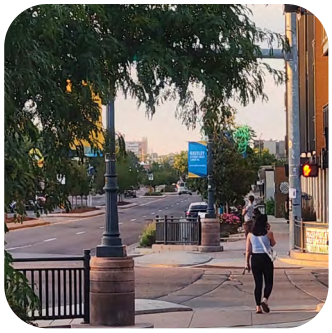
GREELEY on the go

VISION ZERO



ACTION PLAN

FEBRUARY 2025

Letter from the Mayor

January 31, 2025

Dear Neighbors,

Every life in Greeley is precious, and no one should face the heartbreak of losing a loved one in a traffic crash. For too long, we've seen lives cut short and families forever changed on our streets. It's time for that to end.

The Greeley on the Go Vision Zero Action Plan is a commitment to eliminate traffic deaths and serious injuries by 2045. This isn't just another initiative—it's about putting a policy of safety at the center of everything we do. The plan offers concrete actions toward safer streets, safer speeds and safer users which will help us create a city where everyone—whether walking, biking, or driving—can get where they need to go safely.

This won't happen overnight, and it's going to take all of us working together. But I believe in Greeley and our ability to build a community where Vision Zero traffic deaths is a reality not just an aspiration.

Let's work together to make Greeley a safer place for all.

Sincerely,

Mayor John Gates
City of Greeley

City Council Resolution

CITY OF GREELEY, COLORADO
RESOLUTION NO. 2, 2025

A RESOLUTION ADOPTING A VISION ZERO GOAL, ACTION PLAN, AND STRATEGIES

WHEREAS, the City of Greeley is committed to ensuring the safety and well-being of all its residents and visitors; and

WHEREAS, in the past decade, 2014-2023, there have been 76 fatal crashes and 269 other crashes resulting in serious injury on City of Greeley streets; and

WHEREAS, traffic fatalities and severe injuries are preventable and no loss of life is acceptable; and

WHEREAS, Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries while increasing safe, healthy, and equitable mobility for all; and

WHEREAS, other communities nationwide and internationally have successfully implemented Vision Zero strategies with measurable progress; and

WHEREAS, adopting a Vision Zero policy reflects the city's dedication to creating safer streets for all road users, including pedestrians, micromobility users, and drivers; and

WHEREAS, the Greeley Vision Zero Action Plan is a comprehensive, data-driven strategy based on the Safe System Approach, emphasizing the shared responsibility of everyone to create a safe transportation system; and

WHEREAS, the plan outlines specific strategies and policies related to Safe Speeds by implementing measures to reduce speeds on Greeley's streets, such as setting safe speed limits, implementing traffic calming devices and lane reconfigurations, and comprehensive speed management plans; and

WHEREAS, the plan outlines specific strategies and policies related to Safe Users by supporting efforts to ensure safety for all road users, including pedestrians, micromobility users, and drivers through strategies, such as communication, outreach, enhanced police enforcement, and traffic safety education; and

WHEREAS, the plan outlines specific strategies and policies related to Safe Streets by enhancing the design of Greeley's streets to be safer for users of all travel modes, ages and abilities. Ensuring that design standards and criteria put proper weight on safety for the design of all City streets and intersections through a unified active mobility strategy. Safe street design is guided by the prioritized projects identified in the plan.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF GREELEY, COLORADO:

Section 1. That the Vision Zero goal to eliminate traffic deaths and serious injuries on our streets by the year 2045 is adopted.

Section 2. That the plan's strategies aimed at addressing and mitigating traffic safety issues, including safe speeds, safe users, and safe streets, are endorsed by City Council

Section 3. That the City of Greeley Vision Zero Action Plan is adopted and that City Council commits to utilizing data-driven strategies, transparency, and community engagement in executing the Plan, ensuring its alignment with City policies and goals.

Section 4. This Resolution shall take effect immediately upon its passage.

PASSED AND ADOPTED, SIGNED AND APPROVED ON THIS 21ST DAY OF JANUARY 2025.

ATTEST

CITY OF GREELEY INCORPORATED SEAL APRIL 6th, A.D. 1886 WELD COUNTY, COLORADO

THE CITY OF GREELEY, COLORADO

By: _____
City Clerk

By: _____
Mayor

VISION ZERO PLEDGE

Greeley commits to eliminating traffic deaths and serious injuries on our streets by 2045.

We recognize that no loss of life is acceptable and strive to incorporate the Greeley on the Go Vision Zero Action Plan goals, principles, and values into all our efforts, as everyone deserves safe, accessible streets and sidewalks.

ACKNOWLEDGMENTS

PROJECT TEAM

City of Greeley

Steven Younkin*
Bhooshan Karnik*
Hanna Feldmann*
Scott Logan*

**also on the Action Plan Advisory Committee*

WSP

Tim Adams
Kevin Carder
Josh Boehm
Le Zhang
Joe Milsap
Lauren Brown
Cameron Splichal

Ulteig

Myron Hora
Abdullah Kurkcu
Aracelli Gonzolez
Eric Milliken

ACTION PLAN ADVISORY COMMITTEE

Wade Corliss
City of Greeley-Evans School District 6

AnnaRose Cunningham
*North Front Range MPO***

Jay Dinges
University of Northern Colorado

Don Dunker
Weld County Public Works

Bianca Fisher
Greeley Downtown Development Authority

Sgt. Stephen Fisher
City of Greeley Police Department

Olga M. Gonzalez
Weld County Public Health Clinic and Vital Records Office

Evan Pinkham
Weld County Public Works

Jim Riesberg
City of Greeley Citizens Transportation Advisory Board

Elisabeth Relford
Weld County Finance Department

Jeff Stranahan
***City of Greeley Fire Department*

Don Threewitt
City of Greeley Community Development

Kristen Wilkinson
City of Greeley Nature Areas and Trails (Parks)

Mykayla Marek
North Front Range MPO

*** Former Role*

TABLE OF CONTENTS

Mini-Glossery of Terms

Acronym	Description
HMVM	100 Million Vehicle Miles
FHWA	Federal Highway Administration
KSI	Killed or Seriously Injured
EJ	Environmental Justic Areas
HIN	High Injury Network
HII	High Injury Intersections
HRN	High Risk Network

EXECUTIVE SUMMARY

This plan includes several proven strategies for Greeley to achieve Vision Zero, including:

SAFE SPEEDS:

Reducing speeds on Greeley's streets is one of the most important things we can do to prevent traffic fatalities and serious injuries. The plan includes several strategies to reduce speeds, such as traffic calming devices, reconfiguring lanes, and speed management strategies.

SAFE USERS:

The plan includes several strategies to make Greeley's streets safer for drivers, pedestrians, cyclists, and other vulnerable road users. These strategies include supporting communication and outreach efforts, expanding multimodal transportation options, enhanced police enforcement, and traffic safety education.

SAFE STREETS:

These strategies are intended to make Greeley's streets themselves safer and more accessible to people of all ages and abilities. These strategies include improving road design with a more context-sensitive approach and addressing new and existing policies through the perspective of a Safe System Approach.

The City of Greeley recognizes that achieving real progress toward zero traffic fatalities and serious injuries requires moving beyond "safety" as merely a slogan and instead requires embedding safety into all its policies and practices.

This Vision Zero Action Plan outlines the City of Greeley's ongoing and authentic commitment to a systems-based and equitable safety approach for Greeley through a data-driven strategy to eliminate traffic fatalities and serious injuries among all road users.

1

WHY VISION ZERO?

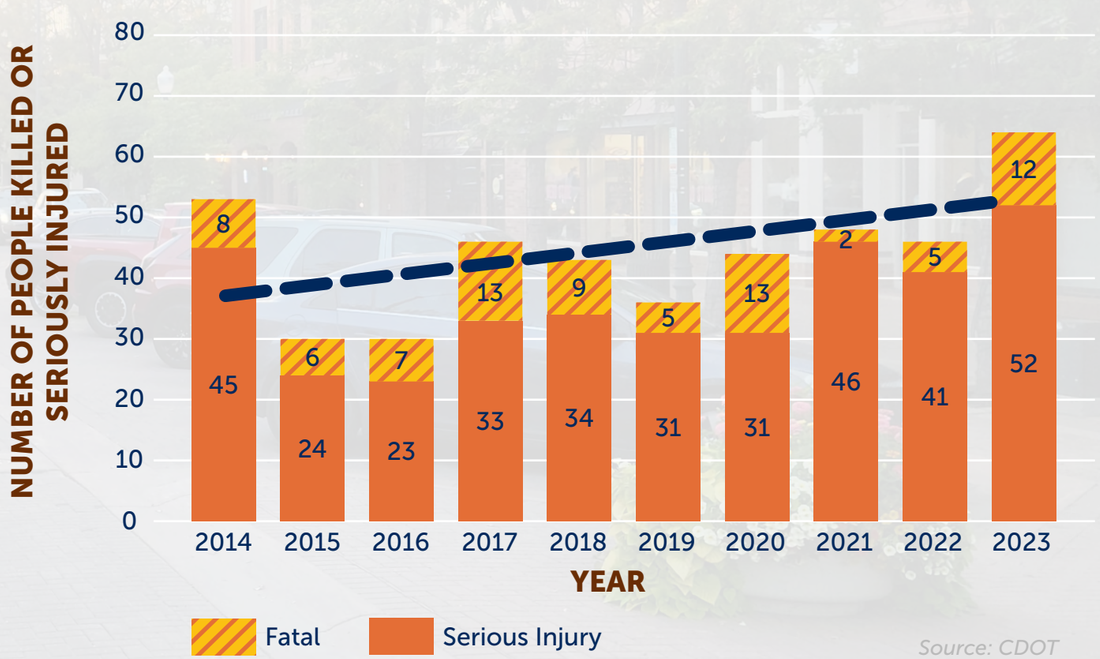
The City of Greeley recognizes that no loss of life on its streets is acceptable.

Greeley is committed to significantly reducing or eliminating fatal and serious injury crashes by 2045. This Vision Zero Action Plan sets out strategies and recommendations to maximize the City's potential to achieve this goal.

This plan will also allow the City of Greeley to become more competitive when applying for federal and state grant dollars for actions that support safety of all road users.

In the ten years from 2014-2023, 80 people were killed in traffic crashes in the City of Greeley and another 360 people were left with serious lifelong injuries. Like many other communities across the country, Greeley has experienced an upward trend in fatal and serious injury crashes in recent years; 2023 has been the harshest year yet, as 12 people were killed and 52 were seriously injured. With each of these crashes, there is a story of immense loss for the victims and their loved ones. Their loss stresses the urgency of taking action to minimize the likelihood of further deaths and serious injuries.

CRASH FATALITIES AND SERIOUS INJURIES IN GREELEY, CO 2014-2023



Source: CDOT

WHAT IS VISION ZERO

Vision Zero is a global traffic safety initiative that originated in Sweden in the late 1990s and is now endorsed by the U.S. Department of Transportation. The core principle of Vision Zero is the belief that all traffic fatalities and serious injuries are preventable, and that no loss of life is acceptable. The goal of Vision Zero is to create a transportation system that prioritizes safety above all else, using data-driven analysis to identify the root causes of traffic crashes and addressing them with comprehensive strategies rooted in a Safe System Approach.

TRADITIONAL APPROACH

Traffic deaths are **INEVITABLE**

PERFECT human behavior

Prevent **COLLISIONS**

INDIVIDUAL responsibility

Saving lives is **EXPENSIVE**

VS

VISION ZERO APPROACH

Traffic deaths are **PREVENTABLE**

Integrate **HUMAN FAILING** in approach

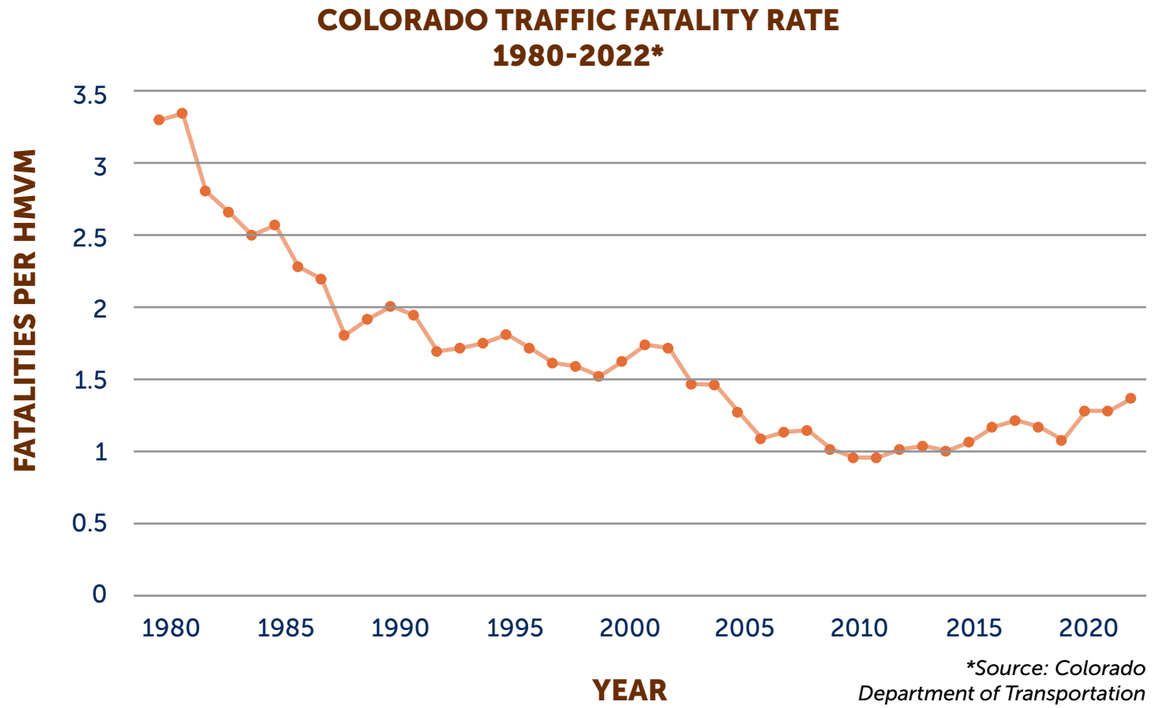
Prevent **FATAL** and **SEVERE CRASHES**

SYSTEMS Approach

Saving lives is **NOT EXPENSIVE**

The Safe System Approach

Over the previous four decades, traffic fatalities in Colorado decreased from 3.33 fatalities per 100 million vehicle miles (HMVM) in 1981 to 0.96 fatalities HMVM in 2011[1]. In those 30-years we should be proud of the lives saved, but the same strategies have either been exhausted or failed to adapt to the changing problems. This incredible progress has stagnated over the last decade, having ticked upward by 43% to 1.37 fatalities per HMVM in 2022[2]. The Safe System Approach is a new, holistic way of addressing transportation safety.



Source: Colorado Department of Transportation

The Safe System Approach is a comprehensive strategy for managing road safety that is closely aligned with Vision Zero principles.

Developed by the Federal Highway Administration (FHWA), the goal of the Safe System Approach is to create a transportation system that is forgiving of human error and does not rely on individual road users to be perfect. Instead, the approach recognizes that people will make mistakes and transportation systems must be designed to the extent possible to protect the road user from the consequences of those mistakes.

Read more about the Safe System Approach on the next page!

1 https://coloradonewsline.com/2023/01/24/colorado-highest-traffic-death-toll/
2 https://www.iihs.org/topics/fatality-statistics/detail/state-by-state

VISION ZERO GUIDING PRINCIPLES

The Safe System Approach is based on six foundational principles*:

Deaths and serious injuries are unacceptable: A Safe System Approach prioritizes the elimination of crashes that result in death and serious injuries.

Humans make mistakes: People will inevitably make mistakes and decisions that can lead or contribute to crashes, but the transportation system can be designed and operated to accommodate certain types and levels of human mistakes and avoid death and serious injuries when a crash occurs.

Humans are vulnerable: Human bodies have physical limits for tolerating crash forces before death or serious injury occurs; therefore, it is critical to design and operate a transportation system that is human-centric and accommodates physical human vulnerabilities.

Responsibility is shared: All stakeholders—including government at all levels, industry, non-profit/advocacy, researchers, and the public—are vital to preventing fatalities and serious injuries on our roadways.

Safety is proactive: Proactive tools should be used to identify and address safety issues in the transportation system, rather than waiting for crashes to occur and reacting afterwards.

Redundancy is crucial: Reducing risks requires that all parts of the transportation system be strengthened, so that if one part fails, the other parts still protect people.

**Source: U.S. Department of Transportation*

Greeley's rate of people killed in crashes over the past 10 years puts it in the middle of the pack when compared to other cities in the surrounding region, but there is still significant room for improvement. By applying the Safe System Approach and proven safety countermeasures that have been successful in other communities, Greeley can effectively work toward the goal of significantly reducing and eventually eliminating traffic fatalities on its streets.

Crash Fatalities per 100,000 Population per Year:

Boulder, CO	2.0
Berkeley, CA	2.8
Fort Collins, CO	4.7
Loveland, CO	5.6
Longmont, CO	5.8
Greeley, CO	**6.3**
Omaha, NE	6.3
Denver, CO	7.1
Cheyenne, WY	8.8
Kansas City, MO	13.6

Source: NHTSA, 2014-2022 Data

COMMUNITY ENGAGEMENT

Community engagement is the cornerstone of the Vision Zero Action Plan, its implementation, and long-term success.

Pop-up events were hosted at various community events, from farmers markets to a back-to-school backpack giveaway event. By listening to public opinions and incorporating this input into solutions, the plan can best address traffic safety issues for everyone who lives, works, and plays in the City of Greeley. Six pop-up events were held between May and August 2024 to share project information and receive public feedback, which was collected and incorporated into the plan's recommendations. In addition to these pop-up events, an online webpage was created on the "Speak Up Greeley" website to host project-related information as well as an online format for residents to comment on transportation safety in Greeley. Appendix A contains a comprehensive summary of all community and public engagement activities.

ACTION PLAN ADVISORY COMMITTEE

The Vision Zero Action Plan Advisory Committee (APAC) was formed to review data analysis and public input filter, as well as prioritize and implement recommendations from the public. The APAC is made up of City of Greeley department staff, partnering agencies representatives, and members of community advocacy groups. The committee's input was critical to the development of the Greeley's Vision Zero Action Plan.

Organizations of the APAC include:

- City of Greeley Citizens Transportation Advisory Board
- City of Greeley Community Development
- City of Greeley Downtown Development Authority
- City of Greeley-Evans School District 6
- City of Greeley Fire Department
- City of Greeley Nature Areas and Trails (Parks)
- City of Greeley Police Department
- City of Greeley Public Works
- North Front Range Metropolitan Planning Organization
- University of Northern Colorado
- Weld County Planning Department
- Weld County Public Health Clinic and Vital Records Office
- Weld County Public Works

POP-UP EVENTS

05/05/24:	Farmers Market
05/11/24:	71st Avenue King Soopers
06/26/24:	Bike to Work Day at Lincoln Park
08/03/24:	School District 6 Kick-off and Backpack Give-Away at Island Grove
08/13/24:	Friday Fest on the Downtown Plaza
08/24/24:	Farmers Market

ONLINE ENGAGEMENT

To ensure engagement activities for this project were accessible and transparent to as many City of Greeley residents as possible, the Creating a Safer Transportation System: Help Greeley Achieve "Vision Zero" webpage was launched in April 2024 to provide project information, project updates, and engagement opportunities. The site provides information and encourages the public to share their input through an online survey, which allows citizens to identify areas they feel unsafe driving, walking, or biking on Greeley streets.

LOCAL, STATE, AND NATIONAL RESOURCES

As a part of the planning process, the City of Greeley wanted to draw on the experiences of other municipalities (regionally and nationally) actively taking steps to achieve Vision Zero and understand what best practices are working within their communities. Additionally, Greeley wanted to review existing local, regional, state, and national plans to see the strengths within their plans and policies and where they had opportunities for improvements. The findings of both the Vision Zero action plans review and the policies and plans reviews are found in Appendix B.

PUBLIC INPUT

Over the course of the planning process, we received public input from six pop-up events and the project website.

Key Themes from Public Input

The following were common themes in the input provided by surveys (in-person and online) and through the dot plot activity:

- The majority of respondents have been impacted or know someone who has been impacted by crashes in Greeley.
- Respondents feel least safe walking/rolling/biking on main roadways and feel most safe driving in residential areas.
- Most respondents attribute crashes to the drivers, with distracted driving and driver error being the largest perceived contributing circumstances.
- Pedestrian countermeasures were the highest selected category of strategies, specifically high-quality pedestrian crossings and pedestrian traffic control devices (such as pedestrian hybrid beacons and rectangular rapid flashing beacons).
- Behavioral countermeasures—such as high visibility enforcement, Safe Routes to School, and speed limit reduction—and intersection-related countermeasures—such as roundabouts, traffic signal improvements, and all-way stop control—were also important countermeasures to respondents.

2

DATA AND FOCUS AREAS

Crash Mapping

Greeley's goal is to eliminate crashes that result in people being killed or seriously injured (KSI crashes) in the City of Greeley by 2045. Over the past ten years (2014-2023), a total of 345 crashes have resulted in people being killed or seriously injured, with another 3,725 crashes resulting in a non-incapacitating (minor) or possible injuries. Although non-injury crashes (aka property damage only crashes) account for three-quarters of all crashes in Greeley, the data analysis for the Vision Zero Acton Plan focuses on KSI crashes. KSI crashes are by far the most impactful and life-altering type of crashes.

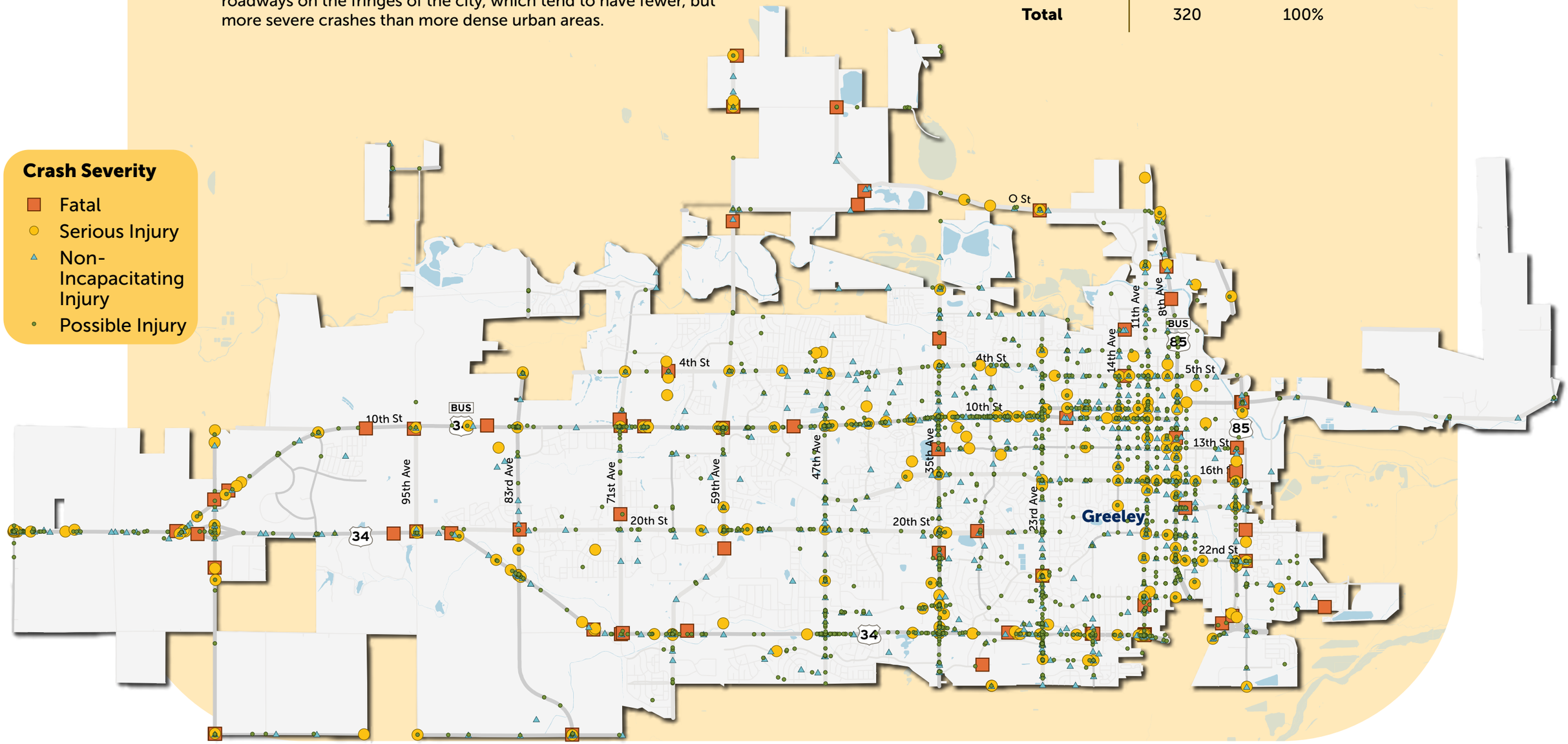
Greeley Crashes by Severity
(2014-2023)

Fatal	76
Serious Injury	269
Non-Incapacitating Injury	1,080
Possible Injury	2,645
Not Injured	12,551
Total	16,648

LOCAL VS. COUNTY VS. STATE ROADS

More than 473 miles of roadway exist within the City of Greeley. **State Highways account for 9% of these roadways but 54% of KSI crashes.** These highways generally have higher volumes and higher speeds, attributes that correlate to increased frequency and severity of crashes. Although there are more lane miles of City roads, these roadways tend to be urban, lower-speed roadways, where crashes can be less severe. County roads tend to be the lowest volume roadways on the fringes of the city, which tend to have fewer, but more severe crashes than more dense urban areas.

	KSI Crashes	
	#	%
City Roads	141	44%
County Roads	7	2%
State Highways	172	54%
Total	320	100%

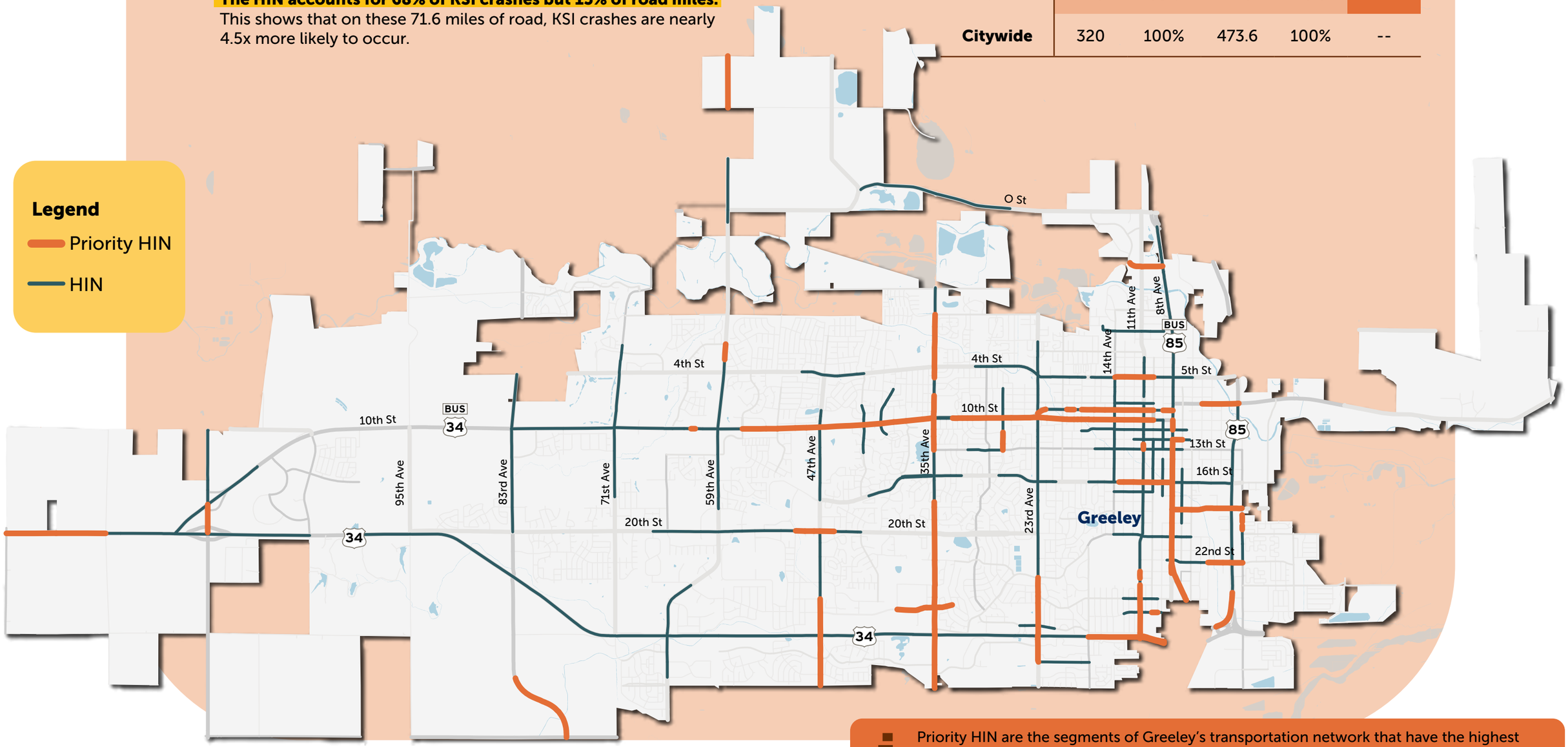


HIGH INJURY NETWORK

The High Injury Network (HIN) is a mapping tool to help identify where the highest number of people are being killed and seriously injured (KSI) on Greeley's transportation system. This data-driven approach helps Greeley focus resources in areas of most urgent need. The most recently available 9-years of crash data (2014–2022) was used to create the HIN.

The HIN accounts for 68% of KSI crashes but 15% of road miles. This shows that on these 71.6 miles of road, KSI crashes are nearly 4.5x more likely to occur.

	KSI Crashes		Road Miles		Rep. Ratio
	#	%	#	%	
Priority HIN	94	29%	20.0	4%	**6.97**
HIN	122	38%	51.6	11%	**3.50**
All HIN	216	68%	71.6	15%	**4.47**
Citywide	320	100%	473.6	100%	--



Priority HIN are the segments of Greeley's transportation network that have the highest number of KSI crashes per mile; they are distinguished from the rest of the HIN for consideration for priority projects.

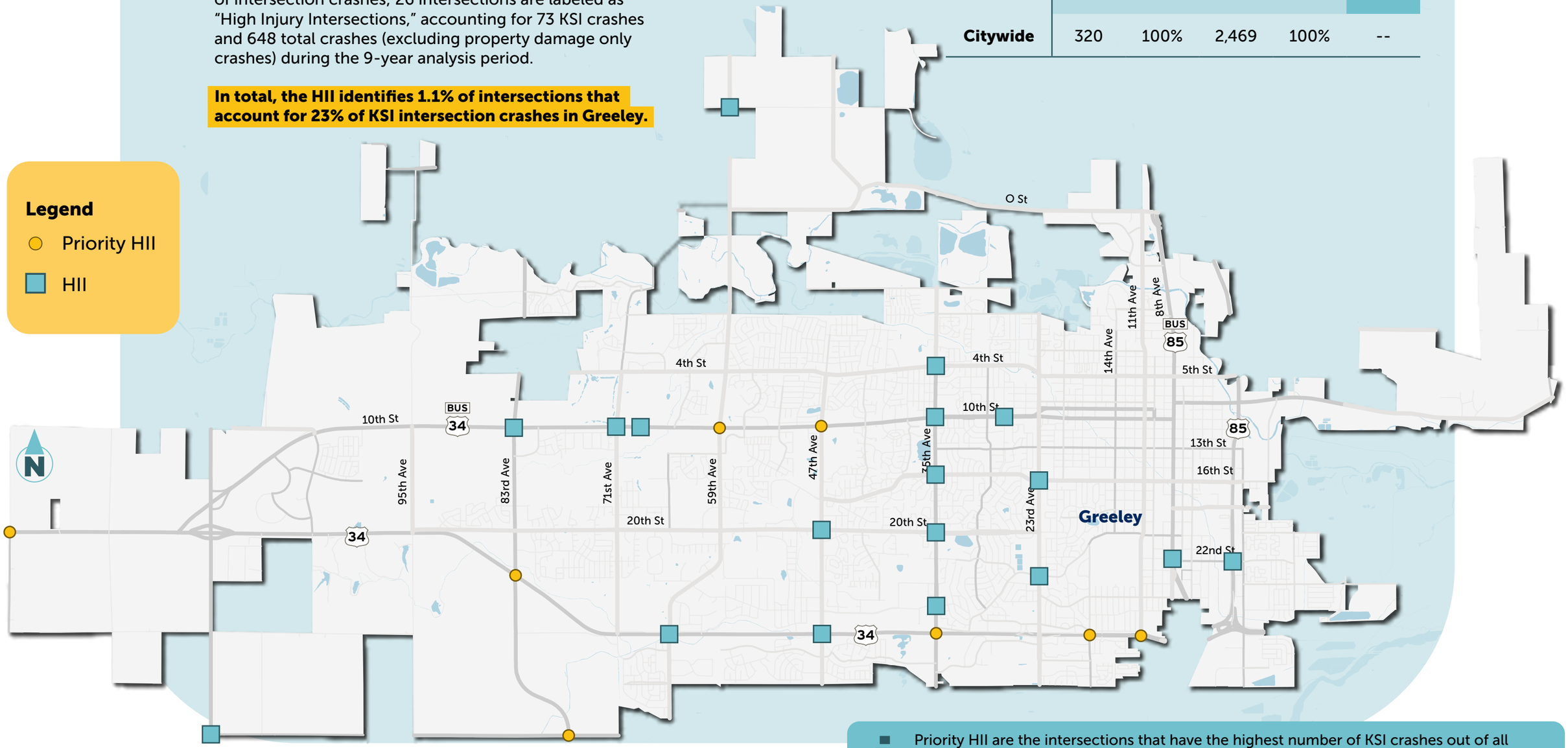
HIGH INJURY INTERSECTIONS

The High Injury Intersection (HII) is another key mapping tool in the Vision Zero toolbox. Like the HIN, the HII uses 9-years of injury crash data to identify the most dangerous intersections to most effectively allocate City resources and give context to transportation safety problems.

HII locations were identified by the highest concentration of intersection crashes; 26 intersections are labeled as "High Injury Intersections," accounting for 73 KSI crashes and 648 total crashes (excluding property damage only crashes) during the 9-year analysis period.

In total, the HII identifies 1.1% of intersections that account for 23% of KSI intersection crashes in Greeley.

	KSI Crashes		Intersections		Rep. Ratio
	#	%	#	%	
Priority HII	39	12%	8	0.3%	**37.61**
HII	34	11%	18	0.7%	**14.57**
All HII	73	23%	26	1.1%	**21.37**
Citywide	320	100%	2,469	100%	--

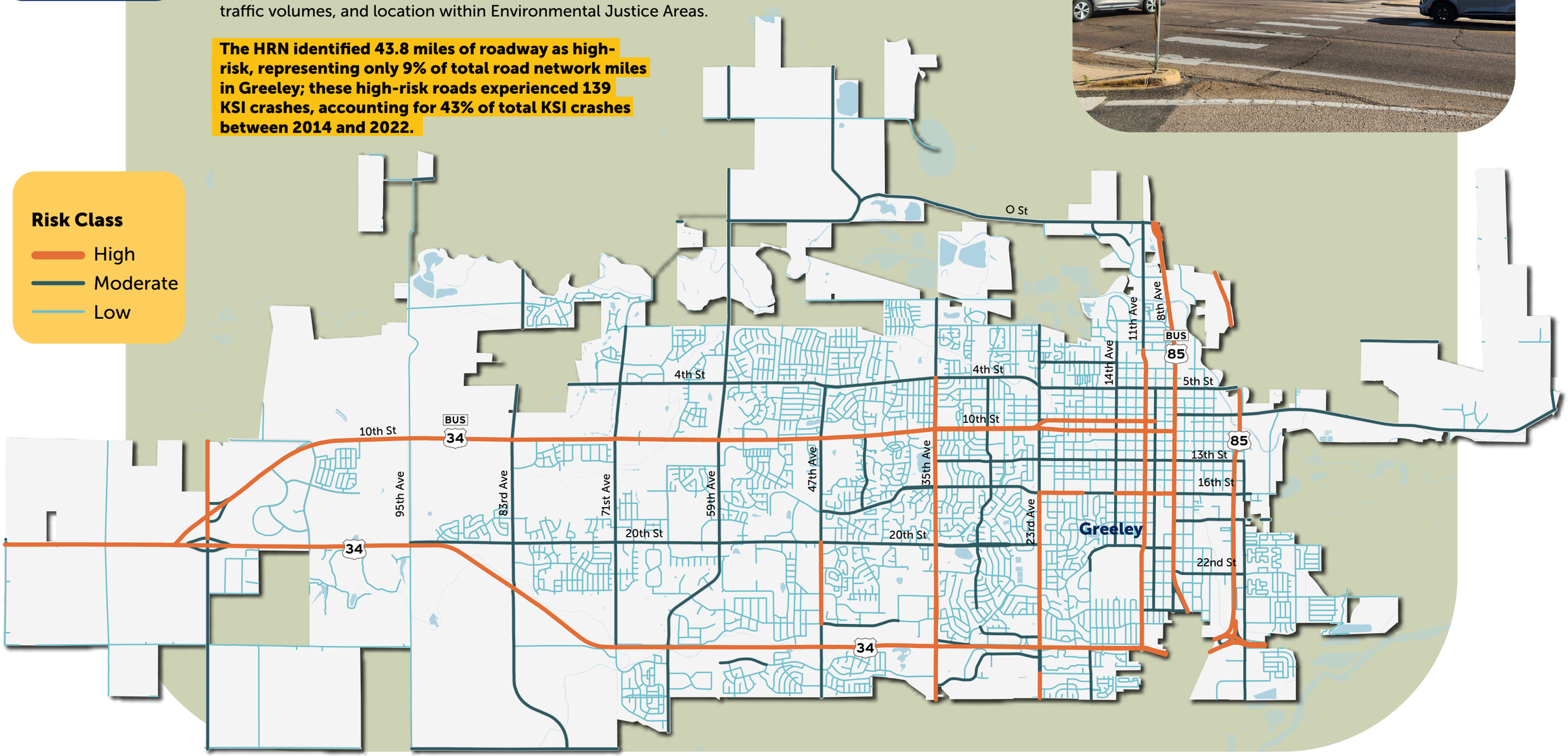


Priority HII are the intersections that have the highest number of KSI crashes out of all the high injury intersections identified; they are distinguished from the rest of the HII for consideration for priority projects.

HIGH RISK NETWORK

Both the HIN and HII are based on historical crash data, which are very useful in addressing existing problems; however, as KSI crashes are a small share of total vehicle interactions and near misses never get reported, some of the most dangerous roadways may not be represented in the HIN and HII data. Therefore, the High Risk Network (HRN) can be used to identify streets where KSI crashes are likely to occur based on existing attributes, such as number of lanes, traffic volumes, and location within Environmental Justice Areas.

The HRN identified 43.8 miles of roadway as high-risk, representing only 9% of total road network miles in Greeley; these high-risk roads experienced 139 KSI crashes, accounting for 43% of total KSI crashes between 2014 and 2022.



Focus Areas

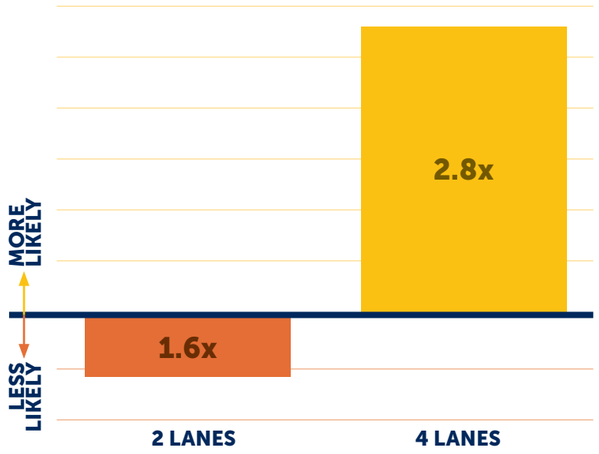
Throughout the data analysis process, several trends emerged that give insight into the current state of roadway safety in Greeley. These trends, discussed in the remainder of the chapter as focus areas, provide specific issues for the action plan to address. These focus area sections highlight the relationship between each focus area, KSI crashes, and their respective over-or under-representation in the data.

ARTERIALS

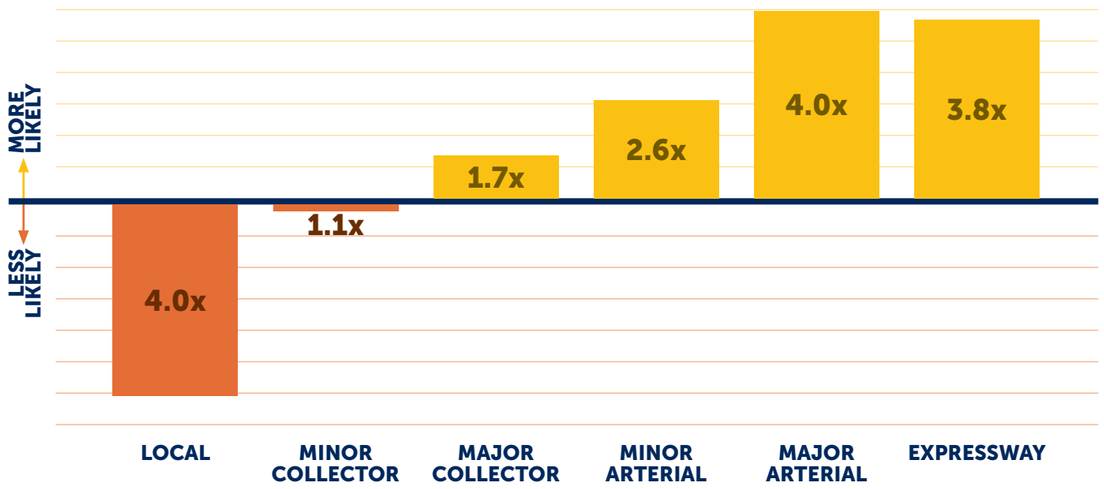
The type of roadways that road users are on can increase their risk of being involved in a KSI crash. As roadways get busier (i.e., the roadway volume increases) and get wider (i.e., the numbers of lanes increase), the risk of being involved in a KSI crash increases. Four-lane major arterials have the highest risk of resulting in a KSI crash.

**data regarding 1, 3, 5, and 6-laned roadways was limited and is therefore not shown here*

Likelihood of Severe or Injury Crash
(by Number of Through Lanes*)



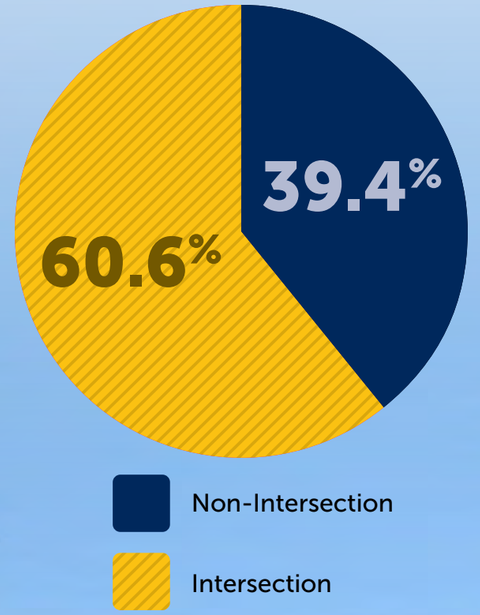
Likelihood of Severe or Injury Crash (by Functional Class)



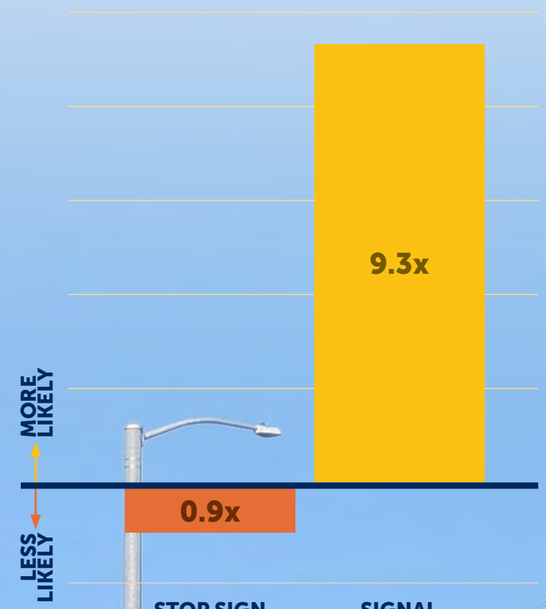
INTERSECTIONS

Most KSI crashes on Greeley's roads occur at intersections. Signalized intersections, as compared to other intersection control types, are more than 10x more likely to have a fatal or injury crash occur.

KSI Crashes by Road Segment or Intersection



Likelihood of Severe or Injury Crash
(by Traffic Control Type)*



* Roundabouts are not included in this chart due to limited data in Greeley. Studies of roundabouts in the US have found that they reduce fatal and injury crashes by approximately 80% and that they are the safest intersection control type.

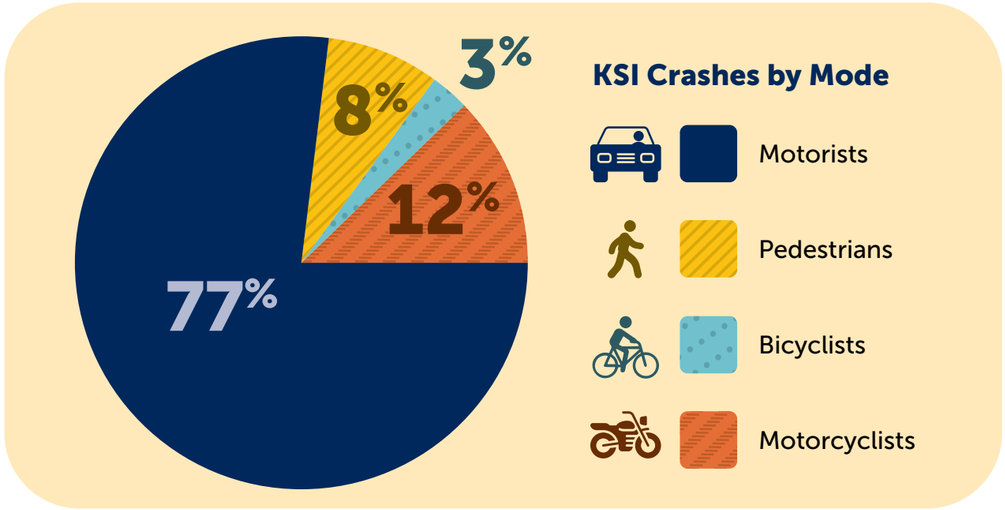
VULNERABLE ROAD USERS

In Greeley, driving (via cars, trucks, or vans) is the predominant mode of travel with 95% of residents traveling this way. Vulnerable road users, including pedestrians, bicyclists, and motorcyclists, make up the remaining 5% of Greeley's total commuting population. However, these users are overrepresented when it comes to KSI crashes.

Pedestrians are nearly **3x** as likely to be involved in a KSI crash.

Bicyclists are nearly **6x** as likely to be involved in a KSI crash.

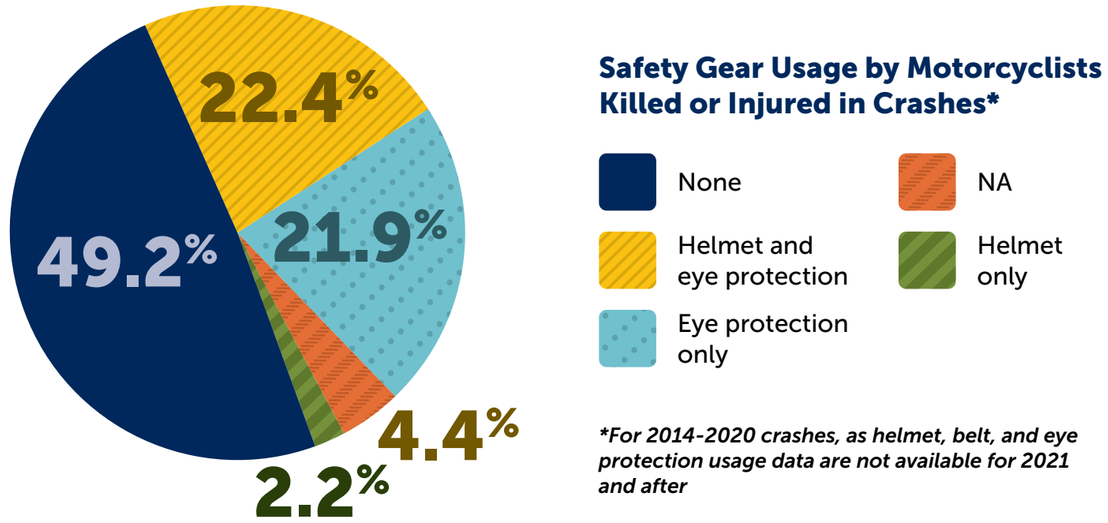
Motorcyclists are nearly **14x** as likely to be involved in a KSI crash.



Motorcyclists are the most overrepresented group involved in KSI crashes based on how residents of Greeley choose to travel.

One contributing factor to this overrepresentation could be low rates of helmet and safety gear usage by motorcyclists, as half of Greeley motorcyclists injured in crashes were not wearing any form of safety gear and over three-quarters were not wearing helmets. Currently, Colorado does not have a law requiring riders 18 and over to wear a helmet. Motorcycle helmet usage is estimated to reduce the risk of death by 42% and the risk of head injury by 69%[3].

Although Colorado legally requires all riders (driver or passenger) to use some form of eye protection, more than 55.7% of riders killed or injured in a crash were not wearing eye protection.



For 2014-2020 crashes, as helmet, belt, and eye protection usage data are not available for 2021 and after

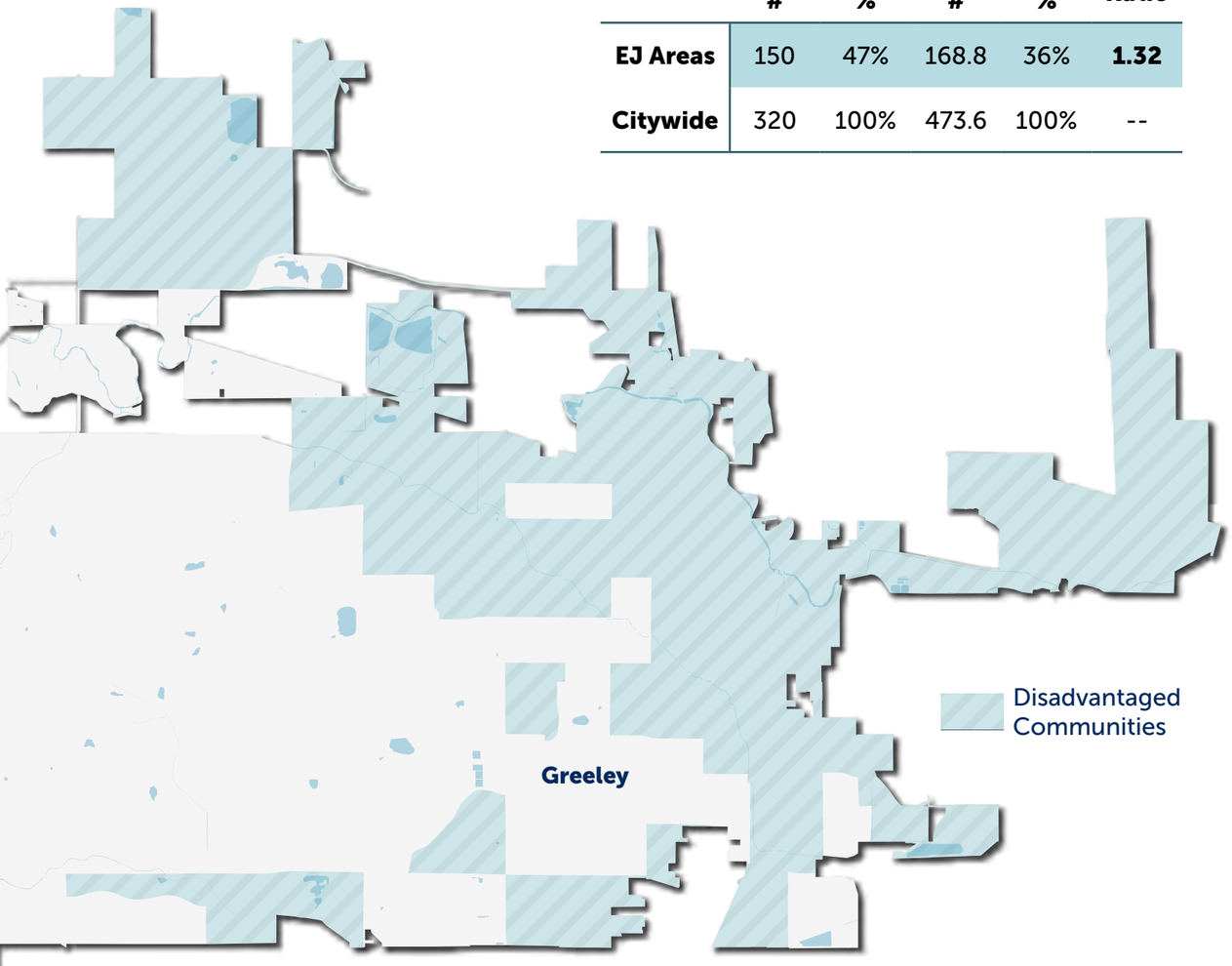
3 https://pubmed.ncbi.nlm.nih.gov/18254047/

DISADVANTAGED COMMUNITIES

Through this plan, Greeley can identify how to make the most impactful change as timely as possible with limited resources. With this goal in mind, the data indicates that significant priority should be given to projects in Environmental Justice (EJ) Areas as defined by socio-economic indicators identified by the North Front Range Metropolitan Planning Organization in 2021. EJ areas are determined using regional averages related to income and minority status; areas with percentages higher than the regional average for either or both populations are considered EJ.[4]

Environmental Justice Communities are more likely to be impacted by fatal and serious injury crashes: they account for 47% of KSI crashes but only 36% of the total street network mileage. By prioritizing the areas of greatest need, the disparities in KSI crash rates for EJ communities will be reduced. By simply following the data, we can start creating equitable solutions that get us to Zero.

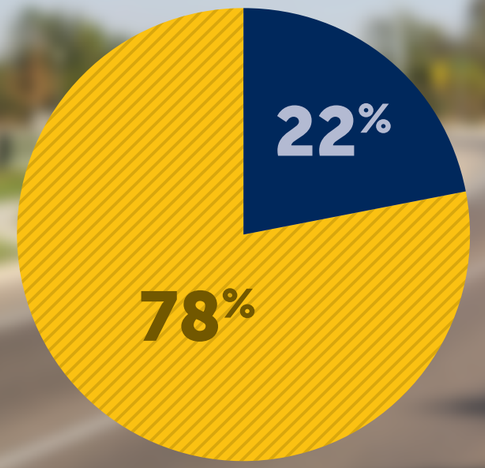
	KSI Crashes		Road Miles		Rep. Ratio
	#	%	#	%	
EJ Areas	150	47%	168.8	36%	**1.32**
Citywide	320	100%	473.6	100%	--



4 Environmental Justice - NFRMPO

IMPAIRED DRIVING

People make mistakes sometimes; should someone make a mistake, they should not have to pay with their life or have to suffer with a lifelong injury. Impairment, traveling on the roadway under the influence of alcohol or drugs, is a reckless, negligent choice that some people make. Impairment is involved in over 22% of Greeley's fatal crashes.



38%
of impairment related crashes occur between 7PM-3AM

SPEED

Speed is a central factor in traffic deaths and serious injuries and is one of the most important factors that separates these from minor injury or property damage. In Greeley, 67% of KSI crashes occurred where the posted speed limits were 35 mph or higher.

The likelihood of fatality increases exponentially with vehicle speed; for every 10 mph increase, the likelihood of a fatality doubles[5]. Speed is such an impactful factor within crashes for several reasons, including:

The higher the speed, the more **forceful the crash**

The higher the speed, the **narrower field of vision** drivers have

As speeds increase, the amount of time **drivers have to react** decreases

As speeds increase, so do their **braking distances** (meaning, drivers may be unable to stop in time)

Greeley is not unique in these trends; as roadways have higher speeds, the likelihood of being involved in an injury crash or fatality increases. However, for roadways with a posted speed limit between 40 mph and 50 mph, the trend dips before increasing again. This is primarily due to most roadway facilities with higher speeds having increased safety infrastructure such as medians, separated pedestrian/bicycle paths, access management, and improved shoulders. It is the mismatch of higher speeds on local roads that contributes to the safety problem.

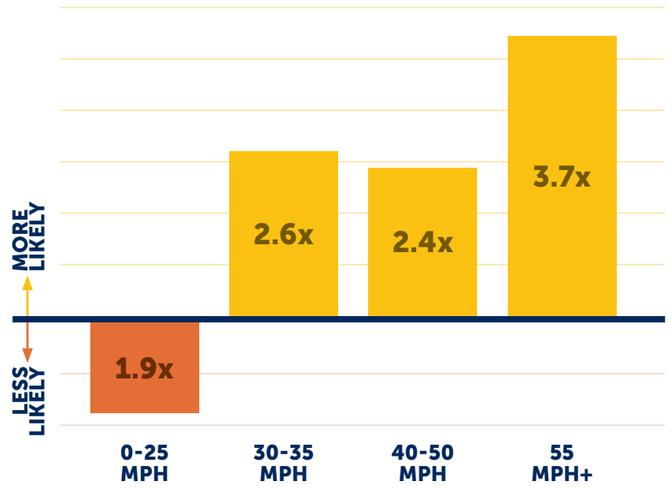
HIT BY A VEHICLE TRAVELING AT:
20 mph
8% RISK OF DEATH

HIT BY A VEHICLE TRAVELING AT:
30 mph
20% RISK OF DEATH

HIT BY A VEHICLE TRAVELING AT:
40 mph
46% RISK OF DEATH

Source: Tefft, B.C. (2011). Impact Speed and a Pedestrian's Risk of Severe Injury or Death. AAA Foundation for Traffic Safety

Likelihood of Severe or Injury Crash
(by Posted Speed Limit)

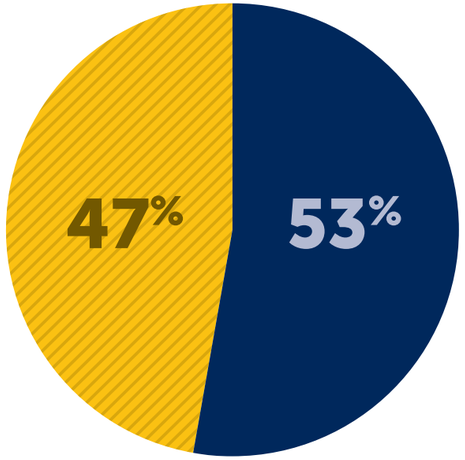


5 https://nacto.org/publication/city-limits/the-need/speed-kills/

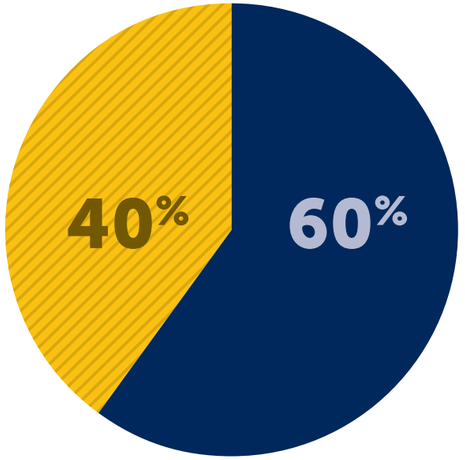
HIGH RISK USERS

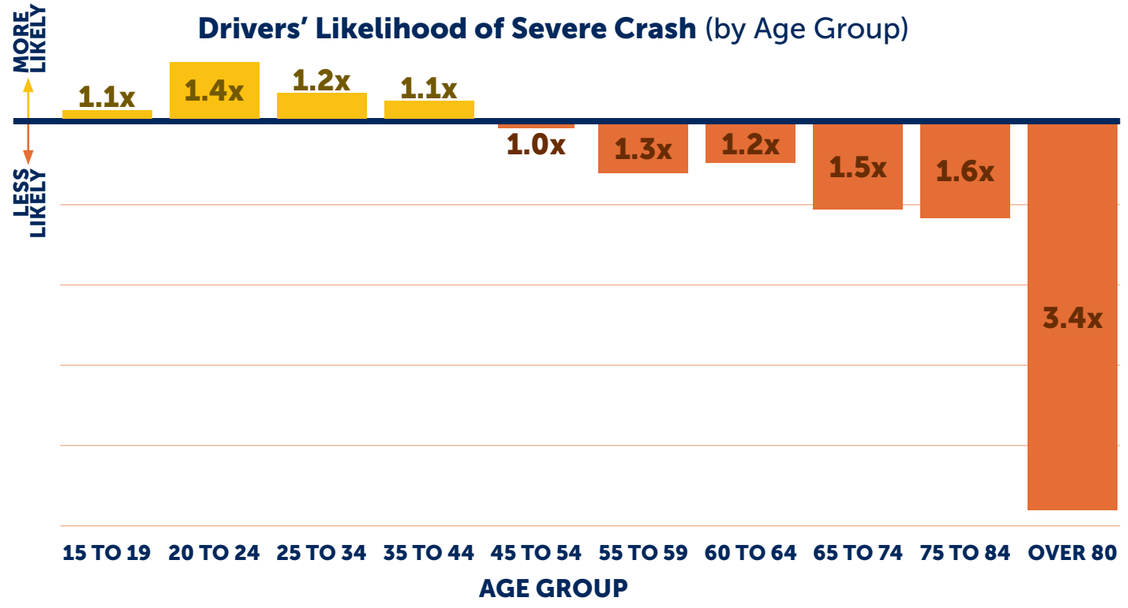
Male users, whether they are operating a motorized vehicle (car, truck, van, motorcycle, etc.) or are taking active modes of transportation (walking or biking), are involved in more fatal and injury crashes than female users. Data shows that males on average drive more vehicle miles than females and are more likely to participate in risky driving behaviors, including driving under the influence of alcohol, lack of seat belt use, and driving aggressively.

Vehicle Fatal and Injured Crashes by Sex Involved



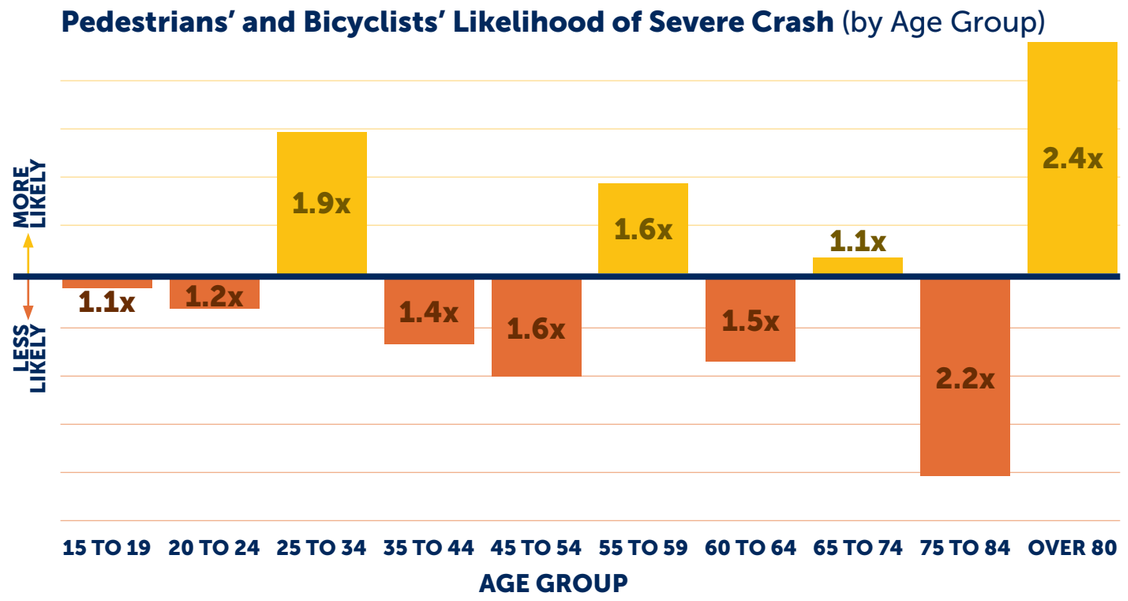
Pedestrian and Bicyclists KSI Crashes by Sex





Drivers between the ages of 20-24 are the most overrepresented in KSI crashes, relative to their share of the overall population. This group, young drivers, are more likely to engage in risky behaviors.

For pedestrians and bicyclists, the most overrepresented group is the 85 and older group as they are more than 144% more likely to be involved in a KSI crash. 85 and older pedestrians and bicyclists tend to be more vulnerable, as hearing, vision, and mobility declines with age.

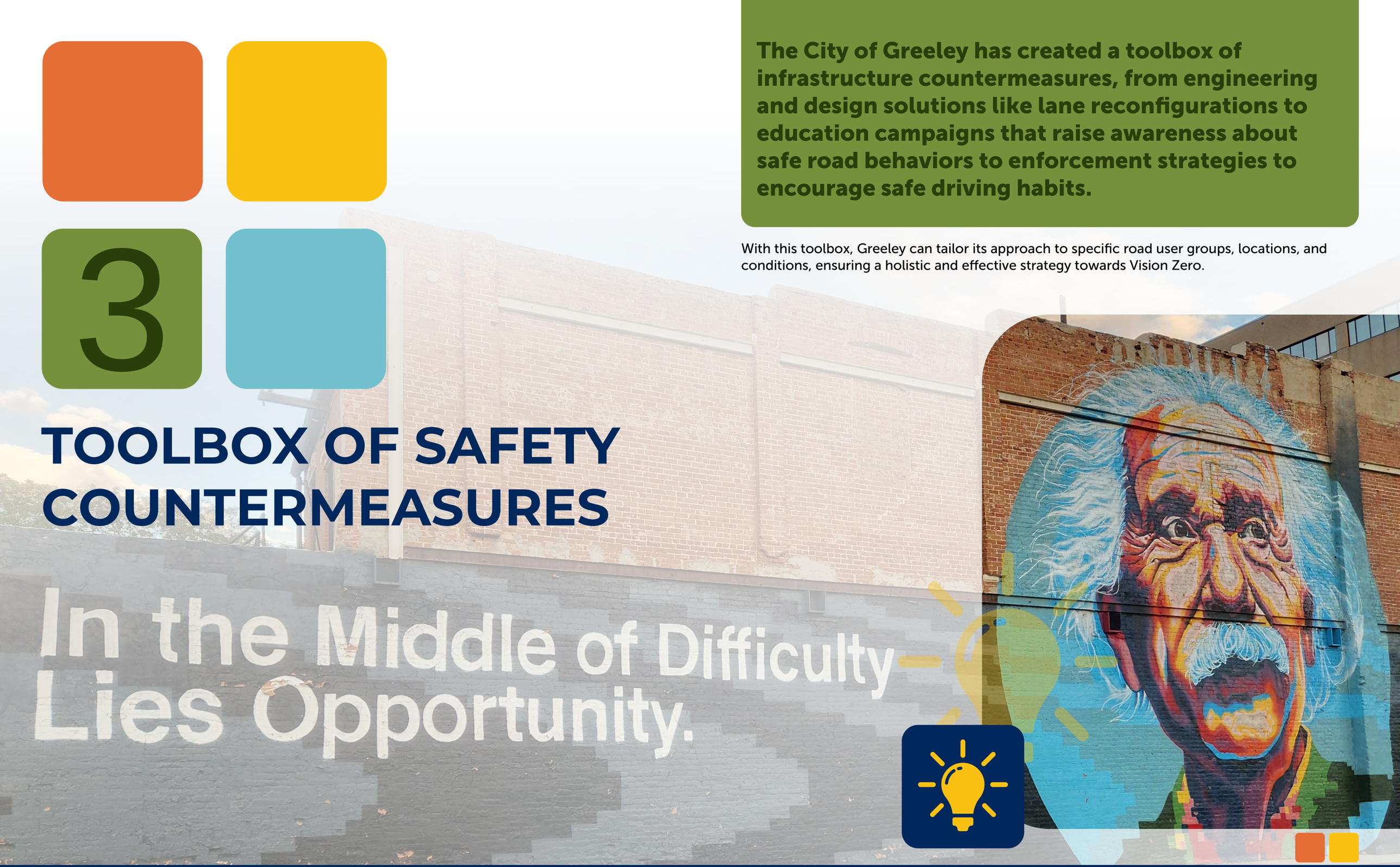


3

TOOLBOX OF SAFETY COUNTERMEASURES

The City of Greeley has created a toolbox of infrastructure countermeasures, from engineering and design solutions like lane reconfigurations to education campaigns that raise awareness about safe road behaviors to enforcement strategies to encourage safe driving habits.

With this toolbox, Greeley can tailor its approach to specific road user groups, locations, and conditions, ensuring a holistic and effective strategy towards Vision Zero.



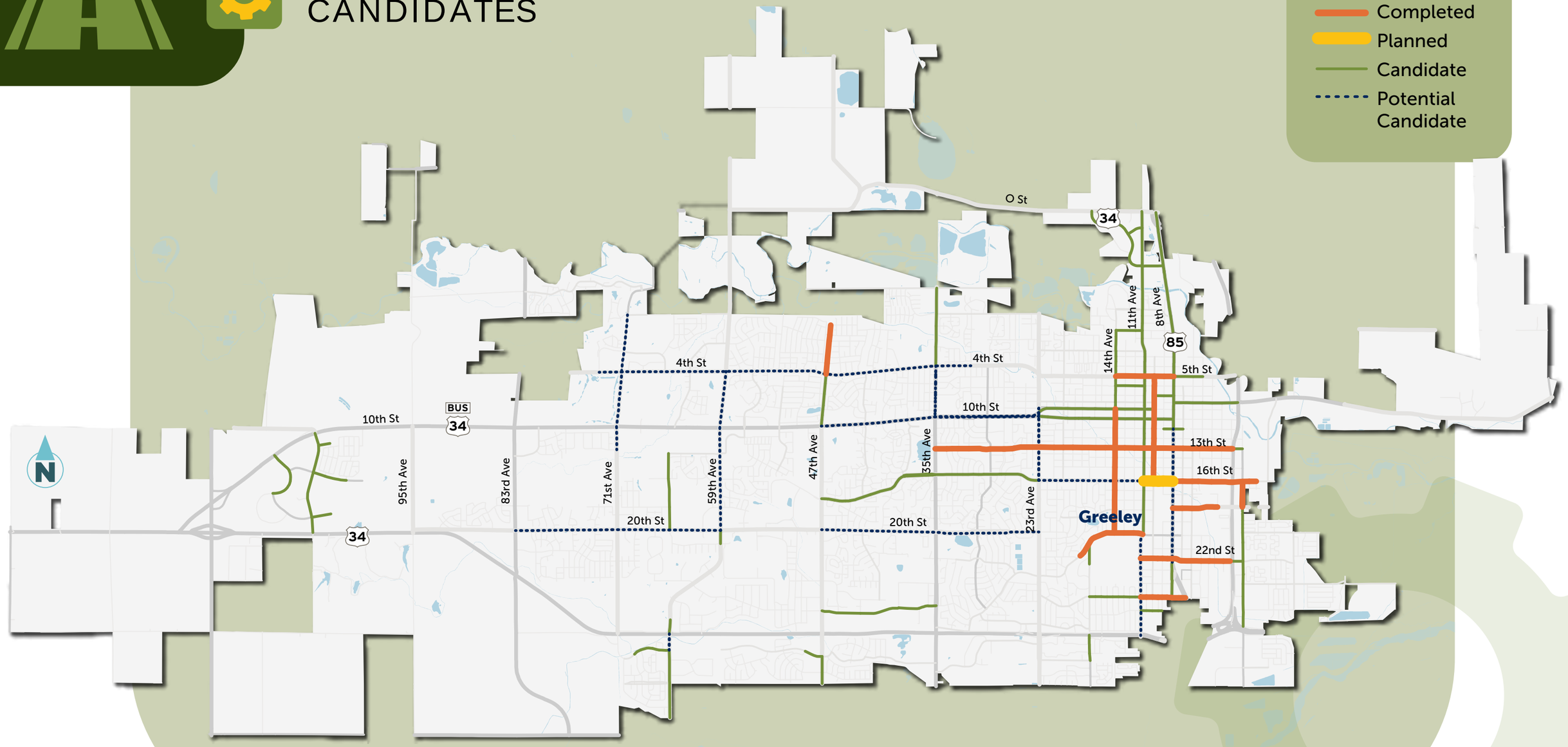
COUNTERMEASURES FOR ROADWAY SAFETY

Countermeasure	Description	Cost	Potential Crash Reduction
Lane Reconfiguration	Lane reconfiguration refers to any countermeasure that rearranges or repurposes existing roadway, including pavement reallocations ("road diets"), lane width reduction, or one-way to two-way conversion. Pavement reallocation is a context-sensitive strategy that reduces the number of lanes or the width of lanes, resulting in several safety benefits. One-way to two-way street conversions generally reduce speeds, reduce conflicts, and manage traffic patterns due to how traffic perceives their surrounding environment. Lower speeds provide improved conditions and access for all modes of transportation, especially vulnerable road users.	$$$	40%
Traffic Calming	Traffic calming is a deliberate set of design strategies and measures implemented on roadways to improve the safety of all users by slowing down vehicle speeds. Introducing physical changes to the road (such as speed humps, chicanes, raised crosswalks, and narrowed travel lanes) is a proven strategy to reduce speeds and enhance roadway safety between different users. Modal filters on neighborhood streets are another form of traffic calming that limits motorists from cutting throught traffic and having high speeds.	$$$	30%
Roadway Lighting	Street lighting enhances safety and accessibility by illuminating key areas and improving visibility. Improved visibility decreases crash risk. This tool is particularly effective at controlled and uncontrolled intersections, at midblock crossings, along sidewalks, and in areas with high pedestrian volumes like transit stops, commercial zones, schools, and parks.	$$	10%
Raised Medians and Access Management	Raised medians, medians built higher than the road level, offer VRU refuges mid-crossing, limit motor vehicle turns, and mitigate head-on collisions by separating opposing streams of traffic. These types of medians are applicable at intersections, along blocks, and midblock crossings for VRUs, particularly beneficial at intersections where left turns need restriction due to safety concerns like inadequate yielding or high speeds.	$$$$	45%
Curve Delineation Improvements	Installation of retroflective chevron signs and advance curve warning sign is shown to significantly reduce crashes along curves, especially nighttime crashes and in rural areas.	$	15%

Raised Median Refuge Island

Toolbox of Countermeasures

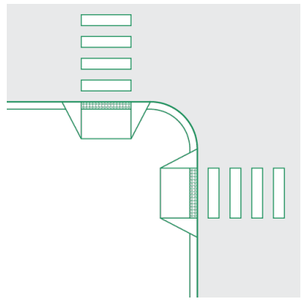
LANE RECONFIGURATION CANDIDATES



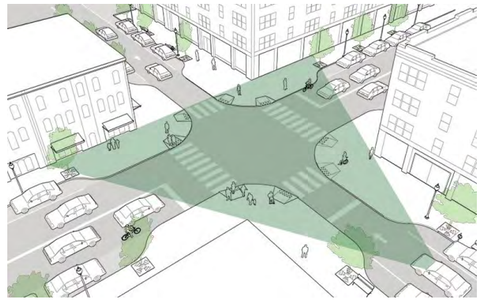
Streets were identified as lane reconfiguration candidates if they had enough excess capacity (extra lanes) or oversized lanes that could be repurposed to provide safety or mobility improvements. Generally, a road is considered to be a good candidate for a lane reconfiguration from a 4-lane configuration to 2-lane with a center-turn-lane configuration if it has an annual average daily traffic volume of under 12,000 vehicles per day, and it is considered a potential candidate (which may require further evaluation) if it has a volume of under 18,000 vehicles per day.

COUNTERMEASURES FOR INTERSECTIONS SAFETY: GEOMETRIC DESIGN

Countermeasure	Description	Cost	Potential Crash Reduction
Roundabouts	Roundabouts are a versatile tool that reduces the number of and the severity of crashes due to speed reduction, elimination of angle collisions, and reduced crossing distances for vulnerable road users (VRUs). Roundabouts can be customized by shape, size, and design to fit a variety of traffic conditions, creating a safer intersection among all modes of transportation. These can be built as mini-, single-lane, or multi-laned.	$$$$	80%
Curb Radius Reduction	A curb radius reduction reduces turning speeds, shortens crossing distance, and improves sight distance by sharpening the radius through temporary materials or by permanently changing the curb line, which increases yielding to pedestrians in the crosswalk and other roadway compliance that can reduce the number and severity of crashes.	$$	30%
Intersection Daylighting	Intersection daylighting improves the sight-distance for road users as they enter and navigate an intersection by restricting curb parking spaces leading up to an intersection. Restrictions can be accomplished through the use of pavement markings and flexible guideposts or through micromobility corrals.	$	30%
Curb Extensions/ Bulb Outs	Curb extensions and bulb-outs extend sections of sidewalks into the roadway, primarily at intersections and crossings, to decrease VRU crossing distances and enhance visibility and comfort. Curb extensions prove to be effective across various locations, ranging from mid-block crosswalks to signalized intersections and can be implemented within all-day parking lanes or spacious shoulders, particularly suited for transitioning into lower-speed zones.	$$	30%



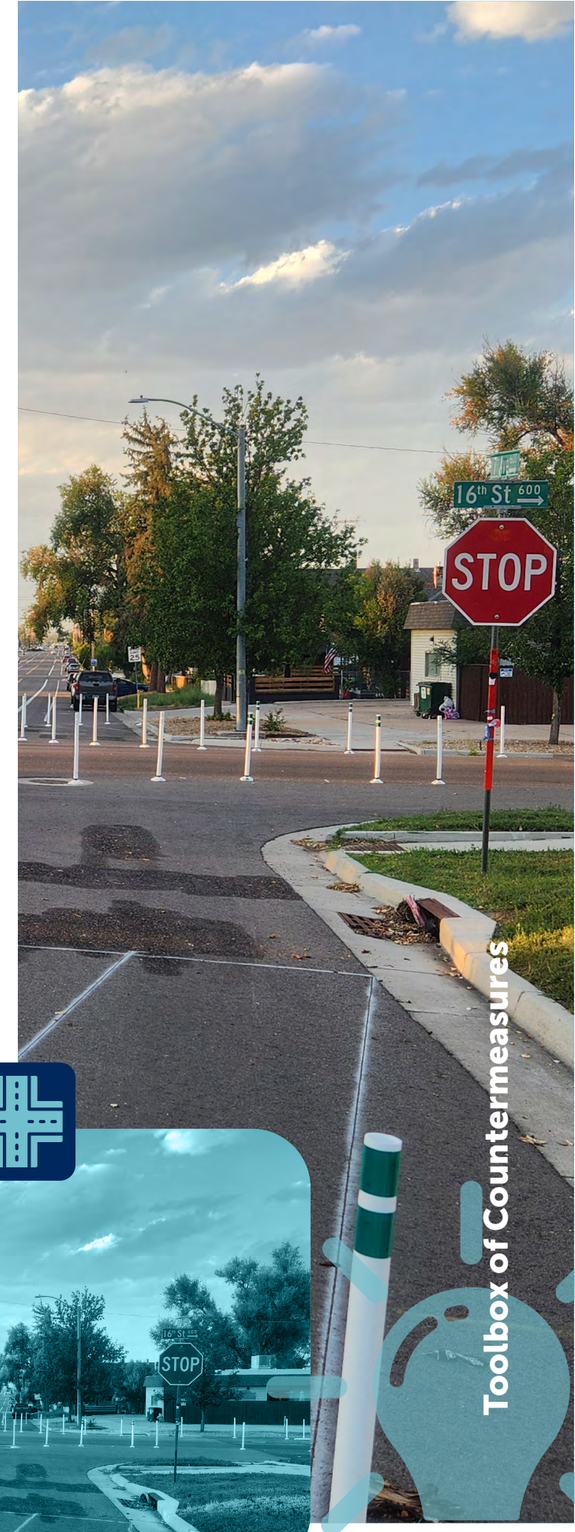
Curb Radius Reduction



Intersection Daylighting

Curb Extensions/Bulb Outs

Raised Crosswalks/Bulb Outs



Toolbox of Countermeasures

COUNTERMEASURES FOR INTERSECTIONS SAFETY: SIGNAL & SIGNAGE

Countermeasure	Description	Cost	Potential Crash Reduction
Systemic Traffic Signal Improvements	Systemic traffic signal improvements achieve a balance between safety and efficiency by adjusting motorist behaviors through smaller scale tools. These improvements include the adjustments to signal timings, protected left-turn phasing, installing flashing yellow arrows, adding retroreflective backplates to signal heads, and implementing Leading Pedestrian Intervals (LPIs).	$$	40%
Right-Turn-on-Red (RTOR) Restrictions	Right-turn-on-red (RTOR) restrictions prevent motorists from turning right at a red light for select periods or entirely and are especially beneficial for locations with higher pedestrian crossing activity, such as in downtown or near schools. Restricting RTOR improves safety for pedestrians by eliminating potential conflict with right-turning motorists.	$	15%
All-way Stop Control Conversion (from 2-way)	All-way stop control conversion is the conversion of a two-way stop-controlled intersection to be stop-controlled on all approaches. All-way stops, as compared to two-way stops, reduces the need for drivers to wait for a safe gap in traffic to go and are more predictable. This countermeasure can serve as a temporary solution for other, more expensive traffic control solutions, such as roundabouts.	$	60%
Reduced Left-turn Conflict Intersections	Reduced left-turn conflict intersection reconfigures left-turn only or left-turn and through movements by reducing the number or severity of vehicle-to-vehicle conflicts from cross-streets. By reducing the number of crossing conflict points, the opportunity for right-angle crashes also decreases, resulting in fewer severe injuries or fatalities.	$$$$	55%
Left-Turn Hardening	Left-turn hardening reduces vehicle turning speed and increases vehicle yielding to pedestrians by guiding left-turning vehicles to take wider turns. Rubber curbs, flexible delineator posts or bollards, and pavement markings are installed in line with the yellow centerline or at the interior corners of the intersection.	$	15%

COUNTERMEASURES FOR PEDESTRIAN SAFETY

Countermeasure	Description	Cost	Potential Crash Reduction*
Pedestrian Traffic Control Devices	Rectangular Rapid-Flashing Beacons (RRFB) and Pedestrian Hybrid Beacons (PHB) use flashing lights to improve vehicle stopping and yielding behavior to crossing pedestrians at unsignalized locations. RRFBs, which use a bright, rapid-pulsing flash rate, are most effective at multi-lane crossings with speed limits less than 40 mph; roadways with speeds higher than this are better suited for PHBs, which use flashing and solid-colored lights.	$$	55%
High Quality Pedestrian Crossings	This roadway feature prioritizes the safety, accessibility, and convenience of pedestrians of all ages and abilities by providing pedestrians with a secure and easily recognizable path to cross busy streets through the use of clearly marked crosswalks, ample lighting, and well-defined signage. By enhancing visibility and ensuring dedicated time for pedestrians to cross, high-quality pedestrian crossings contribute to reducing the risk of dangerous conflicts with vehicles that could result in a serious or fatal crash.	$	60%
Sidewalks	Utilizing sidewalks and paved shoulders as safety measures serves to enhance pedestrian and cyclist safety by providing designated spaces for their movement, separate from vehicular traffic. Integrating ADA-compliant features guarantees equitable access and promotes inclusivity, fostering a safer and more accommodating environment for all community members.	$$	65%
Off-Street Trails	Off-street trails contribute to enhanced safety and accessibility for active transportation and recreation by offering designated paths outside the curb and away from potential conflict with vehicles. These shared-use paths can accommodate two-way traffic and are often situated along railway or utility corridors, as well as public land areas.	$$$	65%
Midblock Crossing	Midblock crossings designate a space via a marked crosswalk for pedestrians to cross between major intersections, increasing connectivity within the existing transportation network. Through this designated space, other road users are warned of possible crossings and are better prepared to stop, decreasing the number of potential conflicts.	$$	15%
Raised Crossing	Raised crossings are flush with the sidewalk, encouraging motorists to yield to pedestrians in the crosswalk and reinforcing slower speeds. Accessibility of the crossing is improved with raised crosswalks, as it allows pedestrians to cross at the same height as the sidewalk. Raised crosswalks can be implenented at mid-block locations or at intersections in the form of a raised intersection.	$$	45%
Street Trees and Landscaped Buffers	Street trees and providing wider landscaped buffers between sidewalks and the roadway can significantly improve the pedestrian experience on urban streets. Mature tree canopy can visually narrow the roadway and potentially provide a traffic calming effect.	$$	NA

Pedestrian Hybrid Beacon


Rectangular Rapid Flashing Beacon


Sidewalks


Midblock Crosswalk


Raised Intersection

** Potential Crash Reductions for Ped and Bike are only applicable to Ped and Bike Crashes.*

Toolbox of Countermeasures

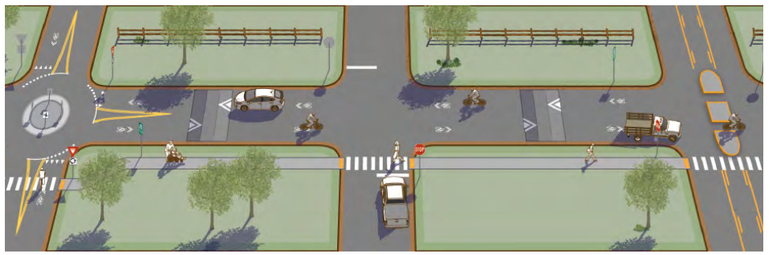
COUNTERMEASURESFOR BIKE SAFETY

Countermeasure	Description	Cost	Potential Crash Reduction
Bicycle Lanes	Bicycle lanes are dedicated facilities on or along roadways that make bicycling safer and more comfortable; they can mitigate or prevent interactions, conflicts, and crashes between bicyclists and motor vehicles. Bicycle lanes can be established through paint striping or separation by vertical elements like posts, curbs, or vegetation.	$$	60%
Protected Bicycle Lanes / Cycle Tracks	Protected bicycle lanes are integral to Vision Zero implementation as they establish physically separated spaces for pedal cyclists, substantially reducing cyclist-vehicle collisions. With a physical barrier, these lanes enhance safety by preventing risky interactions, thus curbing severe injuries and fatalities; the physical barrier also improves perceived safety, which may encourage more users to bike as a form of transportation.	$$$	70%
Protected Bicycle Intersections	Protected bicycle intersections, like protected bicycle lanes, establish physically separated spaces using curb extensions, corner islands, and colored paint for pedal cyclists at and through intersections; these dedicated paths eliminate weaving and merging patterns into mixed traffic, reducing potential conflicts to a single location. Protected bicycle intersections improve connectivity to the rest of the bicycle network, encouraging cycling as a mode of transportation.	$$$	NA
Bicycle Boulevards	Bicycle boulevards (also called “neighborhood greenways”) are streets with low motorized traffic volumes and speeds, designed to offer priority for bicyclists operating within a roadway shared with motor vehicle traffic. Bicycle Boulevards use signs, pavement markings, and speed and volume management measures to create safe, convenient bicycle crossings of busy arterial streets.	$	60%

Bike Lane

Protected Bike Lane

Protected Bike Intersection



Bicycle Boulevard

Toolbox of Countermeasures

BEHAVIORAL COUNTERMEASURES FOR SAFETY

Countermeasure	Description	Cost	Potential Crash Reduction
Automated Enforcement	Automated enforcement detects and documents traffic violations, most commonly red light running and speed enforcement, through photographic evidence. The vehicle owner is identified by license plate and is notified of the infraction by mail. Automated speed enforcement is especially effective in reducing speeds in school zones and work zones.	$$	15%
Roadway Feedback Signs	Speed feedback signs, posted alongside the posted speed limit, register and display approaching drivers' speeds as they approach the sign to make them aware of their current speed. If the driver's speed is above the posted speed limit, the displayed speed numbers will flash. Speed Feedback Signs can be temporarily or permanently installed.	$	5%
Safe Routes to School	Safe routes to schools facilitates the planning, development, and implementation of projects that supports healthy, active, and safe walking and biking habits for children. Some example projects include: assemblies, poster contests, pedestrian safety walks, bike lessons and safety training (BLAST), bicycle rodeos, bicycle gardens, bicycle buses/trains, and relevant quick-build projects.	$$	30%
Speed Limit Reduction	Speed limit reductions are the systematic reduction of speed limits based on context, activity level, and conflict density, which reduces the number of and severity of crashes. Greater reductions in crash frequency and severity is possible when pairing this countermeasure with other traffic calming or speed management countermeasures	$	25%
Slow Zones	Slow zones are areas that designate lower speeds than other areas nearby to create safe spaces for vulnerable populations (e.g., children, seniors, pedestrians, and bicyclists) that frequent them, such as parks, school zones, work zones, senior areas, neighborhoods, and downtowns. These areas typically are signed for 15 or 20 miles per hour.	$	30%

4

ACTION PLAN

The Greeley on the Go Vision Zero Action Plan presents a bold, data-driven, and comprehensive roadmap toward safer streets and ultimately eliminating traffic-related fatalities and serious injuries.

In the final section of this transformative document, we shift our focus from understanding the challenges and setting the stage for change, to setting out specific **Action Steps**, a set of longer-term **Prioritized Projects**, and Short-Term and Quick-Build Projects that will guide us toward the realization of our Vision Zero goals.

As we turn the pages of this final chapter, it's important to remember that our work goes beyond just policies, strategies, and projects. It touches the lives of every resident, every family, and every person who travels Greeley's streets. The path forward will require collaboration, persistence, and a shared belief in the attainability of our Vision Zero goals.

ACTION STEPS

The following action step recommendations are based on discussions with the Action Plan Advisory Committee, public input, as well as review of the City's current policies, programs, and processes related to transportation safety.

This set of targeted action steps spans three crucial categories based on the Safe Systems Approach:

SAFE SPEEDS

will explore measures to curtail excessive speeds, a key contributor to the severity of traffic collisions.

SAFE USERS

will tackle education and awareness, fostering a culture of shared responsibility among all road participants.

SAFE STREETS

will underscore the need for well-designed infrastructure that accommodates diverse modes of travel.

Each action step is accompanied by a suggested lead implementation department or agency, as well as a recommendation on the timeline to begin implementing the action step.

SAFE SPEEDS

REDUCE THE STATUTORY SPEED LIMIT IN RESIDENTIAL DISTRICTS

The City will lower the statutory speed limit (the legal speed limit unless otherwise posted) to 25mph from the current 30mph on streets within a residential district, which account for the overwhelming majority of the City's local street network. A growing body of research shows that significant reductions in speeding and crashes can be achieved simply by lowering speed limits from 30mph to 25mph, even without increased enforcement or street design changes. For example, when New York City lowered its statutory speed limit form 30mph to 25mph, total crashes were reduced by an average of 39% on the affected streets.

START YEAR
Year 1

RESPONSIBLE PARTY
Public Works

SPEED MANAGEMENT PLAN

The City will conduct a speed management plan. This plan will review citywide posted, statutory speed limits, and actual prevailing driver speeds throughout the city. The plan will include a review of policies used in setting speed limits and will make recommendations to reducing speed limits in specific locations, identifying speed management areas, and designating areas for traffic calming implementation. The City will involve CDOT in the plan process and coordinate to have speed studies conducted along CDOT owned roadways. For CDOT roadways, the City will follow CDOT's Speed Management Policy when setting speed limits.

START YEAR
Year 1

RESPONSIBLE PARTY
Public Works

SAFE SPEED LIMITS

The City Engineer will adopt a policy outlining the process for setting posted speed limits on specific streets. The policy will follow updated federal guidance that de-emphasizes using the 85th percentile speed, and instead incorporates a range of factors including crash history, intersection spacing, driveway density, roadway geometry, roadside conditions, roadway functional classification, traffic volume, pedestrian and bicycle activity, land use context, and observed speeds. The City may use an expert tool such as the Corridor Speed Limits framework in the NACTO "City Limits" guide for setting speed limits.

START YEAR
Year 1

RESPONSIBLE PARTY
Public Works

DYNAMIC SPEED DISPLAY / FEEDBACK SIGNS

Speed feedback signs dynamically show the driver's speed alongside the posted speed limits and have been shown to slow overall speeds where deployed; they also can educate drivers on the importance of safe speeds. The City will expand its deployment of speed feedback signs (temporary/mobile or permanent) in locations determined through a data-driven process, targeting locations with high rates of speed-related crashes, a high rate of prevailing speeds, a high number of pedestrian and bicycle users, and based on public input. The City's recent Safe Streets for All Planning & Demonstration grant award includes funding for installing new dynamic speed feedback display signs.

START YEAR
Year 1

RESPONSIBLE PARTY
Public Works

SAFE SPEEDS

EXPAND THE NEIGHBORHOOD SPEED WATCH PROGRAM

The City of Greeley's Neighborhood Speed Watch Program involves residents in spreading education and awareness about the importance of safe driving speeds. To join the program, neighborhoods fill out an application and get at least 50% of residents to sign a ""Traffic Treaty"" pledging to:

- Follow posted speed limit signs
- Drive slowly and courteously
- Prioritize the safety of residents in the neighborhood

Speed Watch Neighborhoods receive yard signs, safety, and awareness brochures, and signs posted at neighborhood entrances.

The City should lower the barrier to entry into the program by reducing the 50% threshold for signatures to join the program. Traffic safety messaging similar to what has been developed for the Neighborhood Speed Watch Program could also be distributed citywide, such as with educational brochure inserts in utility bills or by placing decals with anti-speeding messaging on trash or recycling bins.

START YEAR
Year 2

RESPONSIBLE PARTY
Communication and Engagement Dept

AUTOMATED ENFORCEMENT STRATEGY

Automated enforcement is highly effective at curbing the most dangerous roadway behaviors, including running red lights and excessive speeding. Greeley's Municipal Code currently authorizes automated enforcement of speeding. The City should establish a data-driven policy and process for identifying locations for camera radar installation, with an emphasis on corridors with the highest concentrations of speeding-related and pedestrian and bicyclist injury crashes.

Greeley should evaluate the effectiveness of automated enforcement of red light running through a pilot project focused on a limited set of intersections or a single corridor with the highest concentration of red-light running related fatal and serious injury crashes, where the potential for design or traffic-control related solutions is limited.

The distribution of AE cameras and the messaging and awareness campaigns accompanying their deployment should reflect the program's goals, with an emphasis on how they contribute to reducing fatal and serious injury crashes.

START YEAR
Year 3

RESPONSIBLE PARTY
Police Dept

TRAFFIC CALMING PROGRAM

Traffic calming features such as speed humps, median islands, curb extensions, or mini-roundabouts are essential tools for reducing dangerous speeding on both local residential streets and collector streets. Traffic calming is especially important in Greeley, where many local and collector neighborhood streets are relatively wide, around 40 ft or even 50 ft in width, which encourages higher driving speeds.

The city should expand its traffic calming program and establish a project prioritization framework that takes into account crash and speed data analysis and the prioritization framework for traffic calming established in the Greeley on the Go 2045 Transportation Master Plan.

START YEAR
Year 3

RESPONSIBLE PARTY
Public Works

EMPHASIZE SAFETY & REPORT OBJECTIVE OPERATIONAL LEVEL OF SERVICE CRITERIA

Within any project prioritization process or development review process, the City will emphasize safety as the primary objective and prioritize both safety and optimizing project costs over traffic operations.

When measuring and reporting on traffic operations, the City will report the objective delay and speed figures only, rather than "Level of Service" grades A through F. This provides an objective report while removing value-bias.

The city will not create operational LOS minimums that need to be met as part of any project.

START YEAR
Year 2

RESPONSIBLE PARTY
Public Works

SAFE USERS

ENHANCED IMPAIRMENT ENFORCEMENT

Enforcement is highly effective in removing impaired drivers from the roads when paired with effective criminal justice and rehabilitation programs. The Greeley Police Department currently conducts impairment enforcement, but this enforcement should be expanded. The Traffic Unit dedicated to traffic safety and impairment enforcement may require additional officers or funding to conduct this. Alternate enforcement tactics such as high visibility saturation patrols and publicized sobriety checkpoints should be explored. Impairment enforcement locations should be determined through an equitable and data-driven process considering locations with high rates of impairment related crashes, a high number of pedestrian and bicycle users, the land use context, and public input.

START YEAR
Year 1

RESPONSIBLE PARTY
Police Dept

COMMUNICATIONS AND OUTREACH SUPPORTING ENFORCEMENT

To effectively promote traffic safety priorities and engage the public, communication campaigns should focus on curtailing speeding, red-light running, impaired driving, not wearing seatbelts, and distracted driving. These campaigns should emphasize the personal and human toll of these risky driving behaviors, employ persuasive marketing materials, and utilize carefully crafted messaging. The city should leverage outreach channels such as mailing lists, websites, public space signage, and coordinate with churches and schools (such as publishing safety campaign messaging in their newsletters) to ensure widespread dissemination of the messaging.

START YEAR
Year 2

RESPONSIBLE PARTY
City Manager's Office

STATEWIDE PRIMARY ENFORCEMENT SEAT BELT LAW AND MOTORCYCLE HELMET LOBBYING

Colorado currently has a secondary enforcement seat belt law, which means that a driver can only be cited for not wearing a seat belt if they are pulled over for another violation. Colorado has a lower seat belt usage rate (88.6%) than the national average (92%). Primary seat belt laws are a very effective countermeasure to increase seat belt usage and decrease severity of traffic crashes. In the event of a crash, being properly restrained reduces the risk of injury by 50% and death by up to 65%.

Similarly, primary motorcycle helmet usage is one of the best ways to decrease fatal motorcycle crashes. Unhelmeted riders are 3 to 4 times more likely to die in a crash. Colorado does not require motorcyclists over the age of 18 to wear helmets. Greeley cannot enact local ordinances for primary seat belt and motorcycle helmet usage. The City should lobby the Colorado General Assembly to enact these laws.

START YEAR
Year 1

RESPONSIBLE PARTY
Police Dept

Action Steps

UPDATE STREET DESIGN CRITERIA & CONSTRUCTION SPECIFICATIONS

The City of Greeley's Design Criteria and Construction Specifications document provides guidance for the design, review, and construction of all improvements in the public right-of-way. The document sets out the standards for new streets and for improvements along existing streets.

The City will update the document to further incorporate Vision Zero and Complete Streets design principles. This includes reviewing the design parameters for each Street Classification for opportunities to:

- Reduce minimum roadway widths - this is especially recommended for the Local Residential Street Classification, which could be reduced to 24'
- Reduce the recommended Design Speeds and Posted Speeds
- Reduce minimum lane widths where appropriate
- Increase separation of bike facilities along higher street classifications (e.g. recommend a separated/detached bikeway in lieu of bike lanes along Major Arterial, Minor Arterial, and Major Collector streets)

The City will also review the document's sidewalk standards and establish minimum buffer widths between a detached sidewalk and the curb for all Street Classifications, with the distance of separation increasing for higher Street Classifications. The city shall establish a minimum sidewalk offset from the travel lane (minimum 2-4 feet based on FHWA Guidance on Walkways, Sidewalks, and Public Spaces and a minimum of 5 feet to accommodate street trees). The document should also clarify the difference between actual and effective curb radius and specify that the minimum curb radii design criteria apply to the effective radius in order to ensure that curb radii are not encouraging excessive turning speeds.

The City will update its Standard Details to incorporate all of the above design parameter revisions.

START YEAR
Year 1

RESPONSIBLE PARTY
Public Works

UPDATE DEVELOPMENT REVIEW CHECKLISTS & TRAFFIC STUDY REQUIREMENTS

The City will update and clarify its traffic study requirements for private development as described in the Development Review Checklists in the City's *Design Criteria and Construction Specifications* document. Traffic studies should incorporate safety as a core evaluation criteria. A crash analysis should be performed in alignment with Vision Zero and Safe System principles and all improvements constructed in the public right-of-way by private entities should demonstrate a safety benefit through the use of the Highway Safety Manual methodology.

START YEAR
Year 1

RESPONSIBLE PARTY
Public Works

INTERSECTION CONTROL EVALUATION POLICY

There is no formal evaluation process currently in use in Greeley for determining how an intersection should be constructed as part of capital improvement project or new development. Various intersection control types exist including stop signs, various traffic signal configurations, roundabouts, and reduced conflict intersections. Greeley Public Works will adopt an Intersection Control Evaluation (ICE) process to evaluate the safety, traffic and transit operations, pedestrian and bicycle access, cost, right-of-way impact, and other factors. A benefit-to-cost ratio will be utilized to select the most appropriate control type. ICE reports should be conducted for all intersections in capital improvement projects and for collector and arterial street intersections that are constructed or reconstructed as part of private development projects. The ICE process and evaluation effort can be waived for improvements that choose roundabouts from the outset of the project.

START YEAR
Year 1

RESPONSIBLE PARTY
Public Works

SAFE STREETS

QUICK-BUILD AND DEMONSTRATION PROJECTS

The City of Greeley is establishing itself as a national leader in the deployment of quick-build and demonstration projects that improve safety for all road users, thanks to the nearly $8 million federal Safe Streets for All Planning & Demonstration Grant that was recently awarded to the City. The grant will help to develop a formalized program of implementing quick-build and demonstration safety improvements throughout the City, including installation of raised ped-crossings and speed tables, intersection turn modifications (e.g., tightening turn radii), traffic calming/ lane reconfigurations through paint and posts, and installation of midblock crosswalk lighting, high-visibility crosswalk markings, and adding rectangular rapid flashing beacon (RRFB) pedestrian crossing signs. As part of this effort, the City will employ a rigorous planning and before-after evaluation process for quick-build improvements.

The City will ensure that longer term funding and maintenance resources are in place to permanently construct and maintain the quick-build improvements which are proven effective by the evaluation and review process.

START YEAR
Year 1

RESPONSIBLE PARTY
Public Works

FATAL CRASH REVIEW COMMISSION

Studying the causes of fatal crashes by multidisciplinary groups can provide insight into systemic changes that could be deployed on Greeley streets or incorporated into future plans. Greeley should convene a commission including law enforcement, first responders, engineers, planners, and policy makers to review fatal crash circumstances and make recommendations on systemic changes within the Safe System framework to incorporate into future safety efforts. Indianapolis developed just such a group that has been praised by the NTSB as a potential model for other communities.

START YEAR
Year 1

RESPONSIBLE PARTY
City Manager's Office

SUPPORT TRANSIT USE EXPANSION

Increasing transit use is one of the best ways to achieve Vision Zero. **Public transit is the safest form of transportation.** To fully support the goals of the Vision Zero Action Plan (VZAP) in the City of Greeley, it is essential to make strategic investments in first-mile/last-mile pedestrian infrastructure connections to transit stops and to improve bus service quality and operations. By creating these integrated transportation networks, the City and Greeley-Evans Transit can encourage more individuals to choose public transportation as a safe and convenient mode of travel.

Every capital improvement and street resurfacing project that is located along or intersects with a bus route should incorporate transit stop improvements as well as first-and-last mile connection improvements (integration with sidewalks, bike lanes, and pedestrian crossings) consistent with recommendations in the NACTO Transit Street Design Guide. Projects should also consider ways to enhance transit operations through strategies such as transit signal priority (TSP) or dedicated bus lanes.

START YEAR
Year 2

RESPONSIBLE PARTY
Public Works

DEVELOP STANDARD DETAILS FOR SAFETY COUNTERMEASURES

The City will create Standard Details within its Design Criteria and Construction Specifications document for additional safety countermeasures (e.g. mini-roundabouts, curb extensions/bulb-outs, rectangular rapid flashing beacons, raised crossings, street tree planters, protected bicycle intersections, and protected bike lanes) including both their permanent and quick-build paint/post applications. Having standard details to refer to can increase efficiency, lower design costs, and helps to ensure consistent quality of implementation across both public and private development projects.

START YEAR
Year 2

RESPONSIBLE PARTY
Public Works

SAFE STREETS

UNIFIED ACTIVE MOBILITY STRATEGY

The City of Greeley has completed several plans that propose improvements to its bicycling, pedestrian, and trails network, including its Bicycle Plan completed in 2015, the Greeley on the Go 2045 Transportation Master Plan completed in 2023, and the Trails Master Plan Update completed in 2024. The City should create a Unified Active Mobility Strategy that incorporates and consolidates the recommendations of all of these recent plans and also addresses any gaps or deficiencies (such as upgrading corridors previously proposed for conventional striped bike lanes to an "all ages and abilities" facility such as a trail or separated bike lane, where feasible).

START YEAR
Year 2

RESPONSIBLE PARTY
Public Works

SAFE ROUTES TO SCHOOL PLAN

Safe Routes to School (SRTS) is a program that promotes walking and bicycling to school through technical assistance and through providing resources and project funding. Eligible projects include trails/paths, ADA/sidewalk upgrades, streetscape improvements, educational initiatives, and more. Federal funding exists for developing SRTS plans. Implementation of SRTS programs has shown 10% - 20% reduction in severe pedestrian and cyclist crashes around schools and has the added benefit of increasing walking and biking to school, thus reducing school vehicle traffic and providing active transportation opportunities for children.

The City of Greeley will develop a Safe Routes to School Plan that covers all elementary, middle, and high schools in the City. The City will also work with the Greeley-Evans School District and local schools to pursue SRTS funding opportunities, including CDOT's regular SRTS funding application cycles for both infrastructure and non-infrastructure projects.

START YEAR
Year 2

RESPONSIBLE PARTY
Public Works

ROAD SAFETY AUDITS

Road Safety Audits follow a formal process utilizing a multidisciplinary group that reviews street safety aspects and makes recommendations. Use of Road Safety Audits (RSA) has shown up to 60% decrease in crashes where recommendations were implemented. Greeley should include a RSA with every capital improvement and street resurfacing project. Additionally, the city should choose at least two locations in the city either on the High Injury Network or Highest Risk Network to perform a RSA each year. Each RSA should include an assessment of the roadway through the Safe Systems lens using an expert tool such as the FHWA Safe Systems Project-Based Alignment Framework.

START YEAR
Year 2

RESPONSIBLE PARTY
Public Works

VISION ZERO CAPACITY BUILDING

To enhance the integration of Vision Zero practices with various city departments, the City should develop a comprehensive training program for all city staff on Vision Zero issues, policies, and countermeasures. This training program will equip staff with the necessary knowledge and tools to incorporate Vision Zero principles into their work effectively. Additionally, the City should establish an internal communications strategy to ensure consistent messaging of the VZAP to promote its messaging and highlight successful outcomes throughout the City.

The City of Greeley is committed to progress and transparency, updating the ongoing measures of progress yearly and the plan at least every three years. Measuring progress over time will inform residents and the City of Greeley of their progress in significantly reducing or eliminating fatal and serious injury crashes by 2045.

START YEAR
Year 2

RESPONSIBLE PARTY
City Manager's Office

BECOME A NACTO AFFILIATE MEMBER CITY

The National Association of City Transportation Officials (NACTO) is an association of 100 major North American cities and transit agencies formed to exchange transportation ideas, insights, and practices and cooperatively approach national transportation issues.

NACTO provides a Vision Zero and Safety peer network that supports its member city staffs in their commitment to reducing and eliminating traffic fatalities. The City of Greeley should take advantage of the technical assistance and peer-to-peer exchange opportunities that NACTO provides by becoming a NACTO Affiliate Member City.

START YEAR
Year 2

RESPONSIBLE PARTY
City Manager's Office

SIDEWALK INVENTORY AND PRIORITIZATION

One key step to improving pedestrian safety—and increasing the utility of the transportation system for pedestrians—is to inventory and prioritize existing gaps in the sidewalk network and where the existing sidewalk network needs to be improved. The City will complete an assessment of sidewalk conditions and develop a prioritization framework and implementation strategy for sidewalk improvements. The sidewalk inventory should be continuously updated as projects impact sidewalk conditions and new facilities are built. The prioritization framework should score network gaps based on proximity to schools and parks, roadway speed, project readiness, and constructibility. Prioritization for updating and improving existing facilities should be based on condition, estimated pedestrian activity, and ADA compliance.

START YEAR
Year 3

RESPONSIBLE PARTY
Public Works

PEDESTRIAN SAFETY ZONES

Pedestrian Safety Zones are geographic areas containing a high concentration of severe crashes involving pedestrians or in areas with high pedestrian usage where severe pedestrian crashes could occur. These locations should be identified, followed by creating a plan to systematically improve pedestrian safety and slow vehicle speeds in the area. Cities that have implemented pedestrian safety zones have seen severe pedestrian crashes reduced by up to 40% within them. Strategies for improving pedestrian safety should follow the Safe System approach, aiming to create safer roads, safer users, and safer/slower vehicle speeds through roadway countermeasures, public education, and active traffic enforcement.

START YEAR
Year 3

RESPONSIBLE PARTY
Public Works

SYSTEMIC SIGNAL IMPROVEMENT AND MANDATORY MINIMUM STANDARDS

All new and upgraded existing signals shall be required to install retroreflective backplates, intelligent transportation systems (ITS) sensors, pedestrian countdown timers, and future capability of red-light running detection. Additionally, all signalized intersections shall require high-visibility crosswalk striping and stop bars.

These improvements shall be factored into the benefit-to-cost calculation of the ICE process. For all existing signals and prior to implementing any signal equipment updates, the intersection should be evaluated based on signal warrants (for volume warrants in the MUTCD, only the 8-hr traffic volume warrant shall be used). Unwarranted signals should be evaluated for conversion to all-way stop signs or a roundabout design.

START YEAR
Year 1

RESPONSIBLE PARTY
Public Works

Prioritized Projects

A set of prioritized candidate projects was developed to help guide the City's future street improvement efforts and to maximize its progress toward eliminating deaths and serious injuries on its streets. A data-driven project identification and prioritization process was employed to systematically identify proposed safety improvements along the entirety of the High Injury Network, drawing on the tools summarized in the Safety Countermeasures Toolbox. In total, improvements at 146 intersections and along 161 roadway segments have been identified. These segments and intersections are grouped into 67 different candidate projects. The following pages outline the prioritization process and results, including maps of the prioritized projects.

Project Identification and Prioritization Process:

1. Project locations were initially identified by integrating the High Injury Network and High Injury Intersections, and then segmenting them into coherent projects based on their contextual locations.

2. The projects underwent further refinement with data from the High-Risk Network and the public input data.

3. Each 2014-2022 injury crash location was "joined" to the proposed projects. To avoid potential double-counting of crashes, an iterative process was employed. Understanding the specific types of crashes that typically occur along each project segment and intersection is critical for identifying the safety countermeasures that will be most effective at mitigating those crash patterns. The historic crash data is also used for projecting the future potential crash reduction and estimating overall safety benefits of each project.

4. Proposed countermeasures were linked to each project through a high-level planning analysis. Each proposed segment and intersection improvement location was assigned one of the generalized safety countermeasures listed in the tables at right.

5. A safety benefit-to-cost ratio (BCR) was calculated for each project based on the planning level-cost estimates of the countermeasures that make up the project and on their 20-year projected crash reduction benefit, using the latest FHWA guidance.

6. Projects were classified into five "tiers" based on their benefit-to-cost ratio.

4 Segment Countermeasures

Countermeasure	Potential Crash Reduction	Cost Estimate (per mile)
Lane Reconfiguration	40%	$1,000,000
Raised Median and Access Management	45%	$3,500,000
Traffic Calming / VRU Improvements	30%	$1,000,000
Road Safety Audit & Improvements	25%	$5,000,000

4 Intersection Countermeasures

Countermeasure	Potential Crash Reduction	Cost Estimate (per location)
Mini-Roundabout	80%	$1,500,000
Single-Lane Roundabout	80%	$3,000,000
Multi-Lane Roundabout	80%	$5,000,000
Restricted Crossing U-Turn Intersection	55%	$3,000,000
Systemic Traffic Signal Improvements	40%	$200,000
Traffic Calming / VRU Improvements	30%	$250,000
Road Safety Audit & Improvements	40%	$1,500,000

Project Prioritization Results

This data-driven approach reveals a widespread distribution of projects across Greeley. Each Voting Ward is associated with projects and improvements, all of which have an average BCR exceeding 1.0.

Priority 1 projects exhibit an average BCR above 2.5, solely from the perspective of safety enhancements. Projects of lower priority possess a BCR below 1.0, but this doesn't inherently categorize them as ineffective safety endeavors. Such projects demand more extensive resources to induce safety changes and might align well with economic development, rehabilitation, or operational objectives.

Identified Prioritized Projects

Priority	Project Count	Lives Saved	Serious Injuries Avoided	Benefit-to-Cost Ratio
1	22	22.0	81.0	3.41
2	14	9.6	46.7	2.13
3	13	13.3	44.8	1.48
4	5	11.0	26.4	1.24
5	13	3.0	11.4	0.57
Total	**67**	**59**	**210**	**1.74**

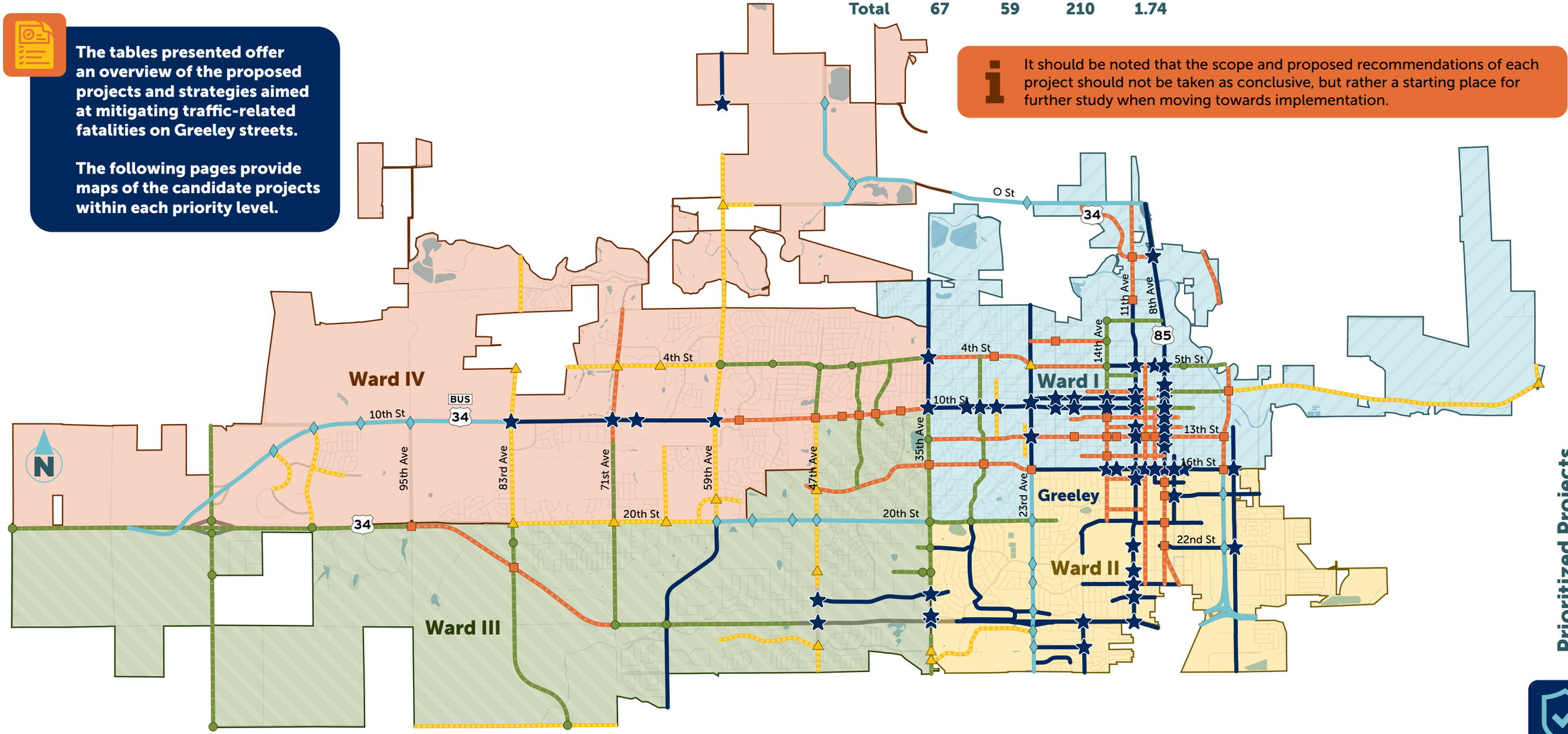
Prioritized Projects by Voting Ward

Voting Ward	Project Count	Lives Saved	Serious Injuries Avoided	Benefit-to-Cost Ratio
I	23	13.4	48.1	1.98
II	18	11.7	65.3	2.12
III	10	12.3	51.2	1.56
IV	15	21.4	45.7	1.75
Total	**67**	**59**	**210**	**1.83**

The tables presented offer an overview of the proposed projects and strategies aimed at mitigating traffic-related fatalities on Greeley streets.

The following pages provide maps of the candidate projects within each priority level.

It should be noted that the scope and proposed recommendations of each project should not be taken as conclusive, but rather a starting place for further study when moving towards implementation.

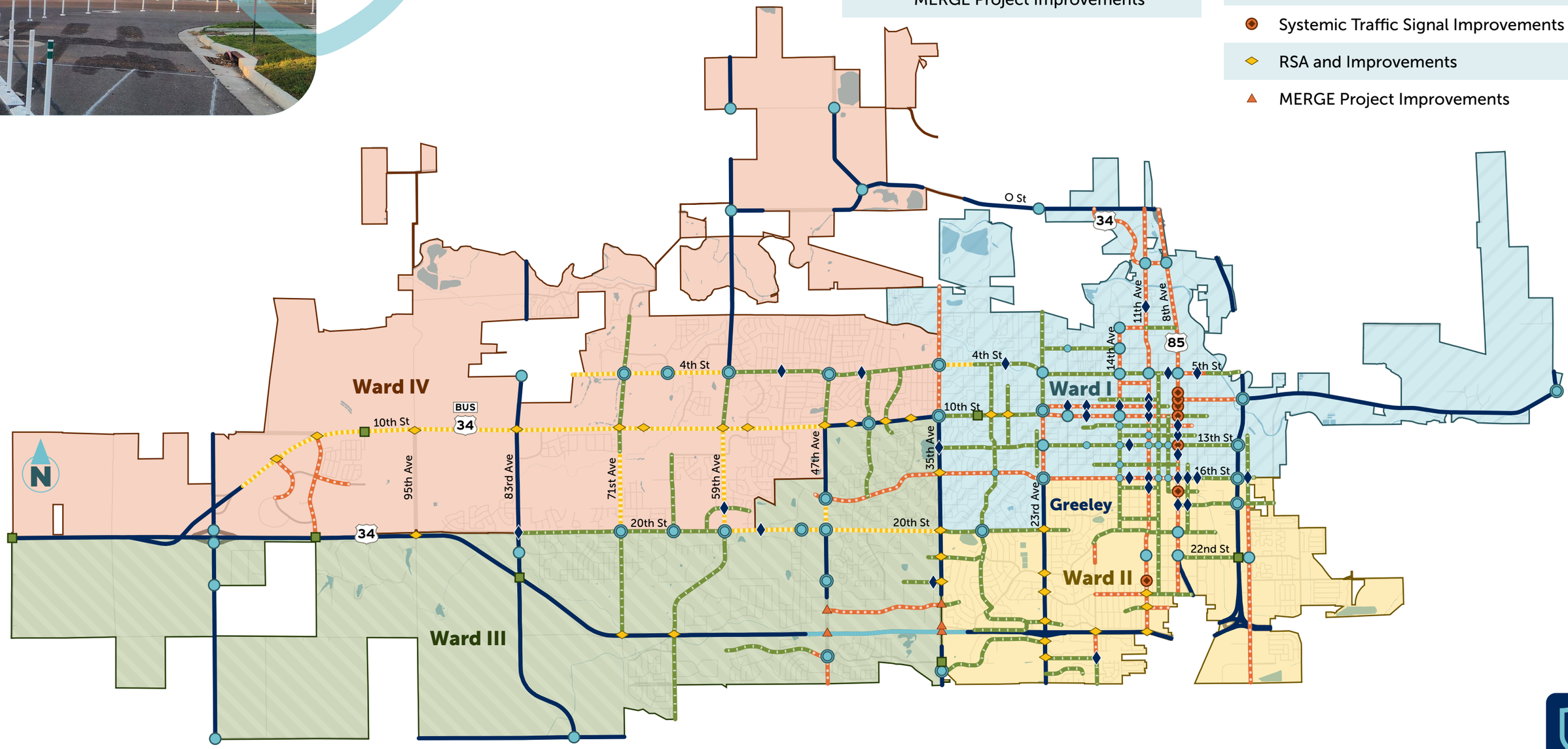


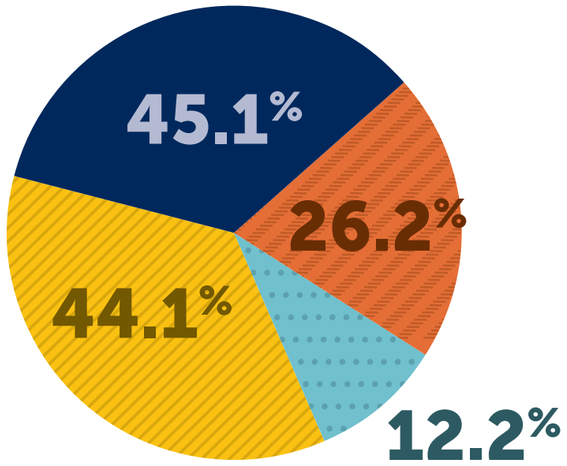
Prioritized Projects

The prioritized projects include a wide range of different types of safety countermeasures, as shown in the map on this page and the charts on the next page.

Proposed Roadway Safety Countermeasures
Lane Reconfiguration
Median and Access Management
Traffic Calming / Vulnerable Road User Improvements
Road Safety Audit and Improvements
MERGE Project Improvements

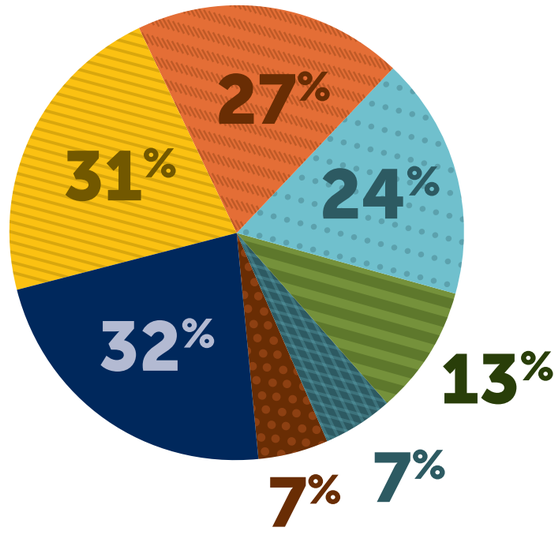
Proposed Intersection Safety Countermeasures
Mini-Roundabout
Single-Lane Roundabout
Multi-Lane Roundabout
RCUT
Traffic Calming / VRU Improvements
Systemic Traffic Signal Improvements
RSA and Improvements
MERGE Project Improvements





Proposed Roadway Segment Improvements (# of Miles) by Safety Countermeasure Type

- Traffic Calming / VRU Improvements
- Road Safety Audit and Improvements
- Lane Reconfiguration
- Median & Access Management



Proposed Intersection Improvements (# of Intersections) by Safety Countermeasure Type

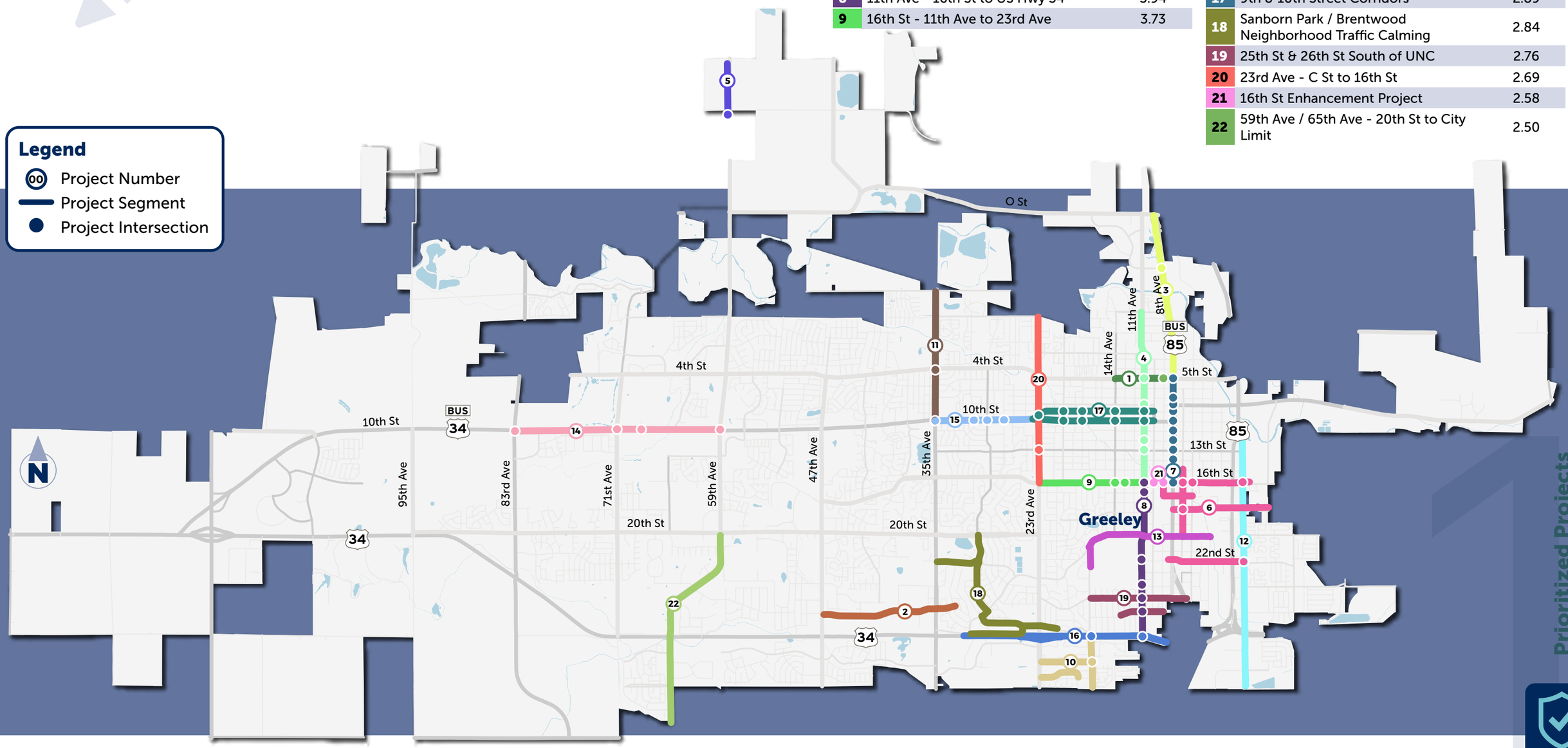
- Traffic Calming / VRU Improvements
- Road Safety Audit and Improvements
- Single-Lane Roundabout
- Multi-Lane Roundabouts
- Mini-Roundabout
- Restricted Crossing U-Turn Intersections
- Systemic Traffic Signal Improvements

VISION ZERO PROJECTS
PRIORITY TIER 1

1

	Project	Benefit-to-Cost Ratio
1	5th St - 8th Ave to 14th Ave	8.80
2	W 25th St - Mountain Lane to 47th Ave	5.78
3	8th Ave - O St to 5th St	4.61
4	11th Ave - 12th St to 31st St	4.35
5	County Rd 31 - State Hwy 392 to County Rd 66	4.26
6	East of UNC Traffic Calming	4.20
7	8th Ave - 5th St to 16th St	4.04
8	11th Ave - 16th St to US Hwy 34	3.94
9	16th St - 11th Ave to 23rd Ave	3.73

	Project	Benefit-to-Cost Ratio
10	John Evans Neighborhood Traffic Calming	3.56
11	35th Ave - F St to 10th St	3.53
12	1st Ave - D St to 16th St	3.27
13	20th St & 17th Ave - 4th Ave to 21st St	3.09
14	W 10th St - 59th Ave to 83rd Ave	3.07
15	W 10th St - 23rd Ave to 35th Ave	2.95
16	US Hwy 34 - 9th Ave to Reservoir Rd	2.93
17	9th & 10th Street Corridors	2.89
18	Sanborn Park / Brentwood Neighborhood Traffic Calming	2.84
19	25th St & 26th St South of UNC	2.76
20	23rd Ave - C St to 16th St	2.69
21	16th St Enhancement Project	2.58
22	59th Ave / 65th Ave - 20th St to City Limit	2.50



Prioritized Projects

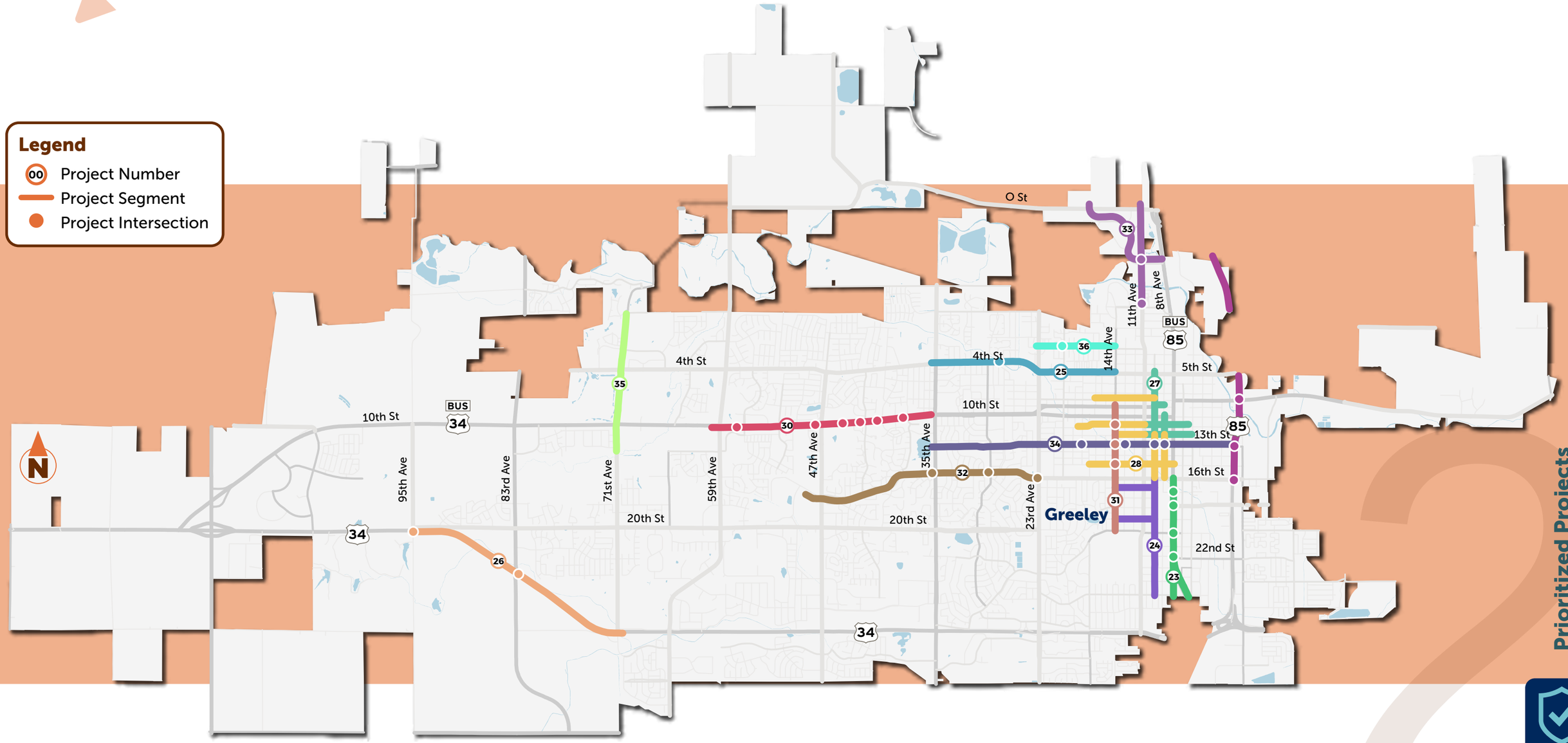
VISION ZERO PROJECTS
PRIORITY TIER 2

2

Project		Benefit-to-Cost Ratio
23	8th Ave / US 85 Bus. - 16th St to 25th St	2.47
24	UNC Area Traffic Calming	2.45
25	5th St and 4th St - 14th Ave to 35th Ave	2.40
26	US Hwy 34 - 71st Ave to 95th Ave	2.30
27	Downtown Area	2.20
28	Central Greeley Neighborhood Traffic Calming	2.17

Project		Benefit-to-Cost Ratio
29	US Hwy 85 - 5th St to 16th St	2.11
30	W 10th St - 35th Ave to 59th Ave	2.06
31	14th Ave - 9th St to 20th St	2.03
32	16th St - 23rd Ave to 48th Ave	2.01
33	N 11th Ave, H St, N 17th Ave	1.99
34	13th St - US Hwy 85 to 35th Ave	1.93
35	71st Ave - C St to 12th St	1.81
36	2nd St - 14th Ave to 23rd Ave	1.77

Legend
- 00 Project Number
- Project Segment
- Project Intersection



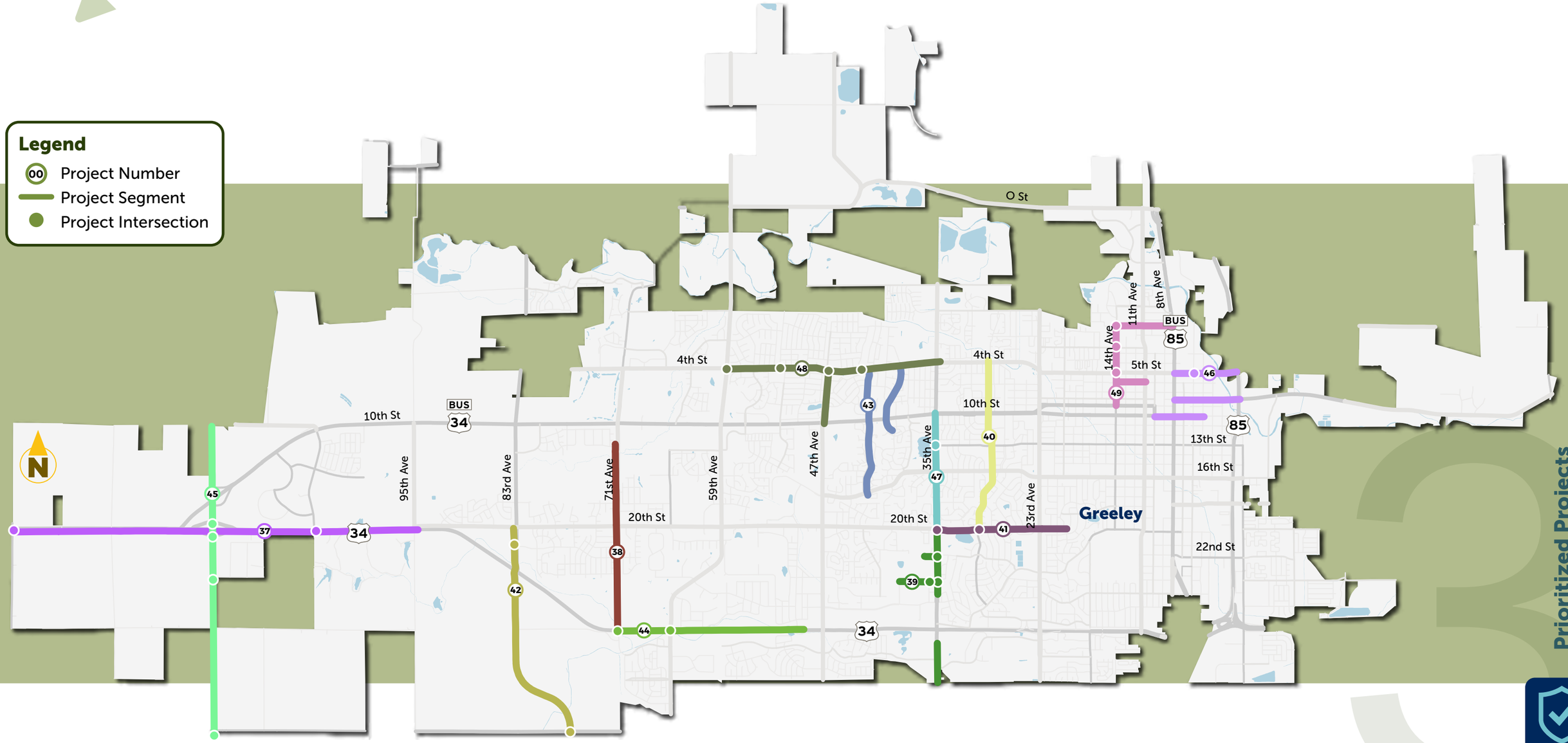
Prioritized Projects

VISION ZERO PROJECTS
PRIORITY TIER 3

3

Project		Benefit-to-Cost Ratio
37	US Hwy 34 - 95th Ave to County Rd 17	1.71
38	71st Ave - 12th St to US Hwy 34	1.69
39	Greeley West High School Vicinity	1.66
40	28th Ave - 4th St to 20th St	1.56
41	20th St - Montview Dr to 35th Ave	1.51
42	83rd Ave / 77th Ave - 20th St to 37th St	1.49
43	39th Ave and 43rd Ave South of 4th St	1.42

Project		Benefit-to-Cost Ratio
44	US Hwy 34 - 50th Ave to 71st Ave	1.42
45	State Hwy 257 - Hwy 257 Spur to County Rd 54	1.39
46	Sunrise-Downtown Connectors	1.39
47	35th Ave - 10th St to 20th St	1.38
48	4th St, 35th Ave to 59th Ave + 47th Ave, 4th St to 10th St	1.35
49	North Central Greeley Lane Reconfigurations	1.35

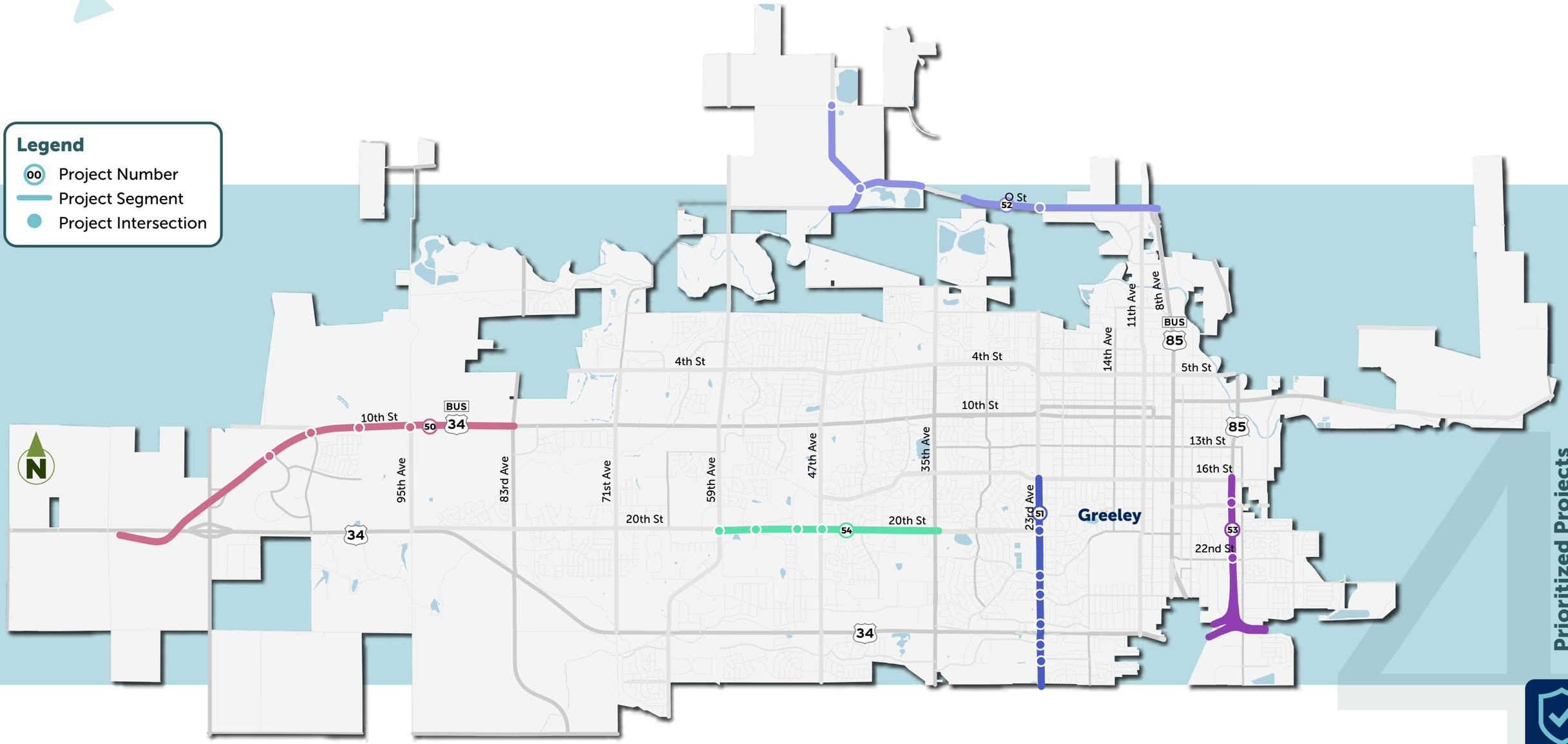


Prioritized Projects

VISION ZERO PROJECTS
PRIORITY TIER 4

4

Project		Benefit-to-Cost Ratio
50	W 10th St - 83rd Ave to US 34	1.35
51	23rd Ave - 16th St to 32nd St	1.31
52	O St & 47th Ave	1.23
53	US Hwy 85 - 16th St to US Hwy 34	1.17
54	20th St - 35th Ave to 59th St	1.14



Prioritized Projects

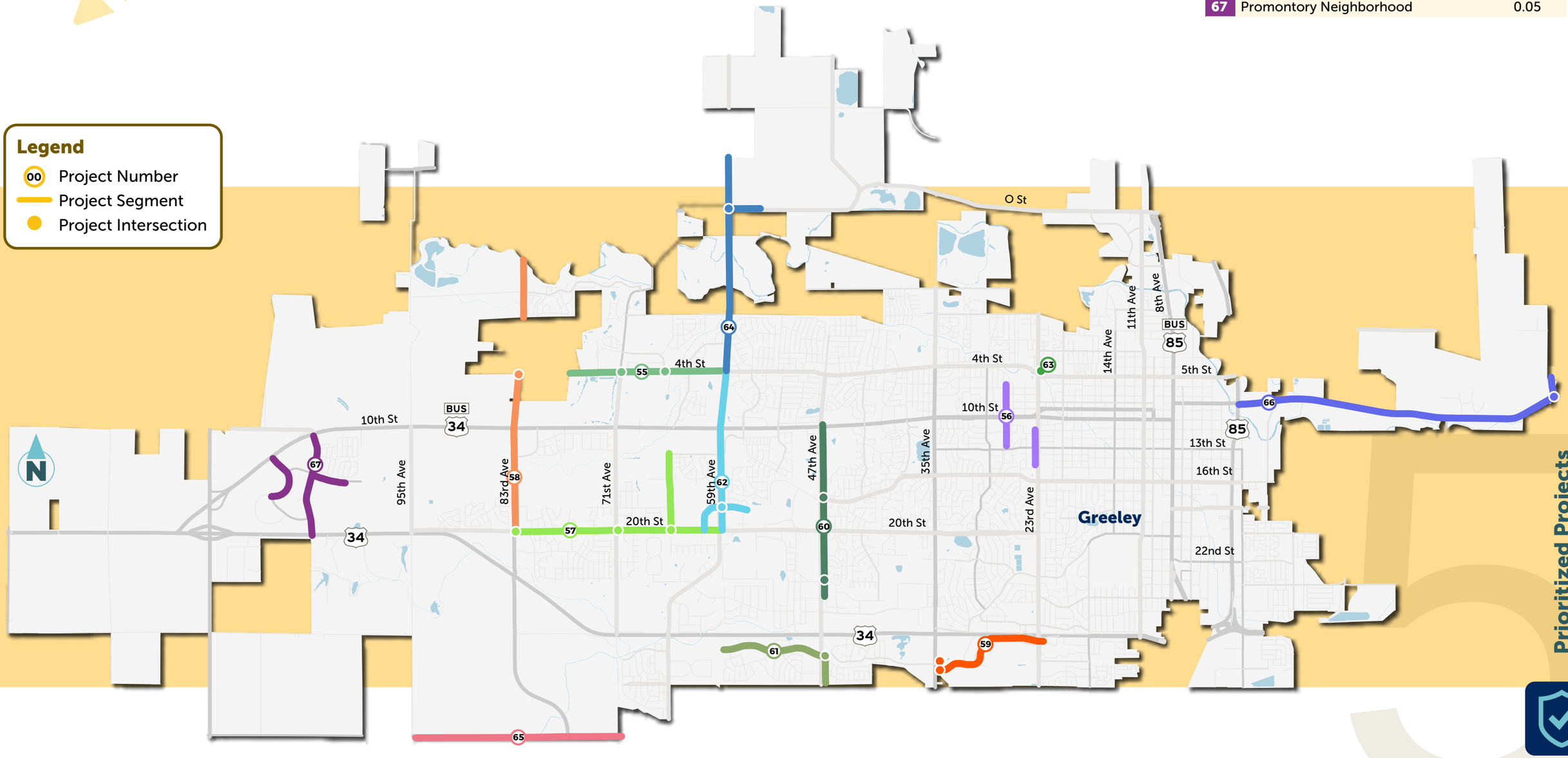
VISION ZERO PROJECTS
PRIORITY TIER 5

5

Project		Benefit-to-Cost Ratio
55	4th St - 59th Ave to 77th Ave	1.11
56	Westview Neighborhood Traffic Calming	1.03
57	20th St, 59th Ave to 83rd Ave + 65th Ave, 13th to 20th St	0.82
58	83rd Ave / County Rd 27 - H St to 20th St	0.65
59	29th St and S 35th Ave	0.58
60	47th Ave - 10th St to 25th St	0.57

Project		Benefit-to-Cost Ratio
61	29th St - 47th Ave to 58th Ave + 47th Ave South of 29th St	0.55
62	59th Ave- 4th St to 20th St + 18th St Traffic Calming	0.54
63	5th St & 23rd Ave Intersection Improvement	0.52
64	N 59th Ave - 4th St to City Limit	0.51
65	37th St - 71st Ave to County Rd 25	0.26
66	8th St - County Rd 47 to US Hwy 85	0.22
67	Promontory Neighborhood	0.05

Legend
- 00 Project Number
- Project Segment
- Project Intersection



Prioritized Projects

Short-Term & Quick-Build Projects

Greeley has recently secured one of the largest federal Safe Streets for All demonstration grants in the country, enhancing its reputation as a pioneer in quick-build and demonstration projects aimed at improving road safety for everyone. Shorter-term or "quick-build" safety improvements that use materials like paint, flexible delineator posts, and signage can often provide quick-win safety benefits at a fraction of the cost of full "permanent" construction.

The Prioritized Projects detailed in the previous section assume full, permanent construction costs for purposes of providing apples-to-apples comparisons of project benefit-to-cost ratios. However, many of the proposed projects or portions of a project (particular segment or intersection improvements) could be improved through shorter-term countermeasures implemented with paint, posts, and signage.

Quick-Build Safety Countermeasure Examples:

Intersection bulb-outs, curb extensions, and turn radius reductions

Source: Denver Streets Partnership

Pedestrian midblock or median-refuge island crossings

Paint-and-post lane reconfigurations

Source: Smart Growth America

Stop sign visibility improvements or conversion to all-way stops

Source: Google Streetview

Installation of rectangular rapid flashing beacon pedestrian crossing signs

Source: PedBikeImages.org

Various modular traffic calming devices (e.g. roundabouts, speed tables, pedestrian median-refuge islands)

Source: Google Streetview, City of Omaha

Appendix C includes a list of Vision Zero Prioritized Project locations that may be good candidates for short-term or quick-build improvements, along with of suggested quick-build countermeasures for each location.

This list was developed through a high-level planning review of all the Priority Tier 1 & 2 project locations, as well as some additional locations that are components of a lower priority tier project, but have a high potential benefit-to-cost ratio for a specific intersection or segment along the project.

Appendix A – Public Engagement

An important goal of the Plan is to engage with the community in meaningful, accessible, and culturally relevant ways, and support involvement by respected community leaders and influencers. As part of this community outreach, there was a focused effort on reaching out to marginalized and historically under-represented communities The purpose of this appendix is to describe the process used in the public engagement process of the Plan.

Figure 1 - Project Team engaging attendees at the School District 6 Kick-off event at Island Grove Regional Park.

Objective

Deliver informational engagement activities regarding the Plan, educate people of the factors in a transportation system that can lead to serious injury or death, and to receive feedback, input, and responses that help assess community values, priorities, and vision.

Scope

Stakeholder and public meetings are typical methods to engage key audiences with the planning team and City staff to inform the Plan.

The public engagement portion of the Plan included developing content for inclusion in the City-developed Vision Zero Action Plan website. The purpose of the website was to engage residents in the process of the Plan in a convenient way. The strategy for advertising online engagement included using the City's existing channels and a project page on the City's website.

It was decided that in addition to the City's project webpage, a series of pop-up events would be used to distribute information and solicit feedback in-lieu of traditional formal public meetings. The pop-ups allowed for engagement with the public at events across Greeley. Pop-up events held at existing public events or high use community locations such as festivals, fairs, libraries, farmers markets, community centers, grocery stores, or coffee shops. Action Plan Advisory Committee members provided insight for locations/events in their communities that would benefit from a pop-up event for this Plan.

Round 1

The project webpage and the physical media at the pop-up events provided data on traffic crashes within Greeley. This included the number of fatal and serious injury crashes and more detailed crash trends. The public was presented this existing safety information and provided a set of survey questions meant to help inform the Plan on the community's values and priorities.

1. Has anyone you know been impacted by traffic crashes in the City of Greeley? Select all that apply.

o Myself	o A family member
o A friend / acquaintance / colleague / neighbor	o No one I know

2. How have traffic safety issues impacted you? Select all that apply.

o	My vehicle has been damaged.	o	Someone I know has died or been seriously injured.
o	Someone I know has been minimally physically injured.	o	I have been seriously physically injured.
o	I have been minimally physically injured.	o	I avoid traveling at certain times of day or days of week.
o	I avoid certain streets or intersections.	o	I have not been impacted.
o Other (please specify)			

3. What modes of travel do you regularly use, i.e., drive, bike, walk?

4. What block or neighborhood do you live? (example 1200 block of 9th Ave)

5. How safe do you feel doing the following in the City of Greeley?

1 star = very unsafe / 5 stars = very safe

Walking, Biking, Rolling in residential areas	☆☆☆☆☆NA
Driving in residential areas	☆☆☆☆☆NA
Walking, Biking, Rolling along or across main city streets, intersections, and highways	☆☆☆☆☆NA
Driving / passenger on or across main city streets, intersections, and highways	☆☆☆☆☆NA

6. What do you think causes traffic crashes, i.e., driving error, weather, road design, impaired / under the influence drivers, distracted drivers?

7. What can be done to improve traffic safety, i.e., different road design, lower speed limits?

8. What can you do to personally help achieve improve safety?

o	Follow the law while driving, walking, or biking.	o	Yield to people walking in both marked and unmarked crosswalks.
o	Drive the speed limit.	o	Talk to friends and family.
o	Speak up if I am riding with someone who is speeding.	o	Not use cell phone while driving, walking, or biking.
o	Other (please specify).		

Figure 2 - In-person survey

Webpage

The WSP team coordinated with the City's Communications and Engagement Department to create a project webpage on their Speak Up Greeley main page. This is typical for City projects / studies and the team followed the typical page format.

The webpage content included Project Goals, Project Objectives, and a How You Can Help section with an on-line option to participate in the same survey as solicited at in-person events. The page also contained the project schedule, FAQs, and contact information.

Intercept Survey

Three pop-up events were held during May and June 2024, with 25 survey participants and several more hurried commentors. We set up tables at the Farmers Market on Saturday May 5 from 8:00 to 11:00 a.m. (17 surveyed), the 71st Ave King Soopers on May 11 from 8:00 to 9:00 a.m. (four surveyed), and at Lincoln Park during Bike to Work Day (BTWD) on June 26 from 7:00 to 9:30 a.m. (four surveyed). The number of participants at King Soopers and BTWD were underwhelming and influenced the team's selection of venues and survey methods for Round 2.

Figure 3 - Project Survey Table at King Soopers

Results

The website had 118 views from 5/22/24 to 7/01/2024 with 37 survey participants. The website format provided a venue for more in-depth comments, as seen below in the full comments. 100% of the on-line surveys list driving as a travel mode with only 14 checking the walk/roll mode and six with biking. In contrast to the 25 total people surveyed at a pop-up event where 20 listed drive, 10 walk/roll, and 12 a bike. These results indicate that the use of on-line and in-person surveys helped broaden the base.

Table 1 - Round 1 survey results

	Question # 1				Question # 2								Question #3			Question #5				Question # 6					Question #7		Question # 8					
	Myself	Family Member	Friend / Colleague	No One I Know	My Vehicle Damaged	Someone died or serious injury	Someone minimally Injured	I had serious injury	I had minimal injury	I avoid certain times	I avoid certain streets	No impact	drive	bike	walk	W/B/R in residential	drive in residential	W/B/R on main streets	drive on main streets	Driving error	weather	road design	impaired drivers	distracted drivers	Different road design	lower speed limit	follow the law	yield to walkers	drive the speed limit	talk to family	speak up	not use cell phone
In-person	6	8	6	12	9	6	3	0	2	6	10		20	12	10	3.174	3.826	2.043	3.13	10	2	6	7	15	3	6	18	16	18	5	11	20
On-Line	10	14	19	9	9	8	9	0	4	12	23	6	37	6	14	2.973	3.784	1.784	2.622	20	2	12	3	24	8	11	31	29	28	21	19	24
Total	16	22	25	21	18	14	12	0	6	18	33	6	57	18	24	3.073	3.805	1.914	2.876	30	4	18	10	39	11	17	49	45	46	26	30	44

Some other notable take-aways from the Round 1 public engagement process:

- 90% of respondents have been impacted by crashes.
- Respondents feel most safe driving in residential areas and least safe walking/rolling/biking on main roadways.
- Most respondents attribute crashes to the drivers, with distracted driving and driver error having the highest numbers.
- Roadway design was not high as either a cause of crashes or a solution to the crashes.
- A majority of respondents are willing to do things to improve safety, however, surprisingly the lowest value was for talking to family and friends.

Comments

In addition to the check boxes, survey participants were given the option of "Other" on questions #6, #7, and #8 and ability to add information. This is a summary of the comments, complete comments are below.

Question #6 - What do you think causes traffic crashes, i.e., driving error, weather, road design, impaired / under the influence drivers, distracted drivers?

- **Speeding**: High speeds, speeding, and speeding due to traffic signal timing.
- **Traffic signals and signs**: Issues with signal light systems, running stop signs, red light runners, and ignoring signals and signs.
- **Visibility and signage**: Improper signage, lack of visibility with stop signs, and unclear signage.
- **Driver behavior**: Frustrated drivers, younger drivers, and not enough enforcement.
- **Careless driving**: This includes drivers not being careful, aggressive drivers, and careless drivers.
- **Road conditions**: Road disrepair, poor roads, and bad traffic flow.
- **Other factors**: Lack of public transit options, weather, and depression.

Question #7 - What can be done to improve traffic safety, i.e., different road design, lower speed limits?

- **Enforcement**: This includes general enforcement, targeted enforcement, and red-light camera enforcement.
- **Infrastructure Improvements**: Suggestions include protected bike lanes, better striping, more lights, improved visibility of stop signs, and better signage.
- **Speed Management**: Proposals include lowering speed limits, designing to reduce speeds, and increasing signage for speed limits.
- **Traffic Management**: Ideas include roundabouts, traffic light pattern updates, and easing congestion by getting ahead of growth.
- **Public Transportation**: Better, faster bus service to reduce the number of cars.

- **Driver Behavior**: Emphasis on better driver's education and encouraging drivers to be cautious and put their phones down.
- **Pedestrian and Cyclist Safety**: Improvements for pedestrian safety and more protected bike lanes and paths.
- **Road Design**: Wider streets, different off-ramps, and overpasses on US34.

Question 8 - What can you do to personally help achieve improve safety?

We received seven distinct comments on seven distinct topics. The full list of comments for each question are listed at the end of the appendix.

Next Steps

The survey results were shared with the project team prior to developing countermeasure recommendations. As noted earlier, the pop-up events at the grocery store and BTWD did not garner much participation. This influenced our approach to round two of pop-up events.

Round 2

At this point of the plan, the project team had begun considering safety countermeasures and wanted to gauge the public's acceptance and priorities of potential countermeasures. This was done only at in-person events (no online option was created for this portion of the public engagement process).

Popup Events

The initial set of Round 2 locations included a grocery store; however, based on the reception we received during round one, that location was dropped. Instead, we chose to focus on events where people were gathering, mingling, or were there intending to engage with community resources. We also moved from the clipboard and paper survey to an interactive, dots-on-the-board approach.

We attended the School District 6 Kick-off and backpack give-away at Island Grove on August 3rd from 9:00 a.m. to 12:00 p.m., the Friday Fest on the downtown plaza from 6:00 to 9:00 p.m. on August 16th, and at the Farmers Market on August 24th from 8:00 to 11:30 a.m. The primary reason that the School Kick-off and Friday Fest were selected as pop-up locations was to better engage with under-represented communities in the City.

For anybody who visited the pop-up, they were provided up to three dots to stick on improvements they want to see. Any other comments or concerns expressed by the community were also documented by the team.

The public seemed to be more engaged with the dot strategy of round 2 compared to the in-person survey from round 1. People spent as much time, or more, reading the countermeasure descriptions and deciding where to put their dots than people spent to fill out the round 1 in-person survey. The level of public engagement seen during round 2 was very encouraging and helped to inform the Plan in a major way.

Materials

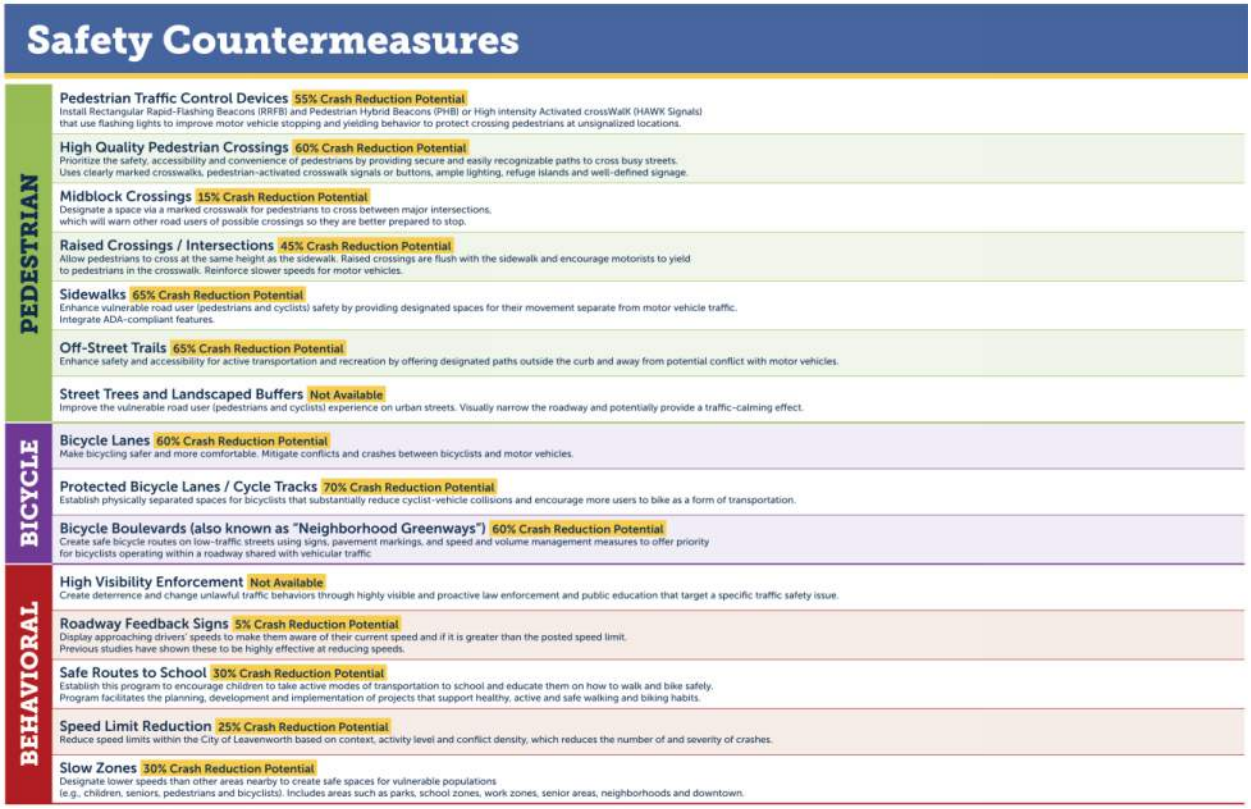


Figure 4 - One of two boards used at round 2 pop-up events

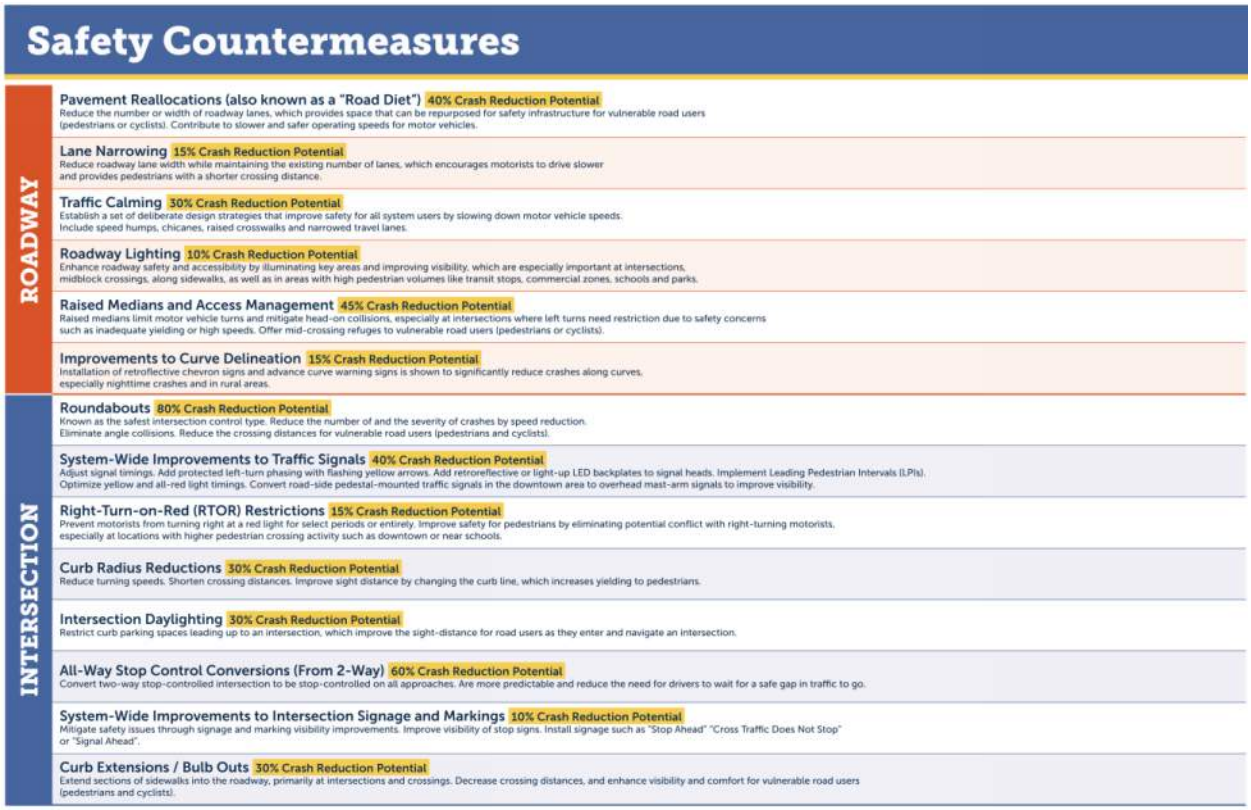


Figure 5 - One of two boards used at round 2 pop-up events

Results

Dots on the boards were tallied and summed, with percentages of dots/ countermeasure/event and sums calculated by improvement type.

The distribution of dots confirmed take-aways from Round 1 and the findings from our crash data analysis, that people believe driver behavior and intersections are the primary causes of accidents.

Table 2 - Round 2 survey results

Countermeasure	D6 Back to School 8/3		Friday Fest 8/16		Farmers Market 8/24		Totals		Average of percentage
ROADWAY									
Pavement Reallocations	1	1%	0	0%	1	1%	**2**	**1%**	**1%**
Lane Narrowing	0	0%	3	3%	2	2%	**5**	**2%**	**1%**
Traffic Calming	7	10%	4	4%	4	3%	**15**	**5%**	**6%**
Roadway Lighting	1	1%	10	9%	3	2%	**14**	**5%**	**4%**
Raised Medians and Access	1	1%	3	3%	2	2%	**6**	**2%**	**2%**
Improvements to Curve Delineation	0	0%	0	0%	1	1%	**1**	**0%**	**0%**
Roadway Sub-totals	10	15%	20	18%	13	11%	**43**	**14%**	**14%**
INTERSECTION									
Roundabouts	0	0%	12	11%	14	11%	**26**	**9%**	**7%**
System-Wide Improvements to Traffic Signals	2	3%	8	7%	7	6%	**17**	**6%**	**5%**
Right-Turn-on-Red (RTOR) Restrictions	0	0%	6	5%	1	1%	**7**	**2%**	**2%**
Curb Radius Reductions	1	1%	2	2%	1	1%	**4**	**1%**	**1%**
Intersection Daylighting	1	1%	0	0%	2	2%	**3**	**1%**	**1%**
All-Way Stop Control Conversions (From 2-Way)	0	0%	5	4%	5	4%	**10**	**3%**	**3%**
System-Wide Improvements to Intersection Signage and Markings	1	1%	2	2%	2	2%	**5**	**2%**	**2%**
Curb Extensions / Bulb Outs	1	1%	3	3%	0	0%	**4**	**1%**	**1%**
Intersection Sub-totals	6	9%	38	33%	32	26%	**76**	**25%**	**23%**
PEDESTRIAN									
Pedestrian Traffic Control Devices	6	9%	4	4%	9	7%	**19**	**6%**	**7%**
High Quality Pedestrian Crossings	5	7%	3	3%	12	10%	**20**	**7%**	**7%**
Midblock Crossings	1	1%	3	3%	0	0%	**4**	**1%**	**1%**
Raised Crossings / Intersections	2	3%	2	2%	0	0%	**4**	**1%**	**2%**
Sidewalks	5	7%	4	4%	2	2%	**11**	**4%**	**4%**
Off-Street Trails	5	7%	9	8%	2	2%	**16**	**5%**	**6%**
Street Trees and Landscaped Buffers	0	0%	2	2%	4	3%	**6**	**2%**	**2%**
Pedestrian Sub-Totals	24	36%	27	24%	29	24%	**80**	**26%**	**28%**
BICYCLE									
Bicycle Lanes	4	6%	3	3%	5	4%	**12**	**4%**	**4%**
Protected Bicycle Lanes / Cycle Tracks	4	6%	2	2%	8	7%	**14**	**5%**	**5%**
Bicycle Boulevards (also known as “Neighborhood Greenways”)	2	3%	0	0%	8	7%	**10**	**3%**	**3%**
Bicycle Sub-totals	10	15%	5	4%	21	17%	**36**	**12%**	**12%**
BEHAVIORAL									
High Visibility Enforcement	2	3%	6	5%	18	15%	**26**	**9%**	**8%**
Roadway Feedback Signs	0	0%	1	1%	0	0%	**1**	**0%**	**0%**
Safe Routes to School	8	12%	8	7%	4	3%	**20**	**7%**	**7%**
Speed Limit Reduction	3	4%	7	6%	4	3%	**14**	**5%**	**5%**
Slow Zones	4	6%	2	2%	2	2%	**8**	**3%**	**3%**
Behavioral Sub-totals	17	25%	24	21%	28	23%	**69**	**23%**	**23%**
Totals	**67**		**114**		**123**		**304**		

Comments

The public comments generally fell into three categories: Traffic and Safety Concerns, Bike/Ped improvements, and Roadway Infrastructure.

1. **Traffic and Safety Concerns:**
    - Cut-through traffic in the neighborhood going to Bella Romero school.
    - Kids running across the school zone at 4th St and 45th Ave.
    - Need for safer environments around schools.
    - Cars parking too close to the intersection at 17th Ave and 30th St, obstructing visibility.
    - Speeding and car-haulers near the Ford Dealership.
    - Hard to pull out from 56th Ave at 20th St due to a hill.
    - Drag racing on 8th St on Sunday nights from 14th Ave to 11th Ave.
    - More green time on 47th Ave at 10th St.
    - Increase green cycle at 28th Ave and 10th St.
    - Consistent speed limit on US 34.
    - Watch accidents weekly at 10th St and 50th Ave.
2. **Bike and Pedestrian Improvements:**
    - Need for bike routes from UNC to downtown.
    - Better funding for Bike/Ped improvements.
    - Education to get bikes off the sidewalks.
    - Better maintenance of bike paths near Discovery Bay.
    - Education on how to use roundabouts.
    - Education about bike lights and reflectors.
    - Personal safety on bike paths.
    - Improve safety on Poudre Trail.
    - Bikes should go in the direction of traffic.
3. **Road and Infrastructure Improvements:**
    - Road conditions need improvement.

- Pothole repair.
- Better road maintenance.
- Better signage and high-visibility clothes in construction zones.
- Better striping.
- Intersection daylighting in Highland Park West.
- Tree blocking the school speed zone sign near Heath.
- Use median landscaping to slow traffic on 10th.
- Remove the signal at 10th Ave and 9th St.
- No roundabouts.
- Speed humps on 49th Ave near Life Bridge retirement.

4. **General Suggestions:**
    - Use camera footage for crash enforcement.
    - Fan of what the city is doing.
    - Need more police.

Figure 6 - Board at conclusion of Farmers Market August Pop-up

Final Analysis and Next Steps

The results and conclusions from the two rounds of public outreach were consistent and informative. The team's engagement with public shows that local residents consider driver behavior (speeding, distracted driving, driver errors, etc.) as a major cause of crashes in the city. The results from the public engagement also showed that the public is willing to make changes to improve safety and eliminate fatalities and serious injuries.

Website Update

The project webpage will be updated with the final plan and content describing the outreach findings and results.

Round 1: Full Survey Comments

Question #6 - What do you think causes traffic crashes, i.e., driving error, weather, road design, impaired / under the influence drivers, distracted drivers?

1. Careless drivers
2. Road disrepair - unclear signage - bad traffic flow
3. High speeds, improper signage, poor roads, reckless drivers not careful
4. Speeding, HS Drivers, crouch rockets
5. Speeds too high
6. Depression
7. Careless drivers
8. Running stop signs
9. Speeding

Start of On-line Comments

10. There are myriad causes, but I would like to make some suggestions of what I see a lot: 1. Driving while operating a mobile device. This is a constant in Greeley, and we REALLY need to start ticketing for this in order to curb the behavior. Hands-free isn't hard to do, and it'll save lives. Nobody should be doing this. I know Colorado is on the verge of passing this law, but law enforcement will have to actually enforce this one to have any effect. I'm not trying to be hard on police, I know they have lots to do, but I think a law without consequences isn't much of a law. 2. I do see a LOT of drivers in Greeley running lights, pushing the yellow to the absolute limit and beyond. However, I think this is often because lights are poorly timed. If you travel on or across HWY 34 in Greeley, you will be stopped at lights over and over, and you will have to wait multiple cycles at lights oftentimes. So it's a bad driver choice, but I think if drivers were able to get where they were going without having to wait so often, they would be less likely to run the lights. If I knew that waiting for the light at 65th meant I'd breeze through all the way to 11th ave, I wouldn't be so concerned about making it through. 3. Greeley drivers are NOT pedestrian or cyclist friendly. I really encourage our city planners and council members to try cycling to work once a week to see what it's like. I can't speak to the motivation behind the behavior, but if you spend a

decent amount of time walking or biking, you'll see it for yourself. If you're crossing a road on foot, cars will turn into you, creep up on you while you're crossing. They expect you to HUSTLE across the street, and that's not right. I'm not 100% sure how to manage these behaviors, but I DO think Greeley has a very car-centric culture, and people could chill a bit.

11. I think there are better ways to design our roads. The bridge heading into Greeley from 34 West Bound from Kersey is a nightmare if there are cars also driving Westbound off highway 85. I think there are lots of aggressive drives that drive too fast in neighborhoods and they are distracted too.
12. Fix the traffic light system and close down some of the side streets that feed into larger arteries. No reason anyone should be able to turn left onto 35th from the feeder road that runs east and west in front of breeze thru
13. Road design. I think people speed to try to make up for time spent at stop lights. If we had more on and off ramps on 34 it would have prevented the car crashes I have seen.
14. Speed causes crashes. Speed is primarily influenced by poor road design which puts users of different speeds in close proximity to one another and encourages automobiles to drive too fast due to the wide roads
15. reduce speeds through design and posted limits, increase transportation alternatives to reduce the numbers of single occupancy vehicles, facilitate road design for all road users, center pedestrians/cyclists over cars and center life-saving designs
16. road design and lack of visible or flashing stop sign
17. Red light runners
18. Traffic, lights that aren't synched with each other so people run red lights , distraction. And then in my neighborhood I just see blatant disregard for traffic laws and pedestrians...people speed through alleys
19. Driving error- cars are going through red lights to get through intersections, people are looking at their phones. And I feel that we have two very difficult intersections by where I live at 59th Avenue/10th and 47th Ave/10th Street. The "feeder" lane is very short to get on 47th Avenue from EB 10th Street and trying to feed in from NB 59th Ave onto 10th

Street during busy times is almost impossible. You basically have to come to a stop and let traffic clear and then pull in. I wish both those intersections were just stop light intersections without the feeder lanes.

20. Bad driving from people coming in to our city with little training on how to drive except fast and erratic. Distracted drivers that I see every day talking while holding their phones
21. Driver error is ALWAYS the cause of crashes. Speeding or impatient drivers is the leading cause, at least that's what I see all of the time. I also see a lot of people staring at their phones while they drive. I'll admit I don't know the actual stats, but this is what I observe. I always drive the speed limit and never look at my phone. People whiz past me like I'm sitting still.
22. Driver inattention; purposely ignoring traffic signals, signs
23. Frustrated Drivers
24. High speed limits and drivers going above posted speeds
25. Running red lights, speed, distracted drivers
26. undeveloped brains in sub-25 year olds
27. No police monitoring. We moved here from Arvada three years ago. We travel highway 34 everyday. We have seen a policeman only three times in 3 years. We can hear the drag racing on Friday, Saturday nights into early morning by motorcycles and dragsters. We have had drivers go into the shoulder to pass us. We go the speed limit. No one goes the speed limit. The wide load trucks cause a real danger on 34. I hope you put police around 66th and highway 34. Near Popes market.
28. Speeding drivers, distracted drivers, distracted or impaired cyclists/pedestrians, impaired drivers, visibility at intersections, failure to yield
29. uneducated drivers. We have taken away access to drivers ed in schools to make way for other things and now families with low incomes cannot send their children to a driving school. There are programs to try to help but still the majority of families that want to teach their young drivers run into financial restrictions. This also applies to adults that want to take a driving class. it is too expensive or they don't know were to look.
30. excessive speed, running yellow/red lights, tailgating

31. Driving error and speed of cars.
32. distracted driver, confusion when entering a 2 lane roundabout, running red lights
33. so many things. A lot of it is driver error, but definitely some issues with road design and upkeep
34. Distracted drivers, road design, traffic, merging into high speed roads
35. Drivers not wanting to wait at lights. Distracted drivers. weather

Question #7 - What can be done to improve traffic safety, i.e., different road design, lower speed limits?

1. Enforcement
2. Narrow crossings
3. IDK - don't like roundabouts and there are places speeds should be higher
4. Protected bike lanes, real infrastructure for pedestrians
5. More lights
6. Safe-legal vehicles
7. Wider streets
8. Enforcement, better signs
9. Drivers being cautious
10. Enforcement
11. More cameras
12. Enforcement
13. Protected bike lanes
14. Protected bike lanes, vanishing bike lanes
15. Enforcement
16. put the phone down

Start of On-line comments

17. Different off ramp into Riverview Farm
18. 1. PLEASE construct overpasses on HWY 34. Stop putting in stoplights. The highway shouldn't have so many lights between here and Loveland. This is causing a ton of accidents that do not need to occur. 2. If

overpasses aren't an option, create barriers so that cars can't turn left onto HWY 34 in so many places. Instead of building more stoplights, force traffic to go to intersections where turning left is possible already thanks to a preexisting light. People can drive a mile out of their way to hit an intersection that's reasonable. Highway traffic shouldn't be stop and go. There is going to be a lot of development right along the highway, and residents will need to learn to accept that they may have to drive a little out of their way north to hit the bypass, turn right, and get into town. We aren't all entitled to jump on the highway in whatever direction we want at any point. 3. Bike lanes should have a physical barrier between cars and bikes. Paint is not infrastructure. Sidewalks should also be set back further from the road whenever possible. 4. I know that cities often get subsidies or grants for creating X miles of bike lanes, and I suspect this is how Greeley designates bike lanes. This is why you see bike lanes in residential areas where they're not really necessary, and bike lanes that exist on a single street (29th street is a great example) that don't connect across the city. Bike lanes need to allow people to get across town to be of any use, they need to go to and from destinations, not through residential neighborhoods where there's already plenty of room. The way Greeley is set up, only hardcore cyclists will ride a bike to work, and what you want is to give people a safe option to get where they need to go, and maybe make it more normal to do so sometimes and to drive at others. 5. I would like our city planners and leaders to enroll in this or something similar in order to better understand the benefits and necessities of walkable cities: https://americawalks.org/programs/walking-college/ 6. Public transportation. Light rail to the intersection of 34 and I25. Rail to Fort Collins. The Poudre Express is awesome and a great idea. More options that get people off the road makes it a lot safer for everyone. AND, if you make it easy for people to commute in and out of Greeley, it will continue to be a popular spot for people to buy homes. 7. Truck height should be regulated. If you get hit by a pickup, the grill is going to hit you in the face. CDOT has done the math on this, and vehicles with a hood height of 40" or more are 45% more likely to cause fatalities. Some of the

most popular pickup brands in America are at 55", that's about 4 and a half feet, which means if something is shorter than 4.5 feet, like a child or someone in a wheelchair, you will not be able to see it over the hood of your pickup. I get it, if people manufacture trucks like this, we're stuck, but lifting trucks beyond this already-dangerous height is an incredibly unsafe practice and totally unnecessary vehicle modification (try and load lumber into the back of a truck bed that's at chest height, it sucks, nobody who does this is using their truck for real work) https://www.codot.gov/safety/shift-into-safe-news/2023/december/taller-cars-and-trucks-are-more-dangerous-for-pedestrians-according-to-crash-data-npr#:~:text=Researchers%20at%20IIHS%20studied%20data,of%2030%20inches%20or%20less. 8. When road work is being done and sidewalks are closed, there needs to be a much higher standard for indicating this and completing work so that at least one sidewalk is always open and passable. If you encounter a closed sidewalk on 25th street near Centerplace, you have to go a half-mile back to get to a light, cross, then go a half-mile to get back to where you were. This is a 1-mile detour, easily a half hour for someone with any mobility issues, that can be avoided if these signs are placed properly. And part of proper placement is removing them quickly when work is done. 9. I would like to see our city council and political leaders, as well as office staff with the city, using public transportation at least once a week. I am a believer that the only way to solve a problem is to make it the right person's problem. If our mayor was unable to drive and had to rely on the bus to get everywhere in town, I have a feeling we would see very quick, drastic changes in that service. You can ask me all day what I see as problems, but I think seeing for yourself is as easy as waking up 90 minutes earlier to get across town on a bus. It's as easy as trying to get downtown on the bus on a Sunday. It's as easy as riding your bike from Bittersweet Park to Centerplace and fighting traffic that whole way.

19. Many streets have long distances without the speed limit being marked, like 83rd Ave between Hwy 34 & 10 St. It won't slow people down,

but it will reinforce the actual speed limit and prevent some angry drivers who think the speed limit is 55.

20. Lowering the speed limits, but also adding in wider sidewalks for pedestrians. Glenmere neighborhood does not have any sidewalks and cars fly down the neighborhood to get to the park. There needs to be speedbumps, sidewalks and flashing crosswalks throughout Greeley to improve the safety for pedestrians. Having bike friendly paths that protect the bikes from cars will also help slow down traffic.
21. Fix the traffic light system and close down some of the side streets that feed into larger arteries. No reason anyone should be able to turn left onto 35th from the feeder road that runs east and west in front of breeze thrus
22. More and faster busses to cut down on the number of car on the road. I would take busses 10x more often if there were any express busses that didn't stop every 3 blocks. Like if we had one that went down 10th St staring at 8th Ave, making one stop at 35th Ave, and ending at 59th Ave or so. And I can get to those stops by other slower but shorter bus routes. I have no problem riding 2 busses, I have a problem with a ride that 1.5 miles lasting 25 mins.
23. Speed causes crashes. Speed is primarily influenced by poor road design which puts users of different speeds in close proximity to one another and encourages automobiles to drive too fast due to the wide roads.
24. reduce speeds through design and posted limits, increase transportation alternatives to reduce the numbers of single occupancy vehicles, facilitate road design for all road users, center pedestrians/cyclists over cars and center life-saving designs
25. In the country areas we need improved visibility with stop signs
26. Red light cameras & ticket the offenders
27. Ease traffic congestion by getting ahead of our growth! 34 is a nightmare.
28. Red light cameras at busy intersections? Definitely different road design. No more of the feeder lanes.
29. Require drivers education before getting a license. Suspend drivers licenses with some kind of device required to be worn so that if they get into a car it won't start (fantasy I know but...)

30. I am surprised the speed limit on 10th St jumps to 55 just west of 47th Ave. Seems that should be lowered to 45. The most important thing is to crack down hard on violators. A dedicated traffic unit in the PD would help. I would support speed and red light cameras. Tickets for these moving violations must NEVER be reduced. Violator must pay the hefty fines. Punishment is the only way people learn.
31. Converting some traffic light controlled intersections to roundabouts could reduce the severity of intersection crashes. Retrofitting developed areas with bicycle/walking paths separated from traffic would improve safety AND contribute to an improved quality of life for Greeley residents (challenging & costly, yes, but nonetheless, necessary for Greeley's future)
32. by and large a behavioral issue IMHO: better driver education, adherence to laws and safety conditions. Stop trying to create a traffic "calming" area, bottling traffic down to single lanes and reducing throughput frustrates drivers causing them to make stupid decisions.
33. more bike paths
34. Lower the speed limits on the west side of town
35. Lower the speed limit on west 10th street. More traffic patrols. Ticketing those who run yellow lights with camera proof. More crosswalks and ticketing those who do not stop at crosswalks. When the city repaved 16th street near my neighborhood, a crosswalk was removed. Possibly flashing crosswalks at certain areas like those at the Poudre Trail, Grand Junction and Boulder.
36. Lower speed limits at major intersections (example: 10th st and 71st ave). Larger traffic lights, blinking warning lights
37. Policemen watching and being present to the drivers
38. Roundabouts, penalties for parking too close to an intersections and stops signs which does not allow the driver to see oncoming traffic
39. Improve road design with open sight lines at intersections and better enforcement of landscape violations, increased traffic enforcement, especially in neighborhoods, speed control devices (humps or dips) on residential streets, improve traffic flow in high traffic areas to improve volume efficiency, increase setback distance between streets and

sidewalks, improved bike lanes and pedestrian crossings especially along busy streets, drastic improvement of public transit including increased access and improved hours/frequency of operation, enforce defective/dangerous vehicle restrictions, crack down on panhandling and encampments in areas with vehicle traffic, increase severity of penalty for traffic violations in high risk spaces

40. Lower speeds and increasing police force to monitor traffic. I now play a game ever time I get into the car to see how expired a persons temp tags are. We need to increase our police force so that way people who are negligent in complying with laws are held accountable. Ask them how many stolen vehicles go through the LPR's every day. and guess what?... A person who is hit by a car that has been stolen has to rely on their own insurance to support them. the at fault cars insurance will is void. This can leave the victim with debilitating injuries or a totaled car.
41. I don't see traffic circles as improving safety when walking. I am not in favor of more and more traffic circles because they are only meant for vehicles, not pedestrians or bicycles. More police patrols where accidents occur frequently instead of "speed traps."
42. Improve intersections & traffic flow, traffic light pattern updates (some have particularly long wait times with short turn light duration), more advance warning of traffic pattern changes (lane merge, turn lane ends, etc.)
43. Longer left-hand turn signals & change blinking yellow left-hand turn signals to green. Ticketing drivers running red lights via cameras with high monetary fines and loss of license if ticketed 3 or more times per year no matter what the ticket violations are.
44. Lower speed limits and more roundabouts. Also more public transit to minimize amount of cars on the road.
45. Greeley has one major connection to I -25 and traffic is at saturation or close to it during peak hour travel. I have worked in Public Works for 17 years as a Transportation and Traffic Engineer and had developed a preliminary ROW plan for "O" street to connect to Crossroads Blvd. and then to I-25, and 4th St. from 83rd Ave. to Highway 257 and up to to Crossroads. These two routes will reduce traffic on US 34. Windsor

adopted the "O" Street extension and Weld County Public Works Also these two routes ROW need implementation before development blocks the ROW. Thanks

46. Lower speed limits and enforcement of the speed limits
47. Lower speed limits, designated and protected bike lanes, more visible lines on the road
48. The light on the back side of Greeley west 35ave not sure of street number (wells fargo is on the corner) both of those lights should not be green at the same time. Should be one at a time to allow the flow of traffic better. If you are turning onto 35 it is impossible with having to yield to cars coming /going to west. You can easily sit through 2-light changes just to turn. Then people get impatient go on red or turn in front of cars going straight. I've seen many close calls for accidents. As big as the school is not sure why it is that way . I avoid 35th ave at all cost in the mornings and after school between everyone turning at the first light in front greeley west on 35th (the rt lane back up to 34. Then on the other side you have everyone turning onto 29th to go to frontier and the left turn lane is so small it gets backed up.

Question # 8 - What can you do to personally help achieve improve safety?

1. Be willing to pay for improvements

Start of on-line comments

2. I think the fact that asking whether people are WILLING to yield to people in crosswalks kind of tells you what you need to know. It's not about willingness, it's about not killing someone with your vehicle
3. Drive less when I am able. If I'm not in a car, my likelihood of severely hurting others is reduced. I would hardly ever drive if we had safe and comfortable road design for cyclists across the city
4. I have tried to call and complain but the intersection of 392 and 35 (outside of Greeley)
5. Report dangerous situations/drivers to GPD. *I already do all these things. If we all did, this conversation wouldn't be necessary. It's a very jaded perspective to imply that simply encouraging people to follow existing rules will work. Some people don't know any better. Many people WON'T

follow simple traffic rules or assume that the expectation is to break the rules. (speeding less than 10mph, failing to signal, violating right of way at intersections) There needs to be a systemic change from the ground up including design, education, and strict enforcement with increased penalties for non-compliance

6. I tell people to watch for red light runner I tell family and friend that come to Greeley to drive very defensively. If another person is aggressive back off because we have so many violent people willing to pull guns on one another. To keep their head on a swivel because people do not know that a flashing yellow arrow does not give them the right of way. That most people only have liability insurance here so they need to make sure they are fully covered. avoid driving during let out times for the schools. it is a mad house. Teach them to clear an intersection before going through so a person dose not hit them because the at fault driver is running a red. and so many mores
7. Meet with City and Weld County Traffic Engineers to discuss the routes and preliminary study done. (O Street Extension)

Round 2 Full Comments

1. There is a lot of cut-through traffic in the neighborhood going to Bella Romero school
2. 4th St at 45th Ave, the school zone see kids running across
3. "It takes a village to raise kids" – need a medium for discussing children behavior in a non-aggressive manner
4. Do more around the schools – make it safer for kids
5. 17th Ave and 30th St – cars can park too close to intersection and you can't see oncoming cars
6. Need bike routes from UNC to downtown
7. Need a better way to fund Bike/Ped improvements
8. Road conditions need improved
9. Road conditions need improved
10. Road conditions need improved
11. Road conditions need improved
12. Road conditions need improved
13. Speeding and car-haulers near the Ford Dealership
14. Should be able to use camera footage for crash enforcement (victim of hit-and-run)
15. 20th St and 56th Ave – hard to pull out from 56th because of the hill to the east
16. Need education to get bikes off the sidewalks
17. There is a tree blocking the school speed zone sign near Heath
18. Against the 9th and 10th St conversions
19. Make the speed limit consistent on US 34
20. 23rd Ave under US 34 – there is not a bike lane. Could bike kids to school if it was safer there
21. 16th St at Pioneer Ct. Recent overlay and now it's missing a crosswalk
22. No Roundabouts
23. Reduce speed on 10th
24. The offset turn lanes are good
25. Need better maintenance of bike paths near Discovery Bay
26. Need education on how to use roundabouts
27. I'm a fan of what the city is doing

28. Education about bike lights and reflectors
29. Personal safety on bike paths – single female on own
30. Improve lighting
31. Improve safety on Poudre Trail
32. Need more police
33. Remove the signal at 10th Ave and 9th St
34. Need intersection daylighting in Highland Park West
35. Need speed humps on 49th Ave near Life Bridge retirement – cut through speeding traffic
36. Need better road maintenance
37. Have better signage and high-viz clothes in construction zones
38. Need better striping
39. Pothole repair
40. Need more green time on 47th Ave at 10th St
41. Use red-light cameras
42. On 83rd Ave – there is a gap in the bike trail at 13th St (12th)
43. Watch accidents weekly at 10th St and 50th Ave from back yard
44. Use median landscaping to slow traffic on 10th
45. Need police to address drag racing on 8th St on Sunday nights from 14th Ave to 11th Ave
46. Bikes should go in direction of traffic
47. 28th Ave at 10th St – increase green cycle

Appendix B: Greeley Vision Zero Comprehensive Data Analysis

1.0 Problem Description

Communities and agencies across the nation are developing Safety Action Plans that meet the requirements of the United States Department of Transportation (USDOT) and implement safety initiatives like Toward Zero Deaths (TZD), Vision Zero (VZ), and Road to Zero (RTZ) to eliminate all traffic-related fatalities and severe injuries. The City of Greeley (the City) is joining this movement and is developing a Vision Zero Plan ("VZP").

Based on the Safe System Approach, the VZP will:

- Incorporate community and stakeholder input.
- Outline the contributing factors in fatal and serious injury traffic crashes using public input and a data-driven analysis.
- Recommend strategies and policies.
- Include guidance for the responsible parties and City departments to help them implement the strategies and policies.

The team developing the VZP recognizes the past work completed by the City and the efforts others have put into creating and adopting similar plans across the state and nation. As such, the City has directed the team to engage in a Best Practice Document Review of other Vision Zero Safety Action Plans and of existing City and area plans, policies, processes, and laws. The research emphasized identifying data-driven, analytical, and equitable approaches to Vision Zero, and gathering relevant information on safety initiatives, safety targets and performance measures, safety issues, legal constraints, and funding opportunities.

This memorandum was prepared to provide a summary understanding and overview of the research process and findings that guide the further development of Greeley's Vision Zero Plan.

2.0 Results of Literature Review

As recommended by the City, the team reviewed Vision Zero Action Plans from Omaha, Nebraska; Kansas City, Missouri; and Boulder, Colorado. Berkeley, California was also reviewed due to its similarities in population and grid roadway configuration with those of the City. The Vision Zero (VZ) Plans reviewed contain information on how to eliminate all severe crashes, which are those that result in a fatality or serious injury.

2.1 Vision Zero Plan Review Findings

The literature review focused on examining VZ Action Plans from Omaha, Nebraska; Kansas City, Missouri; Boulder, Colorado; and Berkeley California, guided by a focused selection criterion. The selection of these plans, capped at four, is predicated on finding locales that mirror the City of Greeley's specific urban characteristics, notably in terms of populations size, land use, and grid layout. This strategic selection is used to ensure that the reviewed plans offered relevant insights and best practices directly applicable to the City's context. The analysis within the reviewed VZAPs starts with crash data and trends to identify high-risk areas and underlying factors contributing to severe crashes. Next, community engagement is strategically leveraged to gather input, concerns, and suggestions from residents and stakeholders. Additional analyses are also conducted to proactively identify locations with the most risk for crashes. From there, a project list is prioritized by considering the safety benefits of each project, its impact on racial equity, and the feedback received through community engagement. Finally, each city has developed methods for implementing and monitoring their safety programs and results. Below are some of the best practices identified from plan reviews.

2.1.1. Use of Data in Vision Zero Efforts

The data collection and analysis approaches across the Vision Zero Action Plans from Kansas City, Berkeley, Omaha, and Boulder exhibit striking similarities, emphasizing a shared commitment to leveraging detailed crash data, systemic risk analysis, and geographic information systems (GIS) to guide their VZ efforts. These cities have each implemented a multi-faceted analytical framework that includes:

Crash Summary Statistics focusing on trends, user behaviors, and circumstances contributing to crashes.

Systemic Risk Analysis provides a deeper dive into the data, focusing on crash risk factors related to neighborhood context, equity considerations, and physical configuration of roadways.

Crash Maps are employed to visualize data and facilitate targeted interventions, including:

High Injury Network (HIN) and Intersections identifying areas with significant crash concentrations along roadway segments. This approach allows for prioritizing interventions in areas most affected by severe crashes.

High-Risk Network (HRN) extending the analysis by incorporating risk factors identified in the systemic analysis. The HRN approach focuses on understanding where crashes are most likely to occur, beyond just where they have historically happened.

Crash Rate Maps focusing on crashes in specific neighborhoods to pinpoint crash hotspots to direct resources more effectively.

The analysis is restricted to local access streets in Kansas City, excluding Interstates and other access-controlled freeways. However, roads that provide full access but are controlled by MoDOT as part of state jurisdiction, such as MO-1 Highway (NE Antioch Road), are included. Grade-separated highways, such as I-70 and I-35, have less direct impact on neighborhood safety and are excluded from the analysis. The Kansas City VZAP prioritizes local access streets primarily due to their critical role in daily mobility and the significant safety concerns for all road users. This focus is driven by equity issues, as data reveals disproportionate impacts of crashes on black residents and a notable over-representation of individuals in their late 20s and early 30s in Killed or Seriously Injured (KSI) crashes.

Similarly, the Boulder VZAP specifically incorporates HRN which accounts for a significant proportion of severe crashes (48%), despite covering a small percentage (7%) of city streets. **Table 1** below summarizes the HIN/HRN statistics in the reviewed plans.

Table 1: Comparison of High-Injury/High-Risk Network Statistics Across Vision Zero Cities

City	% of Severe/KSI Crashes	Occur on % of Total Road/Street Miles
Berkeley	90.0%	16.0%
Boulder	48.0%	7.0%
Omaha	41.0%	3.2%
Kansas City	68.0%	13.0%

2.1.2. Use of Analytics

Each city adopts a tailored approach to identifying areas of high crash concentration or risk, reflecting a blend of direct crash data analysis and consideration of roadway and traffic attributes that contribute to safety issues. While Kansas City and Omaha incorporate broader attributes and existing conditions into their HRN analyses, Boulder focuses on specific infrastructure elements. Berkeley, meanwhile, relies heavily on historical crash data for HIN determination. These varied methodologies call attention to the importance of a nuanced understanding of local conditions and challenges in developing effective Vision Zero strategies.

To identify the High Injury Network (HIN), data analysis was generally conducted as follows:

1. **Classification of Crashes:** Fatal, serious injury and minor injury crashes were separated by intersection or corridor-related crashes.

2. **Spatial Analysis and Buffering:** A spatial analysis was conducted, linking each crash severity category to the network with specified buffers to ensure comprehensive coverage. This step facilitates the identification of high-risk areas within the network. The Kansas City VZAP used a 40-foot buffer for segments and a 200-foot buffer for intersections.

3. **Weighted Severity Analysis:** A weighted system was applied to each crash based on its severity, reflecting the relative societal cost of each crash type. The Kansas City VZAP A weighted intensity for each

intersection and segment was calculated, with fatal crashes counting for 20 points, serious injuries four points, and minor injuries one point.

4. **Network Comparison and HIN/HRN Identification:** The weighted segments and intersections were then compared to the roadway network to create the HIN and identify the high-injury intersections based on crash concentration.

The HIN was divided into four levels of priority based on crash concentration. Some segments have much higher crash rates than others, with 68% of fatal and serious injury crashes in Kansas City occurring on just 13% of streets. Looking at the highest priority corridors, 19% of fatal and serious injury crashes occurred on just 2% of streets. The KSI crash rate on a top priority corridor is 23 times higher than on a street not part of the HIN.

Once HINs/HRNs are determined, the following data-driven approach was employed to select projects, in the reviewed plans:

1. **Integration of High Injury Network and Intersections:** Projects were formulated by integrating data from the High Injury Network and High Injury Intersections, segmented into coherent projects based on contextual locations.

2. **Refinement with High-Risk Network and Public Input Data:** Projects underwent further refinement using data from the High-Risk Network and Public Input maps. An iterative process was used to adjust for potential double counting.

3. **Linking Countermeasures and Analysis:** Proposed countermeasures were linked to each project through high-level planning analysis, allowing for the computation of a safety benefit-to-cost ratio (BCR) to prioritize projects with the most significant potential impacts. All BCR calculations were based on the latest FHWA guidance.

4. **Detailed Analysis and Project Recommendations:** Each project is detailed with specific recommendations for implementation, serving as

a foundation for further analysis and development towards enhancing road safety for all road users.

In the Kansas City VZAP, the projects were classified into five groups based on their benefit-to-cost ratio, with Priority 1 projects exhibiting an average BCR above 5.0 solely from the perspective of safety enhancements. Lower priority projects have a BCR below 1.0 but may still align well with economic development, rehabilitation, or operational objectives.

The approach revealed a widespread distribution of projects across Omaha, with each council district associated with projects and improvements having a BCR exceeding 1.0. Districts with the highest number of projects and higher benefit-to-cost ratios were identified based on notably elevated rates of traffic-related fatalities and the implementation of cost-effective, high-impact solutions.

The proposed projects and strategies aimed at mitigating traffic-related fatalities on Omaha streets are outlined, with detailed analysis provided for each priority level. The scope and recommendations of each project are intended as a starting point for further study when moving toward implementation.

The Boulder VZAP mentions using community engagements and systemic safety analysis to define an HRN that informs the plan's priority actions. The plan focuses on engineering solutions, prioritization, including BCR calculations, considering Boulder's Racial Equity Index, and incorporating community engagement feedback.

The Berkeley VZAP prioritizes projects based on feedback from the Task Force and Advisory Committee, existing resources, staff, and community priorities, as well as the potential transformative impact of each item. Projects are further refined and tracked through a publicly accessible matrix and map, emphasizing equity-driven prioritization.

2.1.3. Equitable Approaches

Equity played a significant role in the criteria and selection process to ensure an equitable approach across all plans:

1. **Utilization of Collision Report Data:** The plan recommends utilizing Berkeley Police Department collision report data to better understand the demographics of traffic collision victims, acknowledging the need to address inequities in safety datasets.

2. **Assessment of Safety Dataset Gaps:** A robust assessment of other key gaps in safety datasets is recommended as part of the first update to the plan, indicating a commitment to addressing and rectifying any disparities.

3. **Elevation of Community Voices:** Community voices are elevated to understand the perception of safety and personal security in the most vulnerable and under-represented communities, ensuring their input is considered in decision-making processes.

4. **Traffic Ticket Diversion Program:** Actions are included to create a ticket diversion program specifically for bicyclists and pedestrians, aiming to promote equitable access to safety courses and programs.

5. **Partnerships and Outreach Programs:** The plan calls for partnerships with community-based organizations and culturally relevant outreach and educational campaigns, demonstrating a commitment to reaching all communities with tailored initiatives.

6. **Emphasis on Engineering, Education, and Enforcement:** Engineering and education actions are prioritized first, supported by equity-and data-driven traffic enforcement conducted in line with the City of Berkeley's Fair and Impartial Policing Policy, ensuring fairness and equality in enforcement efforts.

Berkeley's VZAP emphasizes the use of collision report data from the Berkeley Police Department to understand the demographics of traffic collision victims, highlighting a commitment to addressing safety disparities. The city also highlights the importance of community voices, particularly from vulnerable communities, to shape safety initiatives.

Kansas City's approach includes analyzing crash data to identify disparities in traffic injury rates among different demographics, particularly focusing on areas with historically underinvested communities. The plan highlights equity as a core component in project prioritization, ensuring that projects benefiting disadvantaged communities are given precedence.

Omaha's Vision Zero Plan utilizes a data-driven approach to prioritize projects, with an emphasis on analyzing crash data in relation to socio-economic factors. This allows for the identification of HRNs in areas that may suffer from systemic inequities, ensuring that safety improvements are allocated in a manner that addresses historical disparities.

Boulder's plan uses a Racial Equity Index that evaluates city census block groups for levels of need using variables such as the proportion of the population that are people of color, median household income, and proportion of households living below the poverty line, prioritizing projects in or adjacent to areas with higher Equity Index Numbers. Community feedback was also a critical component, with projects that had high levels of feedback being prioritized.

2.1.4. Implementation and Monitoring

Implementing and monitoring the progress and effectiveness of Vision Zero Action Plans (VZAPs) are critical for achieving the goal of eliminating traffic fatalities and serious injuries. Each city reviewed has developed specific strategies for the implementation and ongoing evaluation of their action plans, ensuring adaptations and improvements can be made based on data and community feedback.

Across all plans, a common emphasis is placed on data-driven approaches for both implementation and monitoring, ensuring that interventions are targeted effectively and adjusted based on performance. Equity considerations play a significant role in project selection and prioritization, reflecting a commitment to addressing the needs of all community members, especially the most vulnerable. Regular reporting and community engagement are also central to the monitoring efforts, fostering transparency and accountability in the pursuit of VZ goals.

Berkeley's VZAP outlines several key strategies for implementing and monitoring its VZ initiatives. The plan emphasizes the development of a publicly accessible matrix and map to track projects, the establishment of a Vision Zero Rapid Response Safety Project Protocol, and conducting before and after studies to evaluate the effectiveness of safety measures. A significant focus is placed on ensuring projects are delivered on all High-Injury Streets by 2028 and reactively building quick-build projects at locations with recent severe and fatal crashes. Berkeley commits to using data-driven approaches to both implement and monitor its VZ efforts, incorporating regular assessments of project impact on road safety and adjusting as necessary.

Boulder's implementation strategy involves ongoing participation in the VZ Cities Network to exchange ideas and strategies. The city emphasizes improving data and transparency through maintaining and updating a crash data dashboard and refining crash documentation. Annual progress summaries of the VZAP are conducted to ensure ongoing evaluation and adaptation of the plan. Boulder also commits to complementary efforts such as building out a Low-Stress Walk and Bike Network Plan and implementing various infrastructure projects to enhance pedestrian and cyclist safety. These strategies reflect Boulder's proactive and reactive approaches to mitigating common crash types and its commitment to continuous improvement through systemic safety and community engagement.

Kansas City's approach also includes a strong emphasis on data-driven analysis to support VZ efforts, combining crash data with public engagement and input from the VZ Task Force. The city outlines specific action steps to eliminate deaths and serious injuries on the streets, emphasizing accountability through the identification of Key Performance Indicators (KPIs) and targets. Monitoring progress involves annual recording and reporting of these KPIs, with a commitment to transparency and public engagement as integral components of the VZ program.

Omaha's VZAP outlines a comprehensive approach to implementation and monitoring, emphasizing the use of a Vision Zero Dashboard and Data System to effectively track progress towards the plan's goals. This system is recommended to expand Omaha's current online fatal crash dashboard to

include serious injury crashes and subdivisions related to Focus Areas. The dashboard is also designed to monitor the implementation status of all action plan items and VZ projects. Additionally, the development of a comprehensive, centralized crash and roadway data system accessible across city departments is proposed.

2.2 TMP, NFRMPO, AND CDOT PLAN REVIEW

The plan review concentrated on Greeley's plans, as well as those of agencies that plan for transportation in and around the City. The City's plans were reviewed in the Transportation Master Plan that was adopted in March 2023, "Greeley on the Go" and the 2025 Bicycle Master Plan (2015), and the 2022-26 and 2024-28 Capital Improvement Programs. The North Front Range Metropolitan Planning Organization (NFRMPO) is the Federally designated regional planning agency for the urbanized area in Larimer and Weld Counties and recently completed its 2050 Regional Transportation Plan (RTP). That plan, along with their Regional Active Transportation Plan, and CDOT's 2040 Long Range Transportation Plan and 2020-2023 Strategic Transportation Safety Plan were also reviewed. The review concentrated on four main areas, Safety Initiatives, Safety Targets and Performance Measures, Safety Issues and Legal Constraints, and Funding Opportunities.

2.2.1. Safety Initiatives

CDOT and the NFRMPO have adopted Toward Zero Deaths initiatives, CDOT in 2015, and the NFRMPO followed suit in 2020. Their plans reflect the TZD process and the FHWA and FTA Transportation Performance Measures requirements for annually setting data-driven, non-aspirational goals. In addition, the NFRMPO adopted a Safety goal in the 2050 RTP, "Enhance transportation safety and reduce the number of transportation-related fatalities and serious injuries." The City, as part of this VZP process, will adopt an initiative, but the existing plans are not based on VZ. This is not to say safety was not a priority. The TMP's first goal is Safety, with an objective to "Work towards eliminating all transportation-related fatalities and injuries across all modes by identifying high-crash or high-risk locations and programming safety treatments." In both the TMP and earlier Bicycle Plan, there is an emphasis on safety, with variations of "safe" or "safety" appearing 112 times in the TMP and 67

times in the bicycle plan. It is worth noting that safety is not included in the TMP Vision Statement.

2.2.2. Safety Targets and Performance Measures

As noted above, CDOT and the NFRMPO have requirements for setting safety targets. The City has also set targets and reports on their performance:

City of Greeley safety-related TMP Performance Measures:

- Number of serious or fatal crashes per 100 MVMT
  - 2029 Baseline = 4.536 serious injuries and 0.613 fatalities per 100 MVMT.
  - Target = Maintain a serious injury and fatal crashes rate of no more than 4.536 and 0.613, respectively, per 100 MVMT, over the next 5 years.
- Critical Index Mileage. The critical corridor safety index uses traffic volumes, exposure, and 2015-2019 crash data to develop a crash rate and critical index. The critical index uses crash rates per road segment and road type average data to normalize segment data. It includes 330 road segments (143 miles).
  - Baseline is 15.52 miles of road have a critical index above 1
  - Target = Decrease the number of road miles with a critical index of 1 within the next 5 years to at least half of the current baseline measure.

The NFR's safety targets are set annually, using a five-year rolling average. The NFRMPO targets are based on CDOT targets and are a respective subset based on NFRMPO area travel's percentage of the statewide values. The NFRMPO has five safety-related performance measures, and in all the 2021 values were higher than the five-year rolling average:

- Number of Fatalities
- Rate of Fatalities per 100 MVMT
- Number of Serious Injuries
- Rate of Serious Injuries per 100 MVMT,
- Number of Non-Motorized Fatalities and Serious Injuries

CDOT has used the federal guidelines for performance measures, with:

Fatalities and serious injuries: both number and rate per 100 MVMT on all public roads.

The department set a goal in 2023 of reducing fatalities by 15% which they did not meet.

2.2.3. Safety Issues and Legal Restraints

As noted earlier, the first goal of the Greeley TMP is safety, which includes the objectives of elimination of fatalities and injuries, traffic calming, and conducting safety analysis for all modes when making land-use and capital improvement decisions

The TMP has Policy Initiatives including a Traffic Calming Policy, which aims to pursue a citywide policy to calm vehicle speeds through a combination of modifications to signal timing and/or intersection improvements, implementing road right-sizing on corridors where new geometry is feasible, reducing opportunities for cut-through travel on neighborhood streets, and conducting a comprehensive public awareness campaign to elevate community dialogue about speeding. Additionally, a Speed and Crash Analysis Program is recommended, which involves enhancing the current safety analysis program in coordination with public safety to annually review and analyze speeds and crash data throughout the city. The analysis will be used to implement operational and/or capital improvements to improve safety.

The goals, objectives, and initiatives are commendable steps to Vision Zero, there are other items to consider. It is essential to include safety in the selection and prioritization process, and it should be included in the objectives to support the safety goal. There is a noted missing element in the Policy Initiatives for Land-use and Transportation Connections - it should include the need to conduct safety analysis for all modes when making land-use and capital improvement decisions, as mentioned in the safety goal, to close that loop and provide direction to Land-use Planning.

The TMP Performance measure for Safety has a desired trend to decrease fatalities and injuries, with a target to maintain a serious injury and fatal

crashes rate of no more than 4.536 and 0.613, respectively, per 100 million vehicle miles traveled (VMT) over the next five years. However, this target is inconsistent with the safety goal of eliminating fatalities. A more aggressive target that leads to the elimination of fatalities and serious injuries is needed for Vision Zero. Lastly, Chapter 14 on street cross-sections points out the need to examine existing speed limits for consistency with TMP recommended design speed and speed limits.

The primary east-west thoroughfares, US 34 and US 34 Business (10th St), along with the north-south route, US 85, fall under the jurisdiction of CDOT. Any improvements or alterations to speed limits on these roads require consultation with and approval from CDOT.

2.2.4. Funding Opportunities

Each agency with transportation roles in the Greeley area has its own funding streams, requirements, and allocation/selection processes. Generally, the closer the agency is related to the City, the more control and opportunity to acquire funds for safety-related improvements and programs. This is a matter of who controls the funds and the amount of demand for said funds. The best chance to obtain funds begins with those directly collected and allocated by Greeley, followed by the NFR, CDOT, and then FHWA/USDOT. The amounts roll up and are aggregated from Greeley (local) to regional (NFR) to state (CDOT). Note – the USDOT SS4A program, which funded this Plan, is an option for Demonstration and Implementation Grants that are directly allocated.

Greeley's Capital Improvement Plan provides a five-year forecast of funds, as well as details on current-year budget allocation and planned project/program expenditures. The 2022-26 CIP provides a funding overview, and the 2024-28 includes more information on the CIP process and funding programs. The FASTER-funded projects are included in a separate program in the CIP, with the FASTER dollars rolled into the HUTF total. Faster Safety is not separated from FASTER Bridge, and both project types are listed in the FASTER-funded program.

Below are fund types and amounts available by the agency. Greeley's TMP provides a table (**Table 2** in this memo) of forecasted funds, with additional

information about pursuing funds through the NFR, CDOT, and Federal sources (**Table 3**). A breakdown of CDOT's base budget is provided in **Figure 1.**

Table 2: Greeley on the Go Revenue Projections

Sources	5-year total	Year 6-10 Total	2032-45 Total	Total Anticipated
Keep Greeley Moving	$70.56	$77.2	$287.91	$435.63
Highway Users Trust Fund	$2.47	$5.1	$21.76	$29.33
Impact Fees	$18.75	$20.5	$76.50	$115.76
Auto Use Tax	$4.37	$4.8	$17.85	$27.01
5307 Grant	$12.50	$13.7	$51.00	$77.18
Sales Tax on Building Permits	$1.92	$2.1	$7.85	$11.88
Federal Grants through MPO	$10.00	$10.9	$40.80	$61.74
Federal Grants through FTA	$12.50	$13.7	$51.00	$77.18
IGAs with neighboring jurisdictions	$11.14	$20.3	$75.78	$107.23
Streets Maintenance (CDOT)	$0.61	$0.7	$2.49	$3.77
Signals (CDOT)	$1.29	$1.4	$5.24	$7.93
INFRA Grant for 35th Ave/47th Ave	$117.50	$ -	$ -	$117.50
Reconnecting Communities Pilot Grant (9th/10th Street Mobility Improvements)	$5.00	$ -	$ -	$5.00
SRTS for 4th Street Ped Improvements	$4.00	$ -	$ -	$4.00
Safe Streets for All Grant (UNC mobility improvements or 8th Ave and US-85 Business roundabout)	$5.00	$ -	$ -	$5.00

Sources and values in grey shaded boxes are restricted and not available for safety improvements.

Table 3: NFR 2050 RTP Revenue

Funding Program by Controlling Entity	2024-2030	2031-2040	2041-2050	2024-2050
Local Funding				
Local Transit	$116.64	$205.81	$263.46	$585.91
Local Roadway	$1,414.03	$2,495.04	$3,193.86	$7,102.93
Local Bike-Ped	$23.69	$41.80	$53.50	$118.98
Developer Contributions	$240.60	$116.22	$48.89	$405.71
Local Funding Total	$1,794.96	2,858.86	$3,559.71	$8,213.53
State Controlled				
Maintenance	$85.81	$132.82	$147.73	$366.36
Surface Treatment	$71.76	$115.86	$123.45	$311.07
Structures On-System	$14.33	$22.47	$24.65	$61.45
Colorado Bridge Enterprise (CBE)	$37.60	$61.16	$62.33	$161.10
Asset Management - Strategic Projects Fund	$337.75	$482.50	$482.50	$1,302.75
Highway Safety Improvement Program (HSIP)	$13.09	$19.51	$20.35	$52.94
FASTER Safety	$29.03	$52.43	$64.28	$145.73
State Discretionary Bike Ped Grants	$3.09	$5.87	$7.51	$16.47
Transportation Alternatives Program (CDOT-TAP)	$5.44	$9.38	$10.37	$25.19
Strategic Projects	$247.75	$346.11	$336.37	$930.24
Regional Priority Program (RPP)	$27.80	$31.33	$31.33	$90.45
Strategic Transit and Multimodal Projects	$59.85	$96.50	$96.50	$252.85
Bustang	$2.09	$3.28	$3.66	$9.04
TIFIA Loans	$137.86	$0.00	$0.00	$137.86
State Controlled Total	$1,073.24	$1,379.23	$1,411.04	$3,863.51
Federally Controlled				
Federal Discretionary	$70.00	$100.00	$100.00	$270.00

Funding Program by Controlling Entity	2024-2030	2031-2040	2041-2050	2024-2050
FTA 5307	$109.13	$192.56	$246.49	$548.18
FTA 5310	$1.51	$2.63	$3.36	$7.49
FTA 5339	$4.27	$7.43	$9.51	$21.20
Federally Controlled Total	$184.91	$302.61	$359.36	$846.88
NFRMPO Controlled				
Surface Transportation Block Grant (STBG)	$34.39	$53.42	$59.07	$146.89
Congestion Mitigation and Air Quality (CMAQ)	$38.44	$60.35	$66.73	$165.52
Carbon Reduction Program (CRP)	$5.83	$9.15	$10.12	$25.10
Transportation Alternatives (TA)	$3.29	$5.10	$5.64	$14.04
Multimodal Transportation & Mitigations Options Fund (MMOF)	$7.70	$4.01	$0.00	$11.71
NFRMPO Controlled Total	$89.65	$132.04	$141.56	$363.26
Total:	$3,142.76	$4,672.74	$5,471.67	$13,287.18

Sources and values in grey shaded boxes are restricted and not available for safety improvements.

CDOT's Base Budget

Currently CDOT's base annual budget is approximately $1.5 billion as allocated in Figure 1. Of the $627.8 million dedicated to capital construction, approximately $325 million is related to asset management and $128 million for safety program projects leaving only minimal investment for projects that increase mobility.

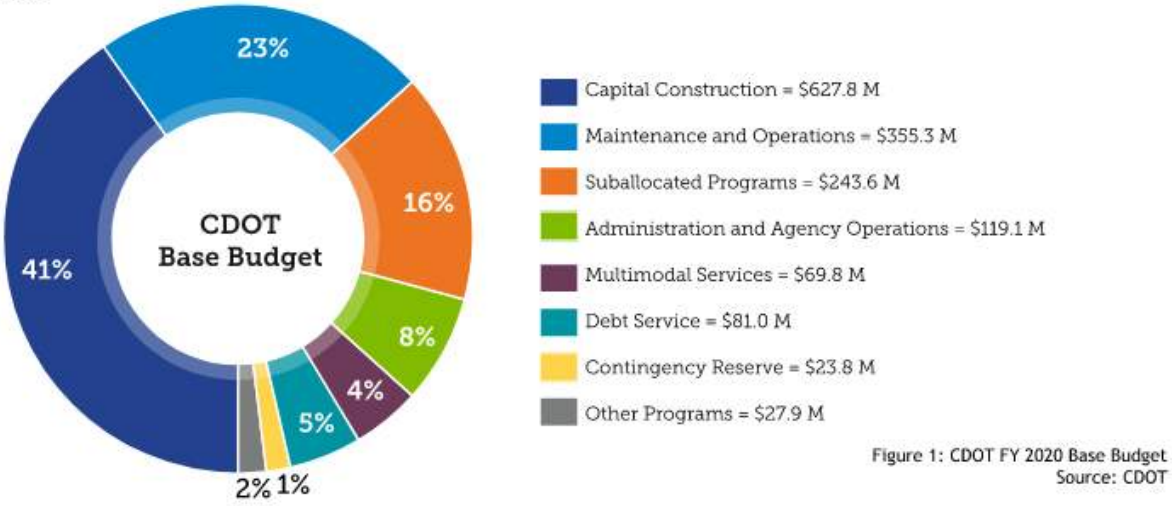


Figure 1: CDOT FY 2020 Base Budget
Source: CDOT

Figure 1: CDOT Statewide Budget Information

2.3 Recommendations

The first set of recommendations are those the City should consider while developing the VSP. These can be considered individually, however, the approach should be to approach safety with a System Safety Approach and address all the components of a safe system.

- **Adopt a Safety Initiative.** Based on the plan review, the city is moving to the Vizion Zero program. Adopting an initiative, and implementing it throughout the city organization will help create a citywide safety culture.
- **Adopt Safety Goals to Reduce Fatalities and Injuries.** The goals should be in line with or exceed those the CDOT and NFRMPO adopted. Currently, the City's goal is to maintain the number of fatalities and injuries based on 100 MVMT. The goal should be to reduce the total number of fatalities and injuries as well as use the ratio based on MVMT.

- **Include Safety in the Planning and Project Selection Process.**
    - One item in the TMP stands out, and that is the lack of safety in the Vision statement.
    - **Utilize public input as a factor in project selection.** This information, coupled with crash data, can help the city address the areas with a crash history as well as those that are perceived as being unsafe. Those perceptions are based on citizens' experiences and can be a harbinger of future crashes.
- **Improve VZ Data and Transparency.** Maintain and update a crash dashboard so that the latest crash data is readily available for analysis and decision-making. Refine and improve the accuracy and utility of crash documentation in order to enhance the effectiveness of data-driven interventions and better understand trends in traffic incidents.
    - **Develop a Public Facing Dashboard.** Incorporating a monitoring and reporting system within the VSP will provide transparency, accountability, and increase safety need understanding.
- **Pair Changes to Streets with Enforcement.** Regular collaboration with the Greeley Police Department regarding enforcement of behaviors of concern, such as speeding, traveling under the influence of alcohol or drugs, and distracted driving, can enhance traffic safety efforts. Deploying a photo radar van and supporting legislation to enable its expanded use will also aid in enforcing speed limits and reducing reckless driving.
- **Increase Education and Implementing Campaigns.** Focusing on behaviors of concern can raise awareness and promote safer driving habits in the community.
- **Update Design Practices, Guidelines, and Policies.** This ensures that future projects incorporate the latest safety standards and best practices.
- **Pursue Additional Funding.** Pursue local, regional, state, and federal funding to support these improvements. Look beyond those fund types that are specific to safety (HISP, FASTER Safety) and incorporate safety improvements on projects funded with typical fund types.

Below are some key actions the City can take to reduce severe crashes.

- **Improve Greeley's Internal VZ Practices**
  - Ensure VZ strategies are included in all capital projects so that road infrastructure improvements align with VZ goals and prioritize safety measures. Participate in the National Vision Zero Cities Network and other regional VZ collaborations to share best practices, gather insights, and collaborate on initiatives aimed at reducing traffic fatalities and injuries.
- **Change How A Street Is Built**
  - Focus improvements on corridors with the most risk for crashes by developing a High-Risk Network map. Make changes to intersections and other locations where the most common crash types occur to reduce the occurrence of severe crashes:
    - Red light running
    - Left-turn crashes
    - Crashes at right-turn slip lanes
    - Right-turn on red crashes
    - Other right-turn crashes
    - Crashes at pedestrian crossings

3.0 Data Analysis

3.1 Crash Trends

From 2014-2022 in Greeley, there occurred:

- 64 fatal crashes
- 256 serious injury crashes

Fatal crashes have had a slightly decreasing trend from 2014-2022 (**Figure 2**). However, serious injury crashes have shown an increasing trend over the same period (**Figure 3**). Overall, this has led to the total number of fatal and serious injury crashes to remain relatively constant.

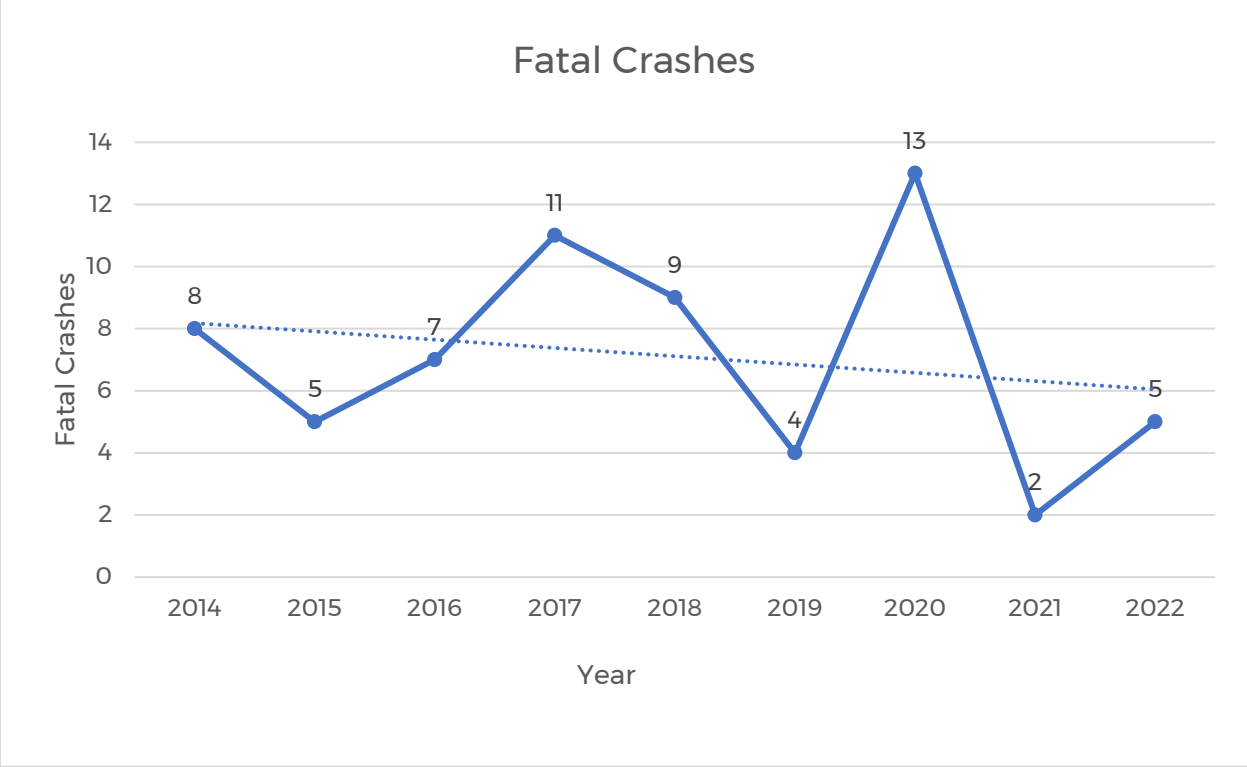


Figure 2: Fatal Crash Trends 2014-2022

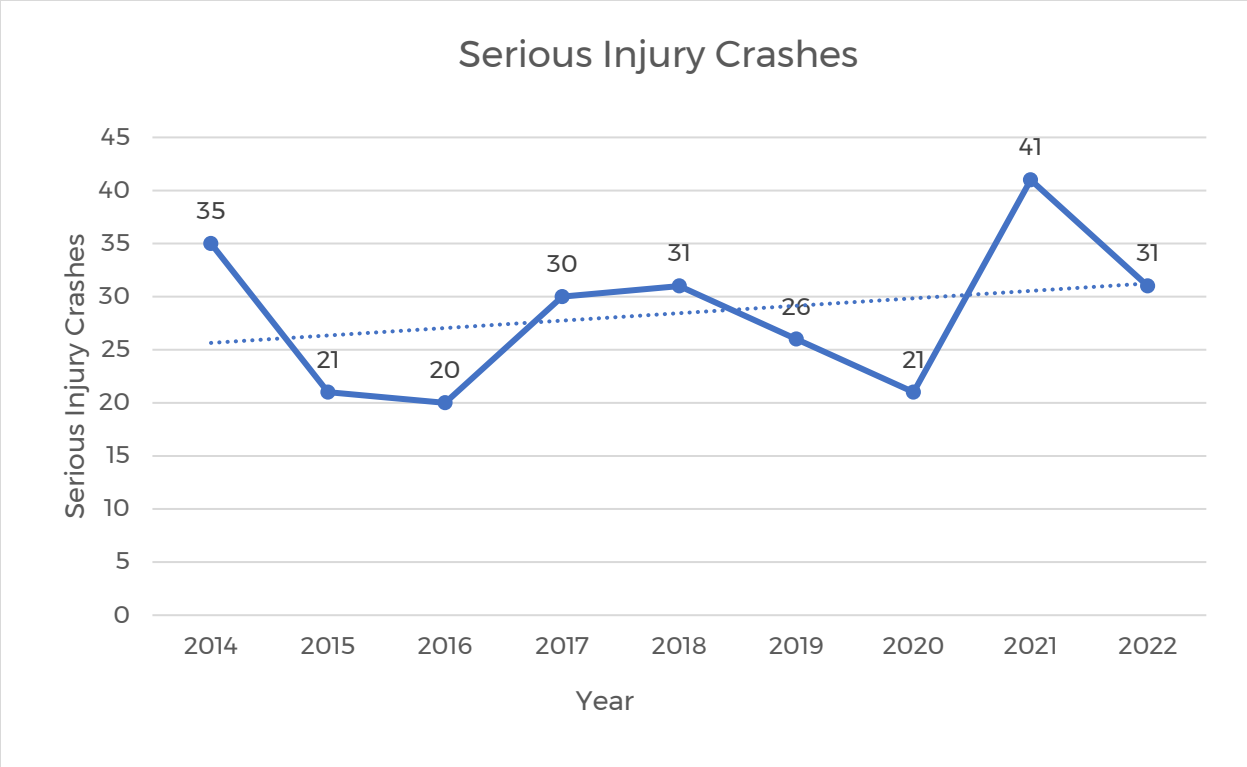


Figure 3: Serious Injury Crash Trends 2014-2022

3.2 Crash Mapping

WSP mapped the frequency of crashes by Census block group to help identify areas with safety issues. Since the city limit and Census block group boundaries are not contiguous, Census block groups that are only partially located within the city limit are also included in the analysis unless noted otherwise.

To ensure a fair comparison across areas, crash frequencies are normalized by a variety of factors that may influence the exposure to crashes.

Four normalization factors are used in this analysis:

1. **Population:** According to the KA crash per 1000 people map, areas on the periphery of the city demonstrated a higher crash rate (**Figure 4**). It is likely attributed to the lower population density in those areas and the presence of freeways.

2. **Land area:** KA crash rate per square mile of land area shows a different picture (**Figure 5**). Since the eastern part of the city has a higher population and land use density, the tracts are smaller in area but higher in KA crash rate.
3. **Roadway Miles:** As the roadway GIS data is not available outside the city, certain Census tracts on the periphery of the city may lack accurate counts of roadway miles and thus not be included in the roadway mile analysis (**Figure 6**). The KA crash rate per roadway mile suggests that the downtown area with a grid roadway network in the eastern part of the city tends to have a higher crash rate.
4. **The Replica** 2023 Q2 typical weekday trip data is used to calculate the all-mode trips originating from each Census tract (**Figure 7**). Tracts located on the outskirts of the city usually have lower resident density, resulting in a lower number of trips originating from those tracts. That may contribute to the result of a high KA crash per trip rate in those areas.

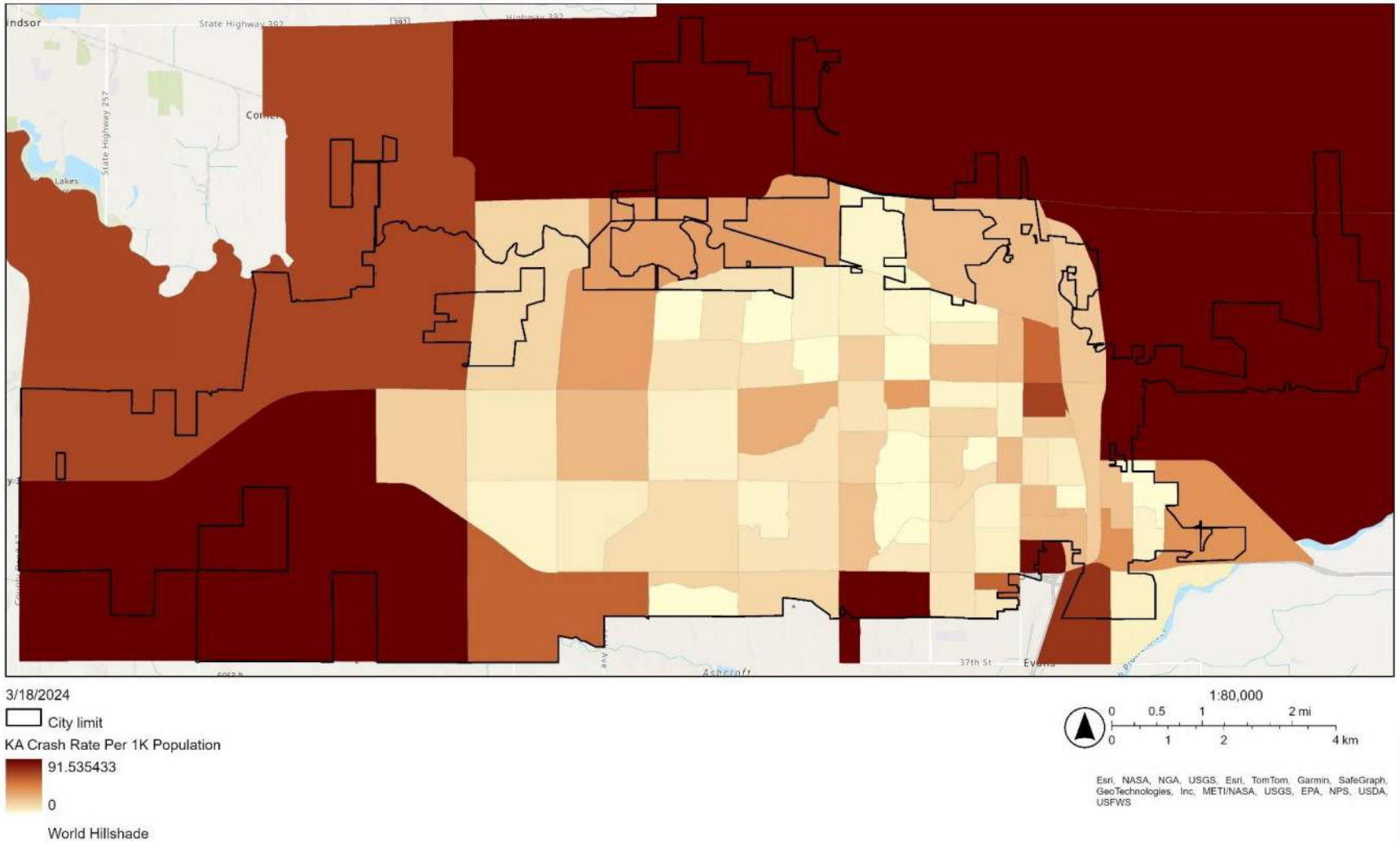


Figure 4: Greeley KA Crash Rate per 1,000 People

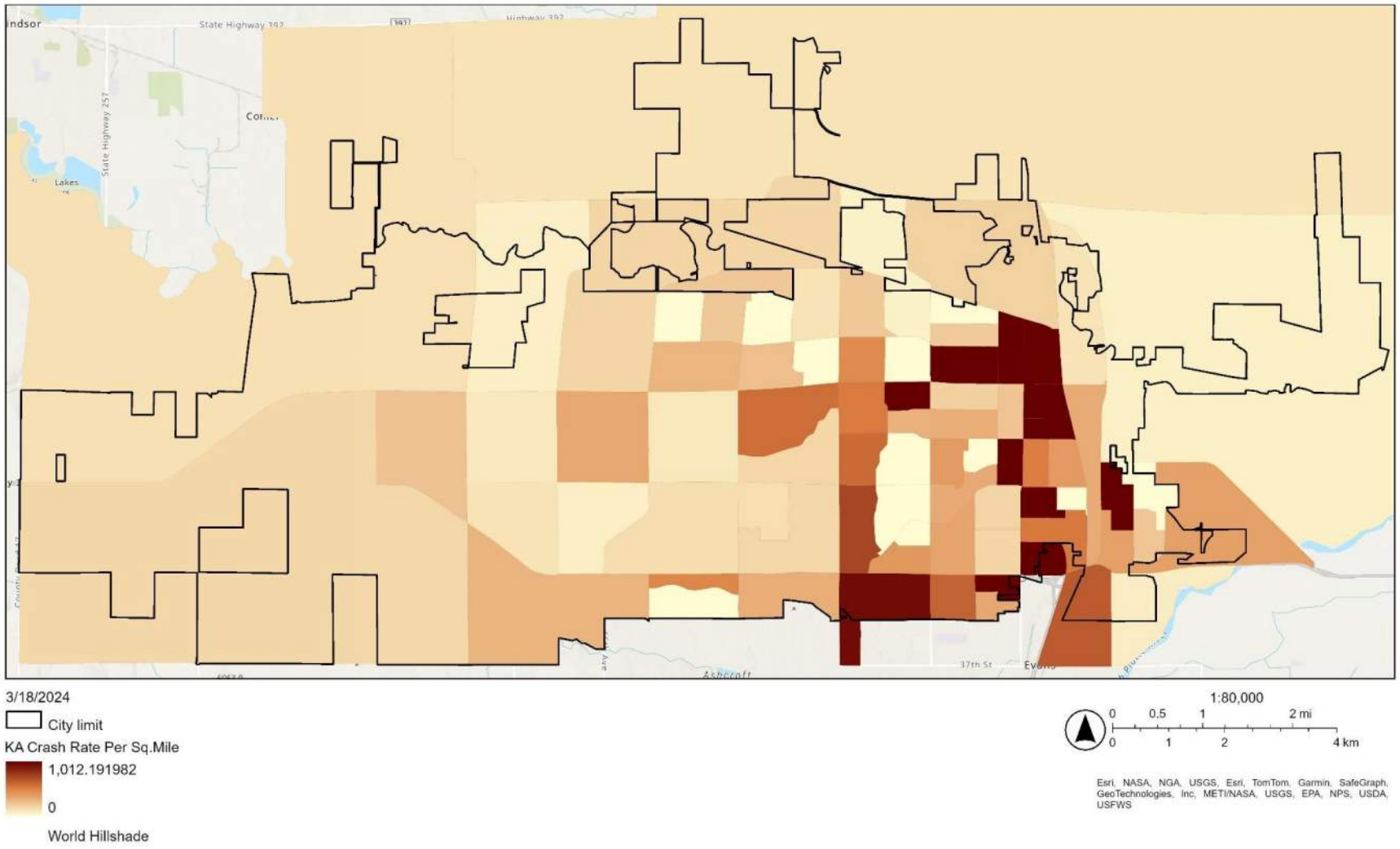


Figure 5: Greeley KA Crash Rate per Square Mile

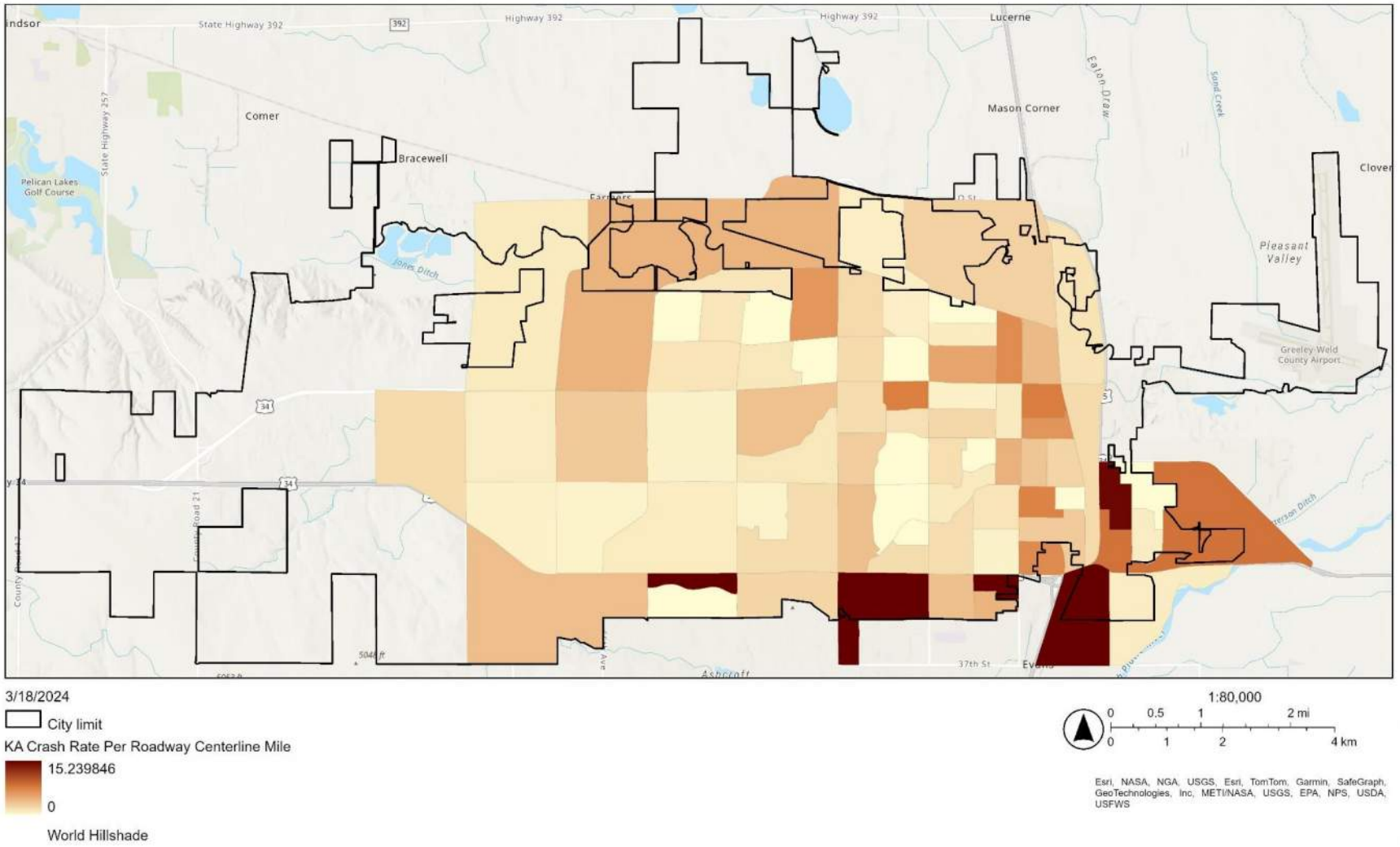


Figure 6: Greeley KA Crash Rate per Roadway Centerline Mile

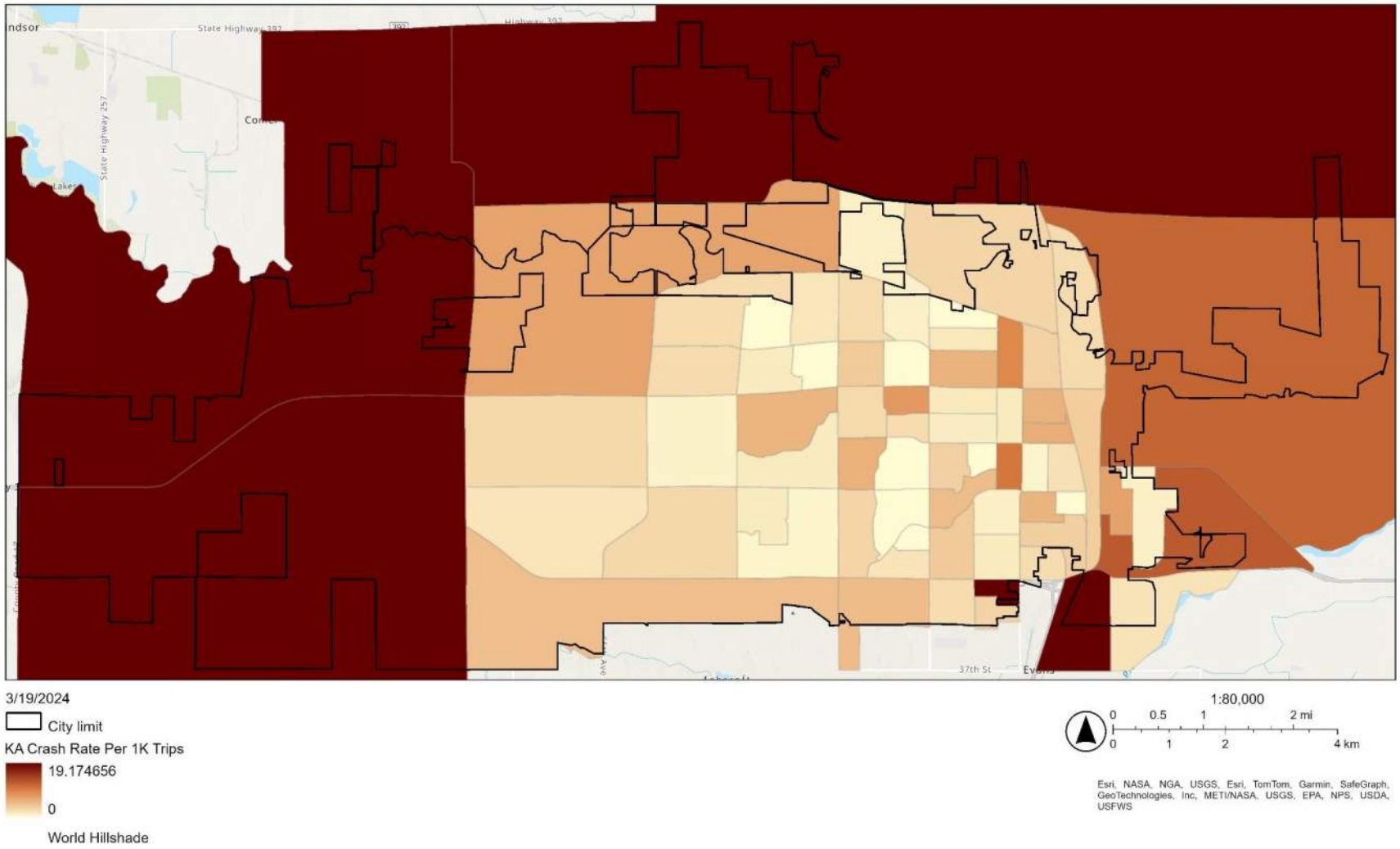


Figure 7: Greeley KA Crash Rate per 1,000 Trips

3.3 Systemic Analysis

WSP led a systemic risk analysis to assess how factors that are not typically recorded in crash data impact the relative risk of crashes. For this analysis, databases of crash data, roadway data, and demographic data were joined and analyzed together. This involved summing all crashes categorized under KABCO which are recorded as fatal or causing injury (K for fatal, A for incapacitating injury, B for non-incapacitating injury, C for possible injury) and assigning weighted values to each category based on severity: K-15, A-5, B-2, and C-1. By summing these weighted values, an injury score was generated for each factor under examination. This was used to create a "Representation Ratio," for intersections and corridors, shown in the charts below. To establish the representation ratio, we compared the ratio of injury scores with the ratio of the length of the respective factors analyzed.

This method provides a comprehensive understanding of the impact of crashes, considering both the frequency and severity of injuries relative to the length of the examined factors, thus enabling informed decision-making for improved road safety. For the entire city, the normalized value is 1.0 (i.e., 100% of crashes happen on 100% of roads), therefore any values above 1.0 show places where crashes are over-represented. For example, 23.5% of the weighted crashes happened on one-way streets, but only 7.5% of roadways are one-way, which means the representation ratio is 3.15 and it is 3.15 times riskier for a crash to happen compared to the average. This is an over-representation and equates to a roadway risk factor based on the road context. On the other hand, 23% of weighted crashes happened on roadways with AADTs of less than 2.5k, and 73% of roadways have AADTs of less than 2.5k, resulting in a representation ratio of 0.33, which means it's about 33% of the average risk. This is an underrepresentation and shows that there is a relatively lower risk present.

3.3.1. Equity Area

The equity area classification originated from Environmental Justice Areas identified by North Front Range MPO in 2021. Areas that met both criteria (low-income and minority populations) were included as Equity Justice areas, acting as a key element in the analysis of crash data. Its purpose is to encompass and tackle elements that might not typically be recorded in crash data but impact

the comparative crash risk. To accomplish this, databases containing crash data, roadway data, and demographic data were merged and examined collectively. Subsequently, the Representation Ratio was employed to assess intersections and corridors, determining their presence in crash data and pinpointing potential crash risks in both equity and non-equity zones. **Figure 8** shows that fatal and injury crashes are more likely to affect those within equity areas.

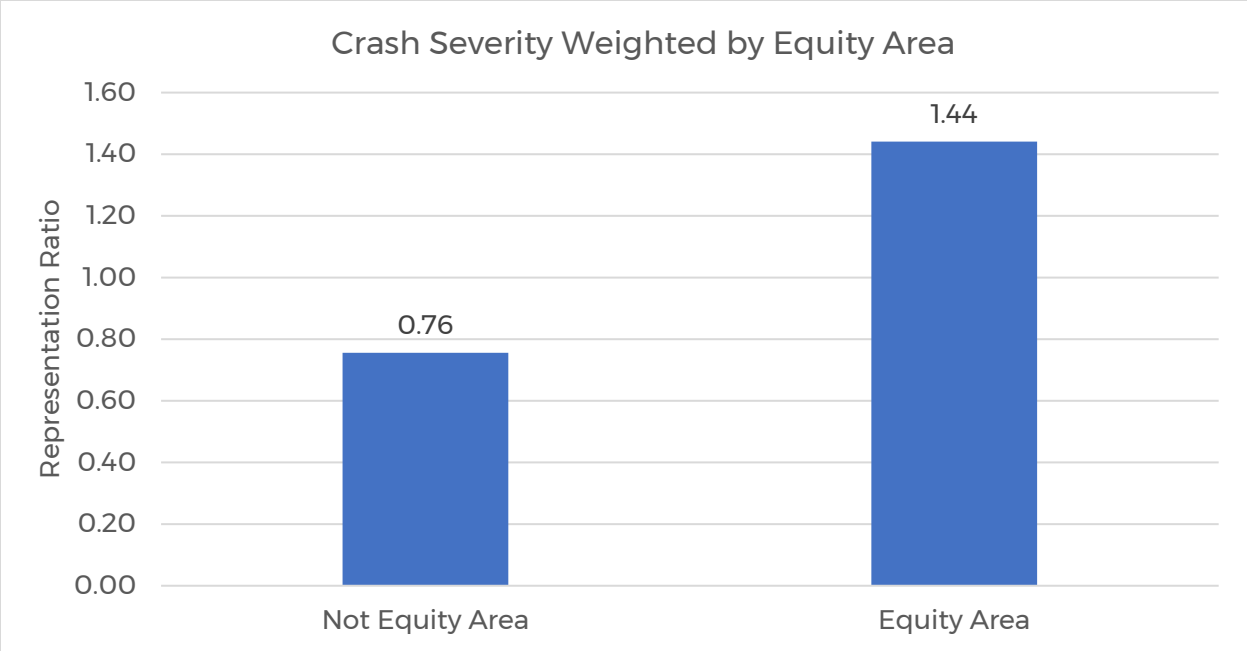


Figure 8: Representation Ratio of Crash Severity in Equity and Non-Equity Areas

3.3.2. Roadway Characteristics

The crash data analysis categorizes the roadways in various ways such as functional class, road system, location on the road, speed limit, traffic volume, number of through lanes, directionality, and proximity to schools. This helps in the understanding of the factors that contribute to crashes and the strategies to mitigate them. This ensures an accurate accounting of an area's road system. The section includes charts These ratios provide valuable insights into the correlation between road characteristics and the occurrence of all crashes as well as crashes involving bicycles and pedestrians. The representation ratio,

depicted on the y-axis of the charts, provides a quantitative measure of the likelihood of crashes occurring on specific types of roads or in certain areas. Values above 1.0 indicate over-representation, highlighting areas with a higher risk of crashes, while values below 1.0 signify under-representation, suggesting relatively lower crash risks. By analyzing these ratios, we can gain valuable insights into the road context and prioritize targeted interventions to improve road safety in areas that are disproportionately affected by crashes. For this section "proximity" to a school was defined as being within 0.75 miles of a university or a college or 0.25 miles of a K-12 school.

- State highways within Greeley had the greatest number of crashes occurring on them with 172, when accounting solely for vehicles (**Figure 9**).
- City Streets had the highest number of bike and pedestrian-related crashes among roadway systems (**Figure 10**).
- Major arterial roads are the highest-risk roads by functional classification (**Figure 11**).
- Roadway traffic volumes above 20K exhibit the highest representation ratio and pose a greater danger (**Figure 12**).
- Roadways with speeds above 55 miles per hour were the highest risk, with roadways between 35 and 30 miles per hour the second highest risk (**Figure 13**).
- Designated bus routes were over 5 times higher risk when compared to roadways without designated bus routes (**Figure 14**).
- Signalized intersections had the highest rate of representation among all traffic controls, 20 times more than stop controlled (**Figure 15**).
- One-way streets demonstrate higher fatality rates for crashes compared to two-way streets (**Figure 16**).
- Roads near schools are at higher risk than roads not near a school by nearly 20% (**Figure 17**).

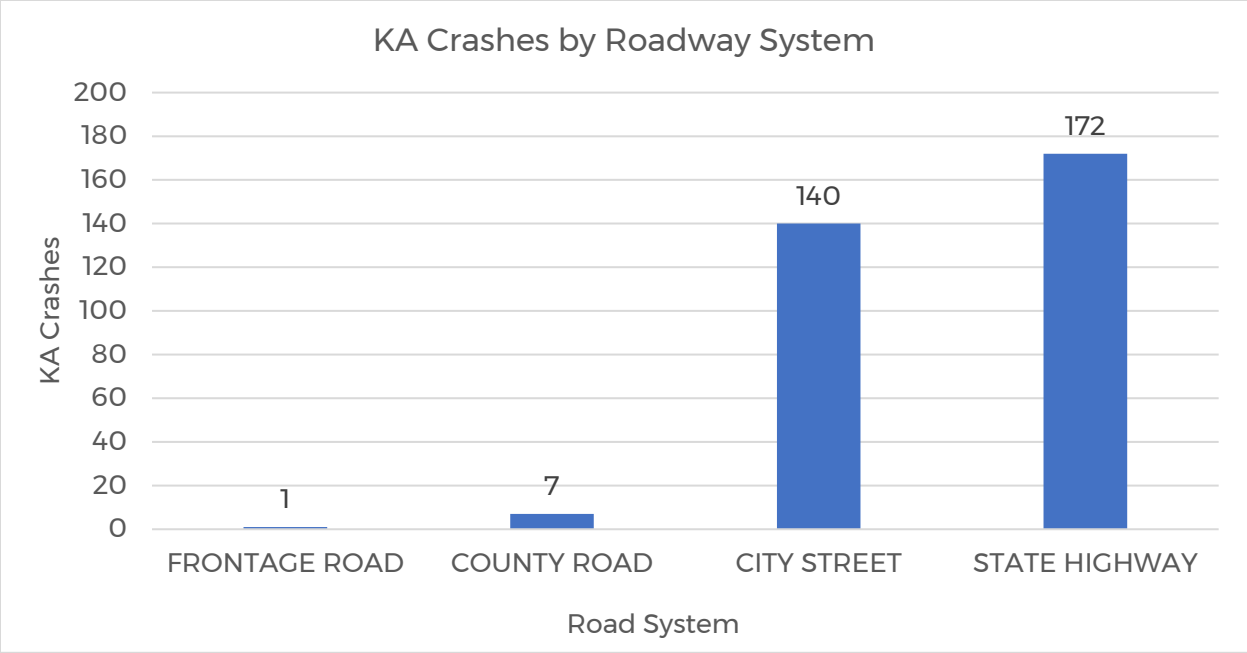


Figure 9: KA Crashes by Roadway System

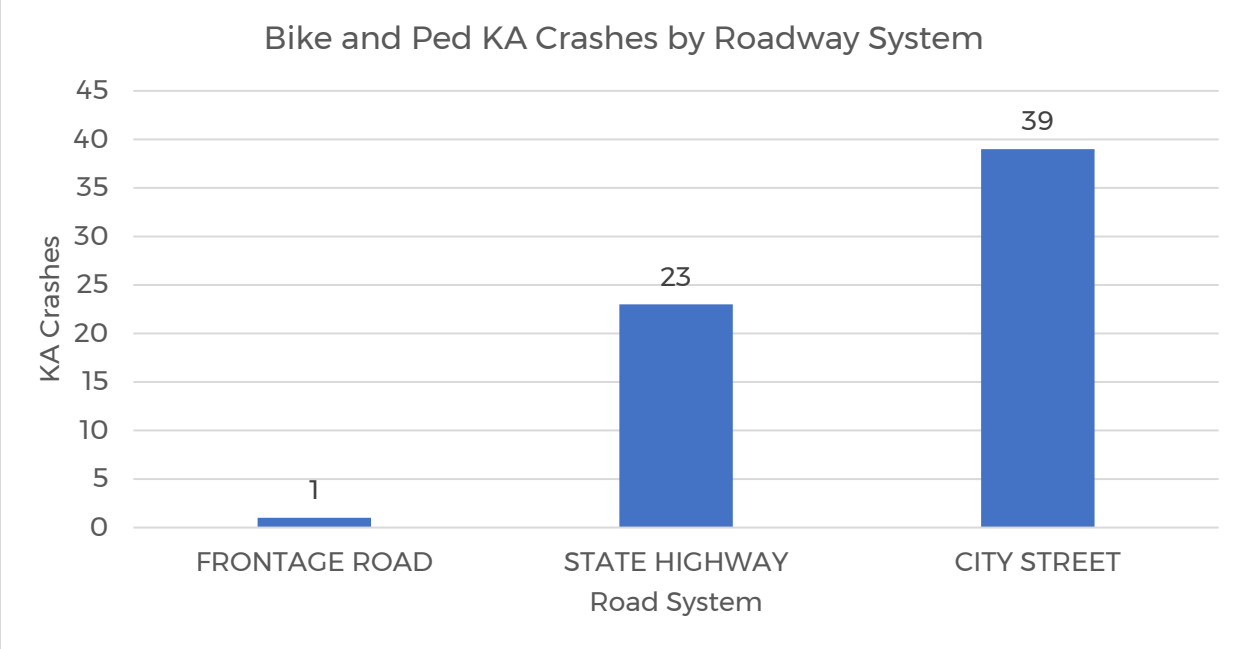


Figure 10: Bike and Ped KA Crashes by Roadway System

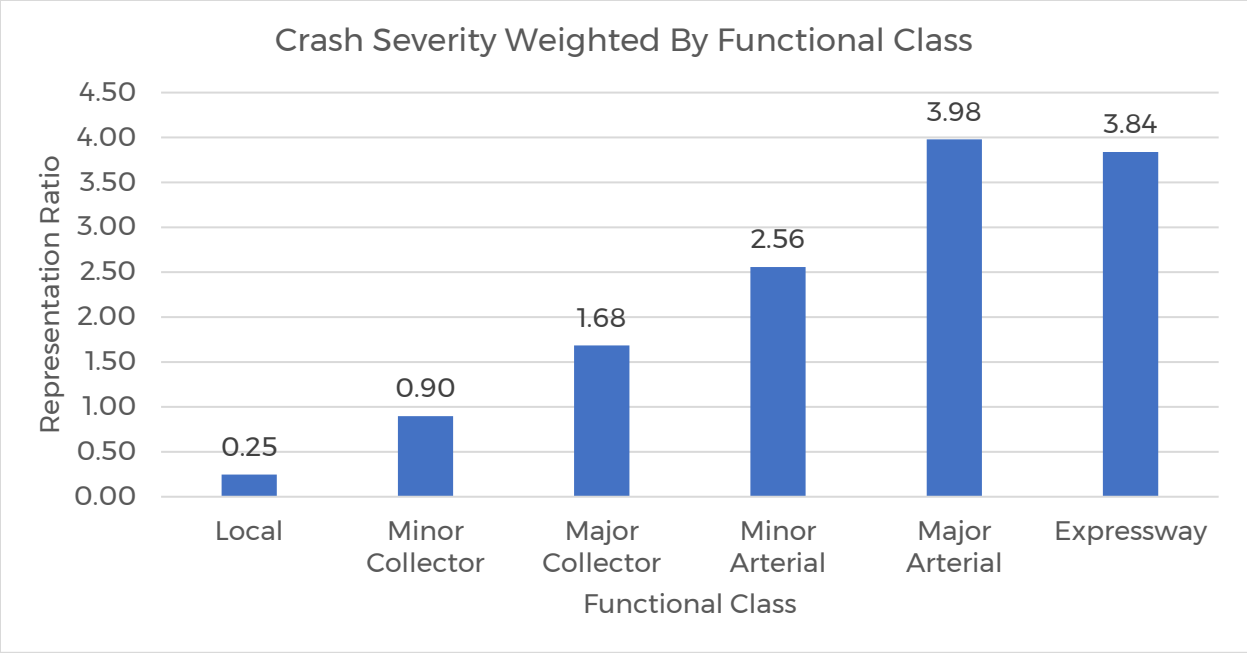


Figure 11: Crash Severity Weighted by Functional Class

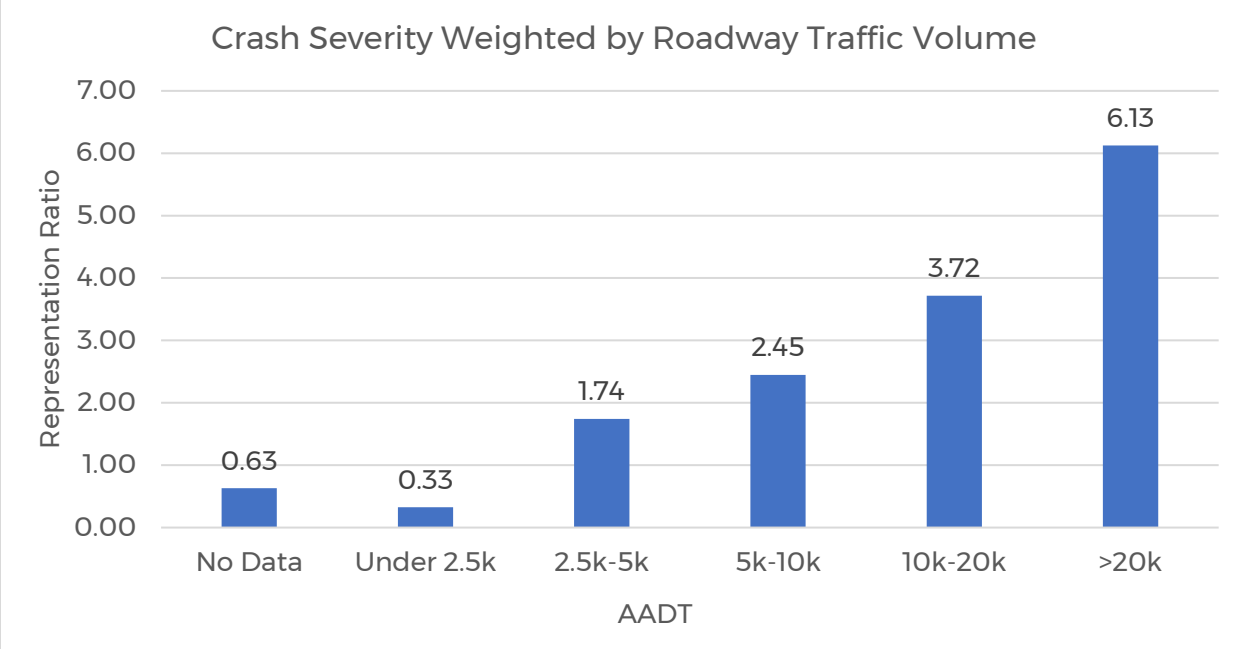


Figure 12: Crash Severity Weighted by Roadway Traffic Volume

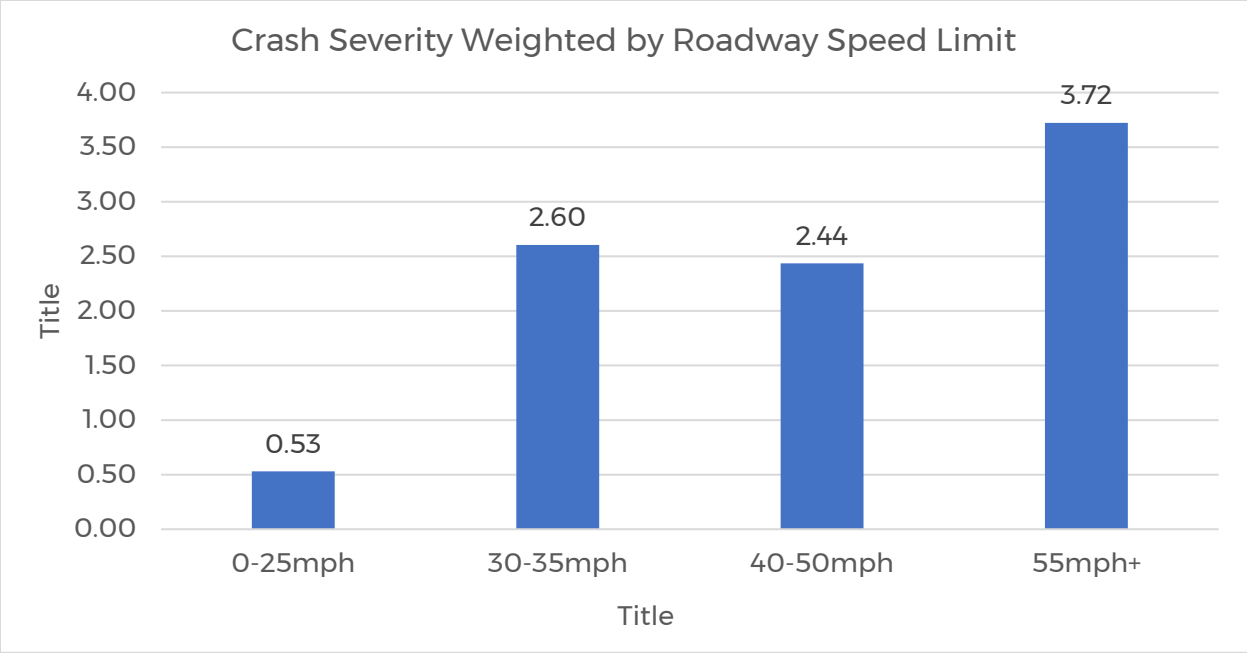


Figure 13: Crash Severity Weighted by Roadway Speed Limit

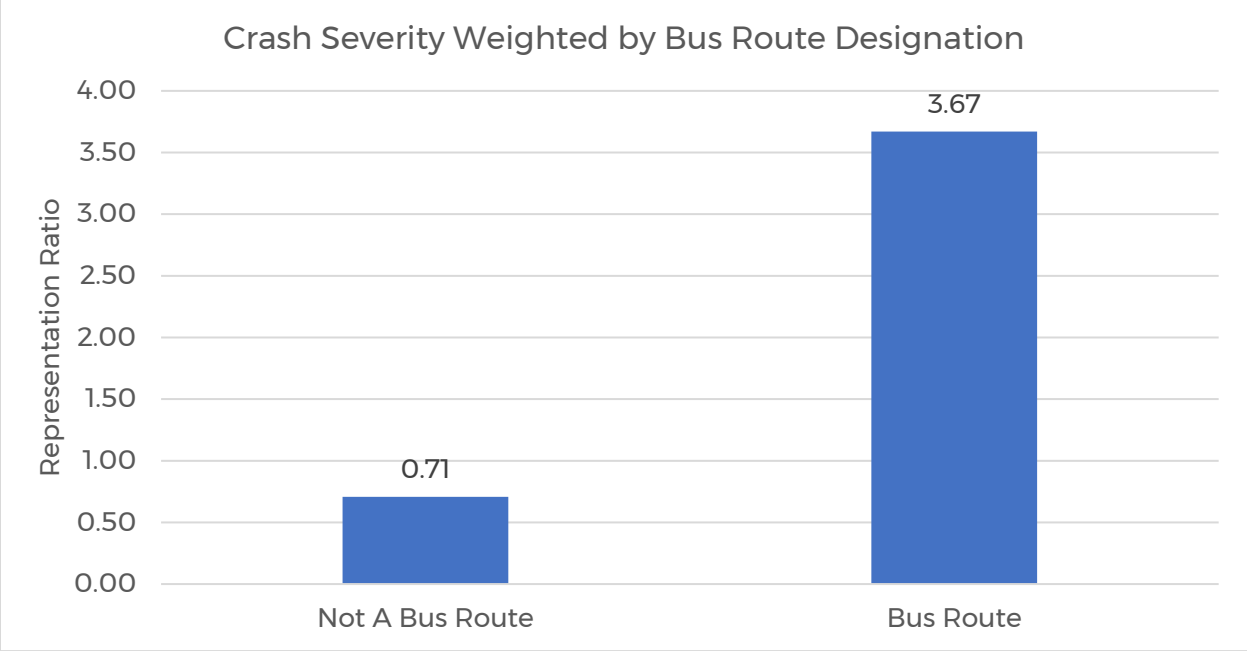


Figure 14: Crash Severity Weighted by Bus Route Designation

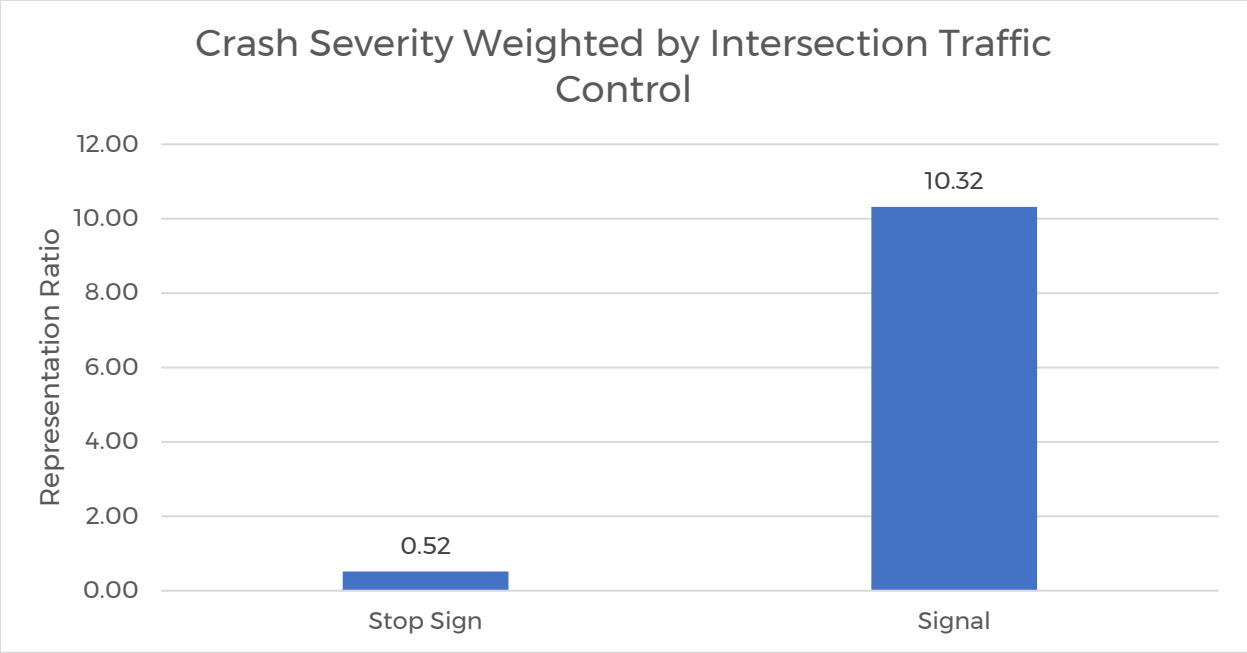


Figure 15: Crash Severity Weighted by Intersection Traffic Control

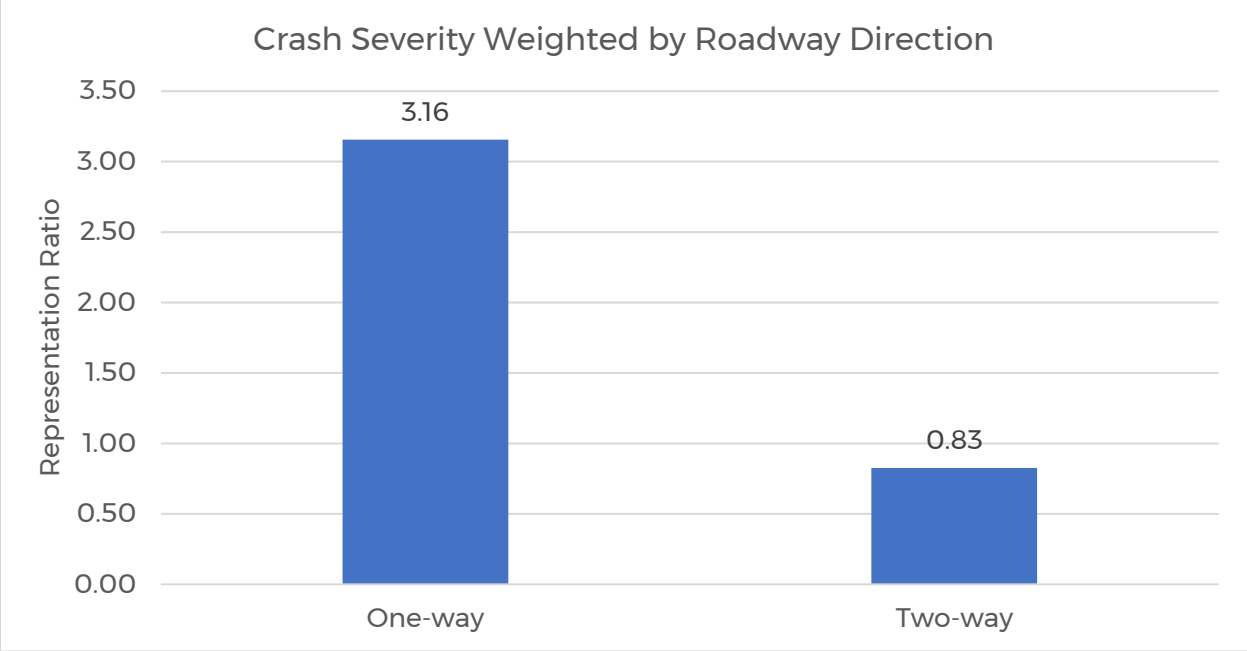


Figure 16: Crash Severity Weighted by Roadway Direction

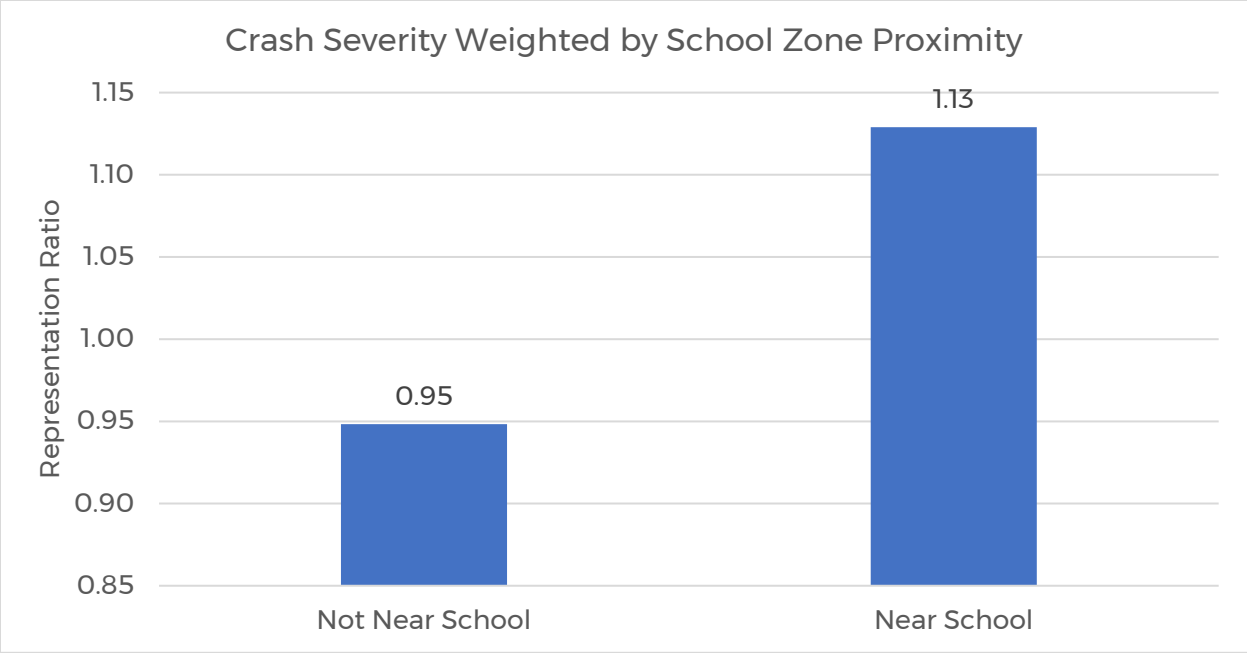


Figure 17: Crash Severity Weighted by School Zone Proximity

As part of a comprehensive data analysis, WSP performed a spot check of 20 randomly selected locations based on the ArcGIS data, and the reported speed limit of the chosen segment. This was then compared to Google Earth street view data, to visually confirm. The results of the sport check are reported in **Table 4**. Overall, there was a consistent pattern of the GIS data being roughly 5 miles per hour off either greater or lesser than the actual value, which happened in 17 of the 20 locations. The most common difference was the GIS data being 5 miles per hour lower than the checked value, which occurred 10 times. It should be noted that since 7 locations had GIS speed limit values 5 miles an hour greater than seen in Google Earth, over larger sample sizes, the average amount of difference is likely to be more balanced.

Table 4: Speed Check Data

Speed Check Data					
Object ID	**Street Name**	**Address**	**ArcGIS Speed Limit**	**Google Earth Check**	**Delta**
388	7th St	1712 7th St	25	30	-5
397	C St	2525 W C St	25	35	-10
700	9th St	1121 9th St	35	30	5
1233	50th Ave	2046 50th Ave	25	20	5
2395	Promontory Parkway	N/A	35	30	5
2735	23rd Ave	1999 23rd Ave	25	35	-10
2955	42nd Ave	2227 42nd Ave	35	30	5
2972	59th Ave	576 59th Ave	35	40	-5
3018	Reservoir Rd	2841 Reservoir Rd	25	30	-5
3153	11th Ave	504 11th Ave	30	30	0
3153	Glenmere Blvd	1434 Glenmere Blvd	25	30	-5
3182	25th St	2218 25th St	25	30	-5
3205	28th Ave	1976 28th Ave	35	30	5
3226	11th St	7698 11th St	25	30	-5
3262	8th Ave	1705 8th Ave	35	30	5
3466	28th Ave	1020 28th Ave	35	30	5
3731	37th ave; Ave	903 37th Ave Ct	25	30	-5
3737	25th Ave	1009 25th Ave	25	30	-5
4026	68th St	1922 68th St	25	30	-5
4285	Westridge Ave	2548 Westridge Avenue; 2548 59th Ave	35	40	-5

3.3.3. User Factors

This section showcases several charts concerning the demographics of crashes with a fatality or injury. These charts encompass information on these crashes segmented adjusted for population, age brackets, representation ratio, gender, and the breakdown of crashes involving different genders. These graphical representations offer a thorough insight into the user factors influencing KSI crashes and their ramifications across diverse demographic cohorts. For motor

vehicle occupants, age data that was unknown was coded as "0" therefore, this was removed for the purposes of this analysis, and age groups begin at 1.

- The age group of 25-34 years old has the highest number of overall fatal and injury crashes for vehicles (**Figure 18**); the age group of 25-34 old also has the highest for bicyclists and pedestrians (**Figure 20**).
- Among vehicle occupants, the age group of 25-34 had the highest representation ratio in KA crashes, followed by 20-24 (**Figure 19**).
- Among pedestrians and cyclists, the age group of 85+ had the highest representation ratio in KA crashes, followed by 25-34 (**Figure 21**).
- Males across all mode shares were roughly twice as likely to be involved in a crash compared to females (**Figure 22-Figure 25**).

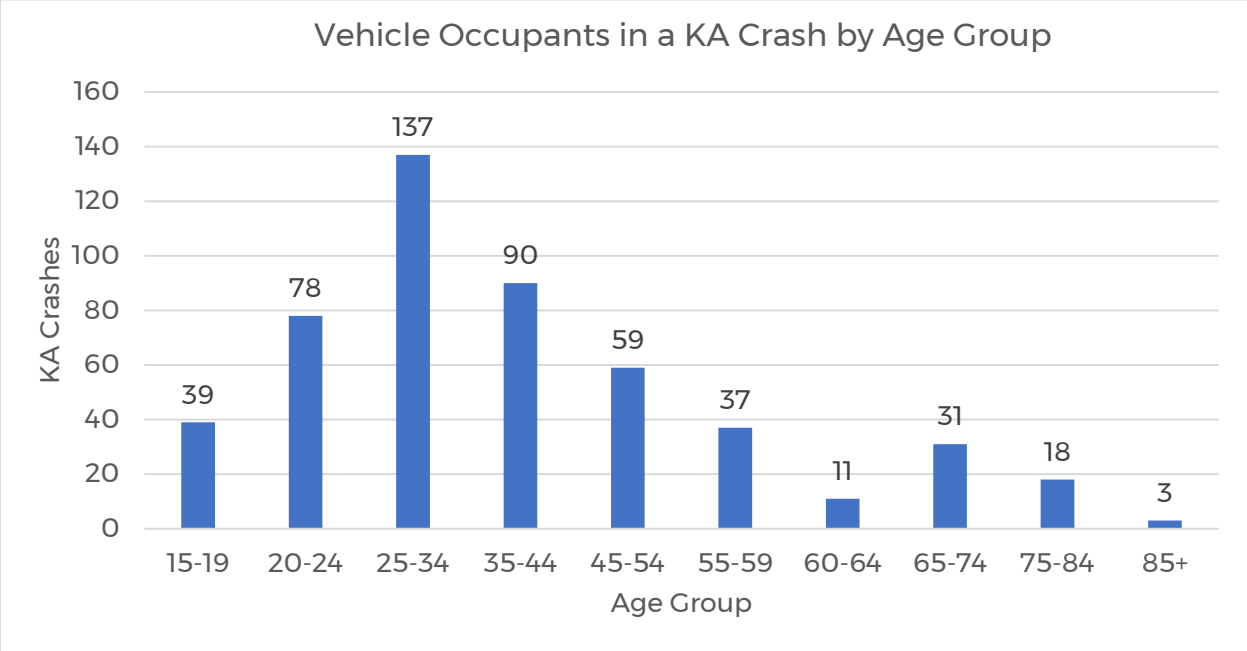


Figure 18: Vehicle Occupants in a KA Crash by Age Group

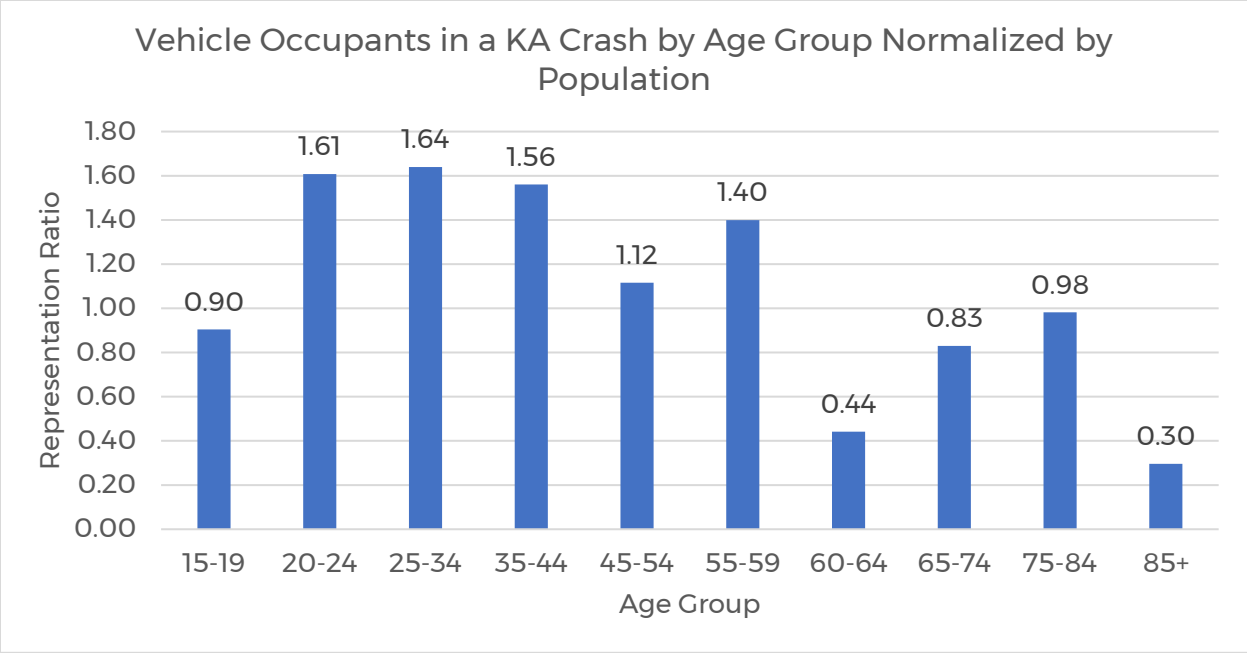


Figure 19: Vehicle Occupants in a KA Crash by Age Group Normalized by Population

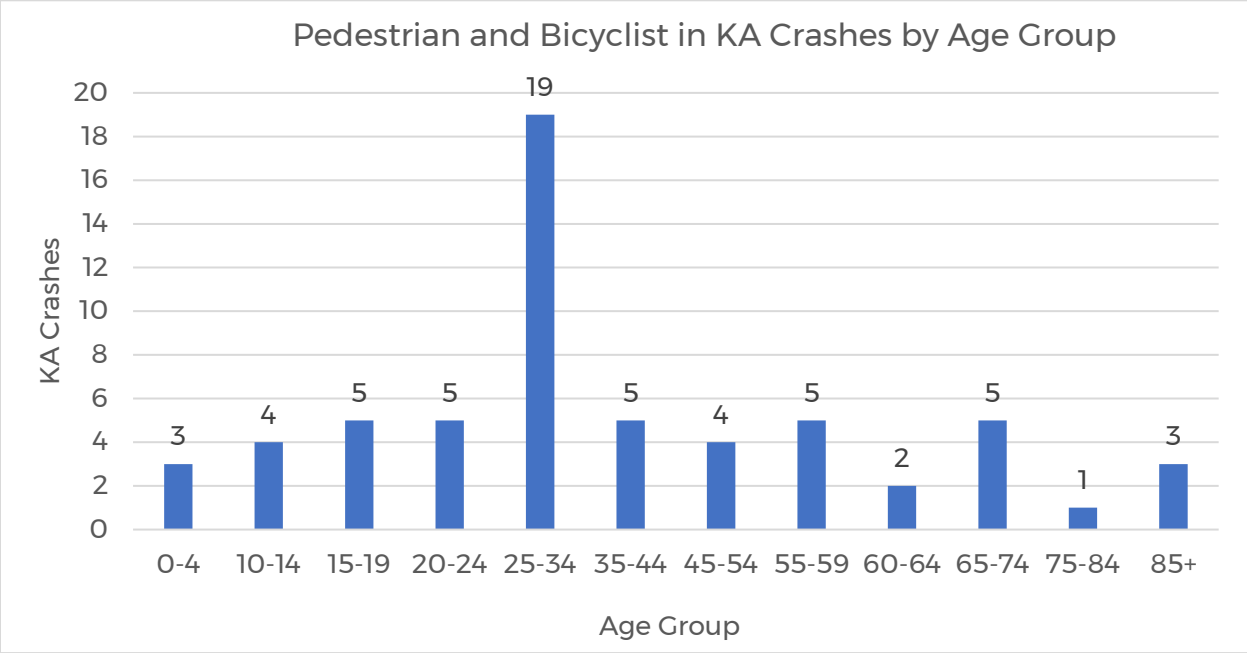


Figure 20: Pedestrian and Bicyclist in KA Crashes by Age Group

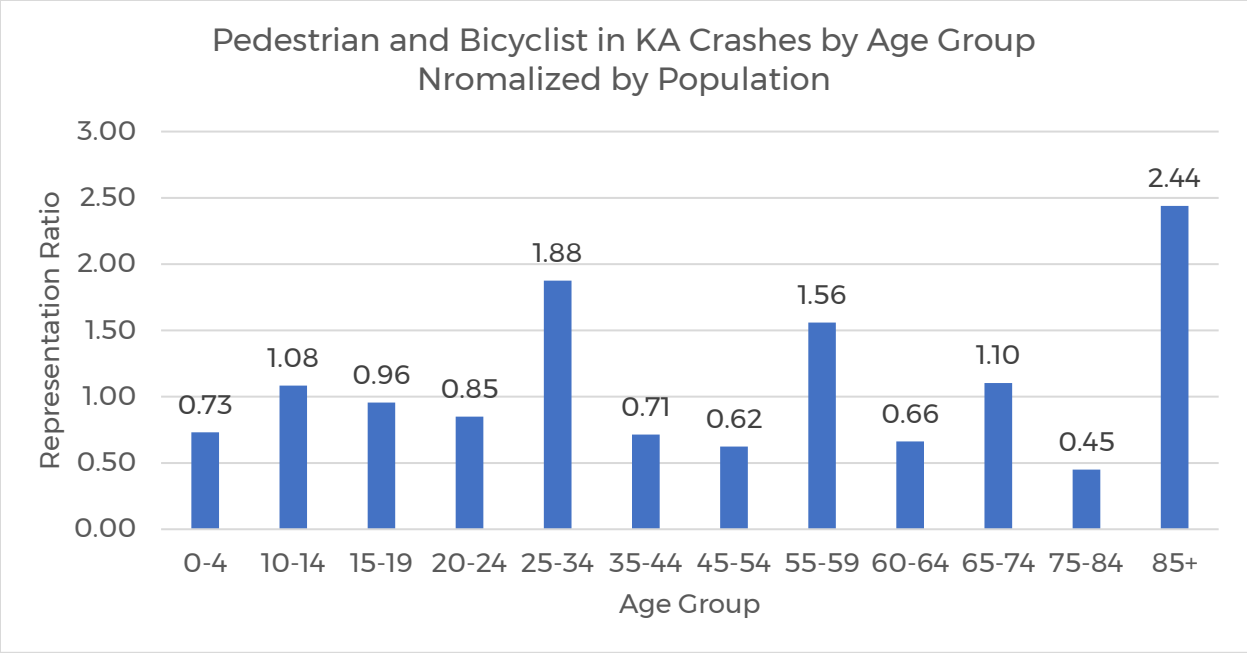


Figure 21: Pedestrian and Bicyclist in KA Crashes by Age Group Normalized by Population

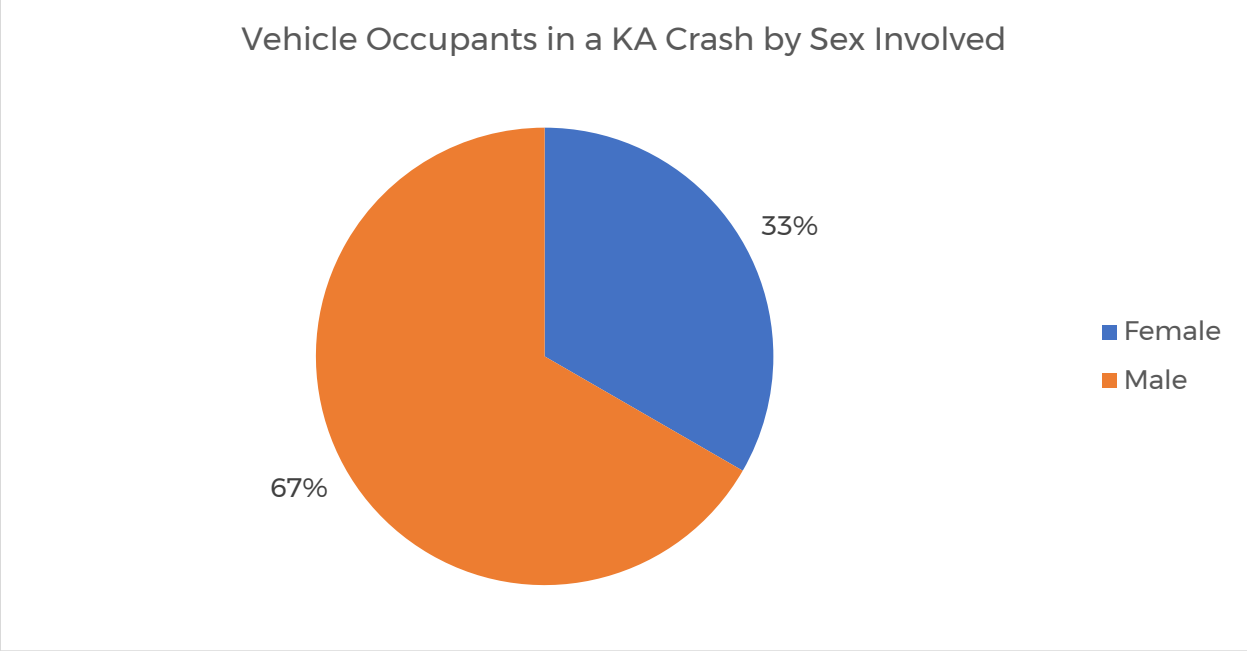


Figure 22: Vehicle Occupants in a KA Crash by Sex Involved

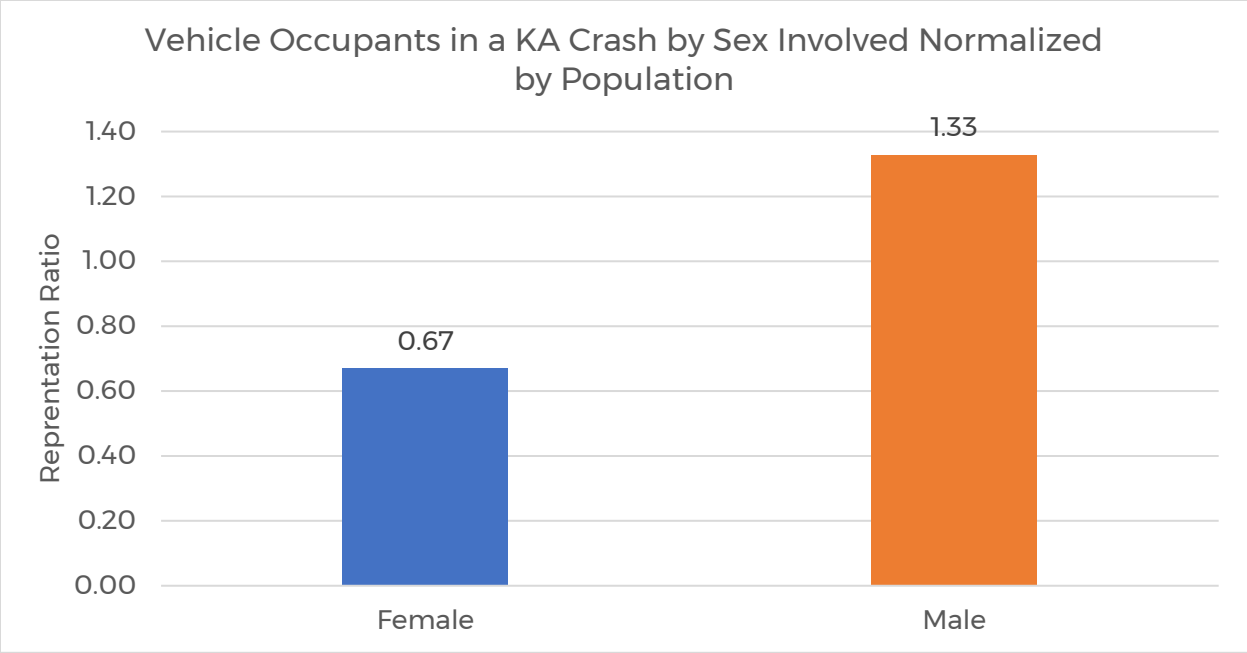


Figure 23: Vehicle Occupants in a KA Crash by Sex Involved Normalized by Population

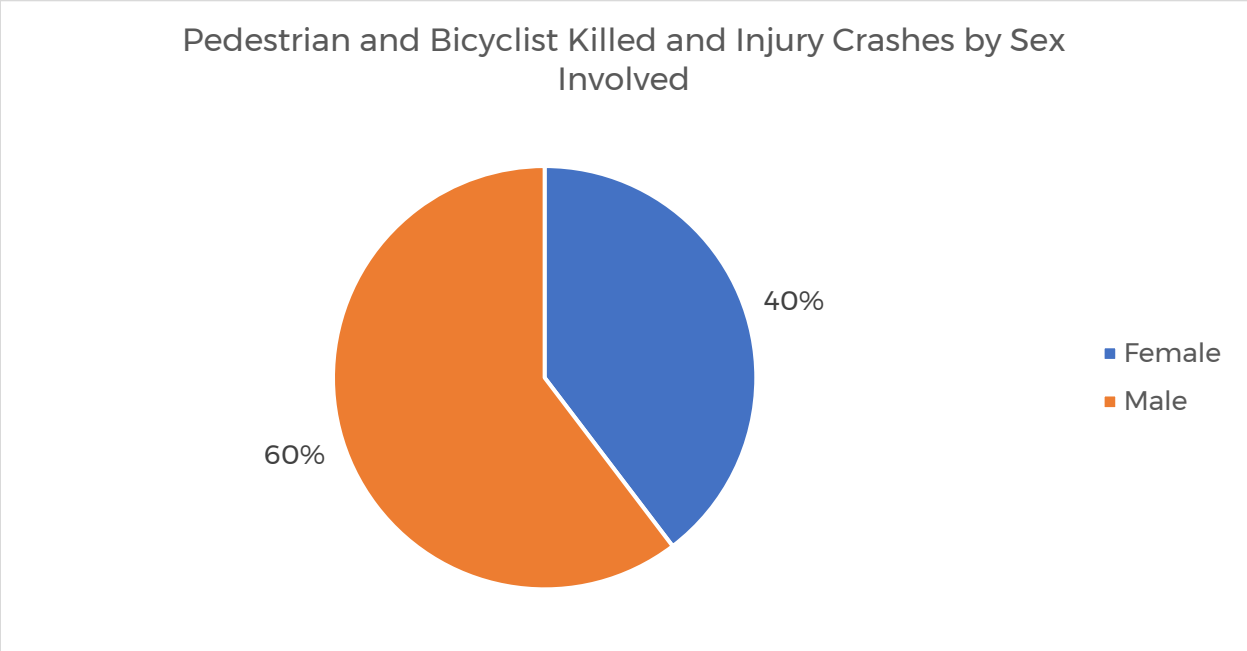


Figure 24: Pedestrian and Bicyclist Killed and Injury Crashes by Sex Involved

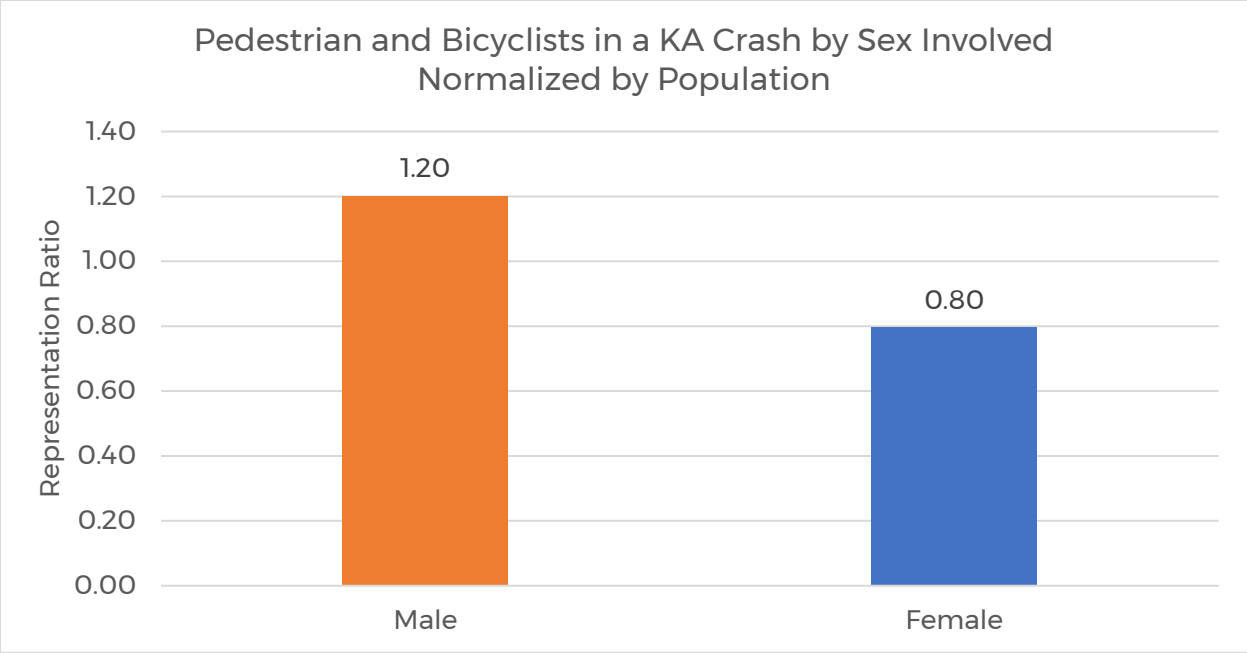


Figure 25: Pedestrian and Bicyclists in a KA Crash by Sex Involved Normalized by Population

3.3.4. Crash Types

This section shows a series of charts depicting various types of crashes resulting in crashes with a fatality or injury. The charts include data on different crash types such as bicycle accidents, broadsides, overturns/rollovers, pedestrian incidents, collisions with fixed objects, and others. Additionally, the section covers crashes involving specific vehicle movements such as going straight turning left, or weaving. Crashes under 15 were classified as other for crash types, and crashes under 30 were classified as other for movement type.

- Broadside crashes were the most common crash type (**Figure 26**).
- Intersection locations were the largest number of KA crashes that occurred for vehicles, pedestrians, and bicyclists (**Figure 27, Figure 28, Figure 29**).
- Crashes most often occur on straight and level roadways (**Figure 30**).
- Crashes were overwhelmingly caused by vehicles headed straight (**Figure** 31).

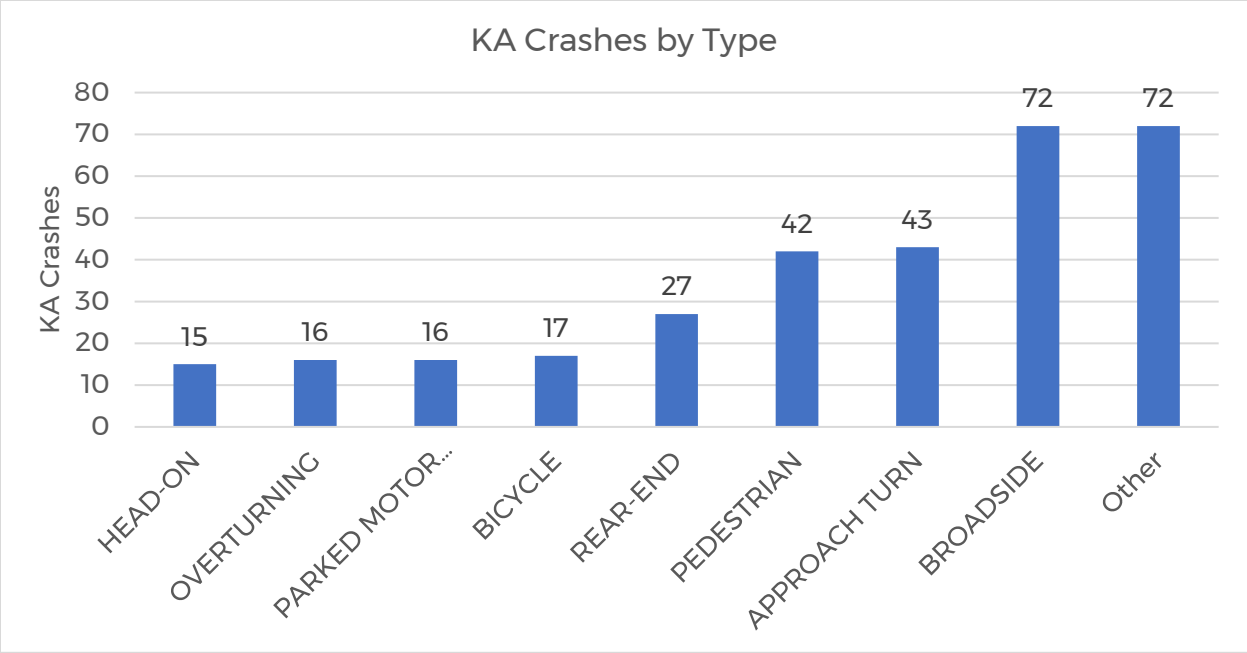


Figure 26: KA Crashes by Type

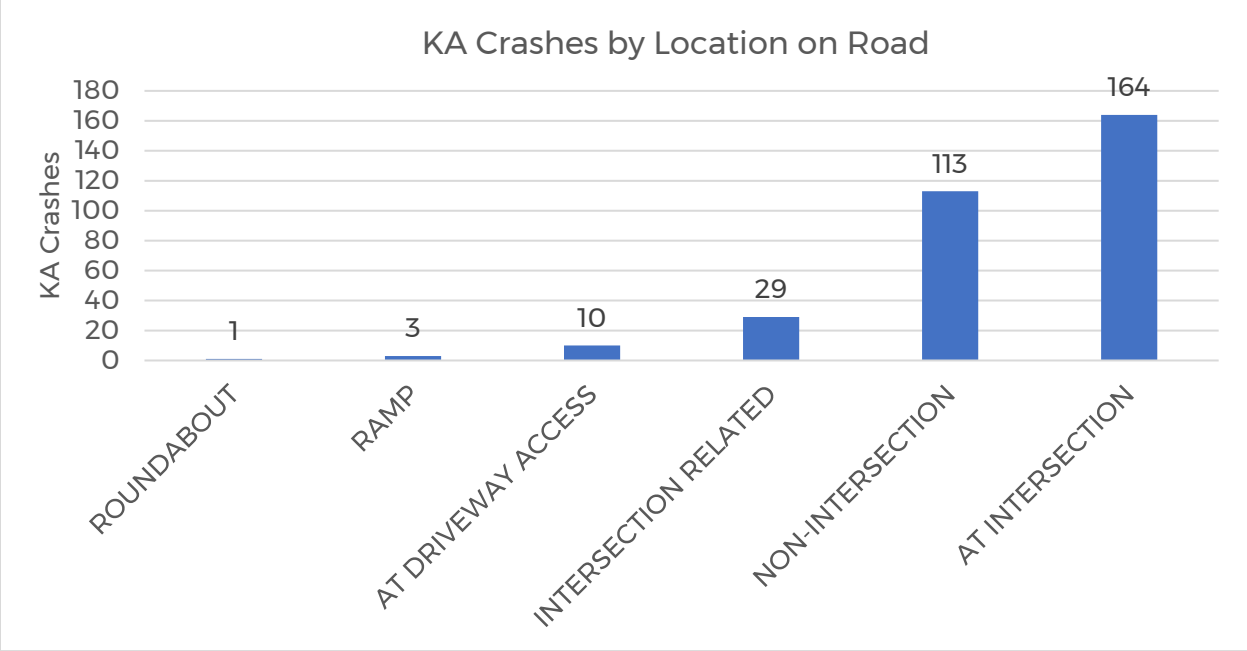


Figure 27: KA Crashes by Location on Road

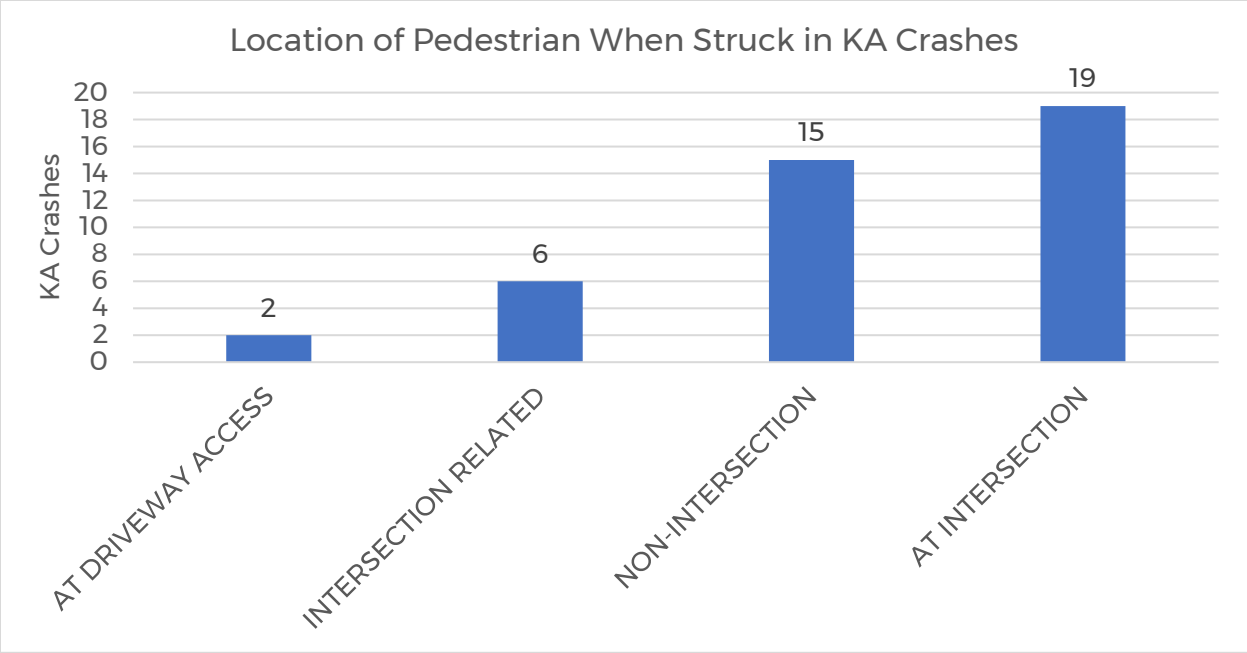


Figure 28: Location of Pedestrian When Struck in KA Crashes

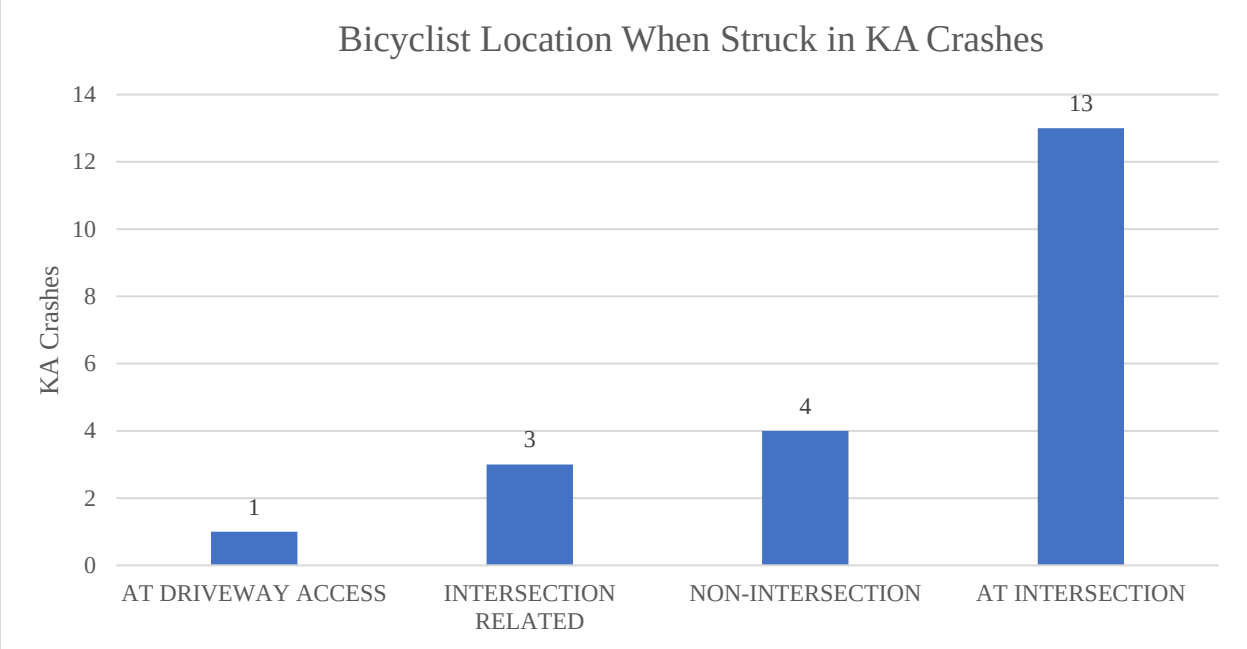


Figure 29: Bicyclist Location When Struck in KA Crashes

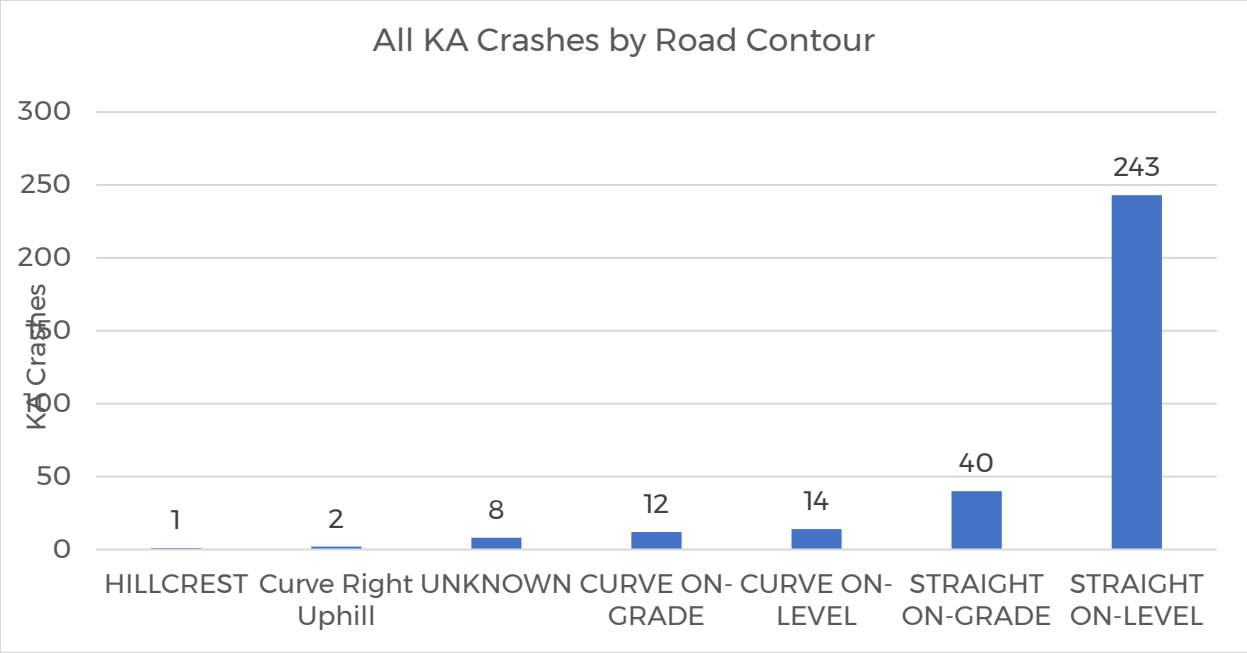


Figure 30: All KA Crashes by Road Contour

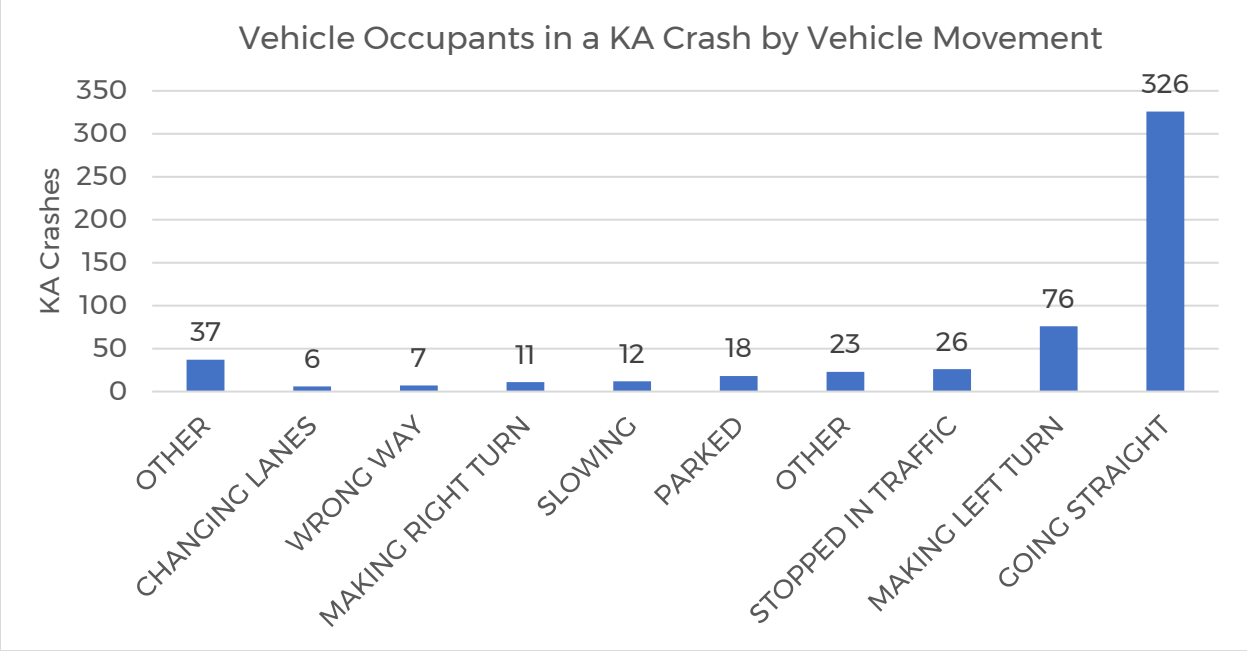


Figure 31: Vehicle Occupants in a KA Crash by Vehicle Movement

3.3.5. Crash Factors

This part of the report examines various aspects of driver, pedestrian, and cyclist behavior in relation to killed and serious injury crashes. The charts within this section provide valuable insights into different contributing behaviors, such as alcohol impairment, seatbelt usage, helmet usage, and the impact of weather, work zones, and lighting conditions on KSI crashes. These charts aim to present a comprehensive overview of the behavioral factors that play a role in these types of accidents. It should be noted that seatbelt and helmet data is only current through 2020, as they were not collected for the years 2021 and 2022.

- Most vehicle crashes do not involve improper driving. (**Figure 32**)
- Most pedestrian crashes do not involve any specific improper behavior (**Figure 33**).
- Most bicyclist crashes do not involve any specific improper behavior (**Figure 34**).
- Alcohol impairment was not a significant factor across all mode shares (**Figure 35, Figure 36, Figure 37**).
- Most vehicles in a KA crashes occupants wore seatbelts (**Figure 38**).
- When compared to all injury crashes, KA crashes were more likely to have occupants not wearing seatbelts (**Figure 38, Figure 39**).
- Most motorcyclist crashes involved riders not wearing a helmet (**Figure** 40).
- The most common weather was clear weather (**Figure 41**).
- Majority of crashes occurred in daylight (**Figure 42**).

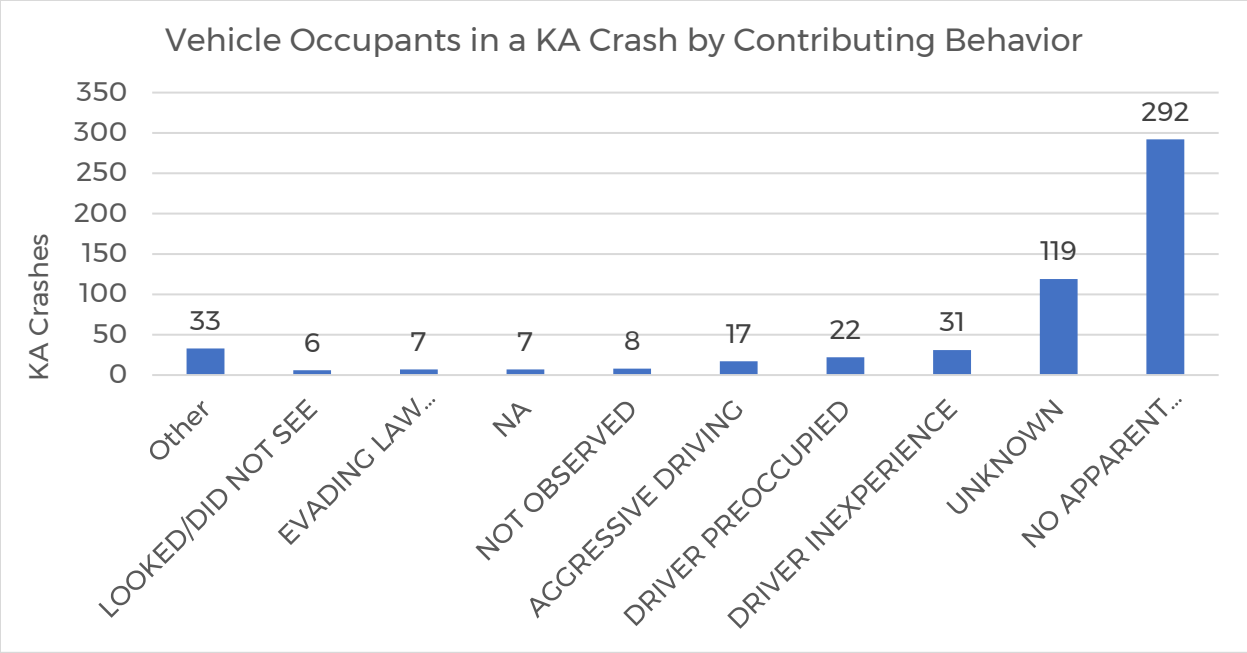


Figure 32: Vehicle Occupants in a KA Crash by Contributing Behavior

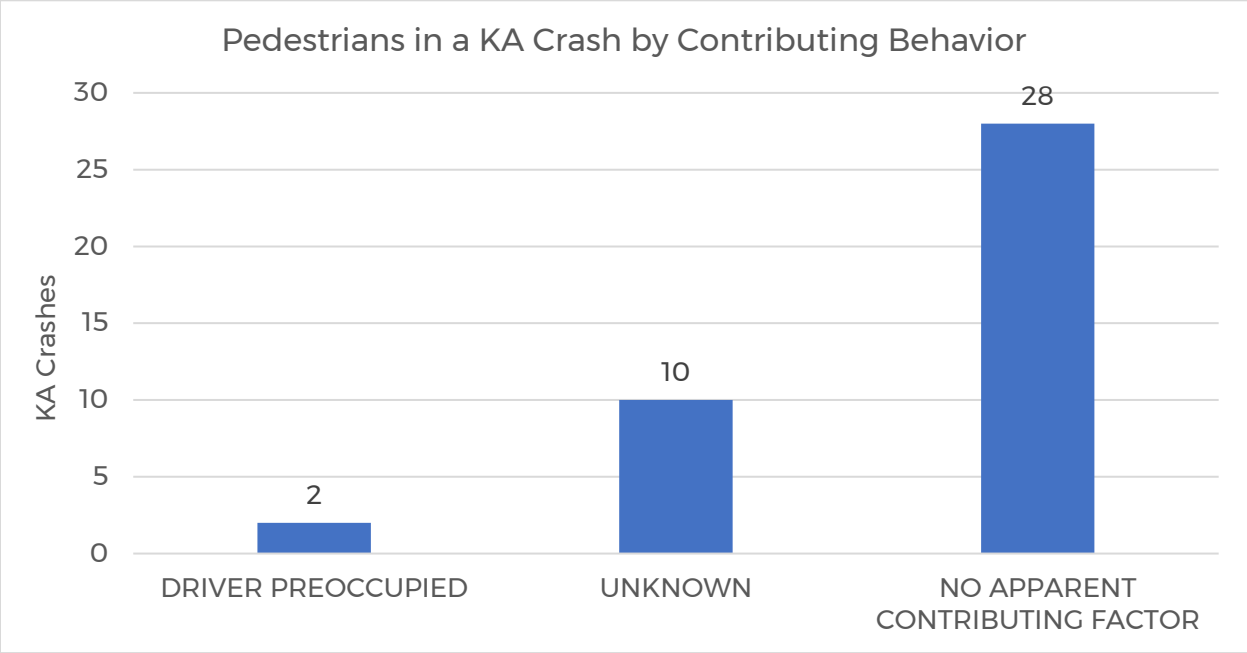


Figure 33: Pedestrians in a KA Crash by Contributing Behavior

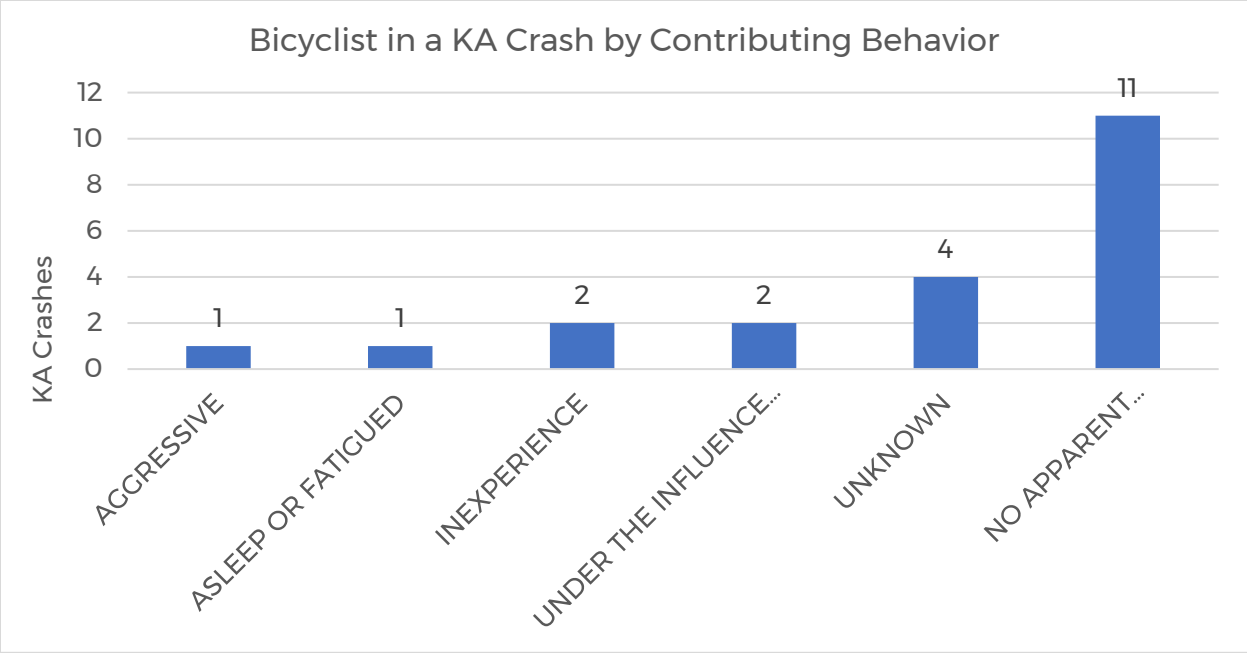


Figure 34: Bicyclist in a KA Crash by Contributing Behavior

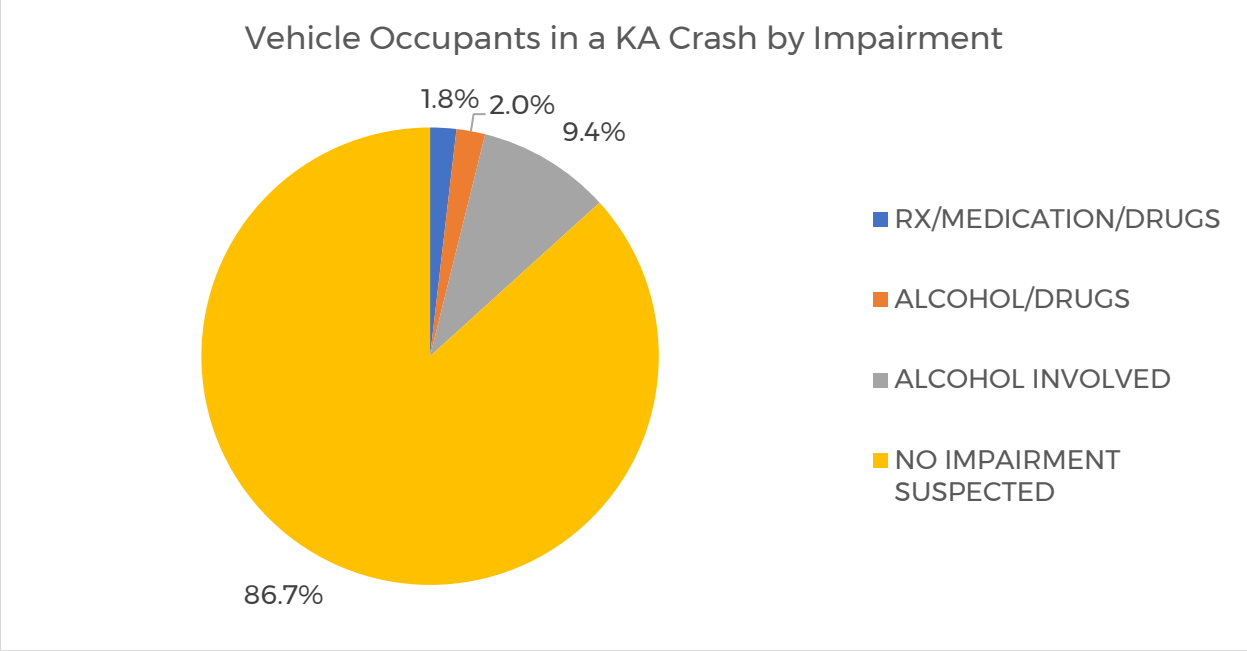


Figure 35: Vehicle Occupants in a KA Crash by Impairment

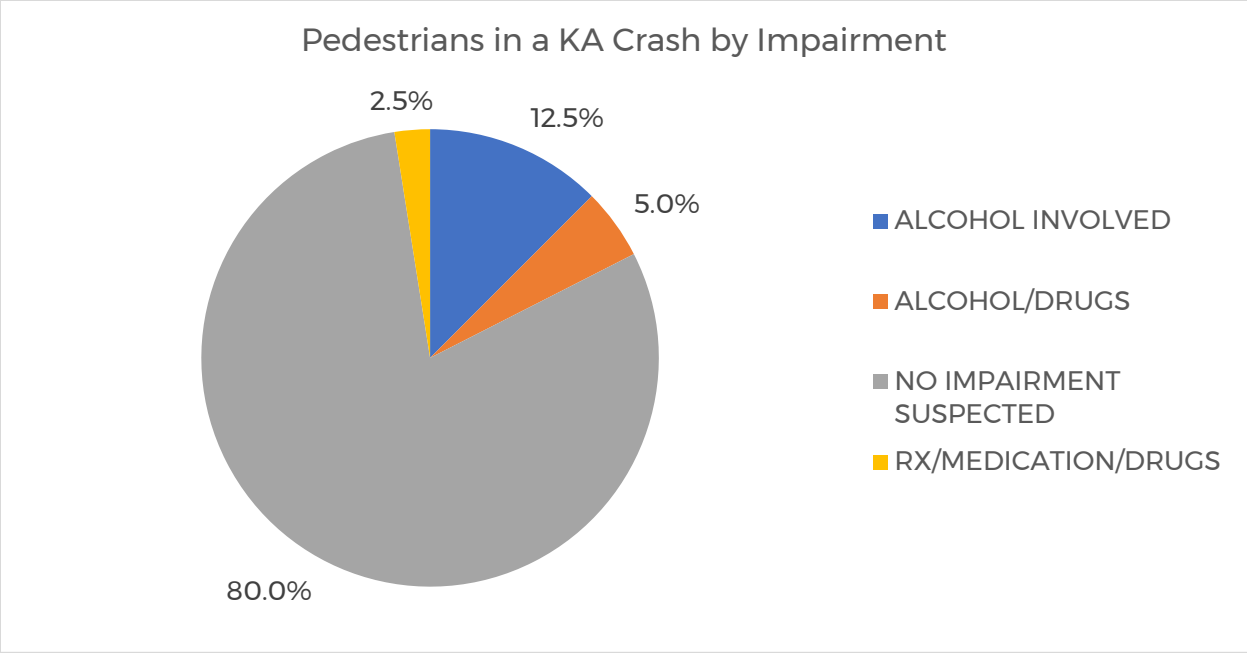


Figure 36: Pedestrians in a KA Crash by Impairment

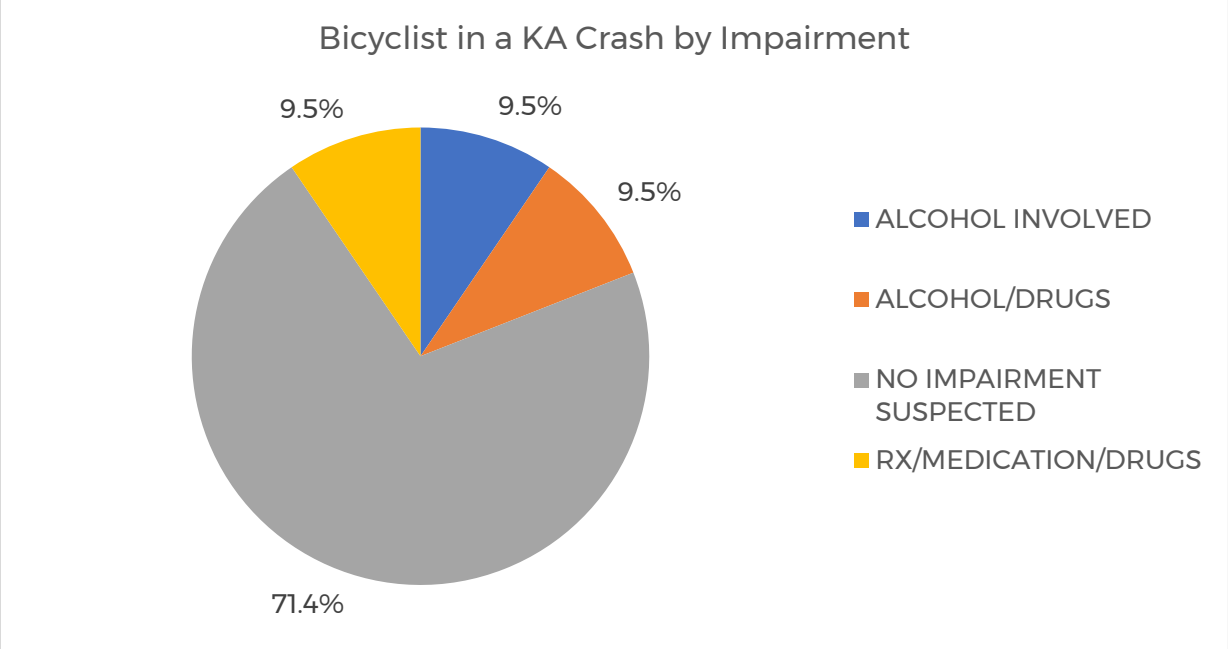


Figure 37: Bicyclist in a KA Crash by Impairment

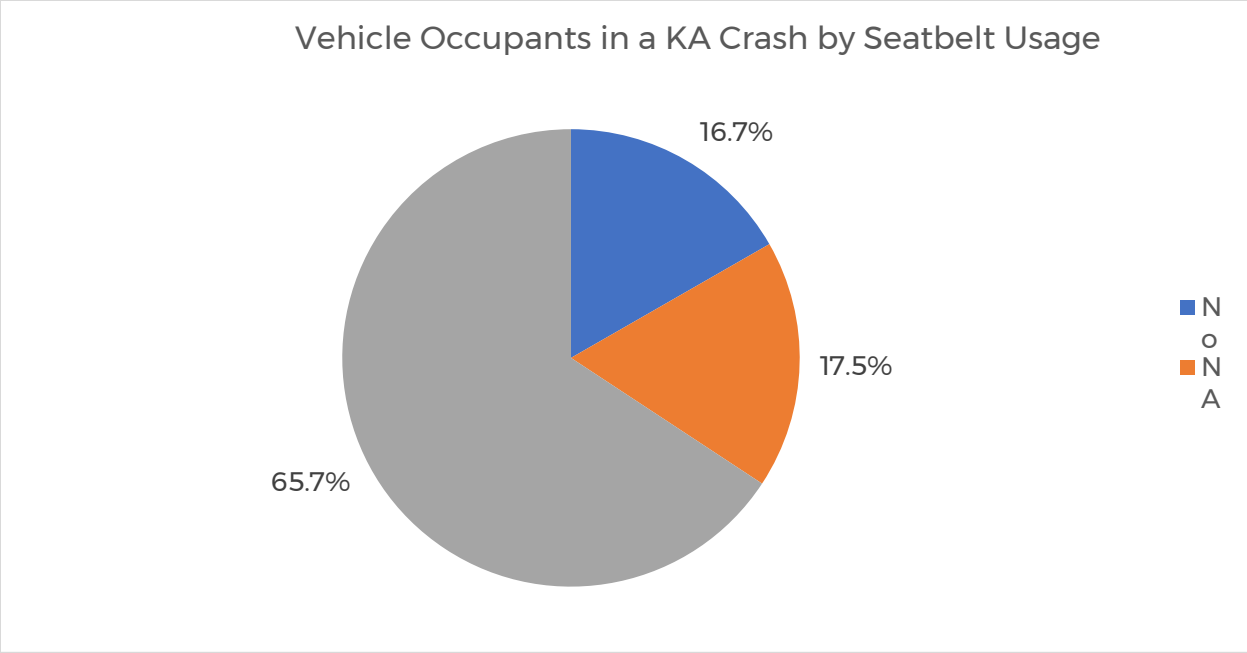


Figure 38: Vehicle Occupants in a KA Crash by Seatbelt Usage

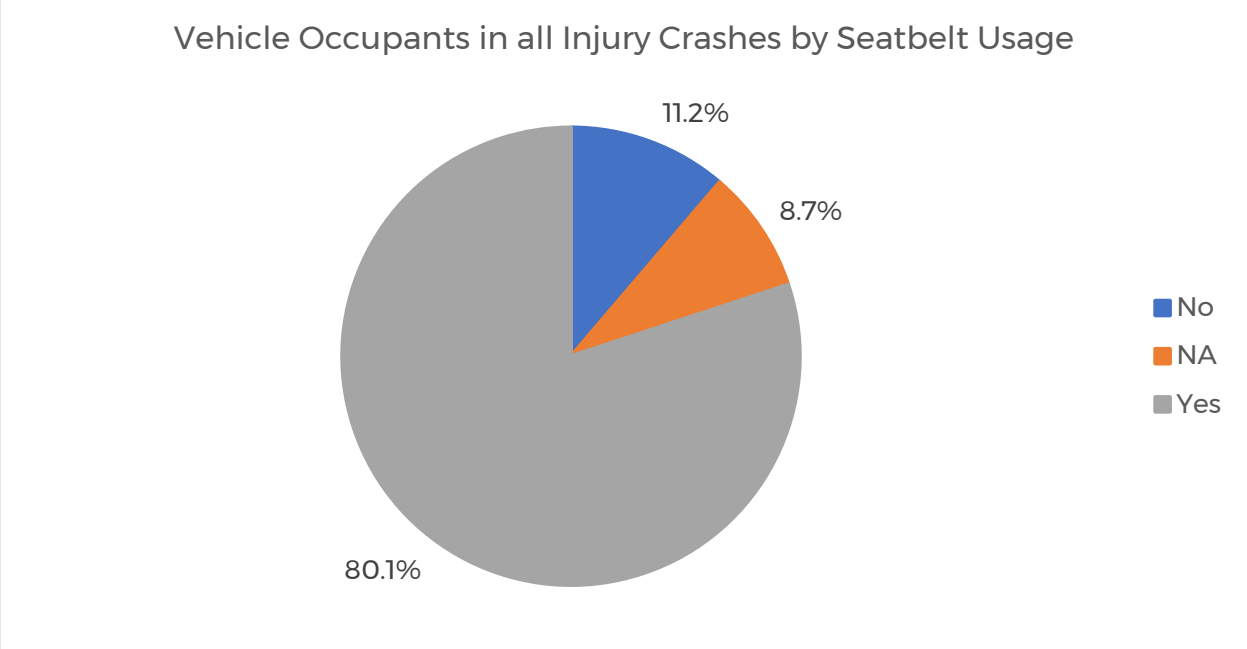


Figure 39: Vehicle Occupants in all Injury Crashes by Seatbelt Usage

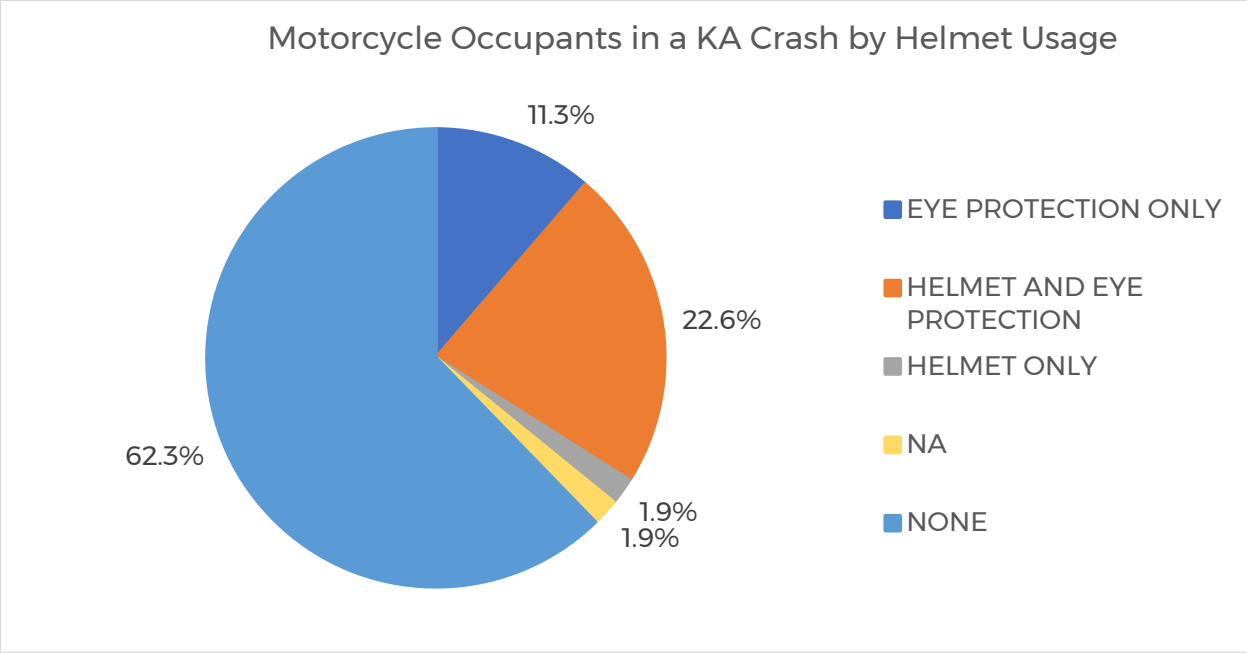


Figure 40: Motorcycle Occupants in a KA Crash by Helmet Usage

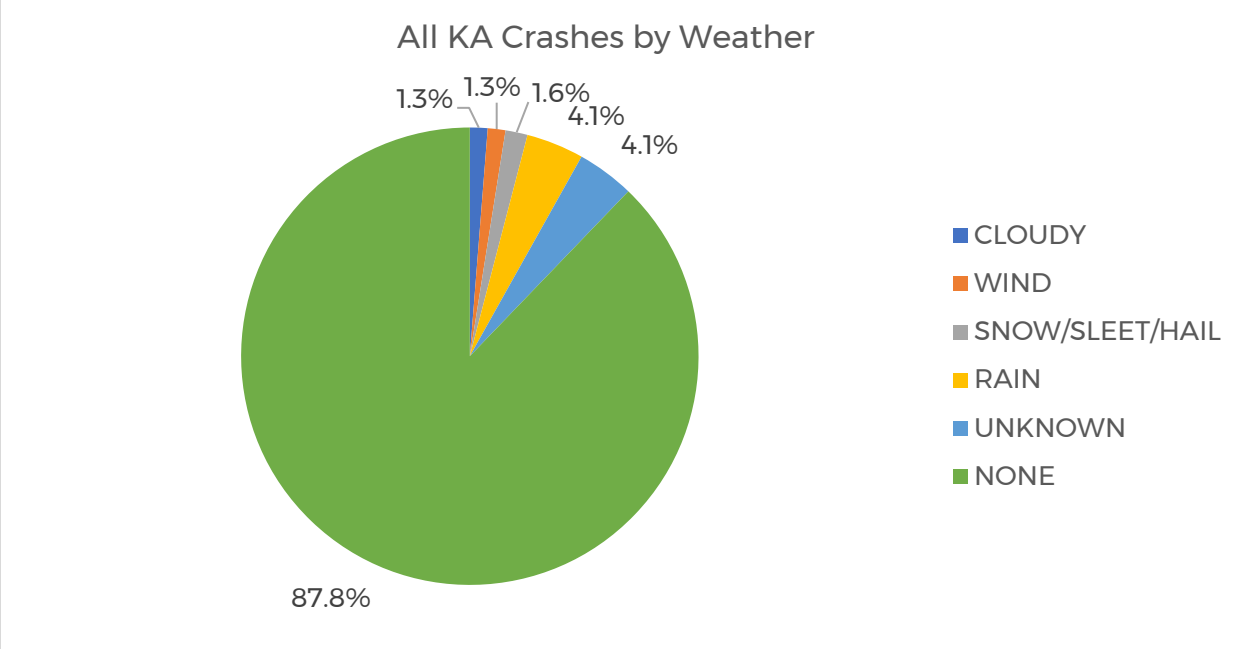


Figure 41: All KA Crashes by Weather

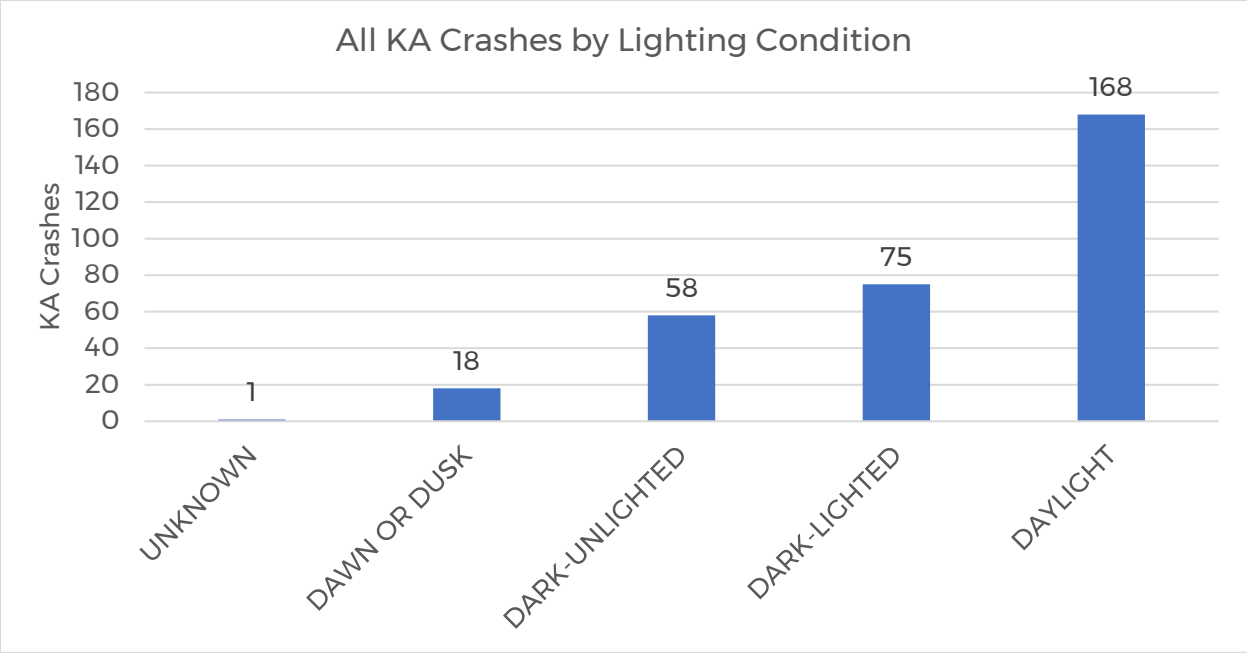


Figure 42: All KA Crashes by Lighting Condition

3.3.6. Time of Day

The "Time of the Day, Week, and Year" section of this report explores the connection between fatal and severe injury crashes and various time factors. It includes two charts: one comparing KA crashes by months of the year and days of the week (**Table 5**), and another examining the relationship by days of the week and hours of the day (**Table 6**). These charts offer insights into the temporal patterns and potential risk factors associated with KA crashes.

- KA crashes occurred more often on weekends than weekdays.
- Sundays had the highest percentage with 18.8% of crashes, followed by Saturdays with 16.6%.
- Mondays had the lowest overall percentage with 10.3% of crashes followed by Thursdays with 11.6%.
- There is a wide seasonal variation with summer months having higher percentages, peaking in August at 11.9%.
- Early morning hours between 2:00 and 7:00 were the lowest overall percentage of crashes, with 6:00 being the nadir at 1.9%.
- Evening times had the highest crash amounts, peaking at 17:00 with 8.2%.

Table 5: KA Crashes Months of the Year vs Days of the Week

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Mon	0.3%	0.0%	1.3%	0.6%	0.3%	1.9%	0.6%	0.9%	0.9%	1.6%	1.3%	0.6%	**10.3%**
Tue	1.6%	0.6%	1.9%	0.9%	0.0%	0.6%	0.9%	1.6%	1.6%	0.9%	1.9%	0.9%	**13.4%**
Wed	0.6%	0.0%	1.6%	0.6%	3.1%	1.6%	3.1%	1.6%	0.6%	0.6%	0.9%	0.9%	**15.3%**
Thu	0.9%	0.6%	0.0%	1.9%	0.6%	0.3%	1.6%	1.3%	0.6%	1.6%	1.3%	0.9%	**11.6%**
Fri	0.6%	0.9%	0.6%	1.9%	1.9%	0.9%	1.6%	1.6%	0.6%	1.3%	1.3%	0.9%	**14.1%**
Sat	1.3%	1.6%	0.9%	1.3%	2.2%	0.9%	1.3%	2.2%	2.2%	1.6%	0.6%	0.6%	**16.6%**
Sun	0.9%	0.9%	2.2%	1.3%	0.6%	2.8%	1.9%	2.8%	1.6%	1.6%	0.9%	1.3%	**18.8%**
Sum	**6.3%**	**4.7%**	**8.4%**	**8.4%**	**8.8%**	**9.1%**	**10.9%**	**11.9%**	**8.1%**	**9.1%**	**8.1%**	**6.3%**	**100.0%**

Table 6: KA Crashes Days of the Week vs Hours of the Day

Hour of Day	Mon	Tues	Wed	Thu	Fri	Sat	Sun	Total
1	0.6%	0.9%	0.0%	0.9%	0.6%	0.9%	0.3%	**4.4%**
2	0.6%	0.9%	0.0%	0.0%	0.0%	0.0%	0.6%	**2.2%**
3	0.3%	0.0%	0.0%	0.3%	0.3%	0.0%	1.6%	**2.5%**
4	0.3%	0.0%	0.3%	0.0%	0.3%	0.3%	1.3%	**2.5%**
5	0.6%	0.3%	0.0%	0.3%	0.0%	0.6%	0.6%	**2.5%**
6	0.9%	0.3%	0.3%	0.0%	0.0%	0.0%	0.3%	**1.9%**
7	0.3%	0.0%	0.6%	0.6%	0.3%	0.0%	0.3%	**2.2%**
8	0.3%	0.9%	0.6%	0.6%	0.0%	0.6%	0.3%	**3.4%**
9	0.0%	0.6%	0.3%	0.3%	0.3%	0.6%	0.3%	**2.5%**
10	0.3%	0.3%	0.3%	1.3%	0.9%	0.3%	0.3%	**3.8%**
11	0.6%	0.3%	0.6%	0.0%	0.0%	0.6%	0.3%	**2.5%**
12	0.0%	0.0%	0.9%	1.3%	0.3%	0.0%	0.3%	**2.8%**
13	0.3%	0.9%	1.3%	0.9%	0.0%	1.6%	0.9%	**6.0%**
14	0.0%	0.9%	0.3%	0.0%	0.6%	1.3%	0.3%	**3.4%**
15	0.0%	0.6%	0.9%	1.6%	0.3%	0.6%	1.9%	**6.0%**
16	1.3%	0.3%	0.0%	0.0%	0.9%	0.9%	1.9%	**5.3%**
17	0.3%	2.5%	1.6%	0.3%	1.3%	0.6%	1.6%	**8.2%**
18	0.0%	1.6%	1.9%	0.3%	0.9%	1.6%	0.9%	**7.2%**
19	0.6%	0.0%	0.9%	0.0%	1.3%	0.6%	0.0%	**3.4%**
20	0.6%	0.3%	1.6%	0.0%	0.9%	1.6%	0.9%	**6.0%**
21	0.0%	0.6%	0.6%	0.6%	1.3%	0.6%	1.3%	**5.0%**
22	0.9%	0.0%	1.6%	1.6%	1.6%	0.6%	1.3%	**7.5%**
23	0.9%	0.3%	0.3%	0.3%	0.9%	1.6%	0.9%	**5.3%**
24	0.3%	0.6%	0.0%	0.3%	0.9%	0.6%	0.3%	**3.1%**
0	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	**0.3%**
Sum	**10.3%**	**13.5%**	**15.0%**	**11.6%**	**14.1%**	**16.6%**	**18.8%**	**100.0%**

3.3.7. High-Risk Network Methodology

To create the High-Risk Network, WSP identified the context and street configuration factors that contribute to an elevated crash risk from the systemic analysis; based on this, WSP developed scoring criteria outlined in **Table 7**. Each risk factor outlined in this scoring criteria was assigned a point according to its proportional risk representation ratio as indicated by the systemic analysis. The greater the awarded point, the higher the risk. The total possible risk scores are measured on a 100-point scale. The final risk score of a roadway segment is a sum of scores awarded for the risk factors present in the segment. These values were used in the creation of map tools.

Table 7: High-Risk Network Scoring Methodology

Segment Attributes	Category	Representation Ratio	Risk Points
Equity Area	Not An Equity Area	0.76	2
	Equity Area	1.44	4
Traffic Operation	One-way	3.16	7
	Two-way	0.83	2
Functional Class	Local	0.25	2
	Minor Collector	0.90	7
	Major Collector	1.68	12
	Minor Arterial	2.56	17
	Major Arterial	3.98	27
	Expressway	3.84	27
	Unknown	0.00	0
Number of Lanes	2 Lanes	0.63	2
	4 Lanes	3.80	10
	Other	0.61	2
AADT Class	Under 2.5k	0.33	2
	2.5k-5k	1.74	8
	5k-10k	2.45	12
	10k-20k	3.72	19
	>20k	6.13	32
	No Data	0.63	3

Segment Attributes	Category	Representation Ratio	Risk Points
Speed Limit	0-25mph	0.53	2
	30-35mph	2.60	8
	40-50mph	2.44	8
	55mph+	3.72	12
Bus Route	Not A Bus Route	0.71	2
	Bus Route	3.67	8
Total Possible Points			100

Roadways are stratified into three classes (low, moderate, and high) based on the calculated risk scores. Roadways with risk scores of 49 or lower are classified as low risk; roadways with risk scores of 50 to 69 are classified as moderate risk; roadways with risk scores of 70 or above are classified as high risk.

3.3.8. High-Risk Network Map

The high-risk network map can be viewed in this interactive web map. ArcGIS Map Viewer

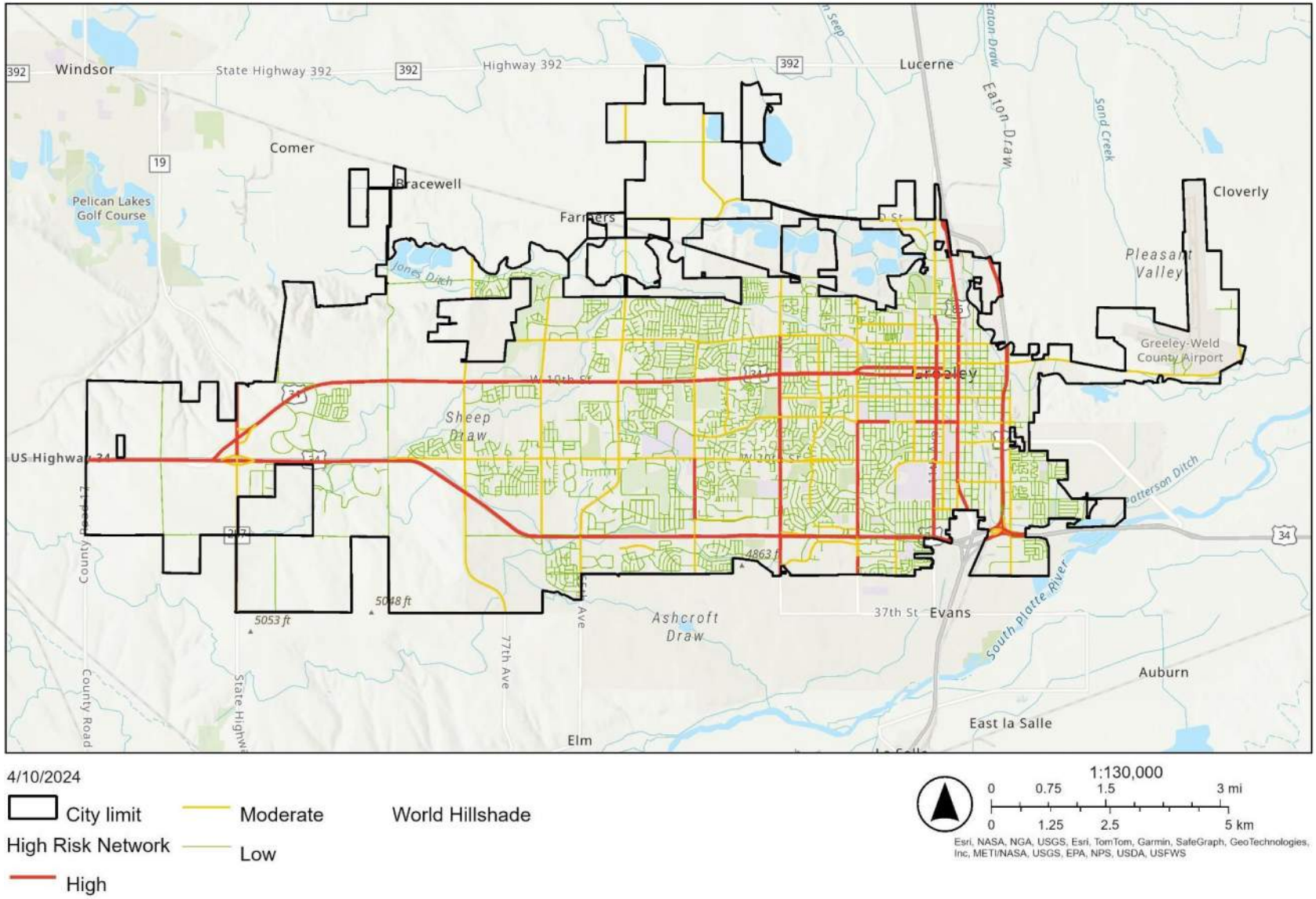


Figure 43: High Risk Network

3.3.9. High-Risk Network Statistics

The high-risk network statistics suggest that 43.8 miles of roadway are identified as high-risk, representing only 9% of total centerline miles in Greeley (**Table 8**). Despite the small proportion, those high-risk roads experienced 139 KA crashes, accounting for 43% of total KA crashes between 2014 and 2022.

Table 8: High Risk Network Statistics

Risk Class	Miles	%Miles	Miles in Equity Area	%Equity	KA Crashes	%KA Crashes
High	43.8	9%	23.0	14%	139	43%
Moderate	75.8	16%	34.8	21%	104	33%
Low	354.0	75%	110.9	66%	71	22%
Total	473.6	100%	168.8	100%	320*	100%

* 6 KA crashes are located more than 100 feet away from roadways and are not included in the HRN calculation.

3.3.10. High Injury Network Methodology

High Injury Network (HIN) is a mapping tool aimed at identifying the street segments where a disproportionately high number of fatal and injury traffic crashes occur. For the methodology WSP adopted a data-driven approach, analyzing all injury crashes between 2014 and 2022. Two versions of HIN have been developed, each based on a weighting methodology for crashes.

In Version 1, crashes are weighted based on severity. Fatal crashes (K) are assigned 15 points, suspected serious injury crashes (A) 5 points, suspected minor injury crashes (B) 2 points, and possible injury crashes (C) 1 point.

In Version 2, crashes are weighted based on crash type. The weights are determined by the societal cost of each traffic crash type, normalized by the average societal cost of crashes. Further details are provided in **Table 9**.

Table 9: Societal Cost by Crash Type Weights

Crash Type	Weights
DOMESTIC ANIMAL	0.13
WILD ANIMAL	0.13
OTHER NON-COLLISION	0.14
PARKED MOTOR VEHICLE	0.17

Crash Type	Weights
OVERTAKING TURN	0.28
SIDESWIPE (SAME DIRECTION)	0.28
REAR-END	0.41
BROADSIDE	0.52
SIDESWIPE (OPPOSITE DIRECTION)	0.63
APPROACH TURN	0.70
BARRICADE/TRAFFIC BARRIER	0.82
BRIDGE RAIL	0.82
CABLE RAIL	0.82
CONCRETE BARRIER	0.82
CULVERT/HEADWALL	0.82
DELINEATOR POST	0.82
ELECTRICAL/UTILITY BOX	0.82
FENCE	0.82
GUARD RAIL	0.82
INVOLVING OTHER OBJECT	0.82
LIGHT/UTILITY POLE	0.82
MAILBOX	0.82
OTHER FIXED OBJECT	0.82
SIGN	0.82
TRAFFIC SIGNAL POLE	0.82
TREE/SHRUBBERY	0.82
WALL/BUILDING	0.82
CURB/RAISED MEDIAN	0.97
DITCH	0.97
EMBANKMENT CUT/FILL SLOPE	0.97
LARGE BOULDERS OR ROCKS	0.97
SCHOOL AGE TO/FROM SCHOOL	0.97
VEHICLE CARGO/DEBRIS	0.97
BICYCLE/MOTORIZED BICYCLE	1.31
OVERTURNING	1.78
HEAD-ON	1.92
RAILWAY VEHICLE	2.25
PEDESTRIAN	2.96

The injury score of each road segment is calculated by summing the weights of all injury crashes that occurred on that road segment, then normalized by the road segment length. To smooth out the result, the injury score of each road segment is averaged with the injury scores of 6 adjacent segments symmetrically along the same route. The average score is then used as the final injury score for that road segment.

WSP further stratified the road segments by injury score. Road segments with an injury score per mile equal to or greater than a certain threshold are identified as potential high-injury segments. Segments shorter than 1500ft are filtered out to maintain the continuity of the final High Injury Network.

The final High Injury Network segments are further classified into “high injury roads” and “higher injury roads” to delineate priority levels.

3.3.11. High Injury Network Maps

The high-injury network map can be viewed in this interactive web map.
ArcGIS Map Viewer

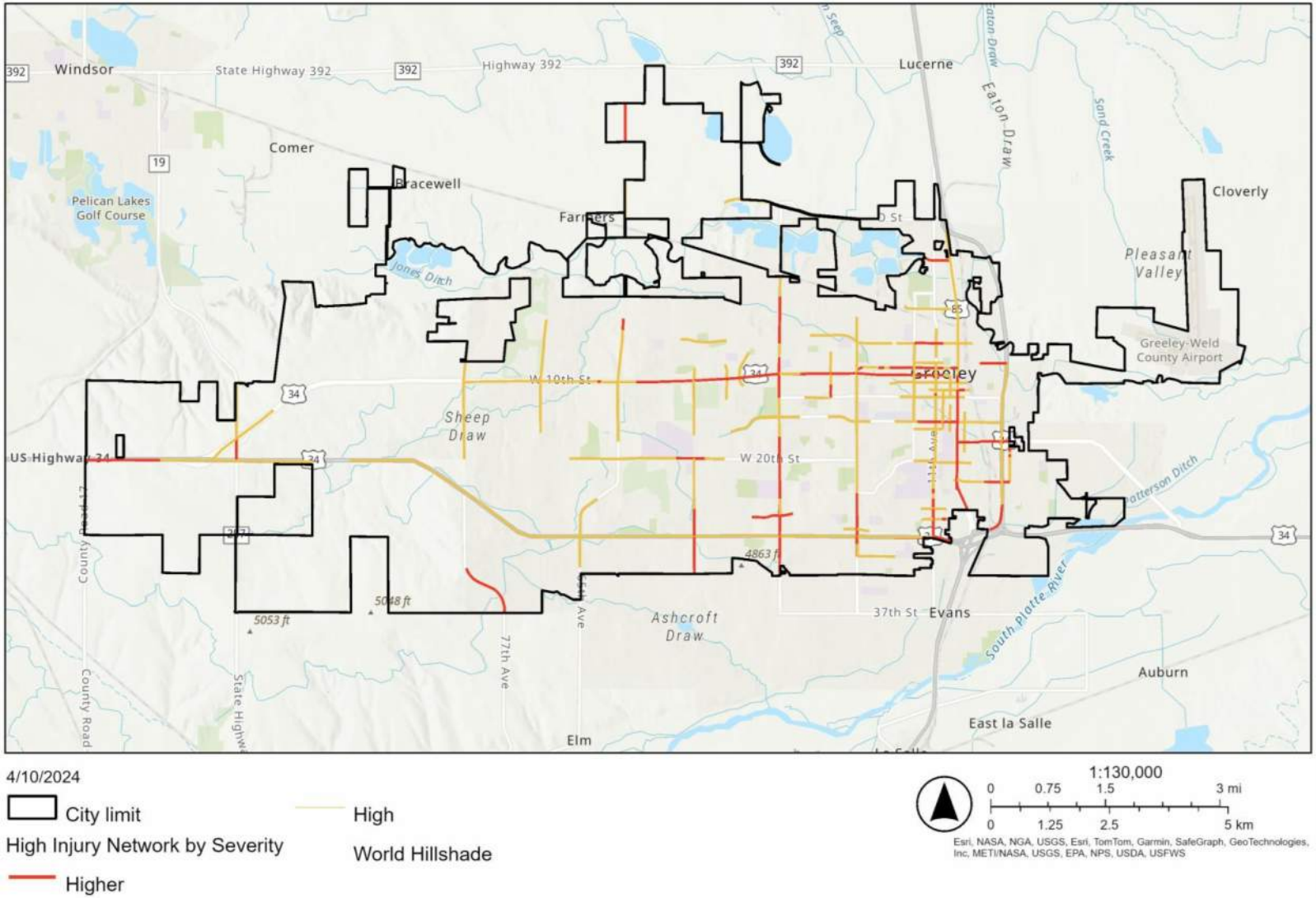


Figure 44: High Injury Network by Severity

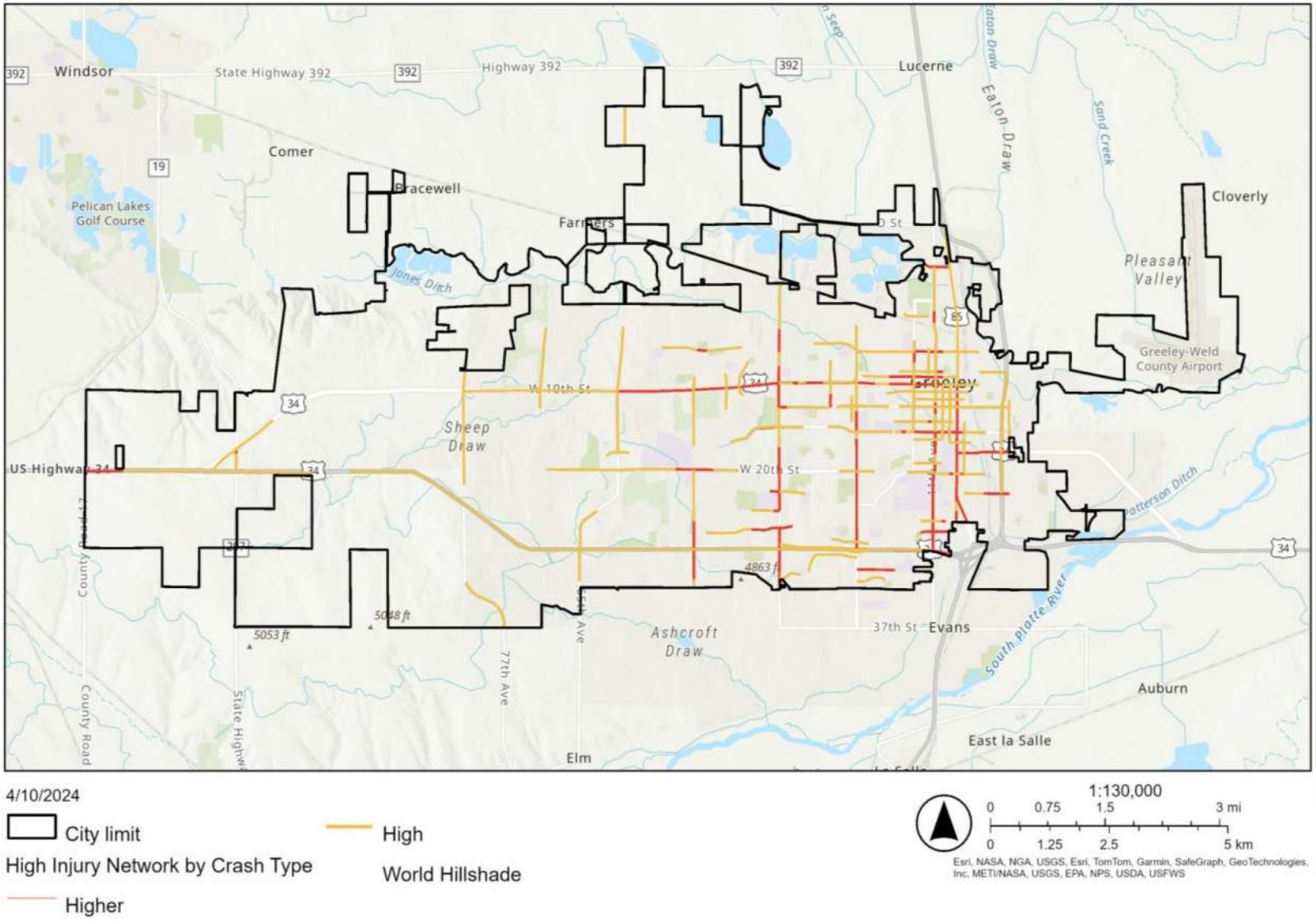


Figure 45: High Injury Network by Crash Type

3.3.12. High Injury Network Statistics

There are 15% of roadway miles in the city classified as High Injury Network using the severity-based method, which accounts for 68% of KA crashes (**Table 10**). The High Injury Network in the equity areas accounts for 22% of roadway miles and 82% of KA crashes in those areas (**Table 11**).

Table 10: Severity-Based High Injury Network Summary Stats

Severity-Based High Injury Network Summary Stats					
Class	**Miles**	**%Miles**	**KA Crashes**	**%KA Crashes**	**Rep. Ratio**
Higher	20.0	4%	94	29%	6.97
High	51.6	11%	122	38%	3.50
All HIN	71.6	15%	216	68%	4.47
Citywide Total	473.6	100%	320	100%	1.00

Table 11: Severity-Based High Injury Network Summary Stats for Equity Areas

Severity-Based High Injury Network Summary Stats for Equity Areas					
Class	**Miles in Equity Area**	**%Miles**	**KA Crashes in EJ Area**	**%KA Crashes**	**Rep. Ratio**
Higher	12.0	7%	61	41%	5.71
High	25.8	15%	62	41%	2.71
All HIN	37.8	22%	123	82%	3.66
Citywide Total	168.8	100%	150	100%	1.00

The type-based High Injury Network represents 64% of all KA crashes but encompasses only 17% of the citywide roadway miles (**Table 12**). This indicates that KA crashes are 3.8 times more likely to occur on those streets. Among all type-based High Injury Networks, 41 miles are located within equity areas, which accounts for 24% of roadway miles and 74% of KA crashes within equity areas (**Table 13**).

Table 12: Type-Based High Injury Network Summary Stats

Type-Based High Injury Network Summary Stats					
Class	**Miles**	**%Miles**	**KA Crashes**	**%KA Crashes**	**Rep. Ratio**
Higher	20.3	4%	77	24%	5.62
High	59.1	12%	127	40%	3.18
All HIN	79.4	17%	204	64%	3.80
Citywide Total	473.6	100%	320	100%	1.00

Table 13: Type-Based High Injury Network Summary Stats for Equity Areas

Type-Based High Injury Network Summary Stats for Equity Areas					
Class	**Miles in Equity Area**	**%Miles**	**KA Crashes in EJ Area**	**%KA Crashes**	**Rep. Ratio**
Higher	11.7	7%	51	34%	4.88
High	29.2	17%	60	40%	2.31
All HIN	41.0	24%	111	74%	3.05
Citywide Total	168.8	100%	150	100%	1.00

3.3.13. High Injury Intersections Methodology

In addition to identifying road segments that are overrepresented in injury crashes, WSP also analyzed the intersections that account for a disproportionately high number of injury crashes.

To identify the High Injury Intersections (HIIs), all intersections in the city were plotted and injury crashes occurring within 100ft of an intersection were selected as intersection crashes. Similar to the methodology used for developing the HIN, two versions of HIIs were created, differing in how crashes are weighted. One version assigns weights by severity, while the other assigns weights based on crash type, utilizing the same weighting systems as the HIN development. Weighted crashes are then allocated to the nearest intersection, and the weights of all crashes assigned to each intersection are summed to calculate the injury score of that intersection.

Intersections are ranked and stratified according to their injury scores. Intersections with the highest injury scores are selected as HIIs. Selected HIIs are further classified into two tiers. “Higher” injury intersections are those with

the highest injury scores, while “High” injury intersections represent the second highest tier of injury scores.

3.3.14. High Injury Intersections Map

The high-injury intersection map can be viewed in this interactive web map.
ArcGIS Map Viewer

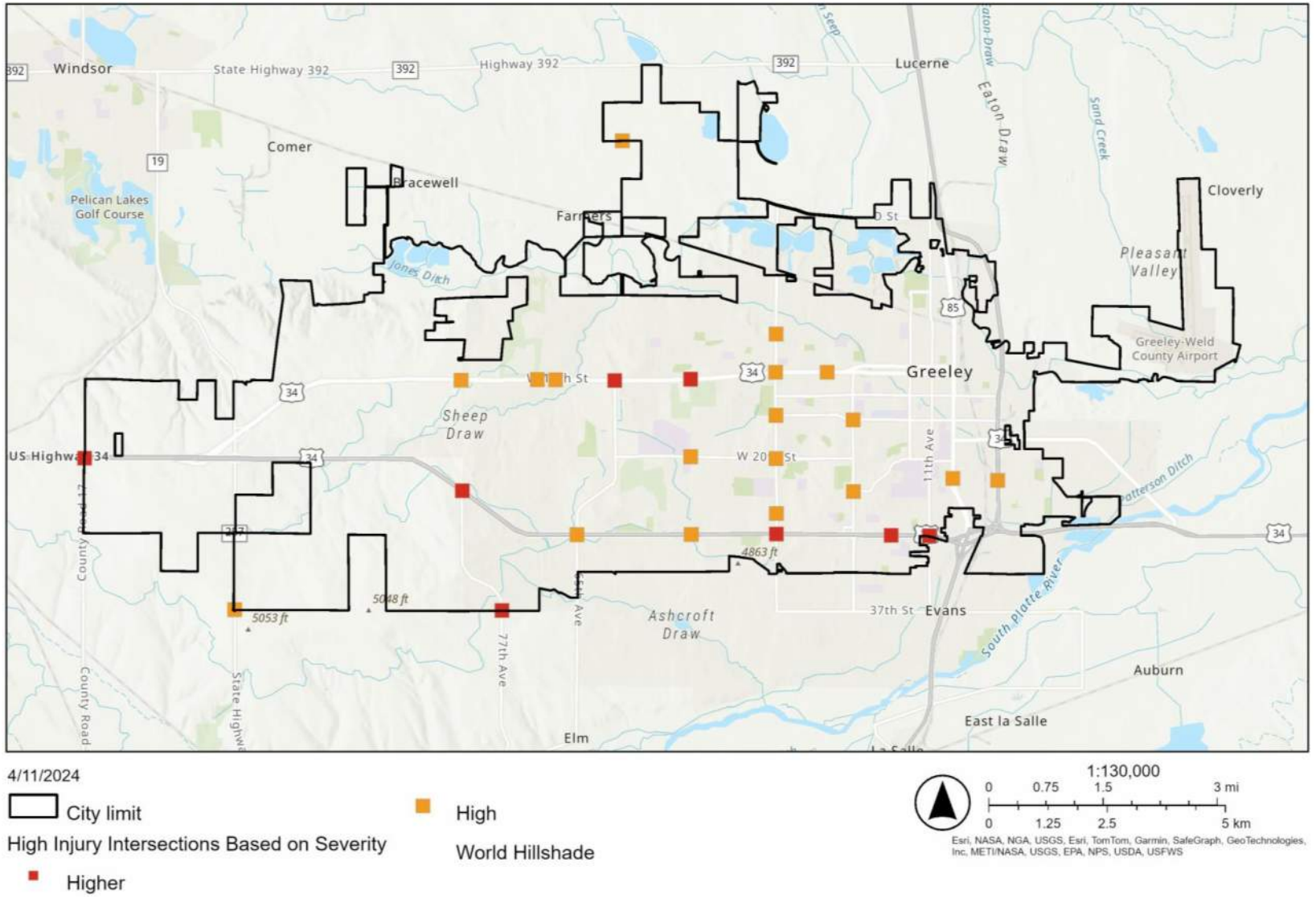


Figure 46: High Injury Intersections by Severity

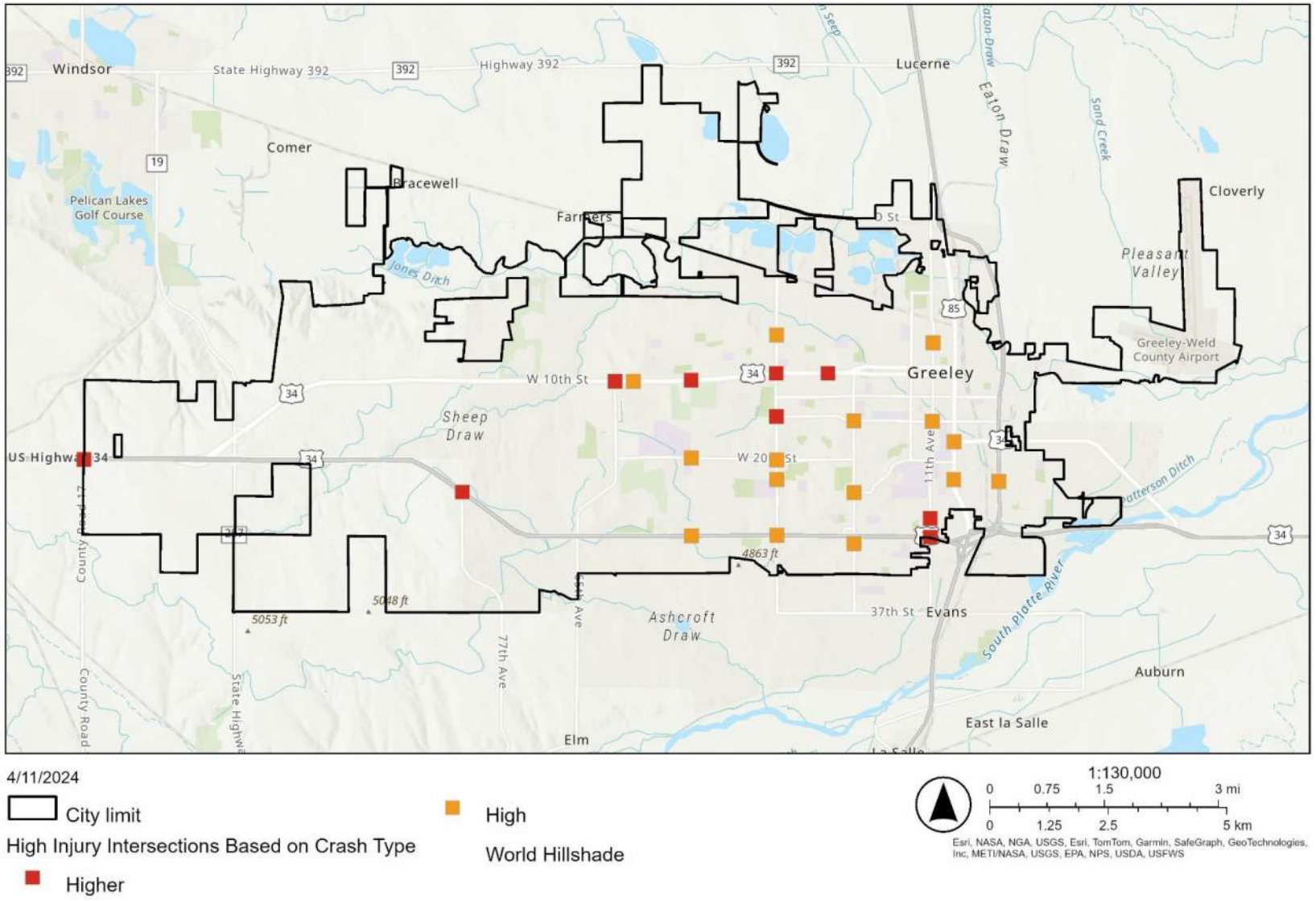


Figure 47: High Injury Intersections by Crash Type

3.3.15. High Injury Intersections Statistics

A total of 26 intersections have been identified as HIIs using the severity-based weighting. Despite comprising only 1.1% of all intersections, those HIIs contribute to 23% of KA crashes (**Table 14**).

Table 14: Severity-Based High Injury Intersection Summary Stats

Severity-Based High Injury Intersection Summary Stats					
Class	**Intersections**	**%Intersection**	**KA Crash**	**%KA Crash**	**Rep. Ratio**
Higher	8	0.3%	39	12%	37.61
High	18	0.7%	34	11%	14.57
All HIN Intersection	26	1.1%	73	23%	21.66
Citywide Total	2469	100%	320	100%	1.00

Weighting by crash type yields a similar result. A total of 24 intersections have been identified as HIIs, representing 16% of KA crashes while constituting only 1.0% of intersections (**Table 15**).

Table 15: Type-Based High Injury Intersection Summary Stats

Type-Based High Injury Intersection Summary Stats					
Class	**Intersections**	**%Intersection**	**KA Crash**	**%KA Crash**	**Rep. Ratio**
Higher	9	0.4%	31	10%	26.58
High	15	0.6%	20	6%	10.29
All HIN Intersection	24	1.0%	51	16%	16.40
Citywide Total	2469	100.0%	320	100%	1.00

The following 17 intersections made on both severity-based and type-based HII lists.

1. US Hwy 34 and 11th Ave
2. 47th Ave and 10th St
3. 59th Ave and 10th St
4. US Hwy 34 and County Rd 17
5. US Hwy 34 and 83rd Ave
6. 35th Ave and 16th St
7. 35th Ave and 10th St

8. 26th Ave and 10th St
9. 8th Ave and 22nd St
10. 23rd Ave and 16th St
11. US Hwy 85 and 22nd St
12. US Hwy 34 and 35th Ave
13. US Hwy 34 and 47th Ave
14. 23rd Ave and Reservoir Rd
15. 35th Ave and 20th St
16. 47th Ave and 20th St
17. 35th Ave and 4th St

Appendix C – Implementation

1.0 Introduction

Implementation means putting something into action or making it effective. This plan emphasizes action. This appendix offers guidance for Greeley on funding the plan's recommendations via partnerships, project collaborations, and grant opportunities.

2.0 Objective

Our aim is to create an implementation plan for safety improvements in Greeley that not only prioritizes projects based on their score but also strategically integrates with local funding, grants, and existing frameworks like Greeley on the Go and the Greeley Capital Improvement Plan.

3.0 Scope

Plan implementation presents a significant challenge within the Vision Zero discourse due to funding allocations. To accomplish Vision Zero, it is essential to allocate unused funding to areas where the highest crash reduction is achievable. The distribution of fatal and serious injury traffic crashes across Greeley is uneven, resulting in a similarly uneven funding recommendation. We initiated discussions with the APAC to explain the rationale behind prioritization scores and groupings as previously outlined, which are based on safety benefits.

We evaluated Greeley on the Go, the North Front Range Long Range Transportation Plan (LRTP), the Transportation Improvement Program (TIP), and CDOT's State Transportation Improvement Program (STIP) to identify funding levels and opportunities to integrate safety projects with planned improvements. Additionally, since this plan includes non-infrastructure strategies to support Vision Zero, we propose recommendations for new or updated policies and programs within a Safe System approach framework.

This process enabled our team to categorize projects into various phased implementation strategies with short-term and long-term completion timelines, encompassing a range of project types such as low-cost systemic measures, medium-cost targeted interventions, and high-cost targeted projects.

Funding

In Colorado, transportation funding flows both ways. Federal and State funds start with CDOT's Statewide Transportation Plan, are subdivided into the NFRMPO Regional Plan, and end with Greeley's Plan. Conversely, local funds begin with Greeley's plan, merge with other municipalities into the regional plan, and then integrate into CDOT's plan. We focus on the NFR and Greeley plans for regular program funds as CDOT's funding is indirect, and Greeley doesn't compete in other planning regions. Exceptions include the CDOT TAP program and Federal competitive grants.

Greeley-on-the-Go Funding

The Greeley plan allocates $1,174.1 million over the next 20 years, divided into five and ten-year intervals. Many of these funds are earmarked for areas not relevant to completing projects recommended in the VZAP, such as street or signal maintenance. Funds that could potentially support VZAP total $861.8 million. Additionally, $14 million is dedicated in the first five years for specific safety projects, funded by SS4A or Safe Routes To School dollars.

Grant Programs

Beyond the project-specific SS4A and Safe Routes to School funding, there are numerous safety-oriented grant programs managed by the NFRMPO, CDOT, or FHWA that can be utilized to execute the recommendations in the VZAP.

- Safe Streets for All (SS4A) – A Federal DOT multi-layered program providing grants for Safety Action Plan development (funded this action plan), Demonstration projects (Greeley received $8.9M in 2024 for quick-action, low-cost projects), and Implementation grants to design and construct projects from Safety Action Plans.

- Federal Highway Safety Improvement Program (HSIP) – CDOT selected projects that are consistent with the Colorado Strategic Highway Safety Plan.
- Safe Routes to School (SRTS) – Projects are selected by a statewide selection advisory committee.

In addition to pursuing grants focused on safety, we recommend that Greeley look for other transportation funding opportunities to bolster capital improvement initiatives, integrating safety elements from the VZAP where possible.

- Infrastructure for Rebuilding American (INFRA): This is a sub-category in the Multimodal Project Discretionary Grant Opportunity (MPDG) program. Greeley is familiar with this program having obtained $137M in INFRA grants for the US 34/35th St and US 34/47th St interchanges that are integral components of the MERGE project.
- USDOT Rebuilding American Infrastructure with Sustainability and Equity (RAISE): The city has submitted a RAISE grant application for the MERGE project and should consider this option for other major infrastructure projects.
- NFR Surface Transportation Block Grant (STBG): A competitive program with project selection by the NFR MPO, with assistance from the Technical Advisory Committee. The funds are flexible.

Three grant programs could assist Greeley in implementing the Bike/Pedestrian components of VZAP and establishing the desired low-stress network.

- CDOT/NFRMPO Transportation Alternatives Program (TAP)
- Great Outdoors Colorado (GOCO)

Table 1: Greeley on the Go Funding Sources and Eligibility for Funding Safety Projects

Greeley on the GO TMP in $1Ms				
Funding Source	**SS4A Plan Eligible?**	**Years 1 - 5**	**Years 6 -10**	**Years 10-20**
Keep Greeley Moving Tax	Yes	$ 70.6	$ 77.2	$ 287.9
Highway Users Trust Fund	Yes	$ 2.5	$ 5.1	$ 21.8
Impact Fees	Yes	$ 18.8	$ 20.5	$ 76.5
Auto Use Tax	Yes	$ 4.4	$ 4.8	$ 17.9
Sales Tax on Building Permits	Yes	$ 1.9	$ 2.1	$ 7.9
Fed Grants thru MPO	Yes	$ 10.0	$ 10.9	$ 40.8
IGAs with neighboring jurisdictions	Yes	$ 11.1	$ 20.3	$ 75.8
Future Grants	Yes	$ -	$ -	$ 73.0
Safe Streets for All Grant (UNC mobility improvements or 8th Ave and US-85 Business roundabout)	Project Specific	$ 5.0	$ -	$ -
INFRA Grant for 35th Ave/47th Ave	Project Specific	$ 117.5	$ -	$ -
Reconnecting Communities Pilot Grant (9th/10th Street Mobility Improvements)	Project Specific	$ 5.0	$ -	$ -
SRTS for 4th Street Ped Improvements	Project Specific	$ 4.0	$ -	$ -
SMART Grant for Signals	Project Specific	$ 10.0	$ -	$ -
MMOF Mob Hub Grant	Project Specific	$ 5.0	$ -	$ -
5307 Grant	No	$ 12.5	$ 13.7	$ 51.0
Fed Grants thru FTA	No	$ 12.5	$ 13.7	$ 51.0
Street Maintenanace from CDOT	No	$ 0.6	$ 0.7	$ 2.5
Signals from CDOT	No	$ 1.3	$ 1.4	$ 5.2

North Front Range MPO

Much like the state suballocating funds to the planning regions, the NFR attempts to have a funding balance amongst its 14 member agencies, of which Greeley is the second largest. Greeley's plan captured the funds that can be reasonably anticipated to flow from the NFR, however, its worth the time to understand the NFR's full funding and the potential to access additional funds. Similar to above, not all the funds are eligible to be used on VZAP projects. There is a total of $4,226.8M in State and NFR Controlled funds, of which $1,242.6M is flexible. We have identified $399.4M of these flexible, State and NFR Controlled funds, as being able to support the VZAP.

However, Greeley will need to compete with the other NFR agencies for those funds.

Table 2: North Front Range 2050 Plan Funding Sources and Eligibility for Funding Safety Projects

NFR 2050 Plan Funds in $1Ms				
State Controlled Funding Source	**SS4A Plan Eligible?**	**2024-2030**	**2031-2040**	**2041-2050**
Highway Safety Improvement Program	Y	$ 13.1	$ 5.9	$ 20.4
FASTER Safety	Y	$ 29.0	$ 52.4	$ 64.3
State Discretionary - B/P Grants	Y	$ 3.1	$ 5.9	$ 7.5
CDOT - TAP	Y	$ 5.4	$ 9.4	$ 10.4
Maintenance	N	$ 85.8	$ 132.8	$ 147.0
Surface Treatment	N	$ 71.8	$ 115.9	$ 123.5
Structures On-System	N	$ 14.3	$ 22.5	$ 24.7
Colorado Bridge Enterprise	N	$ 37.6	$ 61.2	$ 62.3
Asset Management - Strategic Projects	N	$ 337.7	$ 482.5	$ 482.5
Strategic Projects	N	$ 247.8	$ 346.1	$ 336.4
Regional Priority Program	N	$ 27.8	$ 31.3	$ 31.3
Strategic Transit and Multimodal Projects	N	$ 59.9	$ 96.5	$ 96.5
Bustang	N	$ 2.1	$ 3.3	$ 3.7
TIFIA Loans	N	$ 137.9	$ -	$ -
NFRMPO Controlled Funding Source	**SS4A Plan Eligible?**	**2024-2030**	**2031-2040**	**2041-2050**
Surface Treatment Block Grant	Y	$ 34.4	$ 53.4	$ 59.1
Transportation Alernatives	Y	$ 3.3	$ 5.1	$ 5.6
Multimodal Transportation and Mitigation Options Fund	Y	$ 7.7	$ 4.0	$ -
Carbon Reduction Program	N	$ 5.9	$ 9.2	$ 10.1
Congestion Mitigation and Air Quality	N	$ 38.4	$ 60.4	$ 66.7

4.0 VZAP Alignment with Other City & Regional Transportation Plans

The funding tables and information presented above depict the allocated transportation funding in Greeley and the NFRMPO. Although we pinpointed specific funding programs applicable to VZAP recommendations, numerous other opportunities exist for implementing safety enhancements. A fundamental principle of the Greeley TMP and VZAP is the consideration of safety improvements in every project. For example, executing a lane reconfiguration during a resurfacing initiative or assessing an RCUT instead of a planned signal replacement are excellent chances to implement the VZAP.

We reviewed the Greeley on the Go TMP, the 2024-28 Capital Improvement Program (CIP), the 2025 City Manager's Recommended Budget, and the latest NFR MPO Transportation Improvement Program (TIP) to identify projects where VZAP countermeasures could be integrated. Our analysis revealed 34 countermeasures applicable to 23 intersections and 11 corridors from the TMP. Among these 34 countermeasures, 10 are included in five projects listed in the CIP. Out of these, three projects are scheduled in the 2025 Recommended Budget. While examining these tables, it's important to note that VZAP priority tiers are determined by VZAP goals and criteria, which don't always match with the priorities of TMP and CIP.

Table 3: VZAP Intersection Countermeasures included in TMP (Continues on Following Page)

Vision Zero Action Plan				Greeley on the Go TMP			2024-28 CIP		2025 City Manger Recommended Budget			
VZAP Project ID	Location	Countermeasure	VZAP Priority Tier	TMP Priority Tier	TMP Plan $1,000	TMP Description	Total 5 year $1,000	CIP Description	2024 Actual $1,000	2025 $1,000	2025-29 $1,000	Description
42	20th St & 50th Ave	Multi-Lane Roundabout	5	2	$ 100	Multimodal Safety Improvement and Placemaking	$ 750	Turn lanes on 20th St.: 47th Ave to 59th Ave	$ 500	$ -	$ -	Turn lanes on 20th Street - 47th Ave to 59th Ave
57	O St & 59th Ave	Single-Lane Roundabout	5	3	$ 5,800	Intersection Improvement	$ 3,168	O St and 59th Ave Intersection Improvement	$ 10,281	$ -	$ -	O Steet 59th Avenue Intersection Improvement
18	20th St & 8th Ave	Single-Lane Roundabout	2	1	$ 50	Intersection Improvement	$ 65,500	8th Ave Improvements				
18	22nd St & 8th Ave	Single-Lane Roundabout	2	1	$ 50	Intersection Improvement						
16	H St & 8th Ave	Single-Lane Roundabout	1	2	$ 50	Intersection Improvement						
7	US Hwy 34 & 11th Ave	RSA and Improvements	1	1	$ 5,800	Multimodal Safety Improvement						
7	US Hwy 34 & 17th Ave	RSA and Improvements	1	1	$ 100	Multimodal Safety Improvement						
32	13th St & 9th Ave	Mini-Roundabout	3	1	$ 50	Intersection Improvement						
12	22nd St & US Hwy 85	RCUT	4	1	$ 100	Multimodal Safety Improvement						

Table 3 (Continued): VZAP Intersection Countermeasures included in TMP

Vision Zero Action Plan				Greeley on the Go TMP			2024-28 CIP		2025 City Manger Recommended Budget			
VZAP Project ID	Location	Countermeasure	VZAP Priority Tier	TMP Priority Tier	TMP Plan $1,000	TMP Description	Total 5 year $1,000	CIP Description	2024 Actual $1,000	2025 $1,000	2025-29 $1,000	Description
63	5th St & 23rd Ave	Single-Lane Roundabout	5	1	$ 50	Intersection Improvement						
50	US Hwy 34 & 35th Ave	MERGE Project Improvements		1	$ 35,000	Intersection Improvement						
9	US Hwy 34 & 83rd Ave	RCUT	2	2	$ 50	Interim Signal Improvements, Ultimate Interchange						
46	16th St & 23rd Ave	Multi-Lane Roundabout	3	2	$ 50	Improved Bike Crossing						
46	16th St & 35th Ave	RSA and Improvements	3	2	$ 100	Multimodal Safety Improvement						
5	US Hwy 34 Bus & Promontory Pkwy	RSA and Improvements	4	2	$ 50	Intersection Improvement						
61	4th St & 83rd Ave	Single-Lane Roundabout	5	2	$ 50	Intersection Improvement						
50	US Hwy 34 & 47th Ave	MERGE Project Improvements		2	$ 35,000	Intersection Improvement						
4	10th St & 83rd Ave	RCUT	1	3	$ 5,800	Intersection Improvement						

Table 4: VZAP Segment Countermeasures included in TMP (Continues on Following Page)

Vision Zero Action Plan						Greeley on the Go TMP			2024-28 CIP		2025 City Manager Recommended Budget			
VZAP Project ID	Corridor	Beginning	End	Countermeasure	VZAP Priority Tier	TMP Priority Tier	Plan $1,000	TMP Description	Total 5 Year $1,000	CIP Description	2024 Actual $1,000	2025 $1,000	2025-29 $1,000	Description
1	9th St 10th St	10th Ave	23rd Ave	Lane Reconfiguration	1	1	$ 4,300	Convert one-way streets to two way with safety, pedestrian, transit and bike improvements. Widen sidewalks.	$ 30,000	9th and 10th Mobility Enhancements	$ 2,000	$ 700	$ 10,265	9th and 10th Mobility Enhancements
34	16th St	1st Ave	11th Ave	Traffic Calming / VRU Improvements	1	1	$ 1,995	Road diet with streetscape enhancements and improved multimodal facilities 2nd Ave to 14th Ave multimodal facilities	$ 7,000	16th St Enhancement				
17	8th Ave	5th St	16th St	Lane Reconfiguration	1	1	$ 408	Streetscape and Safety Improvements 5th to 16th	$ 65,500	8th Ave Improvements				
16	8th Ave	O St	5th St	Lane Reconfiguration	1	1	$ 1,545	Entryway, corridor with bicycle and pedestrian safety Improvements						
18	8th Ave	16th St	22nd St	Lane Reconfiguration	2	1	$ 463	Streetscape and safety enhancements 16th to 25th						
2	10th St	23rd Ave	35th Ave	Lane Reconfiguration	1	1	$ 14,603	Streetscape enhancements to reduce speed and improve operational flow - 23rd to Promontory Parkway						
4	10th St	59th Ave	71th Ave	Median & Access Management	1	1								
4	10th St	71st Ave	83rd Ave	Median & Access Management	1	1								
3	10th St	35th Ave	47th Ave	Lane Reconfiguration	2	1								
3	10th St	47th Ave	59th Ave	Median & Access Management	2	1								
5	10th St	83rd Ave	Hwy 257 R	Median & Access Management	4	1								

Table 4 (Continued): VZAP Segment Countermeasures included in TMP (Continues on Following Page)

Vision Zero Action Plan						Greeley on the Go TMP			2024-28 CIP		2025 City Manager Recommended Budget			
VZAP Project ID	Corridor	Beginning	End	Countermeasure	VZAP Priority Tier	TMP Priority Tier	Plan $1,000	TMP Description	Total 5 Year $1,000	CIP Description	2024 Actual $1,000	2025 $1,000	2025-29 $1,000	Description
27	W 4th St	23rd Ave	30th Ave	Traffic Calming / VRU Improvements	1	1	$ 7,714	School safety improvements: traffic calming, road narrowing, streetscape enhancements from 23rd Ave to Dundee St						
27	4th St	30th Ave	35th Ave	Lane Reconfiguration	1	1								
52	W 4th St	35th Ave	47th Ave	Lane Reconfiguration	2	1								
52	W 4th St	47th Ave	59th Ave	Lane Reconfiguration	2	1								
53	W 4th St	59th Ave	77th Ave	Lane Reconfiguration	2	1								
21	10th Ave	12th St	16th St	Traffic Calming / VRU Improvements	2	1	$ 3,325	Improved multimodal facilities 3rd St to 26th St						
20	11th St	9th Ave	6th Ave	Lane Reconfiguration	2	1	$ 77	Steetscape and Sidewalk improvements 7th ave to 9th ave						
24	14th Ave	9th St	16th St	Traffic Calming / VRU Improvements	2	1	$ 1,360	Road diet, new bike facilities, improved crossings						
23	14th Ave	A St	5th St	Lane Reconfiguration	4	1								
23	14th Ave	5th St	9th St	Lane Reconfiguration	4	1								
36	25th St	11th Ave	17th Ave	Lane Reconfiguration	2	1	$ 4,680	Bikelane						

Table 4 (Continued): VZAP Segment Countermeasures included in TMP

Vision Zero Action Plan						Greeley on the Go TMP			2024-28 CIP		2025 City Manager Recommended Budget			
VZAP Project ID	Corridor	Beginning	End	Countermeasure	VZAP Priority Tier	TMP Priority Tier	Plan $1,000	TMP Description	Total 5 Year $1,000	CIP Description	2024 Actual $1,000	2025 $1,000	2025-29 $1,000	Description
Note - Segments below do not have corrisponding GOG or CIP projects. The ultimate configuration should be considered while developing the COG identified intersection improvements.														
15	11th Ave	20th St	Us Hwy 34	Lane Reconfiguration	1	1	$ 50	11th Ave & reservoir Rd Intersection Improvement Intersection						
38	17th Ave	Reservoir Rd	14th Ave	Lane Reconfiguration	1	2	$ 50	17th Ave & Reservioir Rd UNC Intersection Improvement						
24	14th Ave	16th St	20th Ave	Traffic Calming / VRU Improvements	2	2	$ 50	14th Ave & Reservoir Rd Intersection Improvement						
61	83rd Ave (County Rd 27)	Cache LaPo	CR 64.5	RSA and Improvements	5	3	$ 50	83rd Ave & Poudre River Rd Intersection Improvement						
57	N 59th Ave	N. of O St	W 4 St	RSA and Improvements	5	3	$ 50	59th Ave & F St Intersection Improvement						

The NFRMPO TIP outlines funding from local (Greeley), state (CDOT), and federal (NFR federally administered) sources. Greeley has been adept at securing NFR and CDOT-administered funds, which can contribute to VZAP enhancements like the HSIP pool dollars allocated for four intersections. The TIP also highlights CDOT-managed projects where Greeley can collaborate to incorporate VZAP countermeasures, such as the US 85 Business Resurfacing project.

Table 5: North Front Range MPO TIP Projects Overlap with VZAP Projects

NFRMPO TIP 2024-M9.2 in $1,000s						Vision Zero Action Plan	
Fund Program and Project Names	**FY 25 Rolled**	**FY 25**	**FY 26**	**FY27**	**FY25-27**	**VZAP Project #**	**Countermeasure**
Surface Treatment (pool)							
SR45218.232 CDOT R4 US 85 5th to O St. Business Surface					$ 5,600	16	Lane Reconfiguration
(CMAQ)							
9th & 10th St Mobility Improvements	$ -	$ -	$ 11,436	$ 9,564	$ 21,000	1	Lane Reconfiguration
(STBG)							
59th Avenue and O Street Roundabout	$ 6,913	$ -	$ -	$ -	$ 6,913	57	Single Lane Roundabout
83rd Avenue Roadway Improvements	$ 5,122	$ -	$ -	$ -	$ 5,122	61	RSA and Improvements
HSIP (pool)							
SR46666.086 Greeley $126,000 US 34 & WCR 17 Traffic Signal Upgrades					$ 126	10	RCUT
SR46666.087 Greeley $53,000 US 85 Business & 8th Ave					$ 53	18	Single-Lane Roundabout
SR46666.092 Greeley $464,000 Hwy 34 Business Intersection Improvements					$ 464		
SR46666.108 Greeley $831,000 11th Ave & 26th St Ped Safety Imp.					$ 831	15	RSA and Improvements
MMOF							
NFR Revitalizing Main Streets (Pool)							
SR46000.002 Greeley $2,500,000 16th Street Corridor Improvements	$ 4,304	$ 2,549	$ -	$ -	$ 6,853	33	Lane Reconfiguration
Local							
US34 and 35th Ave Interchange	$ -	$ 4,800	$ 21,540	$ 10,740	$ 37,080		Planned
US34 and 47th Ave Interchange	$ -	$ 4,300	$ 19,240	$ 9,540	$ 33,080		Planned

5.0 Phasing Recommendations

Implementing the recommended countermeasures of VZAP or any transportation plan isn't just a matter of following a set list of prioritized projects. As illustrated by the funded 59th/O St Roundabout, VZAP (Priority Tier 5) and TMP (Priority Tier 2) priorities don't always match available funding or project timelines. The VZAP countermeasures are deliberately categorized into tiers to guide Greeley in addressing high crash locations and achieving optimal safety benefits.

Short-Term, Quick-Build Recommendations (Phase 1)

Greeley has secured one of the largest 2024 SS4A demonstration grants in the country, enhancing its reputation as a pioneer in quick-build and demonstration projects aimed at improving road safety for everyone. Considering the time constraints and budget limitations in implementing the action plan's recommended countermeasures, priority tier 1 and 2 locations were assessed for their potential to support quick-build interim safety enhancements. These potential improvements include raised pedestrian crossings and speed tables, modifications to intersection turns (such as reducing turn radii), traffic calming and lane reconfigurations using paint and posts, high-visibility signal heads, and lane narrowing through striping. By focusing on pre-identified locations, the city can evaluate their effectiveness during annual reviews.

Recommendations have been crafted for each location, with an emphasis on maintaining uniformity along a roadway or within a specific area. In the analysis of individual locations or segments, some recommendations may overlap. For example, implementing a Paint and Post project across a segment could reduce or eliminate the necessity for Paint and Post Intersection Bulbouts. Nevertheless, it was deemed beneficial to retain multiple options.

The following table summarizes all the short-term and quick-build project along with a short description of suggested countermeasures.

Table 5: Short-Term & Quick-Build Recommendations (Continues on Following Page)

Vision Zero Action Plan						Quick-Build Recommendations		
Improv _ID	Int/Seg	Location	Begin	End	Countermeasure	Quick-Build Countermeasure(s)	Quick-Build Cost Estimate	On a State Route
16-1	Segment	8th Ave	O St	5th St	Lane Reconfiguration	Coordinate with CDOT to implement safety countermeasures as part of their planned resurfacing	NA	Yes
39-1	Segment	1st Ave	18th St	31st St	Lane Reconfiguration	Paint & Post of 4-lane to 3-lane cross section w delineator-protected bike lane	$865,000	
14-1	Segment	N 11th Ave	D St	16th St	Lane Reconfiguration	Paint & Post of 4-lane to 3-lane cross section w delineator-separated bike lanes	$840,000	
46-2	Segment	W 16th St	35th Ave	48th Ave	Lane Reconfiguration	Paint & Post of 4-lane to 3-lane cross section w protected bike lanes	$655,000	
32-1	Segment	W 13th St	23rd Ave	35th Ave	Traffic Calming / VRU Improvements	Paint & Post to Create Far Right Protected Bike Lane; Paint-and-post bulb-outs and median refuge crossings with high-viz crosswalks	$596,800	
51-1	Segment	W 25th St	35th Ave	47th Ave	Lane Reconfiguration	Paint & Post of 4-lane to 3-lane cross section w delineator-separated bike lanes	$565,000	
13-2	Segment	N 17th Ave / H St	O St	N 8th Ave	Lane Reconfiguration	Paint & Post of 5-lane to 3-lane cross section w delineator-separated bike lanes	$555,000	
46-1	Segment	W 16th St	23rd Ave	35th Ave	Lane Reconfiguration	Paint & Post of 4-lane to 3-lane cross section w delineator-protected bike lanes; Traffic signal improvements (left turn phasing and bike signal) at 28th Ave	$515,000	
13-1	Segment	N 11th Ave	O St	D St	Lane Reconfiguration	Paint & Post of 4-lane to 3-lane cross section w delineator-separated bike lanes	$480,000	
32-2	Segment	W 13th St	14th Ave	23rd Ave	Traffic Calming / VRU Improvements	Paint & Post to Create Far Right Protected Bike Lane; Paint-and-post bulb-outs and median refuge crossings with high-viz crosswalks	$424,600	
21-1	Segment	15th St	8th Ave	16th Avenue Ct	Traffic Calming / VRU Improvements	Paint & Post to Create Far Right Protected Bike Lane or speed tables	$410,000	
18-3	Segment	8th Ave	16th St	22nd St	Lane Reconfiguration	Paint & Post of 5-lane to 3-lane cross section w delineator-separated bike lanes (striped buffered north of 17th)	$395,000	Yes
34-1	Segment	16th St	1st Ave	11th Ave	Traffic Calming / VRU Improvements	Paint & Post to Create Far Right Protected Bike Lane; Paint-and-post bulb-outs and stop sign visibility enhancements at 7th Ave and 6th Ave	$384,000	
27-1	Segment	5th St	14th Ave	23rd Ave	Traffic Calming / VRU Improvements	Paint & Post to Create Protected Bike Lanes	$380,000	

Table5 (Continued): Short-Term & Quick-Build Recommendations (Continues on Following Page)

Vision Zero Action Plan						Quick-Build Recommendations		
Improv _ID	Int/Seg	Location	Begin	End	Countermeasure	Quick-Build Countermeasure(s)	Quick-Build Cost Estimate	On a State Route
24-1	Segment	14th Ave	9th St	16th St	Traffic Calming / VRU Improvements	Paint & Post to Create Far Right Protected Bike Lane	$350,000	
32-4	Segment	W 13th St	US Hwy 85	8th Ave	Traffic Calming / VRU Improvements	Paint & Post to Create Far Right Protected Bike Lane; Paint-and-post bulb-outs and median refuge crossings with high-viz crosswalks	$344,600	
38-1	Segment	20th St	4th Ave	11th Ave	Traffic Calming / VRU Improvements	Restripe to 10-11 foot lanes, replace sharrows with buffered bike lanes; stripe eastbound bike lane 11th Ave to 10th Ave; paint and post bulb outs and stop sign visibility improvements at 6th Ave, 7th Ave, and 9th Ave	$343,500	
32-3	Segment	W 13th St	8th Ave	14th Ave	Traffic Calming / VRU Improvements	Paint & Post to Create Far Right Protected Bike Lane; Paint-and-post bulb-outs and median refuge crossings with high-viz crosswalks	$334,600	
38-2	Segment	20th St	11th Ave	17th Ave	Traffic Calming / VRU Improvements	Restripe to 10-11 foot lanes, convert to delineator-protected bike lanes and continue the eastbound bike lane through to 11th Ave	$290,000	
24-2	Segment	14th Ave	16th St	20th Ave	Traffic Calming / VRU Improvements	Paint & Post to Create Far Right Protected Bike Lane	$250,000	
29-2	Segment	35th Ave	4th St	10th St	Lane Reconfiguration	Paint & Post of 4-lane to 3-lane cross section w bike lane	$250,000	
36-1	Segment	25th St	11th Ave	17th Ave	Lane Reconfiguration	Paint & Post of 4-lane to 3-lane cross section w delineator-protected bike lanes	$250,000	
23-1	Segment	14th Ave	A St	5th St	Lane Reconfiguration	Paint & Post of 4-lane to 3-lane cross section w delineator-protected bike lanes	$225,000	
35-5	Segment	W 22nd St	28th Ave	35th Ave	Traffic Calming / VRU Improvements	Paint and Post Lane Reconfiguration	$205,000	
23-2	Segment	14th Ave	5th St	9th St	Lane Reconfiguration	Paint & Post of 4-lane to 3-lane cross section w delineator-protected bike lanes	$130,000	
23-4	Segment	A St	11th Ave	14th Ave	Lane Reconfiguration	Paint & Post of 4-lane to 3-lane cross section w delineator-protected bike lanes	$130,000	
20-2	Segment	11th St	9th Ave	6th Ave	Lane Reconfiguration	Stripe buffered bike lanes and convert parking to back-in angle parking; Paint & Post of Intersection Bulb Outs at all three intersections	$115,000	

Table5 (Continued): Short-Term & Quick-Build Recommendations (Continues on Following Page)

Vision Zero Action Plan						Quick-Build Recommendations		
Improv _ID	Int/Seg	Location	Begin	End	Countermeasure	Quick-Build Countermeasure(s)	Quick-Build Cost Estimate	On a State Route
38-3	Segment	17th Ave	Reservoir R	21st St/Alles Drive	Lane Reconfiguration	Paint & Post of 4-lane to 3-lane cross section w bike lanes; paint and post removal of slip lanes at 17th Ave & Reservoir Rd	$114,000	
20-6	Segment	11th St	9th Ave	11th Ave	Traffic Calming / VRU Improvements	Restripe to narrow travel lanes and buffer bike lanes; Paint & Post of Intersection Bulb Outs at 9th Ave and 11th Ave	$103,000	
37-1	Segment	10th Ave	16th St	25th St	Traffic Calming / VRU Improvements	Lane narrowing by striping buffer for bike lane; Paint & Post of intersection bulb outs and in-road pedestrian crossing signs at crossings along UNC campus	$92,745	
34-9	Segment	22nd St	US Hwy 85	9th Ave	Traffic Calming / VRU Improvements	Restripe to create wider buffered or protected bike lanes; At 22nd & 8th Ave, remove right turn lanes and add leading pedestrian intervals, green conflict zone markings, and bike signal at 22nd & 8th Ave (protected from turning	$73,200	
33-3	Intersection	16th St & 13th Ave			Traffic Calming / VRU Improvements	Lane narrowing on intersection approach to make room for paint-and-post median refuge island crossings with RRFBs	$56,000	
21-4	Segment	11th St	11th Ave	19th Ave	Traffic Calming / VRU Improvements	Add striping to narrow travel lanes and buffer bike lanes; stripe bike lane from 13th to 14th; Paint and post bulb-outs at intersections	$50,000	
17-8	Intersection	12th St & 8th Ave			Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs; RRFBs and High - visibility Crosswalk markings	$46,800	Yes
17-7	Intersection	11th St & 8th Ave			Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs; RRFBs and High - visibility Crosswalk markings	$46,800	Yes
21-2	Segment	9th Ave	12th St	16th St	Traffic Calming / VRU Improvements	narrow lanes by adding buffer to bike lanes; intersection bulb outs	$36,000	
21-3	Segment	10th Ave	12th St	16th St	Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs, and high-viz crosswalks - also a good candidate for moving bike lane to far right instead of on 9th	$29,600	
26-1	Segment	5th St	8th Ave	14th Ave	Traffic Calming / VRU Improvements	-Paint-and-post of intersection bulb outs; Paint-and-post median/access control at 10th Ave with high visibility crosswalks	$28,400	
21-6	Segment	8th St	10th Ave	16th Ave	Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs, speed tables	$28,000	

Table5 (Continued): Short-Term & Quick-Build Recommendations (Continues on Following Page)

Vision Zero Action Plan						Quick-Build Recommendations		
Improv _ID	Int/Seg	Location	Begin	End	Countermeasure	Quick-Build Countermeasure(s)	Quick-Build Cost Estimate	On a State Route
32-8	Intersection	13th St & 13th Ave			Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs Paint-and-post median refuge island; Install Rectangular Rapid Flashing Beacons; Stop sign visibility enhancements	$27,500	
26-2	Intersection	5th St & 9th Ave			Traffic Calming / VRU Improvements	Paint-and-post median/access control with high visibility crosswalks and RRFBs	$26,400	
18-4	Intersection	17th St & 8th Ave			Systemic Traffic Signal Improvements	Retroreflective backplates Paint & Post to remove turn lane	$26,000	Yes
39-3	Intersection	22nd St & 1st Ave			Single-Lane Roundabout	Traffic signal improvements (left-turn signal)	$25,000	
3-7	Intersection	10th St & 47th Ave			RSA and Improvements	Retroreflective backplates, Remove free right and acceleration lane	$24,000	Yes
27-4	Intersection	4th St & Greeley #3 Canal Trl			Traffic Calming / VRU Improvements	Rectangular rapid-flashing beacons; Paint-and-post bulb outs	$22,000	
20-1	Segment	12th St	6th Ave	11th Ave	Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs at all five intersections	$20,000	
1-4	Intersection	9th St & 14th Ave			Traffic Calming / VRU Improvements	Paint & Post to remove turn lane and add intersection bulb-outs	$18,000	Yes
1-8	Intersection	10th St & 11th Ave			Traffic Calming / VRU Improvements	Paint & Post to remove turn lane and add intersection bulb-outs	$18,000	Yes
1-3	Intersection	9th St & 11th Ave			Traffic Calming / VRU Improvements	Paint & Post to remove turn lane and add intersection bulb-outs	$18,000	Yes
20-4	Segment	10th Ave	5th St	12th St	Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs, remove turn lane at 8th St	$18,000	
32-7	Intersection	13th St & 10th Ave			Mini-Roundabout	Paint & Post of Intersection Bulb Outs Retroflective backplates	$16,000	
35-1	Segment	28th Ave	W 20th St	W Reservoir	Traffic Calming / VRU Improvements	Bulbouts at select intersections near Meeker Elementary and the Montessori Academy	$16,000	
21-5	Segment	12th St	11th Ave	14th Ave	Traffic Calming / VRU Improvements	Paint & Post Intersection Bulbouts, speed humps or tables (hard plastic)	$16,000	
18-5	Intersection	18th St & 8th Ave			Traffic Calming / VRU Improvements	Retroreflective backplates High Visibility Crosswalks	$15,400	Yes

Table5 (Continued): Short-Term & Quick-Build Recommendations (Continues on Following Page)

Vision Zero Action Plan						Quick-Build Recommendations		
Improv _ID	Int/Seg	Location	Begin	End	Countermeasure	Quick-Build Countermeasure(s)	Quick-Build Cost Estimate	On a State Route
33-2	Intersection	16th St & 14th Ave			Mini-Roundabout	Retroreflective backplates; leading pedestrian intervals	$13,200	
15-3	Intersection	16th St & 11th Ave			Traffic Calming / VRU Improvements	Retroreflective backplates	$12,000	
4-3	Intersection	10th St & 59th Ave			RSA and Improvements	Remove free right and acceleration lane	$12,000	Yes
17-6	Intersection	10th St & 8th Ave			Systemic Traffic Signal Improvements	Retroreflective backplates	$12,000	Yes
4-5	Intersection	10th St & 71st Ave			RSA and Improvements	Remove free right and acceleration lane	$12,000	Yes
11-2	Intersection	8th St & US Hwy 85			Multi-Lane Roundabout	Retroreflective backplates	$12,000	Yes
17-5	Intersection	9th St & 8th Ave			Systemic Traffic Signal Improvements	Retroreflective backplates	$12,000	Yes
17-3	Intersection	7th St & 8th Ave			Systemic Traffic Signal Improvements	Retroreflective backplates	$12,000	Yes
24-5	Intersection	15th St & 14th Ave			Mini-Roundabout	Retroreflective backplates	$12,000	
34-3	Segment	7th Ave	15th St	20th St	Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs Raised Ped-Crossings (Hard Plastic)	$12,000	
24-4	Intersection	13th St & 14th Ave			Mini-Roundabout	Retroreflective backplates	$12,000	
11-3	Intersection	13th St & US Hwy 85			Multi-Lane Roundabout	Retroreflective backplates	$12,000	Yes
3-4	Intersection	10th St & 39th Ave			RSA and Improvements	Retroreflective backplates	$12,000	Yes
14-5	Intersection	13th St & 11th Ave			Mini-Roundabout	Retroreflective backplates	$12,000	
3-8	Intersection	10th St & 54th Ave			RSA and Improvements	Retroreflective backplates	$12,000	Yes
3-3	Intersection	10th St & 37th Ave Ct			RSA and Improvements	Retroreflective backplates	$12,000	Yes

Table5 (Continued): Short-Term & Quick-Build Recommendations (Continues on Following Page)

Vision Zero Action Plan						Quick-Build Recommendations		
Improv _ID	Int/Seg	Location	Begin	End	Countermeasure	Quick-Build Countermeasure(s)	Quick-Build Cost Estimate	On a State Route
14-2	Intersection	5th St & 11th Ave			Single-Lane Roundabout	Retroreflective backplates	$12,000	
11-4	Intersection	16th St & US Hwy 85			Multi-Lane Roundabout	Retroreflective backplates	$12,000	Yes
3-5	Intersection	10th St & 43rd Ave			Multi-Lane Roundabout	Retroreflective backplates	$12,000	Yes
17-4	Intersection	8th St & 8th Ave			Systemic Traffic Signal Improvements	Retroreflective backplates	$12,000	Yes
18-6	Intersection	20th St & 8th Ave			Single-Lane Roundabout	Retroreflective backplates	$12,000	Yes
3-6	Intersection	10th St & Walmart Driveway			RSA and Improvements	Retroreflective backplates	$12,000	Yes
1-9	Intersection	10th St & 14th Ave			Single-Lane Roundabout	Paint & Post to remove turn lane and add intersection bulb-outs	$11,000	Yes
34-6	Intersection	18th St & 7th Ave			Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs Paint & Post median / access control with high visibility pedestrian refuge crossings and bicycle cut-through access through the median; Stop sign visibility enhancements	$9,500	Yes
44-1	Segment	2nd St	14th Ave	23rd Ave	Traffic Calming / VRU Improvements	Chicane	$9,000	
34-5	Intersection	16th St & 7th Ave			Traffic Calming / VRU Improvements	Paint & Post median / access control with high visibility pedestrian refuge crossings and bicycle cut-through access through the median; Stop sign visibility enhancements	$8,900	
4-1	Segment	10th St	59th Ave	71th Ave	Median & Access Management	High-visibility stop signs	$8,000	Yes
37-3	Segment	19th St	10th Ave	14th Ave	Traffic Calming / VRU Improvements	Speed Tables	$8,000	
34-8	Segment	17th St	6th Ave	9th Ave	Traffic Calming / VRU Improvements	Raised Ped-Crossings (Hard Plastic)	$8,000	

Table5 (Continued): Short-Term & Quick-Build Recommendations

Vision Zero Action Plan						Quick-Build Recommendations		
Improv _ID	Int/Seg	Location	Begin	End	Countermeasure	Quick-Build Countermeasure(s)	Quick-Build Cost Estimate	On a State Route
55-1	Segment	59th Ave	W 20th St	21st St	Traffic Calming / VRU Improvements	remove SB accelleration lane - stripe in a bike lane	$7,000	
30-2	Intersection	13th St & 35th Ave			Traffic Calming / VRU Improvements	Paint & Post median refuge and left-turn hardening on south leg of intersection	$7,000	
35-2	Segment	W Reservoir Rd	28th Ave	W 27th St	Traffic Calming / VRU Improvements	Restripe to 10-11 foot lanes, add posts	$5,000	
65-2	Intersection	County Rd 66 & 59th Ave			Single-Lane Roundabout	Stop sign visibility enhancements; clear sight obstructions on northeast corner and/or consider conversion to all-way stop	$4,500	Yes
34-4	Intersection	16th St & 6th Ave			Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs Stop sign visibility enhancements	$4,500	
32-9	Intersection	13th St & 18th Ave			Mini-Roundabout	Paint & Post of Intersection Bulb Outs Stop sign visibility enhancements	$4,500	
14-3	Intersection	8th St & 11th Ave			Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs	$4,000	
1-5	Intersection	9th St & 18th Ave			Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs	$4,000	Yes
49-6	Intersection	30th St & 17th Ave			Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs	$4,000	
13-4	Intersection	D St & 11th Ave			Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb-Outs; Paint stop lines	$4,000	
36-4	Segment	26th St	11th Ave	9th Ave	Lane Reconfiguration	Paint & Post of Intersection Bulb Outs	$4,000	
17-10	Intersection	14th St & 8th Ave			Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs	$4,000	Yes
1-6	Intersection	9th St & 21st Ave			Traffic Calming / VRU Improvements	Paint & Post of Intersection Bulb Outs	$4,000	Yes
32-6	Intersection	13th St & 9th Ave			Mini-Roundabout	Paint & Post of Intersection Bulb Outs	$4,000	
41-3	Intersection	13th St & 23rd Ave			Single-Lane Roundabout	Paint & Post of Intersection Bulb Outs	$4,000	
4-4	Intersection	10th St & 69th Ave			RSA and Improvements	High-visibility stop signs	$2,000	Yes

Mid-Term Projects (Phase 2)

Mid-term projects have a target completion period of ten years, compared to short-term projects which are expected to be done within two years. The initial mid-term project phases, including design, Road Safety Audits, or right-of-way acquisition, are anticipated to begin concurrently with the quick-hit projects. To avoid increased expenses, the city must select both short-term and mid-term projects at the same time.

As illustrated in the review of the TMP, CIP, and annual budget and the 59th/O St Roundabout, the SS4A recommended countermeasures will not be completed in the order of their ranking. Factors such as the timing of other projects, funding limitations, political influence, and public opinion impact project selection and budgeting. For mid-term implementation, it is recommended to begin with the Priority Tier 1 countermeasures due to their high benefit-to-cost ratios. Additionally, consider advancing other tier countermeasures where location and project synergies exist.

All potential funding should be considered, including SS4A Implementation grants, to develop projects and establish programs that enhance the city's safety culture. The city should keep working with CDOT and other partners to incorporate safety measures in CDOT's surface treatment, structure, and mobility programs/projects. Greeley must continue to push for safety and pedestrian/bicyclist funds and projects within HSIP, Safe Routes to School, TAP, and Faster Safety programs.

Long-Term Projects (Phase 3)

As Greeley aims for Zero deaths by integrating safety into all transportation aspects, the countermeasures in Priority Tiers 1-5 guide project leaders on what components to include. This evolving Vision Zero Action Plan will be updated to address changes in crash frequency, locations, and shifts in population and travel patterns. The effectiveness of constructed countermeasures can be evaluated and prioritized continuously, advancing Vision Zero's long-term objectives.