Roadside Collisions were combined into a single focus area. Following is a summary of the eight prioritized safety emphasis areas for Iowa based on crash data from 2013 - 2017:

- Lane departure (56% of fatal and serious injury crashes) and Roadside collisions (37% of fatal and serious injury crashes)
- Speed-related (51% of fatal and serious injury crashes)
- Unprotected persons (34% of fatal and serious injury crashes)
- Young drivers (33% of fatal and serious injury crashes)
- Intersections (30% of fatal and serious injury crashes)

- Impairment involved (22% of fatal and serious injury crashes)
- Older drivers (18% of fatal and serious injury crashes)
- Distracted or inattentive drivers (13% of fatal and serious injury crashes)

The Iowa SHSP identifies five basic components (the Five E's) essential to meeting the goal of reducing fatalities and serious injuries on Iowa roadways:

- Engineering
- Emergency response
- Education
- Enforcement
- Everyone

By focusing on all of these components, Iowa believes it is possible to achieve their long-term safety vision and short-term safety targets.

2.2. Iowa DOT Safety Programs

There are a wide variety of transportation safety funding sources available to cities within the State of Iowa. The following Iowa DOT safety funding programs can be used to apply for funding to implement safety countermeasures, treatments, and recommendations for roadways and locations identified for improvements as part of this LRSP:

- Sign Replacement Program for Cities and Counties (SRPFCC)
  https://www.iowadot.gov/traffic/traffic-and-safety-programs/sign-replacement-program
- Traffic Engineering Assistance Program (TEAP)
  https://www.iowadot.gov/traffic/traffic-and-safety-programs/traffic-engineering-assistance-program-teap
- Traffic Safety Improvement Program (TSIP)
  https://iowadot.gov/traffic/traffic-and-safety-programs/tsip/tsip-program
- Urban-State Traffic Engineering Program (U-STEP)
- Iowa Clean Air Attainment Program (ICAAP)
  https://iowadot.gov/iowarail/Financial-Assistance/icaap
- Pedestrian Curb Ramp Construction
- Recreational Trails Program
  http://www.iowadot.gov/systems_planning/fedstate_rectrails.htm

The Iowa DOT Guide to Transportation Funding Programs of interest to local governments and others provides details on funding programs and application requirements. This document can be found here: https://iowadot.gov/pol_leg_services/Funding-Guide.pdf.

2.3. Other Safety Funding Opportunities and Resources

This section describes additional transportation safety funding opportunities and resources that are available for cities to improve safety on their roadways. It is recommended that city staff review these resources and find programs or resources that are valuable and could be applied within the city. Resources provided by the Iowa DOT, Blank Children's Hospital, and other websites are described.

2.3.1. Iowa DOT Resources

2.3.1.1. Zero Fatalities

The Iowa DOT, the Department of Public Health, and the Department of Public Safety have committed to the ultimate goal of zero fatalities and have teamed up to provide safety information, answers to frequently asked safety questions, general crash statistics, and marketing materials at https://ia.zerofatalities.com/.

2.3.1.2. Crash Maps and Data

The Iowa DOT has a crash mapping website called the Iowa Crash Analysis Tool (ICAT), which can be used to develop crash maps and obtain crash data to compare crash history within a city. Crash maps can be created by anyone with an internet connection. There are also options to develop data summaries of crashes at: https://icat.iowadot.gov/. Crash analysis maps, diagrams, and reports such as the following can be created:

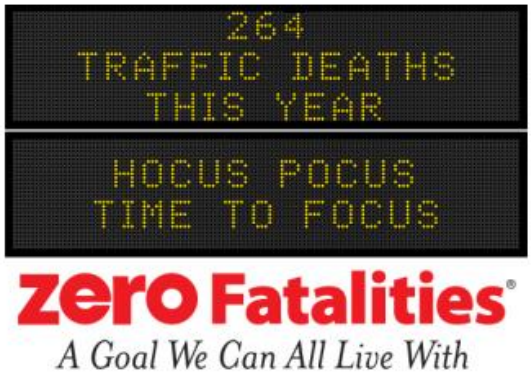
- Crash histories for specific areas, roads, and intersections
- Fatalities and/or injuries
- Alcohol-related crashes
- Seat belt status
- Cross-median crashes
- Pedestrian crashes
- Weather conditions

2.3.1.3. "Message Monday"

Iowa DOT's "Transportation Matters" blog includes an update every Monday that shows a weekly safety message. Individuals can either check the blog each Monday, or sign up to receive updates via email by clicking the "Subscribe" button in the upper right corner of the page: https://www.transportationmatters.iowadot.gov/. The information contained in the "Message Mondays" can be posted to city websites or social media pages and can be used in the schools to educate students. **Figure 3** shows an example message from October 2019.

MESSAGE MONDAY - HOCUS POCUS TIME TO FOCUS

10/28/2019



Zero Fatalities®
A Goal We Can All Live With

There's no magic potion or mysterious spell that will turn you into a safer driver. Our lives are busier than ever, most drivers feel fairly confident behind the wheel, and vehicles are easier to operate than ever. That combination leads many of us to try to accomplish other tasks while we should be concentrating on our driving.

Whether you're joining a conference call from the road, eating lunch, scheduling your kids' soccer practice via text message, or touching up your appearance, any activity that isn't directly related to the task of driving can be a dangerous distraction.

While it may seem mundane, putting the phone, sandwich, or hairbrush down and simply focusing on the road will help us all get home safely.

Hocus Pocus anyone? Who remembers the Sanderson Sisters? https://youtu.be/MMHbO4WJA1o

For 2019, there have been 264 fatalities reported. That's an increase of one since last Monday. The 2018 fatality count stands at 319. This is subject to change as law enforcement reports are completed. To see statistics published daily by the Bureau of Driver & Identification Services, go to the daily fatality report at https://www.iowadot.gov/mvd/stats/daily.pdf.

Figure 3 – Example Iowa DOT Transportation Matters Blog Post

2.3.1.4. Iowa Living Roadway Trust Fund (LRTF)

Since 1990, the LRTF has funded more than $17 million for research and demonstration projects, vegetation inventories, education and training programs, gateway landscaping, snow and erosion control, roadside enhancement, and more. Establishing prairie plants in roadside rights-of-way reduces snow drift and winter glare and provides low-maintenance weed and erosion control. Additional information is available at: https://www.iowadot.gov/lrtf.

2.3.1.5. CarFit

This program includes organized events designed to provide a quick and comprehensive check on how a driver and vehicle work together. Developed by the American Society on Aging, the focus of the program is on older drivers, but could benefit all drivers. Check the CarFit website at www.car-fit.org for an event in your community, or contact Iowa DOT's Driver and Identification Services to schedule an event (515-244-8725 or ods@iowadot.us). Visit the Iowa DOT website for more information on this program: https://iowadot.gov/mvd/carfit.

2.3.2. Iowa Local Technical Assistance Program (LTAP)

Iowa LTAP serves local governments and helps them keep up with growing demands on local roads, streets, bridges, and public transportation. The center provides technical and management assistance to local transportation officials through multiple programs and trainings. More information can be found at their website: https://www.iowaltap.iastate.edu/.

2.3.2.1. Multi-Disciplinary Safety Teams (MDSTs)

Iowa's MDST Program facilitates the development and operations of local multi-discipline safety teams to help identify and resolve local crash causes and enhance local crash response practices (https://www.iowaltap.iastate.edu/MDST/).
By coordinating communication and collaborating with other stakeholders, participants gain a broader perspective on safety issues and learn best practices from professionals outside their area of expertise. This ultimately leads to the development of solutions that may not have been considered otherwise.

If you are interested in developing an MDST for your area, contact Theresa Litteral, Statewide MDST Facilitator for more information (515-294-7465 or litteral@iastate.edu).

2.3.2.2. Road Safety Assessments (RSAs)

An RSA is a formal safety performance examination that reviews, in detail, the geometry of a roadway facility. As part of an RSA, an independent, multi-disciplinary team assesses the condition of a given roadway and provides short-, mid-, and long-term recommendations for safety improvements for all modes provided or planned to be provided by the facility. RSAs have been conducted throughout the United States and are generally accepted as a proactive, low-cost approach to improve safety. This countermeasure cost estimate listed in the project sheets does not include the cost of implementing the recommendations of the RSA.

If you are interested in identifying funding for and conducting an RSA in your city, please contact David Veneziano, the LTAP Safety Circuit Rider, for more information (515-294-5480 or dvenez@iastate.edu).

2.3.3. Governor's Traffic Safety Bureau (GTSB)

"The Mission of the GTSB is to identify traffic safety problems and, partnering with city, county, state and local agencies, develop and implement traffic safety programs to reduce death and injury on Iowa's streets and highways. The GTSB provides federally-funded

grants to city, county and state entities, as well as hospitals, universities, and other non-profit agencies working to improve traffic safety in the State of Iowa." More information can be found at: https://dps.iowa.gov/divisions/commissioners-office/governors-traffic-safety.

2.3.3.1. Fact Sheets

GTSB maintains fact sheets and media campaign information for the following driver-related countermeasures:

- Child Passenger Safety
- Impaired Driving
- Motorcycle Safety
- Seat Belts
- Distracted Driving

More information can be found at http://www.drivesmartiowa.com/.

2.3.3.2. Enforcement Funding

Iowa's special Traffic Enforcement Program (sTEP) invites participation from law enforcement agencies to conduct "high-visibility" enforcement events in connection with national campaigns. This program provides up to $4,200 for overtime enforcement or equipment targeting traffic safety during designated sTEP waves throughout the year.

2.3.3.3. Non-Enforcement Funding

Most non-enforcement agencies (hospitals, schools, etc.) have the option to apply for 402 funding because it is a broader traffic safety program that focuses specifically on alcohol/impairment programs.

2.3.3.4. Safety Checkpoint Trailer

GTSB has a safety checkpoint trailer that contains all the equipment needed to set up a safety checkpoint. The trailer is available free of charge, and those wishing to use it should contact GTSB to schedule a date and pick-up/drop-off time.

2.3.3.5. Advanced Roadside Impaired Driving Enforcement (ARIDE)

GTSB provides ARIDE training for law enforcement officers. This course is designed such that officers become more proficient at detecting, apprehending, testing, and successfully prosecuting impaired drivers.

2.3.3.6. Other GTSB Resources

GTSB has "drunk goggles" and a driving simulator that can be used for events to simulate the effects of impaired and distracted driving including reduced alertness, slow reaction time, visual distortion, alteration of depth, and poor decision making. In addition, GTSB has summary sheets that can be provided to law enforcement succinctly summarizing Iowa child passenger safety, seat belts, and cell phone laws.

2.3.4. Blank Children's Hospital

2.3.4.1. Child Passenger Safety

The Blank Children's Hospital provides an entire webpage focused on child passenger safety: https://www.unitypoint.org/blankchildrens/child-passenger-safety.aspx.

2.3.4.2. For Parents

Resources are available for parents including instructions on proper child restraint as well as registration for a free one-hour car seat safety class that is held twice a month. There is also information on locations for child safety seat inspections throughout the state.

2.3.4.3. National Child Passenger Safety Certification Training Program

The National Child Passenger Safety Certification Training Program is a three- to four-day training course that is paid for with funding provided by GTSB. The certification fee is $85.00.

2.3.4.4. Bike Safety

The Blank Children's Hospital has an *All Heads Covered: Our Wheeled-Sports Safety Program*. This program includes a curriculum kit that is designed to help educators teach bike and wheeled-sports safety in the classroom or community for elementary-aged children. They also have a Bike Safety Van that houses all the equipment to host a bike rodeo that is offered free of charge. Additionally, low-cost helmets are available through the program. Additional information is available on the following website: https://www.unitypoint.org/blankchildrens/bike-safety.aspx.

2.3.5. Other Websites and Resources

The following sections contain information on other websites and resources for traffic safety related information. The city can use this information on their websites, social media outlets, or consider posting materials on bulletin boards in public spaces. An example can be seen in **Figure 4**, as found in Cedar County. Additionally, there are materials that can be used in schools to educate future and young drivers on the importance of wearing seat belts.

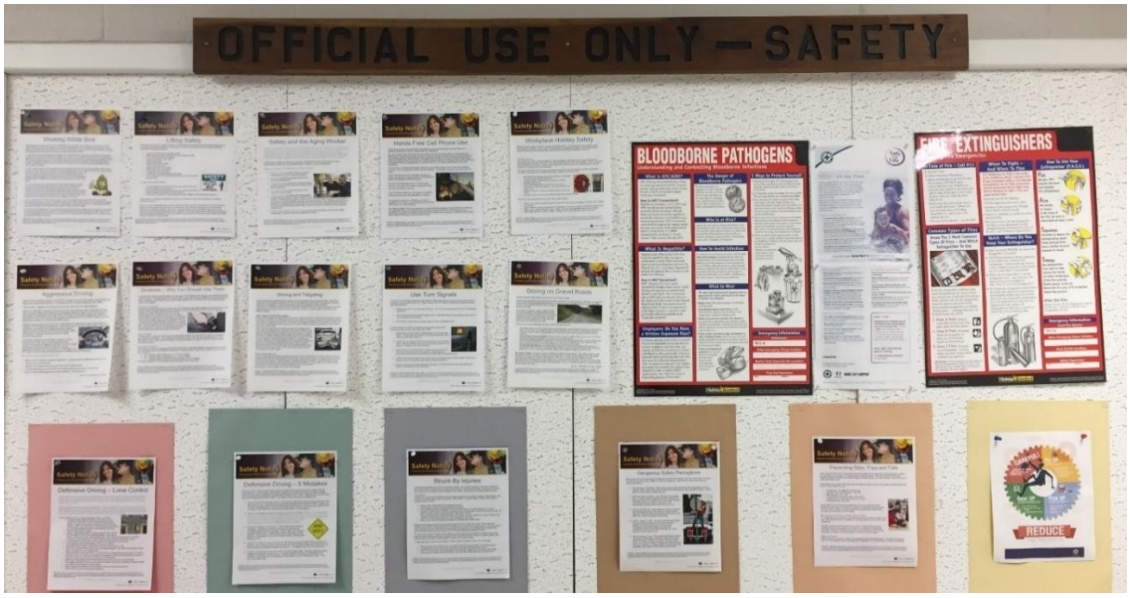


Figure 4 – Safety Bulletin Board in Cedar County

2.3.5.1. National Highway Traffic Safety Administration (NHTSA)

NHTSA has a wide variety of resources related to traffic safety which could be used by the city. NHTSA offers materials for numerous traffic safety campaigns, including drunk driving, car seats, vehicle safety, distracted driving, and motorcycles. These marketing tools offer a way to get involved through traditional media and online media (https://www.nhtsa.gov/).

2.3.5.2. Traffic Safety Marketing

Traffic Safety Marketing is an online resource for safety materials and can be used for safety campaigns. The city is encouraged to download and use the traffic safety materials provided during campaigns and throughout the year. There are various materials that are free of charge and others that can be paid for. More information can be found at: https://www.trafficsafetymarketing.gov/.

2.3.5.3. Insurance Company Safety Information

Transportation safety information for young drivers is provided by various insurance companies that could be used as a resource.

- Allstate Keeping New Drivers in Good Hands
  - https://www.allstate.com/auto-insurance/auto-insurance-for-teen-drivers.aspx
- GEICO Car Insurance Information and Resources for Teen and New Drivers Website
  - https://www.geico.com/information/safety/auto/teendriving/parents/
- Progressive Teen Driver Website
  - https://www.progressive.com/answers/teen-driver-insurance/
- State Farm Teen Driver Safety Website
  - https://www.statefarm.com/simple-insights/auto-and-vehicles/teen

2.3.5.4. Cell Phone Providers and Applications (Apps)

AT&T has a virtual reality experience/simulator that can be used to demonstrate the impacts of distracted driving. More information can be found on their website: http://itcanwait.com/VR.

There are various mobile apps that can be installed on phones to help prevent drivers from using their phones while driving. A few examples include:

- AT&T DriveMode
- Cellcontrol
- Drivesafe.ly
- Drive Safe Mode
- EverDrive
- LifeSaver
- Live2Txt
- Mojo
- Overwatch
- Safe Drive
- TrueMotion

Verizon provides a website with a brief review of recommended apps to discourage texting while driving:

- https://www.verizonwireless.com/archive/mobile-living/home-and-family/apps-to-block-texting-while-driving/

DMV.org provides a resource and review of “Apps to Fight Distracted Driving” here:

- https://www.dmv.org/distracted-driving-apps.php

3. Data Collection

As part of the LRSP project, a comprehensive GIS project database was developed utilizing crash data, roadway data, intersection data, and data on schools, transit, and trails. The following sections describe the databases utilized for creation of the project geodatabase and later used for analysis.

3.1. Crash Data

The Iowa DOT statewide crash database includes crash history for all crashes occurring on a public roadway in the state that involve a personal injury or that satisfy a minimum property damage threshold of $1,500. This database is updated monthly.

The crash database provides crash-, driver/vehicle-, and person-level attributes. All crashes are geocoded with respect to the Iowa DOT Geographic Information Management System (GIMS) roadway database. This LRSP utilizes 10 years of crash data for crashes occurring on roadways of interest between January 1, 2008 and December 31, 2017 (as of the January 7, 2019 database update).

Crashes included in the crash database were identified based on their “City” and “Concatenated System” attribute values. “Concatenated System” is an Iowa DOT-derived attribute, conveying the roadway system(s) on which a crash was located. The three roadway systems in Iowa are the Primary system (state-owned), the Secondary system (county-owned), and the Municipal system (city-owned). All crashes with a “Concatenated System” value containing “Municipal,” including intersections with state or county-owned roadways along the LRSP roads, were selected for analysis.

“City” attributes were added to the database to clearly identify on which system a crash likely occurred, as well as address any possible ambiguities in the initial “Concatenated System” derivation. This was initially accomplished by analyzing the spatial proximity of crashes with respect to city roads, as defined in the GIMS database. Additional analysis was performed for a limited number of crashes not located through the aforementioned technique.

3.2. Roadway (GIMS) Data

The Iowa DOT GIMS database includes various roadway characteristics for all public roads in Iowa. Roadway attributes are regularly updated by the Iowa DOT from various sources, including local agency submittals. This LRSP utilizes the GIMS history snapshot representing the year 2016. In 2017, the Iowa DOT migrated their database to the Roadway Asset Management System (RAMS), but for consistency of the crash data (2008-2017), the GIMS database was used. Data used from this database included Average Daily Traffic (ADT), approach street volumes, and approach speed limit.

In coordination with the Iowa DOT and with feedback from the city, LRSP roads were selected from those within the city boundaries, or that were adjacent to city boundaries. Roads that were considered included those designated as minor arterials, collectors, or local roads with higher average traffic volumes.

3.3. Intersection Data

The Institute for Transportation at Iowa State University (InTrans) and the Iowa DOT have collaborated over the past several years to create a statewide intersection database. The foundation of this database is a GIS-based intersection point file created by the Iowa DOT's Traffic and Safety Bureau. A selected set of inventory elements are being captured for each intersection and approach roadway with aerial imagery and street-level images. This LRSP utilizes the August 2017 version of the intersection database. Data used from this database included control type, lighting, number of approaches, number of lanes per approach, Daily Entering Vehicles (DEV), and skew.

A list of unsignalized and signalized intersections and their locations was provided to the city for confirmation and was updated based on feedback.

3.4. School, Transit, and Trails Data

As provided by the Iowa DOT and collected as part of this study, locations of schools within the city, transit stops (if available), and trails were used based on data available as of May 2019.

3.5. Crash Tree Development

The following sections describe the development of crash trees as a means of displaying LRSP road crashes. As previously noted, "City" road attributes were added to the crash database to identify on which system a crash likely occurred as well as to address any possible ambiguities in the initial "Concatenated System" derivation. This was initially completed through analysis of the spatial proximity of crashes with respect to city roadways, as defined in the GIMS database. Additional review was performed for a limited number of crashes not addressed through the aforementioned technique. Crash trees were developed for vehicle crashes as well as non-motorist crashes.

3.5.1. City Roadways

To supplement the crash database with additional available data sets the attributes relating to intersection traffic control were added and populated. The traffic control for intersection crashes was populated based on their spatial proximity to the current statewide intersection database points and the corresponding reported traffic control at these intersections.

Upon identifying all "City" road crashes from the crash database, the Iowa DOT-derived "Vehicle" attribute was used to segregate the city roadway crashes into vehicle and non-motorist types. For each of these user types, the standard Iowa DOT crash database attributes of "Vehicle," "Manner of Crash/Collision," and "Major Cause" were used to populate the trees. The new traffic control attribute was used to separate intersection crashes into the different traffic control type categories.

A second set of crash trees was then created in a similar manner, simply limiting the crashes to "Fatal" and "Major Injury," based on the Iowa DOT derived "Crash Severity" attribute. The two sets of crash trees were combined and were utilized in the development of this LRSP.

3.5.2. Major Cause and Manner of Crash

"Major Cause" and "Manner of Crash" statistics are provided in the crash trees and are based on total crashes. The fatal and serious injury crashes had similar characteristics to the total crashes for the city.

4. DATA ANALYSIS

From January 1, 2008 to December 31, 2017, there were a total of 1,589 crashes on the LRSP roads in Oskaloosa, of which 27 resulted in serious injuries or fatalities. The following sections contain crash maps and summarize the data analysis prepared for the city, noting how it compares to the crash totals of other cities throughout Iowa with a population of under 40,000. Crash trees are also included in this section.

Various methods of crash summary were employed as part of this data analysis including an attribute-based summary (**Section 4.1**) and geographic based and manually refined summary (**Section 4.2** and **Section 4.3**). The crash totals vary slightly based on the analysis type, methodology used, and the corporate limits at the time of the annual summary.

4.1. Comparison of LRSP Road Crashes to SHSP Priority Safety Emphasis Areas

As part of the 2019 Iowa SHSP, five years of crash data for crashes resulting in fatalities and serious injuries were separated into 18 safety emphasis areas, which are generally defined by the AASHTO SHSP. This process determined the safety emphasis areas with the greatest number of crashes within Iowa and resulted in the focused opportunities for safety improvements on Iowa roadways.

Table 1 contains a comparison of City of Oskaloosa crashes resulting in fatalities and serious injuries to the priority safety emphasis areas from the 2019 Iowa SHSP. As shown in the table, the city crashes generally follow the same priority safety emphasis areas as other cities with populations less than 40,000. The percentage of pedestrians involved in fatal and serious injury crashes in Oskaloosa was higher than Iowa cities with population less than 40,000 and speed-related and impairment involved fatal and serious injury crashes were lower. **Table 2** shows the difference in rank for comparison. As shown in **Table 1** and **Table 2**, the priority safety emphasis areas for the city generally rank the same as the priority safety emphasis areas from the SHSP. It should be noted that this analysis includes all fatal and serious injury crashes within the city, not just those on the LRSP roads.

Table 1 – Fatal and Serious Injuries by Safety Emphasis Area

Category	Safety Emphasis Area	Statewide City Totals with Population Under 40,000			City of Oskaloosa			Priority Safety Emphasis Area
		Fatal and Serious Injury	% of Total	Rank	Fatal and Serious Injury	% of Total	Rank	
		3,829	100%	N/A	32	100%	N/A	
Drivers	Young Drivers	1,249	33%	5	11	34%	4	X
	Older Drivers	812	21%	8	6	19%	8	X
	Speed-Related	1,600	42%	2	8	25%	5	X
	Impairment Involved	632	17%	10	2	6%	13	X
	Distracted/Inattentive Driving	344	9%	12	2	6%	13	X
	Unprotected Persons	1,225	32%	6	8	25%	5	X
Highway	Train	24	1%	18	0	0%	18	
	Lane Departures	1,498	39%	3	12	38%	2	X
	Roadside Collision	1,121	29%	7	8	25%	5	X
	Intersections	1,445	38%	4	13	41%	1	X
	Work Zone	52	1%	16	0	0%	18	
	Local Roads	2,030	53%	1	12	38%	2	X
	Winter Road Conditions	269	7%	13	4	13%	11	
Special Users	Pedestrian	352	9%	11	6	19%	8	
	Bicycle	140	4%	15	1	3%	15	
Vehicles	Motorcycle	729	19%	9	5	16%	10	
	Heavy Truck	258	7%	14	3	9%	12	
	Other Special Vehicle	52	1%	16	0	0%	18	

Numbers in the columns may not add up to the totals because the injuries in one crash may be associated with multiple emphasis areas. For example, there could be a lane departure crash with serious injuries involving an impaired young driver on a local road.
Source: Iowa crash data records 2008-2017.

Table 2 – City Fatalities and Serious Injuries Rank by Safety Emphasis Area

Category	Safety Emphasis Area	Rank			Priority Safety Emphasis Area
		Statewide City Totals with Population Under 40,000	City of Oskaloosa	Change in Rank	
Drivers	Young Drivers	5	4	+1	X
	Older Drivers	8	8	-	X
	Speed-Related	2	5	-3	X
	Impairment Involved	10	13	-3	X
	Distracted or Inattentive Drivers	12	13	-1	X
	Unprotected Persons	6	5	+1	X
Highway	Train	18	18	-	
	Lane Departures	3	2	+1	X
	Roadside Collision	7	5	+2	X
	Intersections	4	1	+3	X
	Work Zone	16	18	-2	
	Local Roads	1	2	-1	X
	Winter Road Conditions	13	11	+2	
Special Users	Pedestrian	11	8	+3	
	Bicycle	15	15	-	
Vehicles	Motorcycle	9	10	-1	
	Heavy Truck	14	12	+2	
	Other Special Vehicle	16	18	-2	

4.2. Crash Maps

Crash severity maps for the city were created by utilizing an InTrans-developed, GIS-based crash stacking tool. The purpose of this tool is to produce maps in which spatially proximate crashes are vertically offset to produce crash “stacks,” better conveying crash experience and severity at higher frequency locations. All crashes indicated as “City” and along LRSP roads were selected and stacked by descending severity. In other words, the more serious crashes were located at the bottom of the crash stack and less severe crashes are at the top of the stack. Given the small map scale (city-level), a 50-meter (164-foot) spatial proximity was utilized to provide a clearer map.

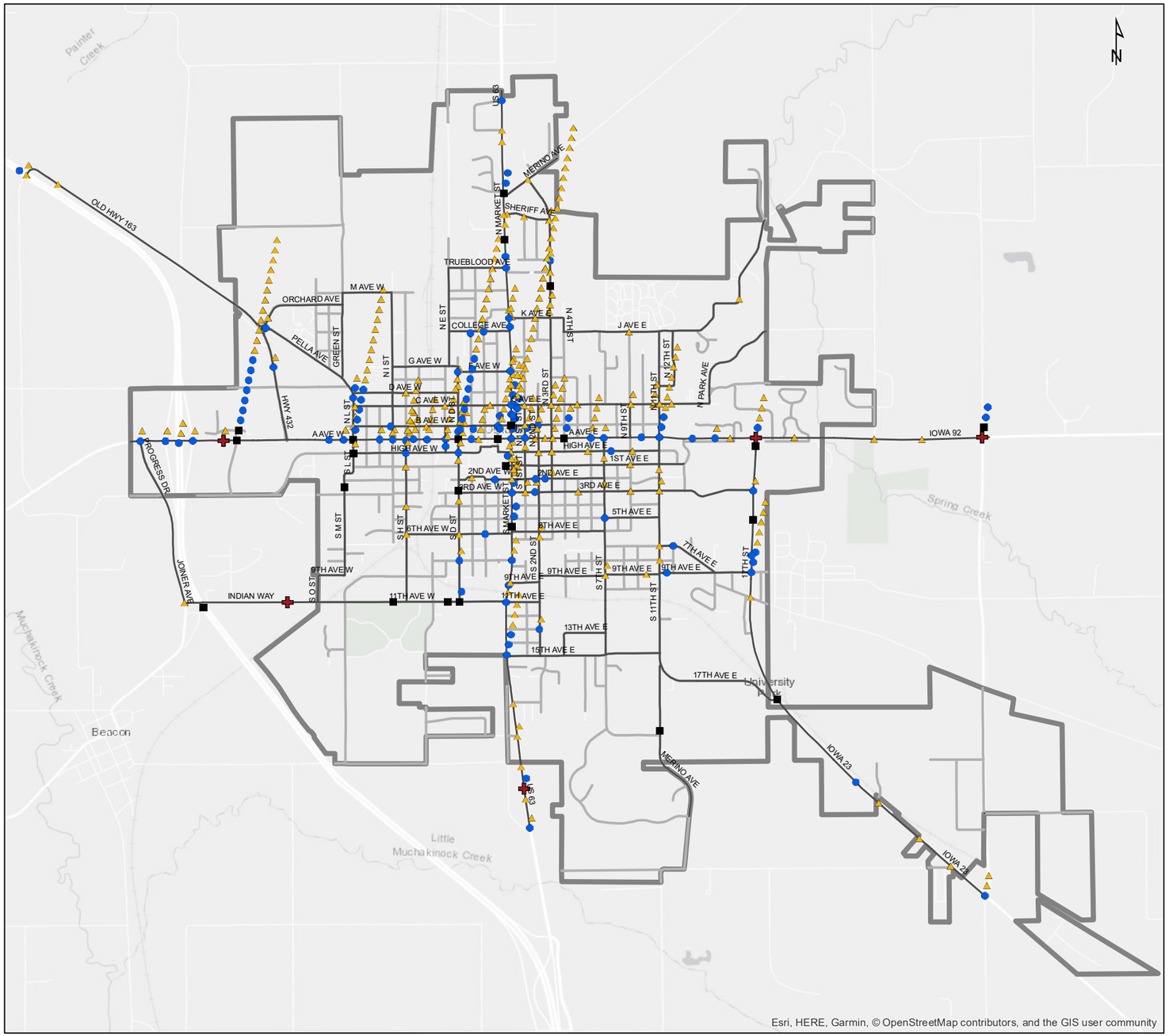
Figure 5 contains a map illustrating fatal and all injury crashes along the LRSP roads within the city stacked by ascending severity. **Figure 6** contains a map illustrating all fatal and serious injury crashes stacked by descending severity. It should be noted that the vast majority of the city crashes were vehicle crashes as opposed to non-motorist crashes (bicycle and pedestrian).

4.3. Crash Trees

In order to further define the types of roadway features associated with crashes, two crash trees were developed for the city:

- Vehicle Crash Tree (**Figure 7**)
- Non-Motorist Crash Tree (**Figure 8**)

The crash trees include total crashes as well as fatal and serious injury crashes; however, the major cause of the crash and manner of crash are reported only for total crashes. In the city, the fatal and serious injury crashes had similar major causes and manners of crash as the total crashes.



Fatal and Injury Crashes
Study Roads
Oskaloosa, Iowa
2008 - 2017

Crash Severity

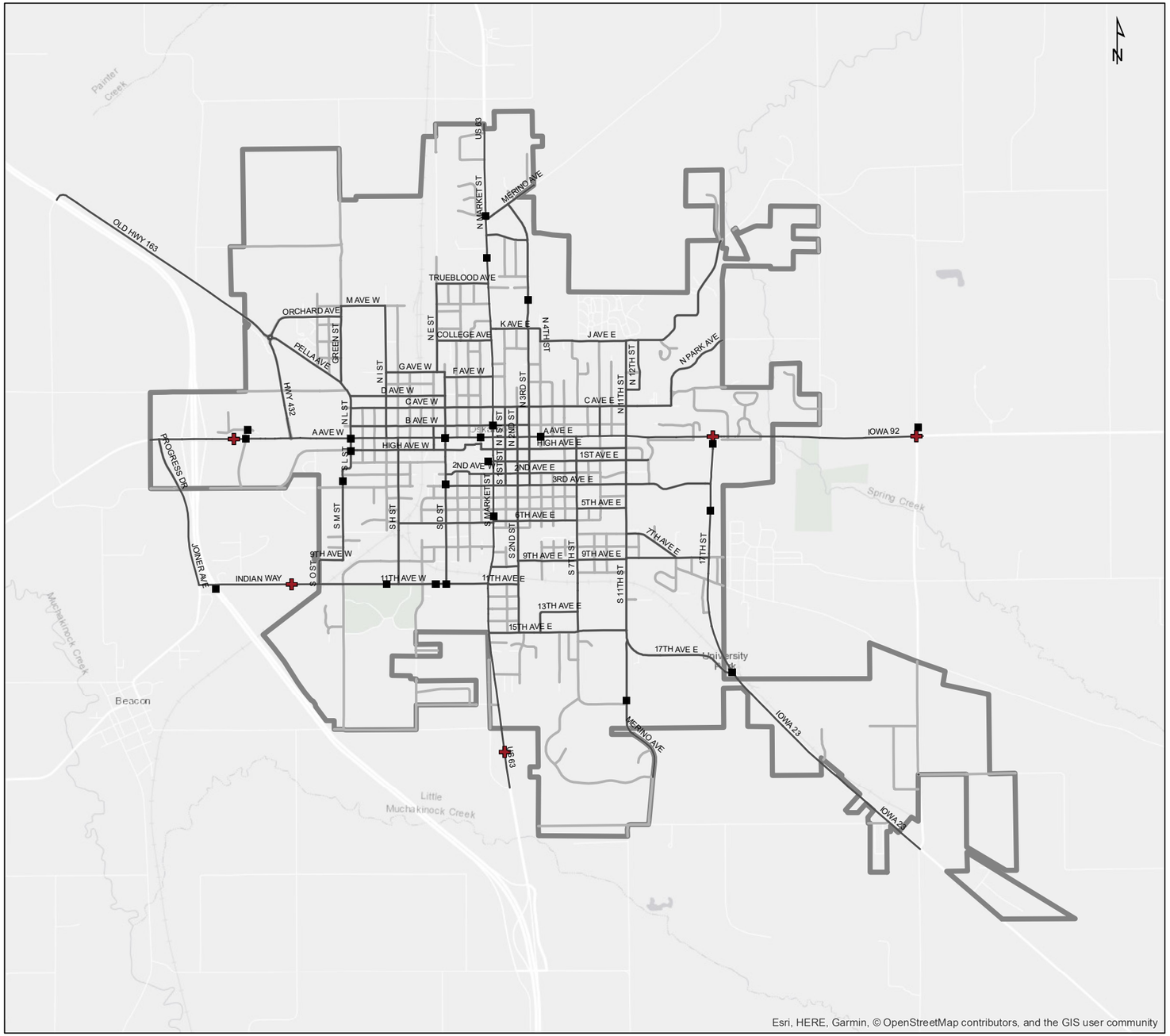
- Fatal (5)
- Serious Injury (24)
- Minor Injury (118)
- Possible/Unknown Injury (279)

- Study Roads
- Other Roads
- Corporate Limit

0 0.125 0.25 0.5 0.75 1 Miles

The information contained in this map was derived from the January 7, 2019 Iowa DOT crash database.
Date: 5/2/2019

Figure 5 – Fatal and Injury Crashes on Study Area Roads



Fatal and Serious Injury Crashes
Study Roads
Oskaloosa, Iowa
2008 - 2017

Crash Severity

- Fatal (5)
- Serious Injury (24)

- Study Roads
- Other Roads
- Corporate Limit

0 0.1250.25 0.5 0.75 1 Miles

The information contained in this map was derived from the January 7, 2019 Iowa DOT crash database.
Date: 5/2/2019

Figure 6 – Fatal and Serious Injury Crashes on Study Area Roads

K denotes a fatality and A denotes a serious injury.

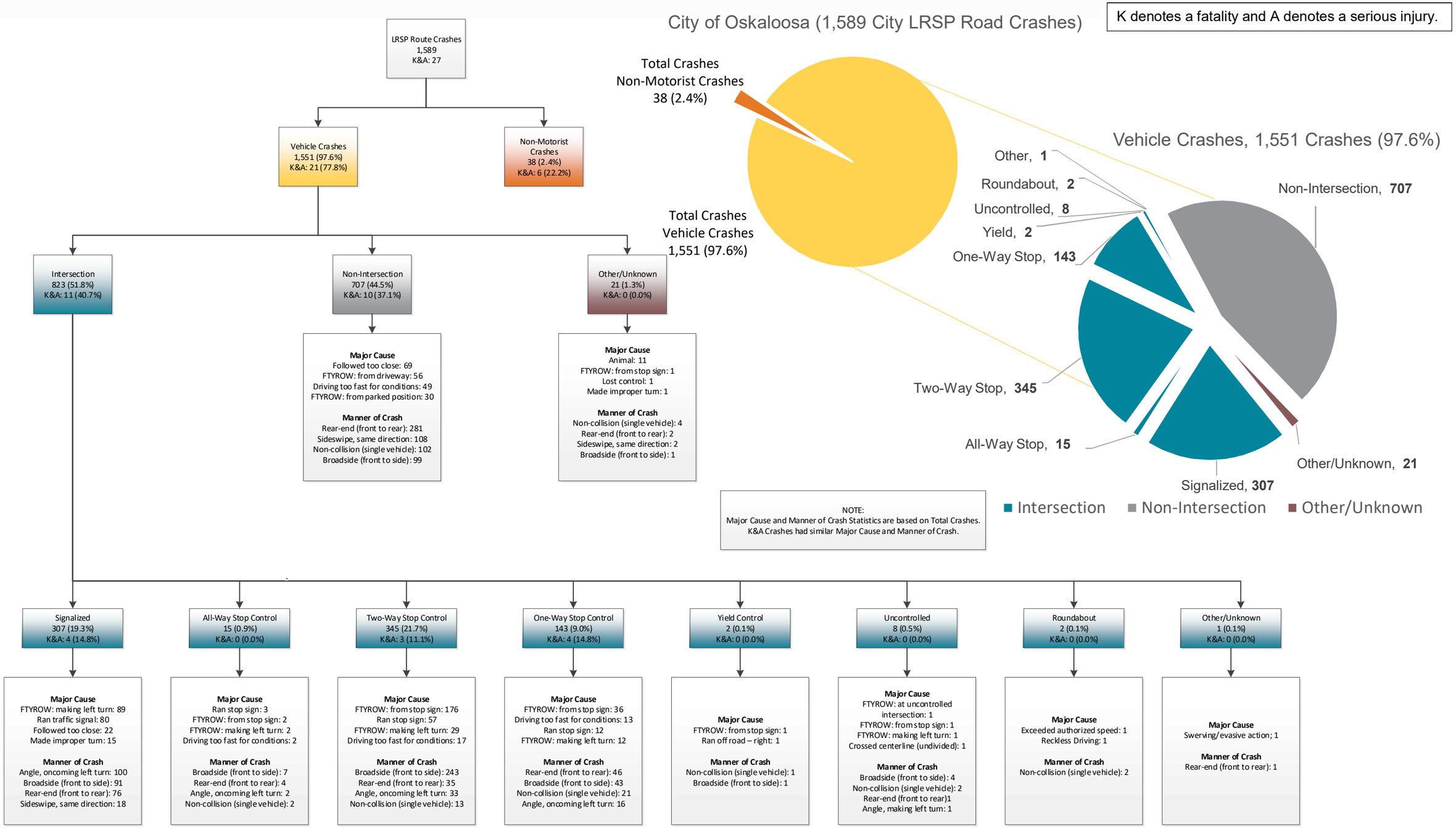
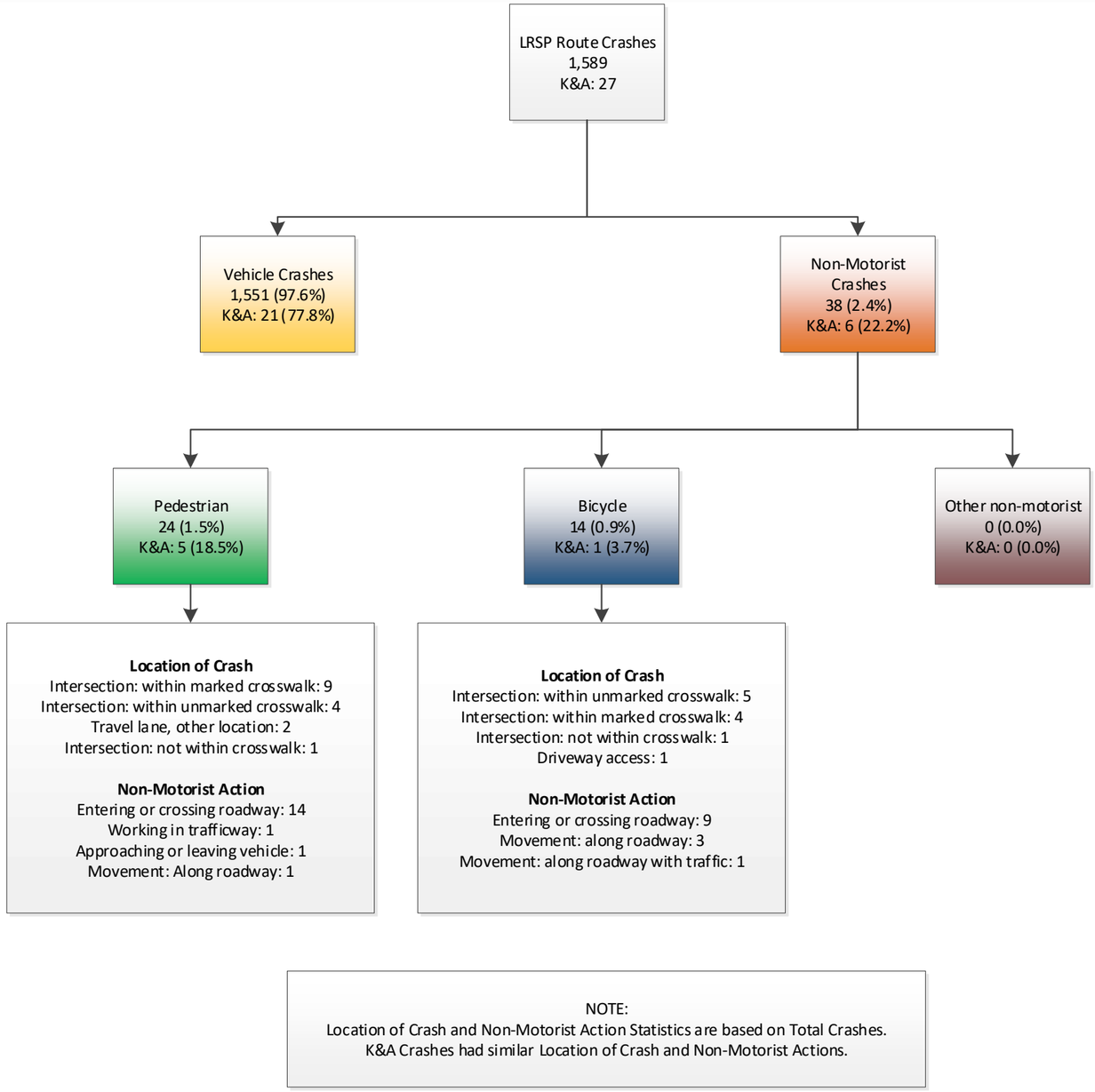


Figure 7 – Vehicle Crash Tree



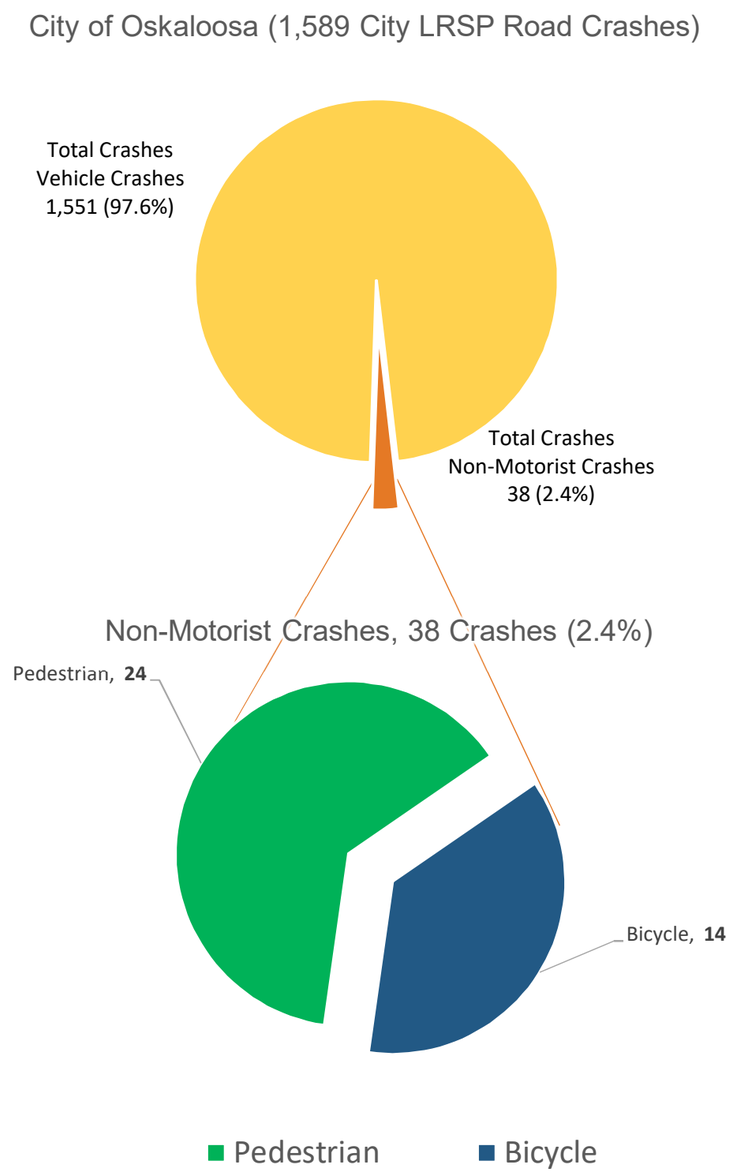


Figure 8 – Non-Motorist Crash Tree

Table 3 contains a tabular summary of the city crashes by location/user type and **Figure 9** contains a graphical summary of the city crashes by location/user type, which is the same information presented in the crash trees.

Table 3 – LRSP Road Crashes by Location/User Type

		All Crashes		Fatal and Serious Injury (K & A) Crashes	
		Count	Percent	Count	Percent
Vehicle Crashes	Intersection	823	52%	11	41%
	Non-Intersection	707	45%	10	37%
	Other/Unknown	21	1%	0	0%
	Subtotal	**1,551**	**98%**	**21**	**78%**
Non-Motorist Crashes	Pedestrian	24	1%	5	18%
	Bicycle	14	1%	1	4%
	Other Non-Motorist	0	0%	0	0%
	Subtotal	**38**	**2%**	**6**	**22%**
Total		**1,589**		**27**	

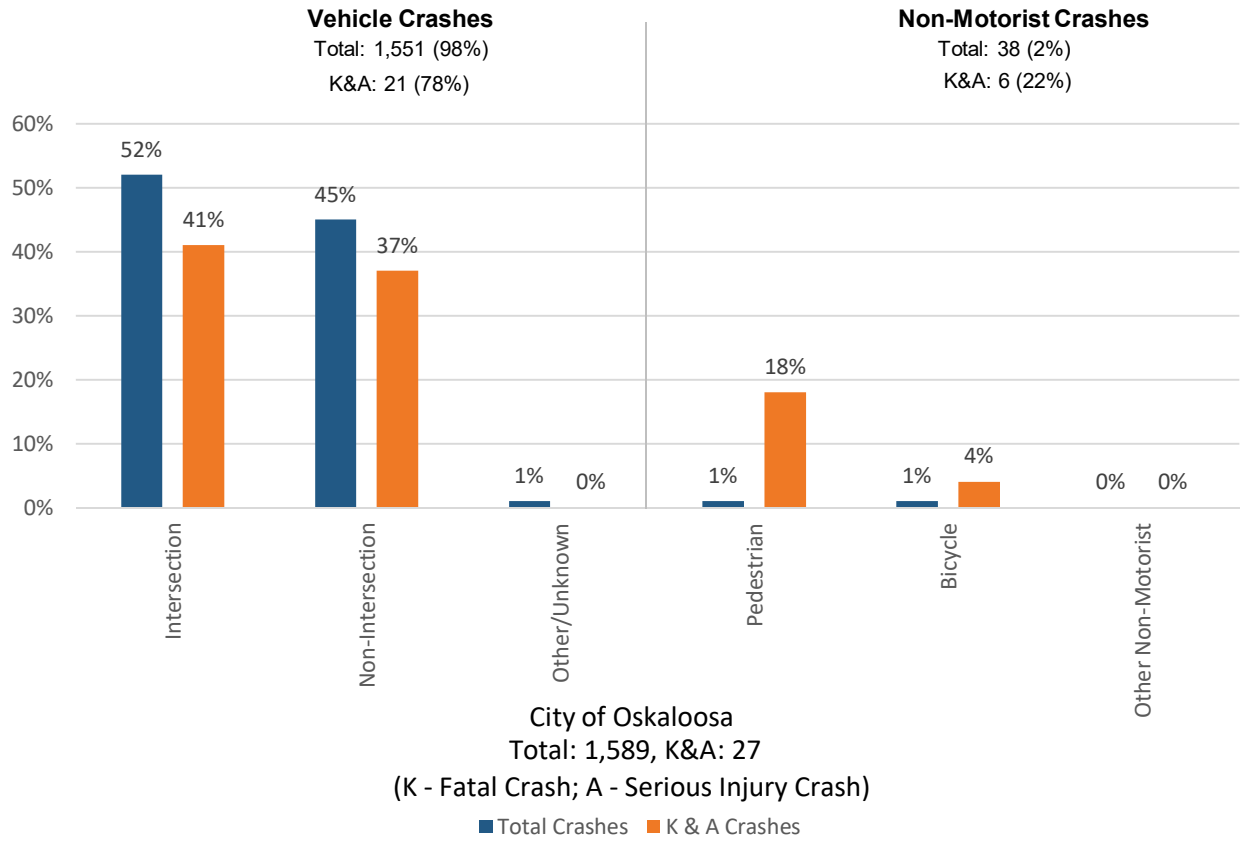
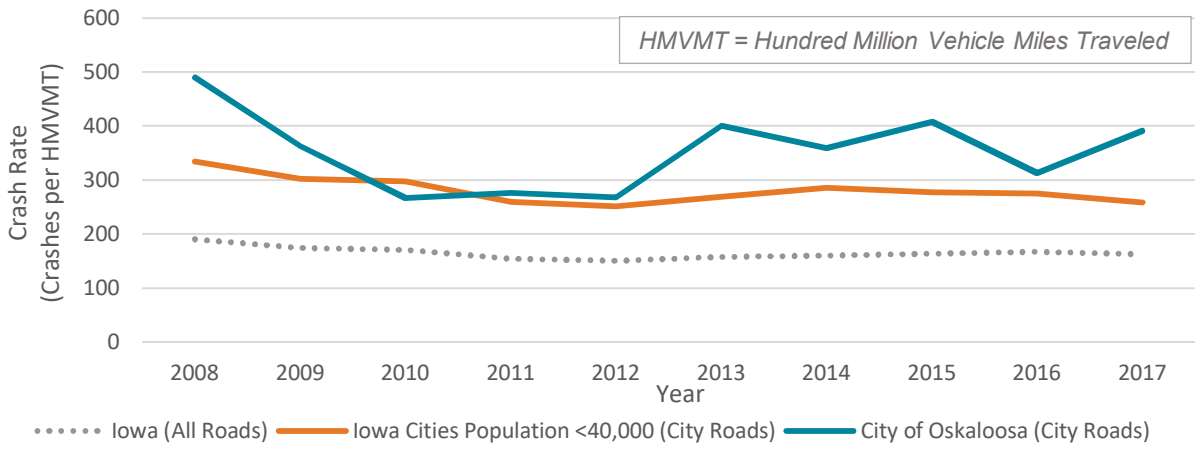


Figure 9 – LRSP Road Crashes by Location/User Type

4.4. Total Crash Rates

Figure 10 illustrates the comparison of the crash rate of all Oskaloosa city roads to that of the city roads in Iowa cities with a population of less than 40,000, as well as to the statewide crash rate during the same timeframe. As shown in **Figure 10**, the Oskaloosa city roads crash rate was higher than the statewide crash rate throughout the whole study period. As for the comparison to cities of similar population, Oskaloosa's crash rate was higher every year of the study period except for 2010.



Note: HMVMT = Hundred Million Vehicle Miles Traveled

Figure 10 – Crash Rates (All Crash Severities)

4.5. Fatal and Serious Injury Crash Rates

Figure 11 compares the fatal and serious injury crash rates for Oskaloosa city roads, to that of city roads in Iowa cities with a population of less than 40,000, and all roads in Iowa. The fatal and serious injury crash rate in for the Oskaloosa city roads was higher than the statewide fatal and serious injury crash rate in 2011 and 2016. Oskaloosa's fatal and serious injury crash rate was higher than the rate of the similar sized cities in the years 2011, 2014, 2015, and 2016.

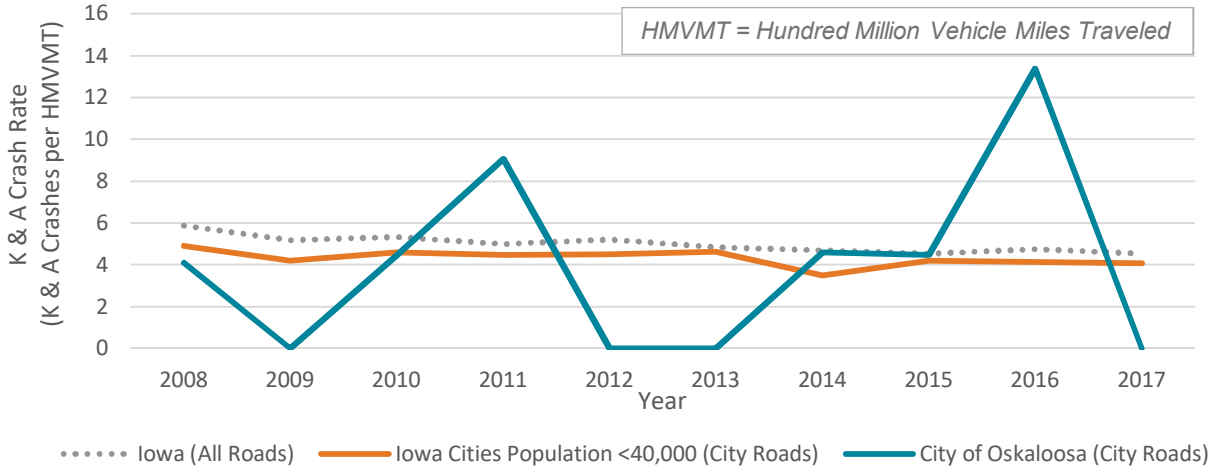


Figure 11 – Crash Rates (Fatal and Serious Injury Crashes)

4.6. Crash Rate Comparison

Figure 12 shows the average crash rates for all crashes as well as fatal and serious injury crash rates for roads in the City of Oskaloosa, other Iowa cities with a population of less than 40,000, and for the entire state. This data is from 2008 to 2017. As illustrated in the figure, Oskaloosa city roads crash rate for all crashes is higher when compared to cities of similar size as well as statewide. However, the fatal and serious crash rate for Oskaloosa city roads is lower than both of the compared rates.

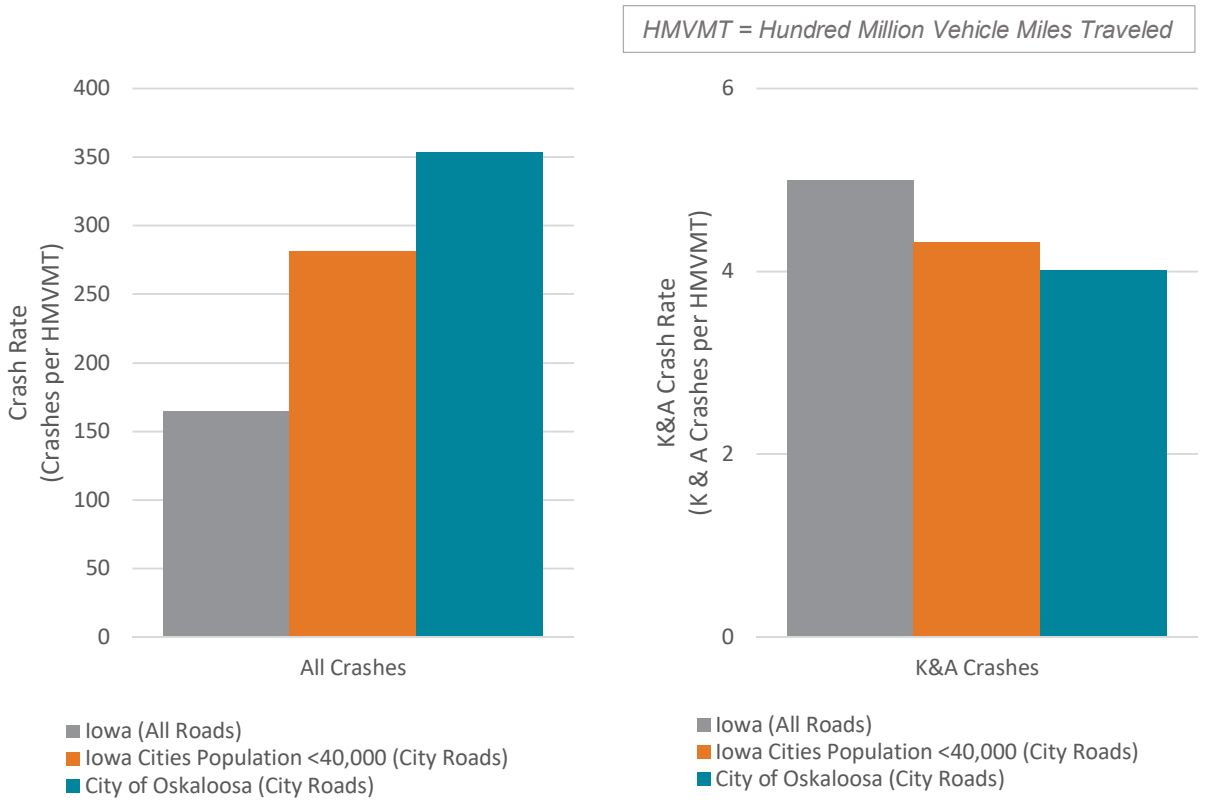


Figure 12 – City Crash Rate Comparison to Statewide Crash Rates

4.7. Additional Data Analysis

It should be noted that the Iowa DOT has a crash mapping website ICAT, which can be used to develop crash maps and obtain crash data to compare crash history within a city. Crash maps can be created by anyone with an internet connection. There are also options to develop data summaries of crashes at: https://icat.iowadot.gov/.

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5. Countermeasure Selection

The following section summarizes systemic safety improvement countermeasures considered for this LRSP, risk factors, and a discussion on Crash Modification Factors (CMFs). Additional information is provided summarizing the driver-related countermeasures underway within the city.

5.1. Potential Systemic Safety Improvement Countermeasures

The purpose of this LRSP project is to systemically identify locations where safety improvements can be implemented on city roads. The systemic approach takes a broad view of risk, examining risk across an entire roadway system, rather than applying improvements to locations where crashes have previously occurred.

> ***"The systemic approach to safety involves widely implemented improvements based on high-risk roadway features correlated with specific severe crash types. The approach provides a more comprehensive method for safety planning and implementation that supplements and complements traditional site analysis. It helps agencies broaden their traffic safety efforts and consider risk as well as crash history when identifying where to make low cost safety improvements."***
>
> ***FHWA – Office of Traffic Safety***

5.2. Risk Factors

When developing systemic safety improvements, it is important to note potential risk factors associated with the crash types. The FHWA, as part of their Systemic Safety Project Selection Tool, has developed a list of potential risk factors that can help identify locations for systemic safety improvements. While not all the risk factors outlined below are utilized for the LRSP project due to data availability and crash types to be addressed, they have been included below for reference.

- Roadway and Intersection Features
  - Number of lanes
  - Lane width
  - Shoulder surface width and type
  - Median width and type
  - Horizontal curvature, superelevation, delineation, or advance warning devices
  - Horizontal curve density
  - Horizontal curve and tangent speed differential
  - Presence of a visual trap at a curve or combinations of vertical grade and horizontal curvature
  - Roadway gradient
  - Pavement condition and friction
  - Roadside or edge hazard rating (potentially including sideslope design)
  - Driveway presence, design, and density
  - Presence of shoulder or centerline rumble strips
  - Presence of lighting
  - Presence of on-street parking
  - Intersection skew angle
  - Intersection traffic control device

  - Number of signal heads vs. number of lanes
  - Presence of backplates
  - Presence of advanced warning signs
  - Intersection located in or near horizontal curve
  - Presence of left-turn or right-turn lanes
  - Left-turn phasing
  - Allowance of right-turn-on-red
  - Overhead versus pedestal-mounted signal heads
  - Pedestrian crosswalk presence, crossing distance, signal head type
- Traffic Volume
  - Average Daily Traffic (ADT)
  - Average Daily Entering Vehicles (DEV)
  - Proportion of commercial vehicles in traffic stream
- Other Features
  - Posted speed limit or operating speed
  - Presence of nearby railroad crossing
  - Presence of automated enforcement
  - Adjacent land use type (e.g., schools, commercial, or alcohol-sales establishments)
  - Location and presence of bus stops

5.3. Crash Modification Factors (CMFs)

When identifying potential safety improvements, where available, it is important to look at CMFs for the proposed improvements. The use of CMFs can help calculate and predict the number and severity of crashes experienced at a given location with an implemented safety countermeasure.

The CMF Method is found in Part D of the Highway Safety Manual (HSM). CMFs are defined as the ratio of effectiveness of one condition in comparison to another condition and represents the relative change in crash frequency due to a change in one specific condition. In other words, a CMF is a multiplicative factor used to compute the expected number of crashes after implementing a given countermeasure at a specific site. Countermeasures with CMFs less than one are expected to reduce crashes if applied, while those countermeasures with CMFs greater than one are expected to increase crashes and are generally not recommended. **Figure 13** illustrates the definition of CMFs.

$$CMF = \frac{\text{EXPECTED CRASHES WITH TREATMENT}}{\text{EXPECTED CRASHES WITHOUT TREATMENT}}$$

CMF = 1.0	Expected to have no impact on safety
CMF < 1.0	Expected to reduce crashes
CMF > 1.0	Expected to increase crashes

Figure 13 – CMF Calculation

The CMF Method is used to calculate the expected number of crashes by taking the observed number of crashes and multiplying those crashes by the applicable CMF for the proposed countermeasure. It is recommended that CMFs be applied to a minimum of three years of crash data for urban and suburban sites and five years of crash data for a rural site. **Figure 14** is a sample calculation of the CMF method with one CMF being applied to a particular site for a single year.

10.1 crashes / year x 0.91 (CMF) =	9.2 crashes / year: a reduction of 0.9 total crashes per year and a CRF of 9%

Figure 14 – CMF Method Sample Calculation

A Crash Reduction Factor (CRF) is similar to a CMF but stated in different terms. A CRF is defined as a percentage of crash reduction that might be expected after the implementation of a given countermeasure at a specific site. **Figure 15** shows how a CRF is calculated in relationship to a CMF.

$$CRF = (1 - CMF) \times 100$$

Figure 15 – CRF Calculation

Caution should be used in the selection of appropriate CMFs. The following guidance should be considered when selecting CMFs:

- CMFs should be selected from the HSM Part D or from FHWA's CMF Clearinghouse website (www.cmfclearinghouse.org).
- Read the countermeasure abstract to determine if the CMF is applicable to the proposed improvement.
- Only CMFs with a four-star rating or higher should be considered for use in analysis.
- Be sure the selected CMF is applicable to the set of crash data being used for analysis. Some CMFs may only be applicable to a subset of the crash data.
- The application of multiple CMFs can overestimate the expected crash reduction. Unless each CMF addresses independent crash types, multiple CMFs should not be used. It is suggested that no more than three independent CMFs be applied to a particular site.

In some cases, CMFs are not available for particular countermeasures because sufficient data has yet to be collected, but the countermeasures are still believed to result in crash reductions. In other cases, the countermeasure is an FHWA proven safety countermeasure and the CMFs vary significantly based on the existing and proposed conditions. CMFs can be found in the FHWA's CMF Clearinghouse (www.cmfclearinghouse.org).

In 2019, the Iowa DOT developed a list of planning-level CRFs for use in safety analysis within the state. This list can be found here: https://iowadot.gov/traffic/pdfs/CRFListVersion.pdf.

5.4. Engineering Countermeasures

During previous phases of the LRSP project, the project team worked with 59 counties and the Iowa DOT to identify potential safety engineering countermeasures related to intersections. Additional countermeasures were identified during the District Road Safety Plan process that are incorporated into this project. For this city LRSP project, the list of countermeasures included within the Unsignalized Intersection Improvement Guide provided by the FHWA was incorporated.

The following groups of intersection countermeasures were identified:

- Intersection Control
- Operational Improvements
- Intersection Warning
- Conspicuity Enhancements to Traffic Control Devices
- Motorist Guidance
- Treatment Related to Non-Motorists
- Speed Control
- Geometric Treatments

Individual countermeasures are listed in **Appendix B** and more information specific to each countermeasure can be found at https://toolkits.ite.org/uiig/.

5.5. Driver-Related Countermeasures

A workshop was conducted in Oskaloosa on Friday, May 17, 2019, to discuss driver-related countermeasures and project selection. Representatives at the workshop included:

- Akhilesh Pal (Oskaloosa City Engineer)
- Benjamin Boeke (Oskaloosa Police Department)
- Shawn Christ (Oskaloosa Development Services)
- John Dostart (Iowa DOT)
- Dustin Hook (Oskaloosa Fire Department)
- Scottie Moore (Oskaloosa City Council)
- Sean Murphy (Oskaloosa Public Works)
- Courtney Ryan (Oskaloosa Public Works)

The 2019 Iowa SHSP has eight priority safety emphasis areas, of which six are driver-related emphasis areas:

- Speed-related
- Unprotected persons
- Young drivers
- Impairment involved
- Older drivers
- Distracted or inattentive drivers

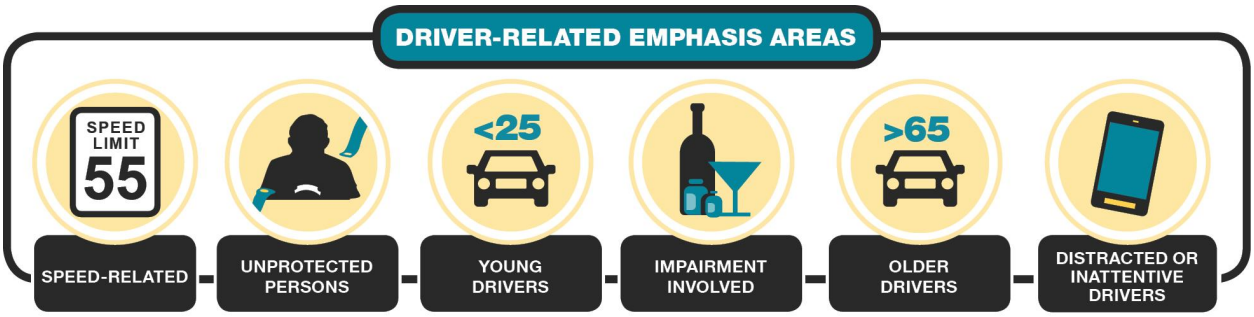


Table 4 provides a 10-year summary of the fatalities and serious injuries by driver-related emphasis area for the state, cities throughout Iowa, and the City of Oskaloosa.

Table 4 – Fatal and Serious Injury Crashes by Driver-Related Emphasis Area

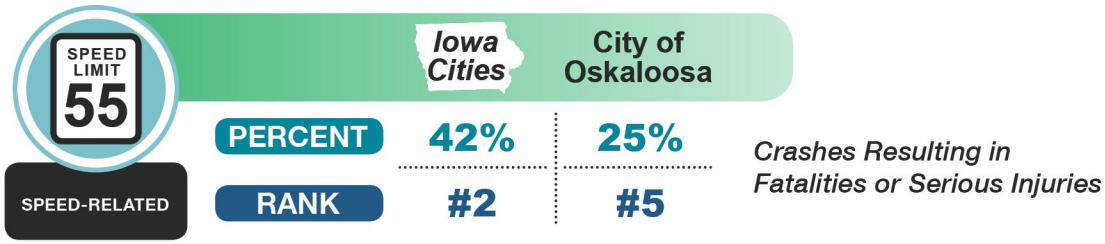
	Speed-Related	Unprotected Persons	Young Drivers	Impairment Involved	Older Drivers	Distracted or Inattentive Drivers	Total
Statewide	9,664 (50%)	6,901 (36%)	6,723 (35%)	3,857 (20%)	3,372 (17%)	1,688 (9%)	19,342 (100%)
Iowa Cities (Population <40,000)	1,600 (42%)	1,225 (32%)	1,249 (33%)	632 (17%)	812 (21%)	344 (9%)	3,829 (100%)
City of Oskaloosa	8 (25%)	8 (25%)	11 (34%)	2 (6%)	6 (19%)	2 (6%)	32 (100%)

During the workshop, attendees were provided information regarding fatal and serious injury crashes within the city and how that data aligned with the Iowa SHSP priority safety emphasis areas. Potential countermeasures from the *National Cooperative Highway Research Program (NCHRP) Report 500 Series, Toward Zero Deaths* documents, and the results from Phase 1 though Phase 4 of the LRSPs were provided to stakeholders to facilitate discussion on what action items were currently underway in the city with respect to driver-related crashes.

The following statuses of implementation for the various driver-related countermeasures were defined based on the results of the discussion at the city workshop:

- Underway/Ongoing (currently being done);
- Area for Improvement (ongoing, but could be enhanced);
- Opportunity (not being done, but could be implemented); or
- Completed in the Past (has been completed in the past, but not planned to be implemented in the future).

The following sections provide a summary of the status of implementation of the driver-related countermeasures within the city. It is recommended that the city continue to implement countermeasures that are currently underway/ongoing and look for additional opportunities to implement countermeasures that are not currently being implemented. This will require input from and coordination with all of the Five E's of safety.



5.5.1.1. Speed-Related

Speed-related crashes are a common concern within all the LRSP cities, and account for almost half (42%) of fatal and serious injuries in cities across the state of Iowa. Many cities are facing budgetary constraints which limit the number of officers available to proactively conduct speed enforcement. Some cities have access to a portable speed trailer with the ability to log speed data by time of day and day of week. There is a common opportunity to provide an educational campaign with respect to speed-related crashes.

Local law enforcement is targeting locations for speed enforcement through various methods that involve citizen-led complaints, officer requests, as well as analysis of historical crash and speed-related data. A portable speed trailer is also moved throughout the city to make drivers aware of their speeds and to track speed data throughout the city.

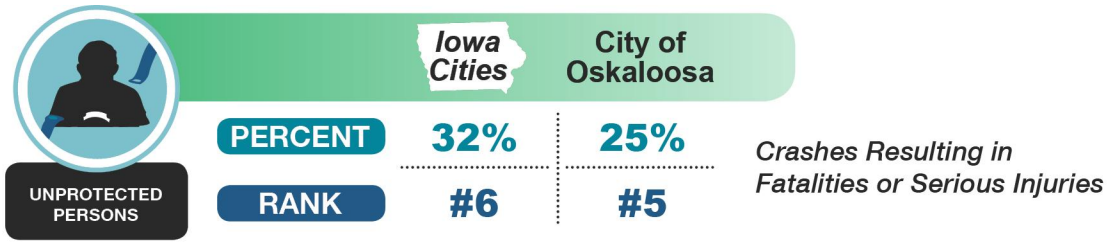
A topic of discussion in many of the workshops involved drivers illegally passing school buses. While law enforcement in most cities are citing drivers for illegally passing school buses, it is unclear whether or not the Keep Aware Driving – Youth Need School Safety Act (Kadyn's Law) is being implemented in the court system. This law states that driving privileges will be suspended for 30 days for a first conviction, 90 days for a second conviction, and 180 days for a third or subsequent conviction along with fines.

Workshop attendees noted that there have been issues with drivers not having a good understanding of when they need to stop for a school bus. As a result, the school district has tried to relocate bus stops to minimize conflicts as well as the potential for vehicles to drive past a school bus.

Speed-related crashes resulted in 8 (25%) of the fatalities and serious injuries in Oskaloosa. **Table 5** provides a summary of the level of implementation of speed-related countermeasures in the city.

Table 5 – Speed-Related Countermeasure Implementation Status

Countermeasure	Status
Conduct targeted speed enforcement - City participates in Governor's Traffic Safety Bureau (GTSB) funding - City participates in the special Traffic Enforcement Program (sTEP) program - City has a portable speed trailer that can record data - Law enforcement maps speed-related crash data to determine locations for enforcement	Underway/Ongoing
Prosecute and impose sanctions on drivers not obeying school bus stop bars - City enforces the Keep Aware Driving – Youth Need School Safety Act (Kadyn's Law) - It was unclear if school buses in the city are equipped with external cameras	Underway/Ongoing, Opportunity



5.5.1.2. Unprotected Persons

Many cities have seat belt compliance rates over 90%; however, unprotected persons still comprise almost one-third (32%) of the fatalities and serious injuries on Iowa city roads. Most cities have at least one location within their community for instruction on proper child restraint use; however, there are opportunities to conduct "child restraint inspections and/or installation" events either individually or as part of a larger community event, such as a safety fair or a fire department open house. Additionally, cities could provide training to middle school children potentially through the Drug Abuse Resistance Education (DARE) program.

Several cities have trained law enforcement to check for proper child restraints and provide them with a "cheat sheet" to keep in their vehicle so they are aware of the current laws. Local law enforcement carries these "cheat sheets" within their vehicles, and routinely check for proper restraint use during traffic stops. The fire department has a certified Child Passenger Safety Technician (CPST) that can check for car seat installations and provide education on how to properly install child restraints.

Many cities have programs where law enforcement or Emergency Medical Service (EMS) personnel pass out ice cream certificates, pizza certificates, stickers, or candy to children wearing their helmets while riding bikes. **Figure 16** shows some examples of certificates given out by Monroe County for bicycle helmet use. This is an excellent opportunity for positive reinforcement and encouragement for children to wear helmets, and local law enforcement has held events where they distribute ice cream certificates to children wearing helmets while riding bikes. The fire department has also distributed free bike helmets at National Night Out events, and local law enforcement conducts bike rodeos in the elementary schools annually. They also take fifth graders on bike rides for education on laws and considerations while biking.

It is important to note that since helmets are not required for motorcyclists in Iowa, there is little to no effort put forth to educate citizens on the importance of wearing a helmet when riding a motorcycle.

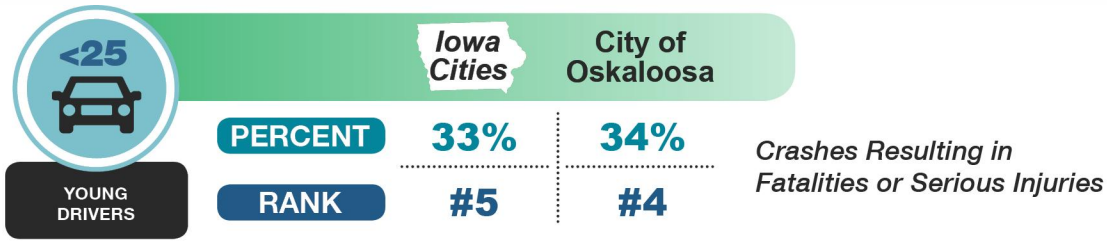
Source: Monroe County, IA

Figure 16 – Example Bicycle Helmet Reward Coupons

Unprotected person crashes resulted in 8 (25%) of the fatalities and serious injuries in Oskaloosa. A summary of unprotected persons countermeasure implementation in the city is included in **Table 6**.

Table 6 – Unprotected Persons Countermeasure Implementation Status

Countermeasure	Status
Conduct targeted enforcement of restraint use - Law enforcement participates in Governor's Traffic Safety Bureau (GTSB) funding - Performs restraint checks as part of regular patrols	Underway/Ongoing
Check for proper child restraint use in all motorist encounters - Law enforcement has GTSB "cheat sheets" to aid in enforcement of child restraint laws - Law enforcement check for proper restraint use as part of a standard traffic stop	Underway/Ongoing
Instruction in proper child restraint use - The fire department has a certified Child Passenger Safety Technician (CPST) where child restraints can be inspected - The hospital checks for the presence of a car seat before allowing a newborn to leave - The city website has information on locations for child seat inspection	Underway/Ongoing
Positive reinforcement - Law enforcement holds events where ice cream coupons are distributed - Law enforcement conducts bike rodeos - Fire department distributes bike helmets at National Night Out - Law enforcement takes fifth graders on bike rides for education	Underway/Ongoing



5.5.1.3. Young Drivers

Crashes involving young drivers account for one-third (33%) of fatalities and serious injuries in Iowa cities. In cities where driver's education is still taught through the high schools, there is an opportunity for law enforcement to participate and provide training on targeted topic areas such as distracted driving, impaired driving, and seat belt use. In locations where driver's education is privatized, it can be more difficult for law enforcement to become involved in additional training during driver's education courses.

Although schools have strict curricula to adhere to, there is still the opportunity for education with respect to young drivers' issues such as "don't veer for deer", texting and driving, what to do on an edge drop-off, etc. to occur through health classes or other programs within the schools. Many schools are participating in mock prom disaster events to raise awareness of impaired and distracted driving. It is important to note that cities can apply for TEAP funding to obtain assistance in reviewing traffic/safety issues around existing school sites.

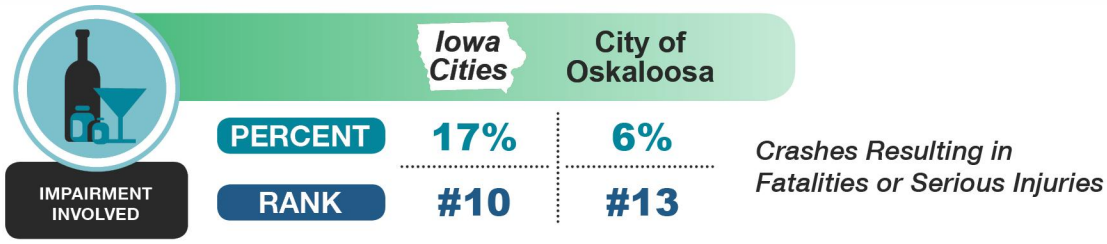
Young driver crashes account for 11 (34%) of the fatalities and serious injuries in Oskaloosa. Law enforcement noted that violations of Graduated Driver's License (GDL) laws are a frequent issue within the city, and many citations are issued for non-compliance with these laws.

There is a program at Oskaloosa High School called Staying Alive. It is given to ninth graders and educates them on a variety of topics on safe driving including but not limited to: GDL licensing, impaired driving, distracted driving, and identifying sober rides when needed on short notice. Attendees also noted that mock crash events are conducted within the high school on a yearly basis, and they also invite guest speakers (e.g., one who had a family member die from an impaired driving crash, and a previous student from the high school who spent thirteen years in jail because of driving impaired) into events at the high school.

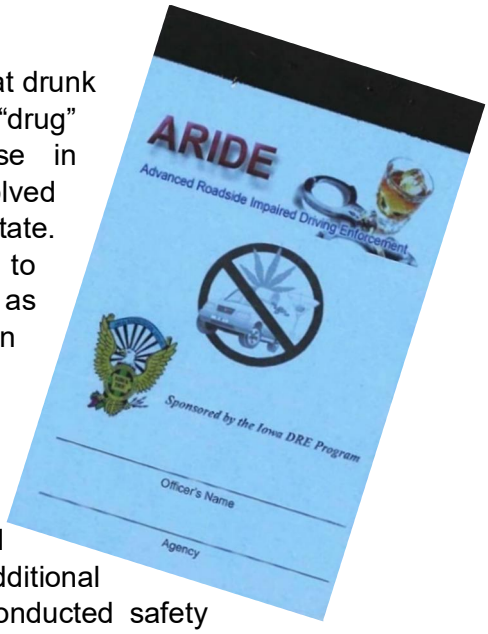
Table 7 provides a summary of the level of implementation of young driver-related countermeasures in the city.

Table 7 – Young Drivers Countermeasure Implementation Status

Countermeasure	Status
Enforcement of Graduated Driver's License (GDL) laws - Law enforcement noted that many citations are issues for non-compliance with GDL laws	Underway/Ongoing
Additional education - Staying Alive program to educate 9th graders on driving-related topics - Guest speakers impacted by fatal and serious injury crashes - Mock crash event held yearly at the high school	Underway/Ongoing



5.5.1.4. Impairment Involved



During the workshops, many cities noted that, while they felt that drunk driving was on the decline, but there has been an increase in "drug" driving. Workshop attendees noted a significant increase in methamphetamine impairment within the city. Impairment is involved in 17% of fatalities and serious injuries within cities across the state. Most cities have access to a Drug Recognition Expert (DRE) to assist in determining intoxication in routine traffic stops as well as crashes. Some cities noted the difficulty in reaching DREs when needed. GTSB can provide ARIDE training for interested law enforcement officers. ARIDE is a course designed such that officers become more proficient at detecting, apprehending, testing, and successfully prosecuting impaired drivers.

Most cities proactively conduct Operating While Intoxicated (OWI) enforcement, and some cities receive GTSB grants for additional targeted enforcement. Over the years, some cities have conducted safety checkpoints where they have a set method for pulling drivers over (e.g., all vehicles, every fifth vehicle) and they check for a variety of safety items including tail lights, seat belts, horn, etc. Safety checkpoints require a significant amount of resources from multiple jurisdictions, thus making them more difficult to conduct with the limited resources available. GTSB has a trailer that is available to cities and contains all of the supplies required to conduct a safety checkpoint.

In general, law enforcement noted that they rarely conduct safety checkpoints anymore and most agencies conduct saturation enforcement. Attendees noted that the City of Oskaloosa Police Department makes officers very visible throughout the city and they believe this is having a positive impact on reducing impaired driving.

In multiple workshops the topic of repeat OWIs was discussed. In Oskaloosa, attendees stated that they believe OWI cases are routinely upheld in court.

In Muscatine County, they allow OWI offenders to perform manual labor as part of an alternative sentencing program. More information on the program can be found on the county website: http://www.co.muscatine.ia.us/159/Alternative-Sentencing and could be considered in Oskaloosa.

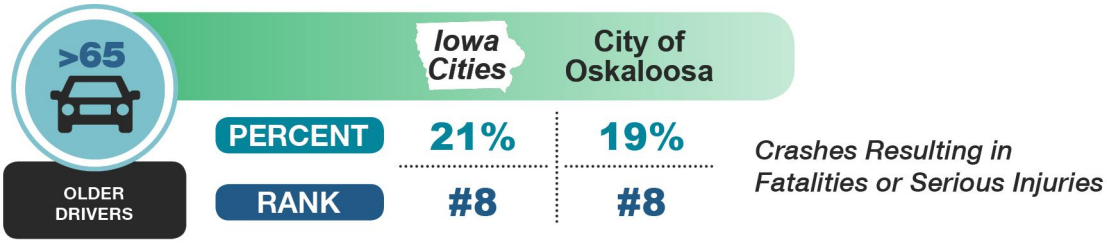
Another idea for helping rehabilitate OWI offenders that has been successfully implemented in other states is the "24/7 Sobriety Program." More information on the current program in South Dakota is available at: https://atg.sd.gov/legal/DUI247/default.aspx. With the support of its county officials, Woodbury County was recently selected to pilot the program in Iowa.

State law enforcement conducts underage compliance checks on alcohol retailers and local bars twice a year. Attendees noted that law enforcement is routinely invited into local establishments to check for compliance and over-serving. Taxis are available within the city, and this information is made available to college students. The taxi service is available 24-hours a day.

A total of 2 (6%) of the fatalities and serious injuries in Oskaloosa during the study period involved impairment. A summary of the countermeasures relating to crashes with impairment involved which were discussed during the workshop along with the city's level of implementation is included in **Table 8**.

Table 8 – Impairment Involved Countermeasure Implementation Status

Countermeasure	Status
Conduct Operating While Intoxicated (OWI) enforcement - Routinely applies for Governors Traffic Safety Bureau (GTSB) funding - Access to a Drug Recognition Expert (DRE)	Underway/Ongoing
Conduct high-visibility saturation patrols - Local law enforcement makes their officers very visible within the city	Underway/Ongoing
Compliance checks for alcohol sales - State law enforcement conducts compliance checks twice a year - Law enforcement is invited to local drinking establishments routinely to check for compliance and over-serving	Underway/Ongoing
Alternative transportation choices - Taxis are available	Underway/Ongoing
Prosecute, impose sanctions on, and treat OWI offenders - Convictions are being upheld for alcohol and drug impairment	Underway/Ongoing



5.5.1.5. Older Drivers

Older driver crashes accounted for 21% of fatalities and serious injuries in cities throughout the state. The cities mentioned that engineering countermeasures such as larger text, signs, and advanced intersection signage could be useful for older drivers. Law enforcement in many of the cities recommend retesting for driver's licenses when older drivers are involved in a citation or at fault in a crash. Older drivers are a consistent issue as driving is considered a form of independence that can be difficult to deny for life-long rural drivers.

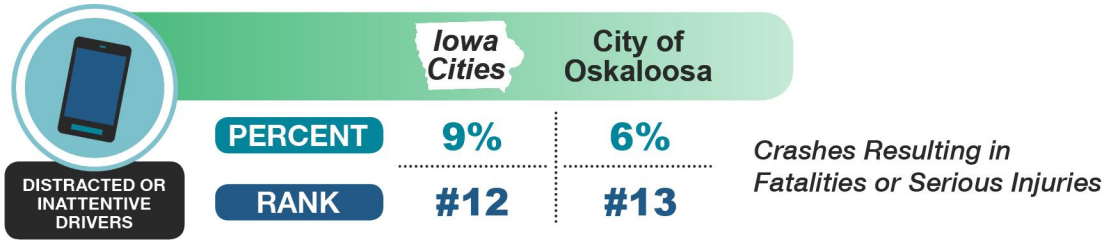
The Iowa DOT Driver and Identification Services sponsors events through the CarFit program, helping older drivers with the "fit" of their vehicle. This program could be an opportunity for the city.

Older driver crashes resulted in 6 (19%) of the fatalities and serious injuries in Oskaloosa. There are two public transportation options within the city: there are two options available: Oski Rides (sponsored by the City of Oskaloosa) as well as paratransit offered through RPA 15. Information on paratransit is provided at the transportation options are available at the Chamber Office, the local hospital, as well as online (although online likely does not target the audience). Attendees noted that there are some programs where volunteers take seniors to appointments, and these are publicized at the relevant office.

A summary of older driver countermeasure implementation by the city is included in **Table 9**.

Table 9 – Older Driver Countermeasure Implementation Status

Countermeasure	Status
Promote safe mobility choices - Materials for these transportation options are available at the Chamber Office, the local hospital, as well as online - Some doctor's offices advertise options where volunteers take seniors to appointments	Underway/Ongoing
Encourage external reporting of at-risk drivers to licensing authorities - Attendees were unaware of retesting older drivers who were determined to be at-fault in a crash	Opportunity



5.5.1.6. Distracted or Inattentive Drivers

During the workshops, it was noted that distracted or inattentive driving was most likely largely underreported, as it is difficult for law enforcement to determine what events specifically led to the crash. Also, the crash forms used by law enforcement were recently modified to include more options specific to distracted driving; in the future, it is anticipated that data quality will improve. In April 2017, Iowa passed legislation making it illegal, and a primary offense while driving to use a mobile device to "write, send, or view an electronic message", or "play, browse, or access electronic messages". Phone calls and using navigation on a cell phone are still permitted under this legislation. It was noted in the workshops that even with this new legislation, compliance is difficult to enforce. Cell phone records are sometimes needed to prove what took place, and the pursuit of those records typically only occurs when there is a serious injury or fatality in a crash. It was noted that sometimes people do not think texting while stopped at an intersection is illegal, when in fact it is.

Many cities in Iowa have policies permitting hands-free only cell phone usage while on city business or within a city vehicle. Attendees were not aware of a city-wide hands-free policy; however, city maintenance employees follow the Commercial Driver's License (CDL) laws, which prohibits texting while driving. GTSB can provide sample policies for the city to implement.

Distracted or inattentive driver crashes resulted in 2 (6%) of the fatalities and serious injuries in Oskaloosa. **Table 10** summarizes the implementation status of the distracted or inattentive driver countermeasures as recorded in the workshop.

Table 10 – Distracted or Inattentive Drivers Countermeasure Implementation Status

Countermeasure	Status
Visibly enforce existing statutes to deter distracted driving	Underway/Ongoing
Agency policy for hands-free devices - Attendees were not aware of a city policy that requires hands-free use in agency vehicles - City maintenance staff follows Commercial Driver's License (CDL) laws	Area for Improvement

5.5.1.7. Safety Awareness and Education Campaigns

There is a consistent need across cities to conduct safety awareness and education campaigns. The Iowa DOT posts a "Message Monday" every Monday, which contains a new safety message each week. Cities can sign up to receive updates via email by clicking the "Subscribe" button in the upper right corner of the page (https://www.transportationmatters.iowadot.gov/). The messages can be shared on local social media, such as city websites, Facebook, Twitter, etc. The city can also post messages to social media that are available on GTSB's website (https://dps.iowa.gov/divisions/commissioners-office/governors-traffic-safety) and videos are available on the Drive Smart Iowa website (http://www.drivesmartiowa.com/).

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6. Safety Project Development

Safety improvement projects were developed for high-priority locations at signalized intersections and unsignalized intersections within the city. This section describes the data analysis methodology for safety improvement project selection and prioritization.

6.1. Methodology

As shown in **Figure 17**, GIS data, as described in **Section 3**, was utilized to rank each of the LRSP road unsignalized intersections based on risk factors. Signalized intersections were ranked based on SICL calculations. After the facilities were ranked, the city staff selected their top intersections for a field review and for development of project sheets. Draft project sheets for those locations were then developed summarizing the recommendations and estimated implementation costs for the project recommendations. The project sheets were provided to the city for review and comment, then finalized. Each of the methodology steps is described in detail in the following sections.

Figure 17 – Project Analysis Methodology

6.1.1. GIS Data

GIS data for the LRSP road intersections was utilized to perform a systemic analysis. Databases were obtained through collaboration and coordination with the Iowa DOT, InTrans, and the city. Descriptions of the databases utilized for the analysis are included in **Section 3** of this document. Once obtained, the data was analyzed using ArcMap GIS software as described in the following sections. Each intersection along the LRSP roads was analyzed.

6.1.2. Risk Factor Ranking

Iowa DOT crash data from 2008 to 2017 (as of the January 7, 2019 database update) was utilized for analysis. This represents the most recent 10 years of crash data available at the time this project phase began. Risk factors at the unsignalized intersections were assessed to determine locations that may be more susceptible to crashes involving serious injuries and/or fatalities in the future, as opposed to focusing only on locations that have had such crashes previously. In this analysis, various attributes were assessed in determining risk. The attributes that were assessed for determining risk are included in the subsequent sections. Rankings of those attributes were developed for the LRSP in coordination with the Iowa DOT.

Signalized intersections were ranked based on crash history including crash frequency, crash severity, and crash rate, following the Iowa DOT's SICL methodology.

The results of the risk factor ranking were provided to the city to select intersections for further evaluation. The city selected 11 intersections to receive project recommendations.

6.1.3. City Input and Site Visit

An in-person workshop was conducted in Oskaloosa on Friday, May 17, 2019, to review implementation of the driver-related countermeasures along with a site visit to each of the identified project locations. Engineering safety countermeasures were recommended and documented during the site visit for each of the 11 intersections.

6.1.4. Draft Project Sheets

To summarize the information used in the analysis of the LRSP road intersections, individual project sheets were developed for those intersections selected for further evaluation by the city. The draft project sheets included location, systematic ranking data, crash data, geometric data, and opinion of probable cost for the recommended safety improvements.

6.1.5. City Review

The draft project sheets were provided to the city for final review. Comments from city staff were incorporated into the final project sheets.

6.1.6. Project Sheets

After addressing the comments from the city, the signalized and unsignalized project sheets were finalized. The project sheets included in **Appendix A**, are based on the best available information as of October 2019. The project sheets include pertinent information for each project location including the following:

- Project location and city contact information and unique GPS identification number
- Location of project with respect to the city, on a zoomed-in map, and aerial of the project location
- Short-term and long-term improvement recommendations and cost estimates
- Information specific to each intersection including crash data
- Summary of systemic ranking for the location (unsignalized intersections)
- SICL ranking (signalized intersections)

Along with the project sheets, the field notes at each intersection are included in **Appendix A**.

6.1.6.1. Project Recommendations Disclaimer

The recommended improvements contained in the project sheets were developed through a system-wide GIS database risk assessment and field review process, as described previously. Kimley-Horn could not confirm or control the accuracy of the GIS databases and has provided recommended improvements for consideration by the city staff. Site surveys were not conducted at the specific locations detailed in the project sheets. The city may use these project sheets as part of due diligence, but these project sheets should not be used as the sole basis for the city's decision-making. The city staff can make changes to the prepared project sheets using individual discretion. Kimley-Horn endeavored to research issues and constraints to the extent practical given the scope, budget, and schedule of the project. This assessment is based in large part on information provided by others (DOT, city staff, etc.) and therefore is only as accurate and

complete as the information provided. The project sheets included in **Appendix A** are based on the best available information as of October 2019.

6.2. Unsignalized Intersections

The methodology described in **Section 6.1** was followed for a systematic analysis of unsignalized intersections on the LRSP roads based on the determined risk factors. Additional details on the unsignalized intersection risk factor calculations and ranking results, and project recommendations are described in the following sections.

6.2.1. Vehicle Risk Factor Summary

Every unsignalized intersection along the LRSP roads containing at least one city-maintained paved roadway leg was analyzed for vehicle risk according to the following nine key attributes:

- **Frequency of Crashes:** each intersection was assigned risk factor points based on the number of crashes within 75 feet of the intersection. This risk factor takes into account crash history, which may be indicative of improvement needs.
- **Severity of Crashes:** if a fatal or serious injury crash occurred within 75 feet of the intersection, additional risk factor points were assigned to the intersection. This attribute takes into account not only crash history, but the severity of those crashes, which may be indicative of improvement needs.
- **Crash Rate:** this risk factor accounts for the number of crashes within 75 feet of the intersection divided by the number of vehicles that enter that intersection per day (DEV). Using crash rates helps focus on locations where exposure risk may be lower, but crash history is higher, potentially indicating need for safety countermeasures.
- **Intersection Skew:** the intersection was assigned risk factor points if any of the side roads had an approach angle (skew) of less than 85 degrees. Based on Iowa crash data analyzed by InTrans, crash experience increases at intersections with skew at 85 degrees and 70 degrees. According to the *Highway Design Handbook for Older Drivers and Pedestrians*, “Skew angles in excess of 75 degrees often create special problems at stop-controlled rural intersections. The angle complicates the vision triangle for the stopped vehicle; increases the time to cross the through road; and results in a larger, more potentially confusing intersection.”
- **Minor Street Volume (ADT):** with a higher minor street volume, there is an increase in crash exposure, specifically with more severe angle crashes. The third highest approach volume was used for the minor street volume. Volumes compared to other minor streets throughout the city were used to assign higher risk factor points where minor street volumes were higher.
- **Traffic Volume (DEV):** the average number of vehicles entering the intersection per day. The DEVs for all the intersections in the city were compared against each other to assign higher risk factor points to intersections with higher DEVs within the city along the LRSP roads. It is understood that more vehicles entering an intersection creates more exposure and therefore, increases the probability of a crash.
- **Intersection Configuration:** as an additional risk factor to capture potential conflicts at an intersection, the number of approaches were considered as a risk factor. If an intersection had four or more approaches, it was assigned risk factor points.
- **Speed Limit:** the highest speed limit of the approaches at the intersection was used to evaluate this risk factor, with speeds greater than 40 miles per hour (mph) receiving the most risk factor points.

- **Lighting:** the intersection was assigned a risk factor point if there was no existing intersection lighting noted in the intersection database.

Table 11 summarizes the risk factors utilized for the vehicle risk factor analysis as well as the points developed in coordination with the Iowa DOT.

Table 11 – Unsignalized Intersections – Vehicle Risk Factor Ranking

Risk Factor	Measurement	Points	Max Points Available
Frequency of crashes	Number of crashes within 75 feet of the intersection	0: No crashes	4
		1: Frequency percentile is in the lowest quarter of intersections with crashes	
		2: Frequency percentile is in the second lowest quarter of intersections with crashes	
		3: Frequency percentile is in second highest quarter of intersections with crashes	
		4: Frequency percentile is in the highest quarter of intersections with crashes	
Severity of crashes	Fatal or serious injury (K or A) crash within 75 feet of the intersection	0: No K or A crashes	2
		1: 1 K or A crash	
		2: More than 1 K or A crash	
Crash rate	Number of crashes within 75 feet of the intersection per Daily Entering Vehicles (DEV)	0: No crashes	2
		1: Crash rate percentile is in the lower half of intersections with crashes	
		2: Crash rate percentile is in the upper half of intersections with crashes	
Intersection skew	Skew angle of most skewed approach	0: 85-90 degrees	4
		2: 70-85 degrees	
		4: Less than 70 degrees	
Minor street volume	Average Daily Traffic (ADT)	0: Minor street ADT percentile is in the lowest third	3
		1: Minor street ADT percentile is in the middle third	
		3: Minor street ADT percentile is in the highest third	
Traffic volume	Daily Entering Vehicles (DEV)	0: DEV percentile is in the lowest quarter	3
		1: DEV percentile is in the second lowest quarter	
		2: DEV percentile is in the second highest quarter	
		3: DEV percentile is in the highest quarter	
Intersection configuration	Number of approaches	0: Less than 4 approaches	3
		1: 4 approaches	
		3: More than 4 approaches	
Speed limit	Highest speed limit on any of the approaches	0: 30 mph or less	2
		1: 31 mph to 40 mph	
		2: 41 mph or greater	
Lighting	Presence of lighting from the intersection database	0: Yes	1
		1: No	
Total available points			**24**

The scoring for all unsignalized intersections along the LRSP roads and associated data is included in **Appendix C**. For visualization purposes,

Figure 18 shows the location and vehicle risk factor score of each unsignalized intersection analyzed along the LRSP roads.

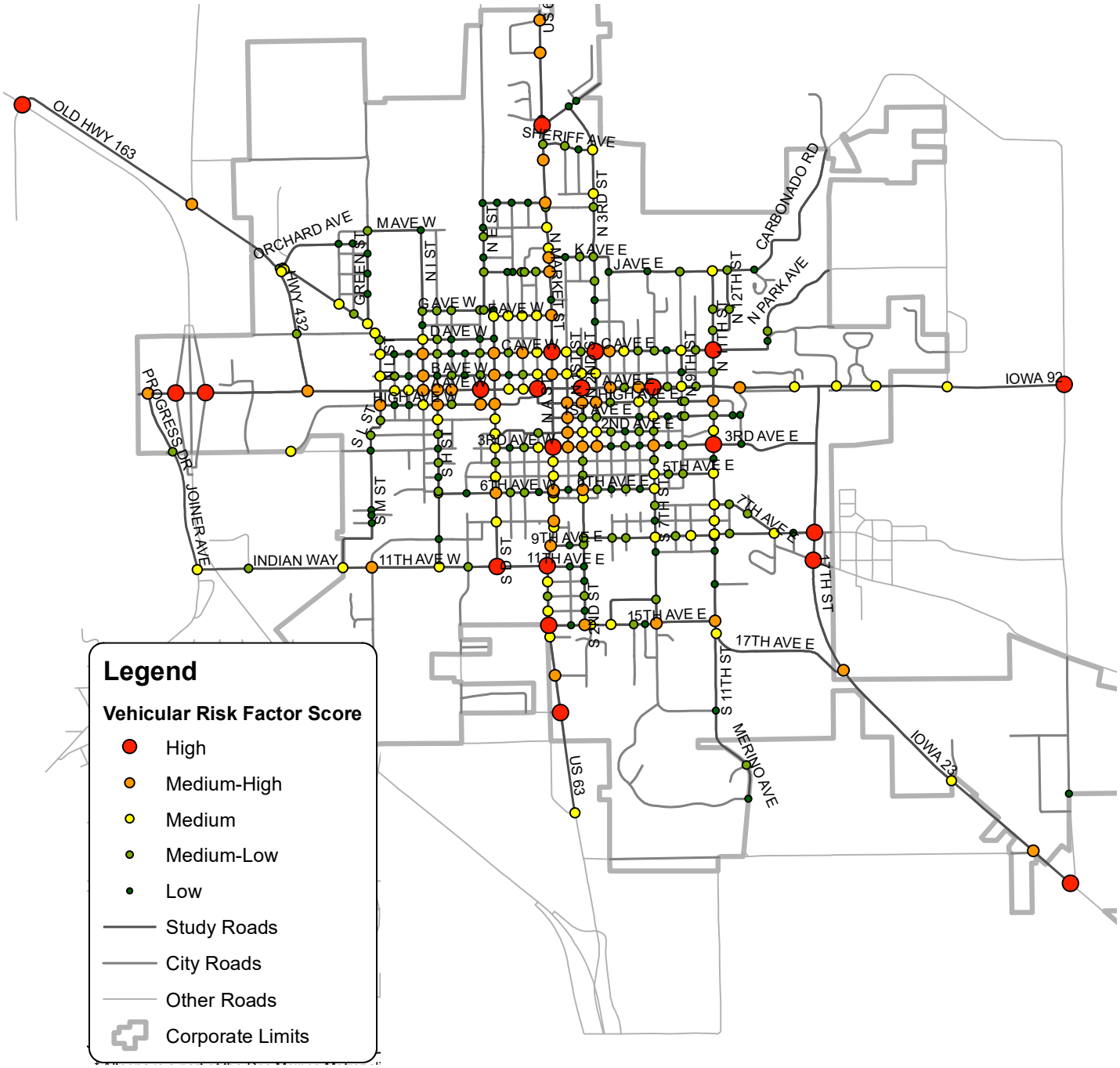

Figure 18 – City Unsignalized Intersection Vehicle Risk Factor Score Map

6.2.2. Non-Motorist Risk Factor Summary

Every unsignalized intersection along the LRSP roads containing at least one city-maintained paved roadway leg was also analyzed for non-motorist risk according to the following eight key attributes:

- **Pedestrian or Bicycle Crash Experience:** each unsignalized intersection along the LRSP road was assigned risk factor points if a pedestrian or bicycle crash occurred within 75 feet of the intersection. This attribute takes into account crash history, which may be indicative of improvement needs.
- **Pedestrian Crossing Distance:** the longest crossing distance based on the highest number of lanes on any approach at the intersection. With a longer distance, there is a longer period of time that a pedestrian is within a vehicle travel lane, the higher exposure and the higher potential crash risk. Intersections with four or more lanes to cross were assessed the most risk factor points.
- **Intersection Skew:** the intersection was assigned risk factor points if any of the side roads had an approach angle (skew) of less than 85 degrees. Based on Iowa crash data analyzed by InTrans, crash experience increases at intersections with skew at 85 degrees and 70 degrees. According to the *Highway Design Handbook for Older Drivers and Pedestrians*, "Skew angles in excess of 75 degrees often create special problems at stop-controlled rural intersections. The angle complicates the vision triangle for the stopped vehicle; increases the time to cross the through road; and results in a larger, more potentially confusing intersection." Intersection skew can also impact the ability of a driver to perceive a pedestrian crossing the roadway.
- **Nearby Schools:** intersections with elementary or middle schools less than 0.1 miles away were assessed the highest risk factor points, since schools typically generate pedestrians and bicycle riders within close proximity to the school.
- **Nearby Transit:** this risk factor is based on the distance from an intersection to the nearest transit stop. Where a transit stop is less than 0.25 miles away, the highest risk factor points were assessed. Transit riders typically walk to or from their drop-off or pick-up location, potentially generating more pedestrian risk exposure near the transit stops.
- **Nearby Trails:** as trails frequently generate pedestrian volumes, if an intersection was within 0.5 miles of a trail, risk factor points were assigned.
- **Speed Limit:** the highest speed limit of the approaches at the intersections was used to evaluate this risk factor, with speeds greater than 40 mph receiving the most risk factor points. Vehicle speed is one of the most impactful factors in non-motorist survivability of a crash.
- **Lighting:** the intersection was assigned a risk factor point if there was no existing intersection lighting noted in the intersection database.

Table 12 summarizes the risk factors utilized for the non-motorist risk factor analysis as well as the points developed in coordination with the Iowa DOT. The maximum number of available points for intersection risk factors for non-motorists was 25.

Table 12 – Unsignalized Intersections – Non-Motorist Risk Factor Ranking

Risk Factor	Measurement	Points	Max Points Available
Pedestrian or bicycle crash experience	Pedestrian or bicycle crash within 75 feet of the intersection	0: None	6
		5: 1	
		6: 2 or more	
Pedestrian crossing distance	Longest crossing distance based on the highest number of lanes on any approach	0: 2 lanes	4
		2: 3 lanes	
		4: 4 or more lanes	
Intersection skew	Skew angle of most skewed approach	0: 85-90 degrees	4
		2: 70-85 degrees	
		4: Less than 70 degrees	
Nearby schools	Distance to nearest elementary or middle school	0: No school within 0.3 miles	3
		1: School 0.2-0.3 miles away	
		2: School 0.1-0.2 miles away	
		3: School less than 0.1 miles away	
Nearby transit	Distance to nearest transit stop	0: No transit stop within 0.5 miles	2
		1: Transit stop 0.25-0.5 miles away	
		2: Transit stop less than 0.25 miles away	
Nearby trails	Distance to nearest trail	0: No trail within 0.5 miles	2
		1: Trail 0.25-0.5 miles away	
		2: Trail less than 0.25 miles away	
Speed limit	Highest speed limit on any of the approaches	0: 30 mph or less	2
		1: 31 mph to 40 mph	
		2: 41 mph or greater	
Lighting	Presence of lighting from the intersection database	0: Intersection lighting	2
		1: Destination lighting	
		2: No lighting	
Total available points			**25**

The scoring for all unsignalized intersections along the LRSP roads and associated data is included in **Appendix C**. For visualization purposes, **Figure 19** shows the location and non-motorist risk factor score of each unsignalized intersection analyzed along the LRSP roads.

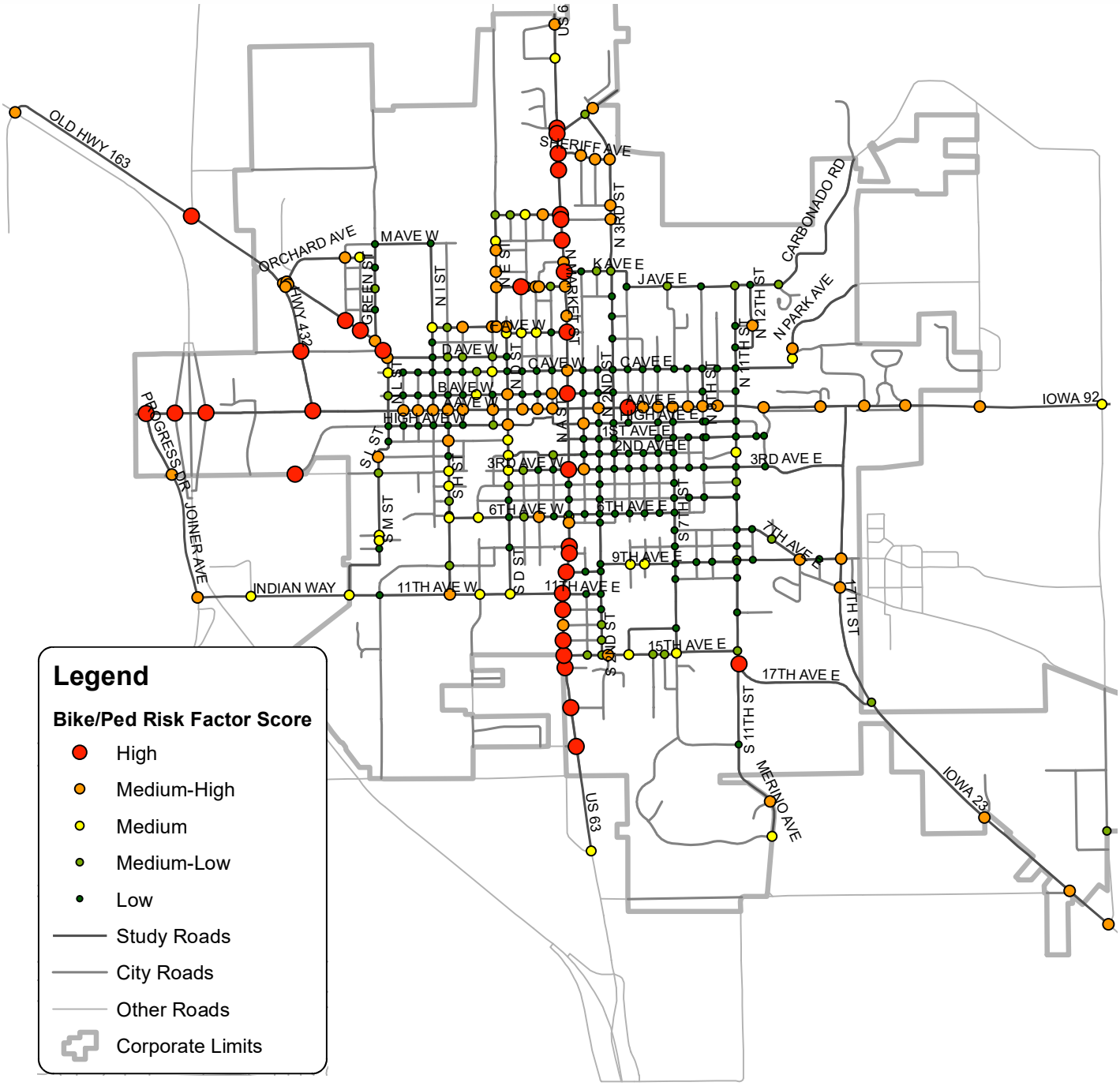

Figure 19 – City Unsignalized Intersection Non-Motorist Risk Factor Score Map

6.3. Signalized Intersections

For signalized intersections, the Iowa DOT's SICL methodology was used for ranking based on past crash experience. For the purposes of this project, the SICL methodology included 10 years of crash data. The signalized intersections along the LRSP roads with their SICL rank are included in **Figure 20** and a table of this information is included in in **Appendix D**.

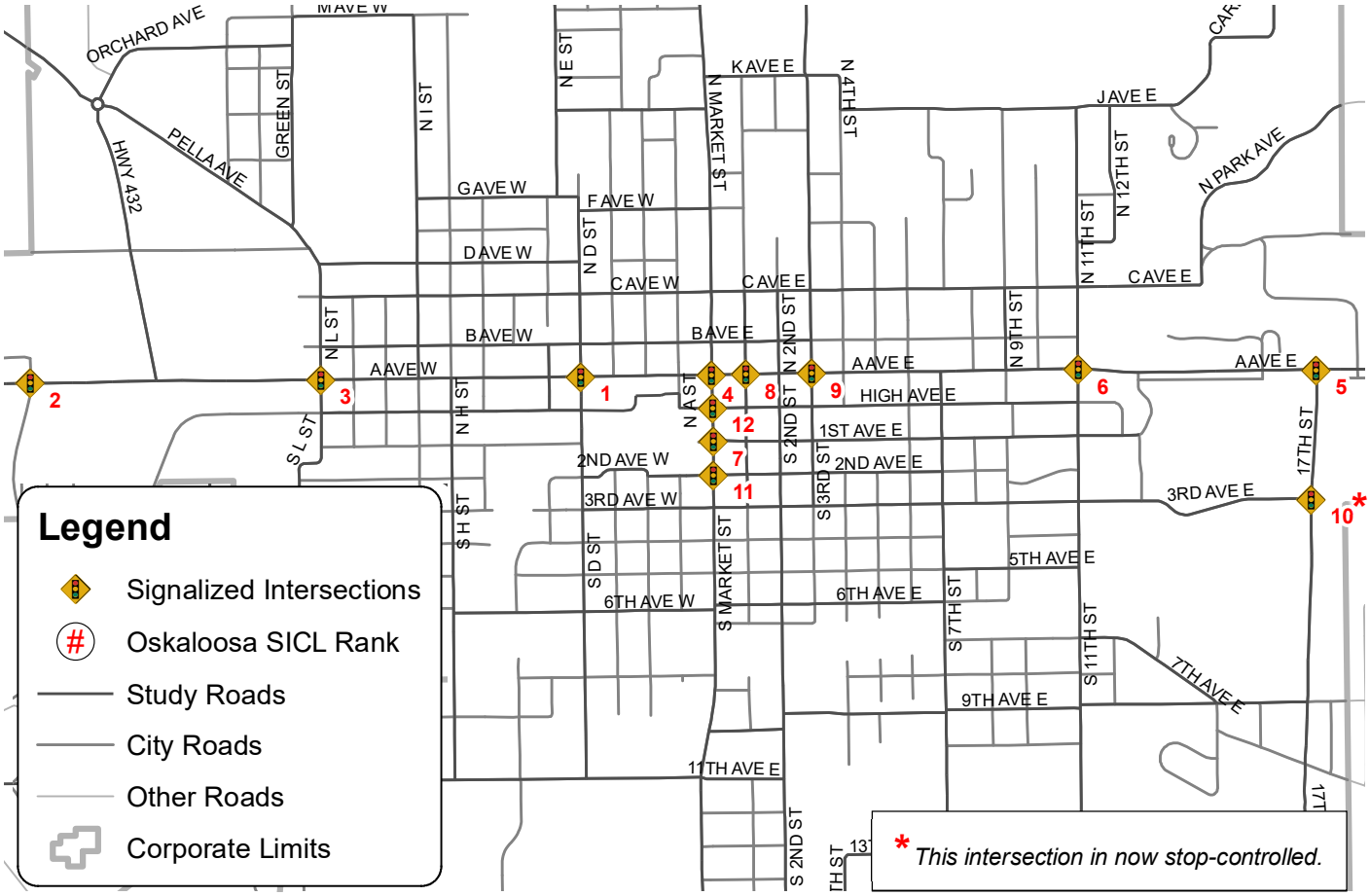

Figure 20 – Signalized Intersection Safety Improvement Candidate Locations

6.4. Prioritized Intersection Recommendations

The results of the risk factor ranking and SICL calculations were provided to the city and the city chose 11 unsignalized intersections for further analysis. During the site visit and discussions with city staff safety improvement projects were identified for the selected intersections. From the list of intersection countermeasures included in **Appendix C** (unsignalized), countermeasures were selected to include on the intersection project sheets. Project sheets were then developed for these locations and provided to the city for review. Countermeasures for signalized intersections are also included in and **Appendix D** for the city's reference. The intersections for which project sheets were developed are summarized in **Table 13** and the project sheets along with the field visit notes are located in **Appendix A**.

Table 13 – City Intersection Prioritized Project Cost Summary

GPS ID	Intersection	SICL Rank	Vehicle Risk Score	Bike/Ped Risk Score	Estimated Project Cost
350627	IA 92 & A AVE W/IA 163	-	67%	44%	$ 2,046,000
671168	IA 23/17TH ST & 9TH AVE E	-	63%	24%	$ 287,000
671191	IA 92/A AVE E & N 2ND ST	-	58%	32%	$ 77,000
671118	US 63/S MARKET ST & 11TH AVE W & 11TH AVE E	-	54%	44%	$ 1,986,000
350285	US 63/S MARKET ST & 3RD AVE W & 3RD AVE E	-	54%	36%	$ 34,000
353817	IA 92/A AVE E & N 7TH ST	-	54%	32%	$ 23,000
671188	IA 92/A AVE W & N A ST	-	54%	28%	$ 50,000
671184	IA 92/A AVE W & N E ST	-	54%	24%	$ 29,000
353273	C AVE E & N 11TH ST	-	54%	8%	$ 307,000
671652	C AVE E & N 3RD ST	-	54%	8%	$ 297,000
671123	US 63/N MARKET ST & 6TH AVE W	-	42%	16%	$ 98,000
Unsignalized Intersections Total (11 Intersections)					**$ 5,234,000**

Figure 21 illustrates the locations of the identified intersections where project sheets and specific intersection improvement recommendations were made (see **Appendix A**). The intersection risk factor ranking results and relevant data for every analyzed intersection is included in the summary spreadsheet included in **Appendix C**.

6.4.1. Other Intersection Countermeasures

A safety improvement that is not included on the project sheet may still merit consideration at a particular location. There are a variety of safety improvements that could be considered that may not have been included. The city staff could choose to add or remove additional countermeasures from consideration at any time, based on engineering judgment or new information.

While conducting the field review at the 11 intersections, it was observed that some of the sign heights throughout the city did not appear to meet the Manual on Uniform Traffic Control Devices (MUTCD) requirements for sign heights. It is recommended that the city review signs throughout the city and reinstall them as per MUTCD requirements. Based on discussions in the workshop, the city would like to add retroreflective strips to all stop signs posts. The city should consider a plan to install the retroreflective strips to stop sign posts throughout the city.

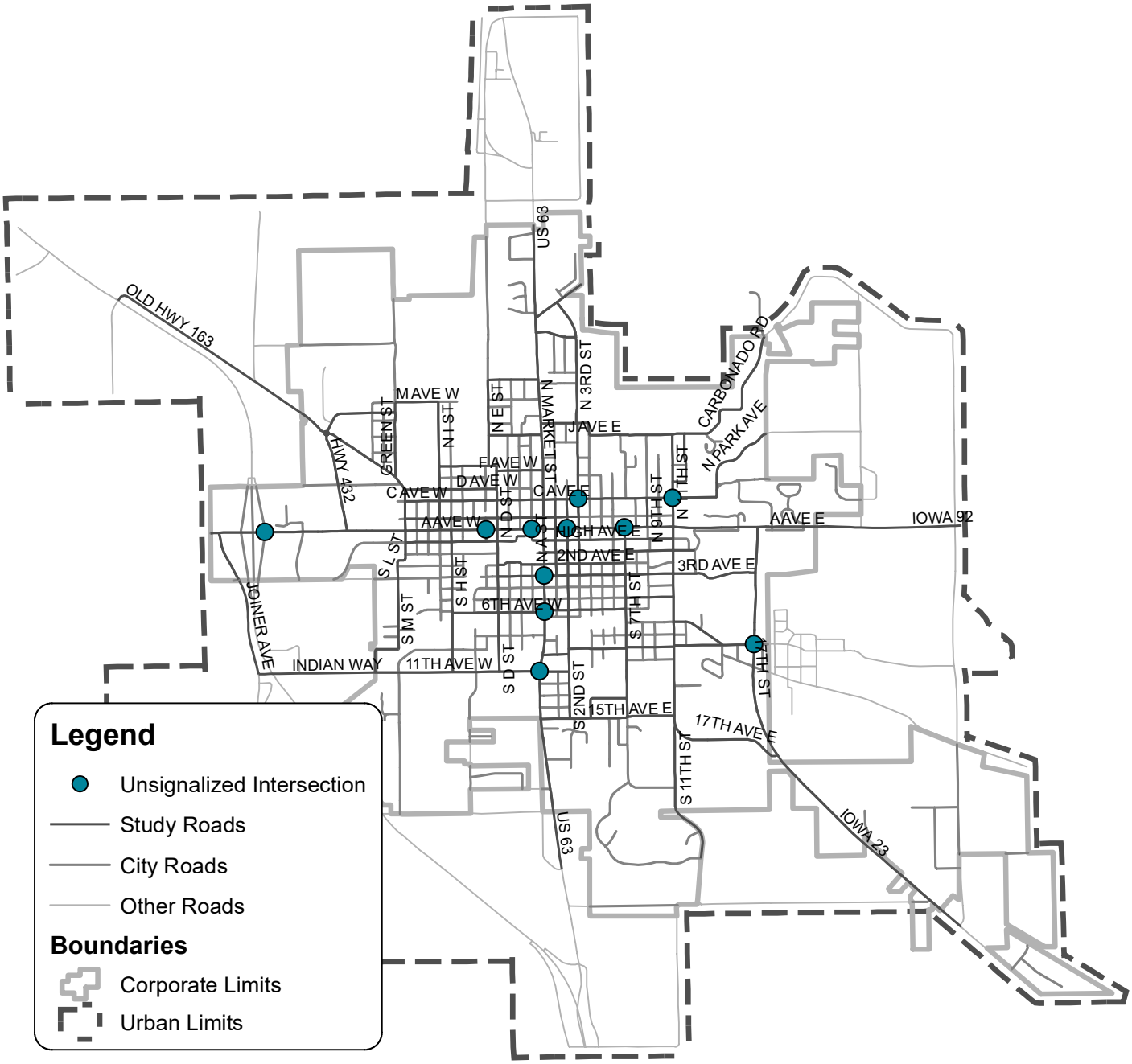

Figure 21 – City Intersection Prioritized Project Location

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7. SUMMARY

The Oskaloosa LRSP was developed to aid the city in identifying and prioritizing intersections for safety improvements. The LRSP followed a data-driven process to develop systemic safety improvements at intersections on the LRSP roads. The LRSP was developed through an eight-step process that included gathering background information, data collection, data analysis, countermeasure selection, city input and site visits, project development, city review, and development of the LRSP.

- **Gather Background Information:** The Iowa SHSP was reviewed, and data requests were made of the cities to provide the locations of pertinent safety improvements.
- **Data Collection:** A comprehensive GIS project database was developed utilizing the following databases as provided by the Iowa DOT, the city, or collected as part of this project:
  - Crash database
  - Roadway database
  - Intersection database
  - School, transit, and trails databases
- **Data Analysis:** After development of the comprehensive GIS project database, the crash data was analyzed for the city. Crashes were compared to the SHSP priority safety emphasis areas for the State of Iowa, and crash trees and maps were prepared for the city.
- **Countermeasure Selection:** Following data analysis, a workshop was held with the safety stakeholders of the city. Prior to the workshop, a list of safety topics was developed and distributed to the cities to foster discussion at the workshop on driver-related safety countermeasure implementation. At the workshop, driver-related countermeasures were reviewed, and stakeholders discussed existing and proposed driver-related countermeasures.
- **City Input and Site Visits:** Countermeasures for each location of interest were selected in-field allowing the city staff to use engineering judgment and site-specific knowledge to recommend safety countermeasures at the identified/prioritized locations.
- **Develop Projects for Inclusion into the LRSP:** A risk factor ranking process was developed for unsignalized intersections. Vehicle, bicycle, and pedestrian risk factors were calculated for all unsignalized intersections along the LRSP roads and the SICL crash analysis methodology was calculated for each signalized intersection. Risk factors included roadway features such as traffic volumes, number of approach lanes, skew, and lighting. After conducting the risk factor analysis and SICL calculation, the city chose their top locations of interest for further evaluation. Recommended safety improvements were discussed during the site visits to each location of interest. Improvements included items such as additional signage, pavement markings, and geometric modifications.
- **City Review:** Project sheets detailing the recommended safety improvements at specific locations were provided to the city staff for review.
- **Develop LRSPs:** An LRSP was developed for the City of Oskaloosa including a summary of the LRSP process along with recommended safety projects for implementation by the city.

7.1. Recommended Improvements

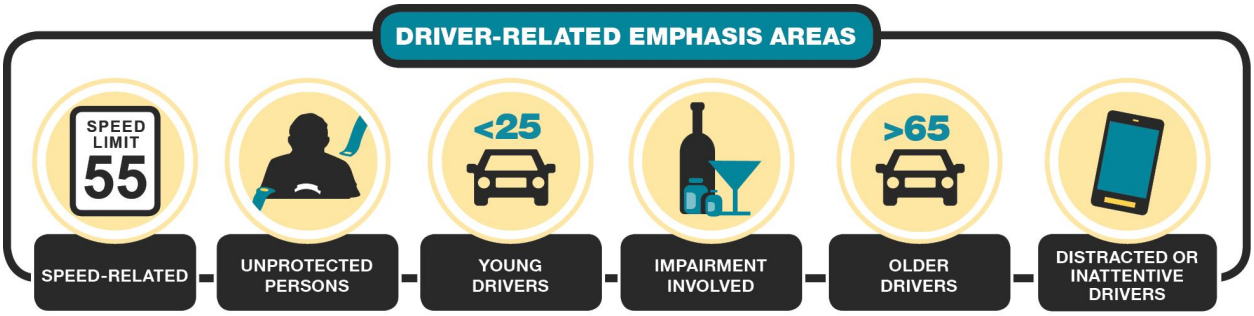
This LRSP identified driver-related countermeasures in addition to engineering-related countermeasures. The following sections summarize the recommended countermeasures and improvements for the City of Oskaloosa.

7.1.1. Driver-Related Countermeasures

During the workshop, attendees were provided information regarding fatal and serious injury crashes within the city and how that data aligned with the Iowa SHSP priority safety emphasis areas. Potential countermeasures from the *NCHRP Report 500 Series, Toward Zero Deaths* documents, and the results from Phase 1 though Phase 4 of the LRSPs were provided to stakeholders to facilitate discussion on what action items were currently underway in the city with respect to driver-related crashes.

Countermeasures were grouped according to the 2019 Iowa SHSP eight priority safety emphasis areas, of which six are driver-related emphasis areas:

- Speed-related
- Unprotected persons
- Young drivers
- Impairment involved
- Older drivers
- Distracted or inattentive drivers



Based on discussions at the workshop, the following implementation statuses were defined for various driver-related countermeasures in the city: Underway/Ongoing, Area for Improvement, Opportunity, or Completed in the Past.

Table 14 provides a summary of the status of implementation of the driver-related countermeasures within the city. It is recommended that the city continue to implement countermeasures that are currently underway/ongoing and look for opportunities to implement additional countermeasures that are not currently being implemented. This will require input and coordination from all of the Five E's of safety.

Table 14 – City Driver-Related Countermeasure Summary

Countermeasure	Status
Speed-Related	
Conduct targeted speed enforcement	Underway/Ongoing
Prosecute and impose sanctions on drivers not obeying school bus stop bars	Underway/Ongoing, Opportunity
Unprotected Persons	
Conduct targeted enforcement of restraint use	Underway/Ongoing
Check for proper child restraint use in all motorist encounters	Underway/Ongoing
Instruction in proper child restraint use	Underway/Ongoing
Positive reinforcement	Underway/Ongoing
Young Drivers	
Enforcement of Graduated Driver's License (GDL) laws	Underway/Ongoing
Additional education	Underway/Ongoing
Impairment Involved	
Conduct Operating While Intoxicated (OWI) enforcement	Underway/Ongoing
Conduct high-visibility saturation patrols	Underway/Ongoing
Compliance checks for alcohol sales	Underway/Ongoing
Alternative transportation choices	Underway/Ongoing
Prosecute, impose sanctions on, and treat OWI offenders	Underway/Ongoing
Older Drivers	
Promote safe mobility choices	Underway/Ongoing
Encourage external reporting of at-risk drivers to licensing authorities	Opportunity
Distracted or Inattentive Drivers	
Visibly enforce existing statutes to deter distracted driving	Underway/Ongoing
Agency policy for hands-free devices	Area for Improvement

7.1.2. Engineering Countermeasures

In addition to the driver-related countermeasures, engineering projects were developed for the intersections that had high risk factor rankings based on the analysis methodology and were selected by the city for further evaluation. **Table 15** provides a cost summary of the projects developed for the city.

Table 15 – Engineering Countermeasures Cost Summary

Number of Locations	Estimated Project Cost
11	$ 5,234,000

While conducting the field review at the 11 intersections, it was observed that some of the sign heights throughout the city did not appear to meet the MUTCD requirements for sign heights. It is recommended that the city review signs throughout the city and reinstall them as per MUTCD requirements. Based on discussions in the workshop, the city would like to add retroreflective strips to all stop signs posts. The city should consider a plan to install the retroreflective strips to stop sign posts throughout the city.

7.2. Implementation

One of the goals of the LRSP project is to provide a document that is usable and can be frequently consulted by the city to aid in requesting funding and in the completion of traffic safety improvement projects at city intersections. This section describes some recommendations on how this plan can be implemented within the city.

The project sheets developed and provided in **Appendix A** are intended to be used as a straightforward way to apply for safety improvement funding through the following state programs listed in **Section 2.2**:

- Traffic Safety and Engineering Programs (i.e., SRPFCC, U-STEP, TEAP, TSIP)
- Road, Street, and Bridge Programs (i.e., ICAAP)
- Trails, Enhancement, and Youth Programs (i.e., Recreational Trails Program)

Additionally, there is a ranking of high-crash signalized intersection locations contained within **Appendix D** of this document as described in **Section 6.3**. It is recommended that the city consider applying for TSIP funding at these locations because TSIP funding considers benefit-cost analysis. The city staff can review these locations to determine if safety improvements, similar to the ones outlined within **Section 5.4** are applicable and develop a TSIP application based on the recommended improvements.

The city staff should also review the planned or proposed roadway projects and consider including safety recommendations from the project sheets into those projects, where applicable. In future planning cycles, it is recommended that the safety projects included on the project sheets be considered for inclusion.

The city should also consider consulting the LRSP when developing a project for design or addressing a maintenance issue, in order to incorporate the types of safety improvement recommendations in the LRSP and in the project sheets. Doing so can help prioritize projects and emphasize safety in design and maintenance.

Finally, the LRSP can be consulted during routine maintenance activities such as striping and mowing (clearing and grubbing). The document can be used to provide instruction or education to maintenance crews about the safety implications of their work.

7.3. Next Steps

Project sheets containing the prioritized list of projects have been provided in **Appendix A**, to aid the city in obtaining funding for safety improvements and/or for incorporating recommendations into planned intersection improvement projects. These sheets may require updating for funding applications in future years. The city may also make changes to the prepared project sheets based on local knowledge of the site, available funding, and/or specific needs.

It is recommended that the city continue to foster cooperation with other stakeholders and look for opportunities to improve and expand implementation of driver-related countermeasures. The city should continue its history of implementing a number of safety improvement projects annually. Based on current funding levels, it is anticipated that many of the engineering improvements listed in this plan could be implemented within five to ten years, or sooner. Additionally, this LRSP should be updated within five to ten years to reflect improvements that have been implemented, additional availability of roadway feature data, and changes in crash types and patterns.

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APPENDIX A

PROJECT SHEETS

Local Road Safety Plan — **Unsignalized Intersection**

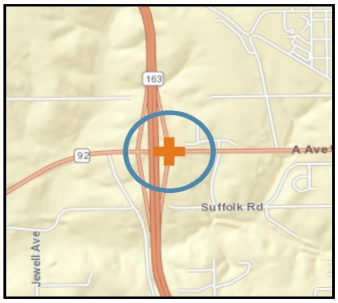
Project Description for Intersection Improvements — **Location Description** — **GPS ID: 350627**

Project Name: IA 92 & A Ave W/IA 163
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **IA 92**
Road: **A Ave W/IA 163**

Vehicular Risk Factor Score: **67%**
Bike/Ped Risk Factor Score: **44%**

Date: 4/30/19
Prepared By: DJG/DVM
Checked By: MMO



Opinion of Probable Cost (Short-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Install a Left-Turn Lane			X		1	LEG	$ 150,000	$ 150,000
Install a Right-Turn Lane				X	1	LEG	$ 150,000	$ 150,000
Install Lane Assignment Pavement Markings					4	EA	$ 450	$ 1,800

Short Term Improvements Subtotal:		$ 301,800
Mobilization: (% +/-)*	10%	$ 30,180
Traffic Control: (% +/-)	5%	$ 15,204
Contingency: (% +/-)	20%	$ 60,816
Estimated Short-Term Improvements Project Cost:		**$ 408,000**

Opinion of Probable Cost (Long-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Construct a Roundabout					1	EA	$ 1,250,000	$ 1,250,000

Long Term Improvements Subtotal:		$ 1,250,000
Mobilization: (% +/-)*	10%	$ 75,000
Traffic Control: (% +/-)	5%	$ 62,600
Contingency: (% +/-)	20%	$ 250,400
Estimated Long-Term Improvements Project Cost:		**$ 1,638,000**
Estimated Project Costs:		**$ 2,046,000**

*Mobilization is 10% +/- of the subtotal with a minimum of $2,500 and a maximum of $75,000

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Local Road Safety Plan — **Unsignalized Intersection**

Project Description for Intersection Improvements — **Location Description** — **GPS ID: 350627**

Project Name: **IA 92 & A Ave W/IA 163**
Agency Name: **City of Oskaloosa**
Contact Name: **Pal, Akhilesh**
E-mail: **Akhilesh.Pal@Oskaloosaiowa.org**

Road: **IA 92**
Road: **A Ave W/IA 163**

Vehicular Risk Factor Score: **67%**
Bike/Ped Risk Factor Score: **44%**

Date: 4/30/19

Prepared By: DJG/DVM
Checked By: MMO

Intersection Information	
Number of Approaches	4
Number of Paved Approaches	4
Major Street Volume	10,800
Minor Street Volume	2,250
Destination Lighting	Yes
Control Type	One-way stop

Crash Severity	
K	0
A	0
B	1
C	1
O	4
Total	6

Vehicle Risk Factors	Value	Points
Number of Crashes	6	4
Number of K & A Crashes	0	0
Crash Rate per MEV	0.19	1
Intersection Skew (degrees)	80	2
Minor Street Volume	2,250	3
Traffic Volume (DEV)	8,855	3
Number of Legs	4	1
Speed Limit (mph)	45	2
Lighting	Yes	0
Total Risk Factor Points (24 max)		16
		67%

Crash Data, 2008-2017	
Total Crashes	6
K and A Crashes	0
Right Angle,Rear-end,or Turning Crashes	4
Total Nighttime Crashes	3
Nighttime/Daytime Crash Ratio**	3.0

Major Cause of Crashes***	
Other	2
Ran Stop Sign	1
FTYROW: Making left turn	1
Exceeded authorized speed	1

Bike/Ped Risk Factors	Value	Points
Number of Bike/Ped Crashes	0	0
Ped Crossing Distance (lanes)	4	4
Intersection Skew (degrees)	80	2
Nearby Schools (mi)	0.78	0
Nearby Transit (mi)	0.23	2
Nearby Trails (mi)	0.45	1
Speed Limit (mph)	45	2
Lighting	Yes	0
Total Risk Factor Points (25 max)		11
		44%

Manner of Crashes***	
Rear-end (front to rear)	3
Non-collision (single vehicle)	1
Angle, oncoming left turn	1
Other	1

** Nighttime/Daytime Crash Ratio = 3 x nighttime crashes/daytime crashes per Iowa DOT I.M. 2.110 Attachment A.
*** Major Cause and Manner of Crash are based on total crashes, and are listed for up to the top four categories.

Project Location Map Sources:
Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

Opinion of Probable Construction Cost Disclaimer:
Kimley-Horn has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Kimley-Horn at this time and represent only Kimley-Horn's judgment as a design professional familiar with the construction industry. Kimley-Horn cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Project
The recommended improvements contained in this project description form were developed through a Geographic Information System (GIS) database risk assessment and project selection process, as specifically stated in our scope of services. Kimley-Horn has no control over the accuracy of the GIS databases nor the suitability of the specific improvements for the location, and has provided recommended improvements for consideration by the City Engineer. The City Engineer may use this project description form to aid in the selection and development of projects, but this project description form should not be used as the sole basis for the City Engineer's decision making process. We endeavored to research issues and constraints to the extent practical given the scope, budget, and schedule agreed to with the Client. Our assessment is based in large part on information provided to us by others (DOT, county staff, etc.) and therefore is only as accurate and complete as the information provided to us. No formal assessment was made for the improvement recommendations contained on this page, if in question, it is recommended that a study/analysis of this location be made to warrant the above indicated improvements. This project description form is based on our knowledge as of May 2019.

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FIELD VISIT NOTES

350627 – IA 92 & A Ave W/IA 163– Unsignalized

- General notes:
  - In the PM peak, there are a lot of westbound to northbound right turns heading towards Des Moines.
- Long-term improvements:
  - Roundabout.
- Short-term improvements:
  - Provide a dedicated eastbound to northbound left turn lane.
  - Provide a dedicated westbound to northbound right turn lane.
  - Provide pavement markings on all approaches of the intersection, including lane assignment arrows for the new right and left turn lanes.

Local Road Safety Plan — **Unsignalized Intersection**

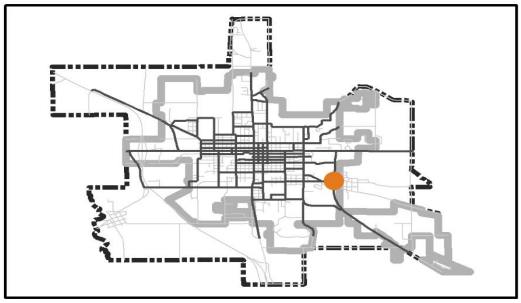
Project Description for Intersection Improvements — **Location Description** — **GPS ID: 671168**

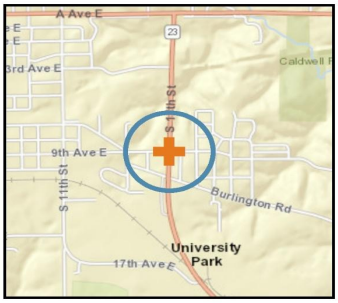
Project Name: IA 23/17TH ST & 9TH AVE E
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **IA 23/17TH ST**
Road: **9TH AVE E**

Vehicular Risk Factor Score: **63%**
Bike/Ped Risk Factor Score: **24%**

Date: 4/30/19
Prepared By: DJG/DVM
Checked By: MMO





Opinion of Probable Cost (Short-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Install Retroreflective Strips on Sign Posts					1	INT	$ 100	$ 100
Trim Vegetation on Northwest Quadrant					1	QUAD	$ 1,500	$ 1,500
Relocate Stop Bar Closer to the Intersection (if Feasible)			X	X	2	LEG	$ 450	$ 900
Relocate Stop Signs Closer to the Intersection (if Feasible)			X	X	2	LEG	$ 800	$ 1,600
Install Centerline Pavement Markings 100 feet along the Approach			X	X	2	LEG	$ 100	$ 200
Install Edgeline Pavement Markings 100 feet along the Approach			X	X	2	LEG	$ 100	$ 200
Install an "Intersection Warning" Sign (W2-1 through W2-8)	X				1	LEG	$ 500	$ 500
Install an Advance Street Name Sign (D3-2)	X				1	LEG	$ 500	$ 500
Install Dotted Turn-Path Markings ("Cat Track")	X	X	X	X	4	LEG	$ 100	$ 400

Short Term Improvements Subtotal:		$ 5,900
Mobilization: (% +/-)*	10%	$ 2,500
Traffic Control: (% +/-)	5%	$ 320
Contingency: (% +/-)	20%	$ 1,280
Estimated Short-Term Improvements Project Cost:		**$ 10,000**

Opinion of Probable Cost (Long-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Extend Acceleration Lane		X			1	LEG	$ 75,000	$ 75,000
Construct Raised Medians			X	X	2	LEG	$ 50,000	$ 100,000
Fix Drainage				X	1	LEG	$ 30,000	$ 30,000

Long Term Improvements Subtotal:		$ 205,000
Mobilization: (% +/-)*	10%	$ 20,500
Traffic Control: (% +/-)	5%	$ 10,300
Contingency: (% +/-)	20%	$ 41,200
Estimated Long-Term Improvements Project Cost:		**$ 277,000**
Estimated Project Costs:		**$ 287,000**

*Mobilization is 10% +/- of the subtotal with a minimum of $2,500 and a maximum of $75,000

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Local Road Safety Plan — **Unsignalized Intersection**

Project Description for Intersection Improvements — **Location Description** — **GPS ID: 671168**

Project Name: IA 23/17TH ST & 9TH AVE E
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **IA 23/17TH ST**
Road: **9TH AVE E**

Vehicular Risk Factor Score: **63%**
Bike/Ped Risk Factor Score: **24%**

Date: 4/30/19

Prepared By: DJG/DVM
Checked By: MMO

Intersection Information	
Number of Approaches	4
Number of Paved Approaches	4
Major Street Volume	3,200
Minor Street Volume	1,460
Destination Lighting	Yes
Control Type	Two-way stop

Crash Severity	
K	0
A	0
B	3
C	5
O	3
Total	11

Vehicle Risk Factors	Value	Points
Number of Crashes	11	4
Number of K & A Crashes	0	0
Crash Rate per MEV	0.65	2
Intersection Skew (degrees)	90	0
Minor Street Volume	1,460	3
Traffic Volume (DEV)	4,623	3
Number of Legs	4	1
Speed Limit (mph)	45	2
Lighting	Yes	0
Total Risk Factor Points (24 max)		15
		63%

Crash Data, 2008-2017	
Total Crashes	11
K and A Crashes	0
Right Angle,Rear-end,or Turning Crashes	10
Total Nighttime Crashes	2
Nighttime/Daytime Crash Ratio**	0.7

Major Cause of Crashes***	
FTYROW: From stop sign	4
FTYROW: Making left turn	2
Driving too fast for conditions	2
Following too close	2

Bike/Ped Risk Factors	Value	Points
Number of Bike/Ped Crashes	0	0
Ped Crossing Distance (lanes)	3	2
Intersection Skew (degrees)	90	0
Nearby Schools (mi)	1.73	0
Nearby Transit (mi)	0.42	1
Nearby Trails (mi)	0.25	1
Speed Limit (mph)	45	2
Lighting	Yes	0
Total Risk Factor Points (25 max)		6
		24%

Manner of Crashes***	
Rear-end (front to rear)	5
Broadside (front to side)	3
Angle, oncoming left turn	2
Sideswipe, opposite direction	1

** Nighttime/Daytime Crash Ratio = 3 x nighttime crashes/daytime crashes per Iowa DOT I.M. 2.110 Attachment A.
*** Major Cause and Manner of Crash are based on total crashes, and are listed for up to the top four categories.

Project Location Map Sources:
Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

Opinion of Probable Construction Cost Disclaimer:
Kimley-Horn has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Kimley-Horn at this time and represent only Kimley-Horn's judgment as a design professional familiar with the construction industry. Kimley-Horn cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Project
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FIELD VISIT NOTES

671168 – IA 23/17TH ST & 9TH AVE E – Unsignalized

- General notes:
  - This intersection had both a high vehicle and bike/ped score.
  - There are high speeds on the south leg of this intersection.
  - This a large intersection.
  - There is vegetation blocking visibility for the eastbound to northbound left turn.
- Long-term improvements:
  - Extend the acceleration lane for the eastbound to southbound right turn movement over the hill.
  - Narrow and/or provide channelizing islands to provide queues of where vehicles should go in the intersection.
  - Fix the drainage on the westbound approach.
- Short-term improvements:
  - Add retroreflective posts to the stop signs (eastbound and westbound approaches).
  - Trim the trees in the northwest quadrant of the intersection.
  - Move stop signs and stop bars, if feasible for better sight visibility.
  - Provide pavement markings on all approaches of the intersection.
  - Provide an intersection warning and advance street name sign for the northbound approach.
  - Provide cat tracks to guide drivers through the intersection.

Local Road Safety Plan — **Unsignalized Intersection**

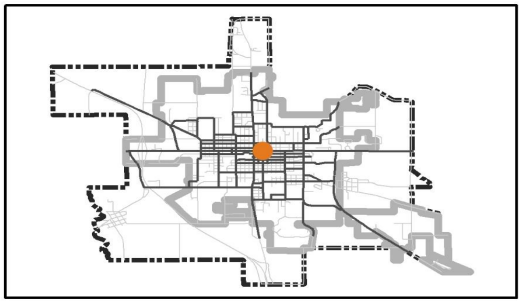
Project Description for Intersection Improvements — **Location Description** — **GPS ID: 671191**

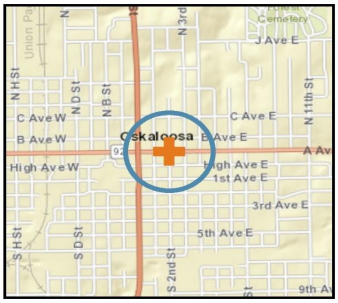
Project Name: IA 92/A AVE E & N 2ND ST
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **IA 92/A AVE E**
Road: **N 2ND ST**

Vehicular Risk Factor Score: **58%**
Bike/Ped Risk Factor Score: **32%**

Date: 4/30/19
Prepared By: DJG/DVM
Checked By: MMO





Opinion of Probable Cost (Short-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Conduct a Signal Timing Study and Implement the Recommendations					1	INT	$ 5,000	$ 5,000
Install Retroreflective Strips on Sign Posts					1	INT	$ 100	$ 100
Install or Modify High-Visibility Crosswalk Markings	X	X	X	X	4	LEG	$ 1,000	$ 4,000
Install a Stop Bar Pavement Marking	X	X			2	LEG	$ 350	$ 700
Install Centerline Pavement Markings 100 feet along the Approach	X	X			2	LEG	$ 100	$ 200
Install Edgeline Pavement Markings 100 feet along the Approach	X	X			2	LEG	$ 100	$ 200
Straighten the Stop Sign for the Northbound Approach					1	SIGN	$ 500	$ 500

Short Term Improvements Subtotal:		$ 10,700
Mobilization: (% +/-)*	10%	$ 2,500
Traffic Control: (% +/-)	5%	$ 560
Contingency: (% +/-)	20%	$ 2,240
Estimated Short-Term Improvements Project Cost:		**$ 16,000**

Opinion of Probable Cost (Long-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Construct Curb Extensions (Bulb-Outs) at the Crosswalk**					2	QUAD	$ 16,000	$ 32,000
Provide ADA-Compliant Ramps	X	X	X	X	4	LEG	$ 3,200	$ 12,800

Long Term Improvements Subtotal:		$ 44,800
Mobilization: (% +/-)*	10%	$ 4,480
Traffic Control: (% +/-)	5%	$ 2,344
Contingency: (% +/-)	20%	$ 9,376
Estimated Long-Term Improvements Project Cost:		**$ 61,000**
Estimated Project Costs:		**$ 77,000**

** Northeast and Southeast extending onto minor approach.

*Mobilization is 10% +/- of the subtotal with a minimum of $2,500 and a maximum of $75,000

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Local Road Safety Plan — **Unsignalized Intersection**

Project Description for Intersection Improvements — **Location Description** — **GPS ID: 671191**

Project Name: IA 92/A AVE E & N 2ND ST
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **IA 92/A AVE E**
Road: **N 2ND ST**

Vehicular Risk Factor Score: **58%**
Bike/Ped Risk Factor Score: **32%**

Date: 4/30/19

Prepared By: DJG/DVM
Checked By: MMO

Intersection Information	
Number of Approaches	4
Number of Paved Approaches	4
Major Street Volume	11,100
Minor Street Volume	1,700
Destination Lighting	Yes
Control Type	Two-way stop

Crash Severity	
K	0
A	0
B	0
C	1
O	10
Total	11

Vehicle Risk Factors	Value	Points
Number of Crashes	11	4
Number of K & A Crashes	0	0
Crash Rate per MEV	0.23	2
Intersection Skew (degrees)	90	0
Minor Street Volume	1,700	3
Traffic Volume (DEV)	12,848	3
Number of Legs	4	1
Speed Limit (mph)	35	1
Lighting	Yes	0
Total Risk Factor Points (24 max)		14
		58%

Crash Data, 2008-2017	
Total Crashes	11
K and A Crashes	0
Right Angle,Rear-end,or Turning Crashes	9
Total Nighttime Crashes	1
Nighttime/Daytime Crash Ratio**	0.3

Major Cause of Crashes***	
FTYROW: From stop sign	5
Ran Traffic Signal	2
FTYROW: Making left turn	1
Other: Vision obstructed	1

Bike/Ped Risk Factors	Value	Points
Number of Bike/Ped Crashes	0	0
Ped Crossing Distance (lanes)	4	4
Intersection Skew (degrees)	90	0
Nearby Schools (mi)	0.59	0
Nearby Transit (mi)	0.07	2
Nearby Trails (mi)	0.79	0
Speed Limit (mph)	35	1
Lighting	Yes	1
Total Risk Factor Points (25 max)		8
		32%

Manner of Crashes***	
Broadside (front to side)	7
Sideswipe, same direction	2
Rear-end (front to rear)	1
Angle, oncoming left turn	1

** Nighttime/Daytime Crash Ratio = 3 x nighttime crashes/daytime crashes per Iowa DOT I.M. 2.110 Attachment A.
*** Major Cause and Manner of Crash are based on total crashes, and are listed for up to the top four categories.

Project Location Map Sources:
Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

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FIELD VISIT NOTES

671191 – IA 92/A AVE E & N 2ND ST – Unsignalized

- General notes:
  - This is between two signalized intersections.
  - The on-street parking can block the visibility of the stop signs.
- Long-term improvements:
  - Bulb outs on the southeast and northeast quadrants.
  - Upgrade curb ramps and crossings to meet ADA.
- Short-term improvements:
  - Investigate the adjacent intersection signal timing and adjust if needed to create more gaps for the side street traffic.
  - Add retroreflective posts to the stop signs (northbound and southbound approaches).
  - Straighten the stop sign for the northbound approach.
  - Provide marked crosswalks.
  - Provide pavement markings on all approaches of the intersection.

Local Road Safety Plan — **Unsignalized Intersection**

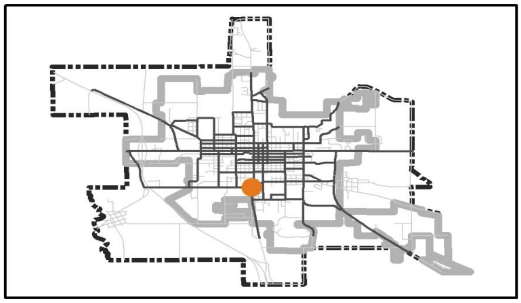
Project Description for Intersection Improvements — **Location Description** — **GPS ID: 671118**

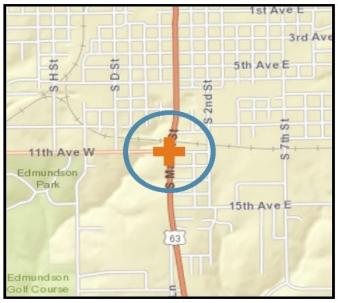
Project Name: US 63/S MARKET ST & 11TH AVE W & 11TH AVE E
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **US 63/S MARKET ST**
Road: **11TH AVE W & 11TH AVE E**

Vehicular Risk Factor Score: **54%**
Bike/Ped Risk Factor Score: **44%**

Date: 4/30/19
Prepared By: DJG/DVM
Checked By: MMO





Opinion of Probable Cost (Short-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Install Retroreflective Strips on Sign Posts					1	INT	$ 100	$ 100
Trim Vegetation on Northeast Quadrant					1	QUAD	$ 1,500	$ 1,500
Install a Second Stop Sign (R1-1) on the Left Side of the Road**					1	SIGN	$ 500	$ 500
Install an Overhead Stop Sign (R1-1)**					1	SIGN	$ 2,000	$ 2,000
Install or Modify High-Visibility Crosswalk Markings	X	X	X	X	4	LEG	$ 1,000	$ 4,000
Relocate Stop Bar Closer to the Intersection (if Feasible)			X	X	2	LEG	$ 450	$ 900
Relocate Stop Signs Closer to the Intersection (if Feasible)			X	X	2	LEG	$ 800	$ 1,600
Install an "Intersection Warning" Sign (W2-1 through W2-8)	X	X			2	LEG	$ 500	$ 1,000
Install an Advance Street Name Sign (D3-2)	X	X			2	LEG	$ 500	$ 1,000
Install a Stop Bar Pavement Marking			X	X	2	LEG	$ 350	$ 700
Install Centerline Pavement Markings 100 feet along the Approach			X	X	2	LEG	$ 100	$ 200
Install Edgeline Pavement Markings 100 feet along the Approach			X	X	2	LEG	$ 100	$ 200

Short Term Improvements Subtotal:		$ 13,700
Mobilization: (% +/-)*	10%	$ 2,500
Traffic Control: (% +/-)	5%	$ 760
Contingency: (% +/-)	20%	$ 3,040
Estimated Short-Term Improvements Project Cost:		**$ 20,000**

** Could do one or the other.

Opinion of Probable Cost (Long-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Realign the Intersection Approach to Fix Offset			X		1	LEG	$ 250,000	$ 250,000
Provide ADA-Compliant Ramps	X	X	X	X	4	LEG	$ 3,200	$ 12,800
Construct a Roundabout					1	EA	$ 1,250,000	$ 1,250,000
TWLTL for Dedicated Left Turn Movements***								

Long Term Improvements Subtotal:		$ 1,512,800
Mobilization: (% +/-)*	10%	$ 75,000
Traffic Control: (% +/-)	5%	$ 75,640
Contingency: (% +/-)	20%	$ 302,560
Estimated Long-Term Improvements Project Cost:		**$ 1,966,000**
Estimated Project Costs:		**$ 1,986,000**

*** To be included with the 4-to-3-Lane Conversion Project on Market Street

*Mobilization is 10% +/- of the subtotal with a minimum of $2,500 and a maximum of $75,000

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Kimley»Horn

Local Road Safety Plan — **Unsignalized Intersection**

Project Description for Intersection Improvements — **Location Description** — **GPS ID: 671118**

Project Name: US 63/S MARKET ST & 11TH AVE W & 11TH AVE E
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **US 63/S MARKET ST** — Vehicular Risk Factor Score: **54%**
Road: **11TH AVE W & 11TH AVE E** — Bike/Ped Risk Factor Score: **44%**

Date: 4/30/19

Prepared By: DJG/DVM
Checked By: MMO

Intersection Information	
Number of Approaches	4
Number of Paved Approaches	4
Major Street Volume	7,800
Minor Street Volume	430
Destination Lighting	Yes
Control Type	Two-way stop

Crash Severity	
K	0
A	0
B	1
C	2
O	10
Total	13

Vehicle Risk Factors	Value	Points
Number of Crashes	13	4
Number of K & A Crashes	0	0
Crash Rate per MEV	0.39	2
Intersection Skew (degrees)	81	2
Minor Street Volume	430	0
Traffic Volume (DEV)	9,130	3
Number of Legs	4	1
Speed Limit (mph)	35	1
Lighting	Yes	0
Total Risk Factor Points (24 max)		13
		54%

Crash Data, 2008-2017	
Total Crashes	13
K and A Crashes	0
Right Angle,Rear-end,or Turning Crashes	8
Total Nighttime Crashes	4
Nighttime/Daytime Crash Ratio**	1.3

Major Cause of Crashes***	
FTYROW: From stop sign	4
Other	2
Crossed centerline (undivided)	1
Driving too fast for conditions	1

Bike/Ped Risk Factors	Value	Points
Number of Bike/Ped Crashes	0	0
Ped Crossing Distance (lanes)	4	4
Intersection Skew (degrees)	81	2
Nearby Schools (mi)	1.21	0
Nearby Transit (mi)	0.02	2
Nearby Trails (mi)	0.38	1
Speed Limit (mph)	35	1
Lighting	Yes	1
Total Risk Factor Points (25 max)		11
		44%

Manner of Crashes***	
Broadside (front to side)	5
Non-collision (single vehicle)	3
Rear-end (front to rear)	3
Sideswipe, same direction	2

** Nighttime/Daytime Crash Ratio = 3 x nighttime crashes/daytime crashes per Iowa DOT I.M. 2.110 Attachment A.
*** Major Cause and Manner of Crash are based on total crashes, and are listed for up to the top four categories.

Project Location Map Sources:
Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

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FIELD VISIT NOTES

671118 – US 63/S MARKET ST & 11TH AVE W & 11TH AVE E – Unsignalized

- General notes:
  - Attendees thought there may have been a fatality here years ago.
  - Visibility is limited due to the horizontal and vertical alignment along Market Street.
  - Attendees felt the eastbound to northbound left turn movement was most affected by the horizontal and vertical alignment.
  - As a part of the TEAP study, a 4 to 3 lane conversion was recommended along Market Street, and the council approved this modification.
  - The council supported the conversion because there is another corridor in the city that underwent this modification and crashes decreased.
- Long-term improvements:
  - Fix the off-set at the intersection.
  - Upgrade curb ramps and crossings to meet ADA.
  - Roundabout.
  - Two-way left-turn lane (TWLTL) for dedicated left-turn movements, to be included with the 4- to 3-lane conversion project on Market Street.
- Short-term improvements:
  - Add retroreflective posts to the stop signs (eastbound and westbound approaches).
  - Trim the trees in the northeast quadrant of the intersection.
  - Add a second stop sign or overhead stop sign on the westbound approach.
  - Provide marked crosswalks.
  - Move stop signs and stop bars, if feasible for better sight visibility.
  - Provide intersection warning and advanced street name signage (if this does not conflict with the existing signage – there are a lot of signs in the vicinity of the intersection today.)
  - Provide pavement markings on all approaches of the intersection.

Local Road Safety Plan — **Unsignalized Intersection**

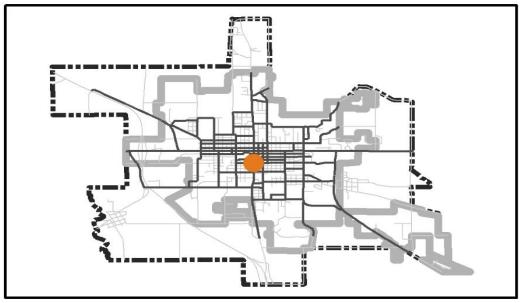
Project Description for Intersection Improvements — **Location Description** — **GPS ID: 350285**

Project Name: US 63/S MARKET ST & 3RD AVE W & 3RD AVE E
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **US 63/S MARKET ST**
Road: **3RD AVE W & 3RD AVE E**

Vehicular Risk Factor Score: **54%**
Bike/Ped Risk Factor Score: **36%**

Date: 4/30/19
Prepared By: DJG/DVM
Checked By: MMO



Opinion of Probable Cost (Short-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Raise Stop Sign (R1-1) to meet Current MUTCD Requirements			X		1	LEG	$ 500	$ 500
Install Retroreflective Strips on Sign Posts					1	INT	$ 100	$ 100
Install or Modify High-Visibility Crosswalk Markings	X	X	X	X	4	LEG	$ 1,000	$ 4,000
Relocate Stop Bar Closer to the Intersection (if Feasible)			X	X	2	LEG	$ 450	$ 900
Relocate Stop Signs Closer to the Intersection (if Feasible)			X	X	2	LEG	$ 800	$ 1,600
Install a Stop Bar Pavement Marking			X	X	2	LEG	$ 350	$ 700
Install Centerline Pavement Markings 100 feet along the Approach			X	X	2	LEG	$ 100	$ 200
Install Edgeline Pavement Markings 100 feet along the Approach			X	X	2	LEG	$ 100	$ 200
Trim Vegetation on Northwest Quadrant					1	QUAD	$ 1,500	$ 1,500

Short Term Improvements Subtotal:		$ 9,700
Mobilization: (% +/-)*	10%	$ 2,500
Traffic Control: (% +/-)	5%	$ 560
Contingency: (% +/-)	20%	$ 2,240
Estimated Short-Term Improvements Project Cost:		**$ 15,000**

Opinion of Probable Cost (Long-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Provide ADA-Compliant Ramps	X	X	X	X	4	LEG	$ 3,200	$ 12,800

Long Term Improvements Subtotal:		$ 12,800
Mobilization: (% +/-)*	10%	$ 2,500
Traffic Control: (% +/-)	5%	$ 740
Contingency: (% +/-)	20%	$ 2,960
Estimated Long-Term Improvements Project Cost:		**$ 19,000**
Estimated Project Costs:		**$ 34,000**

*Mobilization is 10% +/- of the subtotal with a minimum of $2,500 and a maximum of $75,000

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Local Road Safety Plan — **Unsignalized Intersection**

Project Description for Intersection Improvements — **Location Description** — **GPS ID: 350285**

Project Name: US 63/S MARKET ST & 3RD AVE W & 3RD AVE E
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **US 63/S MARKET ST**
Road: **3RD AVE W & 3RD AVE E**

Vehicular Risk Factor Score: **54%**
Bike/Ped Risk Factor Score: **36%**

Date: 4/30/19

Prepared By: DJG/DVM
Checked By: MMO

Intersection Information	
Number of Approaches	4
Number of Paved Approaches	4
Major Street Volume	7,400
Minor Street Volume	2,030
Destination Lighting	Yes
Control Type	Two-way stop

Crash Severity	
K	0
A	0
B	1
C	2
O	10
Total	13

Vehicle Risk Factors	Value	Points
Number of Crashes	13	4
Number of K & A Crashes	0	0
Crash Rate per MEV	0.39	2
Intersection Skew (degrees)	90	0
Minor Street Volume	2,030	3
Traffic Volume (DEV)	9,055	3
Number of Legs	4	1
Speed Limit (mph)	25	0
Lighting	Yes	0
Total Risk Factor Points (24 max)		13
		54%

Crash Data, 2008-2017	
Total Crashes	13
K and A Crashes	0
Right Angle,Rear-end,or Turning Crashes	11
Total Nighttime Crashes	1
Nighttime/Daytime Crash Ratio**	0.3

Major Cause of Crashes***	
FTYROW: From stop sign	8
FTYROW: Making left turn	1
FTYROW: Other	1
Made improper turn	1

Bike/Ped Risk Factors	Value	Points
Number of Bike/Ped Crashes	2	6
Ped Crossing Distance (lanes)	2	0
Intersection Skew (degrees)	90	0
Nearby Schools (mi)	0.74	0
Nearby Transit (mi)	0.01	2
Nearby Trails (mi)	0.55	0
Speed Limit (mph)	25	0
Lighting	Yes	1
Total Risk Factor Points (25 max)		9
		36%

Manner of Crashes***	
Broadside (front to side)	8
Angle, oncoming left turn	2
Non-collision (single vehicle)	2
Rear-end (front to rear)	1

** Nighttime/Daytime Crash Ratio = 3 x nighttime crashes/daytime crashes per Iowa DOT I.M. 2.110 Attachment A.
*** Major Cause and Manner of Crash are based on total crashes, and are listed for up to the top four categories.

Project Location Map Sources:
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FIELD VISIT NOTES

350285 – US 63/S MARKET ST & 3RD AVE W & 3RD AVE E – Unsignalized

- General notes:
  - 3rd Avenue is a primary travel corridor.
  - The library is in the northwest quadrant of the intersection.
  - To the north there is a signal at Market and 2ndAvenue.
- Long-term improvements:
  - Upgrade curb ramps and crossings to meet ADA.
- Short-term improvements:
  - Raise the stop sign to meet current MUTCD requirements (eastbound approach).
  - Add retroreflective posts to the stop signs (eastbound and westbound approaches).
  - Provide marked crosswalks.
  - Move stop signs and stop bars, if feasible for better sight visibility.
  - Provide pavement markings on all approaches of the intersection.
  - Coordinate with the library on making sure the vegetation does not block sight visibility.

Local Road Safety Plan — **Unsignalized Intersection**

Project Description for Intersection Improvements — **Location Description** — **GPS ID: 353817**

Project Name: IA 92/A AVE E & N 7TH ST
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **IA 92/A AVE E**
Road: **N 7TH ST**

Vehicular Risk Factor Score: **54%**
Bike/Ped Risk Factor Score: **32%**

Date: 4/30/19
Prepared By: DJG/DVM
Checked By: MMO

Opinion of Probable Cost (Short-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Install Retroreflective Strips on Sign Posts					1	INT	$ 100	$ 100
Install or Modify High-Visibility Crosswalk Markings	X		X	X	3	LEG	$ 1,000	$ 3,000
Install a Stop Bar Pavement Marking	X				1	LEG	$ 350	$ 350
Install Centerline Pavement Markings 100 feet along the Approach	X				1	LEG	$ 100	$ 100
Install Edgeline Pavement Markings 100 feet along the Approach	X				1	LEG	$ 100	$ 100
Check Lighting at Night					1	EA	$ 500	$ 500

Short Term Improvements Subtotal:		$ 4,150
Mobilization: (% +/-)*	10%	$ 2,500
Traffic Control: (% +/-)	5%	$ 270
Contingency: (% +/-)	20%	$ 1,080
Estimated Short-Term Improvements Project Cost:		**$ 8,000**

Opinion of Probable Cost (Long-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Provide ADA-Compliant Ramps†	X		X	X	3	LEG	$ 3,200	$ 9,600

Long Term Improvements Subtotal:		$ 9,600
Mobilization: (% +/-)*	10%	$ 2,500
Traffic Control: (% +/-)	5%	$ 580
Contingency: (% +/-)	20%	$ 2,320
Estimated Long-Term Improvements Project Cost:		**$ 15,000**
Estimated Project Costs:		**$ 23,000**

*Mobilization is 10% +/- of the subtotal with a minimum of $2,500 and a maximum of $75,000

Kimley»Horn

Local Road Safety Plan — **Unsignalized Intersection**

Project Description for Intersection Improvements — **Location Description** — **GPS ID: 353817**

Project Name: IA 92/A AVE E & N 7TH ST
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **IA 92/A AVE E**
Road: **N 7TH ST**

Vehicular Risk Factor Score: **54%**
Bike/Ped Risk Factor Score: **32%**

Date: 4/30/19

Prepared By: DJG/DVM
Checked By: MMO

Intersection Information	
Number of Approaches	3
Number of Paved Approaches	3
Major Street Volume	10,600
Minor Street Volume	3,490
Destination Lighting	Yes
Control Type	One-way stop

Crash Severity	
K	0
A	0
B	1
C	1
O	7
Total	9

Vehicle Risk Factors	Value	Points
Number of Crashes	9	4
Number of K & A Crashes	0	0
Crash Rate per MEV	0.23	2
Intersection Skew (degrees)	90	0
Minor Street Volume	3,490	3
Traffic Volume (DEV)	10,500	3
Number of Legs	3	0
Speed Limit (mph)	35	1
Lighting	Yes	0
Total Risk Factor Points (24 max)		13
		54%

Crash Data, 2008-2017	
Total Crashes	9
K and A Crashes	0
Right Angle,Rear-end,or Turning Crashes	7
Total Nighttime Crashes	2
Nighttime/Daytime Crash Ratio**	0.9

Major Cause of Crashes***	
FTYROW: From stop sign	2
Followed to close	1

Bike/Ped Risk Factors	Value	Points
Number of Bike/Ped Crashes	0	0
Ped Crossing Distance (lanes)	4	4
Intersection Skew (degrees)	90	0
Nearby Schools (mi)	0.83	0
Nearby Transit (mi)	0.07	2
Nearby Trails (mi)	0.93	0
Speed Limit (mph)	35	1
Lighting	Yes	1
Total Risk Factor Points (25 max)		8
		32%

Manner of Crashes***	
Broadside (front to side)	2
Rear-end (front to rear)	1

** Nighttime/Daytime Crash Ratio = 3 x nighttime crashes/daytime crashes per Iowa DOT I.M. 2.110 Attachment A.
*** Major Cause and Manner of Crash are based on total crashes, and are listed for up to the top four categories.

Project Location Map Sources:
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FIELD VISIT NOTES

353817 – IA 92/A AVE E & N 7TH ST – Unsignalized

- General notes:
  - There is restricted visibility at this intersection due to vertical curvature.
  - A recent traffic study has shown that A Avenue is justified for a 4- to 3-lane conversion. The 4- to 3-lane conversion is anticipated to help with visibility.
- Long-term improvements:
  - Upgrade curb ramps and crossings to meet ADA.
- Short-term improvements:
  - Add retroreflective posts to the stop sign (northbound approach).
  - Provide marked crosswalks.
  - Check lighting at night to see if additional lighting is needed at the intersection.
  - Provide pavement markings on all approaches of the intersection.

Local Road Safety Plan — **Unsignalized Intersection**

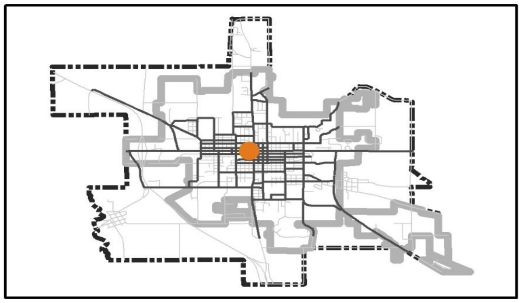
Project Description for Intersection Improvements — **Location Description** — **GPS ID: 671188**

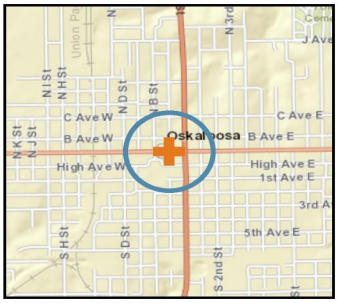
Project Name: IA 92/A AVE W & N A ST
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **IA 92/A AVE W**
Road: **N A ST**

Vehicular Risk Factor Score: **54%**
Bike/Ped Risk Factor Score: **28%**

Date: 4/30/19
Prepared By: DJG/DVM
Checked By: MMO





Opinion of Probable Cost (Short-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Install Retroreflective Strips on Sign Posts					1	INT	$ 100	$ 100
Raise Stop Sign (R1-1) to meet Current MUTCD Requirements					1	SIGN	$ 500	$ 500
Install or Modify High-Visibility Crosswalk Markings	X	X	X	X	4	LEG	$ 1,000	$ 4,000
Install a Stop Bar Pavement Marking	X	X			2	LEG	$ 350	$ 700
Install Centerline Pavement Markings 100 feet along the Approach	X	X			2	LEG	$ 100	$ 200
Install Edgeline Pavement Markings 100 feet along the Approach	X	X			2	LEG	$ 100	$ 200
Install a Second Stop Sign (R1-1) on the Left Side of the Road		X			1	LEG	$ 500	$ 500

Short Term Improvements Subtotal:		$ 6,200
Mobilization: (% +/-)*	10%	$ 2,500
Traffic Control: (% +/-)	5%	$ 460
Contingency: (% +/-)	20%	$ 1,840
Estimated Short-Term Improvements Project Cost:		**$ 11,000**

Opinion of Probable Cost (Long-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Construct Curb Extensions (Bulb-Outs) in the Northeast Quadrant					1	EA	$ 16,000	$ 16,000
Provide ADA-Compliant Ramps**	X	X	X	X	4	LEG	$ 3,200	$ 12,800

Long Term Improvements Subtotal:		$ 28,800
Mobilization: (% +/-)*	10%	$ 2,880
Traffic Control: (% +/-)	5%	$ 1,464
Contingency: (% +/-)	20%	$ 5,856
Estimated Long-Term Improvements Project Cost:		**$ 39,000**
Estimated Project Costs:		**$ 50,000**

** Note there is an intake in the middle of where the crosswalk should go.

*Mobilization is 10% +/- of the subtotal with a minimum of $2,500 and a maximum of $75,000

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Kimley»Horn

Local Road Safety Plan — **Unsignalized Intersection**

Project Description for Intersection Improvements — **Location Description** — **GPS ID: 671188**

Project Name: IA 92/A AVE W & N A ST
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **IA 92/A AVE W**
Road: **N A ST**

Vehicular Risk Factor Score: **54%**
Bike/Ped Risk Factor Score: **28%**

Date: 4/30/19

Prepared By: DJG/DVM
Checked By: MMO

Intersection Information	
Number of Approaches	3
Number of Paved Approaches	3
Major Street Volume	13,600
Minor Street Volume	1,540
Destination Lighting	Yes
Control Type	One-way stop

Crash Severity	
K	0
A	1
B	0
C	6
O	11
Total	18

Vehicle Risk Factors	Value	Points
Number of Crashes	18	4
Number of K & A Crashes	1	1
Crash Rate per MEV	0.36	2
Intersection Skew (degrees)	90	0
Minor Street Volume	1,540	3
Traffic Volume (DEV)	13,770	3
Number of Legs	3	0
Speed Limit (mph)	30	0
Lighting	Yes	0
Total Risk Factor Points (24 max)		13
		54%

Crash Data, 2008-2017	
Total Crashes	18
K and A Crashes	1
Right Angle,Rear-end,or Turning Crashes	15
Total Nighttime Crashes	2
Nighttime/Daytime Crash Ratio**	0.4

Major Cause of Crashes***	
FTYROW: From stop sign	4
Followed too close	4
FTYROW: Other	2
FTYROW: Making left turn	1

Bike/Ped Risk Factors	Value	Points
Number of Bike/Ped Crashes	0	0
Ped Crossing Distance (lanes)	4	4
Intersection Skew (degrees)	90	0
Nearby Schools (mi)	0.49	0
Nearby Transit (mi)	0.08	2
Nearby Trails (mi)	0.65	0
Speed Limit (mph)	30	0
Lighting	Yes	1
Total Risk Factor Points (25 max)		7
		28%

Manner of Crashes***	
Rear-end (front to rear)	7
Broadside (front to side)	7
Sideswipe, same direction	2
Non-collision (single vehicle)	1

** Nighttime/Daytime Crash Ratio = 3 x nighttime crashes/daytime crashes per Iowa DOT I.M. 2.110 Attachment A.
*** Major Cause and Manner of Crash are based on total crashes, and are listed for up to the top four categories.

Project Location Map Sources:
Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

Opinion of Probable Construction Cost Disclaimer:
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Project
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FIELD VISIT NOTES

671188 – IA 92/A AVE W & N A ST – Unsignalized

- General notes:
  - The eastbound to northbound left turn queueing at A Avenue and Market Street can extend past this intersection, blocking some movements during the AM peak hours.
  - A recent traffic study has shown that A Avenue is justified for a 4- to 3-lane conversion. The 4- to 3-lane conversion is anticipated to help with visibility.
  - There is angled on-street parking on the south and north legs of this intersection.
  - The south leg of this intersection provides access to the mall.
  - Parking can block the southbound approach stop sign.
- Long-term improvements:
  - Bulb out in the northeast quadrant.
  - Upgrade curb ramps and crossings to meet ADA. Note, there is an intake in the middle of where the crosswalk should go.
- Short-term improvements:
  - Add retroreflective posts to the stop signs (northbound and southbound approaches).
  - Raise the height of the stop sign for the southbound approach to meet current MUTCD requirements.
  - Provide marked crosswalks.
  - Provide pavement markings on all approaches of the intersection.
  - Provide a second stop sign for the southbound approach.

Local Road Safety Plan — **Unsignalized Intersection**

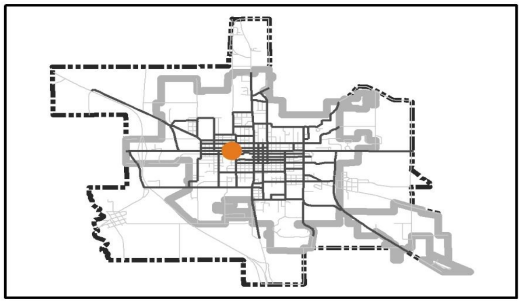
Project Description for Intersection Improvements — **Location Description** — **GPS ID: 671184**

Project Name: IA 92/A AVE W & N E ST
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **IA 92/A AVE W**
Road: **N E ST**

Vehicular Risk Factor Score: **54%**
Bike/Ped Risk Factor Score: **24%**

Date: 4/30/19
Prepared By: DJG/DVM
Checked By: MMO



Opinion of Probable Cost (Short-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Install Retroreflective Strips on Sign Posts					1	INT	$ 100	$ 100
Install or Modify High-Visibility Crosswalk Markings	X	X			2	LEG	$ 1,000	$ 2,000
Install a Stop Bar Pavement Marking	X	X			2	LEG	$ 350	$ 700
Install Centerline Pavement Markings 100 feet along the Approach	X	X			2	LEG	$ 100	$ 200
Install Edgeline Pavement Markings 100 feet along the Approach	X	X			2	LEG	$ 100	$ 200
Relocate Stop Bar Closer to the Intersection (if Feasible)	X	X			2	LEG	$ 450	$ 900
Relocate Stop Signs Closer to the Intersection (if Feasible)	X	X			2	LEG	$ 800	$ 1,600

Short Term Improvements Subtotal:		$ 5,700
Mobilization: (% +/-)*	10%	$ 2,500
Traffic Control: (% +/-)	5%	$ 360
Contingency: (% +/-)	20%	$ 1,440
Estimated Short-Term Improvements Project Cost:		**$ 10,000**

Opinion of Probable Cost (Long-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Provide ADA-Compliant Ramps	X	X	X	X	4	LEG	$ 3,200	$ 12,800

Long Term Improvements Subtotal:		$ 12,800
Mobilization: (% +/-)*	10%	$ 2,500
Traffic Control: (% +/-)	5%	$ 740
Contingency: (% +/-)	20%	$ 2,960
Estimated Long-Term Improvements Project Cost:		**$ 19,000**
Estimated Project Costs:		**$ 29,000**

*Mobilization is 10% +/- of the subtotal with a minimum of $2,500 and a maximum of $75,000

Kimley»Horn

Local Road Safety Plan — **Unsignalized Intersection**

Project Description for Intersection Improvements — **Location Description** — **GPS ID: 671184**

Project Name: **IA 92/A AVE W & N E ST**
Agency Name: **City of Oskaloosa**
Contact Name: **Pal, Akhilesh**
E-mail: **Akhilesh.Pal@Oskaloosaiowa.org**

Road: **IA 92/A AVE W**
Road: **N E ST**

Vehicular Risk Factor Score: **54%**
Bike/Ped Risk Factor Score: **24%**

Date: 4/30/19

Prepared By: DJG/DVM
Checked By: MMO

Intersection Information	
Number of Approaches	4
Number of Paved Approaches	4
Major Street Volume	13,600
Minor Street Volume	1,540
Destination Lighting	Yes
Control Type	Two-way stop

Crash Severity	
K	0
A	0
B	1
C	6
O	7
Total	14

Vehicle Risk Factors	Value	Points
Number of Crashes	14	4
Number of K & A Crashes	0	0
Crash Rate per MEV	0.27	2
Intersection Skew (degrees)	90	0
Minor Street Volume	1,540	3
Traffic Volume (DEV)	14,036	3
Number of Legs	4	1
Speed Limit (mph)	30	0
Lighting	Yes	0
Total Risk Factor Points (24 max)		13
		54%

Crash Data, 2008-2017	
Total Crashes	14
K and A Crashes	0
Right Angle,Rear-end,or Turning Crashes	11
Total Nighttime Crashes	2
Nighttime/Daytime Crash Ratio**	0.5

Major Cause of Crashes***	
FTYROW: From stop sign	4
FTYROW: Making left turn	3
Followed too close	3
Ran Stop Sign	1

Bike/Ped Risk Factors	Value	Points
Number of Bike/Ped Crashes	0	0
Ped Crossing Distance (lanes)	4	4
Intersection Skew (degrees)	90	0
Nearby Schools (mi)	0.43	0
Nearby Transit (mi)	0.08	2
Nearby Trails (mi)	0.52	0
Speed Limit (mph)	30	0
Lighting	Yes	0
Total Risk Factor Points (25 max)		6
		24%

Manner of Crashes***	
Broadside (front to side)	5
Rear-end (front to rear)	4
Angle, oncoming left turn	2
Sideswipe, same direction	2

** Nighttime/Daytime Crash Ratio = 3 x nighttime crashes/daytime crashes per Iowa DOT I.M. 2.110 Attachment A.
*** Major Cause and Manner of Crash are based on total crashes, and are listed for up to the top four categories.

Project Location Map Sources:
Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

Opinion of Probable Construction Cost Disclaimer:
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Project
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FIELD VISIT NOTES

671184 – IA 92/A AVE W & N E ST – Unsignalized

- General notes:
  - This intersection is near a signalized intersection to the east.
  - There is a Christian school to the north on D Street.
  - There is a railroad crossing near this intersection (to the west). The City Engineer believes there are roughly two trains per day. When the train goes by, queueing can extend two blocks back to D Street (through the intersection of E Street).
  - A recent traffic study has shown that A Avenue is justified for a 4- to 3-lane conversion. The 4- to 3-lane conversion is anticipated to help with visibility.
- Long-term improvements:
  - Upgrade curb ramps and crossings to meet ADA.
- Short-term improvements:
  - Add retroreflective posts to the stop signs (northbound and southbound approaches).
  - Provide marked crosswalks.
  - Provide pavement markings on all approaches of the intersection.
  - Move stop signs and stop bars, if feasible for better sight visibility.

Local Road Safety Plan — **Unsignalized Intersection**

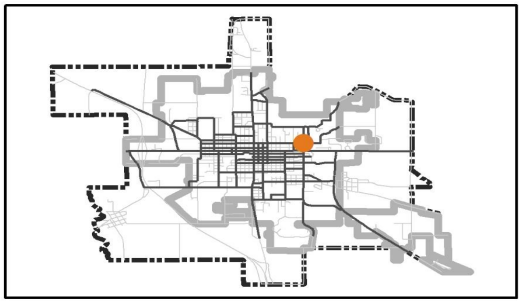
Project Description for Intersection Improvements — **Location Description** — **GPS ID: 353273**

Project Name: C AVE E & N 11TH ST
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **C AVE E**
Road: **N 11TH ST**

Vehicular Risk Factor Score: **54%**
Bike/Ped Risk Factor Score: **8%**

Date: 4/30/19
Prepared By: DJG/DVM
Checked By: MMO



Opinion of Probable Cost (Short-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Install Retroreflective Strips on Sign Posts					1	INT	$ 100	$ 100
Install or Modify High-Visibility Crosswalk Markings	X	X	X	X	4	LEG	$ 1,000	$ 4,000
Relocate Stop Bar Closer to the Intersection (if Feasible)	X	X			2	LEG	$ 450	$ 900
Relocate Stop Signs Closer to the Intersection (if Feasible)	X	X			2	LEG	$ 800	$ 1,600
Install a Stop Bar Pavement Marking	X	X			2	LEG	$ 350	$ 700
Install Centerline Pavement Markings 100 feet along the Approach	X	X			2	LEG	$ 100	$ 200
Install Edgeline Pavement Markings 100 feet along the Approach	X	X			2	LEG	$ 100	$ 200
All-Way Stop Analysis and Converting Two-Way Stop to All-Way Stop					1	EA	$ 5,000	$ 5,000

Short Term Improvements Subtotal:		$ 12,700
Mobilization: (% +/-)*	10%	$ 2,500
Traffic Control: (% +/-)	5%	$ 760
Contingency: (% +/-)	20%	$ 3,040
Estimated Short-Term Improvements Project Cost:		**$ 19,000**

Opinion of Probable Cost (Long-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Provide ADA-Compliant Ramps	X	X	X	X	4	LEG	$ 3,200	$ 12,800
Construct a Mini-Roundabout					1	EA	$ 200,000	$ 200,000

Long Term Improvements Subtotal:		$ 212,800
Mobilization: (% +/-)*	10%	$ 21,280
Traffic Control: (% +/-)	5%	$ 10,784
Contingency: (% +/-)	20%	$ 43,136
Estimated Long-Term Improvements Project Cost:		**$ 288,000**
Estimated Project Costs:		**$ 307,000**

*Mobilization is 10% +/- of the subtotal with a minimum of $2,500 and a maximum of $75,000

Front Page

Kimley»Horn

Local Road Safety Plan — **Unsignalized Intersection**

Project Description for Intersection Improvements — **Location Description** — **GPS ID: 353273**

Project Name: C AVE E & N 11TH ST
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **C AVE E**
Road: **N 11TH ST**

Vehicular Risk Factor Score: **54%**
Bike/Ped Risk Factor Score: **8%**

Date: 4/30/19

Prepared By: DJG/DVM
Checked By: MMO

Intersection Information	
Number of Approaches	4
Number of Paved Approaches	4
Major Street Volume	3,560
Minor Street Volume	2,470
Destination Lighting	Yes
Control Type	Two-way stop

Crash Severity	
K	0
A	0
B	0
C	3
O	10
Total	13

Vehicle Risk Factors	Value	Points
Number of Crashes	13	4
Number of K & A Crashes	0	0
Crash Rate per MEV	0.75	2
Intersection Skew (degrees)	90	0
Minor Street Volume	2,470	3
Traffic Volume (DEV)	4,755	3
Number of Legs	4	1
Speed Limit (mph)	25	0
Lighting	Yes	0
Total Risk Factor Points (24 max)		13
		54%

Crash Data, 2008-2017	
Total Crashes	13
K and A Crashes	0
Right Angle,Rear-end,or Turning Crashes	11
Total Nighttime Crashes	0
Nighttime/Daytime Crash Ratio**	0.0

Major Cause of Crashes***	
FTYROW: From stop sign	8
Ran Stop Sign	2
Driving too fast for conditions	1
Over correcting/ over steering	1

Bike/Ped Risk Factors	Value	Points
Number of Bike/Ped Crashes	0	0
Ped Crossing Distance (lanes)	2	0
Intersection Skew (degrees)	90	0
Nearby Schools (mi)	0.84	0
Nearby Transit (mi)	0.07	2
Nearby Trails (mi)	0.73	0
Speed Limit (mph)	25	0
Lighting	Yes	0
Total Risk Factor Points (25 max)		2
		8%

Manner of Crashes***	
Broadside (front to side)	11
Head-on (front to front)	1
Sideswipe, same direction	1

** Nighttime/Daytime Crash Ratio = 3 x nighttime crashes/daytime crashes per Iowa DOT I.M. 2.110 Attachment A.
*** Major Cause and Manner of Crash are based on total crashes, and are listed for up to the top four categories.

Project Location Map Sources:
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FIELD VISIT NOTES

353273 – C AVE E & N 11TH ST – Unsignalized

- General notes:
  - The hospital is in the northeast quadrant of this intersection.
  - A few years ago, the city conducted an all-way stop warrant analysis. At the time, an all-way stop was not warranted, but it was close to being warranted.
  - The city recently did an overlay along C Avenue.
  - The main entrance for the hospital is off 11th Street.
  - The hospital modified their main entrance and did not notify the city (main entrance used to be on C Avenue).
- Long-term improvements:
  - Upgrade curb ramps and crossings to meet ADA.
  - Construct a compact/mini roundabout.
- Short-term improvements:
  - Add retroreflective posts to the stop signs (northbound and southbound approaches).
  - Provide marked crosswalks.
  - Move stop signs and stop bars, if feasible for better sight visibility.
  - Provide pavement markings on all approaches of the intersection.
  - Conduct all-way stop warrant analysis and implement the results, if needed.

Local Road Safety Plan — **Unsignalized Intersection**

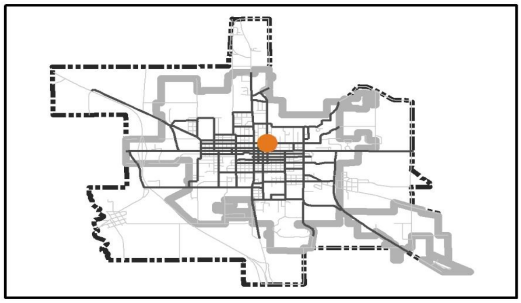
Project Description for Intersection Improvements — **Location Description** — **GPS ID: 671652**

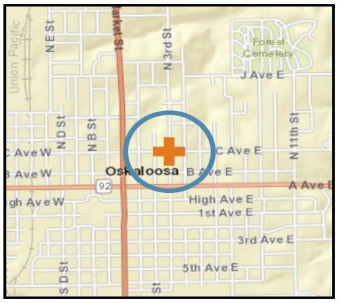
Project Name: C AVE E & N 3RD ST
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **C AVE E**
Road: **N 3RD ST**

Vehicular Risk Factor Score: **54%**
Bike/Ped Risk Factor Score: **8%**

Date: 4/30/19
Prepared By: DJG/DVM
Checked By: MMO





Opinion of Probable Cost (Short-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Install Retroreflective Strips on Sign Posts					**1**	**INT**	**$ 100**	**$ 100**
Install or Modify High-Visibility Crosswalk Markings	**X**	**X**	**X**	**X**	**4**	**LEG**	**$ 1,000**	**$ 4,000**
Install a Stop Bar Pavement Marking	**X**	**X**			**2**	**LEG**	**$ 350**	**$ 700**
Install Centerline Pavement Markings 100 feet along the Approach	**X**	**X**			**2**	**LEG**	**$ 100**	**$ 200**
Install Edgeline Pavement Markings 100 feet along the Approach	**X**	**X**			**2**	**LEG**	**$ 100**	**$ 200**

Short Term Improvements Subtotal:		$ 5,200
Mobilization: (% +/-)*	10%	$ 2,500
Traffic Control: (% +/-)	5%	$ 260
Contingency: (% +/-)	20%	$ 1,040
Estimated Short-Term Improvements Project Cost:		**$ 9,000**

Opinion of Probable Cost (Long-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Provide ADA-Compliant Ramps	**X**	**X**	**X**	**X**	**4**	**LEG**	**$ 3,200**	**$ 12,800**
Construct a Mini-Roundabout					**1**	**EA**	**$ 200,000**	**$ 200,000**

Long Term Improvements Subtotal:		$ 212,800
Mobilization: (% +/-)*	10%	$ 21,280
Traffic Control: (% +/-)	5%	$ 10,784
Contingency: (% +/-)	20%	$ 43,136
Estimated Long-Term Improvements Project Cost:		**$ 288,000**
Estimated Project Costs:		**$ 297,000**

*Mobilization is 10% +/- of the subtotal with a minimum of $2,500 and a maximum of $75,000

Kimley»Horn

Local Road Safety Plan — **Unsignalized Intersection**

Project Description for Intersection Improvements — **Location Description** — **GPS ID: 671652**

Project Name: C AVE E & N 3RD ST
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **C AVE E**
Road: **N 3RD ST**

Vehicular Risk Factor Score: **54%**
Bike/Ped Risk Factor Score: **8%**

Date: 4/30/19

Prepared By: DJG/DVM
Checked By: MMO

Intersection Information	
Number of Approaches	4
Number of Paved Approaches	4
Major Street Volume	2,950
Minor Street Volume	1,390
Destination Lighting	Yes
Control Type	Two-way stop

Crash Severity	
K	0
A	0
B	0
C	3
O	14
Total	17

Vehicle Risk Factors	Value	Points
Number of Crashes	17	4
Number of K & A Crashes	0	0
Crash Rate per MEV	0.95	2
Intersection Skew (degrees)	90	0
Minor Street Volume	1,390	3
Traffic Volume (DEV)	4,895	3
Number of Legs	4	1
Speed Limit (mph)	25	0
Lighting	Yes	0
Total Risk Factor Points (24 max)		13
		54%

Crash Data, 2008-2017	
Total Crashes	17
K and A Crashes	0
Right Angle,Rear-end,or Turning Crashes	15
Total Nighttime Crashes	0
Nighttime/Daytime Crash Ratio**	0.0

Major Cause of Crashes***	
FTYROW: From stop sign	9
Ran Stop Sign	2
FTYROW: Making left turn	2
Made improper turn	2

Bike/Ped Risk Factors	Value	Points
Number of Bike/Ped Crashes	0	0
Ped Crossing Distance (lanes)	2	0
Intersection Skew (degrees)	90	0
Nearby Schools (mi)	0.55	0
Nearby Transit (mi)	0.03	2
Nearby Trails (mi)	0.79	0
Speed Limit (mph)	25	0
Lighting	Yes	0
Total Risk Factor Points (25 max)		2
		8%

Manner of Crashes***	
Broadside (front to side)	13
Angle, oncoming left turn	2
Sideswipe, same direction	2

** Nighttime/Daytime Crash Ratio = 3 x nighttime crashes/daytime crashes per Iowa DOT I.M. 2.110 Attachment A.
*** Major Cause and Manner of Crash are based on total crashes, and are listed for up to the top four categories.

Project Location Map Sources:
Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

Opinion of Probable Construction Cost Disclaimer:
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Project
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FIELD VISIT NOTES

671652 – C AVE E & N 3RD ST – Unsignalized

- General notes:
  - 3rd Street leads to the high school, middle school, and hospital.
  - There are citizen concerns about visibility at this intersection due to the vertical alignment.
  - The YMCA is in the northwest quadrant of the intersection.
- Long-term improvements:
  - Upgrade curb ramps and crossings to meet ADA.
  - Construct a compact/mini roundabout.
- Short-term improvements:
  - Add retroreflective posts to the stop signs (northbound and southbound approaches).
  - Provide marked crosswalks.
  - Provide pavement markings on all approaches of the intersection.

Local Road Safety Plan — **Unsignalized Intersection**

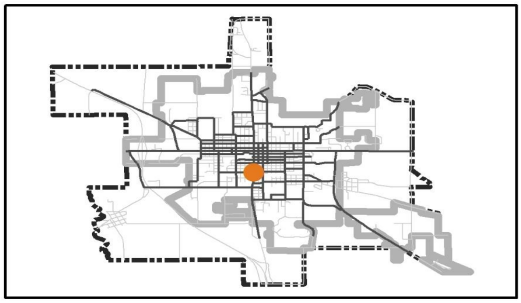
Project Description for Intersection Improvements — **Location Description** — **GPS ID: 671123**

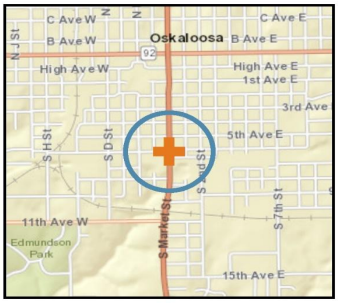
Project Name: US 63/N MARKET ST & 6TH AVE W
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
E-mail: Akhilesh.Pal@Oskaloosaiowa.org

Road: **US 63/N MARKET ST**
Road: **6TH AVE W**

Vehicular Risk Factor Score: **42%**
Bike/Ped Risk Factor Score: **16%**

Date: 4/30/19
Prepared By: DJG/DVM
Checked By: MMO





Opinion of Probable Cost (Short-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Install Retroreflective Strips on Sign Posts					1	INT	$ 100	$ 100
Install or Modify High-Visibility Crosswalk Markings	X	X	X	X	4	LEG	$ 1,000	$ 4,000
Relocate Stop Bar Closer to the Intersection (if Feasible)			X	X	2	LEG	$ 450	$ 900
Relocate Stop Signs Closer to the Intersection (if Feasible)			X	X	2	LEG	$ 800	$ 1,600
Install a Stop Bar Pavement Marking			X	X	2	LEG	$ 350	$ 700
Install Centerline Pavement Markings 100 feet along the Approach			X	X	2	LEG	$ 100	$ 200
Install Edgeline Pavement Markings 100 feet along the Approach			X	X	2	LEG	$ 100	$ 200

Short Term Improvements Subtotal:		$ 7,700
Mobilization: (% +/-)*	10%	$ 2,500
Traffic Control: (% +/-)	5%	$ 560
Contingency: (% +/-)	20%	$ 2,240
Estimated Short-Term Improvements Project Cost:		**$ 13,000**

Opinion of Probable Cost (Long-Term Improvements)

Item Description	NB	SB	EB	WB	Quantity	Unit	Unit Price	Item Cost
Provide ADA-Compliant Ramps†	X	X	X	X	4	LEG	$ 3,200	$ 12,800
Provide an S-Island to Restrict Movements to Left-In/Right-In/Right-Out at 6th Avenue					1	EA	$ 50,000	$ 50,000

Long Term Improvements Subtotal:		$ 62,800
Mobilization: (% +/-)*	10%	$ 6,280
Traffic Control: (% +/-)	5%	$ 3,184
Contingency: (% +/-)	20%	$ 12,736
Estimated Long-Term Improvements Project Cost:		**$ 85,000**
Estimated Project Costs:		**$ 98,000**

*Mobilization is 10% +/- of the subtotal with a minimum of $2,500 and a maximum of $75,000

Kimley»Horn

Local Road Safety Plan — **Unsignalized Intersection**

Project Description for Intersection Improvements — **Location Description** — **GPS ID: 671123**

Project Name: US 63/N MARKET ST & 6TH AVE W
Agency Name: City of Oskaloosa
Contact Name: Pal, Akhilesh
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Road: **US 63/N MARKET ST**
Road: **6TH AVE W**

Vehicular Risk Factor Score: **42%**
Bike/Ped Risk Factor Score: **16%**

Date: 4/30/19

Prepared By: DJG/DVM
Checked By: MMO

Intersection Information	
Number of Approaches	4
Number of Paved Approaches	4
Major Street Volume	7,400
Minor Street Volume	1,100
Destination Lighting	Yes
Control Type	Two-way stop

Crash Severity	
K	0
A	0
B	1
C	0
O	3
Total	4

Vehicle Risk Factors	Value	Points
Number of Crashes	4	3
Number of K & A Crashes	0	0
Crash Rate per MEV	0.12	1
Intersection Skew (degrees)	90	0
Minor Street Volume	1,100	3
Traffic Volume (DEV)	9,120	3
Number of Legs	3	0
Speed Limit (mph)	25	0
Lighting	Yes	0
Total Risk Factor Points (24 max)		10
		42%

Crash Data, 2008-2017	
Total Crashes	4
K and A Crashes	0
Right Angle,Rear-end,or Turning Crashes	2
Total Nighttime Crashes	0
Nighttime/Daytime Crash Ratio**	0.0

Major Cause of Crashes***	
Ran Stop Sign	1
Improper Backing	1
Other	1
Unknown	1

Bike/Ped Risk Factors	Value	Points
Number of Bike/Ped Crashes	0	0
Ped Crossing Distance (lanes)	2	0
Intersection Skew (degrees)	90	0
Nearby Schools (mi)	0.92	0
Nearby Transit (mi)	0.20	2
Nearby Trails (mi)	0.49	1
Speed Limit (mph)	25	0
Lighting	Yes	1
Total Risk Factor Points (25 max)		4
		16%

Manner of Crashes***	
Rear-end (front to rear)	1
Broadside (front to side)	1
Sideswipe, opposite direction	1
Non-collision (single vehicle)	1

** Nighttime/Daytime Crash Ratio = 3 x nighttime crashes/daytime crashes per Iowa DOT I.M. 2.110 Attachment A.
*** Major Cause and Manner of Crash are based on total crashes, and are listed for up to the top four categories.

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FIELD VISIT NOTES

671123 – US 63/N MARKET ST & 6TH AVE W – Unsignalized

- General notes:
  - In the past, the city investigated aligning the east and west legs of the intersection, but right-of-way was an issue. Attendees discussed possible alternate considerations.
  - There are conflicts with the nearby access driveway to the Post Office (located north of the intersection). There are also conflicts with the east-west through movements.
  - The southwest quadrant of this intersection is owned by Cunningham (AC company).
  - Restricting access (prohibiting left turns from the minor approaches) was discussed as a possible recommendation.
  - Attendees discussed restricting access into the Post Office from Market Street, and only allowing access on 1st street (eastern side of Post Office). This would need to be coordinated with the Post Office and has not been included on the project sheet.
- Long-term improvements:
  - Upgrade curb ramps and crossings to meet ADA.
  - Provide an S-island to restrict movements to left-in/right-in/right-out at 6th Avenue.
- Short-term improvements:
  - Add retroreflective posts to the stop signs (eastbound and westbound approaches).
  - Provide marked crosswalks.
  - Move stop signs and stop bars, if feasible for better sight visibility.
  - Provide pavement markings on all approaches of the intersection.

APPENDIX B

ENGINEERING COUNTERMEASURES

For more information on the following countermeasures, visit https://toolkits.ite.org/uiig/treatments.asp.

- **Intersection Control**
  - Install a Yield Sign
  - All-Way Stop Analysis and Converting Two-Way Stop to All-Way Stop
  - All-Way Stop Analysis and Removal of Stop Signs on Major Approaches
  - Install a Stop Bar
  - Install a Yield Line
  - Intersection Configuration Evaluation (ICE)
  - Implement Results of ICE
  - Signal Warrant Analysis
  - Install Traffic Signal (if Warranted)
  - Signal Warrant Analysis for Removal of Traffic Signal
  - Removal of Traffic Signal
- **Operational Improvements**
  - Retime Adjacent Traffic Signals
  - Install Flashing Yellow Arrow
- **Intersection Warning**
  - Install Intersection Warning Sign
  - Install Advance Traffic Control Warning Sign
  - Low-Cost Intersection Conflict Warning System (ICWS)
- **Conspicuity Enhancements to Traffic Control Devices**
  - Increase the Size of the Stop Sign
  - Add a Duplicate Stop Sign
  - Add a Duplicate Yield Sign
  - Install a Solar-Powered Flashing Beacon on Stop Sign
  - Use Solar-Powered LED Flashing Light Borders on Stop Sign
  - Install Retroreflective Strips on Sign Posts
  - Add Retroreflective Sheeting to the Perimeter of a Warning Sign
  - Install Wider Longitudinal Pavement Markings
  - Install Lighting
  - Replace Pedestal Mounted Signal with Overhead Mounted Signal
  - Install 12" Signal Heads
  - Install Retroreflective Backplates
- **Motorist Guidance**
  - Install Centerline Pavement Markings on the Minor Road Approach
  - Install Dotted Line Pavement Markings
  - Install Lane Assignment Pavement Markings
  - Install Stop Ahead Pavement Markings
  - Install Dotted Turn Path Markings

- **Treatment Related to Non-Motorists**
  - Install or Modify High-Visibility Crosswalk Markings
  - Install a Pedestrian Hybrid Beacon
  - Install a Pedestrian Rectangular Rapid-Flashing Beacon (RRFB)
  - Install Bicycle Lane Pavement Markings Across the Intersection
  - Install Sign Warning of Pedestrians and Bicyclists
  - Install/Upgrade Curb Ramps
  - Install Bike Box
  - Construct or Widen Sidewalk
  - Install Leading Pedestrian Interval
  - Restrict/Prohibit Right-Turn Signing
  - Restrict/Prohibit Left-Turn Signing
  - Install Pedestrian Refuge Island
  - Install Audible Countdown Timers
- **Speed Control**
  - Add a Beacon to a Standard Speed Limit Sign
  - Install Speed Reduction Pavement Markings
  - Install a Dynamic Speed Feedback Sign
  - Implement Traffic Calming
- **Geometric Treatments**
  - Realign the Intersection Approach to Reduce or Eliminate the Skew Angle
  - Modify the Horizontal and/or Vertical Alignment of an Intersection Approach
  - Install a Left-Turn Lane
  - Extend the Left-Turn Lane
  - Provide Offset to Left-Turn Lanes
  - Install a Right-Turn Lane
  - Extend a Right-Turn Lane
  - Install Offset Right-Turn Lane
  - Install a Bypass Lane at a T-Intersection
  - Install Pedestrian Refuge Island
  - Install a Roundabout
  - Install a Mini-Roundabout
  - Install Curb Extensions (Bulb Outs) at the Crosswalk
  - Restrict Driveway Access
  - Remove On-Street Parking

APPENDIX C

UNSIGNALIZED INTERSECTION RISK FACTOR RANKING SUMMARY

GPS ID	Intersection	Risk Percent	Risk Factor Points	Crash Frequency (Value)	Crash Frequency (Points)	Skew (Value)	Skew (Points)	Total Crashes	K and A Crashes (Value)	K and A Crashes (Points)	Major ADT	Minor Street ADT (Value)	Minor Street ADT (Points)	DEV (Value)	DEV (Points)	Crash Rate per MEV (Value)	Crash Rate (Points)	Approaches (Value)	Approaches (Points)	Speed Limit (Value)	Speed Limit (Points)	Lighting (Value)	Lighting (Points)	Right angle, rear-end, or turning crashes	Control Type
350516	IA 23/IOWA 23 & Co Rd T63/OSBURN AVE	75%	18	5	4	52	4	5	0	0	3,750	730	3	3,145	2	0.44	2	4	1	55	2	Destination Lighting	0	2	Two-way stop
350685	IA 92/IOWA 92 & OSBURN AVE	71%	17	7	4	90	0	7	2	2	5,700	670	3	5,250	3	0.37	2	4	1	55	2	Destination Lighting	0	4	Two-way stop
350627	IA 92 & A Ave W/IA 163	67%	16	6	4	80	2	6	0	0	10,800	2,250	3	8,855	3	0.19	1	4	1	45	2	Intersection Lighting	0	4	One-way stop
350623	IA 92 & A Ave W/IA 163	63%	15	4	3	80	2	4	0	0	7,500	2,960	3	6,150	3	0.18	1	4	1	45	2	Intersection Lighting	0	3	One-way stop
351027	IA 163 & Old Hwy 163/Jewell Ave	63%	15	6	4	90	0	6	0	0	11,400	980	3	9,335	3	0.18	1	4	1	65	2	No Destination Lighting	1	2	Two-way stop
671137	US 63/N MARKET ST & GLENDALE RD	63%	15	3	3	56	4	3	1	1	6,600	860	3	5,470	3	0.15	1	3	0	30	0	Destination Lighting	0	2	One-way stop
671168	IA 23/17TH ST & 9TH AVE E	63%	15	11	4	90	0	11	0	0	3,200	1,460	3	4,623	3	0.65	2	4	1	45	2	Intersection Lighting	0	10	Two-way stop
671110	US 63/S MARKET ST & 21ST AVE	58%	14	8	4	80	2	8	0	0	6,400	399	0	5,900	3	0.37	2	3	0	55	2	No Destination Lighting	1	4	One-way stop
671191	IA 92/A AVE E & N 2ND ST	58%	14	11	4	90	0	11	0	0	11,100	1,700	3	12,848	3	0.23	2	4	1	35	1	Destination Lighting	0	9	Two-way stop
350285	US 63/S MARKET ST & 3RD AVE W & 3RD AVE E	54%	13	13	4	90	0	13	0	0	7,400	2,030	3	9,055	3	0.39	2	4	1	25	0	Destination Lighting	0	11	Two-way stop
350297	US 63/N MARKET ST & C AVE W & C AVE E	54%	13	21	4	90	0	21	0	0	7,700	2,390	3	9,970	3	0.58	2	4	1	30	0	Destination Lighting	0	19	Two-way stop
352965	11TH AVE W & S D ST	54%	13	4	3	90	0	4	1	1	3,880	1,610	3	4,460	3	0.25	2	3	0	35	1	Intersection Lighting	0	4	One-way stop
353111	3RD AVE E & S 11TH ST	54%	13	5	4	90	0	5	0	0	3,220	1,620	3	4,845	3	0.28	2	4	1	25	0	Intersection Lighting	0	5	Two-way stop
353273	C AVE E & N 11TH ST	54%	13	13	4	90	0	13	0	0	3,560	2,470	3	4,755	3	0.75	2	4	1	25	0	Intersection Lighting	0	11	Two-way stop
353817	IA 92/A AVE E & N 7TH ST	54%	13	9	4	90	0	9	0	0	10,600	3,490	3	10,500	3	0.23	2	3	0	35	1	Destination Lighting	0	7	One-way stop
671114	US 63/S MARKET ST & 15TH AVE E	54%	13	22	4	86	0	22	0	0	7,800	3,700	3	8,040	3	0.75	2	3	0	35	1	Intersection Lighting	0	17	One-way stop
671118	US 63/S MARKET ST & 11TH AVE W & 11TH AVE E	54%	13	13	4	81	2	13	0	0	7,800	430	0	9,130	3	0.39	2	4	1	35	1	Destination Lighting	0	8	Two-way stop
671167	IA 23/17TH ST & BURLINGTON RD	54%	13	3	3	72	2	3	0	0	3,200	304	0	3,217	2	0.26	2	4	1	45	2	No Destination Lighting	1	3	Two-way stop
671184	IA 92/A AVE W & N E ST	54%	13	14	4	90	0	14	0	0	13,600	1,540	3	14,036	3	0.27	2	4	1	30	0	Intersection Lighting	0	11	Two-way stop
671188	IA 92/A AVE W & N A ST	54%	13	18	4	90	0	18	1	1	13,600	1,540	3	13,770	3	0.36	2	3	0	30	0	Destination Lighting	0	15	One-way stop
671652	C AVE E & N 3RD ST	54%	13	17	4	90	0	17	0	0	2,950	1,390	3	4,895	3	0.95	2	4	1	25	0	Intersection Lighting	0	15	Two-way stop
353041	6TH AVE W & S D ST	50%	12	5	4	90	0	5	0	0	3,330	1,100	3	3,860	2	0.35	2	4	1	25	0	Intersection Lighting	0	4	Two-way stop
353045	6TH AVE E & S 2ND ST	50%	12	5	4	90	0	5	0	0	2,260	1,640	3	3,980	2	0.34	2	4	1	25	0	Intersection Lighting	0	5	Two-way stop
353105	3RD AVE E & S 1ST ST	50%	12	6	4	90	0	6	0	0	1,540	1,430	3	2,809	2	0.59	2	4	1	25	0	Intersection Lighting	0	4	Two-way stop
353190	HIGH AVE W & S L ST & N L ST	50%	12	4	3	90	0	4	1	1	2,920	1,680	3	3,005	2	0.36	2	4	1	25	0	Intersection Lighting	0	3	Two-way stop
353192	HIGH AVE W & S H ST & N H ST	50%	12	14	4	90	0	14	0	0	2,430	1,800	3	3,795	2	1.01	2	4	1	25	0	Intersection Lighting	0	14	Two-way stop
353201	HIGH AVE W & S D ST & N D ST	50%	12	12	4	90	0	12	0	0	4,930	2,670	3	6,210	3	0.53	2	3	0	20	0	Intersection Lighting	0	9	All-way stop
353209	HIGH AVE E & S 1ST ST & N 1ST ST	50%	12	4	3	90	0	4	0	0	3,200	2,300	3	4,951	3	0.22	2	4	1	20	0	Intersection Lighting	0	3	All-way stop
353261	C AVE W & N D ST	50%	12	7	4	90	0	7	0	0	2,620	1,720	3	3,945	2	0.49	2	4	1	25	0	Intersection Lighting	0	6	Two-way stop
353869	S 11TH ST & 15TH AVE E	50%	12	5	4	90	0	5	0	0	3,690	2,260	3	3,848	2	0.36	2	3	0	35	1	Intersection Lighting	0	5	One-way stop
671128	US 63/N MARKET ST & B AVE W & B AVE E	50%	12	24	4	90	0	24	1	1	7,700	640	1	8,597	3	0.76	2	4	1	30	0	Destination Lighting	0	20	Two-way stop
671133	US 63/N MARKET ST & K AVE E	50%	12	10	4	90	0	10	0	0	7,300	1,620	3	8,210	3	0.33	2	3	0	30	0	Destination Lighting	0	8	One-way stop
671165	IA 23/IOWA 23 & 17TH AVE E	50%	12	2	2	71	2	2	0	0	3,600	2,110	3	3,640	2	0.15	1	3	0	55	2	Intersection Lighting	0	1	One-way stop
671173	IA 92/A AVE W & PROGRESS DR	50%	12	2	2	78	2	2	0	0	4,710	1,990	3	3,800	2	0.14	1	3	0	45	2	Intersection Lighting	0	1	One-way stop
671194	IA 92/A AVE E & N 4TH ST	50%	12	6	4	90	0	6	1	1	10,600	640	1	10,440	3	0.16	1	4	1	35	1	Destination Lighting	0	4	Two-way stop
671434	3RD AVE E & S 2ND ST	50%	12	6	4	90	0	6	0	0	1,540	920	3	2,820	2	0.58	2	4	1	25	0	Intersection Lighting	0	6	Two-way stop
671608	B AVE W & N D ST	50%	12	11	4	90	0	11	0	0	2,620	960	3	4,147	2	0.73	2	4	1	25	0	Intersection Lighting	0	10	Two-way stop
350649	IA 92/A AVE W & HWY 432	46%	11	2	2	87	0	2	0	0	12,400	1,620	3	10,865	3	0.05	1	3	0	45	2	Destination Lighting	0	1	One-way stop
353107	3RD AVE E & S 3RD ST	46%	11	3	3	90	0	3	0	0	1,540	1,290	3	2,480	2	0.33	2	4	1	25	0	Intersection Lighting	0	2	Two-way stop
353141	2ND AVE E & S 1ST ST	46%	11	4	3	90	0	4	0	0	2,882	1,540	3	3,751	2	0.29	2	4	1	20	0	Destination Lighting	0	4	Two-way stop
353171	1ST AVE E & S 1ST ST	46%	11	3	3	90	0	3	0	0	2,882	1,540	3	5,093	3	0.16	1	4	1	20	0	Intersection Lighting	0	2	All-way stop
353211	HIGH AVE E & S 3RD ST & N 3RD ST	46%	11	4	3	90	0	4	0	0	2,300	1,480	3	3,625	2	0.30	2	4	1	25	0	Destination Lighting	0	3	Two-way stop
353225	B AVE W & N I ST	46%	11	6	4	90	0	6	0	0	1,140	960	3	1,885	1	0.87	2	4	1	25	0	Intersection Lighting	0	6	Two-way stop
671120	US 63/S MARKET ST & 9TH AVE E	46%	11	5	4	78	2	5	0	0	7,400	510	0	7,355	3	0.19	1	3	0	35	1	Destination Lighting	0	1	One-way stop
671121	US 63/N MARKET ST & 8TH AVE W	46%	11	6	4	90	0	6	0	0	7,400	640	1	7,420	3	0.22	2	3	0	35	1	Destination Lighting	0	3	One-way stop
671139	US 63/N MARKET ST & INTERPOWER AVE	46%	11	3	3	82	2	3	0	0	5,400	367	0	4,574	3	0.18	1	3	0	50	2	Destination Lighting	0	2	One-way stop
671182	IA 92/A AVE W & N G ST	46%	11	13	4	90	0	13	0	0	13,600	640	1	12,940	3	0.28	2	4	1	30	0	Intersection Lighting	0	9	Two-way stop
671197	IA 92/A AVE E & N 6TH ST	46%	11	5	4	90	0	5	0	0	10,600	640	1	10,440	3	0.13	1	4	1	35	1	Intersection Lighting	0	5	Two-way stop
671462	HIGH AVE E & S 2ND ST & N 2ND ST	46%	11	3	3	90	0	3	0	0	2,596	2,086	3	4,641	3	0.18	1	4	1	20	0	Intersection Lighting	0	2	Two-way stop
671509	C AVE E & N 4TH ST	46%	11	3	3	90	0	3	0	0	2,950	644	3	3,594	2	0.23	2	4	1	25	0	Intersection Lighting	0	3	Two-way stop
671684	3RD AVE E & S 7TH ST	46%	11	3	3	90	0	3	0	0	2,700	900	3	3,350	2	0.25	2	4	1	25	0	Intersection Lighting	0	3	Two-way stop
671123	US 63/N MARKET ST & 6TH AVE W	42%	10	4	3	90	0	4	0	0	7,400	1,100	3	9,120	3	0.12	1	3	0	25	0	Destination Lighting	0	2	One-way stop
350301	US 63/N MARKET ST & TRUEBLOOD AVE	42%	10	4	3	90	0	4	0	0	7,300	690	3	7,225	3	0.15	1	3	0	30	0	Destination Lighting	0	3	One-way stop
350518	IA 23/IOWA 23 & 267TH ST	42%	10	1	1	51	4	1	0	0	3,600	260	0	3,050	2	0.09	1	3	0	55	2	Destination Lighting	0	0	One-way stop
351093	OLD HWY 163 & KIRBY AVE	42%	10	0	0	60	4	0	0	0	980	980	3	820	0	0.00	0	3	0	55	2	No Destination Lighting	1	0	One-way stop
352963	11TH AVE W & EDMUNDSON DR	42%	10	1	1	90	0	1	0	0	3,880	1,931	3	4,451	3	0.06	1	4	1	35	1	Intersection Lighting	0	1	Two-way stop
353199	HIGH AVE W & N E ST	42%	10	4	3	90	0	4	0	0	2,670	1,540	3	3,365	2	0.33	2	3	0	25	0	Destination Lighting	0	2	One-way stop
353257	C AVE W & N I ST	42%	10	4	3	90	0	4	0	0	1,420	1,050	3	2,055	1	0.53	2	4	1	25	0	Intersection Lighting	0	4	Two-way stop
671112	US 63/S MARKET ST & 18TH AVE E	42%	10	2	2	82	2	2	0	0	6,400	500	0	5,950	3	0.09	1	3	0	55	2	Destination Lighting	0	2	One-way stop
671129	US 63/N MARKET ST & F AVE W & F AVE E	42%	10	9	4	90	0	9	0	0	7,300	110	0	7,915	3	0.31	2	4	1	30	0	Intersection Lighting	0	6	Two-way stop
671131	US 63/N MARKET ST & COLLEGE AVE	42%	10	3	3	90	0	3	0	0	7,300	690	3	7,745	3	0.11	1	3	0	30	0	Intersection Lighting	0	1	One-way stop
671138	US 63/N MARKET ST & COWEN AVE W	42%	10	1	1	90	0	1	0	0	5,400	1,931	3	5,356	3	0.05	1	3	0	50	2	Destination Lighting	0	1	One-way stop
671179	IA 92/A AVE W & N I ST	42%	10	15	4	90	0	15	0	0	13,600	560	0	13,095	3	0.31	2	4	1	30	0	Intersection Lighting	0	12	Two-way stop
671180	IA 92/A AVE W & N H ST	42%	10	19	4	90	0	19	0	0	13,600	460	0	13,145	3	0.40	2	4	1	30	0	Intersection Lighting	0	16	Two-way stop
671204	IA 92/A AVE E & GENEVA DR	42%	10	4	3	90	0	4	0	0	9,100	1,180	3	8,790	3	0.12	1	3	0	30	0	Intersection Lighting	0	4	One-way stop
671501	C AVE W & N B ST	42%	10	5	4	90	0	5	0	0	2,390	640	1	2,820	2	0.49	2	4	1	25	0	Intersection Lighting	0	3	Two-way stop
671702	HIGH AVE E & S 11TH ST & N 11TH ST	42%	10	2	2	90	0	2	0	0	3,650	650	3	4,365	3	0.13	1	4	1	25	0	Intersection Lighting	0	2	Two-way stop
713006	S 7TH ST & 15TH AVE E	42%	10	3	3	78	2	3	0	0	3,690	200	0	3,435	2	0.24	2	4	1	25	0	Intersection Lighting	0	2	Two-way stop
5002254	15TH AVE E & S 2ND ST	42%	10	4	3	90	0	4	0	0	3,700	680	3	4,055	2	0.27	2	3	0	25	0	Intersection Lighting	0	4	One-way stop
97100382	N MARKET ST & R Avenue West	42%	10	3	3	90	0	3	0	0	6,600	6,600	3	6,600	3	0.12	1	3	0	30	0	Intersection Lighting	0	3	One-way stop
350257	US 63 & LUMINARY LN	38%	9	2	2	90	0	2	0	0	6,600	160	0	5,980	3	0.09	1	3	0	55	2	No Destination Lighting	1	2	One-way stop
350681	IA 92/IOWA 92 & NEWPORT AVE	38%	9	2	2	90	0	2	0	0	5,700	510	0	5,555	3	0.10	1	3	0	55	2	No Destination Lighting	1	2	One-way stop
351788	Co Rd T39/INDIAN WAY & JOINER AVE	38%	9	1	1	80	2	1	0	0	2,370	500	0	2,465	2	0.11	1	3	0	55	2	No Destination Lighting	1	1	All-way stop
353005	8TH AVE W & S D ST	38%	9	4	3	90	0	4	0	0	2,480	640	1	2,520	2	0.43	2	4	1	25	0	Intersection Lighting	0	4	Two-way stop
353035	ROCK ISLAND AVE & S 2ND ST	38%	9	2	2	90	0	2	0	0	1,931	1,640	3	3,391	2	0.16	1	4	1	25	0	Intersection Lighting	0	2	Two-way stop
353099	3RD AVE W & S D ST	38%	9	1	1	90	0	1	0	0	4,320	1,650	3	5,635	3	0.05	1	4	1	25	0	Intersection Lighting	0	1	Two-way stop
353101	3RD AVE W & S A ST	38%	9	3	3	90	0	3	0	0	2,030	640	1	2,575	2	0.32	2	4	1	25	0	Intersection Lighting	0	3	Two-way stop

GPS ID	Intersection	Risk Percent	Risk Factor Points	Crash Frequency (Value)	Crash Frequency (Points)	Skew (Value)	Skew (Points)	Total Crashes	K and A Crashes (Value)	K and A Crashes (Points)	Major ADT	Minor Street ADT (Value)	Minor Street ADT (Points)	DEV (Value)	DEV (Points)	Crash Rate per MEV (Value)	Crash Rate (Points)	Approaches (Value)	Approaches (Points)	Speed Limit (Value)	Speed Limit (Points)	Lighting (Value)	Lighting (Points)	Right angle, rear-end, or turning crashes	Control Type
353231	B AVE E & N 1ST ST	38%	9	6	4	90	0	6	0	0	1,540	640	1	1,730	1	0.95	2	4	1	25	0	Intersection Lighting	0	6	Two-way stop
671113	US 63/S MARKET ST & 16TH AVE E	38%	9	1	1	82	2	1	0	0	6,400	640	1	6,020	3	0.05	1	3	0	35	1	Destination Lighting	0	0	One-way stop
671177	IA 92/A AVE W & N K ST	38%	9	3	3	90	0	3	0	0	13,600	640	1	12,940	3	0.06	1	4	1	30	0	Destination Lighting	0	2	Two-way stop
671178	IA 92/A AVE W & N J ST	38%	9	5	4	90	0	5	0	0	13,600	244	0	12,742	3	0.11	1	4	1	30	0	Intersection Lighting	0	3	Two-way stop
671186	IA 92/A AVE W & N C ST	38%	9	5	4	90	0	5	0	0	13,600	640	1	13,320	3	0.10	1	3	0	30	0	Intersection Lighting	0	5	One-way stop
671187	IA 92/A AVE W & N B ST	38%	9	5	4	90	0	5	0	0	13,600	640	1	13,320	3	0.10	1	3	0	30	0	Destination Lighting	0	5	One-way stop
671369	11TH AVE W & S H ST	38%	9	1	1	90	0	1	0	0	3,880	1,160	3	4,460	3	0.06	1	3	0	35	1	Destination Lighting	0	1	One-way stop
671503	C AVE W & N A ST	38%	9	3	3	90	0	3	0	0	2,390	640	1	2,820	2	0.29	2	4	1	25	0	Intersection Lighting	0	3	Two-way stop
671505	C AVE E & N 1ST ST	38%	9	3	3	90	0	3	0	0	1,790	640	1	3,400	2	0.24	2	4	1	25	0	Intersection Lighting	0	3	Two-way stop
671527	D AVE W & PELLA AVE	38%	9	1	1	52	4	1	0	0	2,630	640	1	2,950	2	0.09	1	3	0	25	0	Destination Lighting	0	0	One-way stop
671572	B AVE W & N L ST	38%	9	3	3	90	0	3	0	0	2,740	640	1	2,720	2	0.30	2	4	1	25	0	Intersection Lighting	0	3	Two-way stop
671606	2ND AVE W & S D ST	38%	9	4	3	90	0	4	0	0	4,320	640	1	6,740	3	0.16	1	4	1	25	0	Intersection Lighting	0	4	Two-way stop
671644	B AVE E & N 2ND ST	38%	9	5	4	90	0	5	0	0	1,700	640	1	2,340	1	0.59	2	4	1	25	0	Intersection Lighting	0	5	Two-way stop
671650	B AVE E & N 3RD ST	38%	9	4	3	90	0	4	0	0	1,390	640	1	2,692	2	0.41	2	4	1	25	0	Intersection Lighting	0	4	Two-way stop
671699	7TH AVE E & S 11TH ST	38%	9	4	3	90	0	4	0	0	2,430	640	1	3,560	2	0.31	2	4	1	25	0	Intersection Lighting	0	4	Two-way stop
4003644	US 63/N MARKET ST & ROCK ISLAND AVE	38%	9	1	1	90	0	1	0	0	7,400	1,931	3	8,066	3	0.03	1	3	0	35	1	Intersection Lighting	0	1	One-way stop
5002178	HWY 432 & PELLA AVE & ORCHARD AVE	38%	9	2	2	96	0	2	0	0	1,030	880	3	1,395	0	0.39	2	3	0	55	2	Intersection Lighting	0	0	Yield Sign
353145	2ND AVE E & S 2ND ST	33%	8	1	1	90	0	1	0	0	1,905	1,100	3	2,593	2	0.11	1	4	1	25	0	Intersection Lighting	0	1	Two-way stop
353153	2ND AVE E & S 11TH ST	33%	8	1	1	85	2	1	0	0	4,470	640	1	4,165	2	0.07	1	3	0	25	0	No Destination Lighting	1	1	One-way stop
353175	1ST AVE E & S 7TH ST	33%	8	3	3	90	0	3	0	0	2,700	640	1	2,363	1	0.35	2	4	1	25	0	Intersection Lighting	0	3	Two-way stop
353255	C AVE W & N L ST	33%	8	1	1	90	0	1	0	0	2,740	1,050	3	2,950	2	0.09	1	4	1	25	0	Destination Lighting	0	1	Two-way stop
353311	PELLA AVE & SANTA CLARA ST	33%	8	1	1	55	4	1	0	0	1,790	640	1	1,655	1	0.17	1	3	0	25	0	Destination Lighting	0	1	One-way stop
353313	PELLA AVE & GREEN ST	33%	8	1	1	57	4	1	0	0	2,630	496	0	2,458	2	0.11	1	3	0	25	0	Intersection Lighting	0	0	One-way stop
353353	J AVE E & N 11TH ST	33%	8	1	1	82	2	1	0	0	950	670	3	1,240	0	0.22	2	3	0	25	0	Intersection Lighting	0	1	One-way stop
671122	US 63/N MARKET ST & 8TH AVE E	33%	8	2	2	90	0	2	0	0	7,400	640	1	7,420	3	0.07	1	3	0	35	1	Destination Lighting	0	0	One-way stop
671125	US 63/N MARKET ST & 4TH AVE W & 4TH AVE E	33%	8	3	3	90	0	3	0	0	7,400	245	0	7,543	3	0.11	1	4	1	25	0	Intersection Lighting	0	3	Two-way stop
671132	US 63/N MARKET ST & K AVE W	33%	8	3	3	90	0	3	0	0	7,300	640	1	7,720	3	0.11	1	3	0	30	0	Intersection Lighting	0	3	One-way stop
671199	IA 92/A AVE E & N 9TH ST	33%	8	2	2	90	0	2	0	0	10,600	640	1	10,540	3	0.05	1	4	1	30	0	Intersection Lighting	0	2	Two-way stop
671206	IA 92/A AVE E & HIGHLAND AVE	33%	8	2	2	90	0	2	0	0	5,400	367	0	5,604	3	0.10	1	4	1	35	1	Intersection Lighting	0	2	Two-way stop
671207	IA 92/A AVE E & FRONTAGE RD & SOLAR DR	33%	8	1	1	90	0	1	0	0	5,400	232	0	5,400	3	0.05	1	4	1	45	2	Intersection Lighting	0	0	Two-way stop
671380	9TH AVE E & S 9TH ST	33%	8	1	1	90	0	1	0	0	2,090	691	3	2,781	2	0.10	1	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671465	HIGH AVE E & S 6TH ST & N 6TH ST	33%	8	2	2	90	0	2	0	0	1,930	640	1	2,570	2	0.21	2	4	1	25	0	Intersection Lighting	0	2	Two-way stop
671482	B AVE W & N A ST	33%	8	4	3	90	0	4	0	0	1,540	640	1	2,443	1	0.45	2	4	1	25	0	Intersection Lighting	0	2	Two-way stop
671513	C AVE E & N 9TH ST	33%	8	3	3	90	0	3	0	0	2,690	400	0	3,290	2	0.25	2	4	1	25	0	Intersection Lighting	0	3	Two-way stop
671528	F AVE W & N C ST	33%	8	3	3	90	0	3	0	0	850	640	1	1,490	1	0.55	2	4	1	25	0	Intersection Lighting	0	3	Two-way stop
671530	F AVE W & N B ST	33%	8	3	3	90	0	3	0	0	850	640	1	1,490	1	0.55	2	4	1	25	0	Intersection Lighting	0	2	Two-way stop
671585	1ST AVE W & S H ST	33%	8	2	2	90	0	2	0	0	2,150	640	1	2,790	2	0.20	2	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671611	F AVE W & N D ST	33%	8	2	2	90	0	2	0	0	1,270	850	3	1,695	1	0.32	2	3	0	25	0	Intersection Lighting	0	2	One-way stop
671648	2ND AVE E & S 3RD ST	33%	8	3	3	90	0	3	0	0	1,290	640	1	2,255	1	0.36	2	4	1	25	0	Intersection Lighting	0	3	Two-way stop
671674	9TH AVE E & S 7TH ST	33%	8	2	2	90	0	2	0	0	2,700	1,548	3	3,564	2	0.15	1	3	0	25	0	Intersection Lighting	0	1	One-way stop
671681	5TH AVE E & S 7TH ST	33%	8	2	2	90	0	2	0	0	2,700	640	1	2,456	2	0.22	2	4	1	25	0	Intersection Lighting	0	2	All-way stop
671698	8TH AVE E & S 11TH ST	33%	8	3	3	90	0	3	0	0	2,430	640	1	3,560	2	0.23	2	3	0	25	0	Intersection Lighting	0	2	One-way stop
5004270	HWY 432 & HWY 432	33%	8	1	1	99	0	1	0	0	1,360	1,030	3	2,110	1	0.13	1	3	0	45	2	Intersection Lighting	0	0	Yield Sign
353184	SUFFOLK RD & 250Th St	33%	8	1	1	20	2	1	0	0	490	150	0	395	0	0.69	2	3	0	55	2	Not Reported	1	0	One-way stop
350299	US 63/N MARKET ST & ROSENBERGER AVE	29%	7	3	3	90	0	3	0	0	7,300	378	0	7,589	3	0.11	1	3	0	30	0	Destination Lighting	0	1	One-way stop
351795	Co Rd T39/INDIAN WAY & S O ST & 11TH AVE W	29%	7	0	0	90	0	0	0	0	2,460	1,100	3	3,000	2	0.00	0	3	0	55	2	Destination Lighting	0	0	One-way stop
352936	17TH AVE E & S 11TH ST	29%	7	0	0	26	4	0	0	0	2,930	280	0	3,050	2	0.00	0	3	0	35	1	Destination Lighting	0	0	One-way stop
352993	9TH AVE E & S 11TH ST	29%	7	0	0	90	0	0	0	0	2,430	2,090	3	4,500	3	0.00	0	3	0	35	1	Intersection Lighting	0	0	One-way stop
352996	9TH AVE E & S 11TH ST	29%	7	0	0	90	0	0	0	0	2,430	2,090	3	4,500	3	0.00	0	3	0	35	1	Destination Lighting	0	0	One-way stop
352997	9TH AVE E & 7TH AVE E & S 15TH ST	29%	7	0	0	52	4	0	0	0	1,560	640	1	1,784	1	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
353163	1ST AVE W & S D ST	29%	7	2	2	90	0	2	0	0	4,350	640	1	5,545	3	0.10	1	3	0	25	0	Intersection Lighting	0	2	One-way stop
353279	D AVE W & N I ST	29%	7	2	2	90	0	2	0	0	990	640	1	1,525	1	0.36	2	4	1	25	0	Intersection Lighting	0	2	Two-way stop
353317	F AVE W & N A ST	29%	7	2	2	90	0	2	0	0	920	640	1	1,525	1	0.36	2	4	1	25	0	Intersection Lighting	0	1	Two-way stop
353393	SHERIFF AVE & N 3RD ST	29%	7	4	3	83	2	4	0	0	1,370	230	0	955	0	1.15	2	3	0	25	0	Intersection Lighting	0	3	One-way stop
353734	S 4TH ST & 15TH AVE E	29%	7	1	1	90	0	1	0	0	3,690	1,931	3	3,731	2	0.07	1	3	0	25	0	Destination Lighting	0	0	One-way stop
671115	US 63/S MARKET ST & 14TH AVE E	29%	7	1	1	90	0	1	0	0	7,800	640	1	7,420	3	0.04	1	3	0	35	1	Destination Lighting	0	1	One-way stop
671117	US 63/S MARKET ST & 12TH AVE E	29%	7	1	1	90	0	1	0	0	7,800	640	1	7,420	3	0.04	1	3	0	35	1	Destination Lighting	0	0	One-way stop
671124	US 63/N MARKET ST & 5TH AVE W & 5TH AVE E	29%	7	1	1	90	0	1	0	0	7,400	640	1	7,740	3	0.04	1	4	1	25	0	Destination Lighting	0	1	Two-way stop
671205	IA 92/A AVE E & HILLCREST DR	29%	7	1	1	90	0	1	0	0	9,100	229	0	8,514	3	0.03	1	4	1	35	1	Intersection Lighting	0	0	Two-way stop
671510	C AVE E & N 5TH ST	29%	7	2	2	90	0	2	0	0	2,950	640	1	3,590	2	0.15	1	4	1	25	0	Intersection Lighting	0	2	Two-way stop
671602	5TH AVE W & S D ST	29%	7	2	2	90	0	2	0	0	3,330	640	1	3,770	2	0.15	1	4	1	25	0	Intersection Lighting	0	2	Two-way stop
671658	PEASLEY AVE & N 3RD ST	29%	7	3	3	90	0	3	0	0	1,370	640	1	1,490	1	0.55	2	3	0	25	0	Intersection Lighting	0	2	One-way stop
671679	6TH AVE E & S 7TH ST	29%	7	2	2	90	0	2	0	0	2,700	640	1	2,920	2	0.19	1	4	1	25	0	Intersection Lighting	0	1	Two-way stop
671700	5TH AVE E & S 11TH ST	29%	7	1	1	90	0	1	0	0	2,430	782	3	3,311	2	0.08	1	3	0	25	0	Destination Lighting	0	1	One-way stop
713003	S 2ND ST & 15TH AVE E	29%	7	2	2	90	0	2	0	0	3,690	500	0	4,400	3	0.12	1	3	0	25	0	No Destination Lighting	1	0	One-way stop
713017	S I ST & N I ST & HIGH AVE W	29%	7	3	3	90	0	3	0	0	1,800	560	0	2,360	1	0.35	2	4	1	25	0	Intersection Lighting	0	3	Two-way stop
8000138	IA 23/IOWA 23 & S 31ST ST	29%	7	0	0	82	2	0	0	0	3,750	45	0	2,973	2	0.00	0	3	0	55	2	No Destination Lighting	1	0	One-way stop
351102	HWY 432 & D AVE W	25%	6	0	0	81	2	0	0	0	1,620	150	0	1,795	1	0.00	0	4	1	45	2	Destination Lighting	0	0	Two-way stop
353047	6TH AVE E & S 3RD ST	25%	6	0	0	90	0	0	0	0	2,200	1,710	3	3,126	2	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
353131	2ND AVE W & S A ST	25%	6	0	0	90	0	0	0	0	3,195	1,540	3	3,138	2	0.00	0	3	0	25	0	No Destination Lighting	1	0	One-way stop
353173	1ST AVE E & S 2ND ST	25%	6	0	0	90	0	0	0	0	2,882	1,905	3	3,757	2	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
353213	HIGH AVE E & S 9TH ST & N 9TH ST	25%	6	2	2	90	0	2	0	0	1,930	640	1	1,930	1	0.28	2	3	0	25	0	Intersection Lighting	0	0	One-way stop
353267	C AVE E & N 6TH ST	25%	6	1	1	90	0	1	0	0	2,950	640	1	3,500	2	0.08	1	4	1	25	0	Intersection Lighting	0	1	Two-way stop
353271	C AVE E & N 10TH ST	25%	6	1	1	90	0	1	0	0	2,690	640	1	3,280	2	0.08	1	4	1	25	0	Intersection Lighting	0	1	Two-way stop
353332	G AVE W & N I ST	25%	6	1	1	90	0	1	0	0	990	660	3	1,250	0	0.22	2	3	0	25	0	Destination Lighting	0	0	One-way stop
671134	US 63/N MARKET ST & O AVE E	25%	6	2	2	90	0	2	0	0	7,300	100	0	7,450	3	0.07	1	3	0	30	0	Destination Lighting	0	1	One-way stop
671135	US 63/N MARKET ST & SHERIFF AVE	25%	6	2	2	90	0	2	0	0	6,600	230	0	6,015	3	0.09	1	3	0	30	0	Destination Lighting	0	2	One-way stop

GPS ID	Intersection	Risk Percent	Risk Factor Points	Crash Frequency (Value)	Crash Frequency (Points)	Skew (Value)	Skew (Points)	Total Crashes	K and A Crashes (Value)	K and A Crashes (Points)	Major ADT	Minor Street ADT (Value)	Minor Street ADT (Points)	DEV (Value)	DEV (Points)	Crash Rate per MEV (Value)	Crash Rate (Points)	Approaches (Value)	Approaches (Points)	Speed Limit (Value)	Speed Limit (Points)	Lighting (Value)	Lighting (Points)	Right angle, rear-end, or turning crashes	Control Type
671136	US 63/N MARKET ST & W GLENDALE RD	25%	6	2	2	90	0	2	0	0	5,400	480	0	4,590	3	0.12	1	3	0	30	0	Destination Lighting	0	0	One-way stop
671201	IA 92/A AVE E & N 10TH ST	25%	6	1	1	90	0	1	0	0	10,600	640	1	10,120	3	0.03	1	3	0	30	0	Intersection Lighting	0	0	One-way stop
671377	9TH AVE E & S 5TH ST	25%	6	0	0	90	0	0	0	0	1,931	1,548	3	2,514	2	0.00	0	3	0	25	0	No Destination Lighting	1	0	Uncontrolled
671399	6TH AVE W & S B ST	25%	6	2	2	90	0	2	0	0	1,100	214	0	1,837	1	0.30	2	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671467	HIGH AVE E & S 7TH ST & N 7TH ST	25%	6	0	0	90	0	0	0	0	3,490	1,700	3	3,480	2	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671492	C AVE W & N H ST	25%	6	2	2	90	0	2	0	0	1,420	540	0	2,010	1	0.27	2	4	1	25	0	Intersection Lighting	0	2	Two-way stop
671497	C AVE W & N E ST	25%	6	1	1	90	0	1	0	0	1,720	640	1	2,090	1	0.13	1	4	1	25	0	No Destination Lighting	1	1	Uncontrolled
671499	C AVE W & N C ST	25%	6	1	1	90	0	1	0	0	2,390	640	1	2,820	2	0.10	1	4	1	25	0	Intersection Lighting	0	1	Two-way stop
671538	J AVE E & N 12TH ST	25%	6	1	1	90	0	1	0	0	950	840	3	1,370	0	0.20	2	3	0	25	0	Intersection Lighting	0	0	Uncontrolled
671578	6TH AVE W & S H ST	25%	6	2	2	90	0	2	0	0	2,150	640	1	2,985	2	0.18	1	3	0	25	0	Destination Lighting	0	2	Other
671580	4TH AVE W & S H ST	25%	6	1	1	86	0	1	0	0	2,150	640	1	2,790	2	0.10	1	4	1	25	0	Destination Lighting	0	1	Two-way stop
671639	13TH AVE E & S 2ND ST	25%	6	3	3	90	0	3	0	0	680	640	1	1,000	0	0.82	2	3	0	25	0	Intersection Lighting	0	0	One-way stop
671673	13TH AVE E & S 7TH ST	25%	6	1	1	90	0	1	0	0	1,931	1,560	3	2,106	1	0.13	1	3	0	25	0	Intersection Lighting	0	0	One-way stop
671686	2ND AVE E & S 7TH ST	25%	6	1	1	90	0	1	0	0	2,700	640	1	2,710	2	0.10	1	4	1	25	0	Intersection Lighting	0	1	Two-way stop
671704	B AVE E & N 11TH ST	25%	6	2	2	90	0	2	0	0	3,560	640	1	2,970	2	0.18	1	3	0	25	0	Intersection Lighting	0	0	One-way stop
5002599	6TH AVE W & S H ST	25%	6	2	2	90	0	2	0	0	2,150	640	1	2,985	2	0.18	1	3	0	25	0	Intersection Lighting	0	2	Two-way stop
351099	HWY 432 & HWY 432	21%	5	0	0	103	0	0	0	0	1,030	881	3	1,341	0	0.00	0	3	0	55	2	Intersection Lighting	0	0	Yield Sign
351791	Co Rd T39/INDIAN WAY & BILL BONE DR	21%	5	0	0	90	0	0	0	0	2,030	50	0	2,475	2	0.00	0	3	0	55	2	No Destination Lighting	1	0	One-way stop
352987	9TH AVE E & S 2ND ST	21%	5	3	3	90	0	3	0	0	1,280	510	0	1,460	0	0.56	2	3	0	25	0	Intersection Lighting	0	1	One-way stop
352989	9TH AVE E & S 4TH ST	21%	5	0	0	83	2	0	0	0	1,548	640	1	1,999	1	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
353067	5TH AVE E & S 2ND ST	21%	5	1	1	90	0	1	0	0	1,490	640	1	1,845	1	0.15	1	4	1	25	0	Intersection Lighting	0	1	Two-way stop
353071	5TH AVE E & S 9TH ST	21%	5	1	1	90	0	1	0	0	782	640	1	1,422	0	0.19	2	4	1	25	0	Intersection Lighting	0	1	Two-way stop
353177	1ST AVE E & S 9TH ST	21%	5	2	2	90	0	2	0	0	640	640	1	1,280	0	0.43	2	3	0	25	0	Destination Lighting	0	1	Uncontrolled
353179	1ST AVE E & S 11TH ST	21%	5	0	0	90	0	0	0	0	4,470	640	1	5,145	3	0.00	0	4	1	25	0	Destination Lighting	0	0	Two-way stop
353193	HIGH AVE W & N G ST	21%	5	1	1	90	0	1	0	0	2,430	640	1	2,795	2	0.10	1	3	0	25	0	Intersection Lighting	0	1	One-way stop
353280	D AVE W & PELLA AVE & N L ST	21%	5	0	0	81	2	0	0	0	2,720	640	1	2,995	2	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
353331	G AVE W & N H ST	21%	5	1	1	90	0	1	0	0	1,010	640	1	1,630	1	0.17	1	4	1	25	0	Intersection Lighting	0	1	Two-way stop
353333	G AVE W & N E ST	21%	5	1	1	90	0	1	0	0	1,020	640	1	1,435	0	0.19	2	3	0	25	0	No Destination Lighting	1	1	Uncontrolled
353351	J AVE E & N 9TH ST	21%	5	3	3	90	0	3	0	0	670	400	0	795	0	1.03	2	3	0	25	0	Destination Lighting	0	0	Two-way stop
355427	JOINER AVE & PROGRESS DR & SUFFOLK RD	21%	5	0	0	75	2	0	0	0	1,990	500	0	550	0	0.00	0	3	0	55	2	No Destination Lighting	1	0	One-way stop
671116	US 63/S MARKET ST & 13TH AVE E	21%	5	0	0	90	0	0	0	0	7,800	640	1	7,420	3	0.00	0	3	0	35	1	Intersection Lighting	0	0	One-way stop
671196	IA 92/A AVE E & N 5TH ST	21%	5	0	0	90	0	0	0	0	10,600	640	1	10,120	3	0.00	0	3	0	35	1	Intersection Lighting	0	0	One-way stop
671370	11TH AVE W & S F ST	21%	5	0	0	90	0	0	0	0	3,880	180	0	4,402	3	0.00	0	4	1	35	1	Intersection Lighting	0	0	Two-way stop
671395	7TH AVE E & S 13TH ST	21%	5	1	1	81	2	1	0	0	640	53	0	373	0	0.73	2	3	0	25	0	Intersection Lighting	0	0	Uncontrolled
671432	3RD AVE W & S B ST	21%	5	1	1	90	0	1	0	0	1,650	640	1	2,290	1	0.12	1	4	1	25	0	Intersection Lighting	0	1	Two-way stop
671443	3RD AVE E & S 9TH ST	21%	5	1	1	90	0	1	0	0	900	640	1	2,400	1	0.11	1	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671455	1ST AVE E & S 3RD ST	21%	5	1	1	90	0	1	0	0	1,480	640	1	2,025	1	0.14	1	4	1	25	0	Intersection Lighting	0	1	Two-way stop
671460	1ST AVE E & S 9TH ST	21%	5	2	2	90	0	2	0	0	640	640	1	1,280	0	0.43	2	3	0	25	0	Intersection Lighting	0	1	Uncontrolled
671471	B AVE W & N K ST	21%	5	1	1	90	0	1	0	0	640	640	1	1,280	0	0.21	2	4	1	25	0	Intersection Lighting	0	1	Two-way stop
671477	B AVE W & N G ST	21%	5	1	1	90	0	1	0	0	960	640	1	1,600	1	0.17	1	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671481	B AVE W & N B ST	21%	5	1	1	90	0	1	0	0	1,353	640	1	1,993	1	0.14	1	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671512	C AVE E & N 7TH ST	21%	5	1	1	90	0	1	0	0	2,770	640	1	3,090	2	0.09	1	3	0	25	0	Intersection Lighting	0	1	One-way stop
671526	PELLA AVE & MABEL ST	21%	5	0	0	55	4	0	0	0	1,790	100	0	1,840	1	0.00	0	3	0	25	0	Destination Lighting	0	0	One-way stop
671554	SHERIFF AVE & LACY DR	21%	5	1	1	72	2	1	0	0	640	230	0	550	0	0.50	2	3	0	25	0	Intersection Lighting	0	0	One-way stop
671569	2ND AVE W & S M ST	21%	5	1	1	90	0	1	1	1	1,680	640	1	2,000	1	0.14	1	3	0	25	0	Intersection Lighting	0	0	Uncontrolled
671642	4TH AVE E & S 2ND ST	21%	5	2	2	90	0	2	0	0	920	150	0	1,315	0	0.42	2	4	1	25	0	Intersection Lighting	0	2	Two-way stop
671656	I AVE E & N 3RD ST	21%	5	2	2	90	0	2	0	0	1,050	640	1	1,370	0	0.40	2	3	0	25	0	Intersection Lighting	0	1	One-way stop
713004	S 5TH ST & 15TH AVE E	21%	5	1	1	90	0	1	0	0	3,690	640	1	3,085	2	0.09	1	3	0	25	0	Intersection Lighting	0	0	One-way stop
3001002	HWY 432 & PELLA AVE & ORCHARD AVE	21%	5	2	2	104	0	2	0	0	881	370	0	1,481	1	0.37	2	3	0	25	0	Intersection Lighting	0	0	Yield Sign
352995	9TH AVE E & S 12TH ST	17%	4	1	1	90	0	1	0	0	1,990	640	1	2,090	1	0.13	1	3	0	25	0	Destination Lighting	0	0	One-way stop
353027	7TH AVE E & S 12TH ST	17%	4	2	2	86	0	2	0	0	640	53	0	667	0	0.82	2	3	0	25	0	Intersection Lighting	0	0	One-way stop
353330	F AVE E & N 11TH ST	17%	4	1	1	90	0	1	0	0	1,660	640	1	1,580	1	0.17	1	3	0	25	0	Intersection Lighting	0	0	One-way stop
353358	COLLEGE AVE & N E ST	17%	4	2	2	90	0	2	0	0	1,500	100	0	1,230	0	0.45	2	3	0	25	0	Intersection Lighting	0	1	One-way stop
353370	K AVE E & N 3RD ST	17%	4	0	0	90	0	0	0	0	1,620	1,050	3	2,210	1	0.00	0	3	0	25	0	Intersection Lighting	0	0	All-way stop
353377	M AVE W & GREEN ST	17%	4	1	1	90	0	1	0	0	640	610	0	1,130	0	0.24	2	4	1	25	0	Intersection Lighting	0	1	Two-way stop
671198	IA 92/A AVE E & N 8TH ST	17%	4	0	0	90	0	0	0	0	10,600	640	1	10,120	3	0.00	0	3	0	30	0	Intersection Lighting	0	0	One-way stop
671378	9TH AVE E & S 8TH ST	17%	4	0	0	90	0	0	0	0	2,090	640	1	2,730	2	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671397	6TH AVE W & S C ST	17%	4	1	1	90	0	1	0	0	1,100	75	0	1,768	1	0.15	1	4	1	25	0	Destination Lighting	0	1	Two-way stop
671407	6TH AVE E & S 5TH ST	17%	4	1	1	90	0	1	0	0	1,710	46	0	2,053	1	0.13	1	4	1	25	0	Intersection Lighting	0	1	Two-way stop
671417	5TH AVE E & S 8TH ST	17%	4	1	1	90	0	1	0	0	782	640	1	1,102	0	0.25	2	3	0	25	0	Intersection Lighting	0	0	Uncontrolled
671438	3RD AVE E & S 5TH ST	17%	4	1	1	90	0	1	0	0	1,450	46	0	1,793	1	0.15	1	4	1	25	0	Intersection Lighting	0	1	Two-way stop
671447	2ND AVE E & S 4TH ST	17%	4	1	1	90	0	1	0	0	1,290	640	1	1,610	1	0.17	1	3	0	25	0	Intersection Lighting	0	1	Uncontrolled
671449	2ND AVE E & S 6TH ST	17%	4	1	1	90	0	1	0	0	1,290	306	0	1,596	1	0.17	1	4	1	25	0	Intersection Lighting	0	1	Yield Sign
671464	HIGH AVE E & N 4TH ST	17%	4	1	1	90	0	1	0	0	1,930	640	1	2,250	1	0.12	1	3	0	25	0	Destination Lighting	0	1	One-way stop
671469	HIGH AVE E & S 9TH ST & N 9TH ST	17%	4	1	1	90	0	1	0	0	650	640	1	1,930	1	0.14	1	3	0	25	0	Intersection Lighting	0	0	One-way stop
671479	B AVE W & N E ST	17%	4	0	0	90	0	0	0	0	1,931	960	3	1,926	1	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
671507	C AVE E & N 2ND ST	17%	4	0	0	90	0	0	0	0	1,790	640	1	3,930	2	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671515	D AVE W & N H ST	17%	4	1	1	90	0	1	0	0	540	330	0	870	0	0.31	2	4	1	25	0	Intersection Lighting	0	1	Two-way stop
671522	S PARK AVE & N PARK AVE	17%	4	0	0	37	4	0	0	0	367	90	0	274	0	0.00	0	3	0	25	0	Destination Lighting	0	0	Uncontrolled
671532	G AVE W & N G ST	17%	4	1	1	90	0	1	0	0	1,010	640	1	1,530	1	0.18	1	3	0	25	0	Destination Lighting	0	0	One-way stop
671533	G AVE W & N E ST	17%	4	0	0	90	0	0	0	0	1,500	940	3	1,770	1	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
671540	COLLEGE AVE & N B ST & GURNEY ST	17%	4	1	1	90	0	1	0	0	690	640	1	1,330	0	0.21	2	3	0	25	0	Destination Lighting	0	0	One-way stop
671541	COLLEGE AVE & N B ST & GURNEY ST	17%	4	1	1	90	0	1	0	0	690	640	1	1,330	0	0.21	2	3	0	25	0	Destination Lighting	0	0	One-way stop
671542	COLLEGE AVE & N A ST	17%	4	1	1	90	0	1	0	0	690	640	1	1,010	0	0.27	2	3	0	25	0	Intersection Lighting	0	0	One-way stop
671570	1ST AVE W & S L ST	17%	4	1	1	90	0	1	0	0	1,680	640	1	2,000	1	0.14	1	3	0	25	0	Intersection Lighting	0	1	One-way stop
671583	2ND AVE W & S H ST	17%	4	0	0	90	0	0	0	0	2,150	640	1	2,790	2	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671601	COLLEGE HILL AVE & N E ST	17%	4	1	1	90	0	1	0	0	930	640	1	1,180	0	0.23	2	3	0	25	0	Destination Lighting	0	1	Uncontrolled

GPS ID	Intersection	Risk Percent	Risk Factor Points	Crash Frequency (Value)	Crash Frequency (Points)	Skew (Value)	Skew (Points)	Total Crashes	K and A Crashes (Value)	K and A Crashes (Points)	Major ADT	Minor Street ADT (Value)	Minor Street ADT (Points)	DEV (Value)	DEV (Points)	Crash Rate per MEV (Value)	Crash Rate (Points)	Approaches (Value)	Approaches (Points)	Speed Limit (Value)	Speed Limit (Points)	Lighting (Value)	Lighting (Points)	Right angle, rear-end, or turning crashes	Control Type
671604	4TH AVE W & S D ST	17%	4	0	0	90	0	0	0	0	3,330	640	1	3,770	2	0.00	0	4	1	25	0	Destination Lighting	0	0	Two-way stop
671641	9TH AVE E & S 2ND ST	17%	4	0	0	90	0	0	0	0	1,280	1,190	3	1,875	1	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
671657	O AVE E & N 3RD ST	17%	4	2	2	90	0	2	0	0	1,370	100	0	1,220	0	0.45	2	3	0	25	0	Intersection Lighting	0	2	One-way stop
671678	7TH AVE E & S 7TH ST	17%	4	1	1	90	0	1	0	0	2,700	640	1	2,065	1	0.13	1	3	0	25	0	Intersection Lighting	0	0	One-way stop
671683	4TH AVE E & S 7TH ST	17%	4	1	1	90	0	1	0	0	2,700	640	1	2,065	1	0.13	1	3	0	25	0	Destination Lighting	0	1	One-way stop
671705	E AVE E & N 11TH ST	17%	4	0	0	90	0	0	0	0	1,660	840	3	2,080	1	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
671707	F AVE E & N 12TH ST	17%	4	0	0	82	2	0	0	0	840	640	1	1,160	0	0.00	0	3	0	25	0	No Destination Lighting	1	0	Uncontrolled
671765	MERINO AVE & ELMHURST CT	17%	4	0	0	78	2	0	0	0	367	280	0	464	0	0.00	0	3	0	55	2	Destination Lighting	0	0	One-way stop
713027	N 2ND ST & K AVE E	17%	4	1	1	90	0	1	0	0	1,620	640	1	1,940	1	0.14	1	3	0	25	0	Intersection Lighting	0	0	Uncontrolled
352986	9TH AVE W & S H ST	13%	3	0	0	90	0	0	0	0	1,290	640	1	2,075	1	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
353269	C AVE E & N 8TH ST	13%	3	0	0	90	0	0	0	0	2,770	640	1	3,040	2	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
353277	S PARK AVE & N PARK AVE	13%	3	0	0	18	2	0	0	0	2,590	90	0	1,660	1	0.00	0	3	0	25	0	Intersection Lighting	0	0	Yield Sign
353335	N D ST & G AVE W	13%	3	1	1	90	0	1	0	0	1,270	640	1	1,465	0	0.19	1	3	0	25	0	Destination Lighting	0	1	One-way stop
353348	J AVE E & N 4TH ST	13%	3	1	1	90	0	1	0	0	644	430	0	827	0	0.33	2	3	0	25	0	Destination Lighting	0	0	One-way stop
353401	GLENDALE RD & N 3RD ST	13%	3	1	1	90	0	1	0	0	860	350	0	855	0	0.32	2	3	0	25	0	Intersection Lighting	0	1	One-way stop
353453	S K ST & N K ST & HIGH AVE W	13%	3	0	0	90	0	0	0	0	1,800	640	1	2,385	1	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
355198	OSBURN AVE & 270TH ST & S 35TH ST	13%	3	0	0	90	0	0	0	0	730	90	0	800	0	0.00	0	3	0	55	2	Not Reported	1	0	One-way stop
671130	US 63/N MARKET ST & H AVE E	13%	3	0	0	90	0	0	0	0	7,300	110	0	7,455	3	0.00	0	3	0	30	0	Destination Lighting	0	0	One-way stop
671365	15TH AVE E & S 1ST ST	13%	3	0	0	90	0	0	0	0	3,700	640	1	3,600	2	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
671403	6TH AVE E & S 1ST ST	13%	3	0	0	90	0	0	0	0	2,260	578	0	3,239	2	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671405	6TH AVE E & S 4TH ST	13%	3	0	0	90	0	0	0	0	1,710	640	1	2,350	1	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671430	3RD AVE W & S C ST	13%	3	0	0	90	0	0	0	0	1,650	640	1	2,290	1	0.00	0	4	1	25	0	Destination Lighting	0	0	Two-way stop
671436	3RD AVE E & S 4TH ST	13%	3	0	0	90	0	0	0	0	1,450	640	1	2,090	1	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671478	B AVE W & N F ST	13%	3	0	0	85	2	0	0	0	960	640	1	1,280	0	0.00	0	3	0	25	0	Destination Lighting	0	0	Railroad Crossing
671480	B AVE W & N C ST	13%	3	0	0	90	0	0	0	0	1,353	640	1	1,993	1	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671494	C AVE W & N G ST	13%	3	0	0	90	0	0	0	0	1,420	640	1	2,060	1	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671537	EASTWOOD DR & J AVE E & CARBONADO RD	13%	3	0	0	72	2	0	0	0	950	640	1	855	0	0.00	0	3	0	25	0	Destination Lighting	0	0	Uncontrolled
671539	COLLEGE AVE & N C ST	13%	3	1	1	90	0	1	0	0	640	100	0	420	0	0.65	2	3	0	25	0	Intersection Lighting	0	1	One-way stop
671549	TRUEBLOOD AVE & BARCLAY ST	13%	3	1	1	90	0	1	0	0	690	640	1	1,470	0	0.19	1	3	0	25	0	Intersection Lighting	0	1	One-way stop
671550	TRUEBLOOD AVE & PENN BLVD	13%	3	1	1	90	0	1	0	0	690	325	0	1,313	0	0.21	2	3	0	25	0	Destination Lighting	0	0	One-way stop
671551	TRUEBLOOD AVE & GURNEY ST	13%	3	1	1	90	0	1	0	0	690	640	1	1,470	0	0.19	1	3	0	25	0	Destination Lighting	0	1	One-way stop
671568	7TH AVE W & S M ST	13%	3	0	0	74	2	0	0	0	1,100	640	1	1,420	0	0.00	0	3	0	25	0	Intersection Lighting	0	0	Uncontrolled
671587	S H ST & 5TH AVE W	13%	3	0	0	90	0	0	0	0	2,150	640	1	2,470	2	0.00	0	3	0	25	0	Intersection Lighting	0	0	Uncontrolled
671676	8TH AVE E & S 7TH ST	13%	3	0	0	90	0	0	0	0	2,700	640	1	2,385	1	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671696	12TH AVE E & S 11TH ST	13%	3	0	0	90	0	0	0	0	2,260	640	1	2,320	1	0.00	0	3	0	35	1	Intersection Lighting	0	0	One-way stop
671697	10TH AVE E & S 11TH ST	13%	3	0	0	90	0	0	0	0	2,260	640	1	2,320	1	0.00	0	3	0	35	1	Intersection Lighting	0	0	One-way stop
671701	4TH AVE E & S 11TH ST	13%	3	0	0	90	0	0	0	0	2,430	222	0	3,031	2	0.00	0	3	0	25	0	No Destination Lighting	1	0	One-way stop
713005	S 6TH ST & 15TH AVE E	13%	3	0	0	90	0	0	0	0	3,690	640	1	3,085	2	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
713015	S J ST & N J ST & HIGH AVE W	13%	3	0	0	90	0	0	0	0	1,800	640	1	2,440	1	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
353089	3RD AVE W & S M ST	8%	2	0	0	90	0	0	0	0	1,680	390	0	1,690	1	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
353113	3RD AVE E & HOPE ST	8%	2	0	0	90	0	0	0	0	1,620	640	1	1,765	1	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
353306	E AVE E & N 3RD ST	8%	2	0	0	90	0	0	0	0	1,390	640	1	1,865	1	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
353413	SANTA CLARA ST & ORCHARD AVE	8%	2	0	0	90	0	0	0	0	1,931	370	0	1,531	1	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671382	9TH AVE E & S 16TH ST	8%	2	0	0	90	0	0	0	0	1,460	640	1	1,645	1	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
671401	6TH AVE W & S A ST	8%	2	0	0	90	0	0	0	0	1,100	640	1	1,730	1	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
671409	6TH AVE E & S 6TH ST	8%	2	0	0	90	0	0	0	0	1,710	640	1	2,030	1	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
671440	3RD AVE E & S 6TH ST	8%	2	0	0	90	0	0	0	0	1,450	306	0	1,923	1	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671442	3RD AVE E & S 8TH ST	8%	2	0	0	90	0	0	0	0	900	640	1	2,080	1	0.00	0	3	0	25	0	Destination Lighting	0	0	One-way stop
671448	2ND AVE E & S 5TH ST	8%	2	0	0	90	0	0	0	0	1,290	640	1	1,610	1	0.00	0	3	0	25	0	Intersection Lighting	0	0	Uncontrolled
671475	B AVE W & N H ST	8%	2	0	0	90	0	0	0	0	960	460	0	1,520	1	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671496	C AVE W & N F ST	8%	2	0	0	90	0	0	0	0	1,720	640	1	1,755	1	0.00	0	3	0	25	0	Destination Lighting	0	0	Other
671582	3RD AVE W & S H ST	8%	2	0	0	90	0	0	0	0	2,150	80	0	2,385	1	0.00	0	4	1	25	0	Destination Lighting	0	0	Two-way stop
671693	B AVE E & N 9TH ST	8%	2	0	0	90	0	0	0	0	840	640	1	1,480	0	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671764	MERINO AVE & FOX RUN DR	8%	2	0	0	86	0	0	0	0	367	280	0	464	0	0.00	0	3	0	55	2	Destination Lighting	0	0	One-way stop
713026	N 1ST ST & K AVE E	8%	2	0	0	90	0	0	0	0	1,620	640	1	1,940	1	0.00	0	3	0	25	0	Intersection Lighting	0	0	Uncontrolled
352972	10TH AVE E & S 7TH ST	4%	1	0	0	90	0	0	0	0	2,700	251	0	1,568	1	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
353347	J AVE E & N 7TH ST	4%	1	0	0	90	0	0	0	0	640	430	0	795	0	0.00	0	3	0	25	0	No Destination Lighting	1	0	One-way stop
671396	6TH AVE W & S F ST	4%	1	0	0	90	0	0	0	0	1,030	640	1	1,350	0	0.00	0	3	0	25	0	Destination Lighting	0	0	Uncontrolled
671457	1ST AVE E & S 6TH ST	4%	1	0	0	90	0	0	0	0	640	306	0	1,113	0	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671459	1ST AVE E & S 8TH ST	4%	1	0	0	90	0	0	0	0	640	640	1	960	0	0.00	0	3	0	25	0	Intersection Lighting	0	0	Uncontrolled
671473	B AVE W & N J ST	4%	1	0	0	90	0	0	0	0	640	244	0	1,082	0	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671490	C AVE W & N K ST	4%	1	0	0	90	0	0	0	0	1,050	640	1	780	0	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
671491	C AVE W & N J ST	4%	1	0	0	90	0	0	0	0	1,050	640	1	780	0	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
671516	D AVE W & N G ST	4%	1	0	0	90	0	0	0	0	640	330	0	970	0	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671517	D AVE W & N E ST	4%	1	0	0	90	0	0	0	0	640	330	0	970	0	0.00	0	4	1	25	0	Intersection Lighting	0	0	Two-way stop
671557	GLENDALE RD & CRESTVIEW DR	4%	1	0	0	90	0	0	0	0	640	350	0	870	0	0.00	0	3	0	25	0	No Destination Lighting	1	0	One-way stop
671566	8TH AVE W & S M ST	4%	1	0	0	90	0	0	0	0	1,100	640	1	1,420	0	0.00	0	3	0	25	0	Intersection Lighting	0	0	Uncontrolled
671567	7TH AVE W & S M ST	4%	1	0	0	90	0	0	0	0	1,100	367	0	1,284	0	0.00	0	3	0	25	0	No Destination Lighting	1	0	Uncontrolled
671600	K AVE W & N E ST	4%	1	0	0	90	0	0	0	0	930	640	1	1,180	0	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
671638	14TH AVE E & S 2ND ST	4%	1	0	0	90	0	0	0	0	680	640	1	1,000	0	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
671640	12TH AVE E & S 2ND ST	4%	1	0	0	90	0	0	0	0	680	640	1	1,000	0	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
671655	H AVE E & N 3RD ST	4%	1	0	0	90	0	0	0	0	1,050	640	1	1,370	0	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
352969	11TH AVE E & S 2ND ST	0%	0	0	0	90	0	0	0	0	1,130	430	0	1,220	0	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
353181	1ST AVE E & HOPE ST & GENEVA DR	0%	0	0	0	90	0	0	0	0	1,180	369	0	1,095	0	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
353337	H AVE W & GREEN ST	0%	0	0	0	90	0	0	0	0	640	496	0	868	0	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
353357	COLLEGE AVE & PENN BLVD	0%	0	0	0	90	0	0	0	0	690	100	0	558	0	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop
353361	L AVE W & GREEN ST	0%	0	0	0	87	0	0	0	0	640	496	0	868	0	0.00	0	3	0	25	0	Intersection Lighting	0	0	One-way stop

GPS ID	Intersection	Risk Percent	Risk Factor Points	Crash Frequency (Value)	Crash Frequency (Points)	Skew (Value)	Skew (Points)	Total Crashes	K and A Crashes (Value)	K and A Crashes (Points)	Major ADT	Minor Street ADT (Value)	Minor Street ADT (Points)	DEV (Value)	DEV (Points)	Crash Rate per MEV (Value)	Crash Rate (Points)	Approaches (Value)	Approaches (Points)	Speed Limit (Value)	Speed Limit (Points)	Lighting (Value)	Lighting (Points)	Right angle, rear-end, or turning crashes	Control Type
353376	ROSENBERGER AVE & N E ST	0%	**0**	0	**0**	90	**0**	0	0	**0**	930	378	**0**	849	**0**	0.00	**0**	3	**0**	25	**0**	Intersection Lighting	**0**	0	One-way stop
353379	M AVE W & N I ST	0%	**0**	0	**0**	90	**0**	0	0	**0**	660	60	**0**	525	**0**	0.00	**0**	3	**0**	25	**0**	Intersection Lighting	**0**	0	One-way stop
353390	TRUEBLOOD AVE & N E ST	0%	**0**	0	**0**	90	**0**	0	0	**0**	690	190	**0**	900	**0**	0.00	**0**	3	**0**	25	**0**	Intersection Lighting	**0**	0	One-way stop
671372	11TH AVE E & S 1ST ST	0%	**0**	0	**0**	90	**0**	0	0	**0**	640	430	**0**	950	**0**	0.00	**0**	3	**0**	25	**0**	Intersection Lighting	**0**	0	Uncontrolled
671376	9TH AVE E & S 1ST ST	0%	**0**	0	**0**	87	**0**	0	0	**0**	640	510	**0**	830	**0**	0.00	**0**	3	**0**	25	**0**	Intersection Lighting	**0**	0	Uncontrolled
671461	1ST AVE E & S 12TH ST	0%	**0**	0	**0**	90	**0**	0	0	**0**	640	369	**0**	689	**0**	0.00	**0**	3	**0**	25	**0**	Intersection Lighting	**0**	0	Uncontrolled
671544	MABEL ST & ORCHARD AVE	0%	**0**	0	**0**	90	**0**	0	0	**0**	320	100	**0**	370	**0**	0.00	**0**	3	**0**	25	**0**	Intersection Lighting	**0**	0	One-way stop
671555	SHERIFF AVE & KEMBLE DR	0%	**0**	0	**0**	86	**0**	0	0	**0**	640	230	**0**	550	**0**	0.00	**0**	3	**0**	25	**0**	Intersection Lighting	**0**	0	One-way stop
671563	J AVE W & GREEN ST	0%	**0**	0	**0**	90	**0**	0	0	**0**	600	77	**0**	639	**0**	0.00	**0**	3	**0**	25	**0**	Intersection Lighting	**0**	0	One-way stop
671577	E AVE W & N I ST	0%	**0**	0	**0**	90	**0**	0	0	**0**	990	99	**0**	1,040	**0**	0.00	**0**	3	**0**	25	**0**	Intersection Lighting	**0**	0	One-way stop
671610	D AVE W & N D ST	0%	**0**	0	**0**	90	**0**	0	0	**0**	1,270	330	**0**	1,435	**0**	0.00	**0**	3	**0**	25	**0**	Intersection Lighting	**0**	0	One-way stop
671695	WOODLAND RD & S 11TH ST	0%	**0**	0	**0**	90	**0**	0	0	**0**	640	280	**0**	600	**0**	0.00	**0**	3	**0**	25	**0**	Intersection Lighting	**0**	0	One-way stop

GPS ID	Intersection	Risk Percent	Total Risk	Bike/Ped Crashes	Bike/Ped Crash Risk	Crossing Distance	Crossing Distance Risk	Skew	Skew Risk	School Distance [mi]	School Risk	Trail Distance [mi]	Trail Risk	Transit Stop Distance [mi]	Transit Risk	Speed Limit	Speed Limit Risk	Lighting	Lighting Risk	Right angle, rear-end, or turning crashes	Control Type
671133	US 63/N MARKET ST & K AVE E	52%	13	1	5	4	4	90	0	0.30	0	0.36	1	0.20	2	30	0	Destination Lighting	1	8	One-way stop
671137	US 63/N MARKET ST & GLENDALE RD	52%	13	0	0	4	4	56	4	0.36	0	0.02	2	0.01	2	30	0	Destination Lighting	1	2	One-way stop
671194	IA 92/A AVE E & N 4TH ST	52%	13	1	5	4	4	90	0	0.68	0	0.89	0	0.09	2	35	1	Destination Lighting	1	4	Two-way stop
671113	US 63/S MARKET ST & 16TH AVE E	48%	12	0	0	4	4	82	2	1.51	0	0.19	2	0.05	2	35	1	Destination Lighting	1	0	One-way stop
671128	US 63/N MARKET ST & B AVE W & B AVE E	48%	12	1	5	4	4	90	0	0.47	0	0.74	0	0.07	2	30	0	Destination Lighting	1	20	Two-way stop
350627	IA 92 & A Ave W/IA 163	44%	11	0	0	4	4	80	2	0.78	0	0.45	1	0.23	2	45	2	Intersection Lighting	0	4	One-way stop
350649	IA 92/A AVE W & HWY 432	44%	11	0	0	5	4	87	0	0.62	0	0.03	2	0.13	2	45	2	Destination Lighting	1	1	One-way stop
351093	OLD HWY 163 & KIRBY AVE	44%	11	0	0	2	0	60	4	0.55	0	0.19	2	0.49	1	55	2	No Destination Lighting	2	0	One-way stop
671118	US 63/S MARKET ST & 11TH AVE W & 11TH AVE E	44%	11	0	0	4	4	81	2	1.21	0	0.38	1	0.02	2	35	1	Destination Lighting	1	8	Two-way stop
671120	US 63/S MARKET ST & 9TH AVE E	44%	11	0	0	4	4	78	2	1.13	0	0.44	1	0.10	2	35	1	Destination Lighting	1	1	One-way stop
671129	US 63/N MARKET ST & F AVE W & F AVE E	44%	11	1	5	4	4	90	0	0.31	0	0.56	0	0.20	2	30	0	Intersection Lighting	0	6	Two-way stop
350301	US 63/N MARKET ST & TRUEBLOOD AVE	40%	10	0	0	4	4	90	0	0.21	1	0.23	2	0.13	2	30	0	Destination Lighting	1	3	One-way stop
353311	PELLA AVE & SANTA CLARA ST	40%	10	0	0	2	0	55	4	0.27	1	0.17	2	0.10	2	25	0	Destination Lighting	1	1	One-way stop
671110	US 63/S MARKET ST & 21ST AVE	40%	10	0	0	2	0	80	2	1.84	0	0.01	2	0.15	2	55	2	No Destination Lighting	2	4	One-way stop
671115	US 63/S MARKET ST & 14TH AVE E	40%	10	0	0	4	4	90	0	1.40	0	0.24	2	0.06	2	35	1	Destination Lighting	1	1	One-way stop
671134	US 63/N MARKET ST & O AVE E	40%	10	0	0	4	4	90	0	0.22	1	0.24	2	0.13	2	30	0	Destination Lighting	1	1	One-way stop
671135	US 63/N MARKET ST & SHERIFF AVE	40%	10	0	0	4	4	90	0	0.30	1	0.06	2	0.07	2	30	0	Destination Lighting	1	2	One-way stop
671539	COLLEGE AVE & N C ST	40%	10	1	5	2	0	90	0	0.12	2	0.31	1	0.12	2	25	0	Intersection Lighting	0	1	One-way stop
350285	US 63/S MARKET ST & 3RD AVE W & 3RD AVE E	36%	9	2	6	2	0	90	0	0.74	0	0.55	0	0.01	2	25	0	Destination Lighting	1	11	Two-way stop
350299	US 63/N MARKET ST & ROSENBERGER AVE	36%	9	0	0	4	4	90	0	0.25	1	0.29	1	0.18	2	30	0	Destination Lighting	1	1	One-way stop
350623	IA 92 & A Ave W/IA 163	36%	9	0	0	4	4	80	2	0.86	0	0.57	0	0.34	1	45	2	Intersection Lighting	0	3	One-way stop
351102	HWY 432 & D AVE W	36%	9	0	0	2	0	81	2	0.38	0	0.04	2	0.13	2	45	2	Destination Lighting	1	0	Two-way stop
352936	17TH AVE E & S 11TH ST	36%	9	0	0	2	0	26	4	1.77	0	0.46	1	0.05	2	35	1	Destination Lighting	1	0	One-way stop
671112	US 63/S MARKET ST & 18TH AVE E	36%	9	0	0	2	0	82	2	1.68	0	0.16	2	0.05	2	55	2	Destination Lighting	1	2	One-way stop
671114	US 63/S MARKET ST & 15TH AVE E	36%	9	0	0	4	4	86	0	1.46	0	0.20	2	0.01	2	35	1	Intersection Lighting	0	17	One-way stop
671117	US 63/S MARKET ST & 12TH AVE E	36%	9	0	0	4	4	90	0	1.28	0	0.33	1	0.06	2	35	1	Destination Lighting	1	0	One-way stop
671121	US 63/N MARKET ST & 8TH AVE W	36%	9	0	0	4	4	90	0	1.04	0	0.49	1	0.20	2	35	1	Destination Lighting	1	3	One-way stop
671122	US 63/N MARKET ST & 8TH AVE E	36%	9	0	0	4	4	90	0	1.06	0	0.48	1	0.18	2	35	1	Destination Lighting	1	0	One-way stop
671136	US 63/N MARKET ST & W GLENDALE RD	36%	9	0	0	4	4	90	0	0.38	0	0.05	2	0.02	2	30	0	Destination Lighting	1	0	One-way stop
671173	IA 92/A AVE W & PROGRESS DR	36%	9	0	0	4	4	78	2	0.94	0	0.68	0	0.46	1	45	2	Intersection Lighting	0	1	One-way stop
671526	PELLA AVE & MABEL ST	36%	9	0	0	2	0	55	4	0.34	0	0.20	2	0.08	2	25	0	Destination Lighting	1	0	One-way stop
671527	D AVE W & PELLA AVE	36%	9	0	0	2	0	52	4	0.46	0	0.22	2	0.05	2	25	0	Destination Lighting	1	0	One-way stop
97100382	N MARKET ST & R Avenue West	36%	9	0	0	4	4	90	0	0.26	1	0.12	2	0.01	2	30	0	Intersection Lighting	0	3	One-way stop
353184	SUFFOLK RD & 250Th St	36%	9	0	0	2	0	20	2	0.88	0	0.03	2	0.32	1	55	2	Not Reported	2	0	One-way stop
350681	IA 92/IOWA 92 & NEWPORT AVE	32%	8	0	0	3	2	90	0	1.72	0	0.20	2	0.96	0	55	2	No Destination Lighting	2	2	One-way stop
351027	IA 163 & Old Hwy 163/Jewell Ave	32%	8	0	0	5	4	90	0	1.38	0	0.96	0	1.33	0	65	2	No Destination Lighting	2	2	Two-way stop
351099	HWY 432 & HWY 432	32%	8	0	0	2	0	103	0	0.17	2	0.02	2	0.03	2	55	2	Intersection Lighting	0	0	Yield Sign
353105	3RD AVE E & S 1ST ST	32%	8	2	6	2	0	90	0	0.76	0	0.61	0	0.07	2	25	0	Intersection Lighting	0	4	Two-way stop
353201	HIGH AVE W & S D ST & N D ST	32%	8	1	5	2	0	90	0	0.50	0	0.49	1	0.01	2	20	0	Intersection Lighting	0	9	All-way stop
353313	PELLA AVE & GREEN ST	32%	8	0	0	2	0	57	4	0.41	0	0.22	2	0.01	2	25	0	Intersection Lighting	0	0	One-way stop
353333	G AVE W & N E ST	32%	8	0	0	2	0	90	0	0.10	3	0.38	1	0.06	2	25	0	No Destination Lighting	2	1	Uncontrolled
353393	SHERIFF AVE & N 3RD ST	32%	8	0	0	2	0	83	2	0.18	2	0.01	2	0.00	2	25	0	Intersection Lighting	0	3	One-way stop
353817	IA 92/A AVE E & N 7TH ST	32%	8	0	0	4	4	90	0	0.83	0	0.93	0	0.07	2	35	1	Destination Lighting	1	7	One-way stop
671116	US 63/S MARKET ST & 13TH AVE E	32%	8	0	0	4	4	90	0	1.34	0	0.28	1	0.01	2	35	1	Intersection Lighting	0	0	One-way stop
671130	US 63/N MARKET ST & H AVE E	32%	8	0	0	4	4	90	0	0.29	1	0.50	0	0.19	2	30	0	Destination Lighting	1	0	One-way stop
671131	US 63/N MARKET ST & COLLEGE AVE	32%	8	0	0	4	4	90	0	0.29	1	0.41	1	0.20	2	30	0	Intersection Lighting	0	1	One-way stop
671167	IA 23/17TH ST & BURLINGTON RD	32%	8	0	0	2	0	72	2	1.82	0	0.31	1	0.43	1	45	2	No Destination Lighting	2	3	Two-way stop
671177	IA 92/A AVE W & N K ST	32%	8	0	0	4	4	90	0	0.58	0	0.31	1	0.07	2	30	0	Destination Lighting	1	2	Two-way stop
671191	IA 92/A AVE E & N 2ND ST	32%	8	0	0	4	4	90	0	0.59	0	0.79	0	0.07	2	35	1	Destination Lighting	1	9	Two-way stop
671207	IA 92/A AVE E & FRONTAGE RD & SOLAR DR	32%	8	0	0	4	4	90	0	1.46	0	0.05	2	0.67	0	45	2	Intersection Lighting	0	0	Two-way stop
671399	6TH AVE W & S B ST	32%	8	1	5	2	0	90	0	0.89	0	0.37	1	0.23	2	25	0	Intersection Lighting	0	0	Two-way stop
671522	S PARK AVE & N PARK AVE	32%	8	0	0	2	0	37	4	0.95	0	0.50	1	0.16	2	25	0	Destination Lighting	1	0	Uncontrolled
671569	2ND AVE W & S M ST	32%	8	1	5	2	0	90	0	0.79	0	0.26	1	0.13	2	25	0	Intersection Lighting	0	0	Uncontrolled
671585	1ST AVE W & S H ST	32%	8	1	5	2	0	90	0	0.60	0	0.35	1	0.06	2	25	0	Intersection Lighting	0	0	Two-way stop
4003644	US 63/N MARKET ST & ROCK ISLAND AVE	32%	8	0	0	4	4	90	0	0.94	0	0.49	1	0.22	2	35	1	Intersection Lighting	0	1	One-way stop
5002178	HWY 432 & PELLA AVE & ORCHARD AVE	32%	8	0	0	2	0	96	0	0.16	2	0.01	2	0.01	2	55	2	Intersection Lighting	0	0	Yield Sign
5004270	HWY 432 & HWY 432	32%	8	0	0	2	0	99	0	0.17	2	0.02	2	0.02	2	45	2	Intersection Lighting	0	0	Yield Sign
350297	US 63/N MARKET ST & C AVE W & C AVE E	28%	7	0	0	4	4	90	0	0.40	0	0.69	0	0.11	2	30	0	Destination Lighting	1	19	Two-way stop
350516	IA 23/IOWA 23 & Co Rd T63/OSBURN AVE	28%	7	0	0	2	0	52	4	3.56	0	1.43	0	1.89	0	55	2	Destination Lighting	1	2	Two-way stop
350518	IA 23/IOWA 23 & 267TH ST	28%	7	0	0	2	0	51	4	3.35	0	1.24	0	1.68	0	55	2	Destination Lighting	1	0	One-way stop
353209	HIGH AVE E & S 1ST ST & N 1ST ST	28%	7	1	5	2	0	90	0	0.60	0	0.70	0	0.08	2	20	0	Intersection Lighting	0	3	All-way stop
353358	COLLEGE AVE & N E ST	28%	7	0	0	2	0	90	0	0.07	3	0.25	2	0.06	2	25	0	Intersection Lighting	0	1	One-way stop

GPS ID	Intersection	Risk Percent	Total Risk	Bike/Ped Crashes	Bike/Ped Crash Risk	Crossing Distance	Crossing Distance Risk	Skew	Skew Risk	School Distance [mi]	School Risk	Trail Distance [mi]	Trail Risk	Transit Stop Distance [mi]	Transit Risk	Speed Limit	Speed Limit Risk	Lighting	Lighting Risk	Right angle, rear-end, or turning crashes	Control Type
671132	US 63/N MARKET ST & K AVE W	28%	7	0	0	4	4	90	0	0.31	0	0.34	1	0.21	2	30	0	Intersection Lighting	0	3	One-way stop
671139	US 63/N MARKET ST & INTERPOWER AVE	28%	7	0	0	2	0	82	2	0.77	0	0.47	1	0.44	1	50	2	Destination Lighting	1	2	One-way stop
671178	IA 92/A AVE W & N J ST	28%	7	0	0	4	4	90	0	0.54	0	0.37	1	0.07	2	30	0	Intersection Lighting	0	3	Two-way stop
671179	IA 92/A AVE W & N I ST	28%	7	0	0	4	4	90	0	0.51	0	0.43	1	0.07	2	30	0	Intersection Lighting	0	12	Two-way stop
671180	IA 92/A AVE W & N H ST	28%	7	0	0	4	4	90	0	0.48	0	0.48	1	0.07	2	30	0	Intersection Lighting	0	16	Two-way stop
671182	IA 92/A AVE W & N G ST	28%	7	0	0	4	4	90	0	0.46	0	0.49	1	0.07	2	30	0	Intersection Lighting	0	9	Two-way stop
671187	IA 92/A AVE W & N B ST	28%	7	0	0	4	4	90	0	0.46	0	0.61	0	0.13	2	30	0	Destination Lighting	1	5	One-way stop
671188	IA 92/A AVE W & N A ST	28%	7	0	0	4	4	90	0	0.49	0	0.65	0	0.08	2	30	0	Destination Lighting	1	15	One-way stop
671196	IA 92/A AVE E & N 5TH ST	28%	7	0	0	4	4	90	0	0.73	0	0.94	0	0.07	2	35	1	Intersection Lighting	0	0	One-way stop
671197	IA 92/A AVE E & N 6TH ST	28%	7	0	0	4	4	90	0	0.78	0	0.99	0	0.08	2	35	1	Intersection Lighting	0	5	Two-way stop
671205	IA 92/A AVE E & HILLCREST DR	28%	7	0	0	4	4	90	0	1.19	0	0.35	1	0.38	1	35	1	Intersection Lighting	0	0	Two-way stop
671206	IA 92/A AVE E & HIGHLAND AVE	28%	7	0	0	4	4	90	0	1.32	0	0.20	2	0.52	0	35	1	Intersection Lighting	0	2	Two-way stop
671482	B AVE W & N A ST	28%	7	1	5	2	0	90	0	0.43	0	0.70	0	0.13	2	25	0	Intersection Lighting	0	2	Two-way stop
671554	SHERIFF AVE & LACY DR	28%	7	0	0	2	0	72	2	0.23	1	0.05	2	0.12	2	25	0	Intersection Lighting	0	0	One-way stop
671608	B AVE W & N D ST	28%	7	1	5	2	0	90	0	0.37	0	0.60	0	0.01	2	25	0	Intersection Lighting	0	10	Two-way stop
671658	PEASLEY AVE & N 3RD ST	28%	7	0	0	2	0	90	0	0.01	3	0.19	2	0.01	2	25	0	Intersection Lighting	0	2	One-way stop
671765	MERINO AVE & ELMHURST CT	28%	7	0	0	2	0	78	2	2.32	0	0.15	2	0.63	0	55	2	Destination Lighting	1	0	One-way stop
351788	Co Rd T39/INDIAN WAY & JOINER AVE	24%	6	0	0	2	0	80	2	1.47	0	0.56	0	0.92	0	55	2	No Destination Lighting	2	1	All-way stop
352997	9TH AVE E & 7TH AVE E & S 15TH ST	24%	6	0	0	2	0	52	4	1.62	0	0.42	1	0.25	1	25	0	Intersection Lighting	0	0	Two-way stop
353280	D AVE W & PELLA AVE & N L ST	24%	6	0	0	2	0	81	2	0.49	0	0.23	2	0.07	2	25	0	Intersection Lighting	0	0	One-way stop
353335	N D ST & G AVE W	24%	6	0	0	2	0	90	0	0.10	2	0.40	1	0.03	2	25	0	Destination Lighting	1	1	One-way stop
353413	SANTA CLARA ST & ORCHARD AVE	24%	6	0	0	2	0	90	0	0.11	2	0.25	2	0.21	2	25	0	Intersection Lighting	0	0	Two-way stop
355427	JOINER AVE & PROGRESS DR & SUFFOLK RD	24%	6	0	0	2	0	75	2	1.06	0	0.50	0	0.51	0	55	2	No Destination Lighting	2	0	One-way stop
671168	IA 23/17TH ST & 9TH AVE E	24%	6	0	0	3	2	90	0	1.73	0	0.25	1	0.42	1	45	2	Intersection Lighting	0	10	Two-way stop
671184	IA 92/A AVE W & N E ST	24%	6	0	0	4	4	90	0	0.43	0	0.52	0	0.08	2	30	0	Intersection Lighting	0	11	Two-way stop
671186	IA 92/A AVE W & N C ST	24%	6	0	0	4	4	90	0	0.44	0	0.57	0	0.09	2	30	0	Intersection Lighting	0	5	One-way stop
671198	IA 92/A AVE E & N 8TH ST	24%	6	0	0	4	4	90	0	0.89	0	0.87	0	0.09	2	30	0	Intersection Lighting	0	0	One-way stop
671199	IA 92/A AVE E & N 9TH ST	24%	6	0	0	4	4	90	0	0.91	0	0.81	0	0.13	2	30	0	Intersection Lighting	0	2	Two-way stop
671201	IA 92/A AVE E & N 10TH ST	24%	6	0	0	4	4	90	0	0.94	0	0.75	0	0.15	2	30	0	Intersection Lighting	0	0	One-way stop
671204	IA 92/A AVE E & GENEVA DR	24%	6	0	0	4	4	90	0	1.04	0	0.57	0	0.24	2	30	0	Intersection Lighting	0	4	One-way stop
671369	11TH AVE W & S H ST	24%	6	0	0	2	0	90	0	1.21	0	0.01	2	0.05	2	35	1	Destination Lighting	1	1	One-way stop
671532	G AVE W & N G ST	24%	6	0	0	2	0	90	0	0.17	2	0.35	1	0.15	2	25	0	Destination Lighting	1	0	One-way stop
671533	G AVE W & N E ST	24%	6	0	0	2	0	90	0	0.09	3	0.38	1	0.04	2	25	0	Intersection Lighting	0	0	One-way stop
671540	COLLEGE AVE & N B ST & GURNEY ST	24%	6	0	0	2	0	90	0	0.17	2	0.34	1	0.18	2	25	0	Destination Lighting	1	0	One-way stop
671541	COLLEGE AVE & N B ST & GURNEY ST	24%	6	0	0	2	0	90	0	0.18	2	0.34	1	0.19	2	25	0	Destination Lighting	1	0	One-way stop
671551	TRUEBLOOD AVE & GURNEY ST	24%	6	0	0	2	0	90	0	0.29	1	0.16	2	0.06	2	25	0	Destination Lighting	1	1	One-way stop
671555	SHERIFF AVE & KEMBLE DR	24%	6	0	0	2	0	86	0	0.19	2	0.04	2	0.06	2	25	0	Intersection Lighting	0	0	One-way stop
671557	GLENDALE RD & CRESTVIEW DR	24%	6	0	0	2	0	90	0	0.40	0	0.15	2	0.16	2	25	0	No Destination Lighting	2	0	One-way stop
671600	K AVE W & N E ST	24%	6	0	0	2	0	90	0	0.13	2	0.20	2	0.01	2	25	0	Intersection Lighting	0	0	One-way stop
671601	COLLEGE HILL AVE & N E ST	24%	6	0	0	2	0	90	0	0.22	1	0.15	2	0.09	2	25	0	Destination Lighting	1	1	Uncontrolled
671657	O AVE E & N 3RD ST	24%	6	0	0	2	0	90	0	0.06	3	0.25	1	0.06	2	25	0	Intersection Lighting	0	2	One-way stop
671707	F AVE E & N 12TH ST	24%	6	0	0	2	0	82	2	0.76	0	0.66	0	0.07	2	25	0	No Destination Lighting	2	0	Uncontrolled
713003	S 2ND ST & 15TH AVE E	24%	6	0	0	2	0	90	0	1.51	0	0.08	2	0.01	2	25	0	No Destination Lighting	2	0	One-way stop
3001002	HWY 432 & PELLA AVE & ORCHARD AVE	24%	6	0	0	2	0	104	0	0.16	2	0.01	2	0.02	2	25	0	Intersection Lighting	0	0	Yield Sign
8000138	IA 23/IOWA 23 & S 31ST ST	24%	6	0	0	2	0	82	2	2.90	0	0.88	0	1.22	0	55	2	No Destination Lighting	2	0	One-way stop
350257	US 63 & LUMINARY LN	20%	5	0	0	2	0	90	0	2.27	0	0.25	1	0.58	0	55	2	No Destination Lighting	2	2	One-way stop
350685	IA 92/IOWA 92 & OSBURN AVE	20%	5	0	0	3	2	90	0	2.17	0	0.69	0	1.45	0	55	2	Destination Lighting	1	4	Two-way stop
351791	Co Rd T39/INDIAN WAY & BILL BONE DR	20%	5	0	0	2	0	90	0	1.40	0	0.43	1	0.82	0	55	2	No Destination Lighting	2	0	One-way stop
351795	Co Rd T39/INDIAN WAY & S O ST & 11TH AVE W	20%	5	0	0	2	0	90	0	1.34	0	0.28	1	0.43	1	55	2	Destination Lighting	1	0	One-way stop
352965	11TH AVE W & S D ST	20%	5	0	0	2	0	90	0	1.19	0	0.19	2	0.00	2	35	1	Intersection Lighting	0	4	One-way stop
352989	9TH AVE E & S 4TH ST	20%	5	0	0	2	0	83	2	1.20	0	0.46	1	0.24	2	25	0	Intersection Lighting	0	0	Two-way stop
353099	3RD AVE W & S D ST	20%	5	0	0	3	2	90	0	0.68	0	0.34	1	0.01	2	25	0	Intersection Lighting	0	1	Two-way stop
353153	2ND AVE E & S 11TH ST	20%	5	0	0	2	0	85	2	1.14	0	0.65	0	0.26	1	25	0	No Destination Lighting	2	1	One-way stop
353163	1ST AVE W & S D ST	20%	5	0	0	3	2	90	0	0.56	0	0.44	1	0.06	2	25	0	Intersection Lighting	0	2	One-way stop
353255	C AVE W & N L ST	20%	5	0	0	2	0	90	0	0.53	0	0.22	2	0.01	2	25	0	Destination Lighting	1	1	Two-way stop
353277	S PARK AVE & N PARK AVE	20%	5	0	0	2	0	18	2	0.98	0	0.50	1	0.17	2	25	0	Intersection Lighting	0	0	Yield Sign
353332	G AVE W & N I ST	20%	5	0	0	2	0	90	0	0.28	1	0.36	1	0.23	2	25	0	Destination Lighting	1	0	One-way stop
353357	COLLEGE AVE & PENN BLVD	20%	5	0	0	2	0	90	0	0.14	2	0.32	1	0.14	2	25	0	Intersection Lighting	0	0	One-way stop
353376	ROSENBERGER AVE & N E ST	20%	5	0	0	2	0	90	0	0.26	1	0.11	2	0.10	2	25	0	Intersection Lighting	0	0	One-way stop
353734	S 4TH ST & 15TH AVE E	20%	5	0	0	2	0	90	0	1.53	0	0.11	2	0.08	2	25	0	Destination Lighting	1	0	One-way stop
671138	US 63/N MARKET ST & COWEN AVE W	20%	5	0	0	2	0	90	0	0.64	0	0.33	1	0.30	1	50	2	Destination Lighting	1	1	One-way stop
671370	11TH AVE W & S F ST	20%	5	0	0	2	0	90	0	1.19	0	0.07	2	0.01	2	35	1	Intersection Lighting	0	0	Two-way stop

GPS ID	Intersection	Risk Percent	Total Risk	Bike/Ped Crashes	Bike/Ped Crash Risk	Crossing Distance	Crossing Distance Risk	Skew	Skew Risk	School Distance [mi]	School Risk	Trail Distance [mi]	Trail Risk	Transit Stop Distance [mi]	Transit Risk	Speed Limit	Speed Limit Risk	Lighting	Lighting Risk	Right angle, rear-end, or turning crashes	Control Type
671377	9TH AVE E & S 5TH ST	20%	5	0	0	2	0	90	0	1.22	0	0.47	1	0.20	2	25	0	No Destination Lighting	2	0	Uncontrolled
671396	6TH AVE W & S F ST	20%	5	0	0	2	0	90	0	0.88	0	0.13	2	0.13	2	25	0	Destination Lighting	1	0	Uncontrolled
671478	B AVE W & N F ST	20%	5	0	0	2	0	85	2	0.38	0	0.56	0	0.05	2	25	0	Destination Lighting	1	0	Railroad Crossing
671497	C AVE W & N E ST	20%	5	0	0	2	0	90	0	0.28	1	0.55	0	0.10	2	25	0	No Destination Lighting	2	1	Uncontrolled
671528	F AVE W & N C ST	20%	5	0	0	2	0	90	0	0.16	2	0.46	1	0.07	2	25	0	Intersection Lighting	0	3	Two-way stop
671530	F AVE W & N B ST	20%	5	0	0	2	0	90	0	0.20	2	0.49	1	0.13	2	25	0	Intersection Lighting	0	2	Two-way stop
671544	MABEL ST & ORCHARD AVE	20%	5	0	0	2	0	90	0	0.17	2	0.30	1	0.24	2	25	0	Intersection Lighting	0	0	One-way stop
671550	TRUEBLOOD AVE & PENN BLVD	20%	5	0	0	2	0	90	0	0.36	0	0.11	2	0.01	2	25	0	Destination Lighting	1	0	One-way stop
671567	7TH AVE W & S M ST	20%	5	0	0	2	0	90	0	1.06	0	0.02	2	0.29	1	25	0	No Destination Lighting	2	0	Uncontrolled
671568	7TH AVE W & S M ST	20%	5	0	0	2	0	74	2	1.08	0	0.04	2	0.30	1	25	0	Intersection Lighting	0	0	Uncontrolled
671578	6TH AVE W & S H ST	20%	5	0	0	2	0	90	0	0.90	0	0.04	2	0.01	2	25	0	Destination Lighting	1	2	Other
671580	4TH AVE W & S H ST	20%	5	0	0	2	0	86	0	0.77	0	0.17	2	0.01	2	25	0	Destination Lighting	1	1	Two-way stop
671582	3RD AVE W & S H ST	20%	5	0	0	2	0	90	0	0.71	0	0.23	2	0.06	2	25	0	Destination Lighting	1	0	Two-way stop
671606	2ND AVE W & S D ST	20%	5	0	0	3	2	90	0	0.62	0	0.39	1	0.06	2	25	0	Intersection Lighting	0	4	Two-way stop
671611	F AVE W & N D ST	20%	5	0	0	2	0	90	0	0.13	2	0.42	1	0.01	2	25	0	Intersection Lighting	0	2	One-way stop
671764	MERINO AVE & FOX RUN DR	20%	5	0	0	2	0	86	0	2.45	0	0.01	2	0.77	0	55	2	Destination Lighting	1	0	One-way stop
713006	S 7TH ST & 15TH AVE E	20%	5	0	0	2	0	78	2	1.61	0	0.27	1	0.01	2	25	0	Intersection Lighting	0	2	Two-way stop
671123	US 63/N MARKET ST & 6TH AVE W	16%	4	0	0	2	0	90	0	0.92	0	0.49	1	0.20	2	25	0	Destination Lighting	1	2	One-way stop
352986	9TH AVE W & S H ST	16%	4	0	0	2	0	90	0	1.09	0	0.12	2	0.01	2	25	0	Intersection Lighting	0	0	Two-way stop
352996	9TH AVE E & S 11TH ST	16%	4	0	0	2	0	90	0	1.44	0	0.68	0	0.01	2	35	1	Destination Lighting	1	0	One-way stop
353089	3RD AVE W & S M ST	16%	4	0	0	2	0	90	0	0.85	0	0.23	2	0.19	2	25	0	Intersection Lighting	0	0	Two-way stop
353131	2ND AVE W & S A ST	16%	4	0	0	2	0	90	0	0.66	0	0.53	0	0.08	2	25	0	No Destination Lighting	2	0	One-way stop
353199	HIGH AVE W & N E ST	16%	4	0	0	2	0	90	0	0.50	0	0.46	1	0.06	2	25	0	Destination Lighting	1	2	One-way stop
353331	G AVE W & N H ST	16%	4	0	0	2	0	90	0	0.23	1	0.35	1	0.21	2	25	0	Intersection Lighting	0	1	Two-way stop
353347	J AVE E & N 7TH ST	16%	4	0	0	2	0	90	0	0.41	0	0.56	0	0.23	2	25	0	No Destination Lighting	2	0	One-way stop
353353	J AVE E & N 11TH ST	16%	4	0	0	2	0	82	2	0.61	0	0.59	0	0.25	2	25	0	Intersection Lighting	0	1	One-way stop
353370	K AVE E & N 3RD ST	16%	4	0	0	2	0	90	0	0.28	1	0.46	1	0.01	2	25	0	Intersection Lighting	0	0	All-way stop
353390	TRUEBLOOD AVE & N E ST	16%	4	0	0	2	0	90	0	0.36	0	0.00	2	0.01	2	25	0	Intersection Lighting	0	0	One-way stop
353401	GLENDALE RD & N 3RD ST	16%	4	0	0	2	0	90	0	0.38	0	0.12	2	0.12	2	25	0	Intersection Lighting	0	1	One-way stop
353869	S 11TH ST & 15TH AVE E	16%	4	0	0	2	0	90	0	1.73	0	0.50	1	0.01	2	35	1	Intersection Lighting	0	5	One-way stop
355198	OSBURN AVE & 270TH ST & S 35TH ST	16%	4	0	0	2	0	90	0	3.27	0	1.38	0	1.69	0	55	2	Not Reported	2	0	One-way stop
671165	IA 23/IOWA 23 & 17TH AVE E	16%	4	0	0	2	0	71	2	2.24	0	0.65	0	0.59	0	55	2	Intersection Lighting	0	1	One-way stop
671365	15TH AVE E & S 1ST ST	16%	4	0	0	2	0	90	0	1.48	0	0.12	2	0.09	2	25	0	Intersection Lighting	0	0	One-way stop
671395	7TH AVE E & S 13TH ST	16%	4	0	0	2	0	81	2	1.48	0	0.53	0	0.14	2	25	0	Intersection Lighting	0	0	Uncontrolled
671397	6TH AVE W & S C ST	16%	4	0	0	2	0	90	0	0.88	0	0.31	1	0.20	2	25	0	Destination Lighting	1	1	Two-way stop
671430	3RD AVE W & S C ST	16%	4	0	0	2	0	90	0	0.69	0	0.39	1	0.05	2	25	0	Destination Lighting	1	0	Two-way stop
671496	C AVE W & N F ST	16%	4	0	0	2	0	90	0	0.29	1	0.54	0	0.10	2	25	0	Destination Lighting	1	0	Other
671515	D AVE W & N H ST	16%	4	0	0	2	0	90	0	0.30	1	0.47	1	0.16	2	25	0	Intersection Lighting	0	1	Two-way stop
671516	D AVE W & N G ST	16%	4	0	0	2	0	90	0	0.26	1	0.47	1	0.15	2	25	0	Intersection Lighting	0	0	Two-way stop
671517	D AVE W & N E ST	16%	4	0	0	2	0	90	0	0.22	1	0.49	1	0.11	2	25	0	Intersection Lighting	0	0	Two-way stop
671537	EASTWOOD DR & J AVE E & CARBONADO RD	16%	4	0	0	2	0	72	2	0.76	0	0.57	0	0.26	1	25	0	Destination Lighting	1	0	Uncontrolled
671542	COLLEGE AVE & N A ST	16%	4	0	0	2	0	90	0	0.23	1	0.37	1	0.24	2	25	0	Intersection Lighting	0	0	One-way stop
671549	TRUEBLOOD AVE & BARCLAY ST	16%	4	0	0	2	0	90	0	0.37	0	0.05	2	0.07	2	25	0	Intersection Lighting	0	1	One-way stop
671563	J AVE W & GREEN ST	16%	4	0	0	2	0	90	0	0.26	1	0.32	1	0.21	2	25	0	Intersection Lighting	0	0	One-way stop
671572	B AVE W & N L ST	16%	4	0	0	2	0	90	0	0.58	0	0.24	2	0.07	2	25	0	Intersection Lighting	0	3	Two-way stop
671587	S H ST & 5TH AVE W	16%	4	0	0	2	0	90	0	0.83	0	0.11	2	0.06	2	25	0	Intersection Lighting	0	0	Uncontrolled
671604	4TH AVE W & S D ST	16%	4	0	0	2	0	90	0	0.75	0	0.30	1	0.07	2	25	0	Destination Lighting	1	0	Two-way stop
671638	14TH AVE E & S 2ND ST	16%	4	0	0	2	0	90	0	1.44	0	0.14	2	0.07	2	25	0	Intersection Lighting	0	0	One-way stop
671639	13TH AVE E & S 2ND ST	16%	4	0	0	2	0	90	0	1.38	0	0.21	2	0.13	2	25	0	Intersection Lighting	0	0	One-way stop
671701	4TH AVE E & S 11TH ST	16%	4	0	0	2	0	90	0	1.22	0	0.66	0	0.20	2	25	0	No Destination Lighting	2	0	One-way stop
713004	S 5TH ST & 15TH AVE E	16%	4	0	0	2	0	90	0	1.57	0	0.18	2	0.09	2	25	0	Intersection Lighting	0	0	One-way stop
713005	S 6TH ST & 15TH AVE E	16%	4	0	0	2	0	90	0	1.59	0	0.23	2	0.04	2	25	0	Intersection Lighting	0	0	One-way stop
713027	N 2ND ST & K AVE E	16%	4	0	0	2	0	90	0	0.28	1	0.47	1	0.07	2	25	0	Intersection Lighting	0	0	Uncontrolled
5002254	15TH AVE E & S 2ND ST	16%	4	0	0	2	0	90	0	1.50	0	0.09	2	0.03	2	25	0	Intersection Lighting	0	4	One-way stop
5002599	6TH AVE W & S H ST	16%	4	0	0	2	0	90	0	0.89	0	0.05	2	0.01	2	25	0	Intersection Lighting	0	2	Two-way stop
352963	11TH AVE W & EDMUNDSON DR	12%	3	0	0	2	0	90	0	1.28	0	0.27	1	0.31	1	35	1	Intersection Lighting	0	1	Two-way stop
352969	11TH AVE E & S 2ND ST	12%	3	0	0	2	0	90	0	1.26	0	0.33	1	0.17	2	25	0	Intersection Lighting	0	0	One-way stop
352972	10TH AVE E & S 7TH ST	12%	3	0	0	2	0	90	0	1.34	0	0.47	1	0.21	2	25	0	Intersection Lighting	0	0	One-way stop
352987	9TH AVE E & S 2ND ST	12%	3	0	0	2	0	90	0	1.17	0	0.42	1	0.20	2	25	0	Intersection Lighting	0	1	One-way stop
352993	9TH AVE E & S 11TH ST	12%	3	0	0	2	0	90	0	1.44	0	0.68	0	0.00	2	35	1	Intersection Lighting	0	0	One-way stop
352995	9TH AVE E & S 12TH ST	12%	3	0	0	2	0	90	0	1.48	0	0.61	0	0.06	2	25	0	Destination Lighting	1	0	One-way stop
353005	8TH AVE W & S D ST	12%	3	0	0	2	0	90	0	1.00	0	0.25	1	0.19	2	25	0	Intersection Lighting	0	4	Two-way stop

GPS ID	Intersection	Risk Percent	Total Risk	Bike/Ped Crashes	Bike/Ped Crash Risk	Crossing Distance	Crossing Distance Risk	Skew	Skew Risk	School Distance [mi]	School Risk	Trail Distance [mi]	Trail Risk	Transit Stop Distance [mi]	Transit Risk	Speed Limit	Speed Limit Risk	Lighting	Lighting Risk	Right angle, rear-end, or turning crashes	Control Type
353041	6TH AVE W & S D ST	12%	3	0	0	2	0	90	0	0.87	0	0.25	1	0.20	2	25	0	Intersection Lighting	0	4	Two-way stop
353101	3RD AVE W & S A ST	12%	3	0	0	2	0	90	0	0.72	0	0.49	1	0.05	2	25	0	Intersection Lighting	0	3	Two-way stop
353141	2ND AVE E & S 1ST ST	12%	3	0	0	2	0	90	0	0.71	0	0.63	0	0.09	2	20	0	Destination Lighting	1	4	Two-way stop
353177	1ST AVE E & S 9TH ST	12%	3	0	0	2	0	90	0	1.00	0	0.79	0	0.13	2	25	0	Destination Lighting	1	1	Uncontrolled
353190	HIGH AVE W & S L ST & N L ST	12%	3	0	0	2	0	90	0	0.67	0	0.27	1	0.01	2	25	0	Intersection Lighting	0	3	Two-way stop
353192	HIGH AVE W & S H ST & N H ST	12%	3	0	0	2	0	90	0	0.54	0	0.42	1	0.01	2	25	0	Intersection Lighting	0	14	Two-way stop
353193	HIGH AVE W & N G ST	12%	3	0	0	2	0	90	0	0.52	0	0.42	1	0.07	2	25	0	Intersection Lighting	0	1	One-way stop
353211	HIGH AVE E & S 3RD ST & N 3RD ST	12%	3	0	0	2	0	90	0	0.68	0	0.80	0	0.06	2	25	0	Destination Lighting	1	3	Two-way stop
353225	B AVE W & N I ST	12%	3	0	0	2	0	90	0	0.46	0	0.41	1	0.01	2	25	0	Intersection Lighting	0	6	Two-way stop
353257	C AVE W & N I ST	12%	3	0	0	2	0	90	0	0.38	0	0.41	1	0.09	2	25	0	Intersection Lighting	0	4	Two-way stop
353261	C AVE W & N D ST	12%	3	0	0	2	0	90	0	0.28	1	0.57	0	0.09	2	25	0	Intersection Lighting	0	6	Two-way stop
353279	D AVE W & N I ST	12%	3	0	0	2	0	90	0	0.34	0	0.41	1	0.15	2	25	0	Intersection Lighting	0	2	Two-way stop
353317	F AVE W & N A ST	12%	3	0	0	2	0	90	0	0.25	1	0.53	0	0.19	2	25	0	Intersection Lighting	0	1	Two-way stop
353337	H AVE W & GREEN ST	12%	3	0	0	2	0	90	0	0.31	0	0.30	1	0.13	2	25	0	Intersection Lighting	0	0	One-way stop
353348	J AVE E & N 4TH ST	12%	3	0	0	2	0	90	0	0.35	0	0.53	0	0.08	2	25	0	Destination Lighting	1	0	One-way stop
353361	L AVE W & GREEN ST	12%	3	0	0	2	0	87	0	0.23	1	0.34	1	0.25	1	25	0	Intersection Lighting	0	0	One-way stop
353377	M AVE W & GREEN ST	12%	3	0	0	2	0	90	0	0.24	1	0.32	1	0.32	1	25	0	Intersection Lighting	0	1	Two-way stop
353379	M AVE W & N I ST	12%	3	0	0	2	0	90	0	0.37	0	0.10	2	0.28	1	25	0	Intersection Lighting	0	0	One-way stop
353453	S K ST & N K ST & HIGH AVE W	12%	3	0	0	2	0	90	0	0.63	0	0.33	1	0.05	2	25	0	Intersection Lighting	0	0	Two-way stop
671124	US 63/N MARKET ST & 5TH AVE W & 5TH AVE E	12%	3	0	0	2	0	90	0	0.85	0	0.51	0	0.13	2	25	0	Destination Lighting	1	1	Two-way stop
671372	11TH AVE E & S 1ST ST	12%	3	0	0	2	0	90	0	1.24	0	0.34	1	0.11	2	25	0	Intersection Lighting	0	0	Uncontrolled
671376	9TH AVE E & S 1ST ST	12%	3	0	0	2	0	87	0	1.15	0	0.43	1	0.14	2	25	0	Intersection Lighting	0	0	Uncontrolled
671401	6TH AVE W & S A ST	12%	3	0	0	2	0	90	0	0.90	0	0.43	1	0.20	2	25	0	Intersection Lighting	0	0	One-way stop
671432	3RD AVE W & S B ST	12%	3	0	0	2	0	90	0	0.70	0	0.44	1	0.11	2	25	0	Intersection Lighting	0	1	Two-way stop
671442	3RD AVE E & S 8TH ST	12%	3	0	0	2	0	90	0	1.03	0	0.85	0	0.06	2	25	0	Destination Lighting	1	0	One-way stop
671464	HIGH AVE E & N 4TH ST	12%	3	0	0	2	0	90	0	0.72	0	0.86	0	0.09	2	25	0	Destination Lighting	1	1	One-way stop
671471	B AVE W & N K ST	12%	3	0	0	2	0	90	0	0.54	0	0.29	1	0.01	2	25	0	Intersection Lighting	0	1	Two-way stop
671473	B AVE W & N J ST	12%	3	0	0	2	0	90	0	0.50	0	0.35	1	0.06	2	25	0	Intersection Lighting	0	0	Two-way stop
671475	B AVE W & N H ST	12%	3	0	0	2	0	90	0	0.42	0	0.47	1	0.05	2	25	0	Intersection Lighting	0	0	Two-way stop
671490	C AVE W & N K ST	12%	3	0	0	2	0	90	0	0.48	0	0.28	1	0.06	2	25	0	Intersection Lighting	0	0	One-way stop
671491	C AVE W & N J ST	12%	3	0	0	2	0	90	0	0.43	0	0.34	1	0.10	2	25	0	Intersection Lighting	0	0	One-way stop
671492	C AVE W & N H ST	12%	3	0	0	2	0	90	0	0.35	0	0.47	1	0.10	2	25	0	Intersection Lighting	0	2	Two-way stop
671499	C AVE W & N C ST	12%	3	0	0	2	0	90	0	0.29	1	0.59	0	0.11	2	25	0	Intersection Lighting	0	1	Two-way stop
671566	8TH AVE W & S M ST	12%	3	0	0	2	0	90	0	1.11	0	0.08	2	0.29	1	25	0	Intersection Lighting	0	0	Uncontrolled
671570	1ST AVE W & S L ST	12%	3	0	0	2	0	90	0	0.72	0	0.28	1	0.06	2	25	0	Intersection Lighting	0	1	One-way stop
671577	E AVE W & N I ST	12%	3	0	0	2	0	90	0	0.31	0	0.42	1	0.21	2	25	0	Intersection Lighting	0	0	One-way stop
671583	2ND AVE W & S H ST	12%	3	0	0	2	0	90	0	0.65	0	0.29	1	0.01	2	25	0	Intersection Lighting	0	0	Two-way stop
671602	5TH AVE W & S D ST	12%	3	0	0	2	0	90	0	0.81	0	0.28	1	0.13	2	25	0	Intersection Lighting	0	2	Two-way stop
671610	D AVE W & N D ST	12%	3	0	0	2	0	90	0	0.22	1	0.51	0	0.09	2	25	0	Intersection Lighting	0	0	One-way stop
671640	12TH AVE E & S 2ND ST	12%	3	0	0	2	0	90	0	1.32	0	0.27	1	0.18	2	25	0	Intersection Lighting	0	0	One-way stop
671641	9TH AVE E & S 2ND ST	12%	3	0	0	2	0	90	0	1.15	0	0.45	1	0.21	2	25	0	Intersection Lighting	0	0	One-way stop
671673	13TH AVE E & S 7TH ST	12%	3	0	0	2	0	90	0	1.52	0	0.32	1	0.11	2	25	0	Intersection Lighting	0	0	One-way stop
671683	4TH AVE E & S 7TH ST	12%	3	0	0	2	0	90	0	1.03	0	0.82	0	0.04	2	25	0	Destination Lighting	1	1	One-way stop
671696	12TH AVE E & S 11TH ST	12%	3	0	0	2	0	90	0	1.60	0	0.57	0	0.01	2	35	1	Intersection Lighting	0	0	One-way stop
671697	10TH AVE E & S 11TH ST	12%	3	0	0	2	0	90	0	1.49	0	0.64	0	0.06	2	35	1	Intersection Lighting	0	0	One-way stop
671700	5TH AVE E & S 11TH ST	12%	3	0	0	2	0	90	0	1.26	0	0.67	0	0.14	2	25	0	Destination Lighting	1	1	One-way stop
713015	S J ST & N J ST & HIGH AVE W	12%	3	0	0	2	0	90	0	0.59	0	0.38	1	0.01	2	25	0	Intersection Lighting	0	0	Two-way stop
713017	S I ST & N I ST & HIGH AVE W	12%	3	0	0	2	0	90	0	0.56	0	0.42	1	0.05	2	25	0	Intersection Lighting	0	3	Two-way stop
713026	N 1ST ST & K AVE E	12%	3	0	0	2	0	90	0	0.30	0	0.42	1	0.13	2	25	0	Intersection Lighting	0	0	Uncontrolled
353027	7TH AVE E & S 12TH ST	8%	2	0	0	2	0	86	0	1.39	0	0.61	0	0.06	2	25	0	Intersection Lighting	0	0	One-way stop
353045	6TH AVE E & S 2ND ST	8%	2	0	0	2	0	90	0	0.96	0	0.62	0	0.23	2	25	0	Intersection Lighting	0	5	Two-way stop
353067	5TH AVE E & S 2ND ST	8%	2	0	0	2	0	90	0	0.90	0	0.63	0	0.19	2	25	0	Intersection Lighting	0	1	Two-way stop
353071	5TH AVE E & S 9TH ST	8%	2	0	0	2	0	90	0	1.16	0	0.80	0	0.12	2	25	0	Intersection Lighting	0	1	Two-way stop
353107	3RD AVE E & S 3RD ST	8%	2	0	0	2	0	90	0	0.83	0	0.72	0	0.13	2	25	0	Intersection Lighting	0	2	Two-way stop
353145	2ND AVE E & S 2ND ST	8%	2	0	0	2	0	90	0	0.74	0	0.69	0	0.09	2	25	0	Intersection Lighting	0	1	Two-way stop
353171	1ST AVE E & S 1ST ST	8%	2	0	0	2	0	90	0	0.66	0	0.67	0	0.05	2	20	0	Intersection Lighting	0	2	All-way stop
353173	1ST AVE E & S 2ND ST	8%	2	0	0	2	0	90	0	0.69	0	0.72	0	0.05	2	25	0	Intersection Lighting	0	0	Two-way stop
353175	1ST AVE E & S 7TH ST	8%	2	0	0	2	0	90	0	0.91	0	0.91	0	0.01	2	25	0	Intersection Lighting	0	3	Two-way stop
353179	1ST AVE E & S 11TH ST	8%	2	0	0	2	0	90	0	1.08	0	0.66	0	0.26	1	25	0	Destination Lighting	1	0	Two-way stop
353213	HIGH AVE E & S 9TH ST & N 9TH ST	8%	2	0	0	2	0	90	0	0.97	0	0.80	0	0.14	2	25	0	Intersection Lighting	0	0	One-way stop
353231	B AVE E & N 1ST ST	8%	2	0	0	2	0	90	0	0.51	0	0.78	0	0.01	2	25	0	Intersection Lighting	0	6	Two-way stop
353267	C AVE E & N 6TH ST	8%	2	0	0	2	0	90	0	0.70	0	0.89	0	0.01	2	25	0	Intersection Lighting	0	1	Two-way stop

GPS ID	Intersection	Risk Percent	Total Risk	Bike/Ped Crashes	Bike/Ped Crash Risk	Crossing Distance	Crossing Distance Risk	Skew	Skew Risk	School Distance [mi]	School Risk	Trail Distance [mi]	Trail Risk	Transit Stop Distance [mi]	Transit Risk	Speed Limit	Speed Limit Risk	Lighting	Lighting Risk	Right angle, rear-end, or turning crashes	Control Type
353269	C AVE E & N 8TH ST	8%	2	0	0	2	0	90	0	0.74	0	0.91	0	0.01	2	25	0	Intersection Lighting	0	0	One-way stop
353271	C AVE E & N 10TH ST	8%	2	0	0	2	0	90	0	0.80	0	0.80	0	0.01	2	25	0	Intersection Lighting	0	1	Two-way stop
353273	C AVE E & N 11TH ST	8%	2	0	0	2	0	90	0	0.84	0	0.73	0	0.07	2	25	0	Intersection Lighting	0	11	Two-way stop
353306	E AVE E & N 3RD ST	8%	2	0	0	2	0	90	0	0.49	0	0.70	0	0.08	2	25	0	Intersection Lighting	0	0	One-way stop
353330	F AVE E & N 11TH ST	8%	2	0	0	2	0	90	0	0.71	0	0.73	0	0.09	2	25	0	Intersection Lighting	0	0	One-way stop
353351	J AVE E & N 9TH ST	8%	2	0	0	2	0	90	0	0.50	0	0.58	0	0.29	1	25	0	Destination Lighting	1	0	Two-way stop
671125	US 63/N MARKET ST & 4TH AVE W & 4TH AVE E	8%	2	0	0	2	0	90	0	0.80	0	0.53	0	0.07	2	25	0	Intersection Lighting	0	3	Two-way stop
671378	9TH AVE E & S 8TH ST	8%	2	0	0	2	0	90	0	1.33	0	0.57	0	0.16	2	25	0	Intersection Lighting	0	0	Two-way stop
671380	9TH AVE E & S 9TH ST	8%	2	0	0	2	0	90	0	1.37	0	0.62	0	0.10	2	25	0	Intersection Lighting	0	0	Two-way stop
671382	9TH AVE E & S 16TH ST	8%	2	0	0	2	0	90	0	1.68	0	0.34	1	0.33	1	25	0	Intersection Lighting	0	0	One-way stop
671403	6TH AVE E & S 1ST ST	8%	2	0	0	2	0	90	0	0.93	0	0.56	0	0.20	2	25	0	Intersection Lighting	0	0	Two-way stop
671405	6TH AVE E & S 4TH ST	8%	2	0	0	2	0	90	0	1.01	0	0.66	0	0.20	2	25	0	Intersection Lighting	0	0	Two-way stop
671407	6TH AVE E & S 5TH ST	8%	2	0	0	2	0	90	0	1.05	0	0.67	0	0.15	2	25	0	Intersection Lighting	0	1	Two-way stop
671409	6TH AVE E & S 6TH ST	8%	2	0	0	2	0	90	0	1.08	0	0.69	0	0.09	2	25	0	Intersection Lighting	0	0	One-way stop
671417	5TH AVE E & S 8TH ST	8%	2	0	0	2	0	90	0	1.12	0	0.79	0	0.06	2	25	0	Intersection Lighting	0	0	Uncontrolled
671434	3RD AVE E & S 2ND ST	8%	2	0	0	2	0	90	0	0.79	0	0.67	0	0.14	2	25	0	Intersection Lighting	0	6	Two-way stop
671436	3RD AVE E & S 4TH ST	8%	2	0	0	2	0	90	0	0.86	0	0.78	0	0.15	2	25	0	Intersection Lighting	0	0	Two-way stop
671438	3RD AVE E & S 5TH ST	8%	2	0	0	2	0	90	0	0.90	0	0.84	0	0.13	2	25	0	Intersection Lighting	0	1	Two-way stop
671440	3RD AVE E & S 6TH ST	8%	2	0	0	2	0	90	0	0.94	0	0.87	0	0.07	2	25	0	Intersection Lighting	0	0	Two-way stop
671443	3RD AVE E & S 9TH ST	8%	2	0	0	2	0	90	0	1.08	0	0.79	0	0.12	2	25	0	Intersection Lighting	0	0	Two-way stop
671447	2ND AVE E & S 4TH ST	8%	2	0	0	2	0	90	0	0.82	0	0.80	0	0.10	2	25	0	Intersection Lighting	0	1	Uncontrolled
671448	2ND AVE E & S 5TH ST	8%	2	0	0	2	0	90	0	0.86	0	0.86	0	0.13	2	25	0	Intersection Lighting	0	0	Uncontrolled
671449	2ND AVE E & S 6TH ST	8%	2	0	0	2	0	90	0	0.90	0	0.92	0	0.09	2	25	0	Intersection Lighting	0	1	Yield Sign
671455	1ST AVE E & S 3RD ST	8%	2	0	0	2	0	90	0	0.73	0	0.77	0	0.01	2	25	0	Intersection Lighting	0	1	Two-way stop
671457	1ST AVE E & S 6TH ST	8%	2	0	0	2	0	90	0	0.86	0	0.94	0	0.05	2	25	0	Intersection Lighting	0	0	Two-way stop
671459	1ST AVE E & S 8TH ST	8%	2	0	0	2	0	90	0	0.95	0	0.85	0	0.07	2	25	0	Intersection Lighting	0	0	Uncontrolled
671460	1ST AVE E & S 9TH ST	8%	2	0	0	2	0	90	0	1.01	0	0.78	0	0.14	2	25	0	Intersection Lighting	0	1	Uncontrolled
671462	HIGH AVE E & S 2ND ST & N 2ND ST	8%	2	0	0	2	0	90	0	0.64	0	0.75	0	0.08	2	20	0	Intersection Lighting	0	2	Two-way stop
671465	HIGH AVE E & S 6TH ST & N 6TH ST	8%	2	0	0	2	0	90	0	0.82	0	0.96	0	0.08	2	25	0	Intersection Lighting	0	2	Two-way stop
671467	HIGH AVE E & S 7TH ST & N 7TH ST	8%	2	0	0	2	0	90	0	0.87	0	0.92	0	0.06	2	25	0	Intersection Lighting	0	0	Two-way stop
671469	HIGH AVE E & S 9TH ST & N 9TH ST	8%	2	0	0	2	0	90	0	0.97	0	0.79	0	0.15	2	25	0	Intersection Lighting	0	0	One-way stop
671477	B AVE W & N G ST	8%	2	0	0	2	0	90	0	0.40	0	0.54	0	0.01	2	25	0	Intersection Lighting	0	0	Two-way stop
671479	B AVE W & N E ST	8%	2	0	0	2	0	90	0	0.37	0	0.58	0	0.05	2	25	0	Intersection Lighting	0	0	One-way stop
671480	B AVE W & N C ST	8%	2	0	0	2	0	90	0	0.38	0	0.63	0	0.07	2	25	0	Intersection Lighting	0	0	Two-way stop
671481	B AVE W & N B ST	8%	2	0	0	2	0	90	0	0.40	0	0.66	0	0.13	2	25	0	Intersection Lighting	0	0	Two-way stop
671494	C AVE W & N G ST	8%	2	0	0	2	0	90	0	0.31	0	0.53	0	0.09	2	25	0	Intersection Lighting	0	0	Two-way stop
671501	C AVE W & N B ST	8%	2	0	0	2	0	90	0	0.32	0	0.62	0	0.16	2	25	0	Intersection Lighting	0	3	Two-way stop
671503	C AVE W & N A ST	8%	2	0	0	2	0	90	0	0.35	0	0.66	0	0.17	2	25	0	Intersection Lighting	0	3	Two-way stop
671505	C AVE E & N 1ST ST	8%	2	0	0	2	0	90	0	0.44	0	0.73	0	0.05	2	25	0	Intersection Lighting	0	3	Two-way stop
671507	C AVE E & N 2ND ST	8%	2	0	0	2	0	90	0	0.49	0	0.76	0	0.01	2	25	0	Intersection Lighting	0	0	Two-way stop
671509	C AVE E & N 4TH ST	8%	2	0	0	2	0	90	0	0.60	0	0.83	0	0.01	2	25	0	Intersection Lighting	0	3	Two-way stop
671510	C AVE E & N 5TH ST	8%	2	0	0	2	0	90	0	0.65	0	0.87	0	0.05	2	25	0	Intersection Lighting	0	2	Two-way stop
671512	C AVE E & N 7TH ST	8%	2	0	0	2	0	90	0	0.72	0	0.90	0	0.06	2	25	0	Intersection Lighting	0	1	One-way stop
671513	C AVE E & N 9TH ST	8%	2	0	0	2	0	90	0	0.77	0	0.86	0	0.01	2	25	0	Intersection Lighting	0	3	Two-way stop
671538	J AVE E & N 12TH ST	8%	2	0	0	2	0	90	0	0.66	0	0.61	0	0.24	2	25	0	Intersection Lighting	0	0	Uncontrolled
671642	4TH AVE E & S 2ND ST	8%	2	0	0	2	0	90	0	0.85	0	0.65	0	0.15	2	25	0	Intersection Lighting	0	2	Two-way stop
671644	B AVE E & N 2ND ST	8%	2	0	0	2	0	90	0	0.55	0	0.83	0	0.06	2	25	0	Intersection Lighting	0	5	Two-way stop
671648	2ND AVE E & S 3RD ST	8%	2	0	0	2	0	90	0	0.78	0	0.75	0	0.07	2	25	0	Intersection Lighting	0	3	Two-way stop
671650	B AVE E & N 3RD ST	8%	2	0	0	2	0	90	0	0.60	0	0.87	0	0.01	2	25	0	Intersection Lighting	0	4	Two-way stop
671652	C AVE E & N 3RD ST	8%	2	0	0	2	0	90	0	0.55	0	0.79	0	0.03	2	25	0	Intersection Lighting	0	15	Two-way stop
671655	H AVE E & N 3RD ST	8%	2	0	0	2	0	90	0	0.46	0	0.63	0	0.01	2	25	0	Intersection Lighting	0	0	One-way stop
671656	I AVE E & N 3RD ST	8%	2	0	0	2	0	90	0	0.38	0	0.57	0	0.09	2	25	0	Intersection Lighting	0	1	One-way stop
671674	9TH AVE E & S 7TH ST	8%	2	0	0	2	0	90	0	1.29	0	0.52	0	0.14	2	25	0	Intersection Lighting	0	1	One-way stop
671676	8TH AVE E & S 7TH ST	8%	2	0	0	2	0	90	0	1.23	0	0.58	0	0.07	2	25	0	Intersection Lighting	0	0	Two-way stop
671678	7TH AVE E & S 7TH ST	8%	2	0	0	2	0	90	0	1.18	0	0.64	0	0.01	2	25	0	Intersection Lighting	0	0	One-way stop
671679	6TH AVE E & S 7TH ST	8%	2	0	0	2	0	90	0	1.12	0	0.71	0	0.06	2	25	0	Intersection Lighting	0	1	Two-way stop
671681	5TH AVE E & S 7TH ST	8%	2	0	0	2	0	90	0	1.07	0	0.77	0	0.03	2	25	0	Intersection Lighting	0	2	All-way stop
671684	3RD AVE E & S 7TH ST	8%	2	0	0	2	0	90	0	0.99	0	0.88	0	0.01	2	25	0	Intersection Lighting	0	3	Two-way stop
671686	2ND AVE E & S 7TH ST	8%	2	0	0	2	0	90	0	0.94	0	0.91	0	0.07	2	25	0	Intersection Lighting	0	1	Two-way stop
671693	B AVE E & N 9TH ST	8%	2	0	0	2	0	90	0	0.85	0	0.82	0	0.10	2	25	0	Intersection Lighting	0	0	Two-way stop
671695	WOODLAND RD & S 11TH ST	8%	2	0	0	2	0	90	0	2.05	0	0.31	1	0.38	1	25	0	Intersection Lighting	0	0	One-way stop
671698	8TH AVE E & S 11TH ST	8%	2	0	0	2	0	90	0	1.39	0	0.67	0	0.06	2	25	0	Intersection Lighting	0	2	One-way stop

GPS ID	Intersection	Risk Percent	Total Risk	Bike/Ped Crashes	Bike/Ped Crash Risk	Crossing Distance	Crossing Distance Risk	Skew	Skew Risk	School Distance [mi]	School Risk	Trail Distance [mi]	Trail Risk	Transit Stop Distance [mi]	Transit Risk	Speed Limit	Speed Limit Risk	Lighting	Lighting Risk	Right angle, rear-end, or turning crashes	Control Type
671699	7TH AVE E & S 11TH ST	8%	**2**	0	**0**	2	**0**	90	**0**	1.35	**0**	0.68	**0**	0.01	**2**	25	**0**	Intersection Lighting	**0**	4	Two-way stop
671702	HIGH AVE E & S 11TH ST & N 11TH ST	8%	**2**	0	**0**	2	**0**	90	**0**	1.03	**0**	0.66	**0**	0.22	**2**	25	**0**	Intersection Lighting	**0**	2	Two-way stop
671704	B AVE E & N 11TH ST	8%	**2**	0	**0**	2	**0**	90	**0**	0.92	**0**	0.70	**0**	0.11	**2**	25	**0**	Intersection Lighting	**0**	0	One-way stop
671705	E AVE E & N 11TH ST	8%	**2**	0	**0**	2	**0**	90	**0**	0.78	**0**	0.73	**0**	0.01	**2**	25	**0**	Intersection Lighting	**0**	0	One-way stop
353035	ROCK ISLAND AVE & S 2ND ST	4%	**1**	0	**0**	2	**0**	90	**0**	0.99	**0**	0.62	**0**	0.26	**1**	25	**0**	Intersection Lighting	**0**	2	Two-way stop
353047	6TH AVE E & S 3RD ST	4%	**1**	0	**0**	2	**0**	90	**0**	0.98	**0**	0.66	**0**	0.26	**1**	25	**0**	Intersection Lighting	**0**	0	Two-way stop
353111	3RD AVE E & S 11TH ST	4%	**1**	0	**0**	2	**0**	90	**0**	1.18	**0**	0.65	**0**	0.25	**1**	25	**0**	Intersection Lighting	**0**	5	Two-way stop
353113	3RD AVE E & HOPE ST	4%	**1**	0	**0**	2	**0**	90	**0**	1.25	**0**	0.53	**0**	0.29	**1**	25	**0**	Intersection Lighting	**0**	0	One-way stop
353181	1ST AVE E & HOPE ST & GENEVA DR	4%	**1**	0	**0**	2	**0**	90	**0**	1.14	**0**	0.54	**0**	0.33	**1**	25	**0**	Intersection Lighting	**0**	0	One-way stop
671461	1ST AVE E & S 12TH ST	4%	**1**	0	**0**	2	**0**	90	**0**	1.12	**0**	0.57	**0**	0.31	**1**	25	**0**	Intersection Lighting	**0**	0	Uncontrolled

APPENDIX D

SIGNALIZED INTERSECTION SICL RANKING SUMMARY

GPSID	Intersection	Safety Improvement Candidate Rank	Approaches	Paved Approaches	Major ADT	Minor ADT	Destination Lighting	K Crashes	A Crashes	B Crashes	C Crashes	Property Damage Only Crashes	Total	Right angle, rear-end, or turning crashes	Nighttime Crashes	Control Type
4003641	IA 92/A AVE W & N D ST	**1**	4	4	13,600	4,930	Yes	0	1	7	12	42	62	52	11	Signalized
671176	IA 92/A AVE W & GATEWAY DR & CORNERSTONE DR	**2**	4	4	10,800	150	Yes	0	2	6	12	15	35	27	8	Signalized
671571	IA 92/A AVE W & N L ST	**3**	4	4	13,600	2,920	Yes	0	1	4	6	40	51	47	3	Signalized
350295	US 63/ N Market St. & IA 92/A Ave. W/A Ave. E	**4**	4	4	13,600	7,700	Yes	0	0	5	25	71	101	80	15	Signalized
350555	IA 92/A Ave. E & IA 23/17th St.	**5**	3	3	9,100	4,360	Yes	1	0	1	3	16	21	18	0	Signalized
671202	IA 92/A AVE E & N 11TH ST	**6**	4	4	10,600	3,650	Yes	0	0	3	6	22	31	26	2	Signalized
671126	US 63/N MARKET ST & 1ST AVE W & 1ST AVE E	**7**	4	4	7,400	2,882	Yes	0	1	1	1	7	10	5	1	Signalized
671190	IA 92/A AVE E & N 1ST ST	**8**	4	4	11,100	1,520	Yes	0	0	2	2	12	16	15	1	Signalized
671193	IA 92/A AVE E & N 3RD ST	**9**	4	4	11,100	1,390	Yes	0	0	0	7	12	19	13	1	Signalized
671170	IA 23/17TH ST & 3RD AVE E*	**10**	4	4	4,360	1,100	Yes	0	0	1	1	1	3	1	0	Signalized
671446	US 63/N MARKET ST & 2ND AVE W & 2ND AVE E	**11**	4	4	7,400	3,195	Yes	0	0	0	3	3	6	5	0	Signalized
350293	US 63/S MARKET ST/N MARKET ST & HIGH AVE W & HIGH AVE E	**12**	4	4	7,400	3,200	Yes	0	0	0	1	5	6	6	0	Signalized
350297	US 63/N MARKET ST & C AVE W & C AVE E	**Future Signalized**	-	4	7,700	-	-	0	0	3	2	16	21	19	3	Two-way stop
671114	US 63/S MARKET ST & 15TH AVE E	**Future Signalized**	-	3	7,800	-	-	0	0	3	4	15	22	17	2	One-way stop

** This intersection is now stop-controlled.*