Sonoma County
Vision Zero Action Plan

March 2022

SONOMA COUNTY
VISION ZERO
End Traffic Deaths by **2030**

DEDICATION

This Action Plan is dedicated to the many people who have lost their lives or sustained life-altering injuries in Sonoma County. Many thanks to those working together to create safer roadways and prevent future tragedies.

MESSAGE FROM THE SONOMA COUNTY VISION ZERO ADVISORY COMMITTEE

Whether venturing out to the coast, biking to work, or going for a neighborhood stroll, every resident and visitor deserves to be safe moving around our County. Sonoma County has seen more fatal and serious injury crashes per capita than other counties in the Bay Area. Even one death on our streets is one too many, but between 2016 and 2020, there were 176 traffic fatalities and 924 crashes that resulted in severe injury.[1]

Traffic crashes are not distributed equally along Sonoma County's 2,670 miles of roadway, or among road users. Rural areas and Equity Priority Communities are disproportionately burdened by deadly crashes. Throughout the County, 4% of commuters walk or bike, but pedestrians and bicyclists make up nearly 19% of deaths.[2] We can and must do more to ensure that streets are safe for everyone, no matter where they live or how they get around.

In October 2019, Sonoma County Transportation Authority launched a Vision Zero planning process in partnership with the Department of Health Services. This planning process was funded by a Caltrans Sustainable Communities Planning Grant. The Vision Zero Advisory Committee is comprised of members from all ten jurisdictions within the County, as well as non-profit organizations, community members, and public health and safety agencies. We are committed to achieving zero traffic deaths and severe injuries on county roadways by 2030.

We know that we cannot achieve this goal alone. While all jurisdictions are committed to contributing to a unified Vision Zero Action Plan, we also rely on the State and Federal legislature for transportation funding and policy. Most importantly, we embark upon this effort in partnership with our community members, who will help us build a culture of street safety. Together, we can prevent deaths and severe injuries caused by traffic crashes.

CONDADO DE SONOMA
VISIÓN CERO
Ponga fin a las muertes por accidentes de tránsito para 2030

SONOMA COUNTY
VISION ZERO
End Traffic Deaths by 2030

1 Source: UC Berkeley Transportation Injury Mapping System (TIMS), provided by SWITRS and processed by SafeTrec.

2 Sources: U.S. Census, American Community Survey 2019 5-year estimates; UC Berkeley Transportation Injury Mapping System (TIMS), provided by SWITRS and processed by SafeTrec.

TABLE OF CONTENTS

ACRONYMS

- **CHP** – California Highway Patrol
- **DHS** – Sonoma County Department of Health Services
- **EPC** – Equity Priority Communities
- **FDs** – local fire departments
- **HII** – High Injury Intersections
- **HIN** – High Injury Network
- **KSI** – Killed or severely injured
- **MTC** – San Francisco Bay Area Metropolitan Transportation Commission
- **PDs** – local police departments
- **SCFD** – Sonoma County Fire Department
- **SCSO** – Sonoma County Sheriff's Office
- **SCTA** – Sonoma County Transportation Authority
- **TPWs** – Transportation and Public Works departments (Sonoma County and local jurisdictions)
- **VMT** – Vehicle Miles Traveled
- **VZAC** – Vision Zero Advisory Committee

KEY TERMS

- **Crash** (or collision) – Intersecting movements of roadway users that may result in injury or loss of life, trauma, and property damage.
- **Equity Priority Communities (EPCs)** – Census tracts that have likely been disadvantaged and faced historic underinvestment based on a concentration of low-income households, households with zero vehicles, people of color, people with disabilities, and people with limited English proficiency (see page 2 for more information).
- **High Injury Intersections** – Intersections with an elevated risk of crashes resulting in an injury or fatality, identified through an analysis of the frequency, severity, and mode of past crashes.
- **High Injury Network** – Road segments with an elevated risk of crashes resulting in an injury or fatality, identified through an analysis of the frequency, severity, and mode of past crashes.
- **Severe Injury** – A severe (or life-altering) injury involves broken or fractured bones; dislocated limbs; severe lacerations; skull, spinal, or abdominal injuries; unconsciousness; or severe burns.
- **Systemic Safety** – A systemic approach to safety involves widely implemented improvements based on high-risk roadway features correlated with specific severe crash types. The approach helps agencies broaden their traffic safety efforts at little extra cost (Federal Hwy. Administration).
- **Traffic Violence** – A term used to describe the epidemic of deaths and severe injuries resulting from vehicular crashes.
- **Transportation Equity** – A recognition that transportation-related externalities, such as traffic deaths and injuries, and environmental impacts caused by transportation systems, are disproportionately experienced by some community groups and transportation network users.
- **Vision Zero** – A road safety philosophy which states that no loss of life due to a traffic crash is acceptable.

00 EXECUTIVE SUMMARY

Every year, people in Sonoma County lose family, friends, neighbors, and colleagues to preventable traffic crashes on our roads. Sonoma County and its cities have made substantial investments to improve traffic safety, including the development of bicycle and pedestrian facilities. However, eliminating traffic deaths and severe injuries requires an unprecedented and coordinated effort to address the systemic issues that cause these collisions. The Sonoma County Vision Zero Action Plan outlines the practical, evidence-based steps we can take together to build a future where our roads are free of fatal and life-altering crashes. Vision Zero is a traffic safety philosophy that lays out a new set of principles for engineering roads, educating travelers, and creating a sense of collective responsibility for ourselves and our fellow travelers. Its central belief is simple: no one should be killed or severely injured by traffic crashes.

What We Know About Traffic Safety in Sonoma County

Crash data (generated through police reports) provides information about the people involved in crashes, where they occurred, and the factors that contributed to the crash.[3] Analysis of Sonoma County crash data from 2016 to 2020 shows that:

- The highest volumes of crashes occur in late summer and early fall, between Friday and Sunday, and in the afternoon and evenings. Crashes that occur at night are the most likely to result in deaths or severe injuries.
- Eight percent of all trips in the County are made on foot or on bicycle, but these modes account for 19% of traffic deaths.
- Impaired driving, unsafe turns, unsafe speed, or failure to follow right-of-way rules are the primary causes in 71% of traffic deaths and severe injuries.

Community Input gathered through listening sessions, surveys, interviews, focus groups, and a community workshop found that many community members described feeling unsafe while walking, bicycling, or using mobility devices.[4] Community members and other stakeholders emphasized the need for infrastructure to improve safety, including traffic calming and protected bike lanes.

Equity requires attention to socioeconomic disparities in how traffic violence and traffic enforcement affect different communities. People of color, people who lack housing, people with lower income, people without access to vehicles, rural residents, and other groups all experience increased barriers to transportation that contribute to elevated traffic safety risks. Sonoma County is committed to choosing actions that prioritize the needs of those groups and avoiding those that would result in additional burdens or dangers for Equity Priority Communities (EPCs).

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3 Sonoma County crash data is available to the public via the Vision Zero Data Dashboard, which draws on the UC Berkeley Transportation Injury Mapping System (TIMS), provided by SWITRS and processed by SafeTrec. See page 12 for more information.

4 Listening sessions were convened in 2019 as part of the Sonoma County Comprehensive Transportation Plan. The Vision Zero survey was conducted in Fall 2021 and the focus groups and workshop were held in early 2022.

What We Will do to Eliminate Traffic Deaths and Severe Injuries

The Sonoma County Transportation Authority (SCTA) and Sonoma County Department of Health Services (DHS) have convened the Vision Zero Advisory Committee (VZAC) and set a target goal of zero traffic deaths and severe injuries on roadways within the County by 2030. Many jurisdictions have completed or are developing Local Road Safety Plans (LRSPs), focused on addressing safety issues on their local roadways. Completing and updating LRSPs for all jurisdictions in the County is a great way to adapt the recommendations of this plan to the specific context of each community. Many other agencies and organizations also do work that aligns with Vision Zero, from Safe Routes to School (SRTS) programs to targeted traffic enforcement. This plan builds on these efforts and identifies the additional strategies and resources required to meet Sonoma County's Vision Zero goal. It represents a commitment to specific Vision Zero actions that are organized into six high-level goals:

1. Create Safe Speeds
2. Eliminate Impaired Driving
3. Create a Culture of Safety
4. Build Safe Streets for All
5. Make Vehicles Safer and Reduce Private Vehicle Use
6. Improve Data for Effective Decision Making

For each action, the plan includes key implementers, timelines, progress metrics, and implementation notes. Meeting Vision Zero goals will require a multi-faceted approach where public agencies, community organizations, and community members come together to increase the safety of our streets. It will involve integrating Vision Zero goals and strategies into future planning efforts, including general plans and active transportation plans. Finally, it will require an individual commitment to making safe choices whether driving, walking, bicycling throughout the County.

How We Will Track Our Progress

The Sonoma County Vision Zero Data Dashboard provides an interactive tool to explore safety data and trends. Local jurisdictions will also track their progress towards key actions using a standardized progress tracker. SCTA will aggregate data on the countywide level to provide a picture of countywide progress, which will be reported on the Vision Zero page.

01 WHY VISION ZERO?

Every year, people in Sonoma County lose family, friends, neighbors, and colleagues to preventable crashes on our roads. From 2016 to 2020, traffic crashes killed 176 people in Sonoma County and left 924 more with life-changing injuries.[5] These losses fall hardest on those who have reduced access to transportation, live in places with fewer transportation facilities, or who travel without using private vehicles. People who live in rural areas or in low-income households are disproportionately more likely to die in traffic crashes, as are people traveling on foot, by bike, or using mobility devices like walkers and wheelchairs.

People travel Sonoma County's 2,670 miles of roadway[6] for many reasons: to go to work or school, to visit businesses and cultural centers, to explore the coastline or mountains, and to see the people we love. We walk, bike, and roll; drive and carpool; and take the bus or the train. No matter how or where we travel, everyone who makes a trip in Sonoma County should arrive home safely at the end of their day.

The *Sonoma County Vision Zero Action Plan* outlines the practical, evidence-based steps we can take together to build a future where our roads are free of fatal and life-altering crashes. This plan contains:

- An introduction to Vision Zero and its core principles
- Analysis of where, when, and why severe and fatal crashes happen today, and which communities are most impacted
- How transportation safety relates to the County's efforts to achieve racial equity and social justice
- A new Vision Zero framework for Sonoma County, including goals, actions, and a process for measuring our progress
- Appendices with additional information on transportation context and existing road safety related plans and efforts

The Sonoma County Safe Routes to School program includes "Bike Rodeos" that help to train the next generation of safe and responsible road users.

5 Source: UC Berkeley Transportation Injury Mapping System (TIMS), provided by SWITRS and processed by SafeTrec.

6 Source: Sonoma County Transportation Authority, Moving Forward 2050: Sonoma County Comprehensive Transportation Plan, Table 3-1, 2021.

02 WHAT IS VISION ZERO?

The design and management of our roads and streets reflects our beliefs about safety, and about our rights and responsibilities as travelers. During the 20th century, we built our transportation systems based on the belief that *crashes are accidents* – events no one can fully prevent or predict. Vision Zero is a traffic safety philosophy that lays out a new set of principles for engineering roads, educating travelers, and creating a sense of collective responsibility for ourselves and our fellow travelers. Its central belief is simple: **no one should be killed or severely injured by traffic crashes**. Thirty years of safety research and practice have proven that, with the right commitments and actions, communities can come together to prevent fatal and life-altering crashes. Vision Zero unites us in a new belief – crashes are not inevitable or acceptable.

Sweden pioneered the Vision Zero approach in the 1990s, and the changes they made based on its principles reduced their national traffic fatalities by half, transforming the country into one of the world's safest places to travel. This success launched a Vision Zero movement that spread across Europe and then to other parts of the world. More than 50 cities and counties across the United States – including over a dozen in California – have adopted Vision Zero as the core of their approach to traffic safety.

Core Principles of Vision Zero:

- Saving Lives: Human life and health should be the highest priority within all aspects of transportation systems.
- Prevention: Traffic deaths and severe injuries are preventable.
- Safe Streets: Human error is inevitable, and transportation systems should be designed to anticipate error, so the consequence is not severe injury or death.
- Equity: All people have the right to travel safely through our community and we must work to eliminate disparities in transportation safety based on income, race, ability, age, language spoken, and vehicle access.

Sonoma County recognizes preventable traffic deaths and severe injuries as a major public health issue. That is why the Sonoma County Transportation Authority (SCTA) and the Department of Health Services (DHS) are working together to advance Vision Zero in the County. Just like any public health effort, Vision Zero focuses on rigorous data collection and analysis to identify and evaluate effective treatments. It also acknowledges and seeks to address the social determinants that lead to inequitable health outcomes. By collaborating between the fields of transportation and public health, Sonoma County's Vision Zero effort will leverage the data and resources necessary to address the root causes of traffic deaths and injuries.

Figure 1: Traditional Approach to Traffic Safety Compared to Vision Zero Approach

TRADITIONAL APPROACH	VISION ZERO
Traffic deaths are INEVITABLE	Traffic deaths are PREVENTABLE
GEOGRAPHIC EQUALITY in resource allocation	EQUITABLE investment to address disparities
PERFECT human behavior	Integrate HUMAN ERROR into approach
Prevent COLLISIONS	Focus on preventing FATAL AND SEVERE INJURY CRASHES
INDIVIDUAL responsibility, enforced through TRAFFIC STOPS	COLLECTIVE RESPONSIBILITY based on SAFE SYSTEMS approach

03 TRAFFIC SAFETY IN SONOMA COUNTY

Transportation Context

Efforts to improve traffic safety must begin with an understanding of the infrastructure and services that comprise the County's existing transportation system, and how people use it today. Travelers navigate a physical network of facilities (such as roads, bridges, and trails) to reach their destination, and the types of transportation services available to them (such as public transit, school buses, or employer shuttles) influence how they may choose to travel. The relative location of different land uses in the community (such as housing, jobs, shopping, or schools) influences the journey travelers must make. Time of day restrictions (such as work shift hours, school hours, or business hours) influence when they need to reach their destination. Safety problems can arise when the system and services fail to meet their needs, due to design issues, gaps, deficiencies, overcrowding, or other factors.

Sonoma County[7] contains a vibrant mix of developed communities, working lands, and natural resources. It houses nine incorporated cities and towns, with more than half of its approximately 500,000 residents centrally located along the Highway 101 corridor. More than 80 percent of the County's total land area is comprised of agricultural and open spaces. Its natural landscape includes the Sonoma and Mayacama Mountains to the east, the Russian River basin and the Santa Rosa Plain in the center, and the Coast Range and Pacific coastline to the west, with San Pablo Bay at the County's southern edge.

The road network in Sonoma County is comprised of 2,670 miles of public streets, roads, and highways.[8] County-owned roads in rural and unincorporated areas make up the majority of the roadway system, followed by city-owned roads and streets. State highways represent less than one-tenth of all public roadway miles within the County but carry over half of its daily vehicle miles traveled (VMT) due to their key role in providing intercity and regional connections. Multiple public transit agencies provide bus, rail, and paratransit services throughout the County. Significant shares of transit riders have lower incomes, lack access to vehicles, are students, or have disabilities, making transit an essential mobility option.

Table 1: Road Centerline Miles and Daily VMT by Jurisdiction

Jurisdiction	Public Road Centerline Miles	Daily Vehicle Miles Travelled (VMT)
Sonoma County	52%	23%
Santa Rosa	19%	13%
Petaluma	7%	4%
Other Cities	13%	8%
State Highways	9%	52%
State Parks	<0.1%	<0.1%
Federal Agencies	<0.1%	<0.1%
Total	2,670 total miles	12,547,230 total VMT

Source: California Department of Transportation, Highway Performance Monitoring Program, 2018 data via Sonoma County Comprehensive Transportation Plan). Note: miles and percentages are rounded.

7 In the context of this plan, "Sonoma County" refers to all of the land within the County whether it is within a local jurisdiction or unincorporated.

8 Source: Sonoma County Transportation Authority, Moving Forward 2050: Sonoma County Comprehensive Transportation Plan, Table 3-1, 2021.

Per state law, all of Sonoma County's jurisdictions have adopted "Complete Streets" policies, which require that they design transportation projects for the safety and convenience of people walking, bicycling, and taking transit as well as driving. They have made significant investments in improving bicycle and pedestrian facilities as part of the regular Capital Improvement Planning (CIP) process, often leveraging funding from the Safe Routes to School (SRTS) and Highway Safety Improvement Program (HSIP) programs. Some jurisdictions, including Santa Rosa, Healdsburg, Windsor, Cotati, Petaluma, Sebastopol, and Sonoma County, have developed bicycle and pedestrian plans to guide the implementation of projects that make roadways safer for people walking and bicycling. The Cities of Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol and the Town of Windsor have also developed or are developing LRSPs at this time.

These efforts have resulted in substantial progress toward creating infrastructure that prioritizes mobility and safety for all road users. However, existing walkway and bikeway networks still have many gaps and deficiencies that affect the directness, safety, and comfort of trips made on foot or by bike (including trips to reach transit stops and stations). Furthermore, many roadway designs still reflect a prioritization of the swift and efficient movement of vehicles over the safety of diverse users.

Appendix A provides additional detail on public transportation, pedestrian and bicycle infrastructure, and travel patterns in Sonoma County.

With over 4.4 million rides in 2019, public transit plays a critical role in Sonoma County's transportation system.

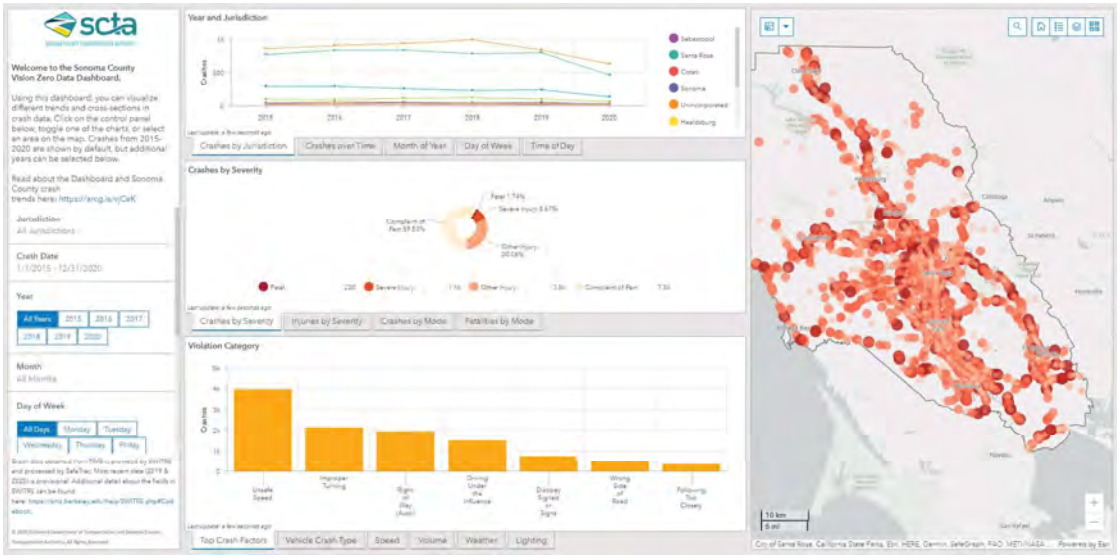
Crash Data

Vision Zero takes a data-driven approach to understanding the systemic factors behind traffic deaths and injuries. Analyzing crash data is one of the best ways to understand how and where people are severely injured or killed while traveling on Sonoma County streets. When a crash occurs and the police are called, a crash report is generated to capture the details of the crash. These details include the location, contributing factors, and demographic information such as the gender and age of those involved. Crash data for this Action Plan was accessed through the Vision Zero Data Dashboard, which draws on the Statewide Integrated Traffic Records System (SWITRS).

Crash data helps us understand the causes and outcomes of crashes and provides a foundation for the goals and actions that will reduce crashes and their consequences in the future, but the data also has its limitations. A NHTSA survey estimated that 30 percent of crashes across the United States go unreported.[9] Crash data is also ultimately collected by humans and information on the exact location or contributing factors is often determined by an officer's discretion at the scene of the crash. Because the analysis presented in this section only includes police-reported crashes, it may not reflect crashes involving someone who is uncomfortable reporting to or interacting with police. In addition, analysis only includes crashes where an injury was recorded at the time of reporting. As a result, analysis in the following sections does not offer insight into non-injury crashes occurring in Sonoma County, which is consistent with this plan's focus on Vision Zero goals.

Vision Zero Data Dashboard

The Sonoma County Transportation Authority developed the Vision Zero Data Dashboard in 2021 to show patterns in crash data from around the County and overlay them with other relevant data layers. The Data Dashboard makes it easy for anyone in Sonoma County to explore crash data in their community by year, severity, day of week, travel mode, and top crash factors, such as unsafe speed, following too closely, or improper passing. You can also filter crashes by contextual factors such as traffic volume, weather, and lighting. The Data Dashboard provides a straightforward tool to track Sonoma County's progress toward our Vision Zero goal and evaluate the effectiveness of various measures over time.



Screenshot from the Data Dashboard

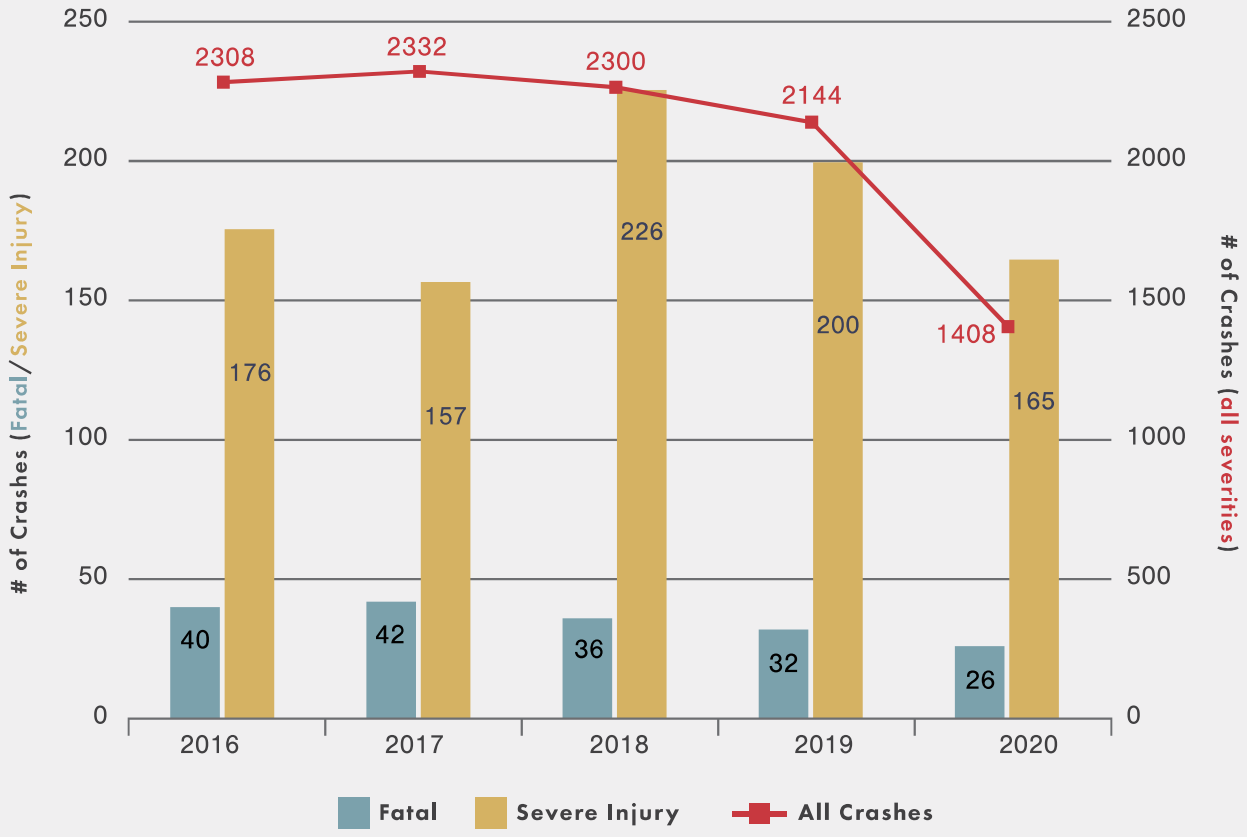
9 Source: National Highway Traffic Safety Administration (NHTSA), "National Telephone Survey of Reported and Unreported Motor Crashes", 2015.

Crashes Over Recent Years

This plan analyzed crashes occurring in Sonoma County between 2016 and 2020. During this time period, fatal and severe crashes in Sonoma County peaked in 2018 and have decreased over the last two years. Crashes as a whole also decreased in 2019 and 2020 across all jurisdictions, with the most pronounced trends in Santa Rosa, Petaluma, and unincorporated areas of the County. By comparison, fatal and severe injury crashes across the state increased substantially in 2018 and 2019 before declining somewhat in 2020.

It remains unclear how much of this recent drop in severe injury crashes resulted from changes to travel patterns around the 2020 COVID-19 pandemic, which generally correlated with an increase in traffic fatalities and injuries in other parts of the country. While crashes as a whole decreased in the last two years, pedestrian and bicycle crashes have remained relatively steady. Furthermore, fluctuations should be contextualized in terms of longer-term trends. The numbers of fatal and severe injury crashes in Sonoma County, the Bay Area, and California as a whole, have all trended upward over the last decade. Even accounting for the decrease in 2020, California saw a 42% increase in fatal and severe injury crashes between 2011 and 2020, representing nearly 5,000 additional fatal and severe injury crashes. Early national estimates from 2021 show that traffic fatalities in the first half of the year rose 25% over the first half of 2020 in the California region.[10]

Figure 2: Sonoma County Crashes Over Time by Severity



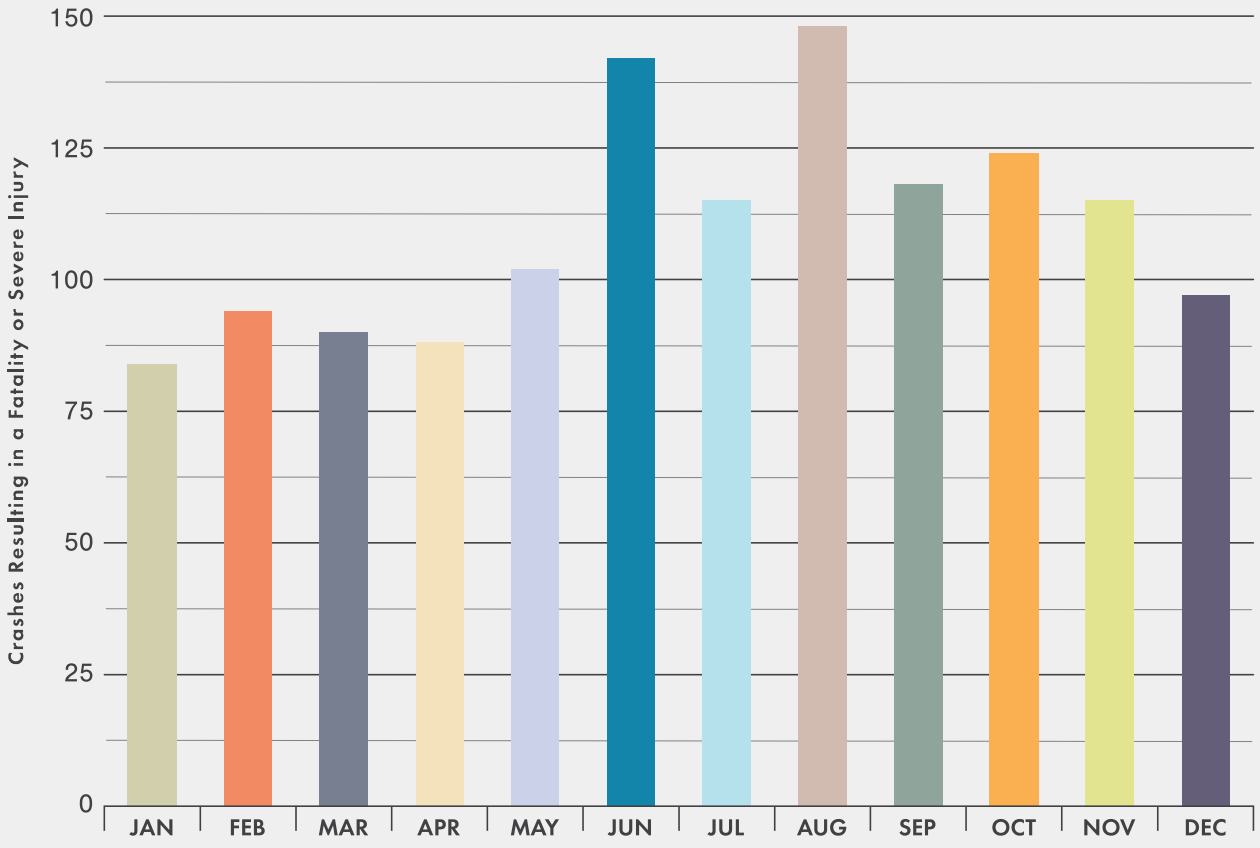
Source: UC Berkeley Transportation Injury Mapping System (TIMS), provided by SWITRS and processed by SafeTrec

10 The California Region also includes Arizona and Hawaii. Source: National Highway Traffic Safety Administration "Early Estimate of Motor Vehicle Traffic Fatalities for the First Half (January–June) of 2021 [Traffic Safety Facts]", October 2021.

Crashes by Month

Fatal and severe injury crashes in Sonoma County are highest in the late summer and early fall. Controlling for seasonal variation in travel, June and August remain the deadliest months of the year both in absolute numbers and in rate of fatal and severe injury crashes per vehicle miles traveled (VMT). This is consistent with national data, though Sonoma County's summer fluctuations are a bit more pronounced.[11] Bicycle crashes increase from April to October and drop off dramatically between January and March, likely reflecting seasonal variations in bicycle travel. Pedestrian crashes are relatively constant throughout the year with peaks across summer, fall, and winter months.

Figure 3: Sonoma County Fatal and Severe Injury Crashes by Month for All Modes, 2016-2020



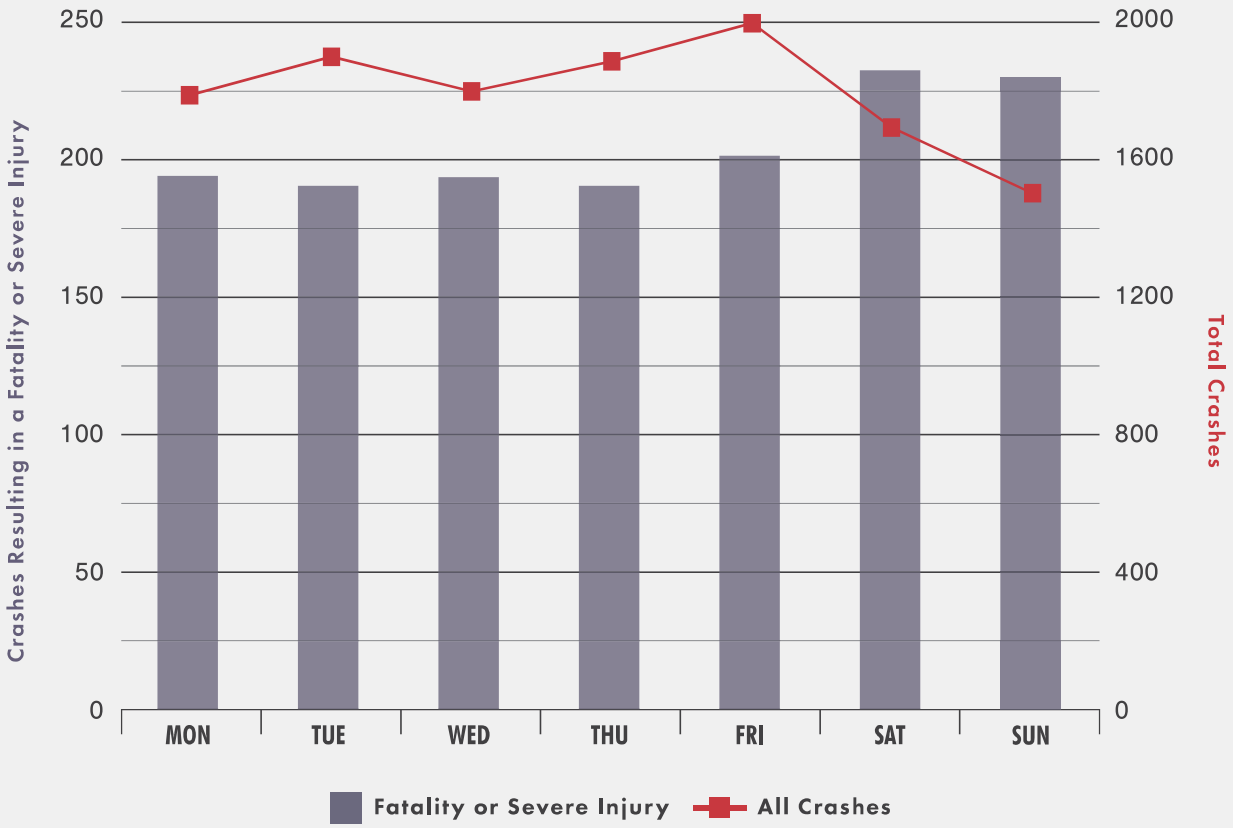
Source: UC Berkeley Transportation Injury Mapping System (TIMS), provided by SWITRS and processed by SafeTrec

11 Source: National Safety Council analysis of NHTSA FARS data, Crashes by Month, 2019

Crashes by Day of Week and Time of Day

Crashes also vary by day of the week. With all modes combined, fatal and severe injury crashes are most frequent on Fridays, Saturdays, and Sundays. This trend suggests a link between these crashes and the prevalence of recreational travel, including evening entertainment. Unsurprisingly, impaired driving is the primary crash factor for a higher share of crashes on these days compared to the rest of the week. By mode, fatal and severe injury crashes for bicyclists are substantially higher on Saturdays while those for pedestrians and automobiles are more evenly spread throughout the week.

Figure 4: Sonoma County Crashes by Day of Week for All Modes, 2016-2020



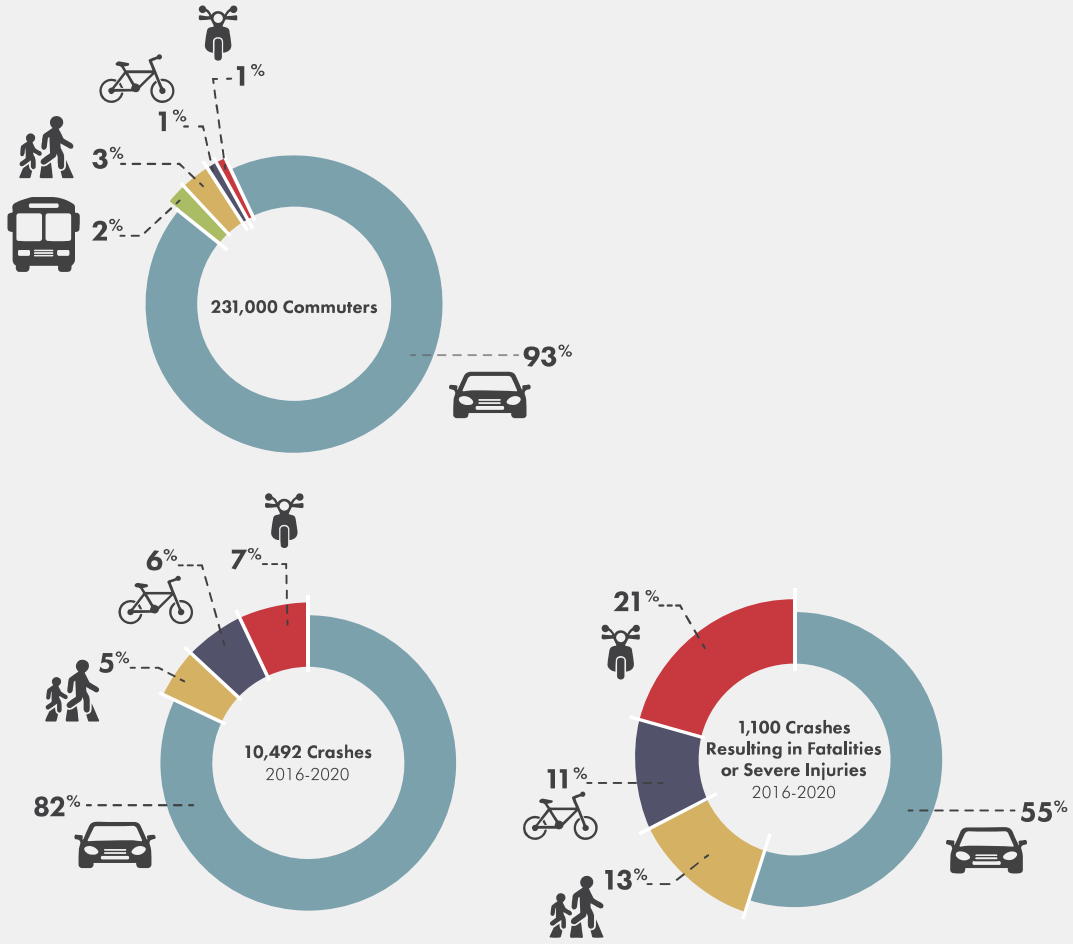
Source: UC Berkeley Transportation Injury Mapping System (TIMS), provided by SWITRS and processed by SafeTrec

The afternoon and evening hours account for the greatest total number of fatal and severe injury crashes, coinciding with higher volumes of overall travelers on the road. However, crashes that occur at night are more likely to result in deaths and severe injuries.

Crashes by Travel Mode

When collisions occur, people who are not enclosed by a vehicle are at greater risk of suffering severe or fatal injuries. While most trips in the County are made in vehicles, travelers using other modes are at disproportionate risk of traffic violence. Four percent of commute trips, and eight percent of all trips, are made on foot or on bicycle, but these modes account for 24% of crashes resulting in a fatality or severe injury.[12] Motorcycles only account for 1% of commute trips but 13% of fatality and severe injury crashes. These disparities however are not inevitable, but rather the result of a transportation system that currently does not prioritize the safety of these modes.

Figure 5: Travel Mode Share in Sonoma County for Commute Trips (Top Left), for all Crashes (Bottom Left), and for Fatal or Severe Injury Crashes (Bottom Right).

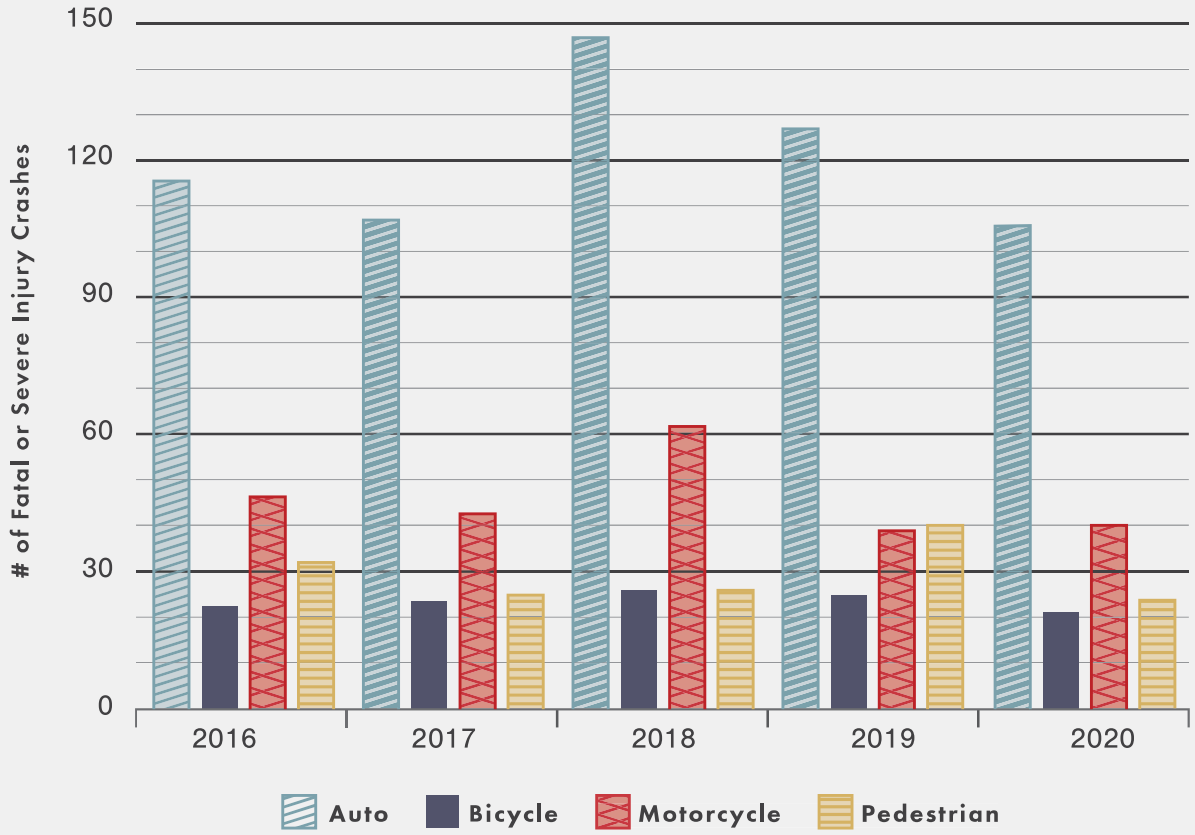


Sources: U.S. Census, American Community Survey 2019 5-year estimates; Crash data from the UC Berkeley Transportation Injury Mapping System (TIMS), provided by SWITRS and processed by SafeTrec.

12 The graph shown uses United States Census data because it breaks out trips into the same categories as our crash analysis. However, commute trips account for a fraction of overall travel. The 2015 Sonoma County Travel model found that driving, including driving alone and sharing a ride, accounted for 91.4% of all trips, followed by 8.2% walking and bicycling and 0.4% made by public transportation.

Figure 6 shows fatal and severe crashes by travel mode between 2016 and 2020. Vehicle and motorcycle crashes decreased slightly over the past three years, but bicycle and pedestrian crashes have remained constant. These trends however are only a snapshot of conditions in Sonoma County and the downward trend of crashes in 2020 continues to be influenced by disrupted travel patterns due to COVID-19. Across California and the rest of the US, fatal crashes have continued to rise throughout the pandemic despite vehicle miles traveled falling more than 13% between 2019 and 2020[13].

Figure 6: Sonoma County Crashes Over Time, by Mode



Source: UC Berkeley Transportation Injury Mapping System (TIMS), provided by SWITRS and processed by SafeTrec

13 Source: National Highway Traffic Safety Administration (NHTSA), "2020 Fatality Data Show Increased Traffic Fatalities During Pandemic", June, 2021

Main Crash Factors

Fatal and Severe Injury Crash Factors

While there are many factors that contribute to crashes, the primary factors in fatal and severe injury crashes in Sonoma County are impaired driving, unsafe turns, unsafe speeds, and right-of-way violations[14]. Between 2016 and 2020 these four factors alone accounted for 70% of all traffic related deaths and severe injuries in the County. Specifically, driving under the influence is the leading cause of traffic fatalities and is responsible for more deaths and severe injuries than any other factor.

Impaired Driving

Of the 1,100 fatal and severe injury crashes in Sonoma County between 2016 and 2020, nearly a quarter (24%) were caused by someone operating a vehicle under influence. Impaired driving led to 66 fatalities and 245 severe injuries as well as 1,200 other crashes. In the US, alcohol impairment is legally defined as a blood alcohol content (BAC) of 0.08 percent or higher, but even small amounts of alcohol can lead to reduced focus and alertness. The effect of other drugs, such as cannabis, on driving behavior is not as well documented. Epidemiological studies have been largely inconclusive about whether cannabis use results in an increased risk of crashes.[15] The drug's effects are highly

Figure 7: Top Crash Factors for All Crashes (2016-2020)

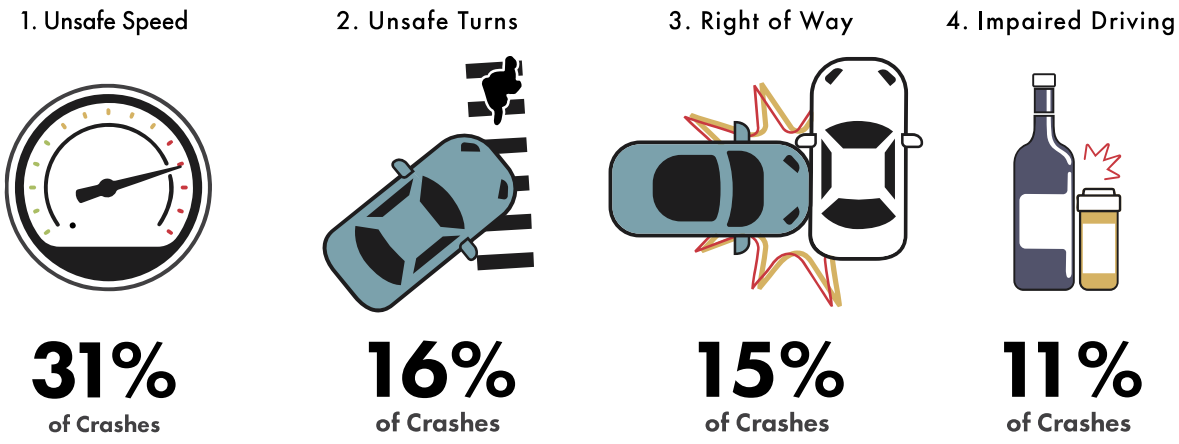
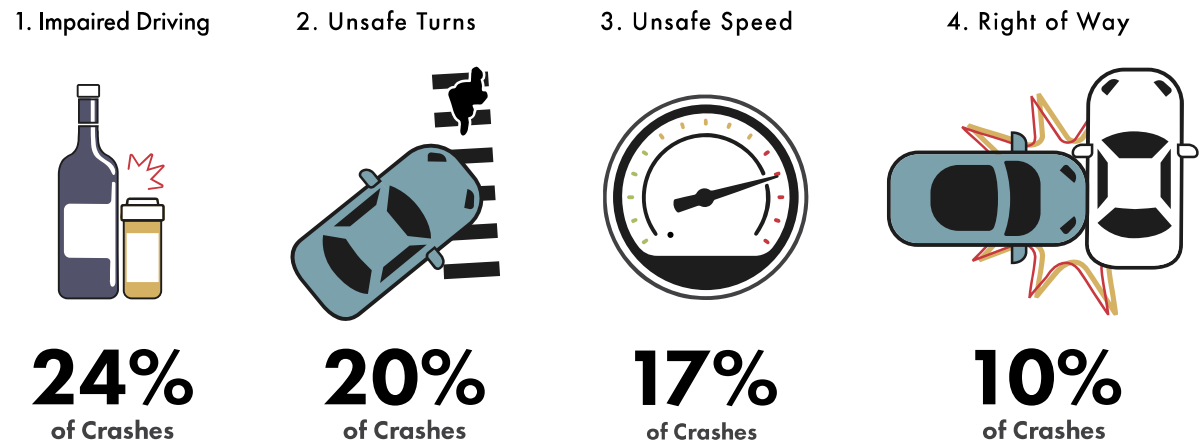


Figure 8: Top Crash Factors Resulting in a Fatality or Severe Injury (2016-2020)



Source: UC Berkeley Transportation Injury Mapping System (TIMS), provided by SWITRS and processed by SafeTrec

14 A single crash may be caused by a combination of multiple contributing factors. However, this report focuses on the *primary crash factor* which is determined in a crash report to be the *most* influential cause of the crash.

15 Source: American Journal on Addictions, 18(3), "The effect of cannabis compared with alcohol on driving", 2009.

dependent on dose and individual tolerance. Additionally, one study found that half of drivers under the influence of cannabis were also under the influence of alcohol, further complicating efforts to study the drug's effects.[16] However, we know that cannabis negatively affects a number of skills needed for safe driving and thus the safest option is to avoid operating a vehicle while under the influence of any substance.[17] Addressing drug and alcohol abuse, providing transportation options, and keeping impaired drivers from getting behind the wheel are critical steps toward meeting Vision Zero goals.

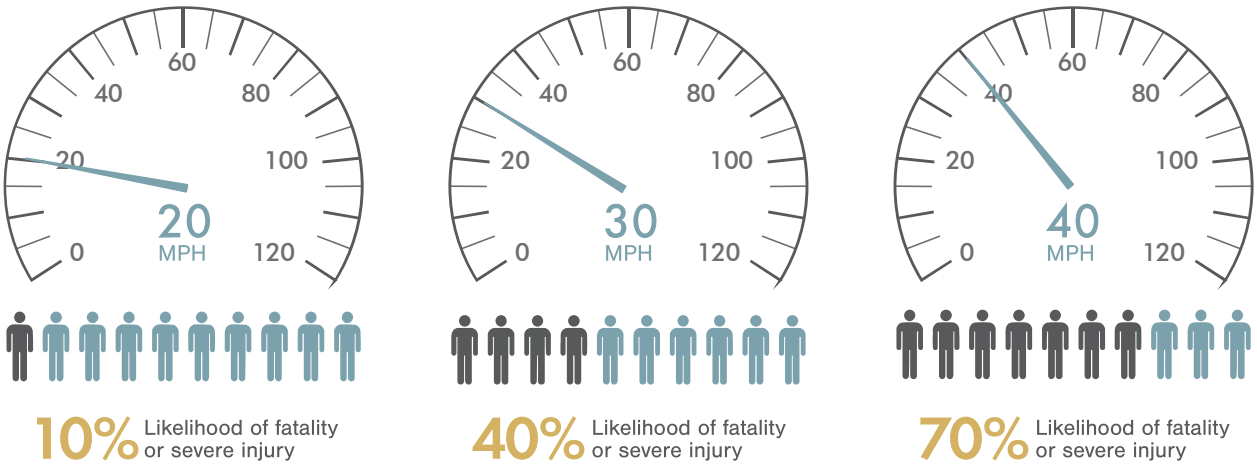
Unsafe Turns

Unsafe, or "improper" turns, occur when drivers make unpredictable movements, often without reasonable warning. Examples include ignoring a "No Turn on Red" sign or turning at a red light without making a complete stop. Over the past five years, 20 percent of fatal and severe injury crashes were caused by vehicles making unsafe turns. Between 2016 and 2020, 40 people were killed, and 228 people were severely injured in Sonoma County because of drivers making unsafe turns. While we cannot correct for all dangerous driver behavior, improved intersection and signal design can help reduce the incidence of crashes from unsafe turns.

Unsafe Speeds

Higher speeds increase both the risk of a crash and the likelihood that a crash will result in severe injury or death. At higher speeds, a driver's field of vision is narrowed, and they have less time to react, making collision avoidance particularly challenging. In addition, the faster a vehicle is moving, the longer the stopping distance and the greater the force of impact will be. In Sonoma County over the past five years, speeding drivers caused 4,000 crashes leading to over 200 severe injuries and 29 deaths. It is important to note that roads with higher speed limits are a risk factor regardless of whether drivers are exceeding those limits. Roads with travel speeds of 40-45 mph see a notably higher rate of fatal and severe injury crashes relative to lower speed roads. Reducing vehicle speeds is essential to meeting Sonoma County's Vision Zero goal.

Figure 9: Likelihood of a Pedestrian Being Killed of Severely Injured When Struck by a Vehicle as a Function of Driver Speed



Source: Tefft, Brian C. Impact speed and a pedestrian's risk of severe injury or death, Accident Analysis & Prevention, 50, 2013

16 Source: PloS ONE,12(11), "Cannabis, alcohol and fatal road accidents", 2009.

17 Source: Center for Disease Control and Prevention (CDC), "What You Need to Know About Marijuana Use and Driving", 2017.

Right-of-Way Violations

Right-of-way violation crashes occur when a driver or other road user breaks the rules of the road that determine who goes first and who yields. These crashes typically occur when drivers fail to properly yield at a stop sign, making a U-turn, or merging on or off of a highway. Many right-of-way crashes may also include a vehicle making an unsafe turn, however the primary collision factor for these crashes is a right-of-way violation. Between 2016 and 2020 right-of-way crashes caused 110 severe injuries and 14 fatalities. Driver education, signage, and roadway design can all help reduce right-of-way violations and the resulting crashes.

Distracted Driving

While distracted driving was not one of the top four crash factors based on the analysis of crash reports, it was ranked as the third most important traffic safety issue facing Sonoma County by survey respondents (after "poorly maintained roads, bike lanes, and sidewalks" and "speeding"). Crash reports do not always make it clear whether distracted driving was a factor in a given crash, partially because it is difficult for law enforcement to determine. However, preliminary analysis of crash reports from 2015-2020 suggests that distracted driving was a factor in approximately 851 (roughly 6%) of crashes in Sonoma County. Education and outreach campaigns can help curb distracted driving by changing social norms and instilling a sense of responsibility for the outcome of driving decisions.

Hot Spots

To help understand where people are being killed and injured on Sonoma County roads, SCTA conducted a high injury network (HIN) and a high injury intersection (HII) analysis using crash data provided by the Transportation Injury Mapping System (TIMS), from the University of California – Berkeley.[18]

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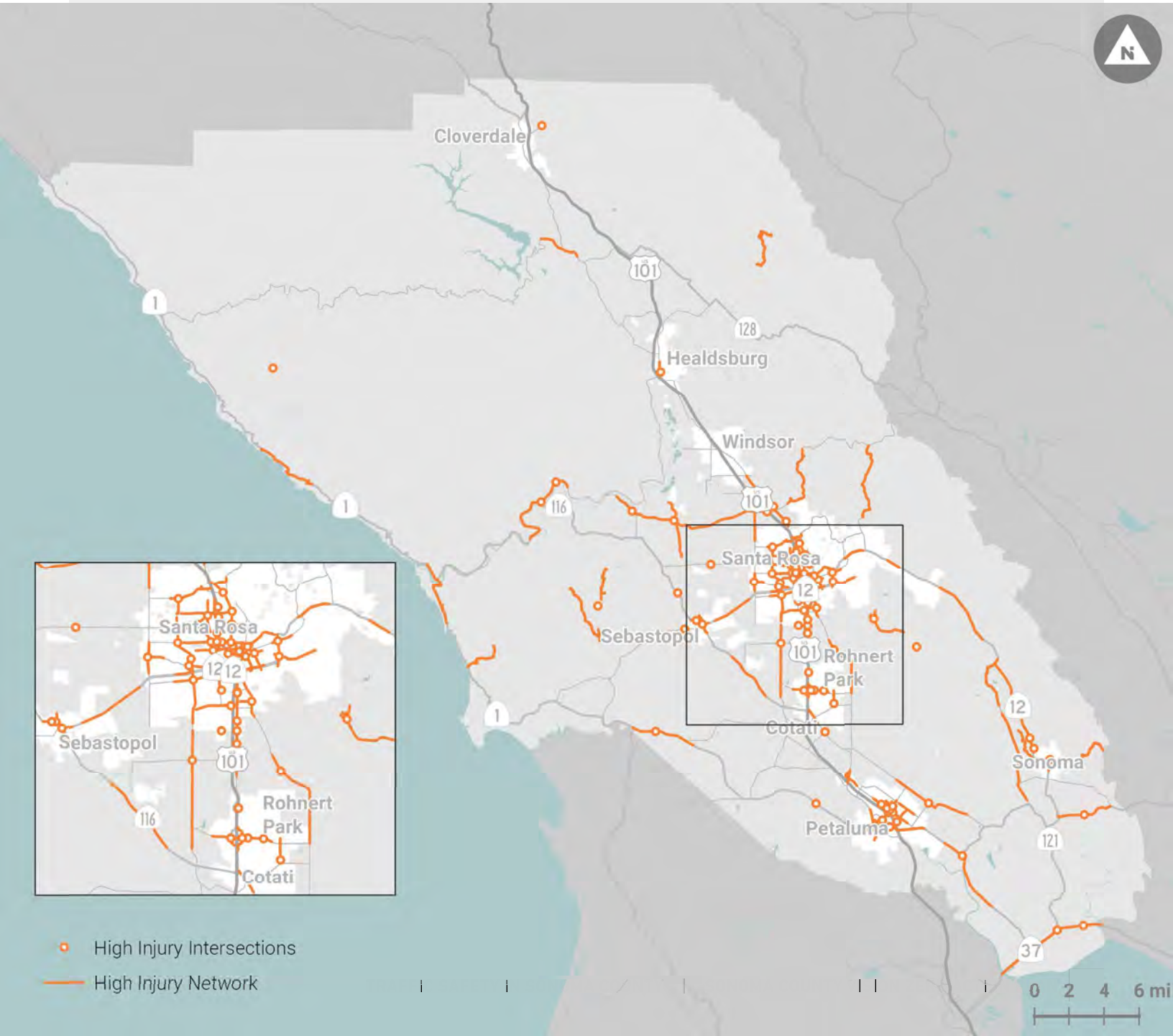
18 See Appendix C for more information on the methodology behind the HIN and HII analysis.

Map 1: Sonoma County High Injury Intersections (HII) and High Injury Network (HIN)



High Injury Network

A High Injury Network (HIN) analysis is a systematic process for identifying segments of a road network where users are at higher risk. This is achieved by examining the location, frequency, severity, and mode of crashes along the road network. This processed crash data is then spatially aggregated along the network using a 'moving window' analysis to develop relative collision scores, from which a subset of 'high injury' segments are classified as the High Injury Network. Many public agencies use this approach to identify areas to prioritize safety investments.

Sonoma County's high injury network includes 209 miles of road segments in all parts of the County (see Table 2 on page 61). While there are concentrations of HIN segments in more urban and suburban areas, including Santa Rosa, Sebastopol, Rohnert Park, and Petaluma, there are also segments in rural areas.

High Injury Intersections

The HIN analysis accounts for intersection crashes but does not explicitly call them out, instead implying that intersections along the identified segments would also be of higher risk. The High Injury Intersections (HII) analysis uses the same data as the HIN but focuses specifically on crashes that occurred within 250 feet of an intersection. The HIIs represent intersections where a substantial number of crashes resulting in an injury or fatality occurred for at least one mode.

Sonoma County's 98 High Injury Intersections are also spread throughout the County with concentrations in Santa Rosa, Petaluma, Rohnert Park, and Sebastopol (see Table 4 on page 65). HIIs are particularly concentrated in these areas when we look specifically at crashes involving people walking and bicycling. Those involving only drivers and motorcyclists are more evenly spread throughout the eastern half of the County.

Community Perceptions of Safety and Problem Areas

While crash data analysis is critical to understanding where Vision Zero investments are needed, it does not give a complete picture of safety issues in the County. In order to better understand the daily experience of using Sonoma County roads, this plan also draws on the collective knowledge of local communities.

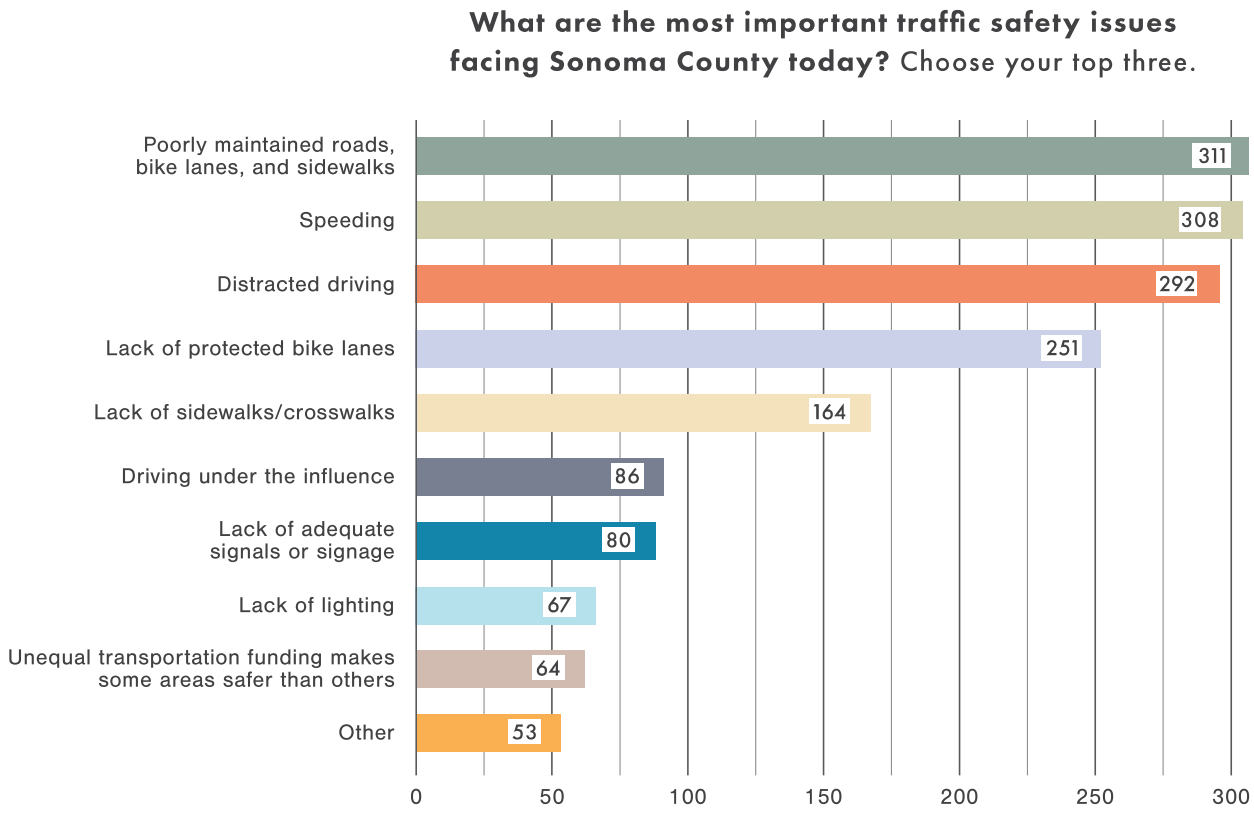
Comprehensive Transportation Plan Listening Sessions

Traffic safety emerged repeatedly as an issue during SCTA's listening sessions for the 2021 Comprehensive Transportation Plan (CTP).[19] Many participants expressed concerns about personal safety, and frustration with narrow and missing sidewalks, particularly at bus stops, where transit riders sometimes must wait on the side of the road, and conflicts between bicyclists and drivers sharing narrow roadways. Many requested more bike paths and protected bike lanes. Participants also complained that people park too close to intersections, resulting in limited sightlines for crossing pedestrians and vehicles. They requested more crosswalks and flashing beacons at pedestrian crossings.

Survey

Between September and November 2021, Sonoma County collected feedback from nearly 2,500 community members about traffic safety. Approximately 12% of respondents completed the survey in Spanish. Respondents mapped their daily travel patterns and identified "Danger Zones," or areas where they did not feel safe walking, biking, or driving. They also shared perceptions of traffic safety more broadly in the County. When asked about the most important traffic safety issues facing Sonoma County, the top three responses were poorly maintained roads, bike lanes, and sidewalks (311 respondents), speeding (308 respondents) and distracted driving (292 respondents). Based on this feedback, specific goals were developed to eliminate distracted driving, create safer speeds, and to build and maintain safe streets for all.

Figure 12: Survey Responses About the Most Important Traffic Safety Issues Facing the County Today



19 In 2019, SCTA worked with four community-based organizations to gather feedback from community members who are often under-represented, including seniors, youth, Latinos, recent immigrants, and other low income or disadvantaged communities.

When asked what measures are most important to make Sonoma County safer for all road users, 67% of respondents selected, "More enhanced safety features like protected bike lanes, and streets designed to slow traffic". In comparison, 24% selected, "More enforcement and harsher penalties for speeding, DUI, and other infractions" and 10% selected, "More education and outreach to teach people safe habits." These responses suggest that many people in Sonoma County would prioritize building better infrastructure over more enforcement- and education-oriented measures.

Most respondents did not feel safe walking, biking, or rolling in Sonoma County, with even lower perceptions of safety among people of color and those living outside of city limits. More than half of respondents feel it is not safe to drive, bike, or walk on Sonoma's rural roads.

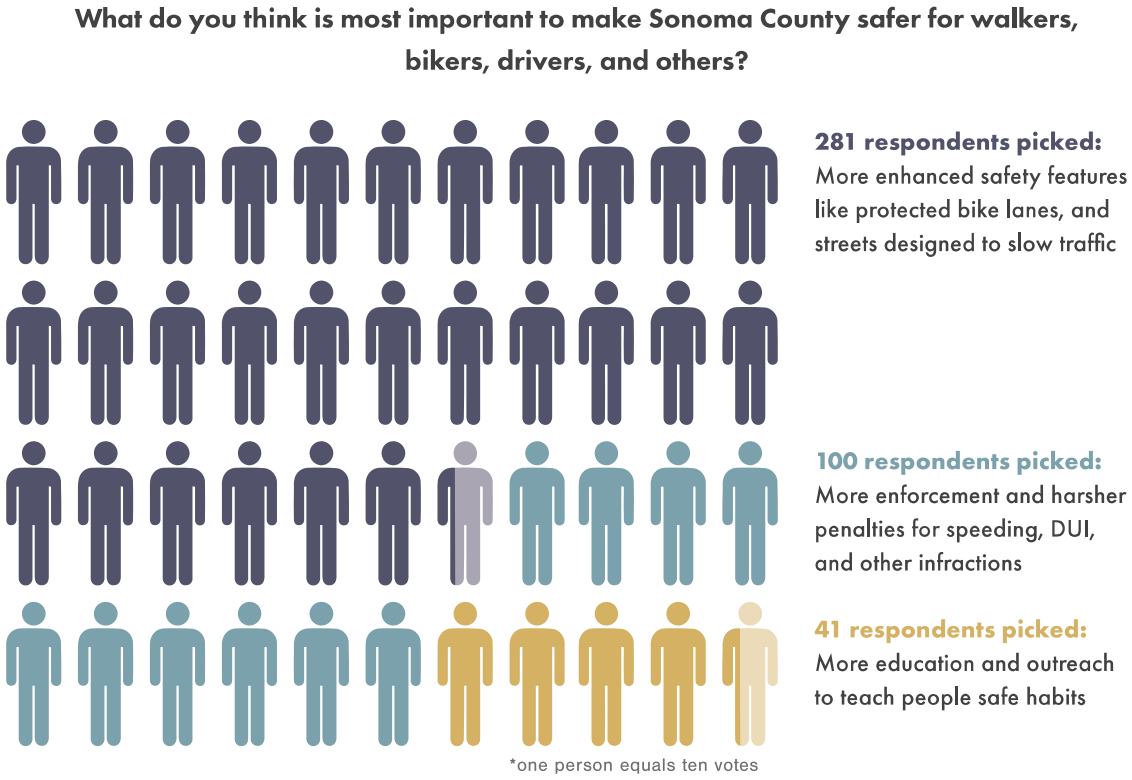
Engagement Process

The initiatives presented in this plan were informed by extensive public engagement on traffic safety issues, including:

- 12 listening sessions
- 37 stakeholder interviews
- 3 focus groups
- A virtual countywide public workshop

See Appendix E for more information on the Public and Stakeholder Engagement process for this plan

Figure 10: Survey responses about Vision Zero priorities



Survey Location-based Responses

As part of the survey, respondents placed pins in "Danger Zones" and "Safe Spots" for traffic safety throughout the county. Over 1,000 respondents placed nearly 7,000 points. As expected, there is substantial overlap between the respondents' Danger Zones and the High Injury Network. Roughly one third of locations that people identified as Danger Zones were along the HIN. However, the locations that respondents marked as Danger Zones were also strongly determined by their home locations. The median distance between a respondent's reported home location and locations they called out as Danger Zones or Safe Spots was around one mile (see Appendix E for a map of survey respondents approximate self-reported locations).

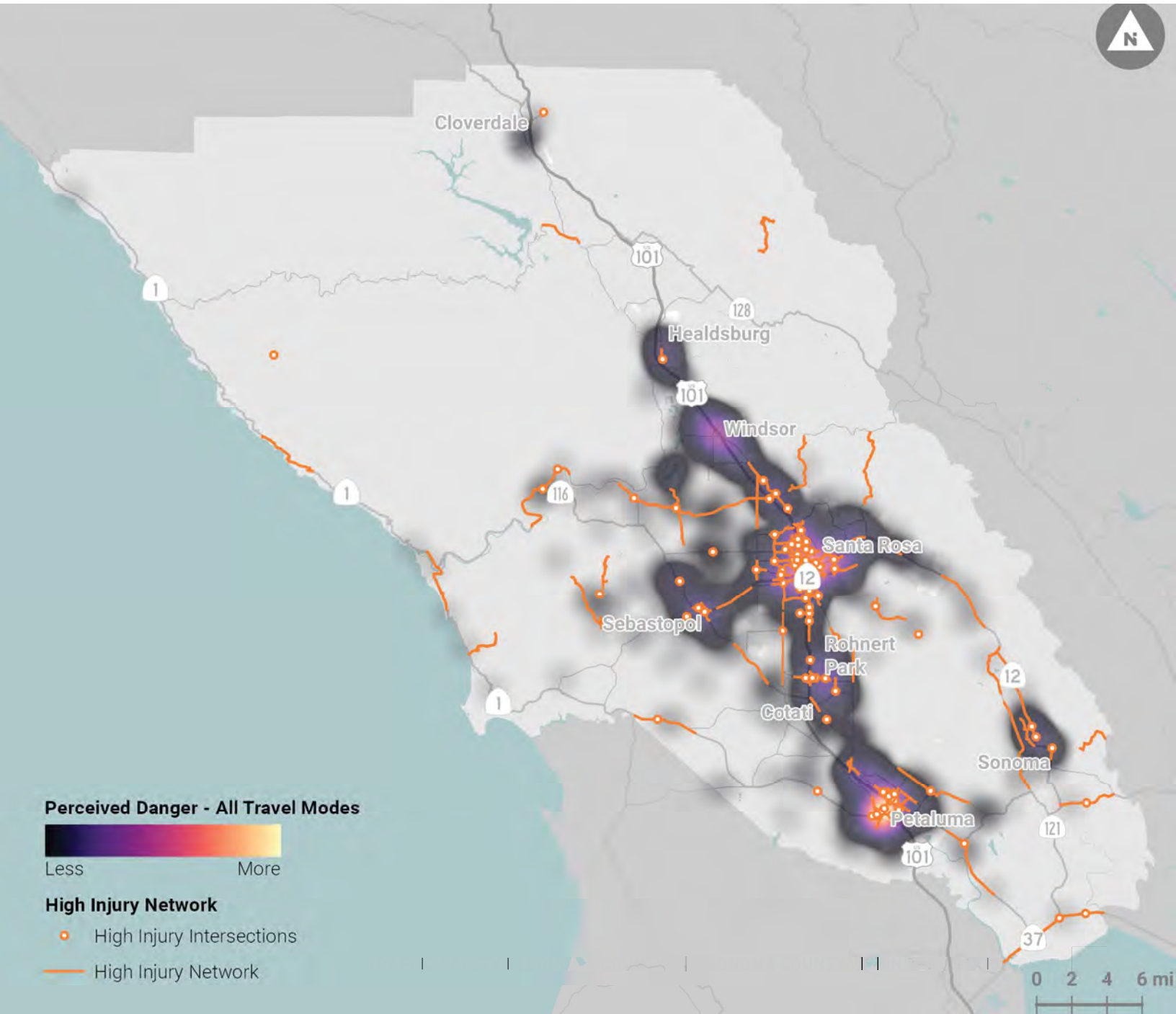
Focus Groups, Stakeholder Interviews, and Public Workshop

This plan was developed and refined through input collected through additional focus groups, stakeholder interviews, and a public workshop. See Appendix E for more detailed description of public and stakeholder engagement.

Focus Groups

Vision Zero staff conducted three focus groups with communities within Sonoma County that were underrepresented in the survey, including people with disabilities and Spanish speakers.

Map 2: Heatmap of Danger Zones Compared to High Injury Network



The mobility focus group shared that accessibility is a safety issue and expressed frustration with existing infrastructure. Participants suggested including more accessible parking with room for vans, ensuring ramps and crossing buttons are unobstructed, and creating protected lanes for wheelchair and bicycle users. They proposed partnering with bicycle advocacy groups and creating messaging campaigns to build driver awareness.

The Spanish-speaking focus groups expressed concern with public transportation, namely slow buses and expensive trains. They stated that the pedestrian and bicycle infrastructure was disconnected and needed upgrading. They also felt discouraged and unheard when trying to contact city departments.

Stakeholder Interviews

The project team also conducted interviews with dozens of practitioners who work in traffic safety, equity, and mobility in the County, ranging from public transportation agencies to hospitals. Funding infrastructure improvements came up as a barrier for many stakeholders. The Sonoma County Bicycle Coalition (SCBC) mentioned dangerous rural highways as areas of concern, a concern echoed by Sonoma County Tourism. Stakeholders pointed to the high potential for bicycling in the county, which is limited by current infrastructure and feeling of unsafety.

Many stakeholders, including the City of Petaluma and California Highway Patrol (CHP), mentioned the cultural shift needed for safer driving, emphasizing that the major cause of collisions to date is driving behaviors, including unsafe speed, unsafe turning, and impaired driving. SCBC and Providence Memorial Hospital pointed to the need for driver education and shared the success of ongoing youth education programs, such as Impact Teen Drivers and Safe Routes to School.

Another recurring recommendation was expanded and accessible public transportation. Santa Rosa CityBus supported the idea of expanding nighttime service and suggested adopting standards around proximity of bus stops to accessible pedestrian crossings. Advocates discussed accessibility issues for seniors, including inconvenient bus schedules and a lack of benches and shelters at stops.

In terms of documentation and monitoring, Providence Memorial Hospital offered to share injury data from collisions, and the Petaluma Police Department emphasized the benefits of using the Crossroads crash reporting database, which allows for real-time analysis. Finally, stakeholders voiced that they were integrating Vision Zero into their work. CHP mentioned that they use the Data Dashboard and local jurisdictions expressed interest in Vision Zero as a framework for organizing and formalizing their existing efforts to improve road safety.

Public Workshop

The Sonoma County Vision Zero Action Plan virtual community workshop was held in January 2021 with over 40 attendees. When asked about the most important traffic safety issues in the County, distracted driving, speeding, and a lack of protected bike lanes were the most popular responses. To address speed-related crashes in the County, most participants favored narrowing roadways, implementing traffic calming, and lowering speed limits, a similar result to the Fall 2021 survey. In order to create a culture of safety, participants favored expanding Safe Routes to School (SRTS) programs, and to build safe streets, participants favored updating street design standards and installing more bike lanes and sidewalks.

Following the presentation and poll questions, participants shared their experiences, stories, and reactions. They were largely enthusiastic about biking within the County but also recounted feeling unsafe at certain intersections. Multiple participants felt the impact of crashes, whether having been involved in a crash themselves or attending the funerals of people killed in crashes. Participants outlined issues leading to safety risk, such as potholes, as well as recommendations emphasizing the need for more separated bike lanes and paths. Their recommendations also included policies to encourage social and cultural shifts, from mandating smaller vehicles to expanding Safe Routes to School (SRTS) programs. Other participants recommended increased enforcement and more speed cameras. In addition, participants voiced the importance of incorporating the findings and goals included in the Action Plan into each city's General Plan and climate initiatives.

Centering Equity

At its core, Vision Zero emphasizes that all people have a right to move about their communities safely. However, it is impossible to meet that goal without acknowledging and addressing racial and socioeconomic disparities in the transportation realm.

Transportation Costs and Barriers

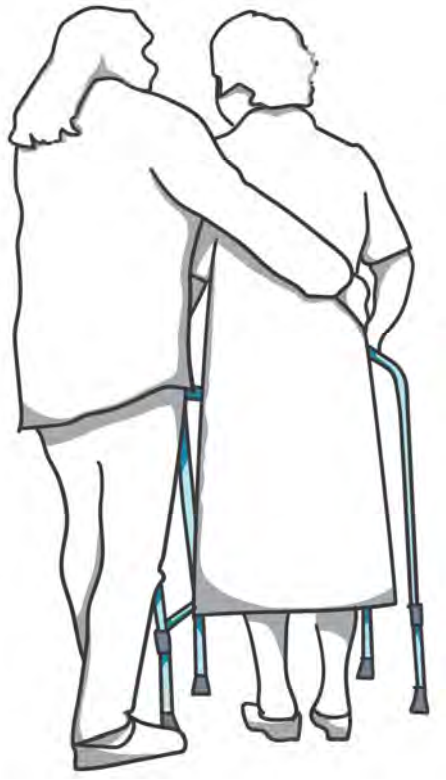
Many Sonoma County residents struggle to access transportation options that meet their needs and that they can afford. Eighty-nine percent of county households spend more than 45% of their incomes (beyond the upper limit for affordability) on combined housing and transportation costs.[20] For the typical County household, 57 percent of their income goes to housing and transportation. Most neighborhoods are low-density, with few jobs or destinations in walking distance and limited access to public transportation. As a result, most households must drive to meet their daily needs. The typical County household travels 22,000 miles by vehicle each year, at a cost of more than $15,000 (24% of the average household income).[21] These costs fall particularly heavily on low-income households.

For people who cannot afford a vehicle, cannot drive, or prefer not to, using the County's walking, bicycling, and transit networks presents other challenges. This group includes seniors as well as youth under 16 years old. Recent public outreach found that community members perceive the need for safety improvements and maintenance on sidewalks, bikeways, and streets, and that these concerns present barriers to walking and bicycling. As shown in Figure 5, people walking, bicycling, or using mobility devices face a higher risk of death or severe injury when involved in a crash. This exacerbates existing disparities in road safety between high- and low-income households.

Listening session participants expressed the desire for expanding the locations served by transit, with buses coming more frequently and running more hours of the day. Many of the County's transit routes are concentrated around morning and evening commuting peaks, with limited service for people who work other shifts or students who attend night classes. While off-peak service typically has higher net costs per rider due to lower overall ridership, it may be the only way someone without a vehicle can make a trip. Adding service with flexible routes or on-demand scheduling may help transit agencies to provide mobility options for those living in areas underserved by fixed route services or travelling outside of peak hours.

Disparities in Crash Victims

Equity Priority Communities (EPCs) experience a disproportionate share of traffic-related injuries and fatalities. Throughout the country, Vision Zero's data-driven analysis reveals a concentration of traffic safety issues that suggest racialized patterns of disinvestment and neglect. Between 2015 and 2019, the Governor's Highway Safety



20 The Center for Neighborhood Technology has defined affordable neighborhoods as places where the combined cost of housing and transportation make up no more than 45% of a typical household's income.
Source: Center for Neighborhood Technology "Housing and Transportation (H+T) Affordability Index" Retrieved Dec. 3, 2021

21 Source: Center for Neighborhood Technology, H+T Fact Sheet for Sonoma County, Retrieved Dec. 3, 2021.

Association found that the rate of traffic deaths per 100,000 was 146 for American Indians/Alaskan Natives and 69 for Black people compared to 58 for the total United States population.[22] Compared to white children, African American children are twice as likely, and Latino children nearly one-and-a-half times more likely, to be killed while walking.[23]

The impact of crashes is also not felt equally across communities, especially with the income disparities and the 6% of the County's population that do not have health insurance. [24]

Because they typically live in dangerous locations, most notably along high-speed roadways, people who are unhoused—camping or living in vehicles--also shoulder a disproportionate share of traffic injuries and fatalities.[25] In 2020, around 2,700 people were experiencing homelessness in Sonoma County and 40% of them also have a physical or cognitive disability, putting them at even greater risk of being the victim of a crash.[26]

These disparities help explain the high degree of correlation between Sonoma County's High Injury Network and its social vulnerability scores and Equity Priority Communities (EPCs) (see Map 3 and 4). The areas of Santa Rosa, Rohnert Park, Sonoma, and Petaluma that rank the highest in terms of poverty, housing burden, and health risk are home to many high injury corridors and intersections. Creating a more equitable transportation landscape requires moving past geographic equality in transportation resource allocation and instead prioritizing communities that have been left out of transportation planning efforts and seen chronic under-investment in basic amenities like sidewalks, bike lanes, and pedestrian crossings.

Disparities in Traffic Enforcement

Some Vision Zero efforts have relied heavily on increasing police enforcement and penalties to curb irresponsible travel behavior. However, due to racial profiling and the regressive burden of penalties and fines on low-income individuals, these enforcement actions can end up harming the very people that they are intended to help.[27] This plan acknowledges the important role of law enforcement agencies to accomplish Vision Zero goals while focusing resources on actions that will not place a disproportionate burden on Equity Priority Communities (EPCs).

Figure 13: Racial Disparities among Children Killed while Walking

Source: Dangerous by Design, 2011

22 Source: Governors Highway Safety Association (GHSA), "An Analysis of Traffic Fatalities by Race and Ethnicity", June, 2021.

23 Source: National Complete Streets Coalition & Smart Growth America, "Dangerous by Design", 2011.

24 Source: "Portrait of Sonoma County: 2021 Update", Measure of America. January 2022.

25 Data on homelessness and traffic violence is limited for Sonoma County but an investigation in Austin, TX found that 14% of deaths in the unhoused population involved traffic collisions ("Casualties of the Streets", *Austin American-Statesman*, 2015). Anecdotal evidence suggests an elevated level of risk for Sonoma County's unhoused population as well.

26 Sonoma County Community Development Commission, "2020 Sonoma County Homeless Census Comprehensive Report". 2020

27 For more information on racial profiling and disparities in traffic enforcement, see findings from Stanford Open Policing Project, "A large-scale analysis of racial disparities in police stops across the United States" (*Nature Human Behavior*, 2020), and the *Oregon Statistical Transparency of Policing Report* (2019).

Disparities Between Rural and Urban Areas

Rural communities also face a disproportionate rate of traffic injuries and fatalities. While much of Sonoma County's High Injury Network is located in the cities, rural areas face a disproportionate number of fatal and severe injury crashes relative to the population density and traffic volumes. The fatality rate on Sonoma County's rural roads is over 1.5 times higher than that of the County's urban roads. Disparities in road safety are compounded by relatively high concentrations of poverty in rural and semi-rural areas, such as those along the Russian River or in the Springs area of the Sonoma Valley. These areas often have disconnected street grids and lack transit services, pedestrian, or bike infrastructure, forcing many people to walk and bike along the shoulders of high traffic, high speed roadways.[28]

Measuring and Mapping Disparities

Sonoma County has identified the need to improve quantitative and geospatial data on transportation disparities across the County. In the absence of more granular local data, this plan draws on two well established and robust data sources to understand spatial inequality: The Bay Area Metropolitan Transportation Commission's Equity Priority Communities and the California Office of Environmental Health Hazard Assessment's CalEnviroScreen tool. These two data sets are also fairly similar to health and equity data presented in the 2021 update to the Portrait of Sonoma County.

Human Development Index and Health

The American Human Development Index (HDI), a composite measure of well-being and access to opportunity made up of health, education and earnings indicators, also reflects the spatial disparities seen with EPC and CalEnviroScreen. According to A Portrait of Sonoma County[29], HDI scores vary dramatically by neighborhood in Sonoma County. Santa Rosa and its environs, which make up a disproportionate number of neighborhoods with the lowest HDI scores in the county, and as well as a large share of the High Injury Network in the county. These communities are also more diverse and have higher populations of Latino residents than the rest of the county. The lowest scoring census tracks with HDI of less than 4 include Rohnert Park, Bicentennial Park, Comstock and Roseland which are all located in diverse neighborhoods that also have a significant number of high injury intersections.

A "Bike Train" in Santa Rosa (Photo Credit: Sonoma County Bicycle Coalition)

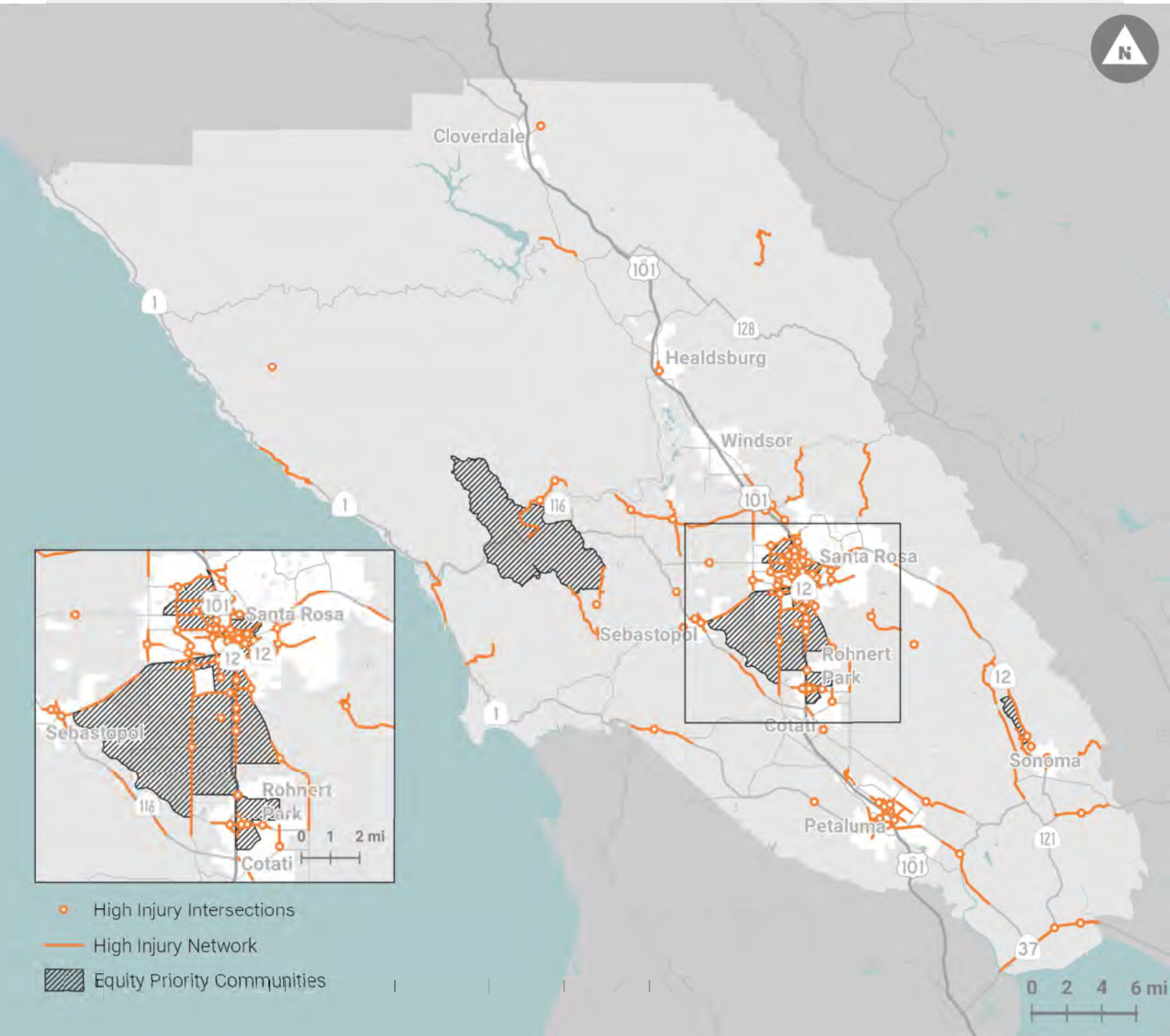
28 Transit service in rural areas has higher net costs per mile, creating financial challenges for providing frequent bus routes in those areas. Most state, county, and local governments lack sufficient revenue to meet all maintenance needs on their roadway systems (including walkways and bikeways), while facing pressures to modernize and improve them. Because improvements may provide the greatest net benefits in areas where many people travel, rural networks may receive lower funding priority. Because small communities and rural areas develop more slowly than urban areas, they may be less likely to see walkways and bikeways built as part of private development or major road projects.

29 See "Portrait of Sonoma County: 2021 Update", Measure of America. January 2022.

Equity Priority Communities

The Bay Area Metropolitan Transportation Commission (MTC) uses demographic data from the American Community Survey to identify areas with a concentration of underserved populations, such as low-income households, households with zero vehicles, people of color, people with disabilities, and people with limited English proficiency. This data is updated every four years as part of updates to Plan Bay Area. These areas, referred to as Equity Priority Communities (EPC), are census tracts that have likely been disadvantaged and faced historic underinvestment. MTC prioritizes these communities for transportation investments and planning efforts. This plan uses EPCs as a geographic tool to prioritize certain Vision Zero investments. Map 3 shows the overlap between Sonoma County's High Injury Network and EPCs. Of the County's 99 High Injury Intersection, 29 of them are located in EPCs. While only 8.8% of roadway mileage in the county falls within or adjacent to these areas, these roadways accounted for 25.7% of fatal and severe injury crashes between 2015 and 2019.

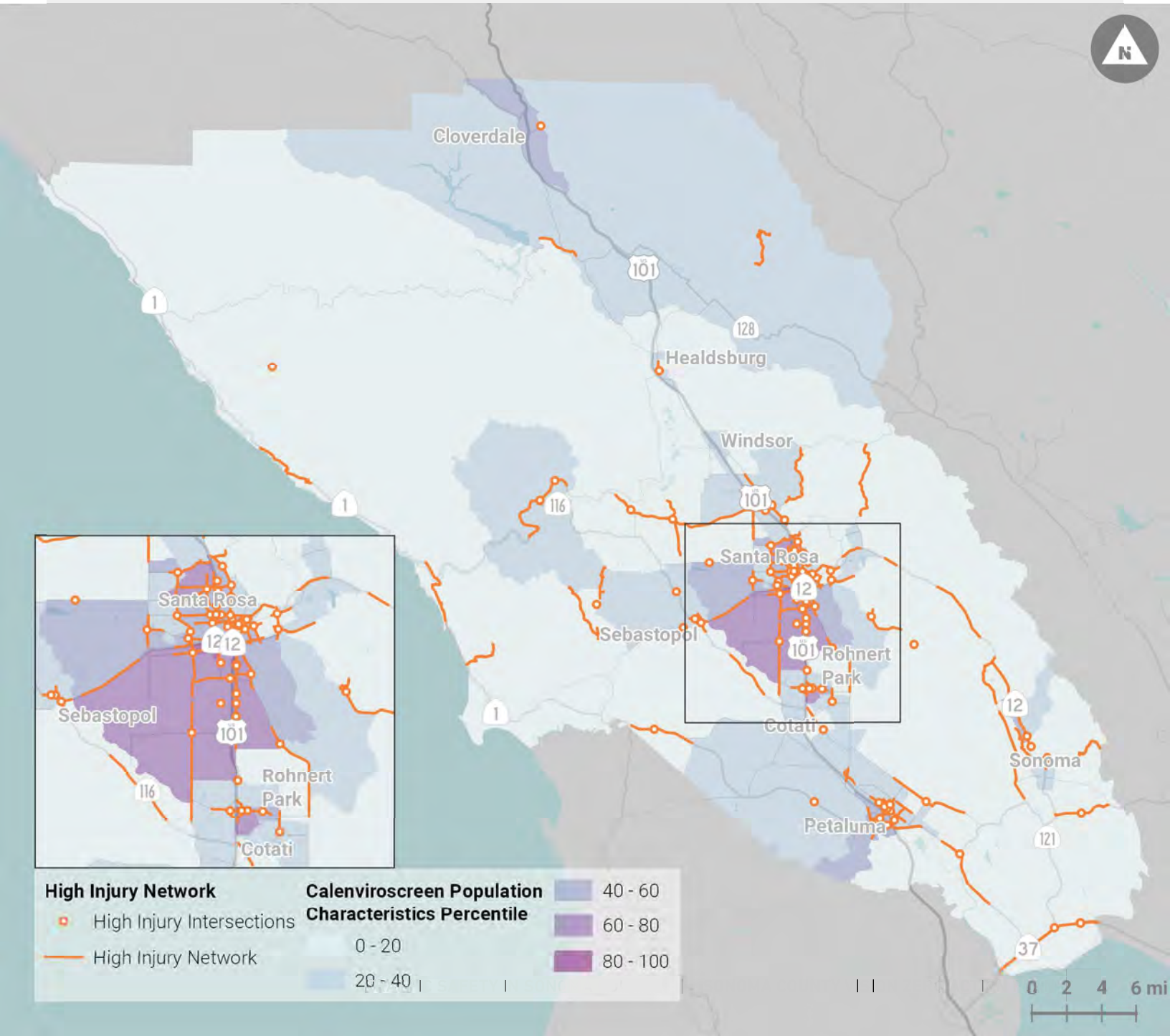
Map 3: Sonoma County High Injury Network (HIN) and High Injury Intersections (HII) Overlaid with Equity Priority Communities



CalEnviroScreen

CalEnviroScreen is a mapping tool from the California Office of Environmental Health Hazard Assessment that helps identify California communities that are most affected by many sources of pollution, and where people are often especially vulnerable to pollution's effects. It includes both pollution burden, which estimates exposure to harmful substances, and population characteristics, including underlying health issues and socioeconomic factors. The population characteristics index provides another tool to help identify areas with populations that may be particularly vulnerable to injuries and fatalities from crashes. This plan uses CalEnviroScreen to supplement analyses around equity and Vision Zero. Map 4 shows the correlation between Sonoma County's High Injury Network and areas with high degrees of social vulnerability based on the CalEnviroScreen population characteristics. Darker purple areas represent those with a higher proportion of vulnerable people based on age, health, and socioeconomic indicators.

Map 4: Sonoma County High Injury Network (HIN) and High Injury Intersections (HII) Overlaid with CalEnviroScreen Scores



04 GOALS AND ACTIONS

Eliminating traffic fatalities and severe injuries requires a sustained and coordinated effort. Based on what we heard from the public and key stakeholders, and what we see in the crash data for Sonoma County, we propose a prioritized set of actions across six major goals:

1. Create Safer Speeds
2. Eliminate Impaired Driving
3. Create a Culture of Safety
4. Build and Maintain Safe Streets for All
5. Make Vehicles Safer and Reduce Private Vehicle Use
6. Improve Data for Effective Decision Making

The first two goals—Create Safer Speeds and Eliminate Impaired Driving—directly target two leading crash factors for severe crashes in Sonoma County. Create a Culture of Safety addresses all crash factors by instilling a sense of shared responsibility for the collective safety of all road users. The next two—Build Safe Streets for All and Make Vehicles Safer—focus on the physical conditions of Sonoma County streets and vehicles to reduce conflicts between road users, prevent crashes from occurring, and to reduce their severity when they do happen. For example, Automated Traffic Enforcement (ATE) using red light cameras reduces right of way crashes while installing side guards on trucks reduces the severity of improper turning crashes involving bicycles and pedestrians. The last goal, Improve Data for Effective Decision Making, lays out an overarching vision for improving the data quality and ease of use to inform ongoing efforts across the other five goals and enable decision makers to prioritize resources.

These goals focus on the key factors behind traffic-related deaths and severe injuries in Sonoma County and the systemic changes required to make the County's roads safer for everyone. The actions to meet each of these goals draw on best practices from around the Country, tailored to the context of Sonoma County and refined through discussions with the Vision Zero Advisory Committee. They build on existing plans and efforts, providing a roadmap to reach the County's Vision Zero goal.[30]

An implementation strategy and timeline are provided for each action. These actions are also color coded into one of six implementation buckets, designed to help Vision Zero implementers understand where they have a leading role to play:

Planning

Operations and Maintenance

Design and Engineering

Policy and Legislation

Education and Engagement

Data and Analysis

30 See Appendix B for descriptions of relevant existing plans and efforts and how they relate to Vision Zero.

Create Safe Speeds

The faster someone drives, the longer it takes to avoid hitting someone entering their path of travel and the more severe the impact of a crash will be. Unsafe speed is the top factor for all crashes in Sonoma County and the third most common crash factor for crashes resulting in a fatality or severe injury. Slowing drivers also makes streets more inviting for people walking and biking. Creating safe speeds is primarily about setting appropriate speed limits and then designing streets that encourage motorists to comply with limits, particularly in more developed areas where there are more people walking and biking.

Primary Action

1.1	Action:	Review speeds and posted limits on the High Injury Network, set context appropriate speeds, and implement speed mitigation measures based on findings and legislative authority
	Key Implementer(s):	Local Transportation and Public Works Department (TPWs)
	Timeline:	3-5 years
	Progress Metric(s):	Miles of roadways in Sonoma County's High Injury Network that have received speed mitigation measures
	Implementation Notes:	Any reduction to speed limits should be accompanied by mitigation measures to lower design speed. Speed mitigation measures include narrower lane widths (may include adding bicycle lanes), smaller curb radii, raised crosswalks, curb bulb outs, speed feedback signs, speed humps, pinch points, chicanes, roundabouts, and coordinated signal timing. California AB 43, which goes into effect in June 2024, will permit cities to lower speed limits beyond the 85th percentile on streets with high injuries and fatalities and require traffic surveyors to consider the presence of vulnerable groups, including children, seniors, and persons with disabilities, when setting speed limits.[31] Stakeholders identified a particular need for traffic calming where County roads enter into municipal boundaries.

Supporting Action

1.2	Action:	Develop and adopt a process to reduce speed limits to 25 mph or below on County and local roads where appropriate, such as areas around schools, parks, senior centers, and transit stations
	Key Implementer(s):	TPWs
	Timeline:	3-5 years
	Progress Metric(s):	Adoption of process
	Implementation Notes:	California AB 43, will "establish a prima facie speed limit of 25 miles per hour on state highways located in any business or residence district" and "authorize Caltrans and a local authority to declare a speed limit of 20 or 15 miles per hour, as specified, on these highways". Streets with substantial pedestrian and bike volumes should have a speed limit no greater than 25 mph. Lower posted speed limits should be accompanied by physical traffic calming measures such as lane narrowing or speed humps.

31 For more information on the 85th percentile based method for setting speed limits and it's limitations, see NACTO's City Limits article "Designed to Fail: The Problem with Percentile-Based Speed Limits."

Eliminate Impaired Driving

Strategies to eliminate impaired driving include coordination with law enforcement on high-visibility enforcement for businesses and individuals, prevention measures to keep people with a pattern of impaired driving from getting behind the wheel, and diversion programs that focus on education and treatment. In addition, this plan proposes transportation alternatives for people who are consuming alcohol, and additional resources for programs that address the root causes of alcohol and drug abuse.

Primary Actions

2.1	Action:	Continue and expand law enforcement engagement with businesses around Responsible Beverage Service (RBS).
	Key Implementer(s):	Sonoma County Sheriff's Department (SCSO), local Police Departments (PDs), California Highway Patrol (CHP), California Department of Alcoholic Beverage Control
	Timeline:	Ongoing
	Progress Metric(s):	Number of businesses engaged
	Implementation Notes:	Establishments that continue irresponsible beverage service, enabling impaired driving may have licenses revoked. Encourage businesses to coordinate with and promote designated driver services and other safe transportation options. Consider implementing "Place of Last Drink (POLD) Survey" to track where DUI offenders last obtained alcohol before their arrest.[32] Beginning in July 2022, the Responsible Beverage Service Training Act (AB 1221) requires all alcohol servers and managers to complete an alcohol server training course and pass the exam at the state's RBS portal.

2.2	Action:	Encourage safe wine, beer, and cannabis tourism by promoting ride share services, designated driver services, and walking wine tours
	Key Implementer(s):	Sonoma County Tourism, tourism industry, DHS, SCTA
	Timeline:	Ongoing
	Progress Metric(s):	Reduction in the number of crashes caused by impaired drivers
	Implementation Notes:	Seek grant funding to expand and promote services and information. Consider creating payment options to make rideshare services accessible to riders without access to accepted credit cards. Also consider discounts or incentives for tasting customers arriving not in a private vehicle. Integrate Vision Zero principles into upcoming Tourism Master Plan and incorporate safe messaging and transportation information into Sonoma County Travel PRO app.

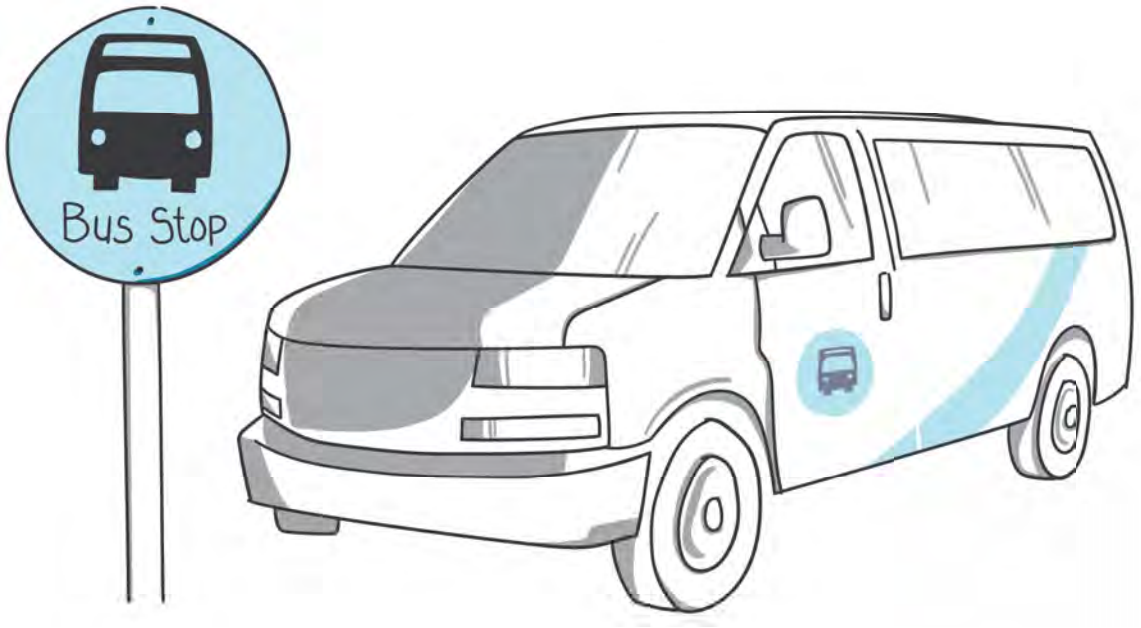
Supporting Actions

2.3	Action:	Support diversion programs like the Driving Under the Influence Program and DUI Court that focus on education and treatment over punishment
	Key Implementer(s):	DHS, Sonoma County Office of the District Attorney
	Timeline:	Ongoing
	Progress Metric(s):	Percent of DUI offenders participating in these programs
	Implementation Notes:	Seek California Office of Traffic Safety (OTS) grant funding to support and expand these programs.

32 See National Liquor Law Enforcement Association (NLLEA) page for more information on collecting and using Place of Last Drink (POLD) data.

2.4	Action:	Support community-based drug and alcohol problem assessment and treatment programs such as Turning Point
	Key Implementer(s):	Sonoma County Department of Health Services (DHS), Drug Abuse Alternatives Center (DAAC)
	Timeline:	Ongoing
	Progress Metric(s):	Number of individuals participating in these programs
	Implementation Notes:	Seek grant funding to support and expand these programs.

2.5	Action:	Expand and promote publicly subsidized transport services to include more night-time hours
	Key Implementer(s):	Sonoma County Transit, Santa Rosa CityBus, Sonoma-Marin Area Rail Transit (SMART), Petaluma Transit, Golden Gate Transit, rideshare and microtransit providers
	Timeline:	3-5 years
	Progress Metric(s):	Number of nighttime service hours
	Implementation Notes:	May include on-demand, flexible route, or traditional fixed route service. Adding service hours will require additional funding but will also improve mobility options for low-income individuals who work irregular hours. Additional night-time transit service would also benefit older adults who do not feel safe driving at night.[33] Nighttime crashes are the most likely to result in deaths or severe injuries.



33 A Sonoma County Area Agency on Aging survey found that 49% of respondents (predominately over age 60), prefer not to drive at night and identified a primary need for additional mobility options during evening hours (Source: *Discovery Report*, 2021). See report summary in Appendix B for more information.

Create a Culture of Safety

Creating a culture of safety involves a variety of measures with a common goal of encouraging safe behavior and instilling a sense of shared responsibility for each other's safety. It is a community-driven goal that requires buy-in and support from diverse stakeholders, elected officials, agency partners, and the media. Many actions focus on youth and young drivers to help develop the next generation of responsible road users. This goal targets dangerous behaviors contributing to all four of the top crash factors: impaired driving, unsafe turns, unsafe speed, and right-of-way violations.

Primary Actions

3.1	Action:	Support Safe Routes to School (SRTS) program and school districts to promote safe, active transportation through education, school policies, and pick-up/ drop-off procedures
	Key Implementer(s):	Sonoma County Office of Education (SCOE), Local School Districts, Sonoma County Bicycle Coalition (SCBC), Sonoma County Safe Streets Coalition, Sonoma County Safe Routes to School (SRTS) Program
	Timeline:	Ongoing
	Progress Metric(s):	Number of partner districts and schools involved; Percent of students participating in International Walk and Roll to School Day
	Implementation Notes:	Build on existing SRTS program priorities. Would require substantial increase in capacity to expand programs to additional schools. Pick-up/drop-off procedures should work to eliminate double parking, stopping on crosswalks, and loading/ unloading children at locations across the street from schools. Depending on their age and proximity to school, children should be encouraged to walk, bike, or carpool to school. "Walking School Buses" and "Bike Trains" may be organized to further improve safety and visibility. Funding available through SRTS grants from Caltrans and CMAQ.

3.2	Action:	Work with media partners to more accurately report traffic crashes, to avoid victim-blaming, and report crashes in the context of Vision Zero
	Key Implementer(s):	DHS, SCTA, CHP, SCSO, PDs
	Timeline:	Ongoing
	Progress Metric(s):	Percent of news articles that connect crashes to systemic and infrastructural issues rather than blaming crash victims
	Implementation Notes:	Coverage should focus on systemic issues rather than individual mistakes.[34]

3.3	Action:	Partner with youth organizations to create peer-to-peer anti-distraction messaging campaigns
	Key Implementer(s):	Sonoma County Office of Education, Boys and Girls Clubs of Sonoma County, Sonoma County Junior Commission, Sonoma State University, Santa Rosa Junior College, Impact Teen Drivers
	Timeline:	Ongoing
	Progress Metric(s):	Number of participating organizations/ number of students involved
	Implementation Notes:	This action will require significant partnership efforts with local schools and student-led organizations. It should build upon established relationships with student organizations. Consider partnering with Impact Teen Drivers, a national traffic safety education nonprofit that engages teens to develop and disseminate evidence-based educational materials to combat reckless and distracted driving.

34 For more info on effective media reporting on crashes, see April 4, 2018 article from Columbia Journalism Review: "When covering car crashes, be careful not to blame the victim".

Supporting Actions

3.4	Action:	Develop comprehensive engagement strategies that prioritize Equity Priority Communities (EPCs), create personal connections to Vision Zero, and encourage drivers to safely share the road with other users
	Key Implementer(s):	DHS, community-based organizations, Sonoma County Safe Streets Coalition
	Timeline:	Ongoing
	Progress Metric(s):	Development of strategies
	Implementation Notes:	Engagement should highlight the shared responsibility of traffic safety with an emphasis on the harm caused by dangerous driving behavior and the need for drivers to safely share the road with other users, such as people walking or bicycling. Communications can be deployed in high crash areas and at times of the year and times of day when the most severe crashes occur (June and August, Friday to Sunday, 3-5pm for Sonoma County). Materials and outreach should be in multiple languages and local leaders and CBOs should be compensated for outreach efforts.

3.5	Action:	Promote educational campaigns for vehicle fleet operators focused on discouraging distracted driving and encouraging safely sharing the road with people walking and bicycling
	Key Implementer(s):	Sonoma County Transit, Santa Rosa CityBus, Sonoma-Marin Area Rail Transit (SMART), Rental Car Agencies, TPWs, Caltrans, Sonoma County Bicycle Coalition (SCBC)
	Timeline:	3-5 years
	Progress Metric(s):	Number of participating agencies and partners; Number of vehicle fleet operators that have employed anti-distraction messaging; Reduction in crashes associated with distraction of driver
	Implementation Notes:	Messaging may be developed as part of a larger campaign to create a Culture of Safety and overlap with goals in that category. Should also include educational information that discourages speeding and promotes safe driving practices around people walking or bicycling, such as the three-foot passing law for bicyclists and yielding to pedestrians even when a crosswalk is not present. Messaging should target vehicle fleet operators, including rental car agencies, government agencies, rideshare companies, waste management providers, and shuttle operators. Build on ongoing education efforts by SCBC. Seek California Office of Traffic Safety (OTS) or National Highway Traffic Safety Administration (NHTSA) grant funding to support and expand these programs.

3.6	Action:	Develop a network of "civic partners" who pledge to support Vision Zero through the dissemination of safety and educational information to their networks
	Key Implementer(s):	Community-based organizations, DHS, VZAC, Sonoma County Safe Streets Coalition, school districts, Office of Education, Sonoma State University, Santa Rosa Junior College, driver training providers, Hospitals and Trauma Centers
	Timeline:	Ongoing
	Progress Metric(s):	Number of civic partners who take the pledge
	Implementation Notes:	Includes the creation of a Vision Zero "heart" for the County: a hub of information, resources, and experiences available to partners to draw upon for local efforts. Local leaders and CBOs should be compensated for outreach efforts.

Safe Routes to School

Sonoma County's Safe Routes to School (SRTS) program is supported by the SCTA through Measure M and Federal funding and is implemented by the Sonoma County Bicycle Coalition. The mission is to encourage safe walking, bicycling, and alternative transportation use for K-8 students. In the 2019-2020 school year, SRTS provided technical support, programming with an educational emphasis to 63 schools, including promotional resource kits, art contests, and events. International Walk and Roll to School Day is an annual event produced by the SRTS Program that takes place in October, which encourages students to safely walk and bike to and from school, and educates parents, school officials, and staff about the benefits of walking and biking to school.

Utilizing the knowledge and skills of the Sonoma County Bicycle Coalition, the SRTS provides Pedestrian and Bicycle Safety training to elementary and middle school students across Sonoma County. At the elementary school level SRTS provides pedestrian safety training to 2nd (or 3rd) graders, bicycle basics training – including an on-bicycle safety skill class called a "Bike Rodeo" to 4th graders, active transportation communication & mapping lessons to 5th graders, and "Drive Your Bicycle" classes and/or Bike Clubs for middle school students. In addition, the SRTS program provides bicycle safety/skill training to the community at large through Family Bicycle Workshops, Learn to Ride classes, Fun & Educational Family Rides, Community Bicycle Rodeos, and even a Kids Bike Adventure Camp. In a typical school year, close to 10,000 Sonoma County students are reached comprehensively in SRTS activities at school, and up to 20,000 students in total participate in SRTS activities annually (including Walk and Roll events and/or education services).

A "Walking School Bus" in Windsor (Photo Credit: Sonoma County Bicycle Coalition)

Build and Maintain Safe Streets for All

Building safe streets in Sonoma County means preserving and maintaining existing infrastructure and ensuring that streets are designed to encourage safe behavior and reduce conflicts between users. This goal was identified as the most important step toward Vision Zero by 67% of survey respondents. Depending on the crash profiles of particular locations, infrastructural countermeasures can also address specific crash types, such as left turn conflicts or fixed object crashes, in a systematic and cost-effective way. Street profiles should also respond to the surrounding land uses and activities, making it easier and more attractive for people to walk, roll, bike, and take transit.

Primary Action

4.1	Action:	Implement low-cost quick-build projects to rapidly implement bicycle and pedestrian safety improvements along the HIN
	Key Implementer(s):	TPWs
	Timeline:	Ongoing
	Progress Metric(s):	Number of quick build projects completed
	Implementation Notes:	Quick build projects use inexpensive, flexible materials such as paint, flex posts, and planters to create safer conditions for walking, wheeling, and driving. The context of a specific site will dictate what type of project can be implemented but standard materials lists and design guidance can be found in guides such as the Burlington Quick Build Design and Materials Standard or the Quick-Build Guide from the CA Bicycle Coalition.

4.2	Action:	Complete Local Road Safety Plans (LRSPs)
	Key Implementer(s):	TPWs
	Timeline:	3-5 years
	Progress Metric(s):	Number of Sonoma County jurisdictions that have completed LRSPs
	Implementation Notes:	The process of preparing an LRSP creates a framework to systematically identify and analyze safety issues and recommend improvements, resulting in a prioritized list of improvements and actions. LRSPs are required to qualify for Highway Safety Improvement Program (HSIP) funds. They may include systemic safety analysis based on roadway and built environment characteristics to proactively target interventions at intersections and corridors the data shows to be high risk for pedestrians, bicyclists, and other vulnerable roadway users. Based on the crash data, LRSPs should include measures specifically designed to address bicyclist and pedestrian safety issues.

4.3	Action:	Seek sustainable funding sources for projects designed to meet Vision Zero safety goals and prioritize projects in Equity Priority Communities (EPCs)
	Key Implementer(s):	SCTA, TPWs
	Timeline:	Ongoing
	Progress Metric(s):	Dollars invested in Vision Zero infrastructure projects (with a x1.5 multiplier for dollars invested in EPCs)
	Implementation Notes:	Consider Measure M, TDA3, OBAC 3, CMAQ, SRTS, HSIP, Go Sonoma, and ATP. Can be dovetailed with existing projects and programs so it doesn't come at the expense of other critical transportation needs.

4.4	Action:	Improve routine facility maintenance particularly along the High Injury Network (HIN)
	Key Implementer(s):	TPWs
	Timeline:	Ongoing
	Progress Metric(s):	Reduction in number of maintenance requests along HIN
	Implementation Notes:	Improved maintenance (e.g., crosswalk and bike lane restriping, brush cutting of vegetation along shoulder areas) contributes to safer streets by both reducing the risk of vehicle crashes and by reducing the risk of trips, slips and falls. Well maintained streets and sidewalks are specifically important for encouraging walking for older adults and young children. An accessible sidewalk network also requires building and maintaining accessible curb ramps to create smooth transitions where sidewalks begin and end. On rural roadways, where sidewalks may not be feasible or appropriate, maintenance of wide shoulders and shared use paths should be prioritized. For more information on accessible sidewalks and maintenance see the FHWA Guide for Maintaining Pedestrian Facilities.

4.5	Action:	Identify and implement road safety improvements through routine resurfacing processes
	Key Implementer(s):	TPWs
	Timeline:	Ongoing
	Progress Metric(s):	Percent of resurfacing projects that have included safety improvements
	Implementation Notes:	Installing safety improvements as part of the resurfacing process is substantially more cost-effective. Improvements can be as simple as installing new markings for high visibility crosswalks, bike lanes, and edge lines or flush medians to narrow lane widths. Resurfacing projects should also address accessibility issues for people with disabilities including curb ramp upgrades at bus stops as well as corners.

Supporting Actions

4.6	Action:	Close gaps in bicycle and pedestrian networks and design facilities for all-ages and all abilities
	Key Implementer(s):	TPWs, SCTA
	Timeline:	5-10 years
	Progress Metric(s):	Miles of new and upgraded bike and pedestrian facilities that connect to existing facilities; Increase in mileage of low stress bicycle facilities, such as separated paths, bicycle boulevards, and separated bikeways
	Implementation Notes:	Sonoma County jurisdictions have built 75 miles of bicycle infrastructure is currently planned in the last 5 years and nearly 1,000 miles of bicycle and pedestrian infrastructure currently planned. Bicycle facilities should also serve mobility device users where sidewalks are missing or inaccessible. Near-term investments should prioritize closing gaps and addressing high injury intersections/corridors, which are also priorities for MTC funding. SCTA plans to develop a Countywide Active Transportation Plan which will focus on defining a connected network of low stress bicycle facilities for Sonoma County.

4.7	Action:	Deploy a toolbox of multi-modal safety design elements and countermeasures to systemically address high-risk intersections and corridors[35]
	Key Implementer(s):	TPWs
	Timeline:	3-5 years, ongoing
	Progress Metric(s):	Percent of high injury intersections and corridors that have received countermeasures
	Implementation Notes:	Examples of proven countermeasures requested as part of the stakeholder engagement for this plan include protected only left-turn signals, improved street lighting, leading pedestrian intervals (LPIs), pedestrian refuge islands, and roadway reconfigurations ("road diets"). There are also countermeasures such as rumble strips and roundabouts that are particularly effective at reducing crashes on rural roadways. Toolbox can be incorporated into Local Road Safety Plans (see example of safety design elements in context on page 44).

4.8	Action:	Update street design standards to reflect the latest research and best practices around safety and Complete Streets, with an emphasis on serving diverse road users of all ages and abilities
	Key Implementer(s):	TPWs
	Timeline:	Ongoing
	Progress Metric(s):	Number of Sonoma County jurisdictions that have updated street design and construction standards
	Implementation Notes:	Make these standards reflect the goals of the County's Complete Streets Policy. Refer to standards from the National Association of City and Transportation Officials (NACTO). For example, typical cross sections should specify lane widths narrower than 12' in most cases and standard bicycle facility for high-volume, high-speed roads should be separated or protected. Should also include guidelines for the installation of marked pedestrian and bicycle crossings, including crossing enhancements, based on vehicle speeds and volumes, street characteristics, transit stops, and other factors. Coordinate with local transit providers to ensure that standards reflect the need for pedestrian crossings near all local transit stops. See new Caltrans Complete Streets policy outlined in DP-37, effective 12/7/21, and forthcoming MTC Complete Streets policy.

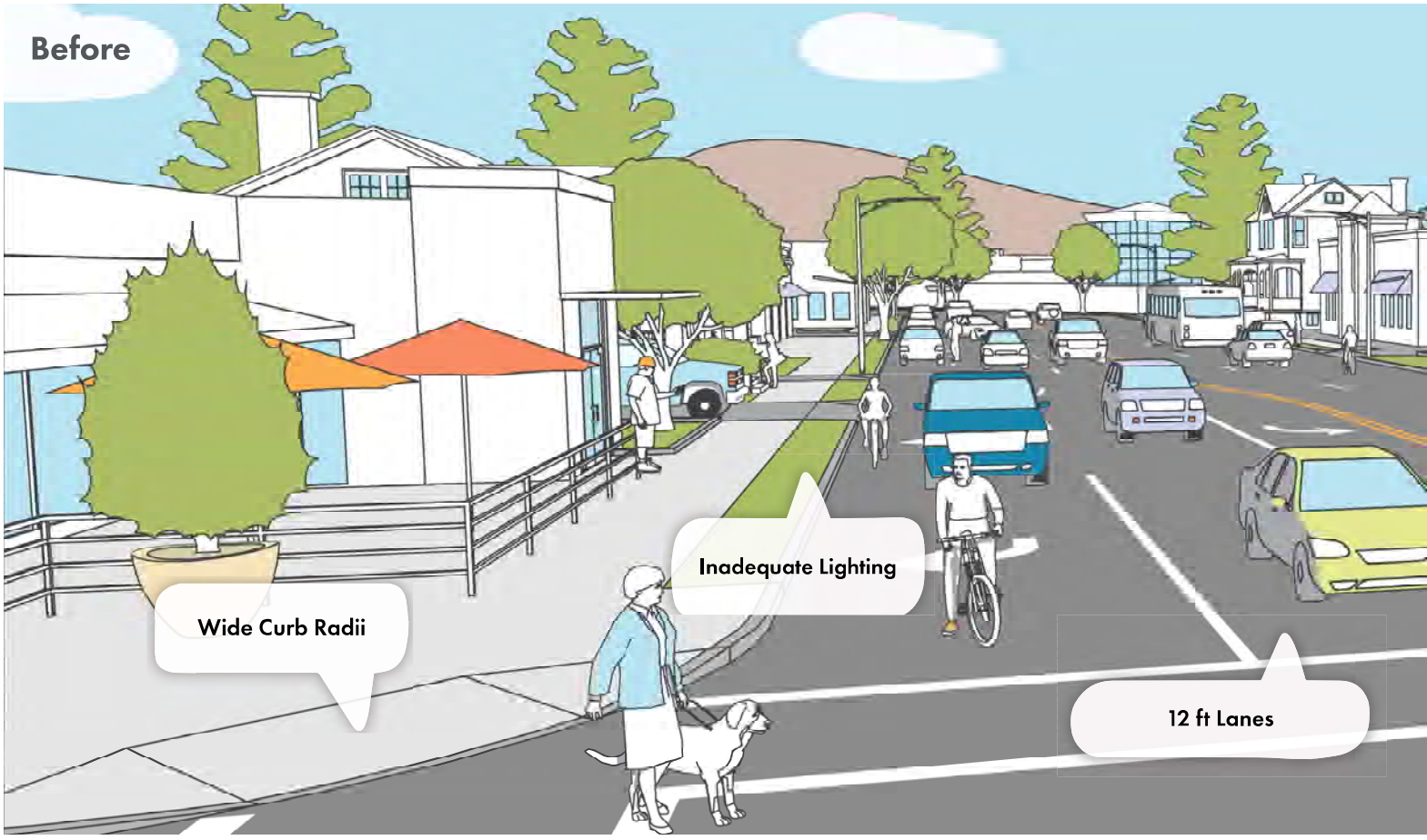
4.9	Action:	Establish a multidisciplinary rapid response team to evaluate and address fatal and severe injury crashes and crash sites
	Key Implementer(s):	TPWs, CHP, SCSO, PDs
	Timeline:	Ongoing
	Progress Metric(s):	Percent of fatal and severe injury crash sites analyzed and percent to receive interventions
	Implementation Notes:	The rapid response team should also propose and implement quick-build and/or pilot interventions to address the contributing factors behind the crash. Also consider using the findings from this team to audit crash reports from law enforcement agencies, flag any inconsistencies, and work together to improve the quality of crash data and investigations (see Action 6.1). Would require hiring additional staff or having an on-call traffic engineer to work with EMS and public safety after a crash.

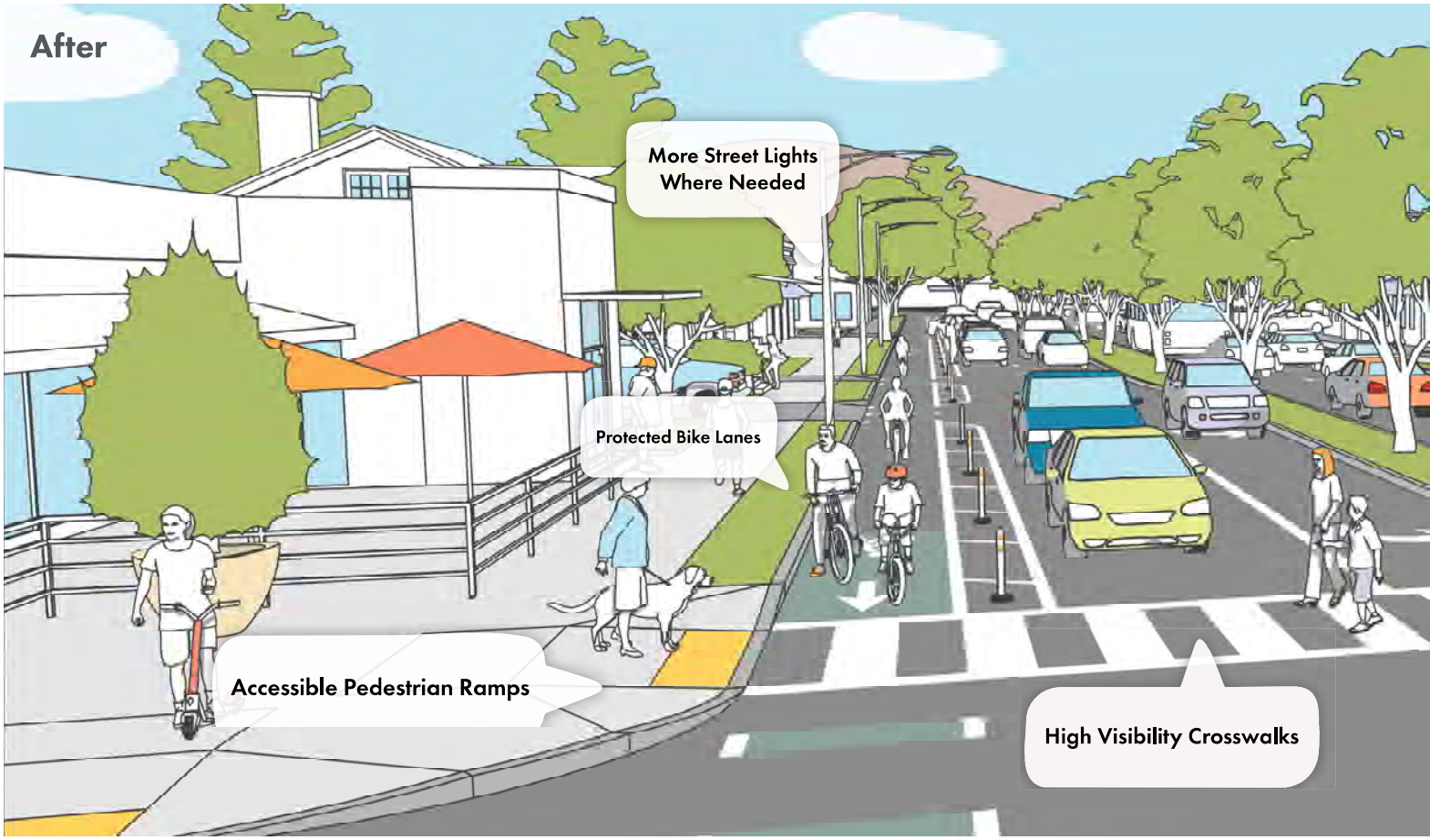
35 See Caltrans Pedestrian Safety Countermeasures Toolbox (June 2019).

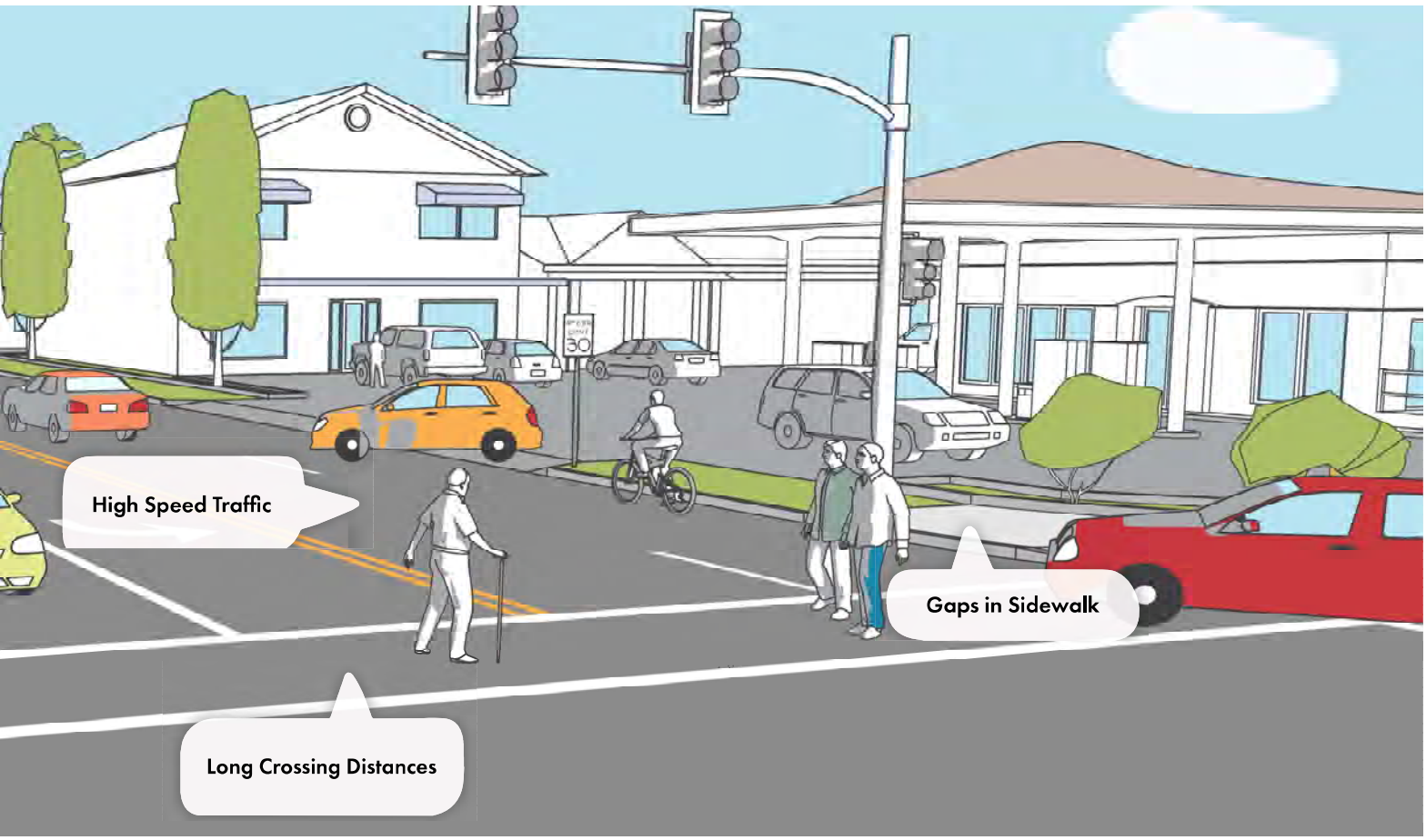
4.10	Action:	Research and consider reinstating and expanding Automated Traffic Enforcement (ATE) as a strategy to reduce red light running
	Key Implementer(s):	Sonoma County Office of the District Attorney, CHP, SCSD, PDs
	Timeline:	3-5 years
	Progress Metric(s):	Number of locations in High Injury Network with ATE
	Implementation Notes:	Ticket revenue should be dedicated to particular Vision Zero efforts, such as building safer streets. Be mindful that the locations do not place a disproportionate burden on low-income communities. Consider tiered fines based on ability to pay. May require additional staffing of a sworn officer to review video footage. Pending approval by the state legislature, also explore Automated Speed Enforcement (ASE) at key locations such as schools located on the High Injury Network. A.B. 550, a 2021 bill that would have created a speed camera pilot program, was not passed by the State Legislature this year.

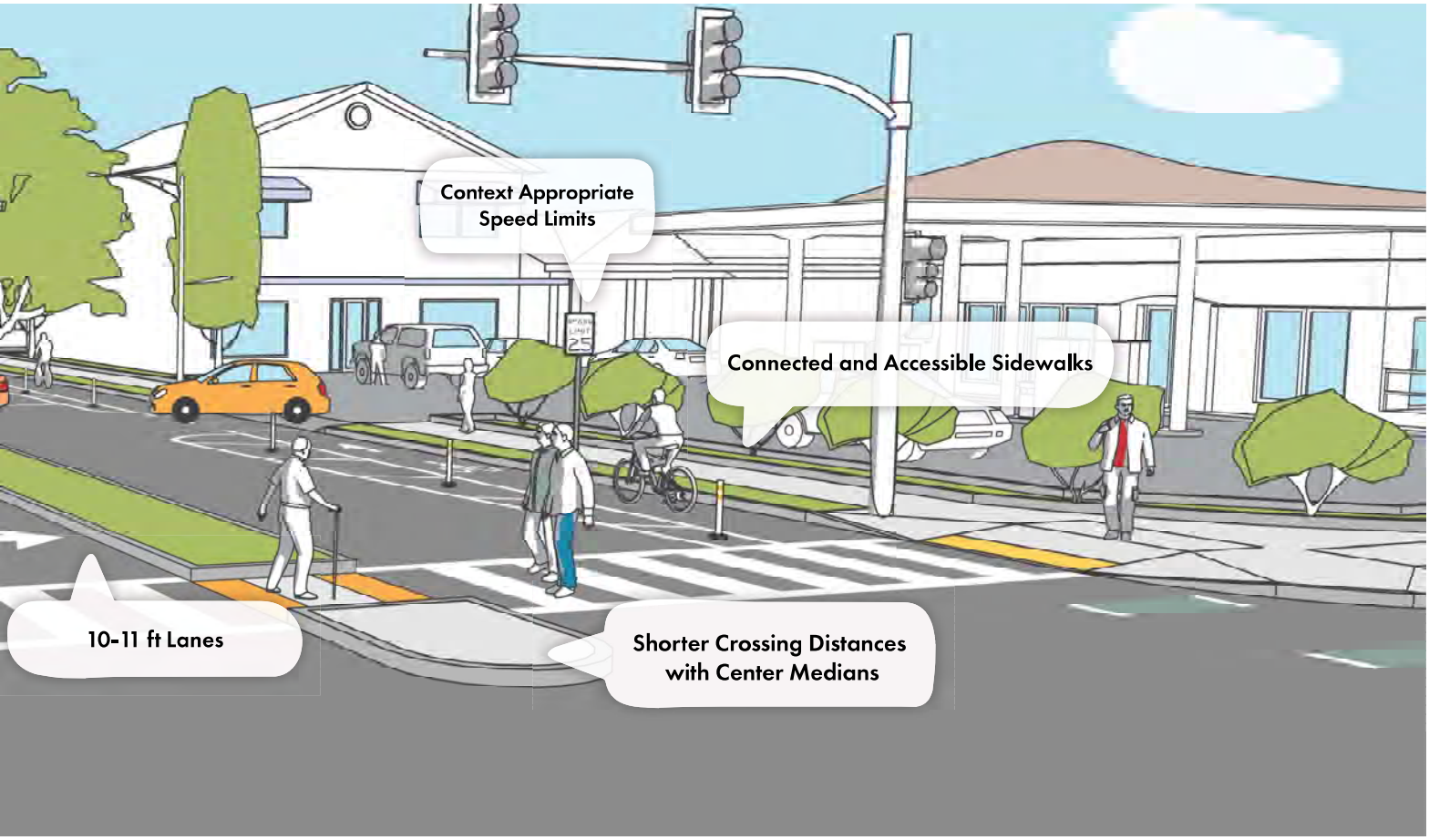
What is an LRSP?

Federal regulations require each State to have a Strategic Highway Safety Plan (SHSP). An SHSP is a statewide data-driven traffic safety plan that coordinates the efforts of a wide range of organizations to reduce traffic collision fatalities and serious injuries on all public roads. While the SHSP is used as a statewide approach for improving roadway safety, A Local Road Safety Plan (LRSP) provides local and rural road owners with a means to address unique road safety needs in their jurisdictions while contributing to the success of the SHSP. The process of preparing an LRSP creates a framework to systematically identify and analyze safety problems and recommend safety improvements. Preparing an LRSP facilitates the development of local agency partnerships and collaboration, resulting in a prioritized list of improvements and actions that can demonstrate a defined need and contribute to the statewide plan. The LRSP offers a proactive approach to addressing safety needs and demonstrates agency responsiveness to safety challenges.


Before
Wide Curb Radii
Inadequate Lighting
12 ft Lanes


After
More Street Lights
Where Needed
Protected Bike Lanes
Accessible Pedestrian Ramps
High Visibility Crosswalks


High Speed Traffic
Gaps in Sidewalk
Long Crossing Distances


Context Appropriate Speed Limits
Connected and Accessible Sidewalks
10-11 ft Lanes
Shorter Crossing Distances with Center Medians

Make Vehicles Safer and Reduce Private Vehicle Use

Motor vehicles are large, heavy, and fast, making them inherently dangerous to other road users. This goal focuses on making sure that the vehicles on Sonoma County roads are designed to reduce the likelihood of driver error resulting in a fatality or severe injury and at reducing overall vehicle use to lower the resulting risk of crashes occurring.

Primary Actions

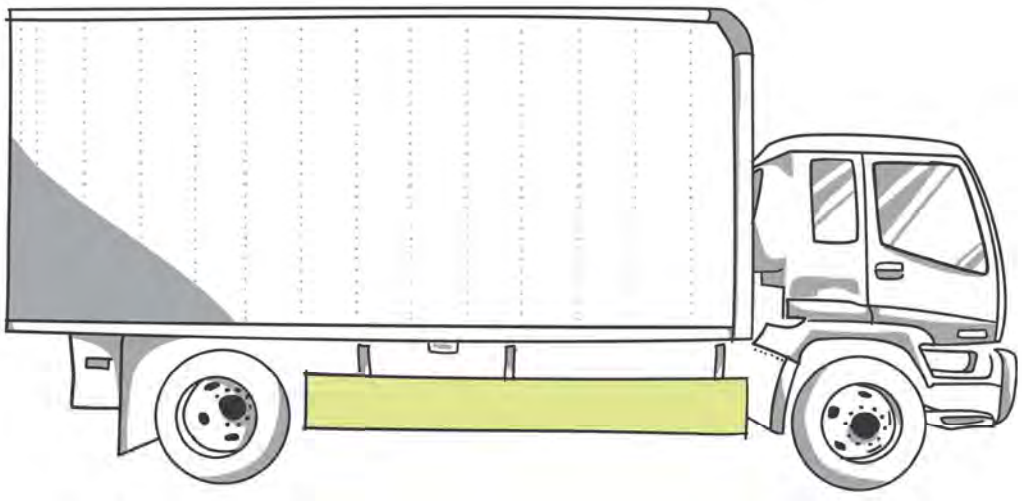
5.1	Action:	Promote land use, TDM, and street design policies that reduce VMT (vehicle miles traveled) and dependence on single-occupancy vehicle trips
	Key Implementer(s):	Sonoma County Transit, TPWs, SCTA, Local elected officials
	Timeline:	Ongoing
	Progress Metric(s):	Mode share (percent of people using non-auto modes) VMT and VMT/capita
	Implementation Notes:	Even for the safest drivers, increased vehicle travel leads to increased exposure and increased risk of crashes. Acknowledging the role of reducing VMT to achieve Vison Zero can be supported by existing TDM (Transportation Demand Management) programs such as the Go Sonoma Emergency Ride Home as well as carpool options and improving facilities for bicycling, walking, and taking public transit. These efforts also align with local and statewide goals to minimize increases in VMT and reduce greenhouse gas emissions in the Sonoma County Comprehensive Transportation Plan and General Plan.

5.2	Action:	Adopt guidelines for incorporating safety features in specifications for new fleet vehicle purchases and retrofit large fleet vehicles with side guards
	Key Implementer(s):	Sonoma County Transit, Santa Rosa CityBus, Sonoma-Marin Area Rail Transit (SMART), TPWs, Caltrans
	Timeline:	1-2 years
	Progress Metric(s):	Establishment of guidelines; Percent of fleet vehicles over 10,000 lbs. with side guards installed
	Implementation Notes:	Safety features may include forward collision warning and mitigation systems, electronic stability control, driver alert systems, adaptive cruise control, rear-view cameras, and GPS based monitoring of driving behavior. Side guards, also known as "lateral protective devices", keep pedestrians, bicyclists, and motorcyclists from being run over by a large truck's rear wheels in a side-impact collision[36]. Also install crossover mirrors for vehicles for which they would improve visibility. There are currently no Federal regulations governing the use of sideguards but could look to recent municipal policies in Boston, Portland, DC, and Cambridge, Massachusetts.

36 See US DOT Volpe Center Truck Lateral Protective Device (LPD) Resources for more information.

Supporting Actions

5.3	Action:	Advocate for an automated mobility policy framework that advances Vision Zero safety goals
	Key Implementer(s):	Elected officials
	Timeline:	3-5 years
	Progress Metric(s):	Adoption of automated mobility policy frameworks at County and state levels
	Implementation Notes:	Maximum autonomous vehicle (AV) operating speeds must be set at legal limits. AVs must also be able to effectively detect and safely share the road with bicyclists and pedestrians. AV companies must share data, including crash and near miss reports, with local jurisdictions. See NACTO's Blueprint for Autonomous Urbanism[37] and Seattle New Mobility Playbook[38].



37 Source: National Association of City Transportation Officials (NACTO), Blueprint for Autonomous Urbanism, 2019.

38 See Appendix C: Preliminary Automated Mobility Policy Framework. Seattle Department of Transportation, New Mobility Playbook, 2017.

Improve Data for Effective Decision Making

Improving the scope and quality of crash data helps planners, engineers, and policy makers to make better decisions about resource allocation and facility design.

Primary Actions

6.1	Action:	Enhance training for law enforcement personnel responsible for crash reporting to address the unique attributes required to accurately report circumstances of crashes involving bicyclists, pedestrians, and other vulnerable road users
	Key Implementer(s):	CHP, SCSO, PDs
	Timeline:	3-5 years
	Progress Metric(s):	Training module is developed and delivered; Number of annual participants attending the training
	Implementation Notes:	Training should focus on accurately and thoroughly investigating and reporting crashes involving vulnerable users. Some departments already have a relevant training module on this topic, but it is not necessarily required for all traffic officers and may not address all relevant factors. See Model Minimum Uniform Crash Criteria (MMUCC) for guidance on collecting quality crash data. As more PDs move toward electronic reporting, there may be opportunities to supplement Form 555 with fields for accurately identifying unmarked crosswalks, assigning right-of-way violations properly, bicycle and pedestrian location (relative to infrastructure that is present), pre-crash actions, and other aspects of these crashes that are critical in safety analysis.

6.2	Action:	Use hospital trauma, health center, and Portrait of Sonoma County data to develop a more comprehensive understanding of crashes and contributing factors
	Key Implementer(s):	DHS, Hospitals and Trauma Centers
	Timeline:	3-5 years
	Progress Metric(s):	Identification of elements related to safety and mobility
	Implementation Notes:	Continue to investigate and incorporate health service provider data into the data dashboard as these data resources are developed and integrated with other crash and safety data resources. Can also help to understand the degree of underreporting of crashes.

Supporting Actions

6.3	Action:	Use regional data sources such as the Metropolitan Transportation Commission's Regional High Injury Network and Regional Safety Data System, and Caltrans District 4 location-based needs identified by their active transportation planning efforts to inform safety project development and funding decisions
	Key Implementer(s):	SCTA, TPWs
	Timeline:	3-5 years
	Progress Metric(s):	Integration of regional data sources into Sonoma County planning and prioritization frameworks
	Implementation Notes:	There will be potential funding opportunities attached to MTC's Regional High Injury Network.

6.4	Action:	Provide annual citation data for infractions that potentially lead to severe injuries and deaths, such as impaired driving, speeding, and failure to yield
	Key Implementer(s):	CHP, SCSO, PDs
	Timeline:	1-2 years, ongoing
	Progress Metric(s):	Provision of data
	Implementation Notes:	This data can be used to analyze the effectiveness of Vision Zero education, outreach, and other investments that target these behaviors. Data could be summarized in a new section in the VZ story map. Ongoing transition to Crossroads collision database may facilitate collaborative data-sharing and analysis.

6.5	Action:	Maintain and update the Sonoma County Vision Zero Data Dashboard for all crash and safety data on the Vision Zero website
	Key Implementer(s):	SCTA
	Timeline:	Ongoing, 0-2 years
	Progress Metric(s):	Completion of yearly update and periodic updates
	Implementation Notes:	Improvements may include an expanded data portal and clearinghouse.

05 WHAT'S NEXT?

Holding Ourselves Accountable

This Vision Zero Action Plan represents a commitment to an initial set of actions addressing Sonoma County's highest priority traffic safety issues. Implementing these actions will require collaboration between all the Key Implementers listed above as well as other supporting organizations and government agencies. It will also require the support of people who live, work, and visit Sonoma County.

Another critical piece of making Vision Zero a reality is to integrate the data, findings, goals, and proposed actions from this plan into future planning documents, such as Active Transportation Plans (ATPs), general plans, bicycle and pedestrian plans. The call-to-action laid out here adds a sense of urgency to other ongoing efforts to encourage safe driving behavior and to make Sonoma County a better place for walking, bicycling, and using public transportation.

Evaluating Our Efforts and Progress Towards Vision Zero

Tracking and evaluating our progress towards Vision Zero will occur at both the local and the countywide level. At the local level, each jurisdiction will track their progress across key actions, such as implementing safety projects or speed mitigation measures, using a standardized Vision Zero Progress Tracker. For infrastructure expenditures, jurisdictions should also consider tracking investments by neighborhood to ensure an equitable distribution that accounts for historical patterns of disinvestment.

At the countywide level, SCTA will aggregate this data with their existing data on transportation projects to provide a picture of countywide progress towards these engineering and infrastructure-oriented goals. SCTA will also continue to update the Vision Zero Data Dashboard and report out key findings through the associated Story Map. This crash data will provide the key indicator of Sonoma County's progress toward Vision Zero: fatal and severe injury crashes per year. We will also use the Data Dashboard to monitor particular subsets of crashes to evaluate our progress in particular areas, including:

- Crashes involving bicycle and pedestrians
- Crashes resulting from impaired driving
- Crashes resulting from unsafe speeds
- Crashes in rural versus urbanized areas
- Crashes occurring on roadways in Equity Priority Communities (EPCs)

SCTA will add also additional sections to the Vision Zero web page to spotlight local projects and track other key countywide actions, including but not limited to:

- Expansion and promotion of programs to combat impaired driving (Actions 2.1, 2.2, 2.3, 2.4)
- Implementation of countywide Vision Zero outreach and education programs that encourage safe behavior and create personal connections to Vision Zero (Actions 3.1, 3.3, 3.4, 3.5, 3.6)
- Identification of sustainable funding sources for Vision Zero infrastructure projects (Action 4.3)
- Regional connectivity of all-ages, all-abilities pedestrian and bicycle networks (Actions 4.1, 4.5, 4.6)
- Adoption of an automated mobility framework that advances Vision Zero safety goals (Action 5.3)
- Integration of new data sources to analyze safety and equity issues (Actions 6.2, 6.3, 6.4)

The purpose of this tracking is to evaluate efforts and see what is working.

Future Trends and Uncertainties

Sonoma County anticipates changes in the next few decades that have significant implications for transportation safety. Over the next 30 years, the County's population is forecast to grow from under 500,000 people to over 600,000, representing an additional 32,000 households. The County workforce will also increase, potentially adding 30,000 new jobs (with jurisdictions' general plans reflecting a desire for up to 100,000). Together, this increase in population and employment will greatly increase travel activity on the

County's transportation system. Total VMT is forecast to increase by 20 percent per day, even as local development and increases in nearby jobs may reduce VMT per capita by approximately 10 percent. Increased traffic volumes have the potential to increase the number and rate of crashes, unless paired with efforts to improve safety and invest in improvements to other travel modes. By 2050, the proportion of County residents ages 65 and older is expected to rise from 22 percent to 31 percent.[39] As people age, cognitive changes can reduce driving ability and safety; availability of other travel modes plays a key role in allowing older adults to age in place while meeting their needs.

While demographic trends and travel models can provide some insight into the direction and degree of change in travel patterns, many factors cannot be easily predicted. The recognized need to prevent severe global warming -- and to adapt to climate changes that are already occurring -- may bring about policy changes to how California prices, invests in, and incentivizes different ways of traveling. As technologies like Intelligent Transportation Systems (ITS), electric vehicles, autonomous vehicles, micro-transit, and e-bikes are developed, piloted, and deployed, they can alter the safety and efficiency of the transportation system in both planned and unexpected ways. Disruptive events like the COVID-19 pandemic and the Tubbs Fire of 2017—and successive wildfires in Sonoma County—can create rapid changes in population, growth, goods movement, and travel, with long-term effects that are difficult to predict. Creating safe systems will require Sonoma County and its communities to invest in solving the safety problems of the day, while anticipating different future scenarios and preparing to monitor events as they unfold.

Pandemic Related Travel Patterns

The shelter-in-place orders and other public health policies and practices implemented during the COVID-19 pandemic resulted in travel patterns different from those during pre-pandemic times. In 2020 and part of 2021, walking and bicycling activity increased in many communities, and in most places, commute traffic and transit ridership significantly decreased. Some cities created temporary facilities to accommodate the growing demand for space for walking and bicycling. It is possible that many of these temporary facilities will remain permanent. This, coupled with the growing use of electric bicycles, suggests that the increased walking and bicycling activity observed during the pandemic may remain into the future.

In the second half of 2021, as many employees returned to work and students went back to school, travel patterns shifted closer to pre-pandemic trends. In many metropolitan areas, evening rush hour is similar to pre-pandemic volumes, while the morning rush hour is more dispersed than before the pandemic. By 2050, freight traffic is projected to triple worldwide.[40] These patterns suggest that the safety concerns and trends present before the pandemic will likely continue to be important as daily life and travel patterns slowly return to pre-pandemic times. In addition, if freight traffic and walking and bicycling activity continues to increase, providing adequate separation between vehicles and vulnerable road users and encouraging safe travel behaviors will be increasingly important to achieve Vision Zero.

Introduction of Autonomous Vehicles

In the future, the integration of autonomous vehicles onto Sonoma County's roadways may improve safety for all road users. Autonomous vehicles can use vehicle sensors, advanced mapping technology, and on-board messaging to improve safety and reduce crashes associated with several different contributing factors. For example, autonomous vehicles will likely reduce crashes associated with certain driver behaviors, such as driving while impaired, distracted, or tired; or failure to obey traffic laws (e.g., red-light running and speeding). Law enforcement and other crash investigators may also be able to extract new details about crashes from autonomous vehicles that will improve our understanding of pre-crash events.[41] Researchers estimate that autonomous vehicles may reduce crash rates by 34 to 90 percent.[42] This large range highlights the current uncertainty of the impact of autonomous vehicles on roadway safety overall.

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39 Source: U.S. Census and California Department of Finance via Sonoma County Transportation Authority (SCTA) Comprehensive Transportation Plan, 2021

40 Source: Organization for Economic Cooperation and Development (OECD), ITF Transport Outlook 2019

41 Source: Governor Highway Safety Association, "Preparing for Automated Vehicles: Traffic Safety Issues for States" 2018.

42 Victoria Transport Policy Institute. "Autonomous Vehicles Implementation Predictions". November 2021.

It is also possible that the nature and convenience of autonomous vehicles will result in more cars on the road and an increase in VMT, and thus increased opportunities for crashes. Autonomous vehicles may allow children, the elderly, and disabled, who may not otherwise have traveled alone to have more mobility independence.[43] Typical drivers may also travel more because they can be more productive with their time in a vehicle. These are all important benefits of autonomous vehicles, but without proper policies and infrastructure improvements, the increased traffic volume could have negative impacts on traffic safety, particularly among people walking and bicycling.

While autonomous vehicles have many benefits, they will not reduce all crashes, and more importantly to this plan, the full benefits, and costs, of autonomous vehicles will only be realized after the majority, or all vehicles on the road are autonomous. It will be a long time, possibly 20 to 50 years before most vehicles on the road are autonomous.[44] It will also take a long time for these vehicles to become affordable for most of the population, suggesting that the benefits associated with these vehicles may not be evenly distributed throughout a community. This plan anticipates future developments with autonomous vehicles but primarily responds to current roadway safety trends and concerns. Future policies should ensure that autonomous vehicles are adopted and used in a way that encourages safe travel and minimizes increases in VMT.

Conclusion and Vision Zero Pledge

While we don't know what exactly the future of transportation will look like for Sonoma County, we do know what we must do now to work towards our goal of eliminating traffic fatalities and severe injuries by 2030. The goals and actions laid out in this plan chart a course toward our Vision Zero goal, but it will also take collective action from all of us. By pledging to make safe decisions and look out for one another, we can help to make Sonoma County roads safer for everyone.

Take the pledge at scta.ca.gov/vz/#vision-zero-pledge

43 Governor Highway Safety Association. "Preparing for Automated Vehicles: Traffic Safety Issues for States" 2018.

44 Victoria Transport Policy Institute. "Autonomous Vehicles Implementation Predictions". November 2021.

06 ACKNOWLEDGMENTS

Vision Zero Advisory Committee

- Christine Culver, Board of Supervisors District 3
- Jake Buffenbarger, Caltrans
- Orlando Ramirez, Caltrans District 4
- Christine Jacobs, California Highway Patrol
- Sergeant Dave Thomas, California Highway Patrol
- Lieutenant Randy England, California Highway Patrol
- Officer Tim Randall, California Highway Patrol
- Kevin Thompson, City of Cloverdale
- JP Harries, City of Cotati
- Ben Kageyama, City of Healdsburg
- Larry Zimmer, City of Healdsburg
- Gina Petnic, City of Petaluma
- Ken Eichstaedt, City of Petaluma
- Eydie Tacata, City of Rohnert Park
- Jason Sampietro, City of Rohnert Park
- Beatriz Guerrero Auna, City of Santa Rosa
- Bjorn Griepenburg, City of Santa Rosa
- Nancy Adams, City of Santa Rosa
- Kari Svanstrom, City of Sebastopol
- Colleen Ferguson, City of Sonoma
- Kevin Anderson, Daily Acts
- Frank Penry, GHD
- Shruti Hari, MTC
- Gary Helfrich, Permit Sonoma
- Brooke Brand, Providence Hospital
- Yuri Koslen, Santa Rosa City Bus
- Eris Weaver, Sonoma County Bicycle Coalition
- Tina Panza, Sonoma County Bicycle Coalition
- Ken Tam, Sonoma County Regional Parks
- Steven Schmitz, Sonoma County Transit
- Steve Birdlebough, Sonoma County Transportation and Land Use Coalition
- Nader Dahu, Sonoma County Transportation and Public Works
- Kevin Craven, St. Joseph Health
- Patty Carlson, St. Joseph Health
- Rosalyn Exley, St. Joseph Health
- Alejandro Perez, Town of Windsor
- Mona Ibrahim, Town of Windsor
- Eric Janzen, City of Cloverdale

SCTA Board of Directors

- Melanie Bagby, City of Cloverdale
- Mark Landman, City of Cotati
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- D'Lynda Fischer, City of Petaluma
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- Sarah Gurney, City of Sebastopol
- Sandra Lowe, City of Sonoma
- Chris Coursey, Sonoma County
- David Rabbitt, Sonoma County
- Lynda Hopkins, Sonoma County
- Rosa Reynoza, Town of Windsor

Sonoma County Board of Supervisors

- Susan Gorin
- Lynda Hopkins
- David Rabbitt
- Chris Coursey
- James Gore

Project Team

Sonoma County Transportation Authority

- Janet Spilman
- Tanya Narath
- Christopher Barney

Sonoma County Department of Health Services

- Laurel Chambers
- Kristin Thigpen
- Brittany Lobo
- Danielle Baker

Consultant Team

- Toole Design
- MIG

Funding

This project received funding support from Caltrans through the Sustainable Communities Grant Program.

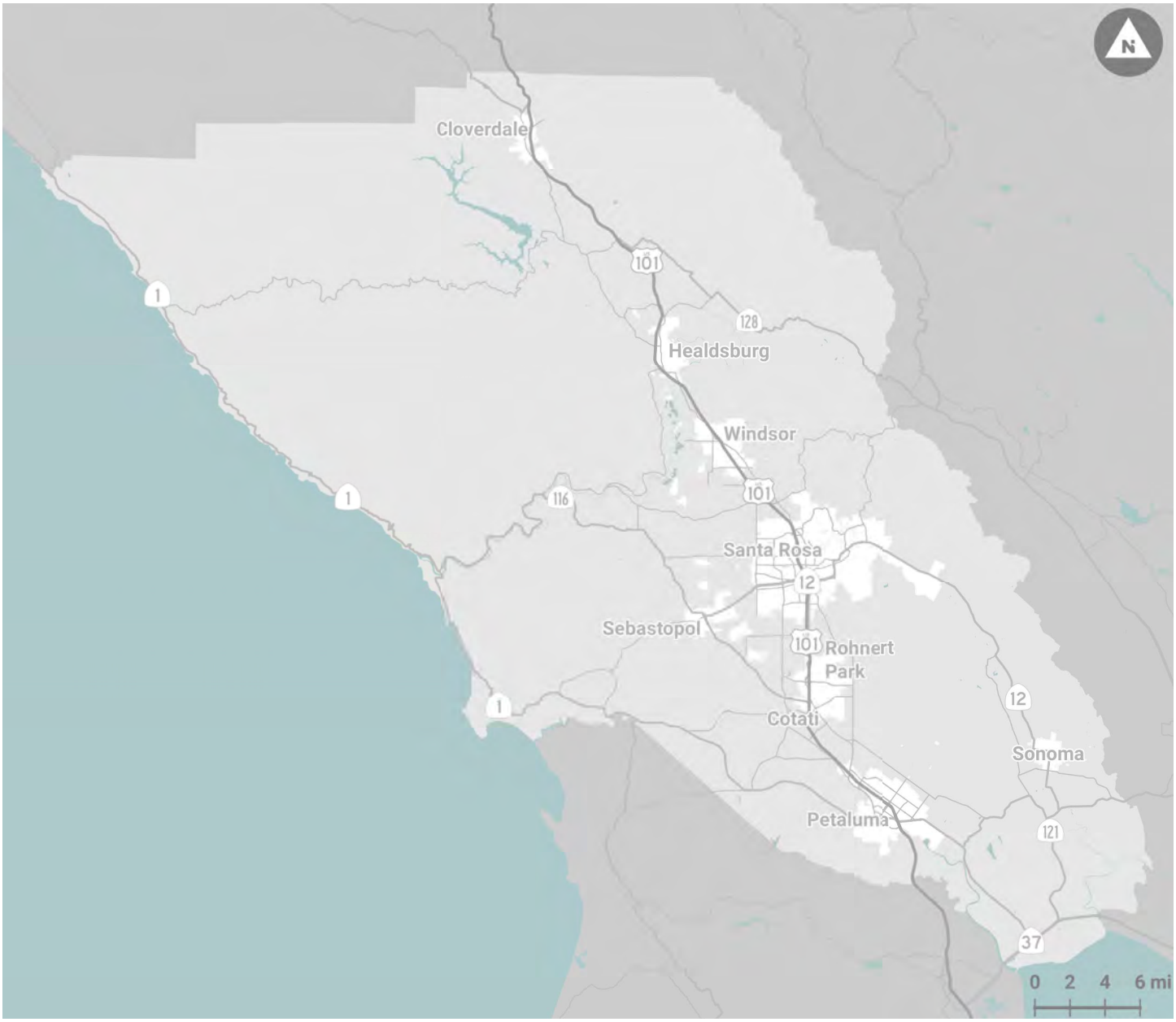
07 APPENDICES

Appendix A: Transportation Context and Travel Patterns in Sonoma County[45]

Roads

Most Sonoma County residents and visitors travel using its 2,670 miles of public streets, roads, and highways. State highways represent less than one-tenth of all public roadway miles within the county but carry over half of its daily vehicle miles traveled (VMT) due to their key role in providing intercity and regional connections. Highway 101 serves as the central north-south corridor, connecting seven of the County's nine cities, while Highway 1 links coastal communities and destinations. State Routes 12, 37, 116, 121, and 128 provide cross-county connections (see Map 5: Major Roads and Jurisdictional Boundaries in Sonoma County Map 5). County-owned roads in rural and unincorporated areas make up the majority of the roadway system, followed by city-owned roads and streets.

Map 5: Major Roads and Jurisdictional Boundaries in Sonoma County



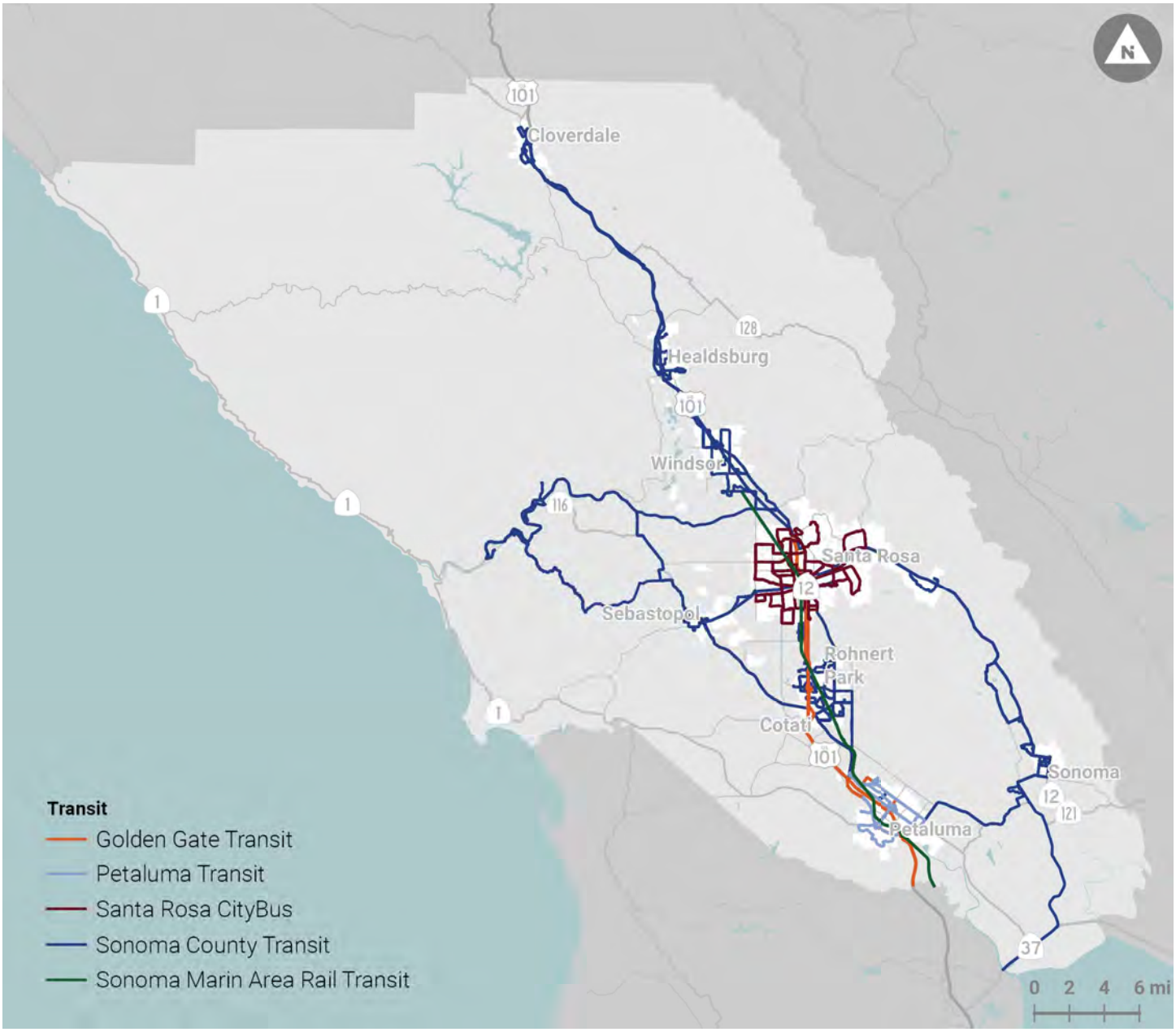
45 Data and analysis of Sonoma County's transportation network, trends, and issues draws primarily on the Sonoma County Transportation Authority (SCTA) Comprehensive Transportation Plan, *Moving Forward 2050*. Other sources are noted where used.

Public Transportation

Multiple transit agencies serve Sonoma County. Local and intercity buses operated by Sonoma County Transit serve all cities and towns in the County, as well as unincorporated areas between communities. Santa Rosa CityBus and Petaluma Transit each provide additional local service within their cities. For intercity commuters, Sonoma-Marin Area Rail Transit (SMART) provides train service to twelve stations connecting the Sonoma County Airport to the Larkspur Ferry Terminal in Marin County. Golden Gate Transit operates two commuter bus lines along Highway 101, with connections to East Bay routes. The Mendocino Transit Authority operates one route that links Santa Rosa to coastal communities in Sonoma and Mendocino counties, and a second linking Santa Rosa directly to central Mendocino County cities via the Highway 101 corridor. Several bus operators also provide paratransit services (curb-to-curb rides for people with disabilities) within a ¾ mile radius of their existing fixed-route services.

In 2019, people made 4.4 million rides on the County's public transit routes, 84 percent via bus and 16 percent via rail. Surveys conducted on transit routes in 2018 found that approximately three in four bus riders and one in four train riders were very low income, and a significant portion did not have access to vehicles. Many high school and college students rely on transit, as do people with disabilities who cannot drive.

Map 6: Transit Routes in Sonoma County

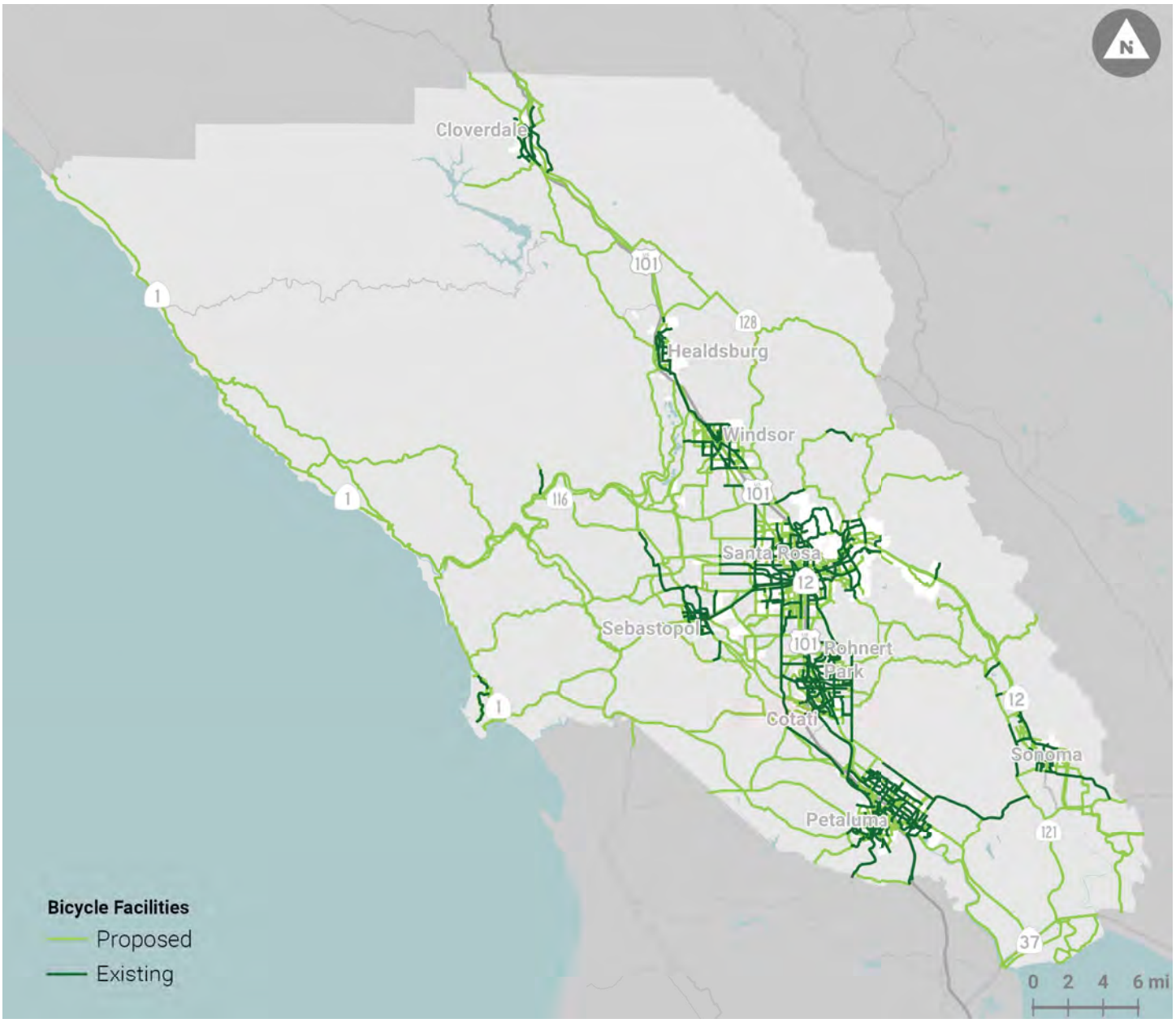


Walkways and Bikeways

All of Sonoma County's jurisdictions have adopted "Complete Streets" policies, which require that they design transportation projects for the safety and convenience of people walking,[46] bicycling, and taking transit as well as driving. Paired with transportation and land use policies that prioritize walking, bicycling, and access to transit in active mixed-use districts, these efforts have increased opportunities to walk and bike comfortably in the County's communities.

Walkways include a range of infrastructure such as sidewalks, trails, curb ramps, and crossings. When paired with landscaping, trees, lighting, and street furniture, these become comfortable for users of all ages. The Americans with Disabilities Act of 1990 requires jurisdictions to meet accessibility requirements as they build new pedestrian facilities or update old ones. These improvements are essential to providing fair access for people with sensory or mobility disabilities, but they also increase comfort and safety for people of all ages and abilities. With no countywide

Map 7: Bicycle Facilities in Sonoma County



46 This action plan defines *walking* and *pedestrian* as including people who use mobility aids such as wheelchairs, scooters, and walkers.

data set capturing all routes, gaps, and deficiencies in the pedestrian network, it is challenging to know where the current transportation system meets the needs of people walking.

Currently the County's bicycle system includes 208 miles of bikeways of various types, with bike lanes being the most common. Bikeway designs should be chosen to match their context. For example, a design that offers protection and separation increases safety for people bicycling on high-speed roads with higher traffic volumes, while many riders may comfortably use the travel lane on a quiet, slow-speed neighborhood street. Other elements like bicycle-activated signal detection, bicycle parking, traffic calming, and signage support safe and convenient bikeways. More than 1,000 additional miles of bikeways are planned and awaiting funding.

Current Travel Patterns

Over the course of the typical week, people make 1,648,000 trips on or through Sonoma County. Nine in ten of these trips take place entirely within the County's borders, indicating that residents meet the majority of their daily needs without needing to travel to neighboring counties. Incorporated cities and towns serve as the origin or destination for most trips, and trips contained within the City of Santa Rosa account for 44 percent of all vehicle trips in the County. Most trips are made by vehicle -- and most of those by driving alone – while active travel modes such as walking, biking, or taking transit represent less than 10 percent of all trips.

On average, commute trips are twice the length (in both duration and distance) of trips made for other purposes. Over the last 40 years, Sonoma County workers have become increasingly likely to commute by driving alone, and a small but increasing share of workers have eliminated commutes by working from home. Carpool, transit, and walk and bike rates have all dropped for commute trips. While travel to work and school can often be foremost in people's minds due to its regularity and the need to arrive on time, these trips represent just over 25 percent of all weekly travel in Sonoma County. Most trips are made for other reasons, such as shopping, medical appointments, and social or recreational activities. These trips are typically shorter, less consistent in time and day of the week, and often involve multiple people traveling together in a vehicle.

People who live outside the County account for a significant share of travel activity on the County's transportation network. An analysis of mobile device data shows that 18 to 24 percent of all County trips are made by people who live elsewhere, with higher levels occurring on the weekends. Unsurprisingly, they typically travel longer distances than County residents, with average trip lengths of 20 to 30 miles.[47]

47 Source: Sonoma County Transportation Authority, "Sonoma County Travel Behavior Study", 2020.

Appendix B: Related Road Safety Plans and Efforts

Moving Forward 2050 (Sonoma County Comprehensive Transportation Plan)

The 2021 Comprehensive Transportation Plan (CTP) establishes a vision of connecting people and places as Sonoma County transitions to a zero-emissions future. Key actions in the plan include implementing a Vision Zero policy and setting clear strategies to achieve the goal of zero fatalities and severe injuries.

Local Road Safety Plans

Many jurisdictions in Sonoma County are working on Local Road Safety Plans (LRSP). These plans are developed with the collaboration of various city departments, local agencies, and organizations. They identify, analyze, and prioritize roadway safety improvements within a particular jurisdiction. They reveal systemic crash patterns and crash locations throughout the city and propose a toolbox of countermeasures to address these patterns. Prepared in compliance with State and Federal guidelines, the LRSPs provide the necessary data to support current and future applications for Highway Safety Improvement Program funding (HSIP) to build the proposed safety improvements.

The cities of Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol and the Town of Windsor have all developed or are developing LRSPs at this time.

Sonoma County Bicycle and Pedestrian Plan

This 2014 plan includes projects, programs, and policies that work together to provide safe and efficient transportation opportunities for bicyclists and pedestrians in Sonoma County. Recommendations included over 1,000 miles of new bicycle and pedestrian facilities across all jurisdictions.

Local Bicycle and Pedestrian Plans

Following the SCTA's 2014 Countywide Bicycle and Pedestrian Master Plan many jurisdictions in Sonoma County, including Healdsburg, Windsor, Cotati, Petaluma, and Sebastopol, have developed bicycle and pedestrian plans to guide and implement local projects and programs. Key objectives across all plans include creating countywide pedestrian and bicycle networks that are safe and secure, reducing automobile crashes with pedestrians and bicyclists, and developing public outreach materials to promote bicycle and pedestrian safety and the benefits of active transportation.

Santa Rosa Bicycle and Pedestrian Master Plan

This 2018 plan sets a long-range vision for improving walking and bicycling in the city of Santa Rosa. Key goals include increasing access and comfort, maintaining and expanding the network, and supporting a culture of walking and biking. The plan also lays out specific recommendations to develop a comprehensive Vision Zero strategy and identify a HIN as a foundation for a future countywide Vision Zero Action Plan.

Sonoma County Area Agency on Aging Discovery Report

As part of the Sonoma County Connected Communities Transportation Study, this 2021 report provides a comprehensive needs assessment and action plan to identify strategies to deliver transportation services to older adults and people with disabilities, with a focus on low-income and geographically isolated individuals. The Sonoma County Area Agency on Aging (AAA) conducted five focus groups, a dozen key informant interviews, and a survey with over 500 responses. The respondents were predominately older adults with a large majority (93%) over 60 years old. The study identified several primary mobility needs that relate to Vision Zero, including a need for better connections to the fixed-route transit network, improved transit during evening hours and other medical discharge times, and inconsistent and unaffordable transit fares.

MTC Vision Zero Effort for San Francisco Bay Area

The Bay Area Metropolitan Transportation Commission established a Regional Safety/Vision Zero Policy in 2020 and has been working on the Regional High Injury Network and Regional Safety Data System, which aims to enhance

local jurisdiction's access to reliable and consistent data, help communities use this data to develop regional policies, and ultimately support jurisdictions by providing technical assistance with safety planning.

Caltrans District 4 Bike and Pedestrian Plans

These plans build on the California State Bicycle and Pedestrian Plan with the vision of people in California of all ages, abilities, and incomes being able to safely, conveniently, and comfortably walk and bicycle for their everyday transportation needs. Key emphasis areas in both plans include designing safer and more intuitive highway crossings and interchanges, and engaging with low-income, minority, rural, and tribal communities during planning and project development to address issues affecting those communities. The Pedestrian Plan also specifically encourages partner jurisdictions to develop Vision Zero Action Plans and highlights the Caltrans Toward Zero Deaths goal as the agency's expression of the Vision Zero approach.

California Highway Safety Improvement Program (HSIP)

The Highway Safety Improvement Program (HSIP) is a core federal-aid program under the 2015 Fixing America's Surface Transportation (FAST) Act. The purpose of the HSIP is to achieve a significant reduction in traffic fatalities and severe injuries on all public roads.

California Strategic Highway Safety Plan (SHSP)

A key component of the HSIP is a Strategic Highway Safety Plan which identifies California's key safety needs and guides investment decisions towards strategies and countermeasures with the most potential to save lives and prevent injuries. The 2020-2024 CA HSIP includes recommendations to establish a preferred methodology for developing a HIN for bicyclists and pedestrians and developing a community-stakeholder education toolkit to increase awareness for the role motor vehicle speed plays in severe and fatal crashes.

Appendix C: High Injury Network and Intersection Lists and Methodology

In an effort to help the Sonoma County Transportation Authority (SCTA) understand and visualize high injury locations within the County, Toole Design conducted both a High Injury Network (HIN) and a High Injury Intersection (HII) analysis. This appendix describes the methodology for these analyses.

High Injury Network (HIN)

At the broadest level, a HIN analysis is a systematic process for identifying segments of a road network where users are at higher risk. This is achieved by examining the location, frequency, severity, and mode of collisions along the road network. This processed collision information is then spatially aggregated along the network using a 'moving window' analysis to develop relative collision scores, from which a subset of 'high injury' segments are classed as the High Injury Network. While there are several different methodologies used to identify high risk locations, moving windows analyses are often used because they allow us to generalize the locations of crashes, reflecting the stochasticity in where crashes occur, while still respecting the fact that locations along corridors tend to share characteristics. Many public agencies use this approach to identify areas to prioritize safety investments.

Table 2: Sonoma County High Injury Network Corridors

Road Name	Primary Jurisdiction
Healdsburg Ave	Healdsburg
Caulfield Ln	Petaluma
D St/E D St	Petaluma
E D St/D St	Petaluma
E Madison St	Petaluma
E Washington St	Petaluma
E Washington St/Washington St	Petaluma
Ely Blvd	Petaluma
Lakeville St	Petaluma
Maria Dr	Petaluma
N Mcdowell Blvd/S Mcdowell Blvd	Petaluma
Old Redwood Hwy	Petaluma
Petaluma Blvd	Petaluma
Professional Dr	Petaluma
S Mcdowell Blvd/N Mcdowell Blvd	Petaluma
Washington St/E Washington St	Petaluma
Commerce Blvd	Rohnert Park
Redwood Dr	Rohnert Park
Rohnert Park Expy	Rohnert Park
Snyder Ln	Rohnert Park
1st St	Santa Rosa
3rd St	Santa Rosa
4th St	Santa Rosa
B St	Santa Rosa
Brookwood Ave	Santa Rosa
Cleveland Ave	Santa Rosa
College Ave/W College Ave	Santa Rosa
Court St	Santa Rosa
Dutton Ave/N Dutton Ave	Santa Rosa
E St/S E St	Santa Rosa
Farmers Ln	Santa Rosa
Fountain Grove Pky	Santa Rosa
Fulton Rd	Santa Rosa
Guerneville Rd	Santa Rosa
Hearn Ave	Santa Rosa
Hoen Ave	Santa Rosa
Kawana Springs Rd	Santa Rosa
Maple Ave	Santa Rosa
Marlow Ct/Marlow Rd	Santa Rosa
Mendocino Ave	Santa Rosa
Montgomery Dr	Santa Rosa
N Dutton Ave/Dutton Ave	Santa Rosa
Occidental Rd	Santa Rosa
Pacific Ave	Santa Rosa
Piner Rd/Piner Pl	Santa Rosa
Range Ave	Santa Rosa
S E St/E St	Santa Rosa
Santa Rosa Ave	Santa Rosa
Sebastopol Rd	Santa Rosa
Stony Point Rd	Santa Rosa
Steele Ln/W Steele Ln	Santa Rosa
W 3rd St/3rd St	Santa Rosa
W 9th St/9th St	Santa Rosa
W College Ave/College Ave	Santa Rosa

Road Name	Primary Jurisdiction
N Main St/S Main St	Sebastopol
N Main St/S Main St/Main St	Sebastopol
Sebastopol Ave	Sebastopol
Broadway	Sonoma
Adobe Rd	Unincorporated Sonoma Co.
Arnold Dr	Unincorporated Sonoma Co.
Bennett Valley Rd	Unincorporated Sonoma Co.
Bohemian Hwy/Bohemian Ln	Unincorporated Sonoma Co.
Calistoga Rd	Unincorporated Sonoma Co.
Coleman Valley Rd	Unincorporated Sonoma Co.
Dry Creek Rd	Unincorporated Sonoma Co.
Fremont Dr/Fremont/Fremont Rd	Unincorporated Sonoma Co.
Harrison Grade Rd/Harrison Grade Pl	Unincorporated Sonoma Co.
Hwy 1	Unincorporated Sonoma Co.
Hwy 116	Unincorporated Sonoma Co.
Hwy 37	Unincorporated Sonoma Co.
Laguna Rd	Unincorporated Sonoma Co.
Lakeville Hwy/Lakeville St	Unincorporated Sonoma Co.
Lakeville St/Lakeville Hwy	Unincorporated Sonoma Co.
Lovall Valley Rd/Lovall Valley Ct	Unincorporated Sonoma Co.
Mark West Springs Rd	Unincorporated Sonoma Co.
Petaluma Hill Rd	Unincorporated Sonoma Co.
Pine Flat Rd	Unincorporated Sonoma Co.
River Rd	Unincorporated Sonoma Co.
Riverside Dr	Unincorporated Sonoma Co.
Sebastopol Rd/Sebastopol Ave	Unincorporated Sonoma Co.
Sonoma Hwy	Unincorporated Sonoma Co.
Sonoma Hwy/Sonoma Ave	Unincorporated Sonoma Co.
Stony Point Rd	Unincorporated Sonoma Co.
Trenton Healdsburg Rd	Unincorporated Sonoma Co.
Valley Ford Rd	Unincorporated Sonoma Co.

The following sections outlines how the data is used, and the approach used to develop the HIN.

Preparation of the Collision Data

The first step of the HIN analysis is to prepare the collision data. For this HIN analysis, the same collisions that were used for the rest of the Sonoma County Vision Zero Data Dashboard were used. Those were collisions from a 5-year period (2015-2019) within the county, for all injury and fatality collisions (all collisions except property damage only), as provided by the Transportation Injury Mapping System (TIMS) from the University of California – Berkeley.

Mode Assignment

The collision data collected from TIMS has the location, severity, and mode assigned to each collision. For the purposes of this safety analysis, the mode assignment that was coded to the collision data was re-classified in order to assign the collision to the most vulnerable mode following the order of pedestrian, bicyclist, motorcyclist, and automobile driver. For example, a collision involving a pedestrian and a motorist would be classified as a pedestrian collision because the pedestrian is the more vulnerable mode involved in the collision.

Weighting by Severity of Injury

Collisions were then assigned a weight according to the severity of the injury. This weight was used during the HIN and HII analyses as the value that is aggregated to each corridor and intersection, rather than simply counting the number of crashes. The purpose of this weight is to place emphasis of collisions that have more severe outcomes over collisions that resulted in minor injury or no injury. This analysis employed a 3:1 weighting ratio, where KSI collisions

(fatal and serious injury) received a weight of three, and non-KSI collisions (minor injury and complaint of pain) received a weight of one.

Preparation of the Roadway Network Data

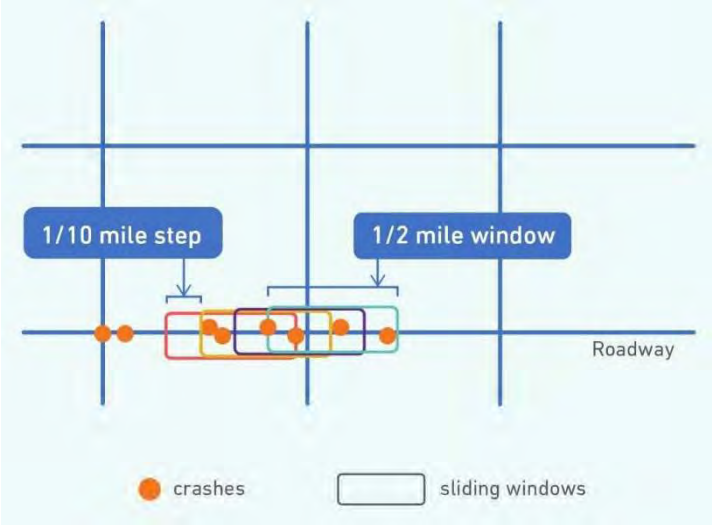
In preparation for the moving windows analysis (described below), the countywide road network was dissolved into continuous segments. All contiguous roads with the same name were dissolved. Controlled access highways were removed from the network as those were not within the scope of SCTA's Vision Zero project. The reason for this dissolving of the road network is that often times there are similar conditions along a stretch of the network, and the fact that a collision occurred in one location rather than 100 ft further up or down the road can be down to chance. If conditions are similar in nearby segments of the same road, then it would stand to reason that they have a similar likelihood of a future collision.

Moving Window Analysis Methodology

In the simplest terms, a moving windows analysis identifies the HIN by examining collisions along the roadway network in overlapping spatial segments or "virtual" windows that "step" along each corridor.

Following the processing of the collision and road network data, the collisions were spatially aggregated onto the network and then weighted. The weights for each collision were aggregated by mode to all the windows that were within a distance of 50 feet. For example, if a window is near two non-KSI motor vehicle collisions, one non-KSI pedestrian collision, and one KSI pedestrian collision, it would be assigned a motor vehicle score of two (2 non KSI x 1 weight), and a pedestrian score of four (1 KSI x 3 weight + 1 non-KSI x 1 weight). Collisions that occurred within 50 feet of a junction of two or more roads would be counted for each corridor window, meaning intersection collisions are assigned to each intersecting street. See Figure 13 for a diagram of this approach.

Figure 11: Sample Diagram of the Moving Window Analysis



The chosen length of this virtual window and the length that it stepped along the corridor were based on urban and rural land use, as in urban areas there tends to be more diversity in roadway characteristics (number of lanes, roadway uses, traffic volumes, etc.,) which change over shorter distances, compared to rural areas where conditions tend to be less diverse and change over longer distances.

- In urban areas of the County, the windows were 0.5 miles long and stepped along each corridor at 0.1 miles increments.
- For rural areas, the windows were 2 miles long and stepped along each corridor at 0.5 miles increments.

The next step in the moving windows analysis was to 'smoothe' the sliding window ouputs, so that the HIN score would be influenced by collisions both directly underlaying the segment of road itself, as well as those that occurred a short distance from it. This was done by creating non-overlapping sections of the road network, which were the same length as the step distance of the moving window (0.1 mile for urban, and 0.5 mile for rural). These steps took the maximum score for the moving window segment that they overlapped, which since the moving windows were longer than these step sizes, allowed the non-overlapping steps to capture the impacts of nearby collisions.

Identifying the High Injury Network

To identify the final HIN, scores were assigned to each section of the roadway network. A cut-off score or threshold for each mode (as shown in Table 1 below) was then determined to identify roadway segments that are candidates for the HIN.

The process for determining the thresholds for the HIN was both a qualitative and quantitative exercise. The goal of the HIN development process was to create a list of HIN segments that capture potentially high-risk sections of the road network, and provide a digestible, actionable list that can help inform the end user. There is not a set definition of 'high' risk, nor is there a 'right' score for this. There is also not a set number of HIN segments that should be identified by the process. Instead, the process for creating the final HIN is guided by the data, but ultimately decided based on iteration and human guidance.

The HIN development process used for this analysis was conducted by Toole Design, with guidance and input from SCTA, as well as the County's Vision Zero Data Subcommittee. Toole Design received feedback on the raw scores for each mode that members felt should be used as the threshold, as well as general locations that they felt should be in the HIN, for which the relevant scores were determined. Using this feedback and expert judgement, threshold scores were selected for each mode for both urban and rural areas, as shown in. For the final HIN (including the multimodal HIN, and the HINs by mode), see the HIN/HII webmap.

Threshold scores vary by mode because the segment scores are impacted by total collision frequency, so selecting the same score cut-off for different modes would disadvantage modes with lesser overall collision frequencies. For example, a score of 5 may be high for pedestrians, since they make up fewer absolute collisions, whereas a score of 5 for motorists may be low because motor vehicle collisions account for a larger share of collisions. For a detailed breakdown of collisions by mode, view the Vision Zero Data Dashboard.

Table 3: Threshold Score by Mode for Roadway Segments that are Included in the HIN

	Urban	Rural
Pedestrian	7	5
Bicycle	6	5
Automobile	19	35
Motorcycle	7	11

HINs were identified separately for each mode (pedestrian, bicycle, automobile, and motorcycle), as well as a all modes combined for a multimodal HIN. Corridors that met or exceeded the threshold for each mode are included in their mode's HIN, as well as the multimodal HIN. It is important to note that the multimodal HIN accounts for areas that are at high risk for any one mode but may not be at high risk for another. For example, a segment that is at high risk for bicyclists may not be high risk for automobiles but will still show up in the final multimodal HIN.

Once identified, the HIN corridors were displayed as a single line on a map, rather than displaying the scores for each mode. This was done to simplify the output dataset and make it easier to communicate to the intended audience, as its easier to understand that a segment of road is potentially higher risk rather than understand the nuances and relative differences in risk between different segments of the road.

Differences Between the Countywide and City of Santa Rosa HINs

The City of Santa Rosa developed a HIN (for pedestrian and bicyclists only) as part of their 2018 Bicycle and Pedestrian Master Plan Update. While the Santa Rosa HIN is quite similar to the HIN produced by this process, there are several differences owing both to the data used and general methodology. Toole Design reviewed their methodology and results as well as spoken with City of Santa Rosa staff in order to understand and explain these differences.

High Injury Intersection (HII)

In addition to the development of the HIN, SCTA requested a separate analysis focused on intersections. As described in the HIN methodology, the HIN development process accounts for intersection collisions but does not explicitly call them out, instead implying that intersections along the identified segments would also be of higher risk. This follow-up analysis to identify High Injury Intersections (HII) only focuses on intersection collisions and explicitly creates a list of intersections in a manner analogous to the HIN.

Table 4: Sonoma County High Injury Intersections

Intersection	Jurisdiction
Plaza St/Healdsburg Ave	Healdsburg
Caulfield Ln/St Francis Dr	Petaluma
E Washington St	Petaluma
E Washington St/Edith St	Petaluma
E Washington St/Lakeville St	Petaluma
E Washington St/Maria Dr	Petaluma
Howard St/Washington St	Petaluma
Lakeville St/Lindberg Ln	Petaluma
Maria Dr/Mckenzie Ave/S Mcdowell Blvd	Petaluma
N Mcdowell Blvd/E Madison St	Petaluma
Petaluma Blvd/Western Ave/ Water St	Petaluma
Professional Dr/N Mcdowell Blvd	Petaluma
S Mcdowell Blvd/E Washington St/N Mcdowell Blvd	Petaluma
Vallejo St/E Washington St	Petaluma
Washington St/Petaluma Blvd	Petaluma
Golf Course Dr/Commerce Blvd	Rohnert Park
Redwood Dr/Rohnert Park Expy	Rohnert Park
Rohnert Park Expy/Commerce Blvd	Rohnert Park
Rohnert Park Expy/Country Club Dr	Rohnert Park
Rohnert Park Expy/State Farm Dr	Rohnert Park
Rosana Way/Snyder Ln	Rohnert Park
1st St/Santa Rosa Ave	Santa Rosa
3rd St/D St	Santa Rosa
3rd St/E St	Santa Rosa
6th St/Morgan St/	Santa Rosa
Armory Dr/Sucher Ln	Santa Rosa
Baker Ave/Santa Rosa Ave/Colgan Ave	Santa Rosa
Beaver St/Pacific Ave	Santa Rosa
Bellevue Ave/Dutton Ave	Santa Rosa
Brockhurst Dr/W 3rd St	Santa Rosa

Intersection	Jurisdiction
Brookwood Ave/4th St	Santa Rosa
Brookwood Ave/Sonoma Ave	Santa Rosa
Cleveland Ave/Frances St	Santa Rosa
College Ave/Dutton Ave	Santa Rosa
College Ave/Cleveland Ave	Santa Rosa
College Ave/Mendocino Ave	Santa Rosa
Corby Ave/Hearn Ave/Hearn Av	Santa Rosa
County Center Dr/Professional Dr	Santa Rosa
D St/4th St	Santa Rosa
E St/4th St	Santa Rosa
Farmers Ln/Hoen Ave	Santa Rosa
Funston Dr/Santini Ct	Santa Rosa
Guerneville Rd/Range Ave	Santa Rosa
Kawana Springs Rd/Petaluma Hill Rd	Santa Rosa
Lance Dr/Guerneville Rd	Santa Rosa
Mendocino Ave/10th St	Santa Rosa
Mendocino Ave/Mcconnell Ave	Santa Rosa
Mendocino Ave/Steele Ln/Lewis Rd	Santa Rosa
Mendocino Ave/W Bicentennial Way/Bicentennial Way	Santa Rosa
Montgomery Dr/Farmers Ln	Santa Rosa
N Dutton Ave/W 9th St	Santa Rosa
N Dutton Ave/W College Ave	Santa Rosa
Pinercrest Dr/Marlow Rd/Piner Rd	Santa Rosa
S E St/Sonoma Ave	Santa Rosa
Santa Rosa Ave/driveway between Colgan Ave & Milicent Way	Santa Rosa
Santa Rosa Ave/Court St	Santa Rosa
Sebastopol Rd/Dutton Ave	Santa Rosa
Stony Point Rd/Glenbrook Dr	Santa Rosa
Stony Point Rd/Occidental Rd	Santa Rosa
Stony Point Rd/Sebastopol Rd	Santa Rosa
W 3rd St/Hall Rd/Fulton Rd	Santa Rosa

Intersection	Jurisdiction
W College Ave/Marlow Rd/Stony Point Rd	Santa Rosa
Florence Ave/Healdsburg Ave	Sebastopol
Healdsburg Ave/Pitt Ave/Harrison St	Sebastopol
Ragle Ave/Bodega Ave/Ragle Rd	Sebastopol
S Main St/N Main St/Sebastopol Ave/Bodega Ave	Sebastopol
E Napa St/The Plaza/W Napa St/ Broadway	Sonoma
Arnold Dr/Wagner Rd	Unincorporated Sonoma Co.
Adobe Rd/Casa Grande Ave	Unincorporated Sonoma Co.
Argonne Way/River Rd	Unincorporated Sonoma Co.
Bellevue Ave/Santa Rosa Ave	Unincorporated Sonoma Co.
Bennett Valley Rd	Unincorporated Sonoma Co.
Bennett Valley Rd/Carrithers Rd	Unincorporated Sonoma Co.
Bodega Ave/Skillman Ln/ Eucalyptus Ave	Unincorporated Sonoma Co.
Bodega Hwy/Teakwood Ln	Unincorporated Sonoma Co.
Burndale Rd/Fremont Dr	Unincorporated Sonoma Co.
Eagle Nest Ln/River Rd	Unincorporated Sonoma Co.
Facendini Ln/Tanuda Rd/Graton Rd	Unincorporated Sonoma Co.
Gericke Rd/Valley Ford Rd	Unincorporated Sonoma Co.
Guerneville Rd/Olivet Rd/	Unincorporated Sonoma Co.
Hwy 116/Peachland Ave	Unincorporated Sonoma Co.
Hwy 37/Arnold Dr	Unincorporated Sonoma Co.
Hwy 37/Lakeville Hwy/Reclamation Rd	Unincorporated Sonoma Co.
Hwy 37/Noble Rd	Unincorporated Sonoma Co.
Old Redwood Hwy/Airport Blvd	Unincorporated Sonoma Co.
Old Redwood Hwy/Angela Dr/	Unincorporated Sonoma Co.
Old Redwood Hwy/Larkfield Ctr	Unincorporated Sonoma Co.
Old Redwood Hwy/W Railroad Ave/E Railroad Ave	Unincorporated Sonoma Co.
Old River Rd/River Rd/Hwy 116	Unincorporated Sonoma Co.
Petaluma Hill Rd/Snyder Ln	Unincorporated Sonoma Co.
River Rd/Argonne Way	Unincorporated Sonoma Co.
River Rd/Crocker Rd	Unincorporated Sonoma Co.
Santa Rosa Ave/Plaza Dr	Unincorporated Sonoma Co.
Sonoma Hwy/Lomita Ave	Unincorporated Sonoma Co.
Stage Gulch Rd/Lakeville Hwy	Unincorporated Sonoma Co.
Stony Point Rd/Todd Rd	Unincorporated Sonoma Co.
Tin Barn Rd/King Ridge Rd/Hauser Bridge Rd	Unincorporated Sonoma Co.
Trenton Healdsburg Rd/River Rd/ Laguna Rd	Unincorporated Sonoma Co.
W Thomson Ave/Sonoma Hwy	Unincorporated Sonoma Co.

Preparation of the Collision Data

The same collisions that were used in the HIN were used as a starting point for the HII. These were all injury and fatality collisions (all report collisions except for property damaged only) from 2015-2019, with location, severity and mode assigned. The same logic of assigning the most vulnerable mode was also assigned to the collisions.

However, only a subset of all collisions was used to examine intersection collisions for the HII. While the collision data does include information specifying if the collisions occurred at an intersection, this was not used for determining intersection collisions for several reasons. This intersection relationship classification reported in the collision data typically only counts if the collision physically occurred within the intersection, driveway, or alleyway, rather than within the intersection's 'area of influence'. The purpose of this analysis was to focus on collisions that occurred near and within intersections between two streets, not driveways or alleys. In order to capture all collisions that were within the intersection's area of influence, a cut-off distance of 250 feet was used. Collisions within 250 feet of the intersection centroid were classified as 'intersection' collisions, while all others were classified as 'non-intersection' collisions. This 250-foot threshold was selected in accordance with Caltrans' Highway Safety Improvement Program (HSIP) guidelines.

Preparation of the Intersection Data

At the time of this analysis, SCTA did not have an intersection dataset. Instead, a regional intersection dataset was developed by using the SCTA's road network data. As was done for the HIN analysis, controlled access highway segments were excluded from this analysis. Points were created wherever three or more line segments met. Some pseudo intersection points were created where only two line features met; these were removed from this dataset.

Intersection Collision Density Analysis

Collisions flagged as having occurred at an intersection were aggregated by mode. Unlike the HIN where collisions were assigned to all overlapping window segments within a distance, intersection collisions were only assigned to the single intersection closest to the collision data point. This approach was selected because intersections are spatially discrete features, and thus analyzed individually.

During the collision aggregation process, the same frequency and severity methodology used in the HIN development was applied to the HII development process. KSI collisions received a weight of three, while non-KSI received a weight of one. Each intersection then received a score representing the combined severity and frequency of collisions for each mode.

Final High Injury Intersections

Like the HIN, the HII also used a yes/no assessment for identifying if an intersection was part of the HII. This was also determined by selecting a cut-off score for each mode and assigning everything that was that score or higher as in the HII, and those that were lower as not (see Table 5). This was done for the sake of simplicity because it is easier to communicate that an intersection is either 'high risk' or not, rather than explaining the relative risk levels. Also, like the HIN, the HII is made up of modal HIIs which are determined independently of each other. Like segments, intersections which might be high risk for one mode might not be so for another. The multimodal HII is comprised of intersections which are in the HII for at least one mode. Note that the threshold scores were the same for urban and rural contexts for pedestrian and bicycle collisions because these occurred mainly in urban areas, and there was not enough variation in rural areas to receive a different score.

Table 5: Threshold Score by Mode for Roadway Segments that are Included in the HII

	Urban	Rural
Pedestrian	4	4
Bicycle	4	4
Automobile	15	10
Motorcycle	5	4

The process for determining the threshold scores or minimum thresholds for the HII was as much an art as science, similar to the HIN development process. Toole Design received feedback on the scores for each mode from SCTA Staff and the Vision Zero Data Subcommittee, which combined with their professional judgment was used create the cut-offs scores which determined the final HII. The final HII (the overall HII, and the HII by mode) can be seen on HIN/HII webmap.

Appendix D: Sample Vision Zero Resolution

SAMPLE RESOLUTION TEXT

Note: Local cities and jurisdictions are encouraged to use this Sample Resolution as a starting point for their own Vision Zero resolution and to develop a set of measurable goals (outlined on page 71) aligned with the recommendations from the Vision Zero Plan.

Vision Zero Action Plan Resolution **[NAME OF CITY/JURISDICTION]**, Sonoma County

A RESOLUTION OF **[NAME OF CITY/JURISDICTION]** TO ADOPT THE SONOMA COUNTY VISION ZERO ACTION PLAN AND COMMIT TO **[CITY/JURISDICTION]**-LEVEL ACTIONS TO REDUCE TRAFFIC FATALITIES TO ZERO BY THE YEAR 2030

WHEREAS, one death on our streets is one too many; and,

WHEREAS, between 2016 and 2020, there were **[10]** traffic fatalities and **[67]** crashes that resulted in severe injury in **[NAME OF CITY/JURISDICTION]** and,

WHEREAS, eight percent of all Sonoma County trips are made on foot or on bicycle, but these modes account for 19% of traffic deaths; and,

WHEREAS, impaired driving, unsafe turns, speeding or failure to follow right-of-way rules are the primary causes in **[82%]** of traffic deaths and severe injuries in **[NAME OF CITY/JURISDICTION]**; and,

WHEREAS, **[NAME OF CITY/JURISDICTION]** includes **[18]** of Sonoma County's High Injury Intersections (HII) and **[11]** miles of the High Injury Network (HIN) **[four of which are within Equity Priority Communities]**; and,

WHEREAS, Equity Priority Communities, especially those who have reduced access to transportation or who travel without using private vehicles are most impacted by traffic fatalities and severe injuries; and,

WHEREAS, racial profiling and income inequality are reflected in disparities in traffic enforcement; and,

WHEREAS, between May 2019 and March 2021, the Sonoma County Regional Climate Protection Authority, the County of Sonoma, and each of the incorporated jurisdictions adopted Climate Emergency Resolutions and committed to working on activities to address this state of climate emergency; and

WHEREAS, on March 8, 2021, the Sonoma County Regional Climate Protection Authority adopted a Sonoma Climate Mobilization Strategy which sets a goal of reaching countywide carbon neutrality by 2030; and

WHEREAS, transportation accounts for 60 percent of GHG emissions in Sonoma County with the burning of gasoline and diesel fuel for transportation as the leading cause of GHG emissions in this sector; and

WHEREAS, the Sonoma Climate Mobilization Strategy 3: Drive Less Sonoma County Campaign is designed to reduce GHG emissions from the transportation sector by shifting trips from driving to biking, walking, and transit; and

WHEREAS, one of the objectives of the Sonoma Climate Mobilization Strategy 3: Drive Less Sonoma County Campaign is to make biking and walking safer by implementing recommendations from the Sonoma County Vision Zero Action Plan; and

WHEREAS, community input gathered through listening sessions and surveys in 2021 and 2022 found that many community members feel unsafe while walking, bicycling, or using mobility devices; and,

WHEREAS, choosing active transportation options like walking and biking also decreases mortality and morbidity from obesity-related diseases such as heart disease and diabetes, and creating safer streets is likely to encourage more active transportation, thereby increasing population health; and

WHEREAS, 67% of community members across Sonoma County responding to the survey indicated enhanced safety features like protected bike lanes, and streets designed to slow traffic are the most favorable measures to addressing these challenges; and,

WHEREAS, other ongoing initiatives in **[NAME OF CITY/JURISDICTION]**, including **[Safe Routes to School programs, Local Road Safety Plan, etc.]** are supportive of the Vision Zero goal; and,

WHEREAS, **[NAME OF CITY/JURISDICTION]** has adopted "Complete Streets" policies, which require that they design transportation projects for the safety and convenience of people walking, bicycling, and taking transit as well as driving **[and has made significant investments in improving bicycle and pedestrian facilities as part of the regular Capital Improvement Planning (CIP) process]**; and,

WHEREAS, a commitment to Vision Zero is a commitment to

life and equitable opportunity for people in **[NAME OF CITY/ JURISDICTION]**;

NOW, THEREFORE, BE IT RESOLVED BY **[NAME OF CITY/ JURISDICTION COMPLETING THE RESOLUTION]**,

[NAME OF CITY/JURISDICTION] hereby adopts Vision Zero as a comprehensive and holistic approach to eliminating traffic fatalities and severe injuries.

BE IT FURTHER RESOLVED that **[NAME OF CITY/ JURISDICTION]** will put equity at its forefront when setting goals and implementing recommendations from the Sonoma County Vision Zero Action Plan, aiming to reduce harm for the most vulnerable users of **[NAME OF CITY/ JURISDICTION]**'s roadway system

BE IT FURTHER RESOLVED that **[NAME OF CITY/ JURISDICTION]** acknowledges and accepts that the Vision Zero Action Plan may involve changes to the City's approach to the planning and design of streets, education and communication techniques, enforcement policies and procedures, and legal and legislative frameworks.

BE IT FURTHER RESOLVED that **[NAME OF CITY/ JURISDICTION]** will work with partners that own, manage, design, and regulate streets within its jurisdiction to implement Vision Zero Action Plan strategies.

BE IT FURTHER RESOLVED that **[NAME OF CITY/ JURISDICTION]** is committed to using the standardized Vision Zero tracking tool to monitor their progress toward key actions outlined in the Sonoma County Vision Zero Action Plan or as defined by **[NAME OF CITY/JURISDICTION]. [NAME OF CITY/JURISDICTION]** will also track investments by neighborhood to ensure an equitable distribution that accounts for historical patterns of disinvestment.

This resolution shall take effect immediately upon its adoption.

Signed _____

Examples of Local Vision Zero Goals

Note: The table below is an example of additional goals that could be by the City/Jurisdiction.

[NAME OF CITY/JURISDICTION] SETS THE FOLLOWING GOALS:

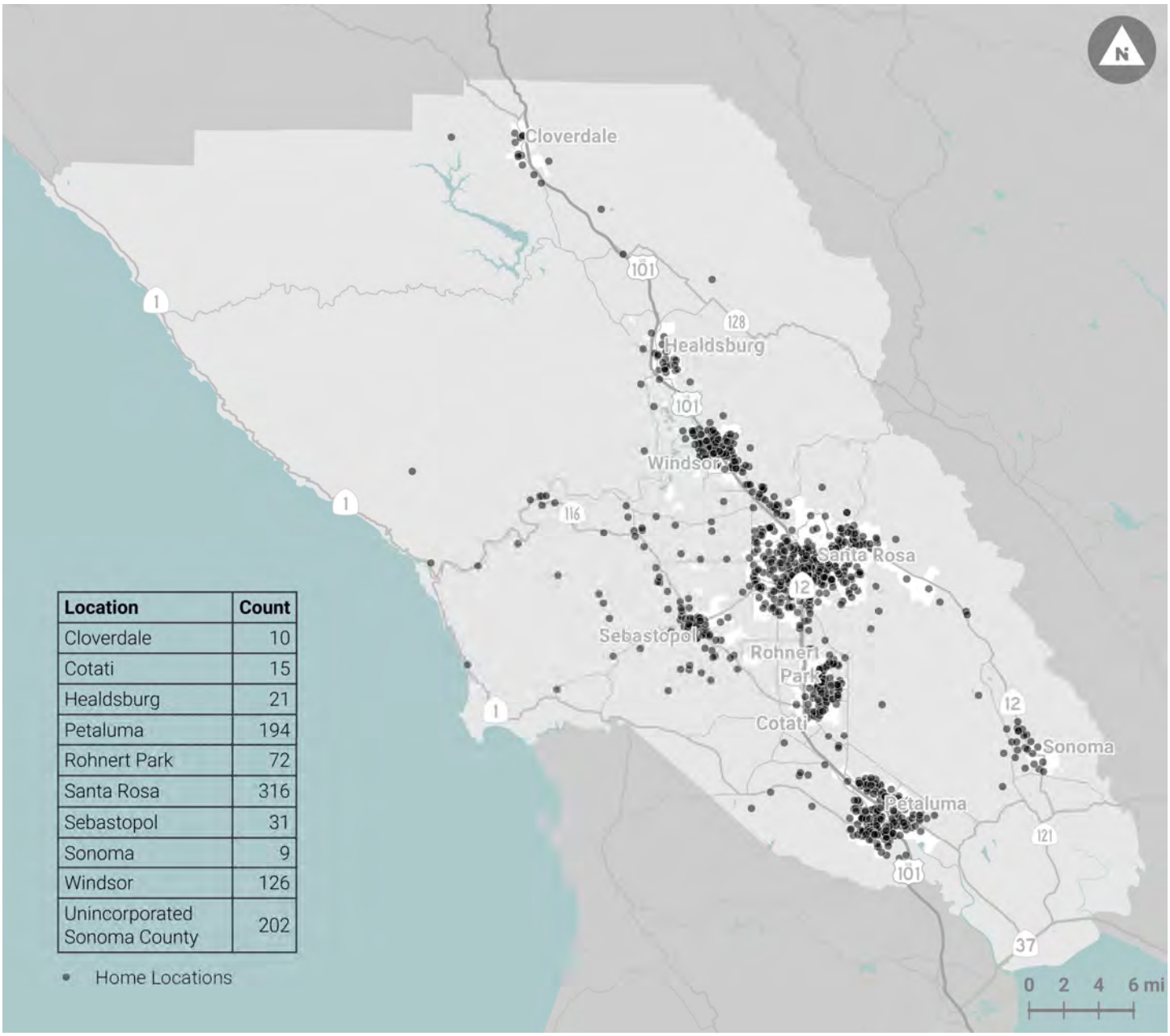
	Vision Zero Goal	Timeframe	Department Responsible
1.	Review speeds and posted limits at High Injury Intersections (HIN) within **[NAME OF CITY/JURISDICTION]** set context appropriate speeds and implement speed mitigation measures based on findings and legislative authority.	**[3-5 YEARS]**	**[RESPONSIBLE DEPARTMENT]**
2.	Eliminate impaired driving by **[engaging with local businesses around responsible beverage service; promoting ride share services, designated driver services, and walking wine tours; expanding and promoting publicly subsidized transport services to include more night-time hours; etc.]** in **[NAME OF CITY/JURISDICTION]**	**[ONGOING]**	**[RESPONSIBLE DEPARTMENT]**
3.	Create a culture of safety by **[developing comprehensive engagement strategies that prioritize Equity Priority Communities and create personal connections to Vision Zero; working with Safe Routes to School (SRTS) program, school districts, and parents to promote safe, active transportation through education, school policies, and pick-up/drop-off procedures; etc.]**.	**[ONGOING]**	**[RESPONSIBLE DEPARTMENT]**
4.	a. Update street design standards to reflect the latest research and best practices around safety and Complete Streets, with an emphasis on serving diverse road users of all ages and abilities. b. Identify sustainable funding sources within **[NAME OF CITY/JURISDICTION/ DEPARTMENT]**'s budget for projects designed to meet Vision Zero safety goals and prioritize projects in Equity Priority Communities. c. Establish a multidisciplinary rapid response team to evaluate and address fatal and severe injury crashes and crash sites. d. Improve routine facility maintenance for all modes, particularly pedestrians and bicycles (e.g., crosswalk and bike lane restriping, brush cutting of vegetation along shoulder areas) along the HIN. e. Identify opportunities for low-cost quick-build projects to rapidly implement bicycle and pedestrian safety improvements along the HIN.	**[ONGOING]**	**[RESPONSIBLE DEPARTMENT]**
5.	Install side guards on all large City-owned fleet and require entities contracting with **[NAME OF CITY/JURIS]** to have side guards on **[80%]** of their fleet over 10,000 lbs.	**[1-2 YEARS]**	**[RESPONSIBLE DEPARTMENT]**
6.	Complete an annual report on progress toward key actions and submit to SCTA, who will track progress and crash data countywide.	**[ANNUALLY]**	**[RESPONSIBLE DEPARTMENT]**

Appendix E: Summary of Public and Stakeholder Engagement

Staff worked closely with members of the Vision Zero Advisory Committee. The Committee guided policy, provided local context, and shared the draft plan with their communities. Community engagement also included two countywide surveys, three focus groups, a community workshop, and thirty-seven stakeholder interviews. Throughout the project Vision Zero staff attended public committee meetings to provide project updates and solicit feedback. Meetings attended include the Bike and Pedestrian Advisory Committees of the County and jurisdictions, SCTA Advisory Committees (all), the Area Agency on Aging Transportation Committee, and other presentations as requested.

The first community survey was launched in July 2020. The survey yielded 988 completed surveys (937 English, 51 Spanish). The jurisdictions with the most responses were Santa Rosa (316), Petaluma (194), and Windsor (126).

Map 8: Approximate Self-Reported Home Locations of Survey Respondents



Location	Count
Cloverdale	10
Cotati	15
Healdsburg	21
Petaluma	194
Rohnert Park	72
Santa Rosa	316
Sebastopol	31
Sonoma	9
Windsor	126
Unincorporated Sonoma County	202

The links to both the English and Spanish versions of the survey were shared widely via email and social media. Members of the VZAC shared the survey through their channels, including posting the survey on their respective city websites. The Bike Coalition shared the survey to its members and Safe Routes to School (SRTS) shared their school contact list with DHS staff, who then sent the survey to all participating schools. The survey was also shared through the Community Childcare Council (4C's) of Sonoma County in an effort to reach parents of young children. Vision Zero staff also shared the survey with various local transportation committees such as the SCTA Technical Advisory Committee, Transit Paratransit Coordinating Committee, and the local bike and pedestrian advisory committees. DHS staff heavily promoted the survey in the south Santa Rosa neighborhoods of Roseland and Moreland as these neighborhoods are disproportionately affected by traffic violence and are considered Equity Priority Areas. The survey was shared within the Moreland neighborhood by the Moreland Neighborhood Action Team and sent home to parents in the Roseland School District through its newsletter.

For the second community survey, DHS refined the questions from the first survey and added a map feature that allowed respondents to provide data on their common routes and places where they felt unsafe. The survey collected responses from late September through early November of 2021 and 2,479 people completed at least a portion of the survey, including 291 in Spanish. See Map 8 for approximate self-reported home locations of survey respondents. Promotion of the second survey included a paid social media campaign, which yielded 744,506 impressions and 2,556 clicks through to the survey.

Vision Zero staff conducted three focus groups. The first focus group was conducted with 8 seniors and people with disabilities. Focus group participants were recruited by working with the Disability Services and Legal Clinic. The second two focus groups were conducted in Spanish with participants recruited by La Luz in Sonoma Valley and Community Building Initiative (CBI) in Santa Rosa, with 11 and 13 attendees.

Along with the focus groups, Vision Zero staff conducted 37 interviews with key implementers to solicit feedback on the Draft Action Plan. Participants included local jurisdictions, transportation agencies, community organizations, and law enforcement. Interviews were semi-structured using guiding

Table 6: List of Stakeholders and Advisors Interviewed with Number of Participants

Organization	Participants
Area Agency on Aging	1
California Highway Patrol	1
City of Cloverdale	2
City of Cotati	3
City of Healdsburg	2
City of Petaluma	3
City of Rohnert Park	4
City of Santa Rosa	3
City of Sebastopol	3
City of Sonoma	1
Denver Regional Council of Governments	1
Disability Services and Learning Center	1
GHD Traffic Engineering	2
Metropolitan Transportation Commission	1
M-Group	1
Montgomery County	1
Petaluma Police Department	2
Petaluma Transit	1
Providence Hospital Trauma Center	1
Santa Rosa CityBus	2
Santa Rosa Community Health Center	1
Santa Rosa Police Department	2
Sonoma County Bicycle and Pedestrian Advisory Committee	1
Sonoma County Bicycle Coalition	1
Sonoma County Health Action	1
Sonoma County Safe Routes to School	1
Sonoma County Sherrif for City of Sonoma	2
Sonoma County Tourism	1
Town of Windsor	3
Vision Zero Network	1
Windsor Police Department	1

questions from Vision Zero staff, focusing on feasibility for Vision Zero in Sonoma County, challenges, areas of prioritization, recommendations, and feedback on the actions in the Plan.

Findings from the surveys, focus groups, and interviews were incorporated into the Draft Action Plan, which was released on January 11, 2022 and made available online. The Action Plan was the topic of the Public Workshop, held virtually on January 25 at 6pm. The Workshop was heavily promoted on 4 of the top-rated local radio stations - KZST, KFGY/Froggy, KSRO and KWVF/The Wolf. In the week before the workshop each station ran 42 ads and was promoted in Facebook posts and email blasts. Roughly 55 people participated in the workshop.

The workshop built on previous engagement efforts, presenting initial findings and providing an opportunity for community feedback on the Vision Zero Action Plan. The presentation included real-time poll questions to engage participants and collect feedback on aspects of the Action Plan followed by an open forum for public comments.

Appendix F: Vision Zero Progress Tracker

The progress tracker is part of a toolkit designed for SCTA and local jurisdictions to report progress towards Vision Zero goals.

VISION ZERO 20XX PROGRESS REPORT

Sonoma County is committed to ending traffic deaths & severe injuries by 2030

XX Miles of new bike facilites

XX Miles of new sidewalks and shared use paths

XX Intersections recieved pedestrian crossing safety improvements

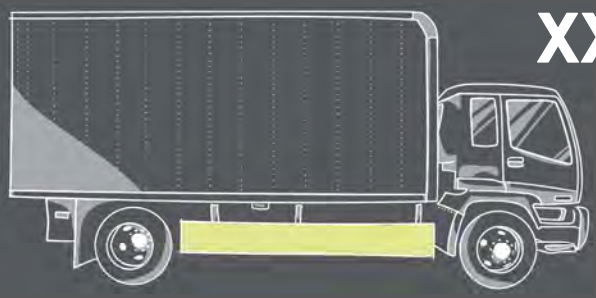
XX Drivers trained on safely sharing the road with pedestrians and bicyclists

XX High school students reached through Impact Teen Drivers programs

XX Fourth graders trained on the rules of the road through Bicycle Rodeos and Workshops

XX Bars and wineries' staff trained in responsible beverage service

XX Vision Zero safety events with nearly XX people reached



XX Trucks retrofitted with side guards

See the Data Dashboard to track Sonoma County's progress toward eliminating traffic fatalities and severe injuries.

CONDADO DE SONOMA
VISIÓN CERO
Ponga fin a las muertes por accidentes de tránsito para 2030

SONOMA COUNTY
VISION ZERO
End Traffic Deaths by 2030