FEBRUARY 2025

CITY OF BEATRICE

Safe Streets & Roads for All (SS4A)

SAFETY ACTION PLAN

BEATRICE
STAKE YOUR CLAIM

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EXECUTIVE SUMMARY

On March 3, 2025, the City of Beatrice adopted the Safety Action Plan as a commitment to achieving zero roadway fatalities and serious injuries within Beatrice by December 31, 2032. The City was awarded funding from the Federal Highway Administration from the Safe Streets and Roads for All Grant Program for the purpose of developing this city-wide Safety Action Plan. With this adoption, the Beatrice Mayor and City Council commit to responding to the current crisis by taking substantial and comprehensive action to reduce serious and fatal injuries on community roadways.

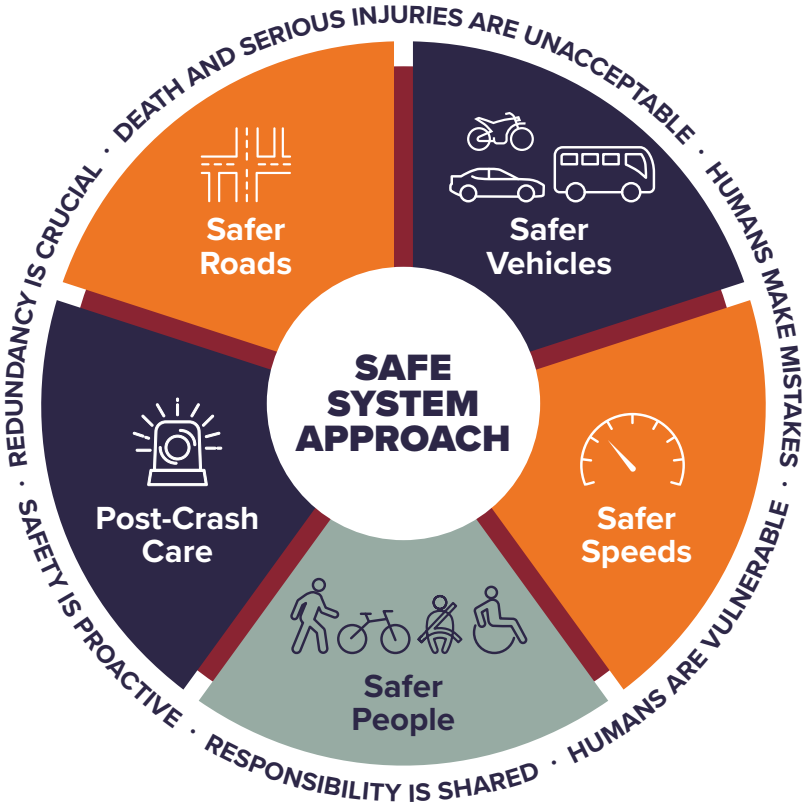
The City of Beatrice, Nebraska, is committed to creating a safe and equitable transportation network for all residents, workers, and visitors. In alignment with the U.S. Department of Transportation's (USDOT) Safe Streets and Roads for All (SS4A) initiative, this Safety Action Plan identifies the most critical transportation safety issues in the community and lays out a pathway toward reducing related injuries and fatalities that occur on the transportation system.

Community Engagement and Equity

Engagement with project stakeholders, community members, and local agencies was essential to developing a shared vision for Beatrice's transportation network. From public meetings, focus group discussions, and online surveys, residents were encouraged to voice concerns and contribute to solutions. The plan prioritizes equitable investments, focusing on improvements that will serve all users—including pedestrians, cyclists, transit riders, older adults, and people with disabilities—so that everyone in Beatrice can travel safely.

Embracing the Safe System Approach

The SS4A Action Plan is guided by the Safe System Approach, which recognizes that people make mistakes and that human bodies are vulnerable to crash impacts. By designing a transportation system where mistakes are less likely to result in serious injury or death, the City of Beatrice seeks to create a culture of safety. The Safe System Approach is built around five key elements:



Five Key Elements of the Safe System Approach

1	2	3	4	5
Safer Road Users (People)	**Safer Speeds**	**Safer Vehicles**	**Safer Roads (Infrastructure)**	**Post-Crash Care**
Fostering responsible behavior through community education and awareness campaigns.	Managing travel speeds in a way that aligns with the context of each street and enforcing speed limits and employing traffic-calming measures in critical areas.	Encouraging safety technologies (e.g., advanced driver-assist features) and proper vehicle maintenance.	Designing and redesigning corridors to be more forgiving, with protected facilities and enhanced intersections, including improved signage, markings, lighting and other elements that reduce conflicts and increase visibility.	Working with local emergency services to ensure rapid response and high-quality care at crash scenes.

A Data-Driven Approach

Through a comprehensive review of crash data, street characteristics, and user behavior, the plan highlights key risk areas and traffic safety trends. Insights from crash analysis revealed the locations and underlying factors contributing to severe injuries and fatalities. These findings inform targeted solutions—such as enhanced intersections, corridor redesigns, and improvements to vulnerable road user (VRU) facilities (pedestrian and bicyclist) to ensure the most significant impact on safety outcomes.

In addition to those five key elements, the Safe Systems Approach is also characterized by several core principles as described below.

Core Principles of the Safe System Approach

1 Death and Serious Injuries are Unacceptable	Transportation systems must aspire to eliminate catastrophic outcomes.
2 Humans Make Mistakes	Recognizing human error leads to more forgiving street designs and interventions.
3 Humans Are Vulnerable	Reducing high-impact crashes and creating safer conditions protect all users.
4 Responsibility is Shared	Engineers, policymakers, local businesses, enforcement, and the public all play a role.
5 Safety is Proactive	Predicting and preventing risks rather than reacting post-incident.
6 Redundancy is Crucial	Layering safety measures ensures multiple lines of defense.

Key Categories

As part of the Safety Action Plan, several recommendations were developed to improve safety on the Beatrice transportation system. These various recommendations were considered within the plan to help address key categories of safety enhancements.

Intersection Safety Enhancements	Upgraded signals, improved geometry, change in traffic control type, high-visibility crosswalks, and redesigned junctions to reduce conflict points and ensure safer pedestrian crossings, were all inclusive types of intersection recommendations developed.
Speed Management	Street design features aimed at bringing speeds into safer ranges, particularly in neighborhoods and school zones, and also the use of road diets on major routes to smooth traffic flow and eliminate conflicts.
Pedestrian and Bicycle Improvements	Filling sidewalk gaps, adding accessible curb ramps, and implementing curb bulbouts to shorten crossing distances all help to bolster non-motorized travel safety. Improvements to Beatrice's trails network to improve accessibility, safety, and use for pedestrians and bicyclists is a top priority of this plan.
Other Programs and Policies	Identification of other potential programs and/or policies for Beatrice can help address non-location-specific safety issues across the City. The implementation of such items as an annual Safety Communications Campaign, targeted speed enforcement, property owner sidewalk improvement programs, and continuation of sound land use planning in coordination with access management plans were also highlighted and are beneficial in enhancing transportation safety.

Location-Specific Recommendations

Through all of the data driven analysis and coordination with project stakeholders and public outreach, several location-specific recommendations were developed for transportation facilities across the City of Beatrice. As part of the analysis, locations of identified safety issues were ranked and prioritized based upon numerous crash and geographic characteristics. This included historically disadvantaged community areas, as identified in census tracts, to highlight opportunities for transportation equity. The detailed recommendations developed across the City were further summarized into specific intersection and spot locations, and also within overall street segments. This helped provide a picture of where the City can prioritize resources in the future as other projects come about near individual safety locations and along several block long corridors. These prioritized project lists are illustrated in detail in Chapter 6 - Recommendations.

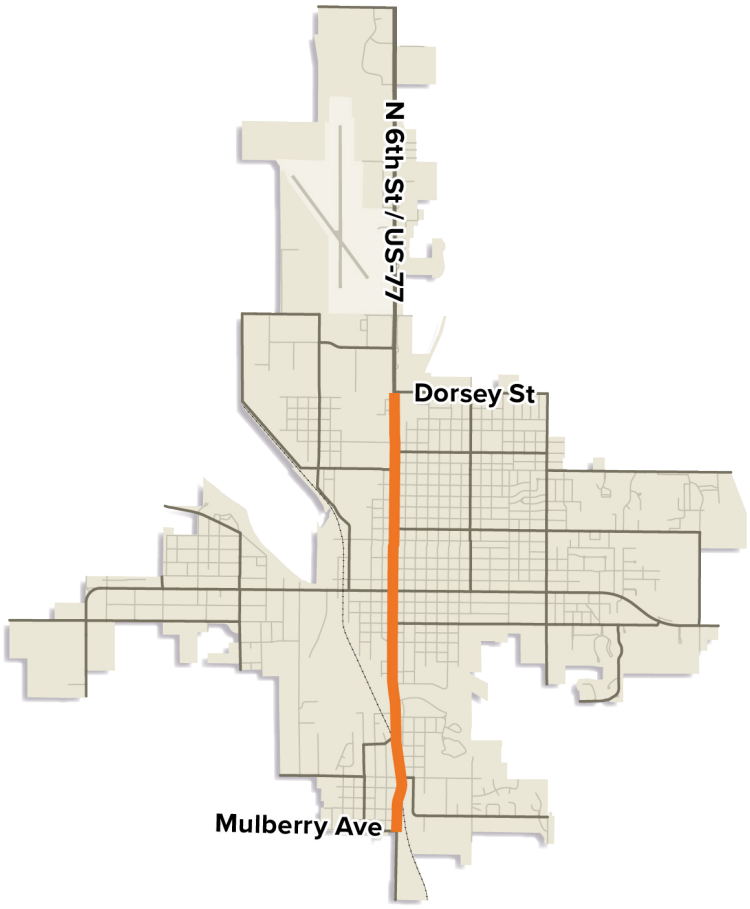
Overarching, Prioritized Recommendations

Based upon the compilation of all the data and recommendations, stakeholder feedback, and project discussions related to "making the biggest impact to reduce severe crashes", three overarching recommendations were developed that include prioritized groups of individual projects along strategic corridors in Beatrice. By implementing these overall corridor projects, several of the top safety issues at individual locations across the City could be mitigated. A brief summary of these project locations is included to the right and detailed project information is included in Chapter 6 - Recommendations.

Prioritized Project Group #1

6th Street (US-77), Mulberry Avenue to Dorsey Street

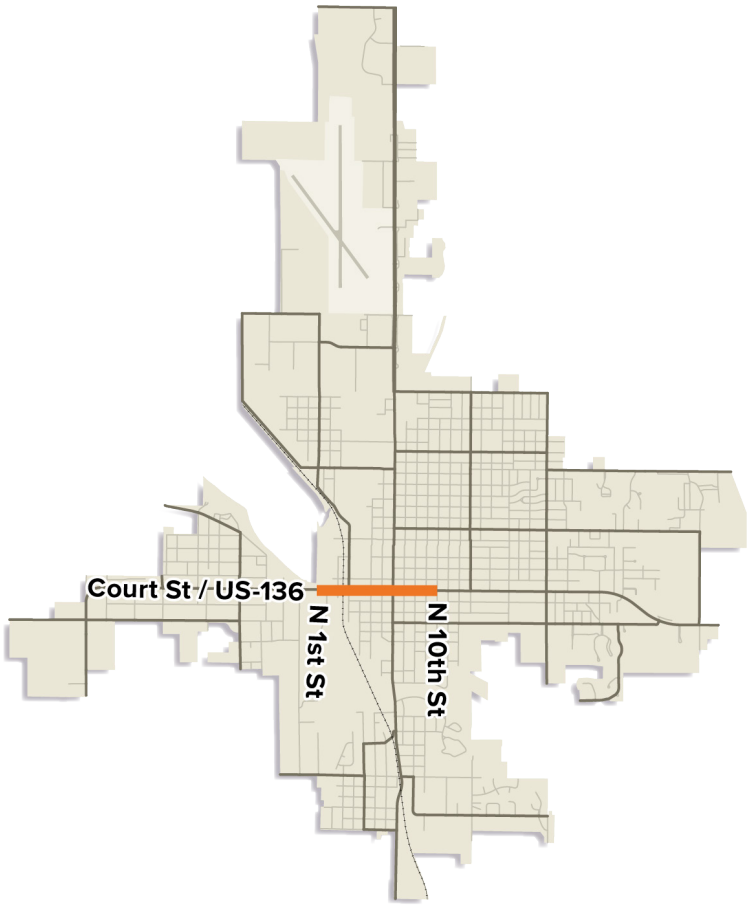
This large-scale project will address safety issues at numerous locations along the City's primary north/ south arterial route. Beginning at Mulberry Avenue on the south, and running north to the Dorsey Street intersection, this project will convert a four-lane undivided street section to a three-lane urban street with a center two-way left-turn lane. The project will dramatically improve vehicle conflicts and weaving issues and includes 9 of the top 20 priority intersection crash locations in the City. In addition, new sidewalks with improved separation and crossing capabilities are included.



Prioritized Project Group #2

Court Street (US-136), 1st Street to 10th Street

This project will address safety issues at numerous downtown intersection locations, including 5 of the top 20 high crash intersections in the City. In addition, this project will leverage the current $21.4 million dollar RAISE grant funding already received, to help relocate trucks out of the downtown and implement multi-modal solutions and roundabouts for improved safety and operations.



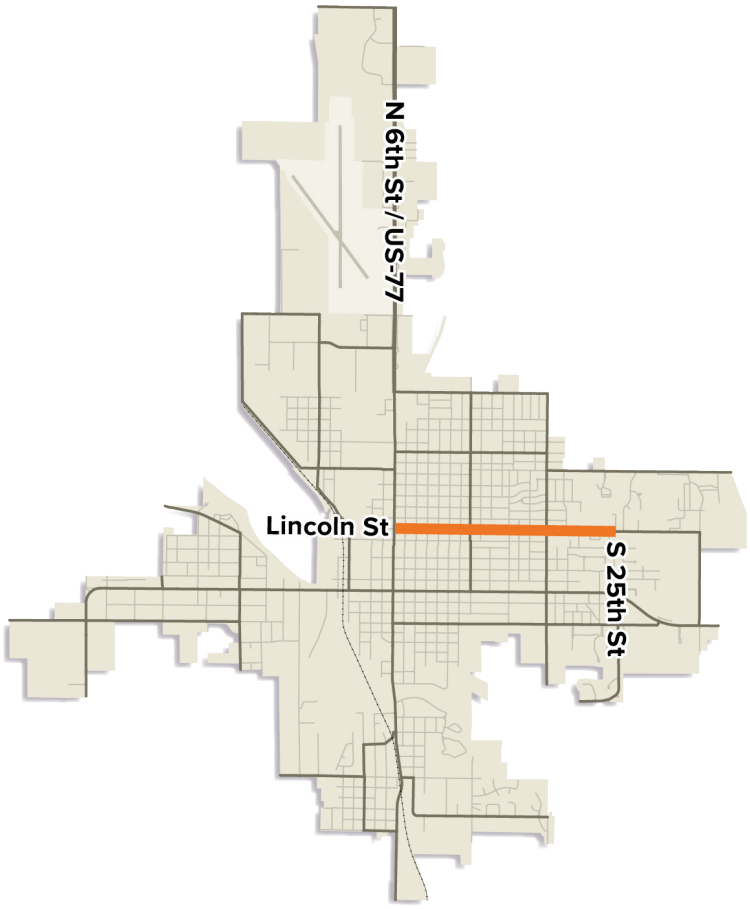
Implementation and Next Steps

As a living document, the Safety Action Plan outlines likely near term, and long-term strategies that work together to improve transportation safety. Regular progress reports, coupled with ongoing data analysis, will guide mid-course adjustments to ensure the plan remains relevant and effective. By integrating safety goals into everyday planning and decision-making, Beatrice will continue to build a culture of safe mobility for everyone.

Prioritized Project Group #3

Lincoln Street, 6th Street (US-77) to 25th Street

This project will address safety issues at 3 of the top 20 high crash intersections in the City in addition to improving alignment and conflicts at the 6th Street traffic signalized intersection. In addition, this project will improve multi-modal safety and operations by implementing planned corridor improvements (2-lane urban street), pedestrian crossing provisions and new sidewalk and trails infrastructure leading to new school facilities in the City.



Our Collective Responsibility

Everyone has a role to play in ensuring safer streets—public officials, street facility designers, law enforcement, drivers, cyclists, and pedestrians alike. This plan is the City's commitment to prioritizing health, safety, and quality of life on our streets. By working together and diligently following through on the recommendations, the City of Beatrice will move closer to the shared vision of eliminating fatal and serious injury crashes and creating a welcoming environment where all transportation users can thrive.

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CHAPTER 1

PLAN PURPOSE

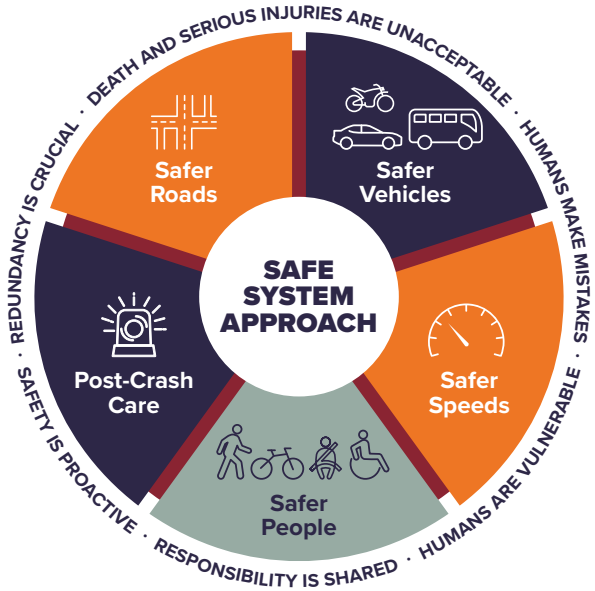
PLAN PURPOSE

WHAT IS A SAFE STREETS AND ROADS FOR ALL (SS4A) - SAFETY ACTION PLAN?

The U.S. Department of Transportation (USDOT) established the SS4A discretionary program in 2022 with $5 billion appropriated over the next five years (2022-2026). The City of Beatrice (City) successfully obtained SS4A grant dollars in fall 2023 and officially kicked off the project in January 2024.

The Beatrice Safety Action Plan is the City's road map to provide safe streets and roads for all people and road users. The purpose of this plan is to establish and implement steps that can help the City reach zero fatal and serious injury crashes in the community's transportation network. To achieve this, City leaders have committed to a goal of reaching zero fatal and serious injury crashes in Beatrice.

The final Safety Action Plan includes community-wide safety analysis, public engagement to identify safety concerns, an equity analysis of disproportionately impacted populations, project recommendations, and an implementation plan that prioritizes locations for deployment of safety countermeasures. This plan was developed by JEO Consulting Group and funded through a grant obtained by the City of Beatrice from the USDOT SS4A Program.



Project Timeline

Jan	Feb	Mar	Apr	May	Jun	Jul
• Project Kick-Off Meeting with Advisory Team		• Advisory Team Meeting • Crash Data Analysis	• Public Open House Meeting • Advisory Team Meeting		• Focus Group Conversations • Advisory Team Meeting	• Advisory Team Meeting

Aug	Sep	Oct	Nov	Dec	Jan
• Advisory Team Meeting	• Draft Implementation Plan • Advisory Team Meeting	• Public Open House Meeting • Advisory Team Meeting	• Advisory Team Meeting	• Develop Draft Action Plan	• Present Final Plan to City Council

Principles of a Safe System Approach

The Safe System Approach is the foundation that will support the City in achieving its goal of reaching zero fatal and serious injury crashes within Beatrice's transportation network. As part of its National Roadway Safety Strategy released in January 2022, USDOT adopted the Safe System Approach as its guiding paradigm to address roadway safety challenges nationwide. This approach acknowledges both human mistakes and human vulnerability and is designed to protect all roadway users.

The Safe System Approach is built around the following six principles.

Core Principles of the Safe System Approach

1 Death and Serious Injuries are Unacceptable	Transportation systems must aspire to eliminate catastrophic outcomes.
2 Humans Make Mistakes	Recognizing human error leads to more forgiving street designs and interventions.
3 Humans Are Vulnerable	Reducing high-impact crashes and creating safer conditions protect all users.
4 Responsibility is Shared	Engineers, policymakers, local businesses, enforcement, and the public all play a role.
5 Safety is Proactive	Predicting and preventing risks rather than reacting post-incident.
6 Redundancy is Crucial	Layering safety measures ensures multiple lines of defense.

Objectives of a Safe System Approach

There are five objectives of a Safe System Approach: safer road users (people), safer roads, safer vehicles, safer speeds, and post-crash care. To achieve zero fatal and serious injury crashes, all five of these objectives must be strengthened. Strengthening all objectives allows for redundant layers of protection against fatal and serious injuries on the roadway.
The City of Beatrice Safety Action Plan was developed to strengthen the five Safe System objectives defined below by the National Roadway Strategy.

Safer People

Encourage safe, responsible driving and behavior by people who use Beatrice's roads and create conditions that prioritize their ability to reach their destination unharmed.

Safer Roads

Design roadway environments in Beatrice to mitigate human mistakes and account for injury tolerances, to encourage safer behaviors, and to facilitate safe travel by the most vulnerable users in the community.

Safer Vehicles

Expand Beatrice's availability of vehicle systems and features that help to prevent crashes and minimize the impact of crashes on both occupants and non-occupants.

Safer Speeds

Promote safer speeds on all Beatrice streets through a combination of thoughtful, equitable, context-appropriate roadway design, appropriate speed-limit setting, targeted education, outreach campaigns, and enforcement.

Post-Crash Care

Enhance the survivability of crashes through expedient access to emergency medical care, while creating a safe working environment for vital first responders and preventing secondary crashes through robust traffic incident management practices.

THE NEED FOR SAFER STREETS

A total of 42,939 people died in motor vehicle crashes across the United States in 2021. These deaths occurred in 39,508 crashes involving 61,332 motor vehicles. This was a 10% increase in deaths compared with 2020, according to the Insurance Institute for Highway Safety (IIHS) and the Highway Loss Data Institute (HLDI). Traffic crashes continue to be a leading cause of death for teenagers in America, and disproportionately impact people who are Black, American Indian, or live in rural communities.

At the beginning of 2024, the City initiated the development of a SS4A Safety Action Plan for the community of Beatrice. This project aimed to develop a safety action plan that will help to eliminate fatal crashes and dramatically reduce severe injury crashes for all users of Beatrice's highway, street, sidewalk, and trail transportation network.

The outcome of this plan will provide an overview of the following:

- Historical crash data for the City of Beatrice
- Development of applicable countermeasures
- Equitable transportation access and use solutions
- Focused pedestrian/bicycle improvements

39,508 Crashes

42,939 Deaths

10% Increase in Deaths

Data from 2021. Insurance Institute for Highway Safety (IIHS) and the Highway Loss Data Institute (HLDI)

BEATRICE SS4A ADVISORY TEAM

To guide the development of these outcomes, an Advisory Team made of community stakeholders was established early on in the planning process. This group met regularly throughout the project and provided their guidance, feedback, and solutions for existing safety concerns experienced in Beatrice's transportation system.

Advisory Team Members

Tobias Tempelmeyer
City Administrator
City of Beatrice

James Burroughs
City Engineer
City of Beatrice

Brian Carver
Sergeant
Beatrice Police Department

Dr. Jackie Nielsen
Assistant Superintendent
Beatrice Public Schools

Mike McLain
City Council Member
City of Beatrice

Jessica Javorsky
Strategic Initiatives Grant Specialist
State of Nebraska

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CHAPTER 2

SAFETY & EQUITY ANALYSIS

SAFETY & EQUITY ANALYSIS

The Safety & Equity Analysis of this overall plan presents a comprehensive analysis of crash data, including traffic volume, roadway information, impact to historically disadvantaged populations, and multi-modal transportation types, for the City of Beatrice, spanning the most recent ten-year period (2011-2020). By examining historical crash data, the study team identified critical safety issues, discerned trends and patterns, and aimed to understand the underlying causes of transportation-related incidents throughout the City. This data-driven approach informed the development of targeted strategies and interventions to enhance overall roadway safety and reduce the incidence of traffic-related fatalities and severe injuries within Beatrice's street, sidewalk, and trails network.

BEATRICE CRASH ANALYSIS

In development of this plan, several maps were created that visually represent all recorded crashes in Beatrice over the past ten years. These maps serve as a foundational tool to illustrate the geographic distribution and frequency of crashes, providing clear visual context for known safety issues and concerns in the community.

The following figures and respective summaries will delve deeper into the specifics of fatal and severe injury (KSI) crashes, ultimately shedding light on the most critical areas of concern and guiding the City's efforts to create a safer transportation environment for all residents and visitors.

The crash data used in this analysis was provided by the NDOT and represents the period from January 1, 2011, to December 31, 2020. During this time, a total of **2,231 crashes** were reported within the City limits of Beatrice. Of these, **41 crashes** involved a **vulnerable road user (VRU) which is defined as anyone who walks, bikes or rolls across the transportation network as a pedestrian.** The locations of these 2,231 crashes are depicted in *Figure 1.*

To illustrate the concentration and frequency of crashes, the map shown in *Figure 2* highlights locations within Beatrice where multiple crashes have occurred at the same locations during the 10-year reporting period defined previously.

Figure 3 presents an overview of all 41 VRU crashes.

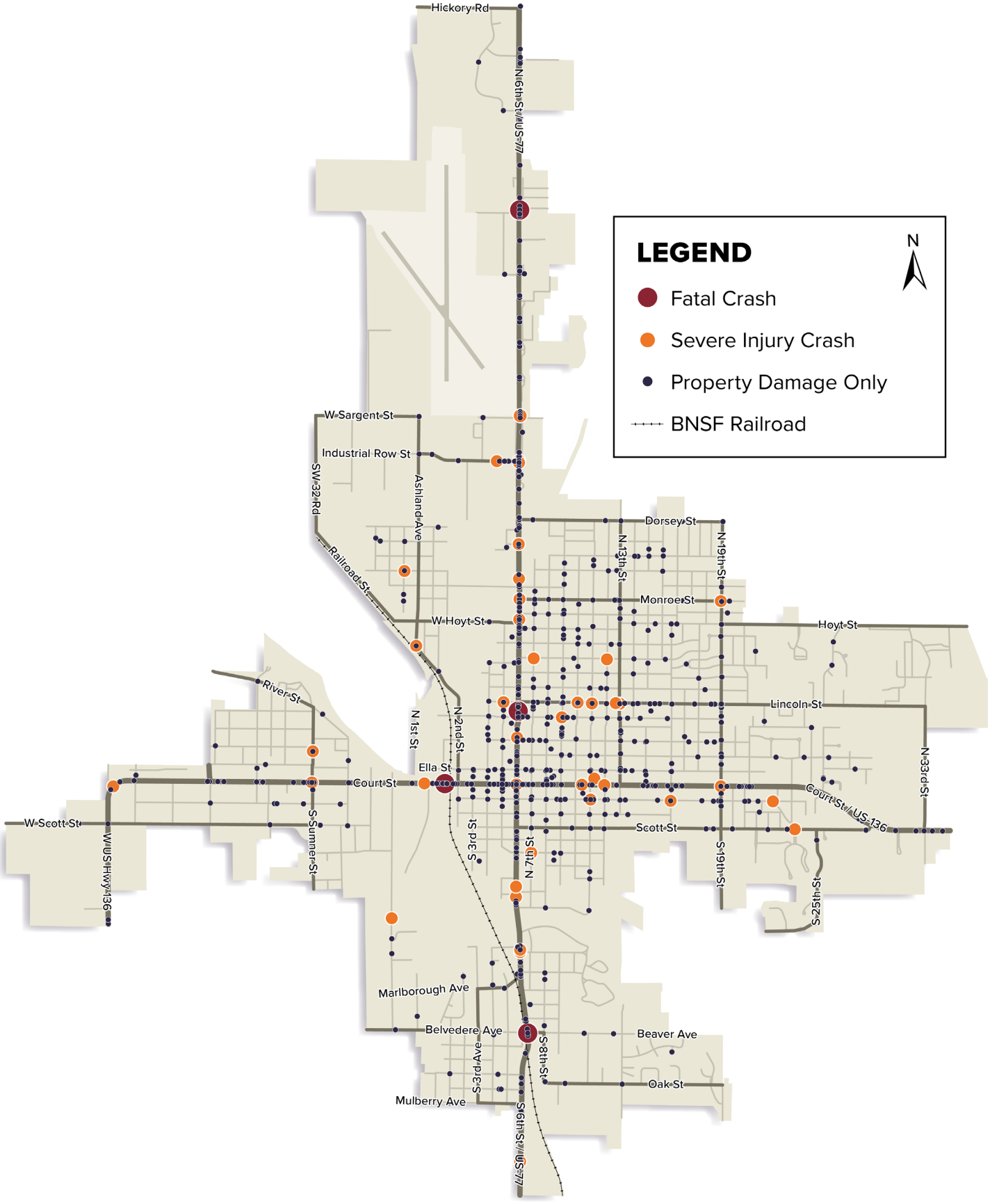

Figure 1: City of Beatrice Crashes (2011-2020)

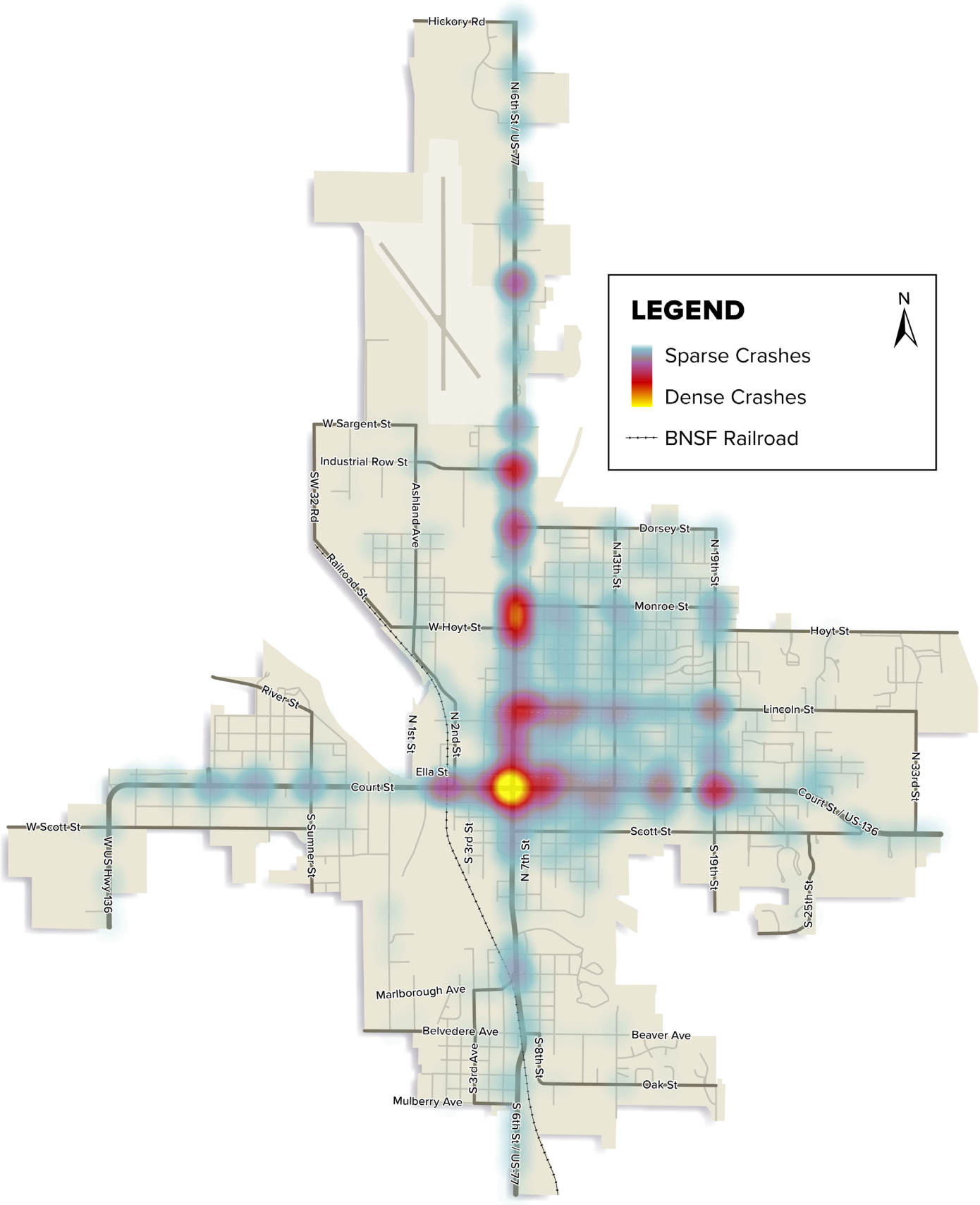

Figure 2: Concentration of Crashes (2011-2020)

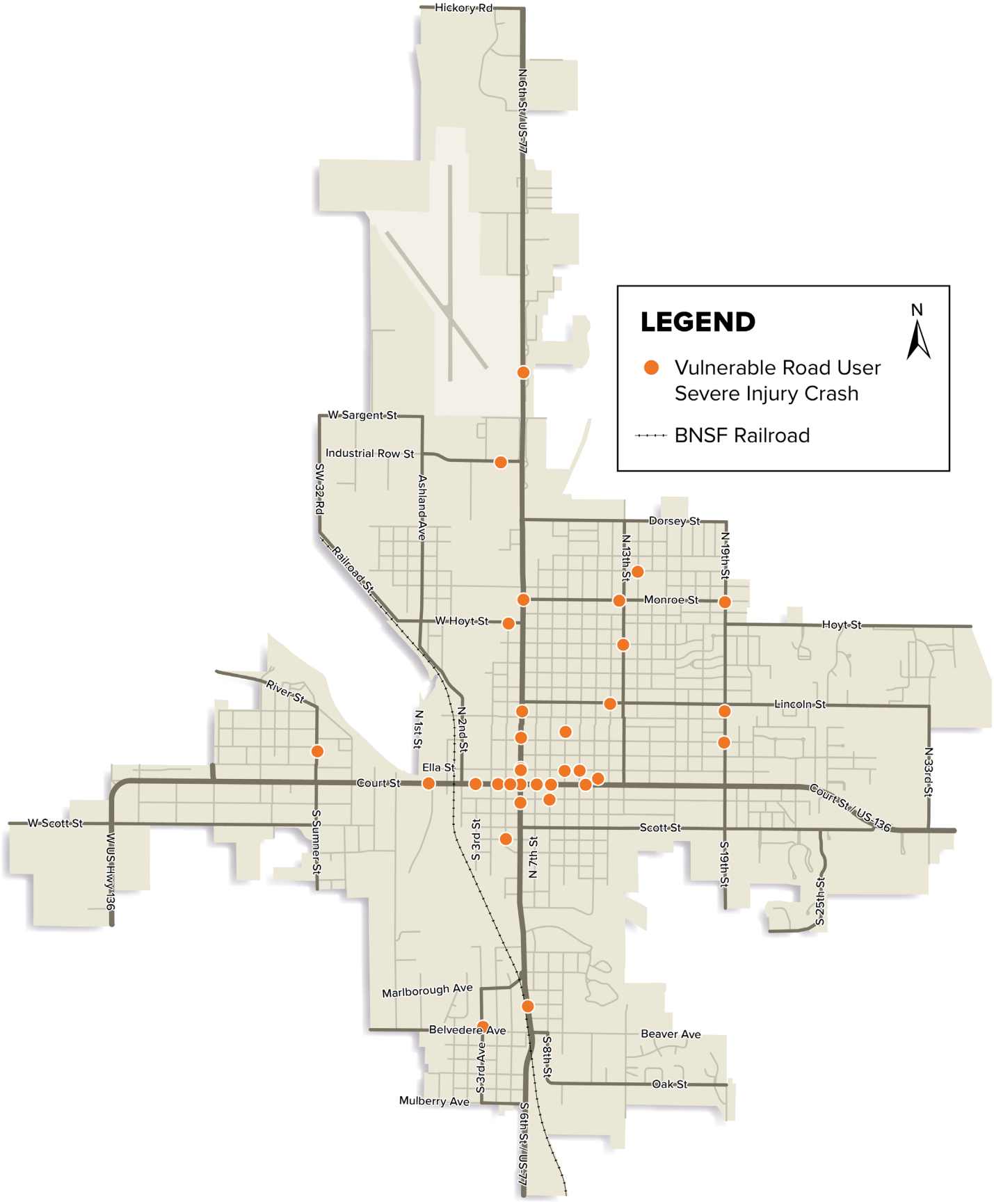

Figure 3: City of Beatrice VRU Crashes (2011-2020)

A critical part of developing the Beatrice SS4A Safety Action Plan is identifying and addressing any gaps in service, access, or use of the community's transportation system by disproportionately impacted populations. This requires an evaluation of crashes within any part of the community that satisfies the definition of disadvantaged communities which, according to the USDOT, are those that experience disproportionate adverse impacts in areas such as health, environment, climate, and economy. The areas that qualify under this definition for the City of Beatrice are highlighted in *Figures 4* and *5,* which repeat the 10-year crash data illustrated in *Figures 2* and *3.* A further description of how these areas are defined is included in the Equity Analysis section later in this chapter.

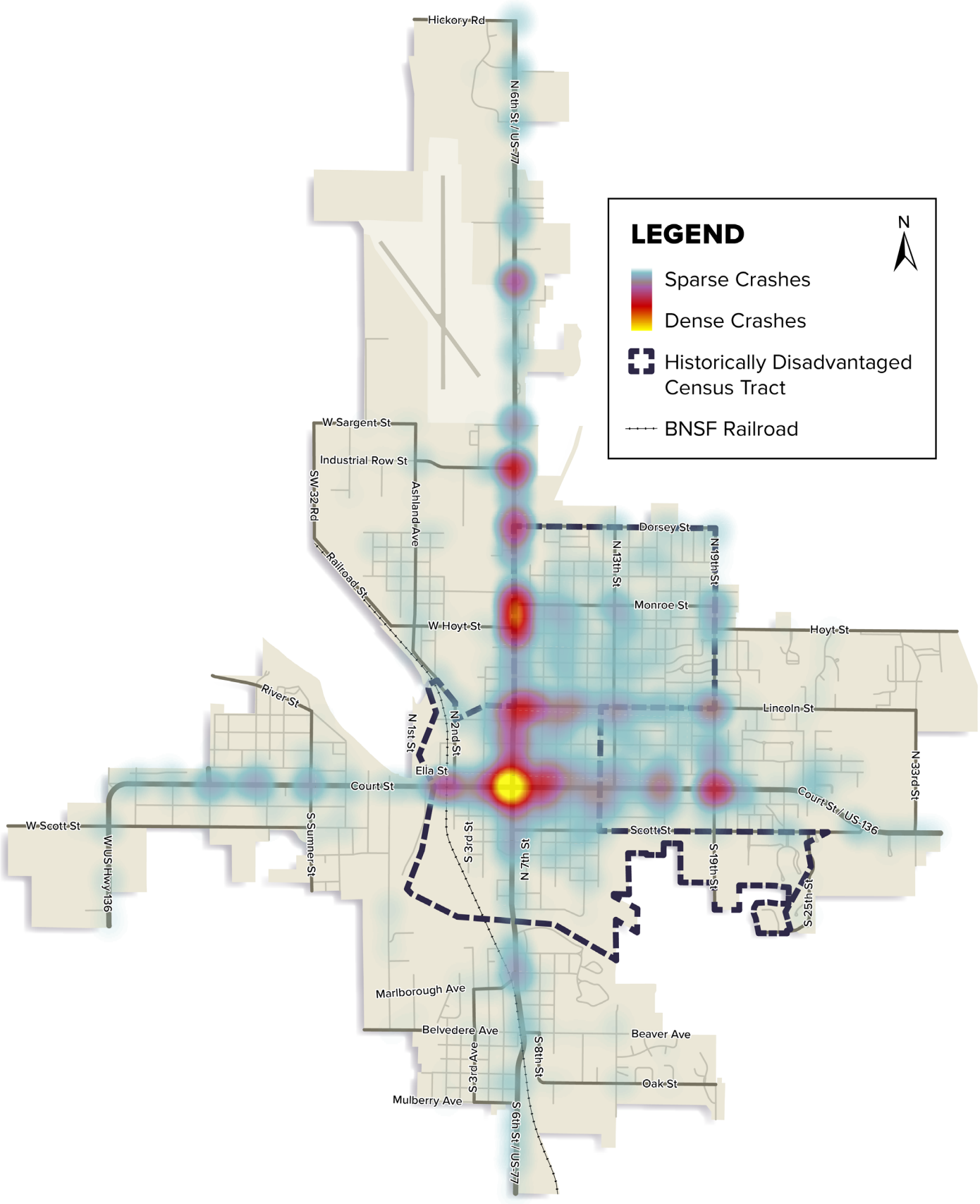

Figure 4: Concentration of Crashes (2011-2020) with Disadvantaged Tracts

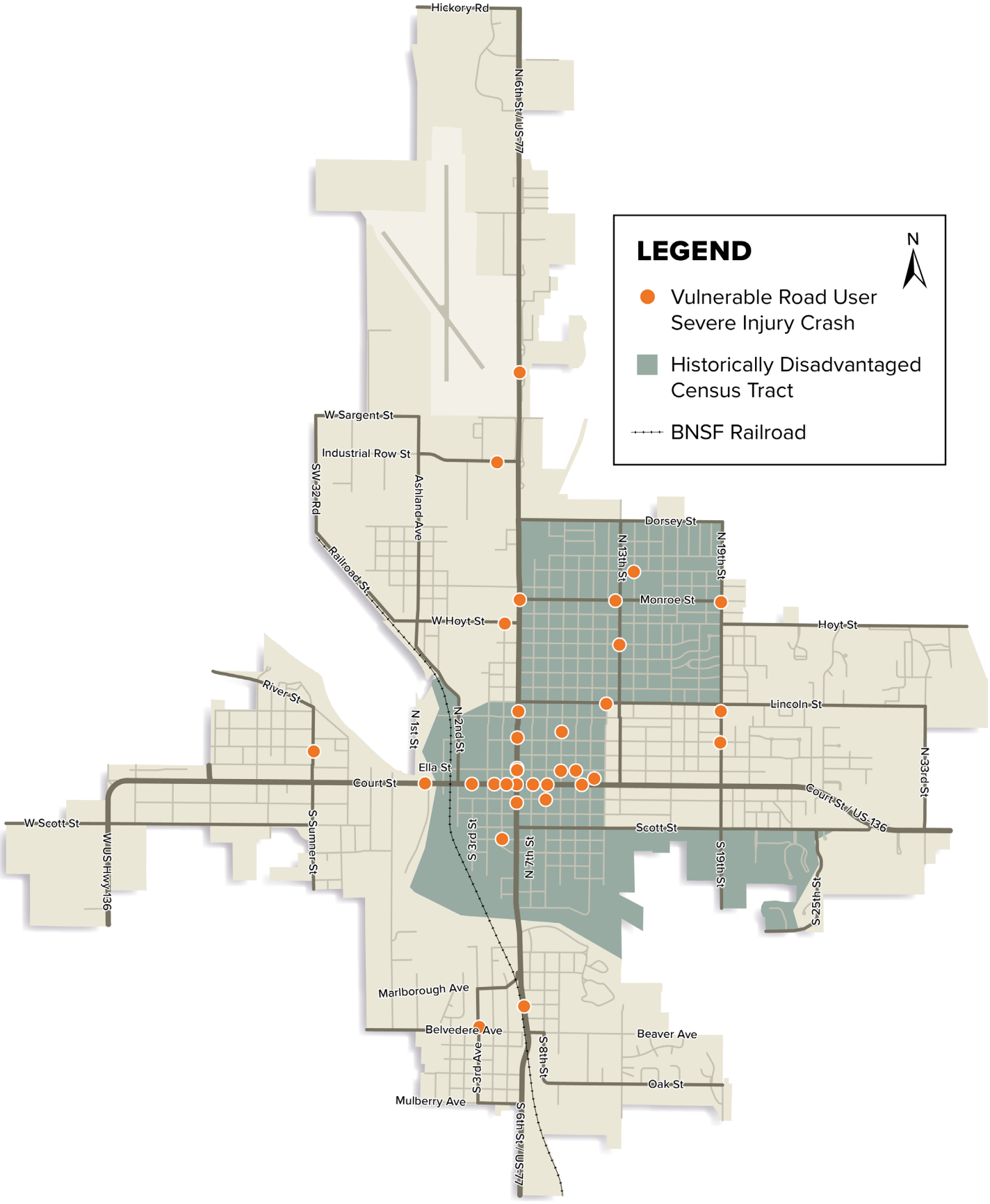

Figure 5: City of Beatrice VRU Crashes (2011-2020) with Disadvantaged Tracts

SUMMARY OF HISTORICAL CRASH DATA

In alignment with the core objectives of the Safe Streets for All initiative, this section focuses on analyzing crashes that resulted in a fatal or severe injury. The emphasis on KSI crashes is essential, as addressing these severe incidents is pivotal to improving overall safety and reducing the most tragic outcomes of traffic collisions. By scrutinizing the data related to KSI crashes, the goal is to uncover critical insights regarding the circumstances and contributing factors that lead to these severe incidents. This information will guide the formulation of targeted safety interventions and policy recommendations aimed at mitigating the risk and severity of future crashes within the City of Beatrice.

KSI Crashes

Of the 2,231 crashes reported during the 10-year period, **503 resulted in either a fatality or some level of injury** to the individuals involved. These are classified as Fatal plus Injury (FI) crashes. Of these, **46 crashes are classified as KSI crashes.** The remainder of this section provides additional insights on these KSI crashes, the locations of which are illustrated in *Figure 6.*

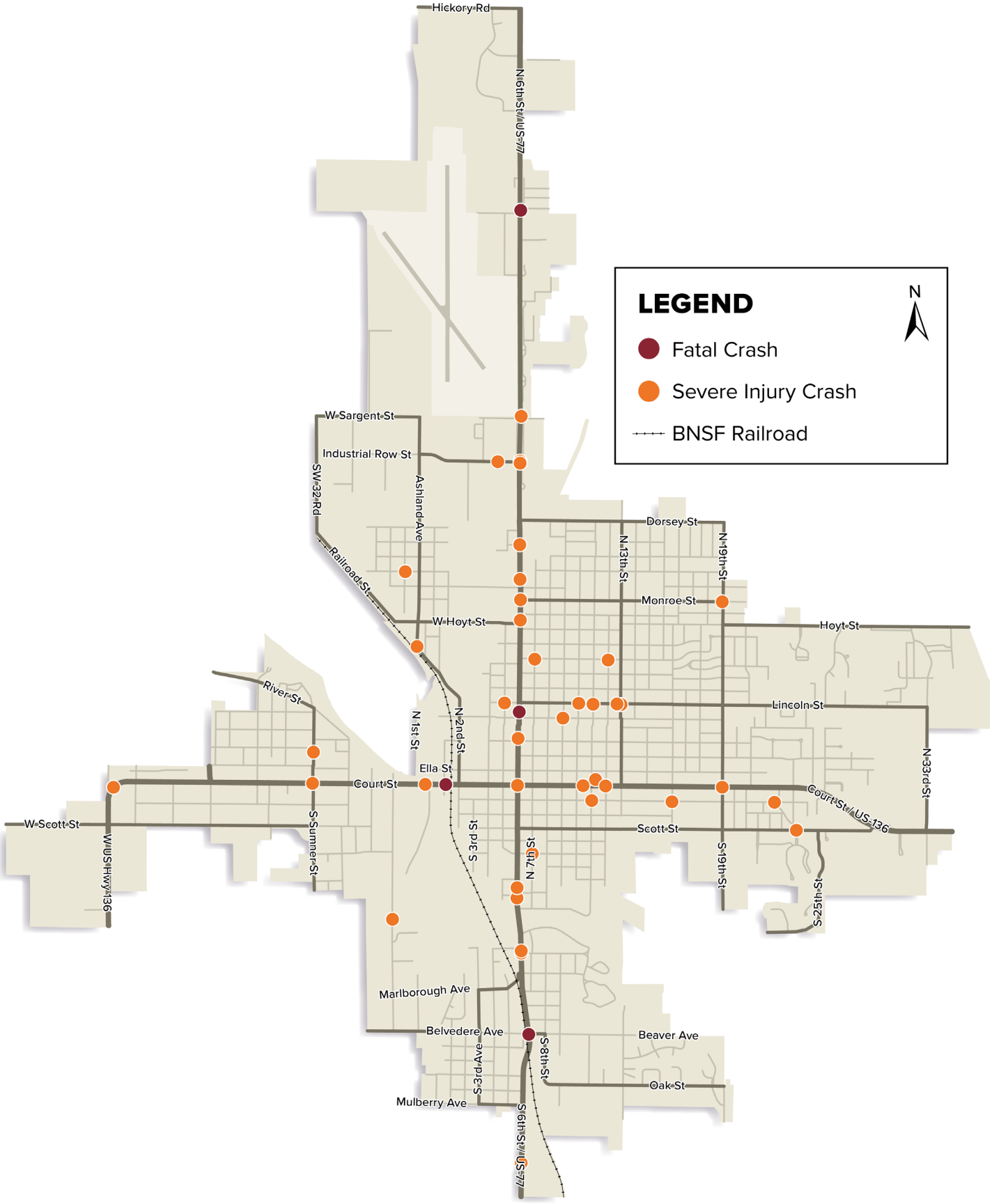

Figure 6: KSI Crashes (2011-2020)

Comparison to Similar Nebraska Cities

Figure 7 illustrates the crash trends between Beatrice and Nebraska communities of similar size (based on population). This data indicates that Beatrice is near the average KSI/100k rate among comparable cities.

As shown in *Figure 8,* the crash rate for KSI crashes in Beatrice involving alcohol is low compared to similar-sized communities in Nebraska.

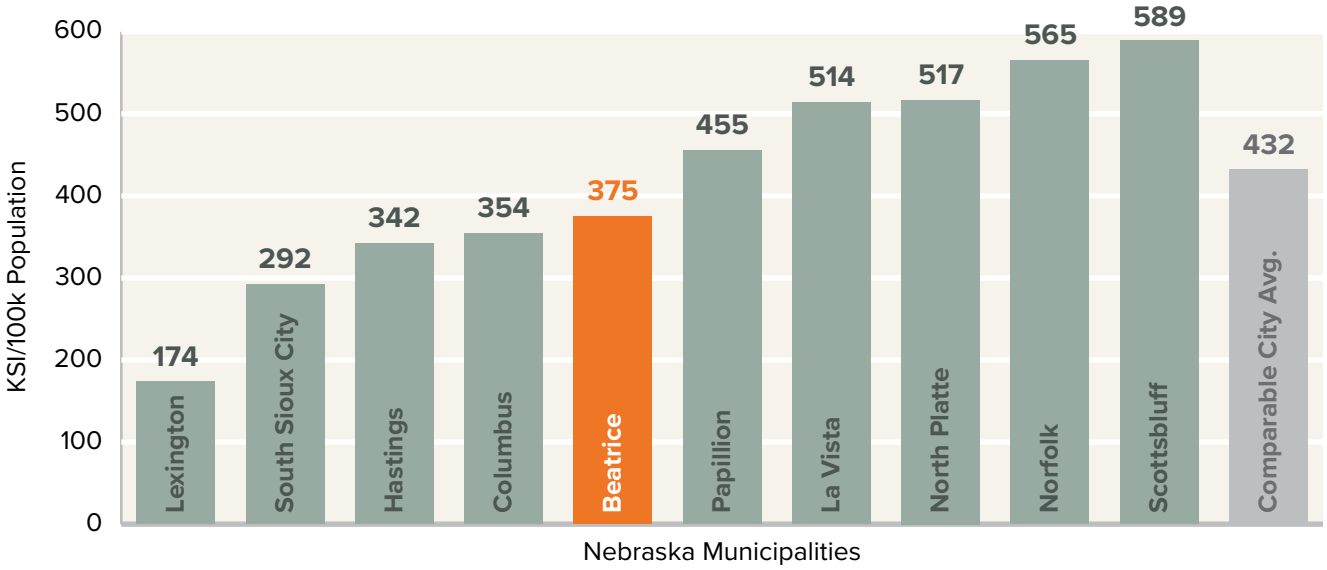

Figure 7: KSI Crashes / 100k Population (2011-2020)

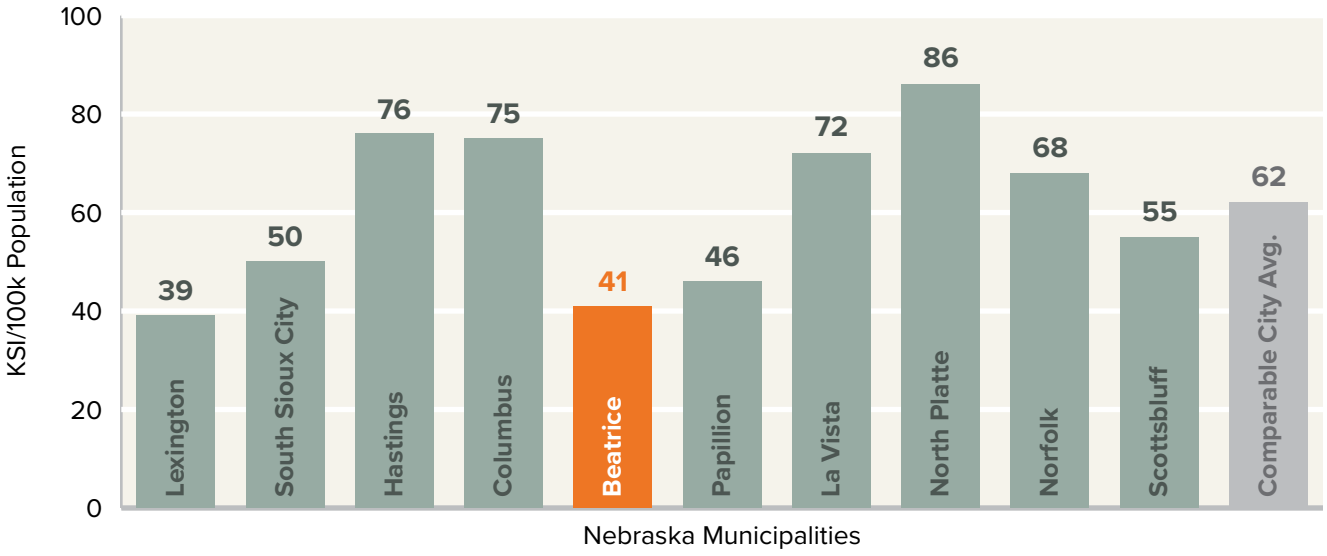

Figure 8: KSI Crashes / 100k Population Involving Alcohol (2011-2020)

As shown in *Figure 9,* the crash rate for crashes involving VRUs in Beatrice is relatively high compared to similar-sized Nebraska cities.

As shown in *Figure 10,* the crash rate per 100k population for Statewide and Comparable Cities has been on a gradually declining trend. Due to the relatively small KSI sample size for Beatrice, it is difficult to draw trends from the data. The relatively low number of KSI crashes in 2014, 2015 and 2018 were followed by relatively high crash rates in 2016, 2019, and 2020.

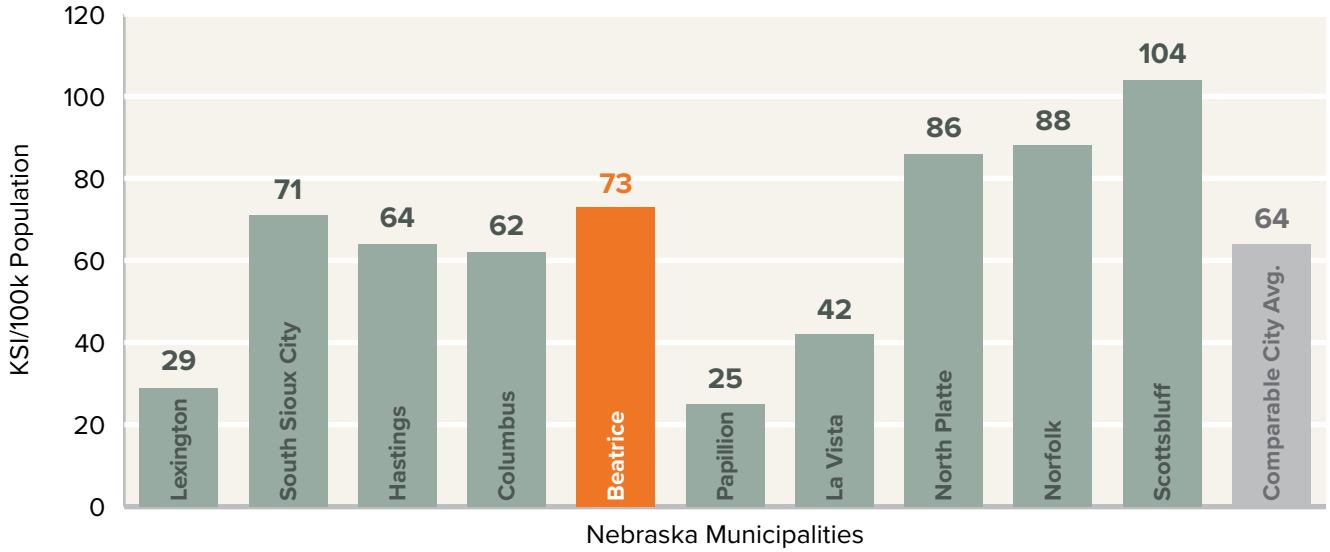

Figure 9: KSI Crashes / 100k Population (2011-2020)

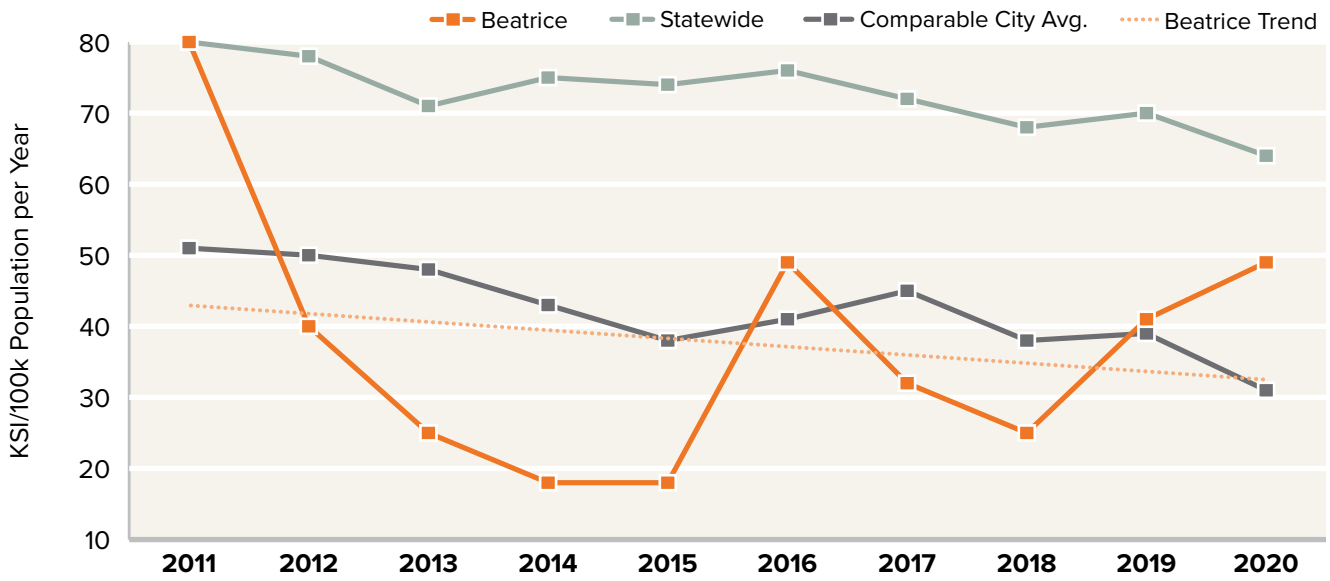

Figure 10: KSI Crashes / 100k Population Involving Alcohol (2011-2020)

Crash Data Characteristics

As shown in *Table 1,* the frequency of KSI crashes by the time of day they occurred is directly related to the times of day when traffic volumes are the greatest in the City. Indicating there is a greater chance to be involved in a KSI crash during certain times of day than others. The morning peak is under-represented for crashes relative to the number of drivers during this period. The peak crash times are mostly in the afternoon from 11:00 AM until around 8:00 PM. The most frequent crash time for all days of the week is 3-4pm. Monday is the most frequent crash day.

Table 1: KSI Crashes by Time and Day

Time	SUN	MON	TUE	WED	THU	FRI	SAT	Total
12:00 AM	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	2	2
2:00 AM	1	0	0	0	0	0	0	1
3:00 AM	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0
6:00 AM	0	1	0	0	0	0	0	1
7:00 AM	0	0	0	1	0	0	0	1
8:00 AM	0	1	0	0	0	0	1	2
9:00 AM	0	0	0	0	1	1	0	2
10:00 AM	1	0	0	0	0	1	0	2
11:00 AM	0	1	0	0	1	0	1	3
12:00 PM	0	0	0	0	0	0	0	0
1:00 PM	0	1	0	0	1	0	0	2
2:00 PM	1	0	0	0	0	0	1	2
3:00 PM	2	3	1	3	2	0	1	12
4:00 PM	0	3	0	0	1	0	0	4
5:00 PM	0	0	0	0	0	2	0	2
6:00 PM	0	0	0	1	0	0	0	1
7:00 PM	0	0	1	0	0	0	0	1
8:00 PM	0	0	2	0	0	0	0	2
9:00 PM	0	0	0	0	0	0	0	0
10:00 PM	1	0	0	0	0	0	0	1
11:00 PM	0	0	0	0	0	0	1	1
Unknown	0	0	1	2	1	0	0	4
Total	**6**	**10**	**5**	**7**	**7**	**4**	**7**	**46**

A breakdown of the 46 KSI crashes by crash type is shown in *Figure 11.* It indicates that angle crashes were the most frequent, contributing 43% of all KSI crashes. Single-vehicle crashes were the next highest frequency KSI at 37%. Additionally, there were six rear-end KSI crashes, and one KSI crash for each of the following three crash types: sideswipe in same direction (SS), left turn (LT) leaving, and head-on.

The safe system approach is a critical component of every SS4A project. The USDOT's safe system approach includes 5 objectives, which are safe roads, safe road users, safe vehicles, safe speeds, and post-crash-care. In Beatrice's crash data analysis, factors influencing crashes were categorized based on the first two objectives of the safe system approach: roadway and road users.

The factors related to the roadway include:

- Lighting Condition
- Pavement Condition
- Functional Classification
- Traffic Control
- Posted Speed

The factors related to road users include:

- Seatbelt Use
- Driver Contributing Circumstances
- Alcohol Involvement
- Driver Age Group

The following sections examine each of these factors.

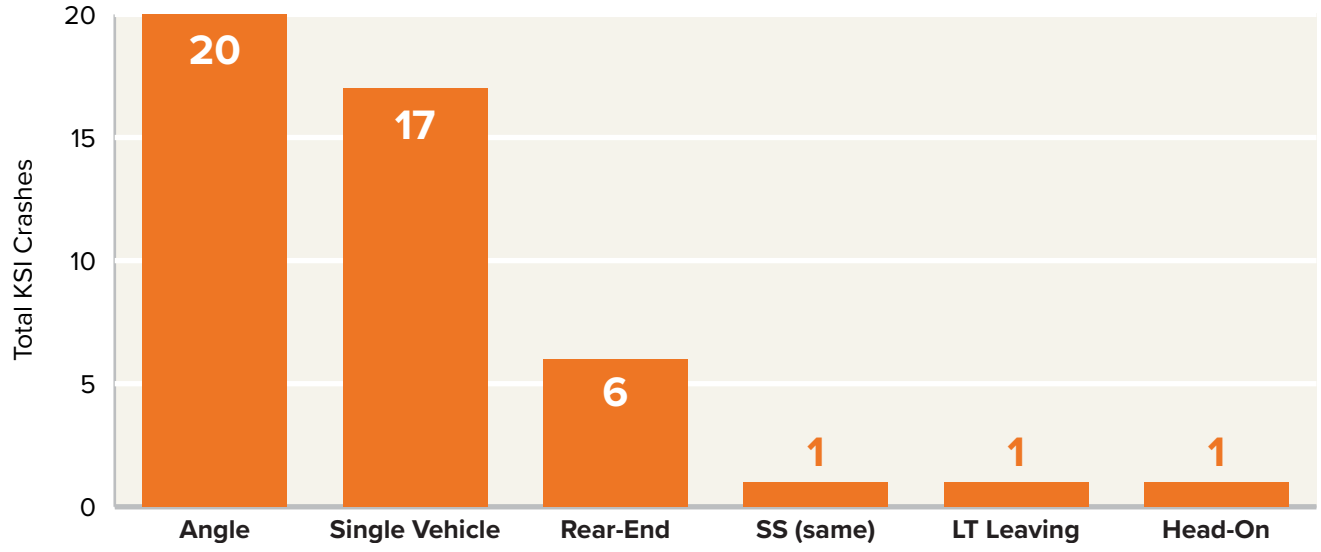

Figure 11: KSI Crashes by Type

Roadway Condition Factors

Lighting Condition

As summarized in *Table 2,* 76% of KSI crashes occurred in lighted conditions. Among the 9 VRU KSI crashes, approximately two-thirds of them occurred in reduced light conditions. This demonstrates that VRUs are at a disproportionately higher risk of being involved in a KSI crash in reduced light conditions than other roadway users.

Table 2: Crashes by Lighting Condition

Lighting Condition	All Crashes	KSI Crashes	KSI Crashes Involving VRU
Light	1,657	35	3
Dark	407	9	5
Dawn	43	0	0
Dusk	48	2	1
Other	77	0	0
Total	**2,232**	**46**	**9**

Pavement Condition

Table 3 demonstrates that approximately **87% of KSI crashes occurred during dry pavement conditions** and less than one-quarter of KSI crashes involving VRUs occurred in adverse pavement conditions.

Table 3: Crashes by Pavement Condition

Pavement Condition	All Crashes	KSI Crashes	KSI Crashes Involving VRU
Dry	1,800	40	7
Ice	56	1	0
Mud	4	0	0
Wet	188	4	1
Snow	106	1	1
Slush	18	0	0
Other	60	0	0
Total	**2,232**	**46**	**9**

For analysis of additional roadway condition factors, a Representation Ratio (RR) was utilized to further discern between certain characteristics. A representation ratio is a comparative measure used in safety analysis to determine whether a particular condition is overrepresented or underrepresented in crash data relative to its share of the overall network or traffic volume. If the ratio is greater than 1, it signals an overrepresentation of crashes; if it is less than 1, it indicates underrepresentation.

Functional Classification

RR among different roadway functional classifications are shown in *Figure 12.* The RR for KSI crashes on local streets is very low (0.30). Despite containing over 70% of the street network by mileage, approximately 20% of the total KSI crashes occur on local streets. The collector roadway classification is also under-represented (RR=0.68). Both Major Arterials and Expressways have representation ratio values greater than 6.

Traffic Control

The RR of KSI crashes by traffic control type is summarized in *Figure 13.* As illustrated, signal controlled intersections have a RR greater than 7 and two-way stop-controlled intersections have a RR less than 1. All-way stop-controlled intersections experienced no KSI crashes during the 10-year study period.

Speed

The RR of KSI crashes according to posted speed limit is illustrated in *Figure 14.* Roads with posted speeds at or below 25 mph experience the smallest RR (less than 1.0). The RR for KSI crashes on roadway segments with speeds above 45 mph is slightly greater than 1.0. However, for posted speed limits of 35 or 40 mph, the representation ratio is greater than 3.5.

For segments with speeds 45 mph and above, the KSI crash representation ratio is 1.27. This trend can be partially accounted for by the difference in access control between high-speed segments and the mid-range 35-40 mph segments. The frequent intersections and driveways make these 35-40 mph segments a risky environment for road users. Numerous conflict points exist which create a system that over-exerts the driver's ability to perceive and react to threats on time. Conversely, the 45 mph and above segments have stricter access control and fewer conflict points. Only 2 KSI crashes were reported along such segments in the whole 10-year study period.

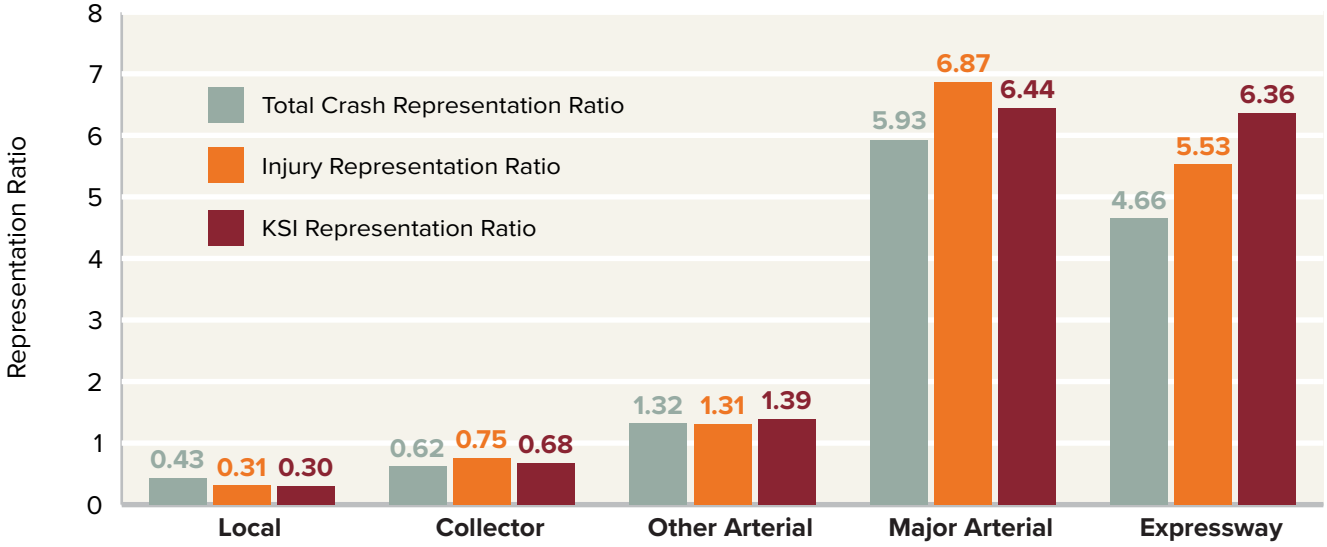

Figure 12: Representation Ratio by Functional Classification

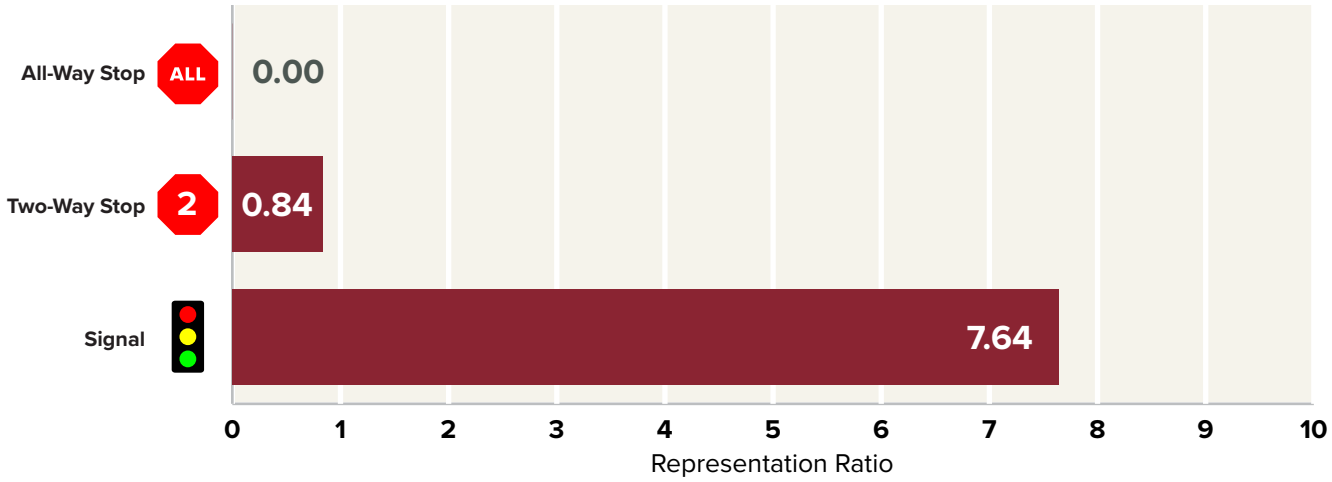

Figure 13: Representation Ratio of KSI Crashes by Traffic Control

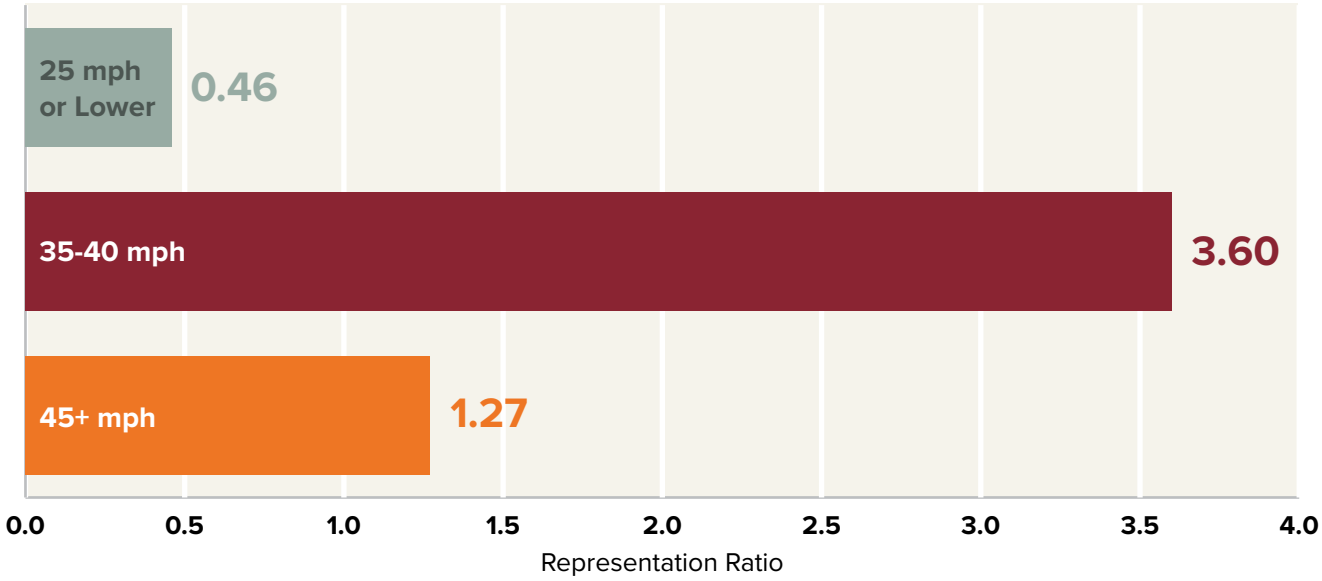

Figure 14: Representation Ratio of KSI Crashes by Posted Speed

Figure 15 shows how KSI crashes relate to traffic control and speed limit geographically.

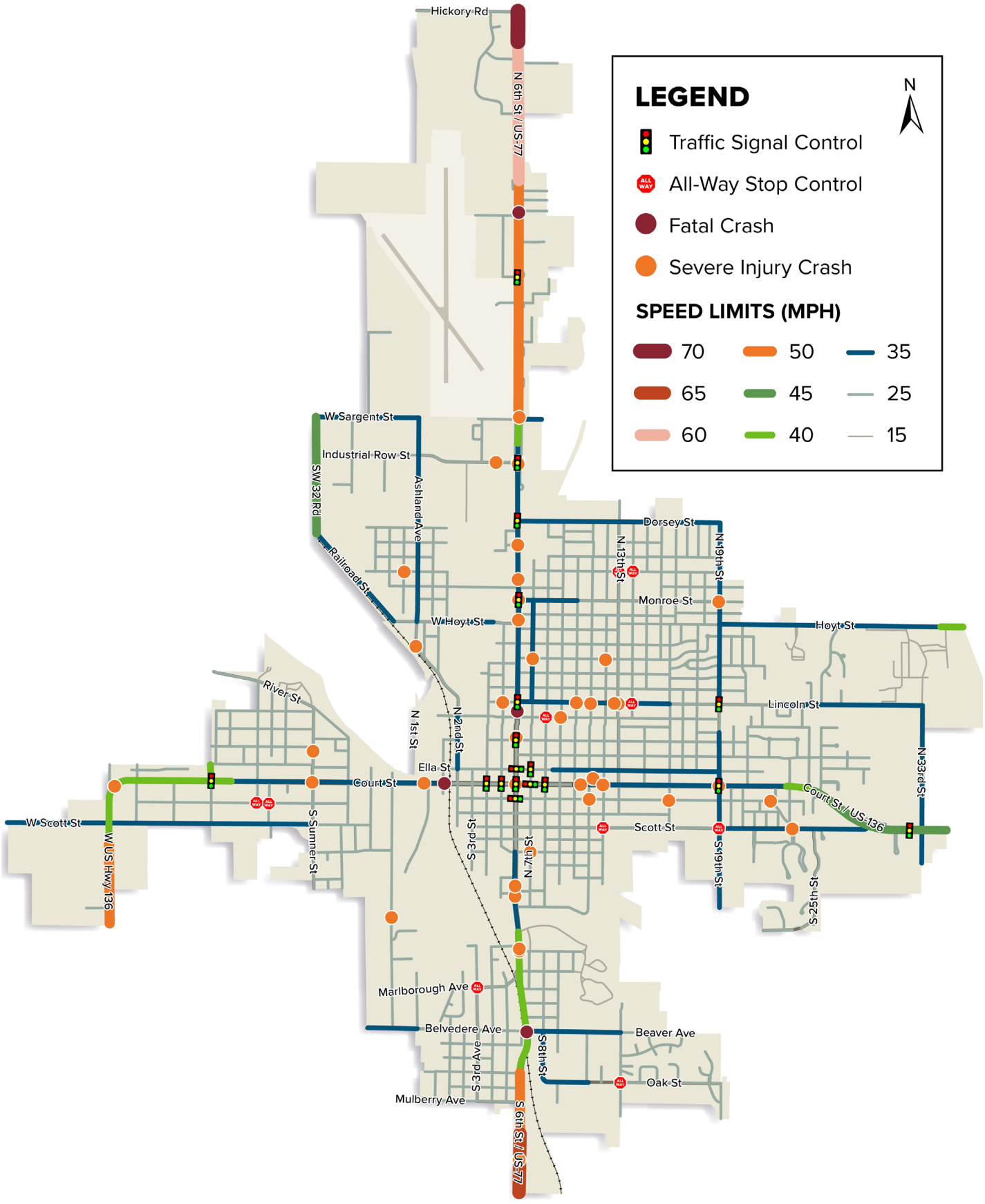

Figure 15: KSI Crashes Related to Traffic Control and Speed Limit

Roadway User Factors

Seatbelt Usage

As shown in *Figure 16,* among KSI crashes where the restraint use was known, 9 out of 21 crashes (43%) involved an unbelted user. The 2022 Nebraska statewide seatbelt survey indicated that approximately 24% of users statewide do not use seatbelts. Therefore, drivers in Beatrice deciding to not use a seatbelt place themselves at an 80% higher risk of becoming involved in a KSI crash than drivers who choose to use a seatbelt.

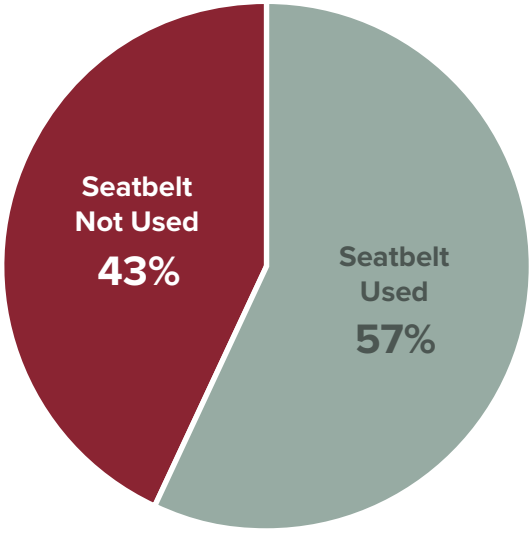

Figure 16: KSI Crashes by Seatbelt Usage

Driver Contributing Circumstances

Table 4 details the percentage of KSI crashes caused by driver contributing circumstances. In nearly 50% of all KSI crashes, the driver was not cited for any improper driving. Among the remaining crashes, driver error was determined to be the primary contributing factor cited.

Table 4: Fatalities and Injuries by Driver Contributing Circumstances

Driver Contributing Circumstances	% of FI
No improper driving	46%
Inattention/Distraction	15%
Failure to Yield	15%
Speed, Following too Closely	3%
Other	21%

Alcohol

Table 5 details the percentage of KSI crashes involving alcohol. This table indicates that an alcohol-related crash is 3-times more likely to result in a KSI crash. Likewise, crashes involving VRUs are over twice as likely to involve alcohol than the typical crash.

Table 5: Crashes Involving Alcohol

Alcohol Involved	Total	KSI	VRU
Yes	69	5	3
No	2,162	41	38
% Alcohol Involved	3%	11%	7%

Age

Figure 17 details the frequency of KSI crashes in relation to driver age. KSI crashes within the driving age range of 24 and younger are the most frequent among all age groups. The next oldest age group, 25 to 34, possesses the second-highest frequency of KSI crashes. There is a relative decline in KSI crashes among the ages 35 to 54 when drivers have greater experience and stronger driving abilities. A rise in KSI crashes is experienced among drivers aged 55 to 64 who may begin to experience declining reaction time and vision. At age 75 and older, drivers tend to drive less and are thus involved in fewer crashes than other age groups.

Vulnerable Road User Condition

There was a total of 41 crashes involving a VRU; nearly 80% of VRU FI and 66% of VRU KSI occurred in the USDOT disadvantaged tracts, which was defined under the Justice40 Initiative by USDOT. This indicates that disadvantaged tracts bear the highest burden of fatal and severe injury to people walking and biking. The VRU crashes are summarized in *Table 6.*

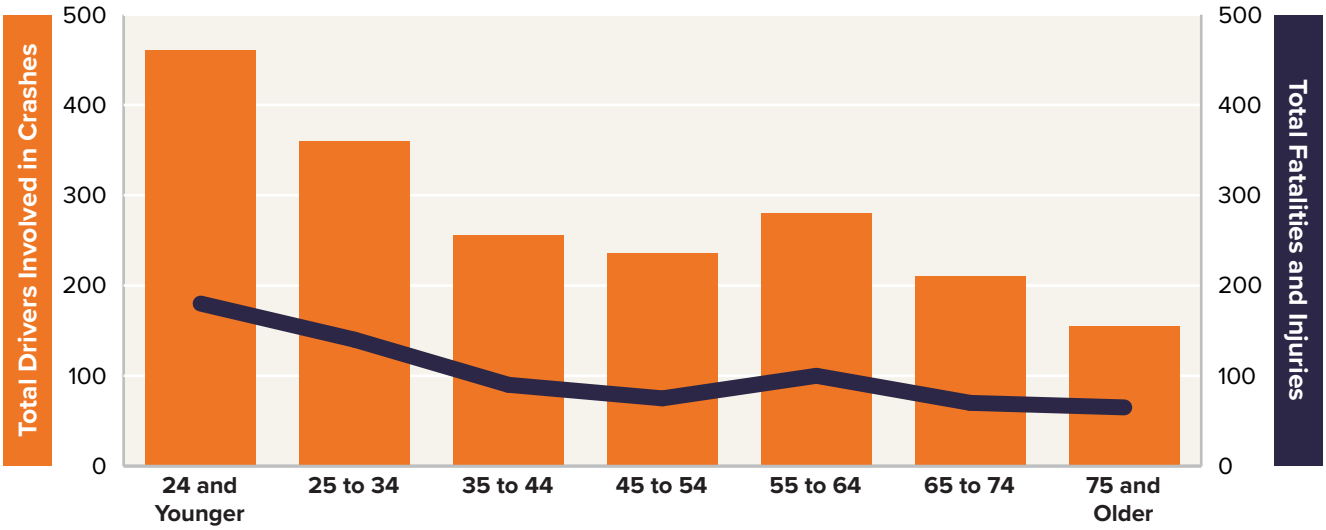

Figure 17: Crashes by Driver Age Group

Table 6: VRU Crashes

Ped Bike	Disadvantaged Tracts	Non-Disadvantaged Tracts	Total
FI	31	8	39
KSI	6	3	9

High Injury Network

A key component of the Beatrice SS4A Safety Action Plan is identifying its High Injury Network (HIN). The HIN section identifies and analyzes the specific road segments and intersections within Beatrice that have a disproportionately high incidence of severe and fatal crashes. By pinpointing these critical areas, the focus is directed towards the most dangerous locations in the City's transportation network. This section will detail the methodology used to identify the HIN, highlight the most problematic areas, and propose targeted interventions to enhance safety and reduce the occurrence of severe crashes in these high-risk locations.

Segment High Injury Network

Three tiers of the segment HIN were developed along 26 corridors representing the highest 10 percent of segments by crash density as shown in *Table 7.* Tier 1 contains corridors with fatal plus injury representation ratios (FIRR) greater than 9. The Tier 2 HIN contains corridors with FIRR between 5 and 9. The Tier 3 HIN contains other corridors with FIRR between 2 and 5. These three tiers, while comprising only 9% of network length, include 61% and 71% of the KSI and fatal injury (FI) crashes, respectively.

The HIN was created using the FIRR instead of the KSI representation ratio. This choice was made because using the KSI ratio would have distorted the HIN due to the small number of KSI crashes in Beatrice. By using the FIRR, the data is more reliable and less likely to be skewed by just one or two crashes at a specific location. This method provides a more accurate picture of where fatalities and injuries are most likely to occur.

Segments within HIN corridors are 68% more likely to be in a disadvantaged tract than the typical network segment as shown in *Table 8.*

Table 7: Segment High Injury Network Summary

Tier	#	Miles	KSI	Total FI	% of Network	KSI/ Mile	FI/ Mile	% KSI	% FI	FIRR
1	7	3.1	14.0	180.0	2.3%	4.6	58.8	30%	36%	9 and above
2	10	5.2	11.0	129.0	3.9%	2.1	24.7	24%	26%	5 to 9
3	9	3.7	3.0	47.0	2.8%	0.8	12.7	7%	9%	2 to 5
Total HIN	**26**	**12.0**	**28.0**	**356.0**	**9.0%**	**2.3**	**29.7**	**61%**	**71%**	**2 and above**
Total Network		**132.7**	**46.0**	**503.0**	**100.0%**	**0.3**	**3.8**	**100%**	**100%**	**-**

Table 8: Segment High Injury Network by Disadvantaged Tract

Tier	Miles	Miles not in Disadvantaged Tracts	Miles in Disadvantaged Tracts	% in Disadvantaged Tracts
1	3.1	1.1	2.0	65%
2	5.2	2.7	2.5	48%
3	3.7	1.1	2.6	69%
Total HIN	**12.0**	**4.9**	**7.1**	**59%**
Total Network	**132.7**	**85.8**	**46.9**	**35%**

Figure 18 details all the HIN segments by tier. Most Tier 1 corridors are on the major arterials of 6th Street (US-77) and Court Street (US-136) with the highest FIRR occurring on 6th Street from Garfield Street to Irving Street. Two other segments on Lincoln Street and 19th Street also fall under the Tier 1 corridors. Most Tier 2 corridors were found on major arterials, however, other corridors along collectors such as 13th Street, 19th Street, Ella Street, and Market Street also were on the list. A detailed summary of the HIN corridors is shown in *Table 9.*

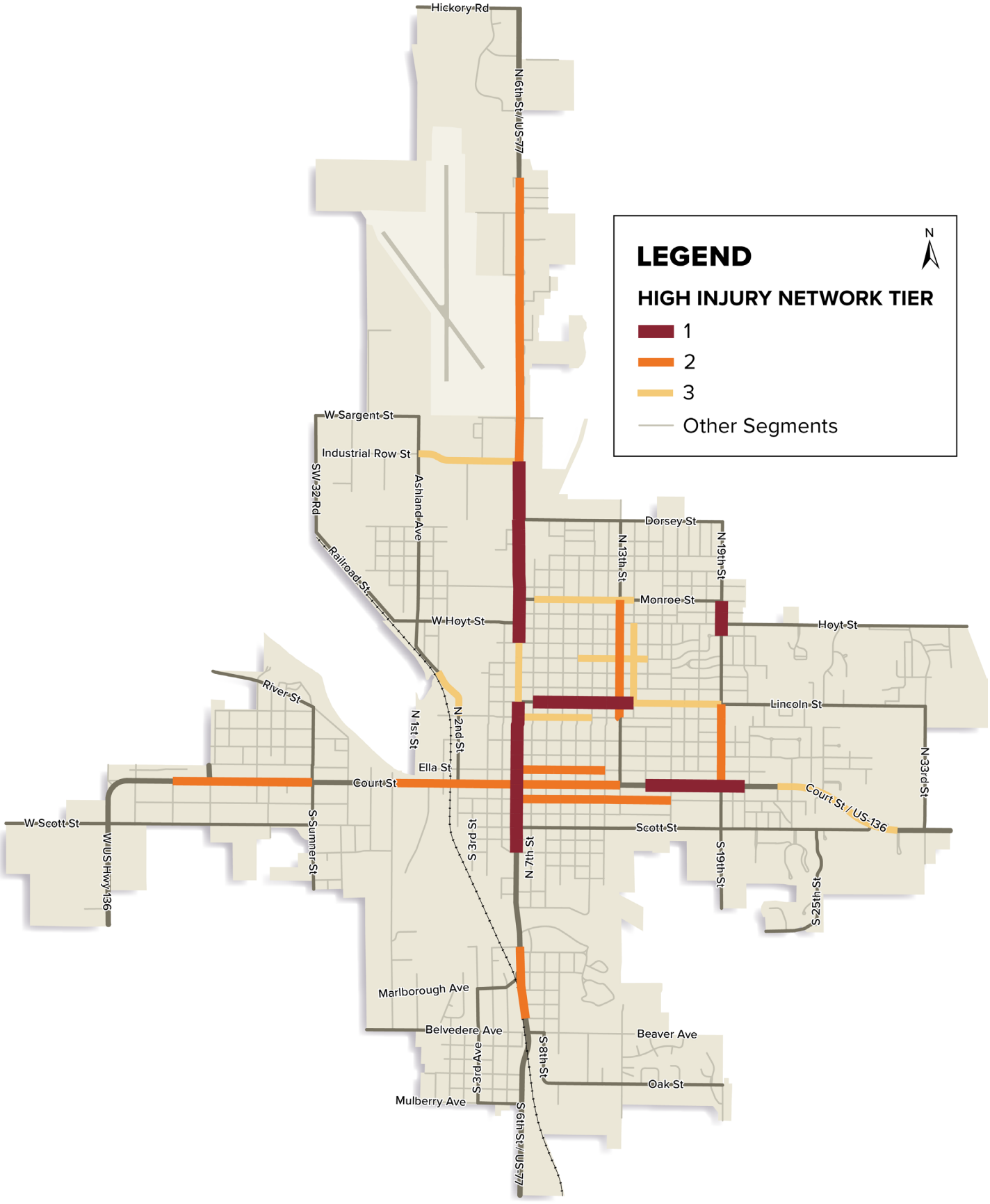

Figure 18: Segment High Injury Network Map

Table 9: Segment High Injury Network Corridors

Rank	HIN Corridor	HIN Tier	Segment Length (mi)	% Disadvantaged Length	KSI	FI	FI / Mile	FIRR
1	6th St - Garfield St to Irving St	1	0.27	100%	2	38	138.8	33.79
2	6th St - Perkins St to Court St	1	0.33	100%	1	24	71.7	17.46
3	6th St - Irving St to Industrial Row	1	0.62	54%	4	42	68.2	16.61
4	6th St - Court St to Lincoln St	1	0.40	100%	2	27	66.7	16.23
5	Court St - Hayes St to 21st St	1	0.49	0%	1	22	45.2	11.01
6	19th St - Garfield St to Monroe St	1	0.17	100%	1	7	41.0	9.99
7	Lincoln St - 7th St to 14th St	1	0.49	100%	3	20	40.6	9.89
8	Court St - 3rd St to 8th St	2	0.36	100%	0	13	36.1	8.79
9	Court St - Center St to 3rd St	2	0.39	55%	2	12	30.5	7.42
10	19th St - Court St to Lincoln St	2	0.40	18%	0	12	29.9	7.28
11	6th St - Airport Ave to Approximately 4100 6th St	2	0.60	0%	1	17	28.2	6.87
12	6th St - Industrial Row to Airport Ave	2	0.79	0%	3	22	27.9	6.80
13	Court St - Logan St to Sumner St	2	0.68	0%	1	19	27.8	6.77
14	Ella St - 6th St to 12th St	2	0.43	100%	0	12	27.8	6.76
15	Court St - 8th St to 13th St	2	0.36	100%	2	9	24.8	6.05
16	Market St - 6th St to 16th St	2	0.76	67%	2	16	21.2	5.15
17	13th St - Grant St to Monroe St	2	0.58	87%	1	12	20.7	5.03
18	6th St - Millikin Ave to Perry St	2	0.35	0%	2	7	19.8	4.83
19	6th St - Lincoln St to Garfield St	3	0.29	100%	0	5	17.3	4.21
20	2nd St - Grant St to Herbert St	3	0.25	100%	0	4	15.9	3.87
21	Monroe St - 7th St to 14th St	3	0.49	100%	0	7	14.3	3.48
22	Grant St - 6th St to 11th St	3	0.36	100%	1	5	13.8	3.37
23	14th St - Lincoln St to Hoyt St	3	0.39	100%	0	5	12.7	3.10
24	Court St - 23rd St to Beatrice High School	3	0.64	0%	0	8	12.4	3.03
25	Lincoln St - 14th St to 19th St	3	0.43	100%	0	5	11.6	2.82
26	Industrial Row - Ashland Ave to 6th St	3	0.50	0%	1	5	10.0	2.44
27	Summit St - 10th St to 15th St	3	0.34	100%	1	3	8.8	2.13

Intersection High Injury Network

The intersection HIN was developed from the intersections experiencing the highest crash frequency. Intersections with 5 or more injury crashes within the 10-year study period were included in the HIN as shown in *Table 10* and *Table 11.* The FIRR was chosen to be 12 and above for Tier 1 intersections, and Tier 2 intersections have FIRR between 8 and 12. The Tier 1 and Tier 2 Intersection HIN ranges were chosen as they formed a distinct cluster of intersections with higher severity representing less than 4% of all intersections and could encompass the majority of FI crashes. The dividing line between Tier 1 and Tier 2 was chosen to split the HIN into roughly equal groups of intersection. In addition, two thirds of all signalized intersections are on the HIN.

As shown in *Table 12* and *Figure 19,* the highest FI frequency intersection was 6th St and Industrial Row, which has a FIRR above 37. Most Tier 1 intersections were located on Court Street or 6th Street. There are 12 intersections on the Tier 1 HIN and 13 intersections on the Tier 2 HIN.

Table 10: Intersection High Injury Network Summary

Tier	Count	Signals	Two-way Stop Control	AWSC	KSI	FI
1	12	8	4	0	8	139
2	13	4	9	0	7	69
Total HIN	25	12	13	0	15	208
All Intersections	707	18	679	10	37	411
% HIN of Total	**4%**	**67%**	**2%**	**0%**	**41%**	**51%**

Table 11: Intersection High Injury Network Representation Ratio

Tier	FI /Intersection	Average FIRR	FIRR Range
1	11.58	19.9	12 to 37
2	5.31	9.1	8 to 10
Total HIN	8.32	14.3	
All Intersections	**0.58**	**-**	

Table 12: Intersection High Injury Network Corridors

Rank	Road 1	Road 2	HIN Tier	Traffic Control[1]	All Crashes	KSI Crashes	FI Crashes	Ped Bike Crashes	FIRR
1	6th St	Industrial Row	1	4SG	72	3	22	0	37.8
2	6th St	Dorsey St	1	4SG	46	0	17	0	29.2
3	6th St	Monroe St	1	3SG	54	1	15	1	25.8
4	Court St	19th St	1	4SG	49	1	13	0	22.4
5	6th St	Ella St	1	4SG	39	0	12	2	20.6
6	6th St	Hoyt St	1	3ST	28	1	11	0	18.9
7	6th St	Air Park Rd	1	4SG	34	0	9	0	15.5
8	6th St	Court St	1	4SG	48	1	9	2	15.5
9	13th St	Lincoln St	1	4ST	10	1	8	0	13.8
10	Court St	Penrod St/Graham St	1	4ST	14	0	8	0	13.8
11	6th St	Market St	1	4SG	34	0	8	1	13.8
12	Ella St	9th St	1	4ST	11	0	7	1	12.0
13	6th St	Tonka Dr	2	3ST	16	1	6	0	10.3
14	6th St	Grant St	2	4ST	13	1	6	1	10.3
15	Lincoln St	10th St	2	4ST	14	1	6	0	10.3
16	Court St	16th St	2	4ST	11	0	6	0	10.3
17	6th St	Jackson St	2	3ST	15	0	5	0	8.6
18	Ella St	8th St	2	4ST	12	0	5	1	8.6
19	Court St	Ne-4/Sherman St	2	4SG	14	0	5	0	8.6
20	Court St	4th St	2	4SG	13	0	5	2	8.6
21	6th St	Irving St	2	4ST	20	1	5	0	8.6
22	6th St	Grable Ave	2	3ST	7	2	5	0	8.6
23	Court St	8th St	2	4SG	19	0	5	1	8.6
24	19th St	Monroe St	2	4ST	9	1	5	2	8.6
25	19th St	Lincoln St	2	4SG	18	0	5	1	8.6

[1] *4SG = four-legged, signalized intersection; 3SG = three-legged, signalized intersection; 4ST = four-legged, stop-controlled intersection; 3ST = three-legged, stop-controlled intersection*

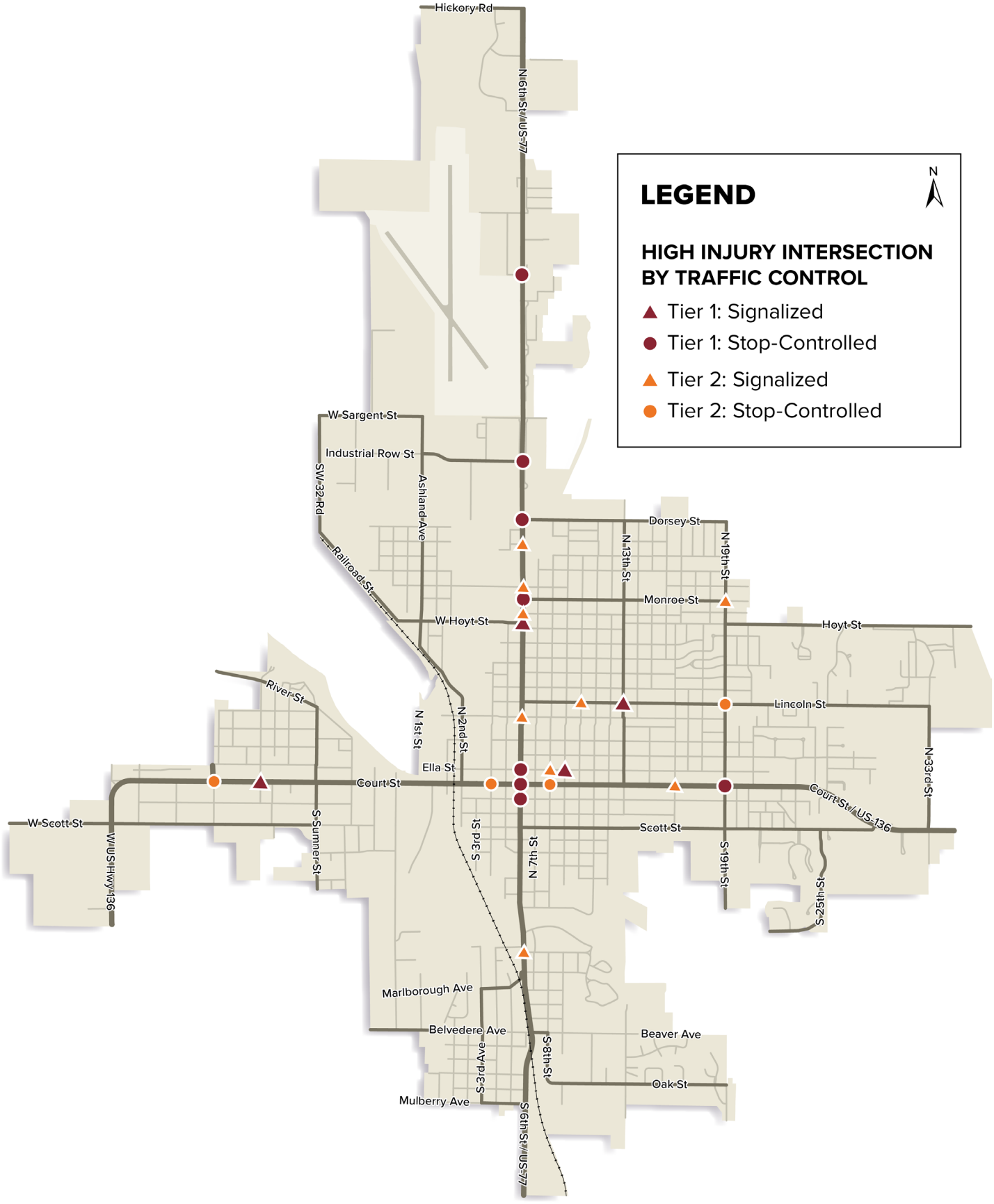

Figure 19: Intersection High Injury Network Map

Vulnerable Road User High Injury Network

Similarly, a separate HIN was created for VRUs as shown in *Table 13.* While only containing approximately 1.2% of the total network length, the **HIN includes 44% of KSI crashes** among VRUs as well as over half of all VRU crashes.

HIN corridors for VRUs are 128% more likely to be in a disadvantaged tract than the total network, as shown in *Table 14.*

A detailed summary of the Segment VRU HIN corridors is shown in *Table 15.* A map of the HIN is shown in *Figure 20.*

Table 13: Segment Vulnerable Road User High Injury Network Summary

Tier	Length (mi)	VRU Total	VRU KSI	VRU FI	FIRR
1	1.50	21	4	21	44
All Segments	122.20	41	9	39	-
% HIN of Total	**1.2%**	**51%**	**44%**	**54%**	**-**

Table 14: Segment Vulnerable Road User High Injury Network by Disadvantaged Tract

Tier	Miles	Miles not in Disadvantaged Tracts	Miles in Disadvantaged Tracts	% in Disadvantaged Tracts
1	1.5	0.2	1.3	88%
Total Network	**122.2**	**75.3**	**46.9**	**38%**

Table 15: Segment Vulnerable Road User High Injury Network Corridors

Rank	HIN Corridor	HIN Tier	Length (mi)	% Disadvantaged Tracts	Ped Bike KSI	Ped Bike FI	Ped Bike Total	FI/ Mile	FIRR
1	6th St - High St to Lincoln St	1	0.19	100%	1	4	4	21.2	66.39
2	6th St - Bell St to Elk St	1	0.29	100%	1	5	5	17.4	54.38
3	Court St - 2nd St to 6th St	1	0.29	100%	0	5	5	17.4	54.38
4	19th St - Hoyt St to Irving St	1	0.19	100%	1	2	2	10.8	33.86
5	Court St - 7th St to 11th St	1	0.29	100%	1	3	3	10.4	32.63
6	19th St - Elk St to Lincoln St	1	0.26	28%	0	2	2	7.8	24.35

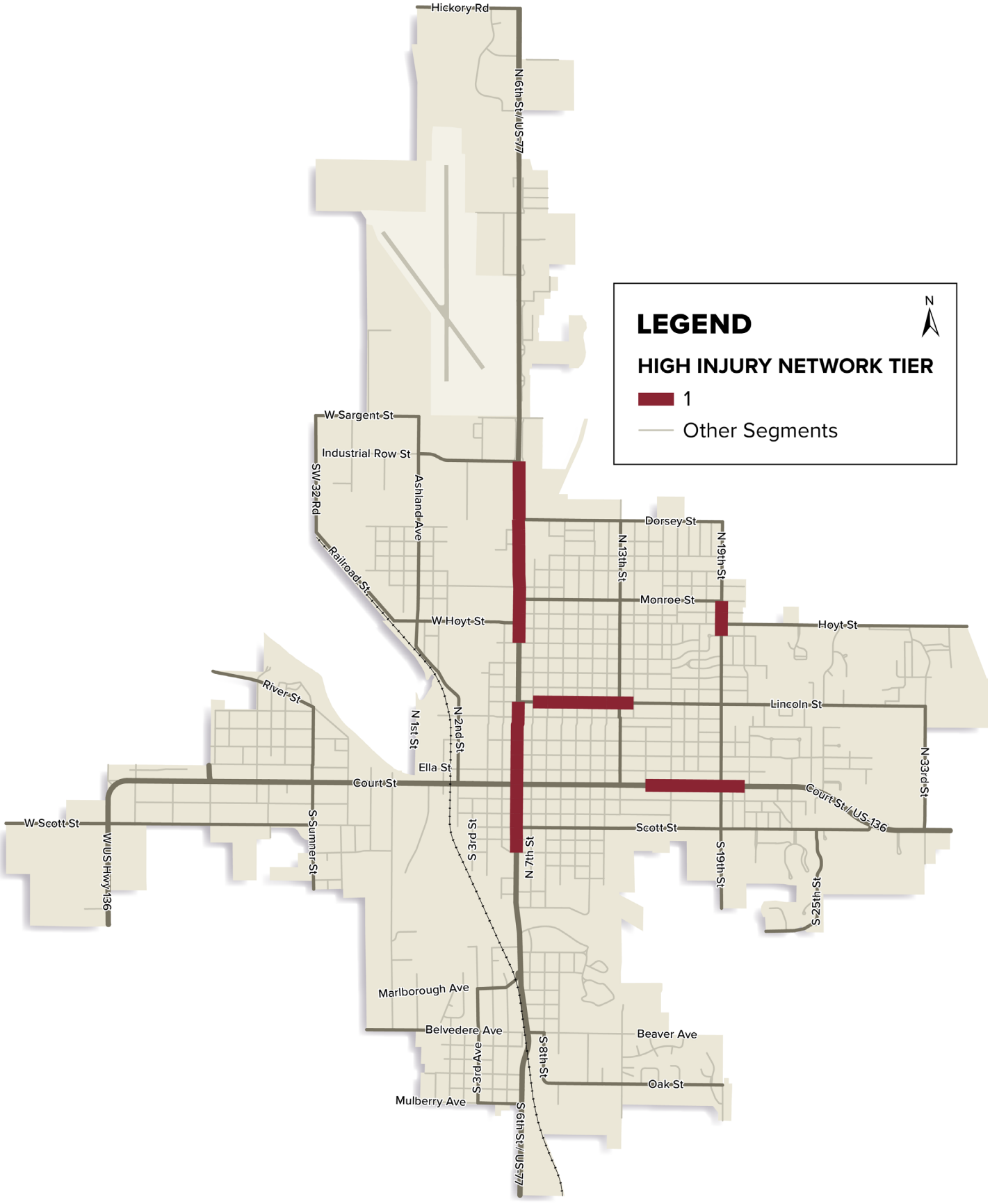

Figure 20: Tier 1 High Injury Network by Segment Map

Trails Network Opportunities

Following on from the detailed vulnerable road user analysis, additional discussion was held with project stakeholders and City staff regarding the general trails infrastructure throughout Beatrice and the need to avoid conflicts with vehicles and future crash exposure. The City of Beatrice's trail network contributes significantly to recreational opportunities and active transportation. The trails network does not tend to be used as much for daily commuting.

While the recreational trails are desirable, there are several segments where trail crossings at streets can be improved to provide safer, more intuitive connections for users of all ages and abilities. As part of initial field review during the outset of the project, it was noted that there are several street/trail crossing locations within Beatrice where additional signing and marking should be implemented. The example photo below illustrates this at the Homestead Trail crossing of Irving Street in the north part of the community.

In addition to crossing and safety characteristics, there has been a desire to continually look for opportunities to fill in gaps in the trails system, make extensions to specific locations, and in general continue to plan for future expansion of the trails network. Stakeholders commented on a number of land uses/generators that could benefit from connectivity including:

- Riverside Park to Homestead National Monument (currently designed and awaiting construction)
- Connections to the Fairgrounds
- Extension to Southeast Community College campus
- Connection to Belvedere and to the Country Club
- Possible trail connections on both sides of the river, south of Court Street, west of downtown
- Extensions near Chataqua Park
- Commuter route along Dorsey Street

While no formal trails master plan currently exists, the City of Beatrice did undergo an exercise to map out potential future trails. These locations, along with existing trails are illustrated in *Figure 21.*

◀ *Homestead Trail crossing of Irving Street.*

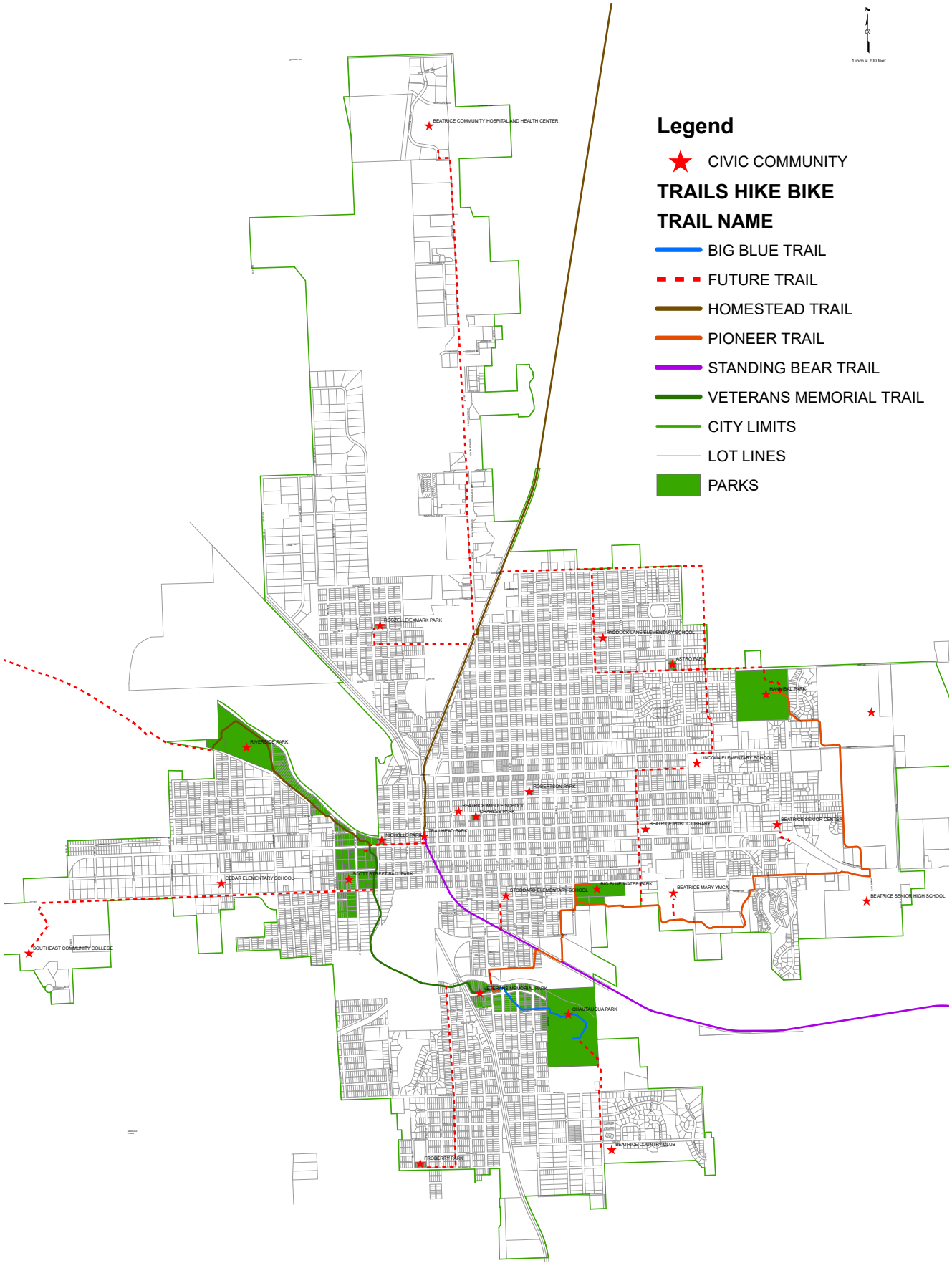

Figure 21: Current and Potential Future Trails

EQUITY ANALYSIS

The USDOT Equitable Transportation Communities (ETC) national census tract data helps identify historical underinvestment in disadvantaged communities. This information is crucial to understanding the burden these communities can experience in various areas of their lives. The ETC Explorer, maintained by USDOT, is an interactive web application that allows users to explore disadvantaged census tracts on a national and state level. *Figure 22* provides a snapshot of the City of Beatrice's results for the ETC Explorer.

The ETC Explorer uses 2022 Census Tract data to analyze five Disadvantage Components - Transportation Insecurity, Climate and Disaster Risk Burden, Environmental Burden, Health Vulnerability, and Social Vulnerability. Each of these components considers its own factors and datasets to determine a community's overall score in that components area of focus. This evaluation provides a better understanding of the experiences and challenges certain communities face, and how policies and programs can address these challenges.

Based on the initial crash data analysis conducted for this plan, nearly 64% of KSI crashes occur adjacent to or within a designated disadvantaged census tract. *Figure 5* illustrates the locations of these crashes.

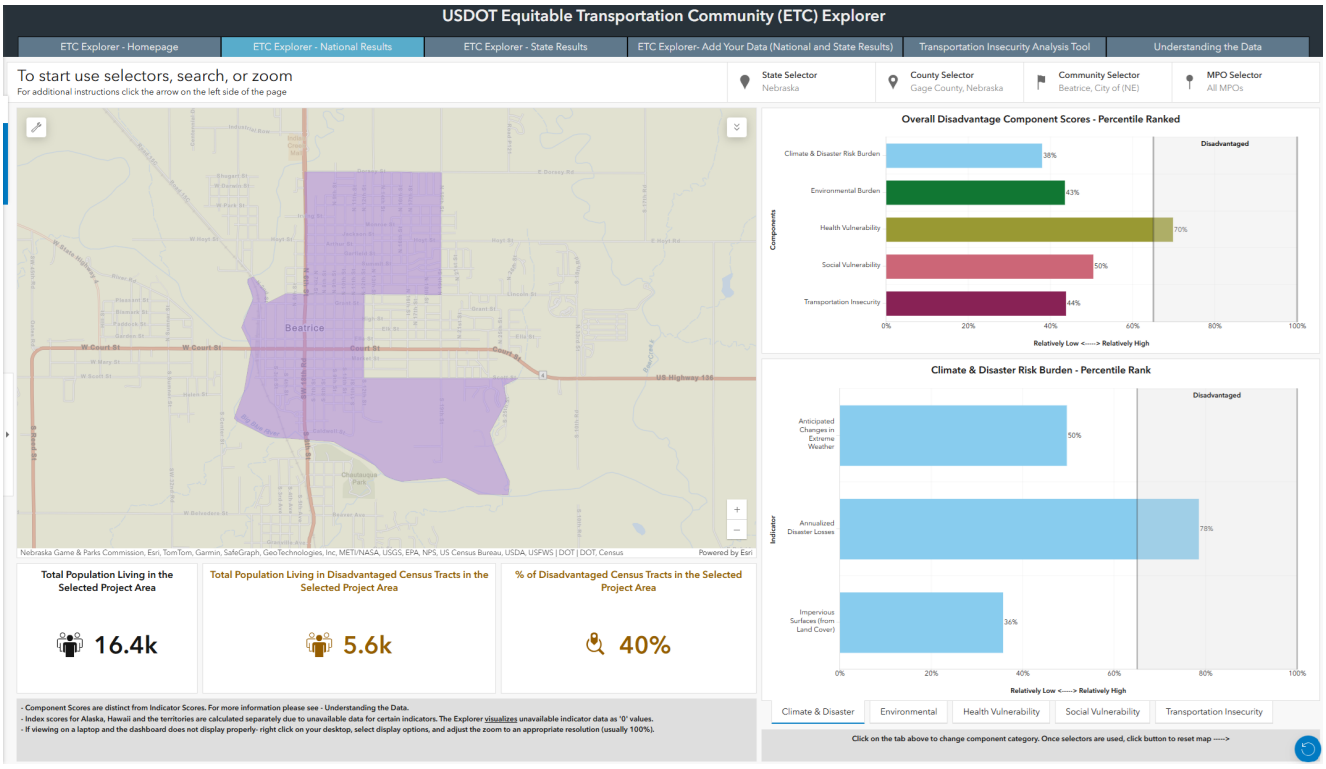

Figure 22: USDOT Equitable Transportation Community (ETC) Explorer

Figure 23 shows that KSI crashes within disadvantaged tracts are twice as likely to happen as compared to KSI crashes in tracts that are not disadvantaged. This difference highlights the importance of accounting for equity when planning safety improvements.

The overlay of disadvantaged census tracts onto the City of Beatrice's HIN revealed that 88 percent of Tier 1 HIN fell within, partially within, or along a disadvantaged census tract, as shown in *Figure 24* on the following page. This information is important as it highlights the connection of transportation safety concerns and communities experiencing historical underinvestment.

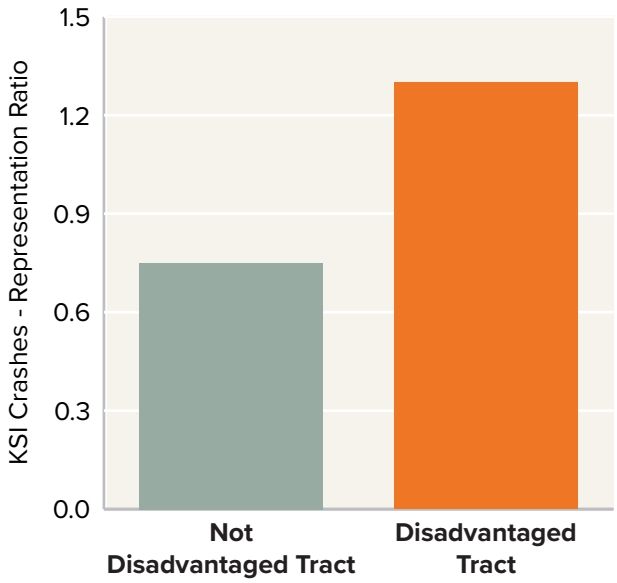

Figure 23: Representation Ratio of KSI Crashes by Disadvantaged Tract

Additionally, the disadvantaged census tracts were used as a factor in scoring segments of the HIN and High Injury Intersections to identify priority locations with the greatest need for safety improvements. This scoring process took into account whether a segment or intersection fell within a disadvantaged census tract and weighed those locations accordingly.

By incorporating the disadvantaged census tracts into the scoring process, it allows for prioritization in areas that not only have high injury rates but also align with communities that have historically faced underinvestment. This approach helps ensure that resources are directed towards addressing safety concerns in a manner that promotes equity and supports the needs of disadvantaged communities.

CRASH DATA ANALYSIS SUMMARY

The Beatrice Safety Action Plan emphasizes the need for targeted safety interventions based on a thorough analysis of the crash data and roadway contextual data. The study identifies safety concerns on streets, with a concentration of fatal and severe injury crashes (KSI) within disadvantaged areas and along the major arterials. Additionally, the analysis reveals that Vulnerable Road Users (VRUs), such as pedestrians and cyclists, are disproportionately affected, especially in these disadvantaged tracts.

The identification of high-risk segments and intersections through the HIN facilitates the prioritization of critical safety improvements. This approach aims to reduce traffic-related fatalities and severe injuries while addressing the disparities faced by vulnerable populations. The findings from this analysis will guide the development of proven safety countermeasures and policy recommendations to create a safer transportation environment for all in Beatrice.

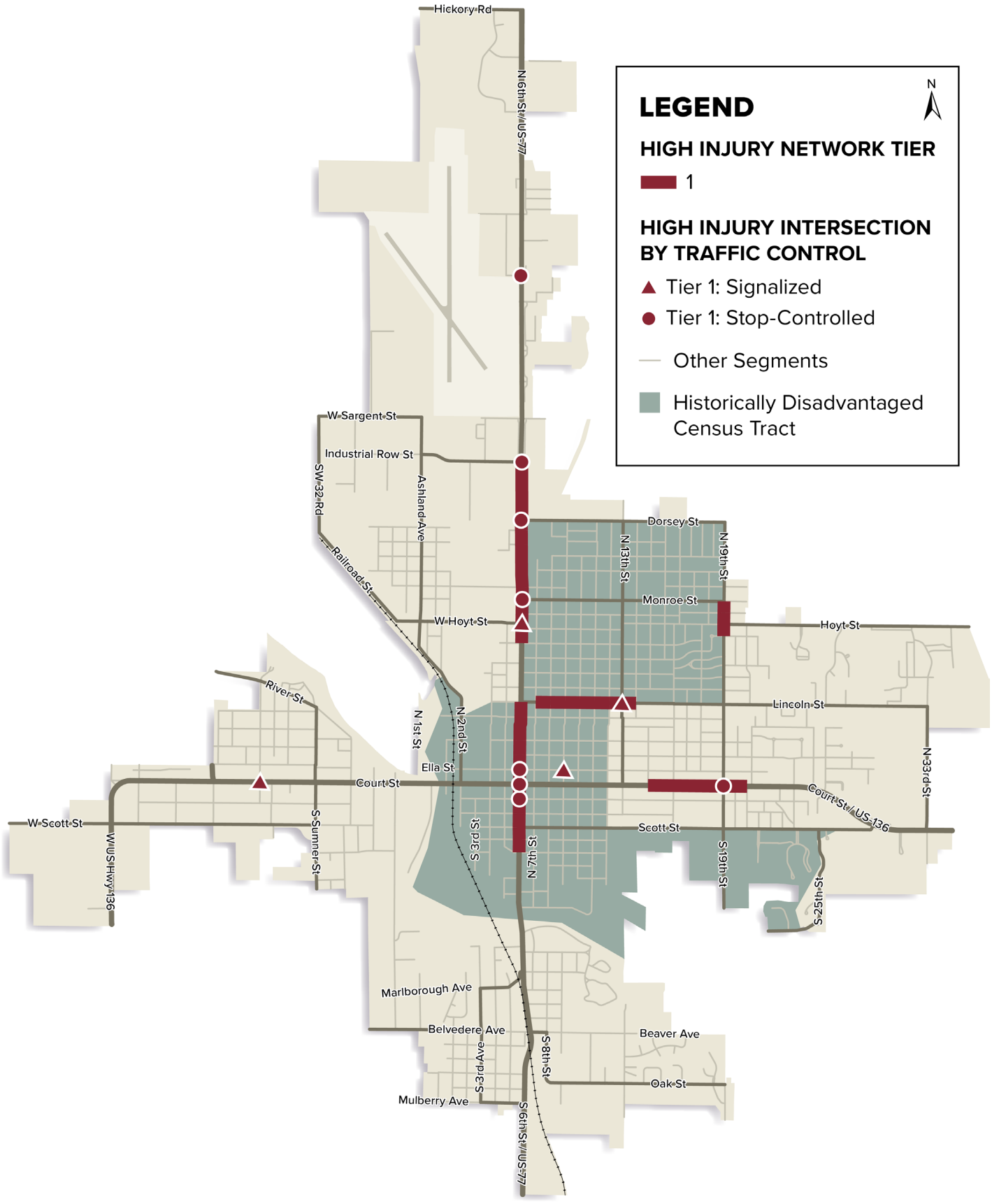

Figure 24: Equity Impact of Beatrice's HIN Tier 1 Injury Network

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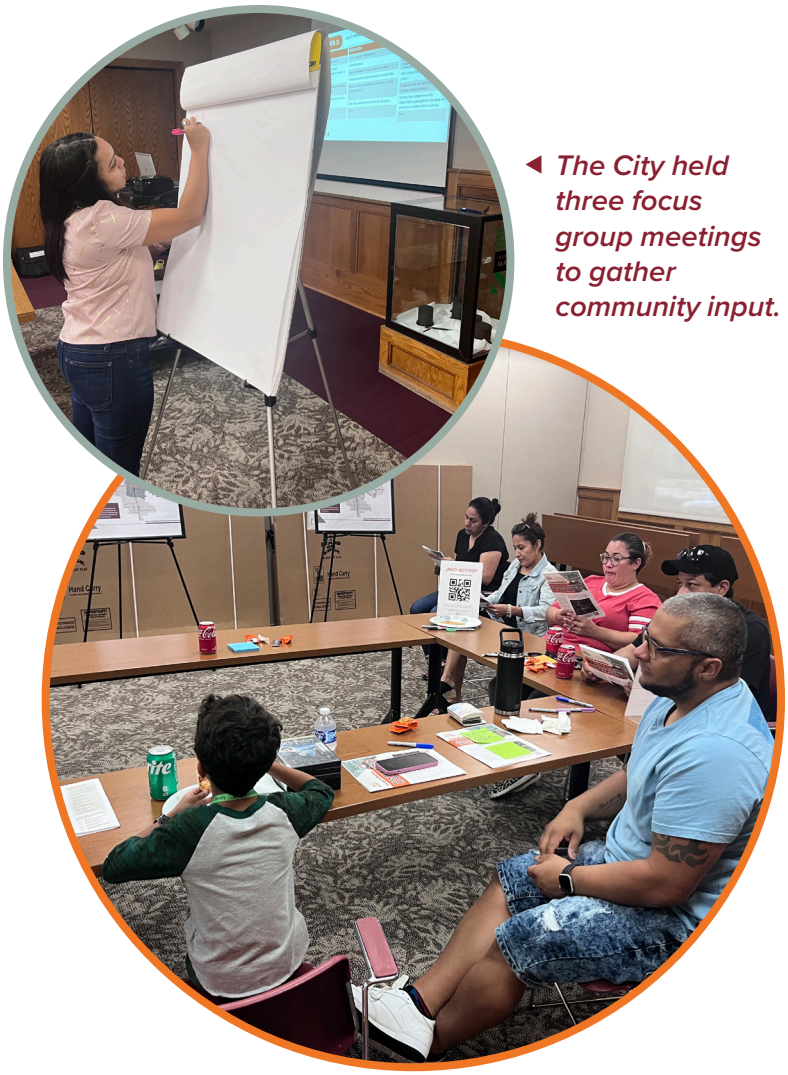
CHAPTER 3

COMMUNITY ENGAGEMENT

COMMUNITY ENGAGEMENT

Further analysis of the community's street safety conditions was supported through an engaged public involvement plan. This plan outlined all engagement strategies that were to be deployed throughout the planning process as well as what type of feedback the City was looking for from the public and identified project stakeholders. Several engagement channels were used to reach community members, including both online and in-person engagement. The City also employed a Spanish translator for this project to ensure successful outreach to the large Spanish speaking community that resides in Beatrice.



The City held three focus group meetings to gather community input.

ENGAGEMENT OPPORTUNITIES

The City offered several engagement opportunities to involve the community in shaping transportation and street safety improvements through this project. Each of the outlined engagement opportunities below provided their own unique experience for participants where they were given one-on-one time with City officials to speak about their safety concerns and values as a resident and user of Beatrice's street network system.

Open Houses

Two open house meetings were held to facilitate in-person engagement with the community – one in April and the final in October 2024. Both of these events provided an opportunity for residents to learn about the project, ask questions, and share their feedback on street and transportation safety issues in Beatrice. These meetings engaged more than **40 community members** and resulted in nearly **100 responses** through the in-person and online voting activity provided during the first half of the project.

Focus Group Meetings

Beyond engagement with community members, the City also held **three focus group meetings** to gather more in-depth input from specific community members and leaders. One of these sessions was conducted entirely in **Spanish,** ensuring that non-English-speaking residents had an opportunity to participate and share their perspectives on the project.

Project Website

A dedicated website was created to serve as a central hub for the Beatrice Safe Streets for All project. The site featured up-to-date project information, news, and resources, allowing residents to stay informed and engaged with the planning process online. Another version of the project website was also made available in Spanish.

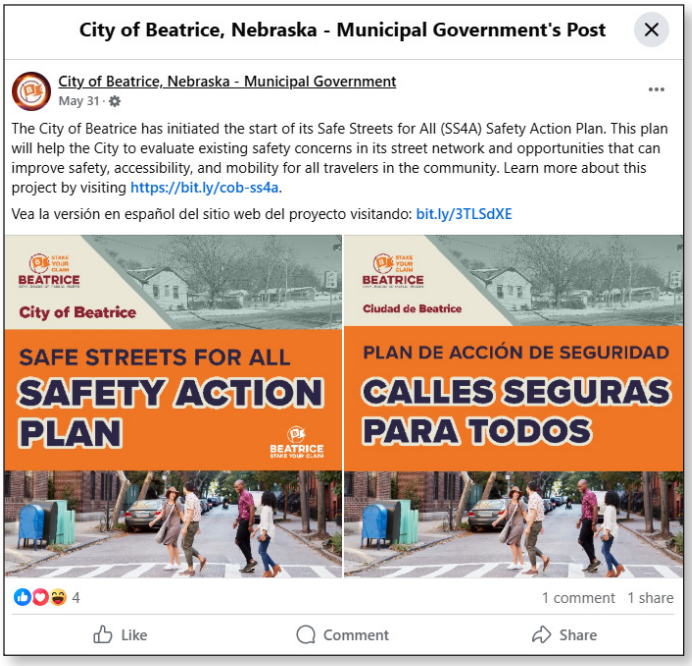
Online Surveys

To reach a wider audience, two different online surveys were distributed during the planning process, giving the public numerous chances to share their experiences, concerns, and priorities regarding street and transportation safety. Both surveys were posted online following each open house meeting and included similar information and questions presented to open house attendees. This ensured that this project's engagement efforts remained evergreen and that just because residents were not able to attend a meeting does not mean their chance for engagement had passed.

Digital Outreach

A series of informational graphics were also shared through the City's social media channels to help educate followers on the plan and its progress. The campaign also shared some safety statistics and data for existing conditions within Beatrice's street, trail, and sidewalk network. This engagement ultimately yielded **9,756 post views,** reached **over 20,000 viewers,** and generated **16,618 impressions** for all posts in this series.

▲ *The project website is available in both English and Spanish.*



▲ *The City's social media channels were used to share plan information and progress.*

TAKEAWAYS

This summary is based on public feedback gathered through the engagement strategies outlined previously. This input reflects community concerns and priorities regarding transportation safety and infrastructure improvements, highlighting key areas such as pedestrian and bicycle safety, traffic management, public education, and the need for better transportation planning and enforcement of traffic laws. The following themes summarize the most frequently mentioned issues and proposed solutions by participants.

Pedestrian and Bicycle Safety

The importance of improving pedestrian safety with enhanced sidewalks, crosswalks, flashing beacons, and pedestrian yield signs was a top concern for many participants and stakeholders. Specific concerns about northern parts of town lacking sidewalks, uneven sidewalk conditions throughout town, and the need for safe pedestrian crossings on busy streets – like 6th Street or US Highway 77 were mentioned by community members.

In terms of solutions to these issues, there are calls for better bike lanes, bike safety education (e.g., helmet use), and improved infrastructure for bikes, as well as safety events like the Bike Rodeo event hosted by the Beatrice Public Library.

Traffic Management and Speed Control

Concerns about speeding and unsafe driving, particularly on busy streets like 6th Street and Court Street were also brought up by participants. Feedback collected mentioned the need for speed bumps, traffic signal timing adjustments, and better traffic control to reduce vehicle speed. Some recommendations mentioned include better street lighting and traffic signage, especially near school zone areas.

There was also specific mention of the need for better management of downtown traffic, including reducing truck traffic and improving lane structures (e.g., converting one-way streets to two-way). It should be noted that progress has already been made on this issue with the City recently starting the construction process on its Court Street Access and Safety Transformation (CAST) Initiative to divert truck traffic from downtown. This project is made possible with the support of funds provided by the US Department of Transportation's Rebuilding American Infrastructure with Sustainability and Equity (RAISE) grant.

Infrastructure and Transportation Planning

Recommendations for expanding and improving sidewalks, especially in underserved areas, such as around schools, busy intersections, and disproportionately impacted communities was a top priority for project participants. Some areas were identified as needing street repaving, better signage, or clearer traffic controls.

Attention to accessibility issues, such as sidewalks that accommodate wheelchairs, walkers, and scooters was also mentioned.

Traffic and Driver Behavior Enforcement

A desire for stronger enforcement of traffic laws, such as tickets for jaywalking, speeding, and distracted driving was discussed by participants and stakeholders during the engagement portions of this project. Specific suggestions included improving stop sign visibility, more traffic signs near schools, and enforcement of snow-clearing on sidewalks. There is also a push to promote defensive driving and reduce alcohol and phone-related distractions among young drivers in the community.

Education and Community Awareness

A focus on increasing community education on road safety, including driver and pedestrian safety, distracted driving, and the importance of using turn signals when required, was another top concern shared by community members. Solutions suggested by participants include incorporating road safety into drivers' education in schools and partnering with local organizations for outreach programs.

Some examples of focus areas for information campaigns include improving the understanding and enforcement of rules like jaywalking laws, proper phone use while driving, and helmet requirements for bike users in the community.

Community engagement strategies were planned based on the goals of the Public Involvement Plan for this project.

Those goals were:

1. Identify the values of the people providing input and report back how we responded to that input.
2. Maintain project teams' situational awareness of input received.
3. Foster community support for the plan effort and forthcoming projects.

1. What street safety measures or behaviors could be improved in the community for WALKING?

Look both ways before crossing the street	13
Walk on the sidewalk or designated pedestrian path	12
Avoid the use of mobile phones or other devices	10
Use designated crosswalks when crossing	9
Wearing reflective gear	2
Other	3

2. What street safety measures or behaviors could be improved in the community for BIKING?

Wearing a helmet	17
Obeying all traffic laws	15
Avoid the use of mobile phones or other devices	10
Wearing reflective gear	10
Using hand signals when turning	8
Giving pedestrians the right of way	7
Other	2

3. What street safety measures or behaviors could be improved in the community for DRIVING?

Avoid the use of mobile phones or other devices	21
Using turn signals	14
Speeding	14
Giving pedestrians the right of way	12
Running red lights or stop signs	11
Driver and passengers wear a seat belt	11
Following vehicles too closely	8
Avoid eating or drinking while driving	6
Keep the volume low if you listen to the radio	3
Other	1

4. What improvements need to be made to make WALKING as a form of transportation safer in Beatrice?

Sidewalk repair/ improvements	9
Sidewalk additions	4
Sidewalk maintenance	3
Trail improvements/ additions	2
Intersection/crossing improvements	2

5. What improvements need to be made to make BIKING as a form of transportation safer in Beatrice?

Bike lane/trail additions	5
Sidewalk repair/ improvements	4
Signal/signage additions	3
Bike safety equipment requirements	2
Law enforcement/ awareness	2
Sidewalk maintenance	2
Sidewalk additions	1
Bike facility additions	1

6. What improvements need to be made to make DRIVING as a form of transportation safer in Beatrice?

Law enforcement/ awareness	6
Signal/signage additions	6
Speed control	4
Road visibility improvements/repairs	4
Roundabouts	2

7. What would you like the project team to consider as they identify and prioritize potential safety improvements?

Signal/signage additions	5
Law enforcement/ awareness	4
Safety	4
Bike lane additions/ improvements	2
Street repairs	2
Sidewalk repairs/ improvements	2
Sidewalk additions	1
Public input	1

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CHAPTER 4:

NEEDS ASSESSMENT

NEEDS ASSESSMENT

A critical part of developing an SS4A Safety Action Plan is the prioritization of safety issues across the community, such that solutions can be developed for those locations. This prioritization process should ultimately provide a clear understanding for what projects are most essential to improving overall safety conditions in the community.

LOCATION SCORING

Based on a list of recommended characteristics provided by the Beatrice SS4A Advisory Committee and City staff, a scoring criteria was developed to weigh these locations against one another based on a number of safety impact variables. Locations were also broken into two groups based on if they involved an entire street segment or if they were localized to a specific intersection. *Figure 25* represents the final list of projects that were selected based on select safety criteria as well as stakeholder and public feedback.

To determine a segment or intersection's safety needs score, the following criteria were established to assist in the project prioritization process. Each variable that was to be considered in the location's score had a rating. Total Pedestrian/Bicyclist Crashes and All Fatal/Injury Crashes were rated from 0-5, 5 being the highest concern or need for safety improvements at this location. Whereas Multimodal and Equity were rated from 0-3, 3 being the largest negative impact to both of those groups' overall safety within Beatrice's transportation network. This criteria and scoring was developed based on the City's priorities and feedback from the Advisory Committee. *Table 16* illustrates the safety criteria utilized in the prioritization. *Figure 25* illustrates the prioritized HIN intersections and segments.

Safety Index

Table 16: Safety Criteria Index

Variable	Total Weighting
Total Ped/Bike Crashes	15%
All Fatal/Injury Crashes (HIN)	45%
Equity	25%
Multimodal	15%
Total	**100%**

Multimodal

Multimodal receives a score of:

- **3 -** For dedicated multimodal improvements or project proximity to Downtown/School/Park type land uses
- **2 -** For proximity to commercial/Church/Senior & Assisted Living Centers land use
- **1 -** For proximity to neighborhood land use
- **0 -** For segments lacking proximity to walkable land uses such as industrial or agricultural

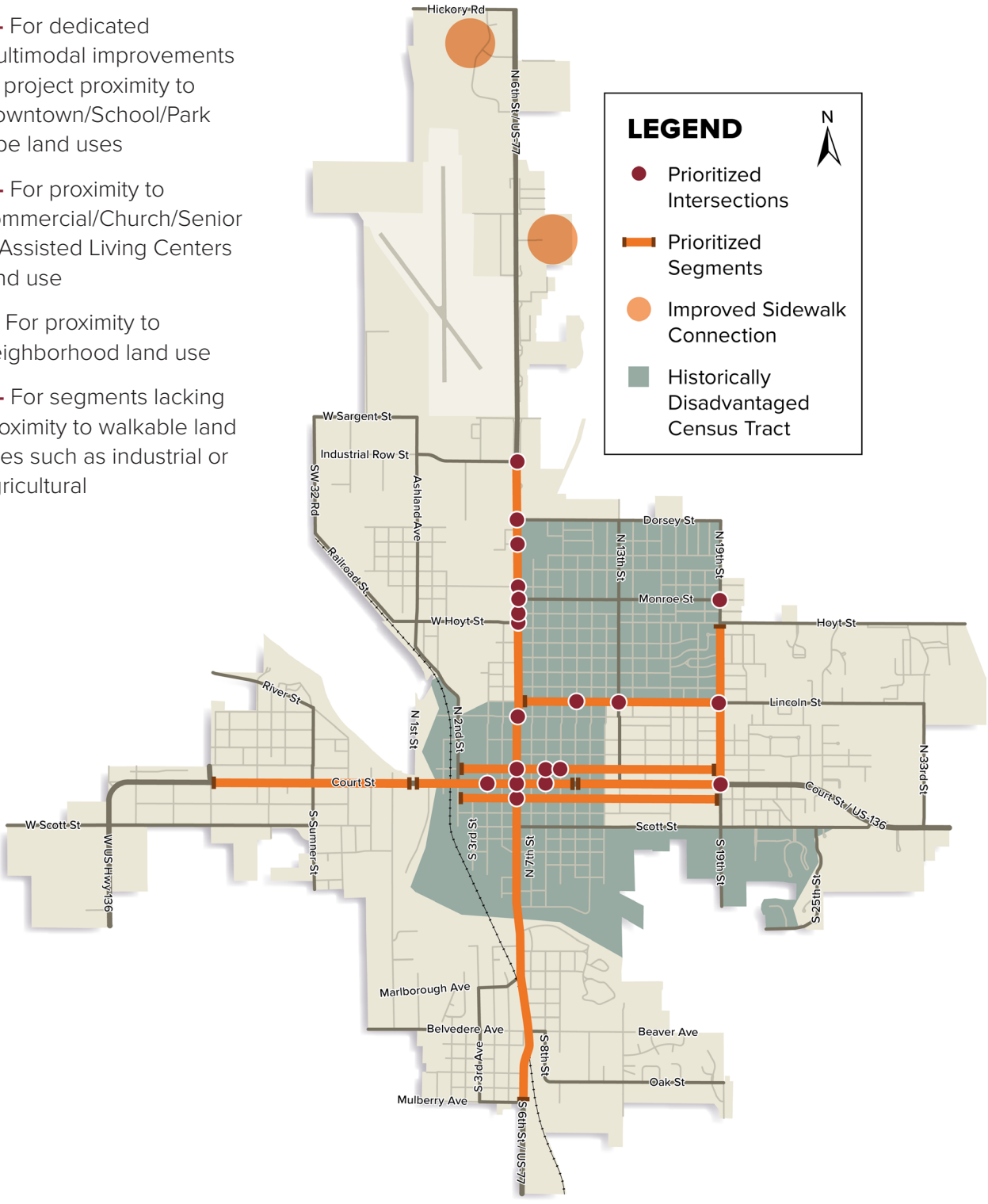

Figure 25: Prioritized HIN Intersections & Segments

SAFETY LOCATION

Segments in Beatrice's HIN and High Injury Intersections were each scored and prioritized to identify the locations in Beatrice that have the greatest need for safety improvements. The 10 highest scoring HIN segments and 20 highest scoring High Injury Intersections were selected for implementation according to the scoring criteria described in this section. The scoring criteria satisfies key objectives of the SS4A Program by prioritizing locations with the highest number of fatal and serious injury crashes, locations that were in or near disproportionately impacted Census Tracts, and locations where multimodal transportation, including walking and biking, are more likely to occur. *Tables 17* and *18* highlight these prioritized locations.

Table 17: Safety Criteria Index

Segments

Location	Overall Priority Scoring
1 6th Street (US-77); Mulberry Ave to Tonka Drive	100
2 Court Street (US-136); 1st Street to 10th Street	91
3 Lincoln Street; 6th Street (US-77) to 19th Street	85
4 19th Street; Court Street to Hoyt Street	83
5 Ella Street; 2nd Street to 19th Street	80
6 Court Street (US-136); 10th Street to 19th Street	79
7 Market Street; 2nd Street to 19th Street	73
8 6th Street (US-77); Tonka Drive to Industrial Row	68
9 Court Street (US-136); Hwy 4 to 1st Street	67
10 Walmart & Beatrice Comm. Hospital; Connect to City Wide Network	65

Table 18: Top 20 HIN Intersections

Intersections

	Location	Overall Priority Scoring
1	6th Street (US-77) & Ella Street	100
2	6th Street (US-77) & Court Street	91
3	6th Street (US-77) & Market Street	88
4	Court Street (US-136) & 4th Street	82
5	6th Street (US-77) & Monroe Street	80
6	6th Street (US-77) & Grant Street	79
7	Court Street (US-136) & 8th Street	79
8	Ella Street & 8th Street	74
9	Ella Street & 9th Street	69
10	6th Street (US-77) & Hoyt Street	68
11	6th Street (US-77) & Dorsey Street	68
12	19th Street & Lincoln Street	67
13	19th Street & Monroe Street	65
14	Lincoln Street & 10th Street	57
15	6th Street (US-77) & Industrial Row	55
16	Court Street (US-136) & 19th Street	55
17	13th Street & Lincoln Street	54
18	6th Street (US-77) & Tonka Drive	50
19	6th Street (US-77) & Irving Street	50
20	6th Street (US-77) & Jackson Street	50

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CHAPTER 5

ADDITIONAL SAFETY CONSIDERATIONS

ADDITIONAL SAFETY CONSIDERATIONS

SAFETY COUNTERMEASURES TOOLBOX

The Beatrice SS4A Safety Countermeasure Toolbox presents potential countermeasures that support safety on roadways as evidenced in numerous other communities who have implemented their practices and principles. The goal of these countermeasures is to provide solutions to existing safety concerns or issues within the Beatrice transportation system as well as provide a positive influence on overall safety in the community. In this section, recommended countermeasures are presented based on their relevance and potential for positively impacting Beatrice's transportation network. Some examples of safety countermeasures include Crosswalk Visibility Enhancements, Leading Pedestrian Intervals, Medians and Pedestrian Refuge, and Rectangular Rapid Flashing Beacons (RRFBs).

The countermeasures presented in this section are recommended by sources including the Federal Highway Association (FHWA), National Highway Traffic Safety Administration (NHTSA), and NDOT.

FHWA PROVEN SAFETY COUNTERMEASURES

Each of the FHWA's 28 Proven Safety Countermeasures is an effective strategy for reducing roadway fatalities and serious injuries on federal highways. Implementation of these strategies within any transportation agencies given jurisdiction can help to achieve a safer overall transportation network for all users. The FHWA has catered these strategies to meet the needs of all transportation agencies, including local, state and federal roadways, to better help them address safety focus areas. Each of these focus areas is outlined in this section.

Speed Management

With speed being a common correlation in the increase of fatal injury crashes, the following strategies have been proven to help manage speed within a transportation network to ensure safe arrival for all users.

Appropriate Speed Limits for All Road Users

When setting a speed limit, agencies should consider a range of factors such as pedestrian and bicyclist activity, crash history, land use context, intersection spacing, driveway density, roadway geometry, roadside conditions, roadway functional classification, traffic volume, and observed speeds *(Highways.DOT.gov 2024)*.

Speed Safety Cameras (SSCs)

Agencies should conduct a network analysis of speeding-related crashes to identify locations to implement SSCs. The analysis can include scope (e.g., widespread, localized), location types (e.g., urban/suburban/rural, work zones, residential, school zones), roadway types (e.g., expressways, arterials, local streets), times of day, and road users most affected by speed-related crashes (e.g., pedestrians, bicyclists) *(Highways.DOT.gov 2024)*.

Variable Speed Limits (VSLs)

Drivers typically determine their operating speeds under normal weather conditions on a straight roadway section with good pavement quality and adequate sight distances. If ideal conditions do not exist and the roadway does not meet the driver's expectations, there is a greater chance that a driver error could result in a crash. Providing variable speeds limits (VSLs) capable of adapting to changing circumstances could reduce crash frequency and severity. VSLs use prevailing information on the roadway, like traffic speed, volumes, weather, and road surface conditions, to determine appropriate speeds and display them to drivers. This strategy improves safety performance and traffic flow by reducing speed variance (i.e., improving speed harmonization). VSLs may also improve driver expectation by providing information in advance of slowdowns and potential lane closures, which could reduce the probability for secondary crashes. VSLs can mitigate adverse weather conditions or to slow faster-moving traffic as it approaches a queue or bottleneck *(Highways.DOT.gov 2024)*.

Pedestrian/Bicyclist

Bicycle Lanes

To make bicycling safer and more comfortable for most types of bicyclists, State and local agencies should consider installing bicycle lanes. Providing bicycle facilities can mitigate or prevent interactions, conflicts, and crashes between bicyclists and motor vehicles, and create a network of safer roadways for bicycling. Bicycle Lanes align with the Safe System Approach principle of recognizing human vulnerability—where separating users in space can enhance safety for all road users *(Highways.DOT.gov 2024)*.

Medians and Pedestrian Refuge Islands in Urban and Suburban Areas

Transportation agencies should consider medians or pedestrian refuge islands in curbed sections of urban and suburban multi-lane roadways, particularly in areas with a significant mix of pedestrian and vehicle traffic, traffic volumes over 9,000 vehicles per day, and travel speeds 35 mph or greater. Medians/refuge islands should be at least 4-ft wide, but preferably 8 ft for pedestrian comfort. Some example locations that may benefit from medians or pedestrian refuge islands include *(Highways.DOT.gov 2024)*.

Road Diets (Roadway Reconfiguration)

A Road Diet, or roadway reconfiguration, can improve safety, calm traffic, provide better mobility and access for all road users, and enhance overall quality of life. A Road Diet typically involves converting an existing four-lane undivided roadway to a three-lane roadway consisting of two through lanes and a center two-way left-turn lane (TWLTL). A Road Diet can be a low-cost safety solution when planned in conjunction with a simple pavement overlay, and the reconfiguration can be accomplished at no additional cost. Typically, a Road Diet is implemented on a roadway with a current and future average daily traffic of 25,000 or less *(Highways.DOT.gov 2024)*.

Crosswalk Visibility Enhancements

Three main crosswalk visibility enhancements help make crosswalks and the pedestrians, bicyclists, wheelchair and other mobility device users, and transit users using them more visible to drivers. These include high-visibility crosswalks, lighting, and signing and pavement markings. These enhancements can also assist users in deciding where to cross. Agencies can implement these features as standalone or combination enhancements to indicate the preferred location for users to cross *(Highways.DOT.gov 2024)*.

Pedestrian Hybrid Beacons

The pedestrian hybrid beacon (PHB) is a traffic control device designed to help pedestrians safely cross higher-speed roadways at midblock crossings and uncontrolled intersections. Nearly 74 percent of pedestrian fatalities occur at non-intersection locations, and vehicle speeds are often a major contributing factor.1 As a safety strategy to address this pedestrian crash risk, the PHB is an intermediate option between a flashing beacon and a full pedestrian signal because it assigns right of way and provides positive stop control. It also allows motorists to proceed once the pedestrian has cleared their side of the travel lane(s), reducing vehicle delay *(Highways.DOT.gov 2024)*.

Walkways

Well-designed pedestrian walkways, shared use paths, and sidewalks improve the safety and mobility of pedestrians. Pedestrians should have direct and connected network of walking routes to desired destinations without gaps or abrupt changes. In some rural or suburban areas, where these types of walkways are not feasible, roadway shoulders provide an area for pedestrians to walk next to the roadway, although these are not preferable *(Highways.DOT.gov 2024)*.

Leading Pedestrian Interval

A leading pedestrian interval (LPI) gives pedestrians the opportunity to enter the crosswalk at an intersection 3-7 seconds before vehicles are given a green indication. Pedestrians can better establish their presence in the crosswalk before vehicles have priority to turn right or left (Highways.DOT.gov 2024).

LPIs provide the following benefits:

- Increased visibility of crossing pedestrians.
- Reduced conflicts between pedestrians and vehicles.
- Increased likelihood of motorists yielding to pedestrians.
- Enhanced safety for pedestrians who may be slower to start into the intersection.

Rectangular Rapid Flashing Beacons (RRFB)

The RRFB is applicable to many types of pedestrian crossings but is particularly effective at multi-lane crossings with speed limits less than 40 miles per hour.2 Research suggests RRFBs can result in motorist yielding rates as high at 98 percent at marked crosswalks, but varies depending on the location, posted speed limit, pedestrian crossing distance, one- versus two-way road, and the number of travel lanes.3 RRFBs can also accompany school or trail crossing warning signs. RRFBs are placed on both sides of a crosswalk below the pedestrian crossing sign and above the diagonal downward arrow plaque pointing at the crossing.1 The flashing pattern can be activated with pushbuttons or passive (e.g., video or infrared) pedestrian detection, and should be unlit when not activated *(Highways.DOT.gov 2024)*.

Roadway Departure

Enhanced Delineation for Horizontal Curves

Enhanced delineation at horizontal curves includes a variety of potential strategies that can be implemented in advance of or within curves, in combination, or individually. Enhanced delineation treatments can alert drivers to upcoming curves, the direction and sharpness of the curve, and appropriate operating speed *(Highways.DOT.gov 2024)*.

Roadside Design Improvements at Curves

Horizontal curves account for 27 percent of all fatal crashes and 80 percent of all fatal crashes at curves are roadway departure crashes.1 Roadside design improvements at curves is a strategy encompassing several treatments that target the high-risk roadside environment along the outside of horizontal curves. These treatments can reduce roadway departure fatalities and serious injuries by giving vehicles the opportunity to recover safely and by reducing crash severity. Roadside design improvements can be implemented alone or in combination, and are particularly recommended at horizontal curves—where data indicates a higher risk for roadway departure fatalities and serious injuries *(Highways.DOT.gov 2024)*.

Longitudinal Rumble Strips and Stripes on Two-Lane Roads

Longitudinal rumble strips are milled or raised elements on the pavement intended to alert drivers through vibration and sound that their vehicle has left the travel lane.

Rumble stripes are edge line or center line rumble strips where the pavement marking is placed over the rumble strip.

With roadway departure crashes accounting for more than half of the fatal roadway crashes annually in the United States, rumble strips and stripes are designed to address these crashes by alerting distracted, drowsy, or otherwise inattentive drivers who drift from their lane. They are most effective when deployed systemically *(Highways.DOT.gov 2024)*.

Median Barriers

Median barriers are longitudinal barriers that separate opposing traffic on a divided highway and are designed to redirect vehicles striking either side of the barrier. Median barriers significantly reduce the number of cross-median crashes, which are attributed to the relatively high speeds that are typical on divided highways. AASHTO's Roadside Design Guide (RDG) recommends guidelines for the use of median barriers on high-speed, fully controlled-access roadways for locations where the median is 30 ft in width or less and the average daily traffic (ADT) is greater than 20,000 vehicles per day (vpd) *(Highways.DOT.gov 2024)*.

Wider Edge Lines

Roadway departures account for over half of all traffic fatalities in the United States. If drivers cannot clearly identify the edge of the travel lanes and see the road alignment ahead, the risk of roadway departure may be greater. Wider edge lines enhance the visibility of travel lane boundaries compared to traditional edge lines. Edge lines are considered "wider" when the marking width is increased from the minimum normal line width of 4 inches to the maximum normal line width of 6 inches *(Highways.DOT.gov 2024)*.

Intersections

Backplates with Retroreflective Borders

Backplates added to a traffic signal head improve the visibility of the illuminated face of the signal by introducing a controlled-contrast background. The improved visibility of a signal head with a backplate is made even more conspicuous by framing it with a 1- to 3-inch yellow retroreflective border. Signal heads that have backplates equipped with retroreflective borders are more visible and conspicuous in both daytime and nighttime conditions *(Highways.DOT.gov 2024)*.

Reduced Left-Turn Conflict Intersections

Reduced left-turn conflict intersections are geometric designs that alter how left-turn movements occur. These intersections simplify decision-making for drivers and minimize the potential for higher severity crash types, such as head-on and angle. Two highly effective designs that rely on U-turns to complete certain left-turn movements are known as the Restricted Crossing U-turn (RCUT) and the Median U-turn (MUT) *(Highways.DOT.gov 2024)*.

Yellow Change Intervals

At a signalized intersection, the yellow change interval is the length of time that the yellow signal indication is displayed following a green signal indication. The yellow signal confirms to motorists that the green has ended and that a red will soon follow. Transportation agencies can improve signalized intersection safety and reduce red-light running by reviewing and updating their traffic signal timing policies and procedures concerning the yellow change interval. Agencies should institute regular evaluation and adjustment protocols for existing traffic signal timing *(Highways.DOT.gov 2024)*.

Corridor Access Management

Access management refers to the design, application, and control of entry and exit points along a roadway. Every intersection, from a signalized intersection to an unpaved driveway, has the potential for conflicts between vehicles, pedestrians, and bicyclists. The number and types of conflict points—locations where the travel paths of two users intersect—influence the safety performance of the intersection or driveway. Successful corridor access management involves balancing overall safety and mobility for all users along with the needs of adjacent land uses *(Highways.DOT.gov 2024)*.

Roundabouts

Roundabouts are not only a safer type of intersection; they are also efficient in terms of keeping people moving. Even while calming traffic, they can reduce delay and queuing when compared to other intersection alternatives. Furthermore, the lower vehicular speeds and reduced conflict environment can create a more suitable environment for walking and bicycling *(Highways.DOT.gov 2024)*.

Dedicated Left- and Right-Turn Lanes at Intersections

Auxiliary turn lanes—either for left turns or right turns—provide physical separation between turning traffic that is slowing or stopped and adjacent through traffic at approaches to intersections. Turn lanes can be designed to provide for deceleration prior to a turn, as well as for storage of vehicles that are stopped and waiting for the opportunity to complete a turn *(Highways.DOT.gov 2024)*.

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

This systemic approach to intersection safety involves deploying a package of multiple low-cost countermeasures, including enhanced signing and pavement markings, at a large number of stop-controlled intersections within a jurisdiction. These countermeasures increase driver awareness and recognition of the intersections and potential conflicts *(Highways.DOT.gov 2024)*.

Additional Strategies

Lighting

The number of fatal crashes occurring in daylight is about the same as those that occur in darkness. However, the nighttime fatality rate is three times the daytime rate because only 25 percent of vehicle miles traveled (VMT) occur at night. At nighttime, vehicles traveling at higher speeds may not have the ability to stop once a hazard or change in the road ahead becomes visible by the headlights. Therefore, lighting can be applied continuously along segments and at spot locations such as intersections and pedestrian crossings in order to reduce the chances of a crash *(Highways.DOT.gov 2024)*.

Road Safety Audit

While most transportation agencies have established traditional safety review procedures, a road safety audit (RSA) or assessment is unique. RSAs are performed by a multidisciplinary team independent of the project. RSAs consider all road users, account for human factors and road user capabilities, are documented in a formal report, and require a formal response from the road owner *(Highways.DOT.gov 2024)*.

Local Road Safety Plans

A local road safety plan (LRSP) provides a framework for identifying, analyzing, and prioritizing roadway safety improvements on local roads. The LRSP development process and content are tailored to local issues and needs. The process results in a prioritized list of issues, risks, actions, and improvements that can be used to reduce fatalities and serious injuries on local roads *(Highways.DOT.gov 2024)*.

Pavement Friction Management

Friction is a critical characteristic of a pavement that affects how vehicles interact with the roadway, including the frequency of crashes. Measuring, monitoring, and maintaining pavement friction—especially at locations where vehicles are frequently turning, slowing, and stopping—can prevent many roadway departure, intersection, and pedestrian-related crashes. Pavement friction treatments, such as High Friction Surface Treatment (HFST), can be better targeted and result in more efficient and effective installations when using continuous pavement friction data along with crash and roadway data *(Highways.DOT.gov 2024)*.

NHTSA COUNTERMEASURES THAT WORK

While the FHWA's Proven Safety Countermeasures tend to focus more on engineering solutions to improving safety, NHTSA Countermeasures focus primarily on changing human behavior through education and environmental influences.

Impaired Driving

According to the NHTSA's latest edition of its A Highway Safety Countermeasure Guide for State Highway Safety Offices (2023), deterrence is key to reducing drug/alcohol-impaired driving. "Deterrence works by changing behavior through the fear of apprehension and punishment. If drivers believe impaired driving is likely to be detected and impaired drivers are likely to be arrested, convicted, and punished, many will not drive while impaired by alcohol," (NHTSA 2023).

Although only a small percent of KSI crashes in Beatrice are related to drug/alcohol-impaired driving, it is the City's goal to eliminate all drug/alcohol-impaired driving behaviors in the community.

The following are recommended countermeasures to help the City successfully accomplish this goal:

Legislation and Licensing

Countermeasure	Effectiveness	Cost	Use	Time
Administrative License Revocation or Suspension (ALR/ALS)	✪✪✪✪✪	$$$	High	Medium
Minimum Drinking Age 21 Laws	✪✪✪✪✪	$$$	High	Short
Open Container Laws	✪✪✪✪✪	$	High	Short
Lower BAC Limits	✪✪✪✪	$	Low	Short
High-BAC Sanctions	✪✪✪	$	Medium	Short
BAC Test Refusal Penalties	✪✪✪	$	Unknown	Short
Alcohol-Impaired-Driving Law Review	✪✪✪	$$	Unknown	Medium
Drug-Impaired-Driving Laws†	✪	Unknown	Medium	Short

Enforcement

Countermeasure	Effectiveness	Cost	Use	Time
Publicized Sobriety Checkpoints	✪✪✪✪✪	$$$	Medium	Short
High-Visibility Saturation Patrols	✪✪✪✪	$$	High	Short
Alcohol Measurement Devices	✪✪✪✪	$$	High	Short
Integrated Enforcement	✪✪✪	$	Unknown	Short
Alcohol Vendor Compliance Checks	✪✪✪	$$	Unknown	Short
Zero-Tolerance Law Enforcement	✪✪✪	$	Unknown	Short
Enforcement of Drug-Impaired Driving	✪✪✪	$$	Unknown	Short

Other Strategies for Behavior Change

Countermeasure	Effectiveness	Cost	Use	Time
Alcohol Ignition Interlocks	✪✪✪✪✪	$$	Medium	Medium
Alcohol Problem Assessment and Treatment	✪✪✪✪✪	Varies	High	Varies
Alcohol Screening and Brief Intervention	✪✪✪✪✪	$$	Medium	Short
Vehicle and License Plate Sanctions	✪✪✪✪	Varies	Medium	Short
DWI Offender Monitoring	✪✪✪✪	$$$	Unknown	Varies
DWI Courts	✪✪✪✪	$$$	Low	Medium
Limits on Diversion & Plea Agreements	✪✪✪	$	Medium	Short
Alternative Transportation	✪✪✪	$$	Unknown	Short
Mass-Media Campaigns	✪✪	$$$	High	Medium
Court Monitoring	✪✪	$	Low	Short
Education Regarding Medications	✪	Varies	Unknown	Varies

Seat Belts and Child Restraints

Proper seatbelt and restraint mechanisms can play a critical role in a vehicle accident becoming a KSI crash. Increasing drivers' use of these restraints can help to improve over all fatal and severe injury crashes in the community's street network and create a safer environment for both riders and pedestrians.

The following are recommended actions the City of Beatrice can take to help improve the use of these restraints within their community:

Legislation and Licensing

Countermeasure	Effectiveness	Cost	Use	Time
Primary Enforcement Seat Belt Use Laws	✪✪✪✪✪	$	Medium	Short
Strong Child Passenger Safety Laws	✪✪✪✪✪	$	High	Short
Increased Fines for Seat Belt Law Violations	✪✪✪✪	$	Low	Short

Enforcement

Countermeasure	Effectiveness	Cost	Use	Time
Short-Term, High-Visibility Seat Belt Law Enforcement	✪✪✪✪✪	$$$	Medium	Medium
Short-Term, High-Visibility Child Passenger Safety Law Enforcement	✪✪✪✪✪	$$$	Medium	Medium
Nighttime, High-Visibility Seat Belt Law Enforcement	✪✪✪✪	$$$	Unknown	Medium
Sustained Seat Belt Enforcement	✪✪✪	Varies	Unknown	Varies

Other Strategies for Behavior Change

Countermeasure	Effectiveness	Cost	Use	Time
Communication Strategies for Low-Belt-Use Groups as Part of HVE	✪✪✪✪✪	Varies	Unknown	Varies
Employer-based Programs	✪✪✪	Varies	Unknown	Varies
Programs for Older Children	✪✪✪	Varies	Unknown	Varies
Child Restraint Inspection Stations	✪✪✪	$$	High	Short
Programs for Increasing Child Restraint and Booster Seat Use	✪✪	Varies	Unknown	Varies

Speeding and Speed Management

Probably one of the most common behaviors observed within local street networks, speed management is a top priority for the City especially as it considers the traffic brought through town via the two major state highways that bisect the community – US Highways 77 and 136.

According to NHTSA, "speeding can be dangerous on all types of roads, but particularly on non-interstate rural and urban roadways. In 2020 some 38% of speeding-related fatalities occurred on non-interstate rural roadways, another 49% on non-interstate urban roadways, 8% on interstate urban roadways, and 5% on interstate rural roadways," (NCSA, 2022).

Recommended strategies from the NHTSA to mitigate the impacts of speeding include the following:

Legislation and Licensing

Countermeasure	Effectiveness	Cost	Use	Time
Lower Speed Limits	✪✪✪✪✪	$	High	Varies
Increasing Penalties	✪✪✪✪	Varies	High	Varies
Variable Speed Limits	✪✪	$$$	Medium	Varies

Enforcement

Countermeasure	Effectiveness	Cost	Use	Time
Speed Safety Camera Enforcement	✪✪✪✪✪	Varies	Low	Medium
High-Visibility Enforcement	✪✪✪✪	$$$	Medium	Medium

Other Strategies for Behavior Change

Countermeasure	Effectiveness	Cost	Use	Time
Dynamic Speed Display/Feedback Signs	✪✪✪✪✪	$	High	Short
Intelligent Speed Assistance	✪✪✪	Varies	Unknown	Varies

Distracted Driving

Another extremely common practice among drivers, distracted driving includes a wide range of variables that can potentially distract a vehicle operator from the task of safely arriving at their destination. Distracted driving, as defined by the NHTSA, is “any activity that diverts attention from driving, including talking or texting on your phone, eating and drinking, talking to people in your vehicle, fiddling with the stereo, entertainment or navigation system—anything that takes your attention away from the task of safe driving” (NHTSA, 2023).

Legislation and Licensing

Countermeasure	Effectiveness	Cost	Use	Time
GDL Passenger Limits for Young Drivers	✪✪✪✪✪	$	High	Medium
Cell Phone Laws	✪✪	$	Medium	Short

Enforcement

Countermeasure	Effectiveness	Cost	Use	Time
High-Visibility Cell Phone Enforcement	✪✪✪✪	$$$	Low	Medium

Other Strategies for Behavior Change

Countermeasure	Effectiveness	Cost	Use	Time
Employer Programs	✪✪	$	Unknown	Short

Motorcycle Safety

As reported by the NHTSA, motorcycle driving is one of the riskier forms of modern transportation. "Not only does operating a motorcycle require more physical skill and strength than driving a passenger vehicle, but motorcycles lack a protective structure, offering the rider virtually no protection in a crash," (NHTS 2023).

Recommended strategies to help prevent motorcycle KSI crashes as well as keep motorcycle drivers safe include:

Legislation and Licensing

Countermeasure	Effectiveness	Cost	Use	Time
Universal Motorcycle Helmet Use Laws	✪✪✪✪✪	$	Medium	Short
GDL for Motorcyclists	✪✪	$	Medium	Short

Enforcement

Countermeasure	Effectiveness	Cost	Use	Time
Alcohol-Impaired Motorcyclists: Detection, Enforcement, and Sanctions	✪✪✪	Varies	Unknown	Varies

Other Strategies for Behavior Change

Countermeasure	Effectiveness	Cost	Use	Time
Motorcycle Rider Training	✪✪	$$	High	Varies
Strategies to Increase Rider Conspicuity and Use of Protective Clothing	✪	Varies	High	Medium

Young Drivers

As vulnerable road users, young drivers are at a higher risk of being involved in a vehicle crash due to their limited experience operating a vehicle. According to the NHTSA, motor vehicle crashes are the leading cause of unintentional death for 15-24 year olds in the United States.

To keep young drivers safe and increase overall safety within the network they operate a vehicle in, the following strategies are recommended for the City of Beatrice:

Legislation and Licensing

Countermeasure	Effectiveness	Cost	Use	Time
Graduated Driver Licensing (GDL)	✪✪✪✪✪	$	High	Medium
GDL Learner's Permit	✪✪✪✪✪	$	High	Medium
GDL Intermediate License Nighttime Restrictions	✪✪✪✪✪	$	High	Medium
GDL Intermediate License Passenger Restrictions	✪✪✪✪✪	$	High	Medium

Enforcement

Countermeasure	Effectiveness	Cost	Use	Time
Enforcement of GDL	✪✪	$	Unknown	Short

Other Strategies for Behavior Change

Countermeasure	Effectiveness	Cost	Use	Time
Electronic Technology for Parental/ Guardian Monitoring	✪✪✪	$	Low	Short
Programs to Assist Parents/Guardians of Young Drivers	✪✪	$$	Medium	Short
Hazard Perception Training	✪✪	Varies	Low	Varies

Older Drivers

Comparatively to young drivers, older drivers are also considered vulnerable road users and are more likely to be involved in a vehicle crash than most drivers. Unfortunately for this population of drivers, the United States' current roadway network and system is not supportive of their unique needs and abilities. Signage, lighting, licensing, traffic signals and controls, and vehicles themselves are not always designed with this demographic in mind.

To ensure the safety of older drivers within Beatrice's roadway system, the following strategies are recommended to be implemented or considered by the City:

Legislation and Licensing

Countermeasure	Effectiveness	Cost	Use	Time
License Screening and Testing	✪✪✪✪†	$$	High	Medium
Licensing Agency Referrals	✪✪✪✪††	$$	Low	Medium
License Restrictions	✪✪✪✪	$	Low	Short
Medical Review Protocols	✪✪†††	Varies	High	Medium
In-Person Renewal and Vision Test	✪✪	$$$	Medium	Medium

† Proven for identifying drivers whose driving should be limited
†† Proven for identifying at-risk drivers
††† Part of a comprehensive system for identifying and restricting at-risk drivers. Quality varies considerably.

Other Strategies for Behavior Change

Countermeasure	Effectiveness	Cost	Use	Time
Formal Courses for Older Drivers (classroom + on-road feedback)†	✪✪✪✪	$$	Low	Medium

Pedestrian Safety

As vulnerable road users, pedestrians are often left to accommodate their transportation methods based on the car-driven design of the modern roadway system. Designing streets and sidewalks in a way that prioritizes the pedestrian experience is a critical part of undoing this mentality. However, the City can also implement some behavior-based strategies that prioritize pedestrian safety.

Legislation and Licensing

Countermeasure	Effectiveness	Cost	Use	Time
Lower Speed Limits	✪✪✪✪	$	High	Varies

Enforcement

Countermeasure	Effectiveness	Cost	Use	Time
High-Visibility Enforcement at Pedestrian Crossings	✪✪✪	$$	Low	Short

Other Strategies for Behavior Change

Countermeasure	Effectiveness	Cost	Use	Time
Pedestrian Safety Zones	✪✪✪✪✪	$$$	Low	Long
Elementary-Age Child Pedestrian Training	✪✪✪	$	Unknown	Medium
Safe Routes to School	✪✪✪	$	High	Medium
Walking School Buses	✪✪	$	Unknown	Short
Conspicuity Enhancement	✪✪	$	Low	Medium

Bicycle Safety

Similar to pedestrians, bicyclists are also expected to fit their transportation needs and safety within a car-centered roadway system. According to the NHTSA, "Bicyclist injuries remain consistently, disproportionately high. In 2021 an additional estimated 41,615 bicyclists were injured. Over the last 5 years, estimated injury-only crashes averaged about 45,400 yearly," (NHTSA 2023). Although these stats reflect the state of bicycle safety in the entire United States, prioritizing bicycle safety in Beatrice is also a priority for the City, especially considering the presence of a major state trail – Homestead Trail – running through the community.

Potential strategies to improve bicyclist safety include:

Legislation and Licensing

Countermeasure	Effectiveness	Cost	Use	Time
Lower Speed Limits	✪✪✪✪	$	High	Varies
Bicycle Helmet Laws for Children	✪✪✪	$	Medium	Short
Universal Bicycle Helmet Laws	✪✪✪	$	Low	Short
Active Lighting Laws	✪✪	$	High	Varies
Motorist Passing Bicyclist Laws	✪	$	Medium	Short

Other Strategies for Behavior Change

Countermeasure	Effectiveness	Cost	Use	Time
Promote Bicycle Helmet Use with Education	✪✪✪	$$$	Unknown	Medium
Safe Routes to School	✪✪✪	$	High	Short
Bicycle Safety Education for Children	✪✪	$	Unknown	Short
Cycling Skills Clinics, Bike Fairs, Bike Rodeos	✪	$	Unknown	Short

Approaches That Are Unproven or Need Further Evaluation

Countermeasure
Rider Conspicuity Laws
Driver Training
Bicycle Safety Education for Adult Cyclists
Share the Road Awareness Campaigns

Drowsy Driving

The NHTSA describes drowsy driving as a prevalent safety concern. “In 2021 some 684 people were killed in crashes involving a drowsy driver, representing 1.6% of all motor vehicle traffic crash fatalities (Stewart, 2023). Drowsy driving was reportedly involved in 1.8% of fatal crashes from 2017 to 2021,” (NHTSA, 2023).

Since this safety concern is highly driven by lifestyle patterns and behaviors of drivers, it can be difficult to influence vehicle drivers to not participate or to prevent them from participating in this practice.

Some potential strategies to reduce this concern within Beatrice’s street network include:

Legislation and Licensing

Countermeasure	Effectiveness	Cost	Use	Time
Graduated Drivers’ Licensing Intermediate License Nighttime Restrictions	✪✪✪✪✪	$	High	Medium

Other Strategies for Behavior Change

Countermeasure	Effectiveness	Cost	Use	Time
Employer Programs	✪✪	Varies	Unknown	Short
School Start Times	✪✪	Varies	Low	Long

Approaches That Are Unproven or Need Further Evaluation

Countermeasure
Communications and Outreach on Drowsy Driving
Education Regarding Medical Conditions and Medications
General Driver Drowsiness Laws

NDOT STRATEGIC HIGHWAY SAFETY PLAN (SHSP)

The NDOT publishes its Strategic Highway Safety Plan every five years with the most recent publication extending from 2022-2026. In this Plan the NDOT outlines strategies, actions, and policies that are proven and recommended by the NDOT for localities to implement in an effort to prevent all KSI crashes from occurring within the street networks they service. "Zero is the only acceptable number of fatalities on Nebraska roads. Every strategy, every goal, and every statistic in this plan is focused on Nebraska's goal toward zero deaths. Safety is a shared responsibility among road users and road stewards. The Critical Emphasis Areas outlined in the Nebraska Strategic Highway Safety Plan are opportunities to take individual and agency action towards our shared goal of zero deaths on Nebraska roads. We can achieve this goal together," (NDOT SHSP 2022).

The following critical emphasis areas were selected for the SHSP 2026 because of their greatest opportunity to successfully reduce the number of traffic fatalities and serious injuries. Each of these emphasis areas contribute to the overall safety of the NDOT's street and roadway networks and particularly focus on protecting vulnerable road users within those networks.

1. Increasing Seat Belt Usage
2. Reducing Roadway/Lane Departure Crashes
3. Reducing Impaired Driving Crashes
4. Reducing Intersection Crashes
5. Reducing Young Driver Crashes
6. Reducing Older Driver Crashes
7. Reducing Non-Motorist Crashes

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CHAPTER 6

RECOMMENDATIONS

RECOMMENDATIONS

This chapter provides recommendations for location-specific projects developed for the City's HIN by segment and intersections. Each of these projects were identified and prioritized in Chapter 4 – Needs Assessment. This chapter also identifies recommended policy, program, and potential partnerships that Beatrice can continue to evaluate and make progress on to help facilitate a culture of safety. In addition, recommendations for the broader trails network are also provided for context, to help provide safe crossings and multi-modal access to pedestrians and bicyclists in the community.

LOCATION-SPECIFIC RECOMMENDATIONS

The 10 HIN segments and 20 High Injury Intersections that scored highest for having the greatest need for safety improvements in the City of Beatrice are selected for final recommended projects. After further review of the crash data, multimodal impact to pedestrians and bicyclists, and public comments, the final list of projects presented in this chapter reflect those that will ultimately improve safety conditions and help to eliminate KSI crashes within the City.

A summary of the recommendations is provided in *Tables 19* and *20.*

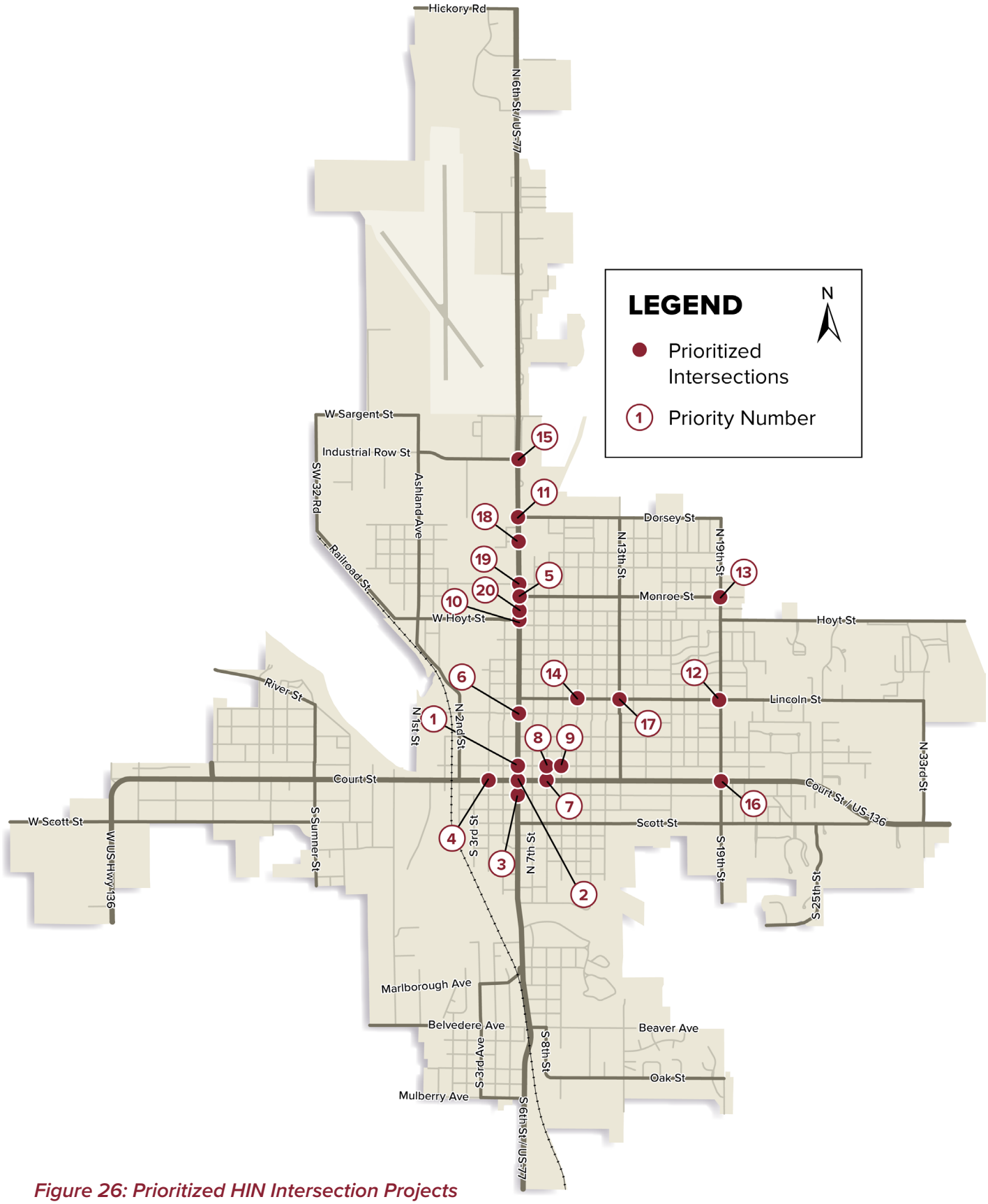


Figure 26: Prioritized HIN Intersection Projects

Table 19: Priority Projects - Top 20 HIN Intersections

Location	Overall Priority Scoring
1 6th Street (US-77) & Ella Street	High
2 6th Street (US-77) & Court Street	High
3 6th Street (US-77) & Market Street	High
4 Court Street (US-136) & 4th Street	High
5 6th Street (US-77) & Monroe Street	High
6 6th Street (US-77) & Grant Street	High
7 Court Street (US-136) & 8th Street	High
8 Ella Street & 8th Street	Moderate
9 Ella Street & 9th Street	Moderate
10 6th Street (US-77) & Hoyt Street	Moderate
11 6th Street (US-77) & Dorsey Street	Moderate
12 19th Street & Lincoln Street	Moderate
13 19th Street & Monroe Street	Moderate
14 Lincoln Street & 10th Street	Lower
15 6th Street (US-77) & Industrial Row	Lower
16 Court Street (US-136) & 19th Street	Lower
17 13th Street & Lincoln Street	Lower
18 6th Street (US-77) & Tonka Drive	Lower
19 6th Street (US-77) & Irving Street	Lower
20 6th Street (US-77) & Jackson Street	Lower

Strategy/Solution
Improve signal head displays/location, add reflective back plates, update signal timings/clearance intervals.
Improve signal head displays/location, add reflective back plates, update signal timings/clearance intervals.
Improve signal head displays/location, add reflective back plates, update signal timings/clearance intervals.
Improve signal head displays / location, add reflective back plates, update signal timings/clearance intervals.
Implement new traffic signal Flashing Yellow Arrow (FYA), consider complete street conversions (3-lane w/ LT lanes), access management strategies.
Consider complete street conversion (3-lane w/ LT lanes).
Traffic signal warrants evaluation - remove traffic signal, implement bulbouts.
Implement bulbouts, convert to two-way traffic operations, evaluate warrants for all-way stop control.
Implement bulbouts, clear parking near intersection per standards, convert to two-way traffic operations.
Consider complete street conversions (3-lane w/ LT lanes).
Implement new traffic signal (FYA), construct pedestrian crossing improvements (sidewalk, ramps, crosswalks).
Construct roundabout (per Lincoln St. corridor study).
Enhance pedestrian crossing, implement RRFB and updated signing/crossing, speed management strategies.
Implement recommended cross-section per Lincoln Street corridor study, reduce speed limit to 30mph.
Implement new traffic signal (FYA), SB Prepare to stop when flashing beacons, construct all pedestrian provisions (sidewalks, ramps).
Implement new traffic signal (mastarm), construct all pedestrian provisions (sidewalks, ramps), implement bulbouts.
Fix E/W skew by moving no parking zones and line up thru traffic, improve pedestrian crossing provisions.
Consider complete street conversion (3-lane), implement access management of driveways, construct all pedestrian provisions (sidewalks, ramps).
Consider complete street conversion (3-lane), move trail crossing to intersection (std), construct all pedestrian provisions (sidewalks, ramps).
Consider complete street conversion (3-lane), implement access management of driveways, construct all pedestrian provisions (sidewalks, ramps).

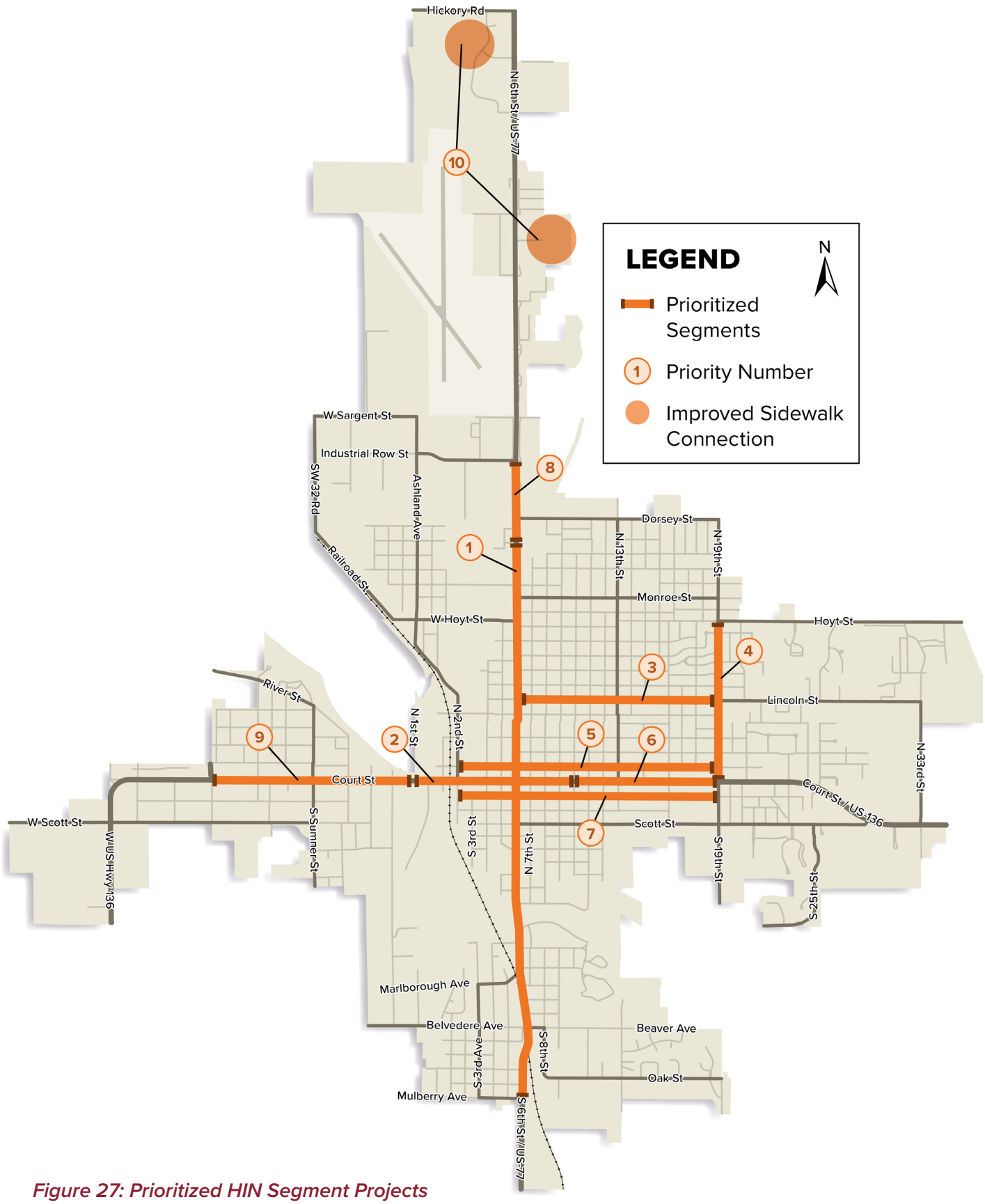


Figure 27: Prioritized HIN Segment Projects

Table 20: Priority Projects - Top 10 HIN Segments

Location	Overall Priority Scoring	Strategy/Solution
1 6th Street (US-77); Mulberry Ave to Tonka Drive	High	• Consider complete street conversion (3-lane), signal improvements, sidewalk setback
2 Court Street (US-136); 1st Street to 10th Street	High	• Improvements via RAISE Grant Project. (Court Street Master Plan)
3 Lincoln Street; 6th Street (US-77) to 19th Street	High	• Implement recommended cross-section per Lincoln Street corridor study. (2-ln, limited parking). • Reduce speed limit to 30mph
4 19th Street; Court Street to Hoyt Street	Moderate	• Enhance pedestrian crossing opportunities (bulbouts) • Implement mini-roundabout at Lincoln St., Hoyt St. • Speed management strategies
5 Ella Street; 2nd Street to 19th Street	Moderate	• Convert to two-way traffic operations • Modify On-street parking, construct bulbouts • Enhance pedestrian crossing opportunity
6 Court Street (US-136); 10th Street to 19th Street	Moderate	• Revise/narrow lane widths • Implement sidewalk improvements • Enhance ped x-ing opportunities (bulbouts)
7 Market Street; 2nd Street to 19th Street	Moderate	• Convert to two-way traffic operations • Modify On-street parking, construct bulbouts • Enhance pedestrian crossing opportunity
8 6th Street (US-77); Tonka Drive to Industrial Row	Lower	• Access management, traffic signal timing updates, auxiliary turn lanes
9 Court Street (US-136); Hwy 4 to 1st Street	Lower	• Revise/narrow lane widths • Implement sidewalk improvements • Enhance ped x-ing opportunities (bulbouts)
10 Walmart & Beatrice Comm. Hospital; Connect to City Wide Network	Lower	• Implement trail connections • Enhance crossings w/ updated signs, x-ings

OVERARCHING, PRIORITIZED RECOMMENDATIONS

Based upon the compilation of all the data analysis and recommendations, stakeholder feedback, and project discussions related to "making the biggest impact to reduce severe crashes", three overarching recommendations were developed that include prioritized groups of individual projects along strategic corridors in Beatrice.

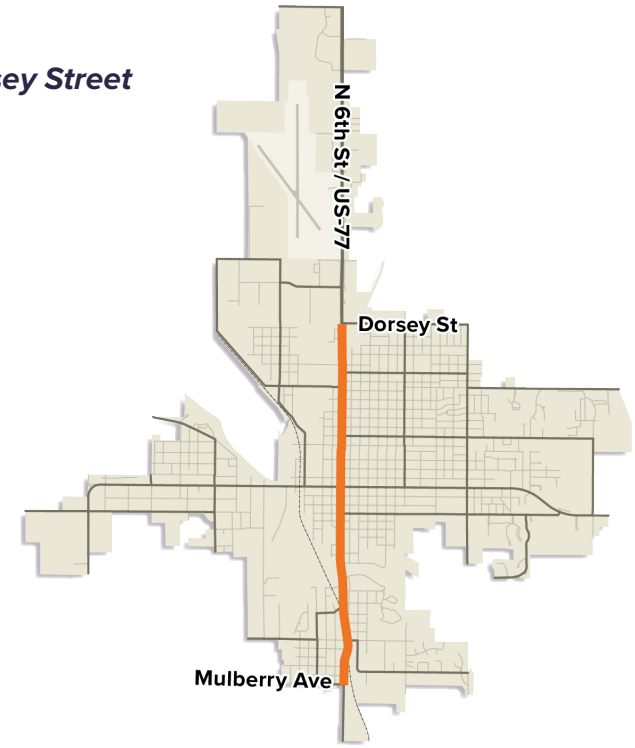
By implementing these overall corridor projects, several of the top safety issues at individual locations across the City could be mitigated. Those three overall corridor projects include the following:

1. **Prioritized Project Group #1**
   - 6th Street (US-77), Mulberry Avenue to Tonka Drive
2. **Prioritized Project Group #2**
   - Court Street (US-136), 1st Street to 10th Street
3. **Prioritized Project Group #3**
   - Lincoln Street, 6th Street (US-77) to 19th Street

A summary of these project locations is included in the following project group detail sheets.

Prioritized Project Group #1

6th Street (US-77), Mulberry Avenue to Dorsey Street



Corridor Description

This section of 6th Street travels north-south between the intersection of Mulberry Avenue on the south and Dorsey Street on the north end. This major arterial corridor through Beatrice serves between 6,000 and 14,000 vehicles per day and is adjacent to commercial uses and some residential uses along its alignment. 6th Street is posted at 35mph on the north, 25mph downtown, and transitions to 40 and 50mph south leading out of town.

Proposed Project:

To address identified safety issues at intersections, high injury network (HIN) segments, and VRU crashes, this proposed project will reconstruct 6th Street (US-77) through the project limits. The project will include a new three-lane urban street with a center, two-way left-turn lane throughout. It will include new sidewalks with dramatically improved setbacks from the street. The project will also include improved traffic signalized intersections where applicable with updated signal displays and pedestrian amenities. In addition, all ADA ramps will be improved, marked crossings implemented where appropriate, and improved signing and markings. Project implementation will result in **mitigating 9 of the top 20 high crash** intersections in the city, **over 2 miles of HIN segments** and will also improve wayfinding and truck route circulation at the new Court Street and Market Street intersections in downtown Beatrice.

Opinion of Probable Project Costs:

The 6th Street (US-77) corridor safety improvement project is expected to have an implementation cost range of $30,000,000 to $35,000,000 pending final scope of work and included amenities.

Potential Project Phasing:

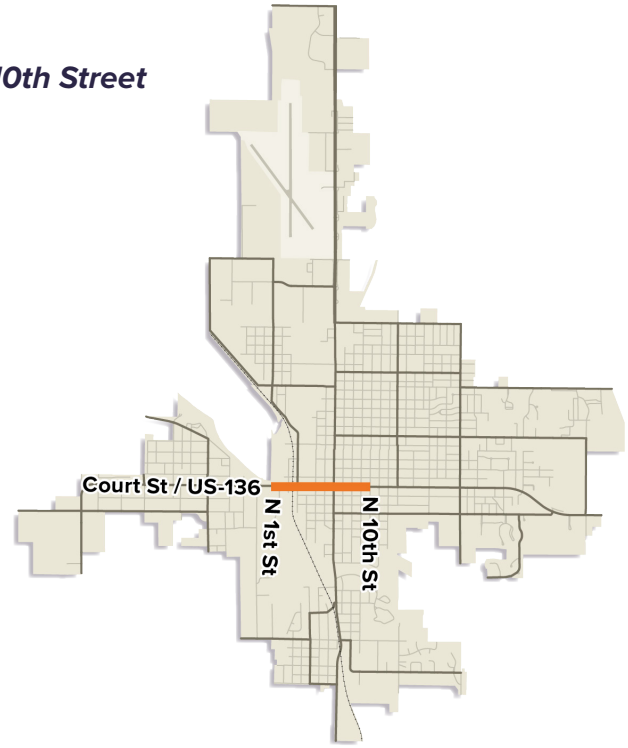
This significant construction project of the mainline corridor through most of the limits of Beatrice is anticipated to take a minimum of three construction seasons. There are natural break points on the phasing that would be desirable to maintain based upon traffic flow and lane closures, in addition to sheer quantity of work. Phasing would likely be split into a south, central, and north phases of construction. This could possibly result in a south phase from Mulberry Avenue to the Big Blue River bridge, a central phase from the Big Blue River bridge, north to Lincoln Street, and a north phase from Lincoln Street to Dorsey Street. Flexibility is likely desired dependent upon timing of other downtown work in Beatrice.

Prioritized Project Group #2

Court Street (US-136) Corridor, 1st Street to 10th Street

Corridor Description

This section of Court Street travels east-west between the intersection of 1st Street on the west and 10th Street on the east end. This major corridor serves between 5,000 and 8,000 vehicles per day in this vicinity and is adjacent to primarily commercial downtown uses in this area. Court Street is posted at 25mph in the downtown and provides connectivity to the junction of US-77, as a primary truck route.



Proposed Project:

To address identified safety issues at intersections, high injury network (HIN) segments, and VRU crashes, this proposed project will reconstruct Court Street through the project limits. The project will include a new street that transitions to the south to the Market Street alignment, creating a new truck by-pass of downtown Court Street, resulting in a pedestrian focused corridor. This Court Street Access and Safety Transformation (CAST) initiative recently received $21.4 million in funding as part of a discretionary RAISE Grant. The project will result in a roundabout intersection at each end of the corridor where Court Street rejoins existing alignment, and new sidewalks with ADA ramps that will enhance pedestrian safety. The project overall will reduce crashes, **mitigating 5 of the top 20 high crash** intersections in the city, **nearly a mile of HIN segments** and will also improve adjacent downtown street operations that the City of Beatrice can make additional improvement modifications to (Ella Street intersections).

Opinion of Probable Project Costs:

The Court Street corridor safety improvement project is expected to have an implementation cost range of $21,000,000 to $22,000,000 pending final scope of work and included amenities.

Potential Project Phasing:

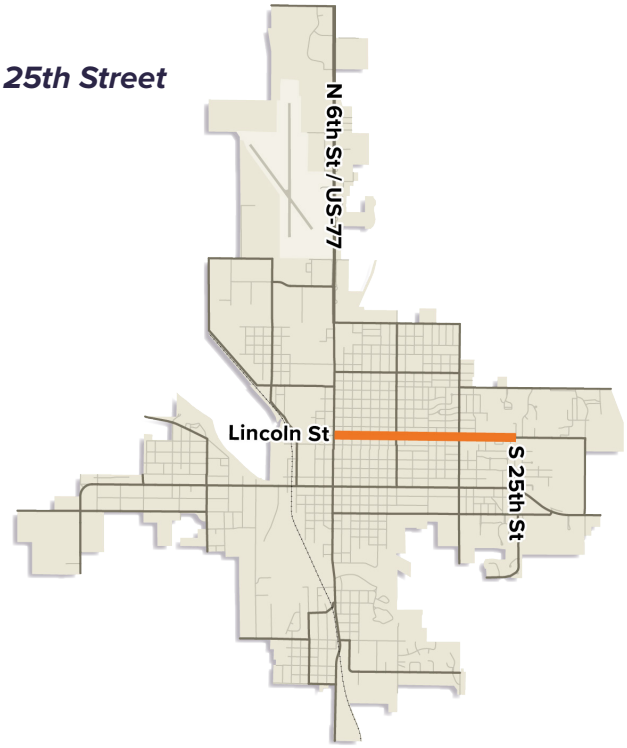
Based upon the current scope and approach for the downtown CAST Initiative, this project is anticipated to be constructed in two construction seasons. Phasing is anticipated to be accomplished in the following manner: construction of the US-77 intersection approach areas in the first phase, both north and south of Court Street, in addition to the roundabout intersections and mainline paving of Market Street. In the next phase, it is anticipated to construct the new pedestrian friendly corridor on Court Street and completion of any other remaining amenities such as adjacent curb ramps and streetscape items.

Prioritized Project Group #3

Lincoln Street Corridor, 6th Street (US-77) to 25th Street

Corridor Description

This section of Lincoln Street travels east-west between the intersection of 6th Street (US-77) on the west and 19th Street on the east end. The corridor serves approximately 5,000 vehicles per day and is adjacent to primarily residential uses with some commercial business on the west end. Lincoln Street is posted at 35mph and provides connectivity to new school facilities on 25th Street and also the Beatrice State Developmental Center.



Proposed Project:

To address identified safety issues at intersections, high injury network (HIN) segments, and VRU crashes, this proposed project will reconstruct Lincoln Street through the project limits consistent with the previously conducted corridor study. The project will include a new two-lane urban street with a reduced speed limit of 30mph, including new sidewalks/trail with dramatically improved setbacks from the street. It will also include intersection bulbouts for reduced pedestrian crossing distances at intersections where on-street parking is allowed to calm traffic. In addition, all ADA ramps will be improved, marked crossings implemented where appropriate, and a roundabout will be implemented at the intersection of 19th and Lincoln Street. Project implementation will result in **mitigating 3 of the top 20 high crash** intersections in the city, **a mile of HIN segments** and will also improve alignment and conflicts at the 6th Street traffic signalized intersection.

Opinion of Probable Project Costs:

The Lincoln Street corridor safety improvement project is expected to have an implementation cost range of $14,000,000 to $16,000,000 pending final scope of work and included amenities.

Potential Project Phasing:

Based upon the previously conducted Lincoln Street Corridor Study (September, 2022) the project area was anticipated to be phased into seven distinct annual phases, primarily due to funding limitations. If additional funding were able to be obtained (through discretionary grants or other sources) it would be more desirable to phase this project over two construction seasons. A logical breakpoint between the phases would be the approximate midway point at the intersection of 19th Street, which would allow the project to be constructed from west to east and allow for improved circulation in this central area of Beatrice.

POLICIES, PROGRAMS, & PARTNERSHIPS

Enhancing safety on Beatrice's roads is not solely a matter of upgrading physical infrastructure. To achieve a truly comprehensive approach, the City must embrace supportive policies, targeted programs, and strategic partnerships that address behavior, culture, and collaboration at every level. By combining engineering solutions with community-oriented initiatives, Beatrice can build a more resilient and inclusive environment—one that encourages responsible road use, fosters public trust, and drives continuous improvement.

These recommendations extend well beyond traditional construction and maintenance activities, focusing instead on harnessing the power of collective action. From local ordinance updates to public awareness campaigns, and from collaboration with schools to forging alliances with healthcare providers, each initiative plays a vital role in strengthening the City's safety network. The following items outline some of the key policies, programs, and partnerships that can help ensure a safer future for everyone who travels in Beatrice.

Policies

- Access Management Policy Implementation
- Land Use and Development Policy for Safe Pedestrian Mobility
- Neighborhood Traffic Calming Policy
- Complete Streets Policy Implementation

Programs

- Sidewalk Improvement Program
- Traffic Signal Optimization
- City Wide Trails Enhancements
- Safe Routes to Schools Initiative
- Bicycle and Pedestrian Safety Campaigns
- Distracted Driving and Impaired Driving Prevention Programs
- Enforcement and Engagement Programs

Partnerships

- Beatrice Public Schools
- Southeast Community College
- Leadership Beatrice
- Nebraska Department of Transportation
- Blue River Agency on Aging
- Beatrice Chamber of Commerce/Gage County Tourism
- Main Street Beatrice
- Homestead National Historic Park
- Southeast Nebraska Collaborative
- Big Blue Biking Club
- Beatrice Public Library
- Homestead Running Club

TRAILS NETWORK

Trail Crossings: Key Considerations and Recommendations

The City of Beatrice's trail network contributes significantly to recreational opportunities and active transportation. However, many trail crossings at streets can be improved to provide safer, more intuitive connections for users of all ages and abilities. As part of the broader trail system enhancements, the following items should be considered when evaluating and designing trail crossings:

High-Visibility Markings

- Use bold, ladder-style (or continental) crosswalks at intersections and mid-block crossings to increase driver awareness.
- Include painted advanced stop bars to encourage motorists to stop well in advance of the crossing.

Appropriate Signage

- Post clear trail-crossing signs (e.g., "Trail Crossing Ahead") for oncoming vehicles and trail users.
- Consider "Stop" or "Yield" signs on the trail approaches if vehicular traffic volumes and speeds are high, or if sight lines are limited.
- Ensure signage meets the Manual on Uniform Traffic Control Devices (MUTCD) standards.

Enhanced Warning Devices

- Install Rectangular Rapid Flashing Beacons (RRFBs) or other active warning beacons at higher-volume or higher-speed road crossings.
- Consider pedestrian hybrid beacons (PHBs) or full signalization at major arterials or multi-lane streets.

Intersection Geometry & Sight Lines

- Maintain clear sight lines by trimming vegetation and avoiding the placement of utilities or street furniture that obstruct visibility.
- Evaluate corner radii and turning speeds to ensure safe, comfortable transitions for pedestrians and bicyclists.

Physical Design Treatments

- Include raised crossings, speed humps, or curb extensions where feasible to slow traffic and increase driver awareness of trail users.
- Provide refuge islands on multi-lane roads, giving trail users a safe space to pause before crossing the second set of lanes.

Accessible Design

- Incorporate Americans with Disabilities Act (ADA)-compliant curb ramps, detectable warning surfaces, and audible signals for pedestrians with vision impairments.
- Ensure smooth transitions between trail surfaces and street or sidewalk elevations.

Lighting and Visibility

- Provide adequate lighting at crossings and approaches to enhance nighttime visibility.
- Use reflective pavement markings or signage to further increase driver awareness after dark.

Wayfinding and Branding

- Install consistent and easily recognizable wayfinding signs along the trail and at crossings to help users navigate.
- Include maps, distance markers, or directional signage to key destinations (e.g., parks, downtown).

Gap-Filling and Future Extensions

- Continue to identify missing trail segments or inadequate connections and develop a phased approach for filling gaps.
- Coordinate with future road projects to integrate safe trail crossings and potential trail extensions seamlessly.

By adopting these treatments and best practices, Beatrice can enhance the safety and functionality of its trail system, encourage more residents to engage in active recreation, and further strengthen connectivity throughout the City.

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CHAPTER 7

IMPLEMENTATION

IMPLEMENTATION

The Beatrice Safety Action Plan was developed with input from community members, key stakeholders, and elected officials and the commitment of the City of Beatrice to achieving its goals. However, the successful achievement of this plan's goals can only be accomplished with a strong implementation plan. The following outlines the City's commitment to achieving zero fatal and reduced severe injury crashes within the community through progress reporting, strategic actions, and policy implementation at the local and state level.

COMMITMENT TO SAFETY

The completion of this Safety Action Plan is the City's commitment to its citizens and users of its transportation system that no injuries or deaths are acceptable in the community of Beatrice. This plan also allows the City to pursue additional funding to support the recommendations of this plan and their implementation through the USDOT's SS4A Program. This funding is very important toward achieving the City's safety goal. Going forward, as the City continues to grow and seek new funding opportunities, it will need to prioritize safety when selecting future projects and infrastructure improvements. Policies that can create a greater focus on safety, both in the current operations of the transportation system and in future maintenance and construction activities, will need to be established by staff and local policy makers. Safety will also need to remain at the forefront of conversations within the community as a means to continue building a culture of safety in Beatrice. Serious commitment from all elected leaders towards the goals of this plan will help to decrease fatal and serious injury crashes in the community presently and in years to come.

PROGRESS REPORTING

Regular reporting and communication of progress towards the goals of this plan is necessary as the City strives to ultimately reach zero fatal and serious injury crashes.

As part of the Beatrice Safety Action Plan, the City will continue to track fatal and serious injury crashes as they occur in the community. This data analysis will include a focus on disproportionately impacted communities and the City's HIN. By tracking this crash data, the City will be in a better position to identify prioritized locations for safety improvement projects within its street, trail, and sidewalk network. Additionally, the City should also track past trends of fatal and serious injury occurrences in its network to support progress tracking for year-to-year comparisons.

The HIN should also be analyzed with each update of the Safety Action Plan to ensure safety priorities are aligned with the most current crash data. Vulnerable road users remain to be a safety priority for the City and will continue to be a focus of safety measures going forward based on available crash data. The City will also continue to collaborate with NDOT and the State Highway Safety Office on analyzing and reporting progress of safety metrics as well as the implementation of safety improvement projects.

TAKING ACTION

The implementation of this plan will require a continued focus and commitment by the City towards safety every single day. Through the engagement process of this plan, the community has clearly stated that deaths and serious injuries on streets and roads in Beatrice are not acceptable. The City's completion of this plan shows its commitment to accomplishing the goal of zero deaths or serious injuries, while still knowing it is an ambitious goal. But, with the strategic policies and safety improvement projects recommended in this plan, achieving this goal can become a reality for the City of Beatrice.

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