Local Road Safety Plan

Final Document

Humboldt County

July 05, 2024

Acknowledgements

A special thanks to all of the Safety Partners that contributed to this plan.

County of Humboldt

Public Works

Health and Human Services

Fire Protection Services

Humboldt County Office of Emergency Services

Humboldt County Office of Education

Humboldt County Association of Governments (HCAOG)

Humboldt Bay Fire

California Highway Patrol

Caltrans District 1

Humboldt Bay Bicycle Commuters Association

Humboldt Transit Authority

Tribal Communities

Executive Summary

Caltrans awarded the County of Humboldt a state-funded grant to develop a Local Road Safety Plan (LRSP). The County's LRSP provides a framework for organizing stakeholders to identify, analyze, and prioritize roadway safety needs, taking a proactive approach to roadway safety to develop achievable and measurable countermeasures to strive to eliminate traffic collisions. The process to create this plan followed the steps illustrated in the figure to the right: (1) establish leadership, (2) analyze safety data, (3) determine emphasis areas, (4) identify strategies, (5) prioritize and incorporate strategies, and (6) evaluate and update.

The LRSP development began by **establishing a leadership team** with key members from the Engineering Division of the County's Department of Public Works. The leadership team then formed the Stakeholder Working Group (Working Group) with local agencies and community organizations representing the 5 E's of traffic safety: Engineering, Enforcement, Education, Emergency Services, and Emerging Technologies. The Working Group met two times to discuss the collision analysis findings, goals and priorities, and safety recommendations. This group was key in creating a comprehensive safety plan tailored to address traffic safety needs specific to Humboldt County, while contributing to the overall statewide goals outlined in California's Strategic Highway Safety Plan.

The next step in developing the plan was **analyzing the County's traffic safety data** by systemically reviewing collision patterns and high-risk roadway characteristics. For this analysis, the five-year period between 2018 and 2022 was used. The Working Group then determined the following **Challenge/Emphasis Areas** for the LRSP specific to Humboldt County's safety needs: Aggressive Driving/Speed Management, Intersections, Distracted Driving, and Lane Departures.

The next step was to **identify safety countermeasures** to help mitigate the County's primary crash type trends and reduce the overall collision severity. Data analysis, public input, and County feedback helped to determine the priority locations in the County. **Improvement strategies** to achieve these countermeasures were then categorized and prioritized, identifying the responsible stakeholders for implementation. This systemic approach to traffic safety considers areas of concern that may not otherwise be considered if focused only on locations with the highest collision frequency. This more holistic approach also fosters partnerships between stakeholders to advance local road safety.

The LRSP is intended to be a living document. Once adopted and implemented, the Plan outlines steps to **evaluate these strategies** to determine their effectiveness, update the Plan as the recommended improvements are installed, and re-prioritize strategies to maximize resources as new traffic safety data is analyzed. The Plan is intended to be comprehensively updated every five (5) years once new traffic data is available that can be systemically analyzed and evaluated through the LRSP process, encouraging ongoing participation from local stakeholders. The next update will include 2023 to 2027 collision data.

Contents

1. Introduction **1**

1.1 Location Context 1

1.2 Purpose and Need 1

1.3 Mission, Vision, and Goals 3

1.4 Safe System Approach 3

1.5 Guiding Documents 4

1.5.1 Federal and State Standards 4

2. Establish Leadership **6**

2.1 Project Team 6

2.2 Stakeholder Working Group 6

2.2.1 Members 6

2.2.2 Meetings 7

2.3 Public Engagement 7

2.3.1 Public Website 7

2.3.1.1 Interactive Map 8

2.3.1.2 Project Survey 8

3. Analyze Safety Data **9**

3.1 Previous and Planned Safety Projects 9

3.1.1 Completed Projects 9

3.1.2 Planned and In-Progress Projects 9

3.1.3 Recommended Projects 10

3.1.3.1 Public Requested Projects 10

3.2 5-Year Collision Data 11

3.2.1 General Analysis 11

3.2.2 High Severity Collisions 12

3.2.3 Multimodal Collisions 13

3.2.3.1 Pedestrian Related Collisions 13

3.2.3.2 Bicycle Related Collisions 13

3.2.4 Priority Locations 14

3.2.4.1 Ranking 14

3.2.4.2 Evaluation 14

3.3 Public Engagement 16

3.3.1 Interactive Map 16

3.3.2 Project Survey 16

3.3.3 Street Story 19

4. Determine Emphasis Areas **20**

4.1 Intersections 20
4.2 Aggressive Driving/Speed Management 21
4.2.1 Assembly Bill 43 21
4.3 Distracted Driving 21
4.4 Lane Departures 21
5. Identify Strategies 23
5.1 Engineering Strategies 23
5.1.1 Projects at Priority Locations 23
5.1.1.1 Countermeasure Limitations 28
5.1.2 Systemic Safety Countermeasures 28
5.1.2.1 Sign Audit 29
5.2 Non-Engineering Strategies 29
5.2.1 Mitigating DUI Collisions 30
6. Prioritize and Incorporate Strategies 31
6.1 Prioritized Projects 31
6.2 Funding Sources 32
7. Evaluate and Update 34
7.1 Evaluation Process 34
7.2 Next Steps 34
8. References 35

Table Index

Table 3.1 Equivalent Property Damage Only (EPDO) 14
Table 3.2 Priority Intersection Characteristics 15
Table 3.3 Priority Segment Characteristics 15
Table 5.1 Priority Intersection Countermeasures 24
Table 5.2 Priority Segment Countermeasures 26
Table 5.3 Systemic Countermeasures 29
Table 5.4 Recommended Non-Engineering Strategies 30

Figure Index

Figure 1.1 The E's of Traffic Safety 1
Figure 1.2 LRSP Development Process 1

Figure 1.3	Principles and Elements of the Safe System Approach	4
Figure 2.1	Public Website Homepage	7
Figure 2.2	Interactive Map	8
Figure 3.1	Collision Facility Type	11
Figure 3.2	Collision Density Map	11
Figure 3.3	Collision Severity	11
Figure 3.4	Collision Type	12
Figure 3.5	Top Five Violation Categories	12
Figure 3.6	Fatal and Severe Injury Collision Map	13
Figure 3.7	Motor Vehicle Involved With (High Severity Collisions)	13
Figure 3.8	Pedestrian Collision Map	13
Figure 3.9	Bicycle Collision Map	14
Figure 3.10	Types of Interactive Map Comments	16
Figure 4.1	SHSP Challenge Areas	20
Figure 4.2	Top Violation Categories for Intersection-Related Collisions	20
Figure 4.3	Inattention Type for Collisions Involving Distracted Driving	21
Figure 4.4	Top Violation Categories for Lane Departure Collisions	22

Appendices

Appendix A	Stakeholder Engagement
Appendix B	Public Outreach
Appendix C	Select Collision Data
Appendix D	Draft Document Comments
Appendix E	Report Tables

1. Introduction

1.1 Location Context

The County of Humboldt (the County) is located along the Pacific coast of Northern California approximately 270 miles north of San Francisco. The County is comprised of the Eureka-Arcata Micropolitan Statistical Area, eleven Native American tribes, and many small communities and Census-designated places. The mountainous terrain results in a significant number of rural, winding roadways.

US 101 connects Humboldt with the neighboring north and south counties while State Routes 36 and 299 are the main connections with the counties and Interstate 5 to the east. Humboldt County is home to more than 135,000 residents according to the 2020 Census.

1.2 Purpose and Need

The Local Road Safety Plan (LRSP) is a traffic safety planning document for local agencies to address unique roadway safety needs in their jurisdictions. This document will both help to guide the County in safety countermeasures and increase eligibility for funding in future grant applications such as the Highway Safety Improvement Program (HSIP) and Safe Streets for All (SS4A). The process of preparing an LRSP creates a framework to systematically identify and analyze local safety problems and recommend engineering safety improvements. It will also serve the following purposes:

- To guide the County's safety priorities for the next five years in identifying goals, areas of concerns, and prioritized projects for funding.
- Provide a means to evaluate traffic safety as part of development review with the implementation of Senate Bill (SB) 743.
- Strengthen the County's position in tort liability claims.
- Helps qualify for HSIP and other safety related grant funds.

Preparing an LRSP facilitates local agency partnerships and collaboration, resulting in a prioritized list of improvements and actions that contribute to California's Strategic Highway Safety Plan (SHSP) overall vision and goals. This SHSP focuses on reducing fatal and severe injury collisions (FSI collisions) with focused challenge areas with a focus on the five "E's" of traffic safety (see **Figure 1.1**).

Figure 1.1 The E's of Traffic Safety

The County and GHD followed the Federal Highway Administration's (FHWA) six step Local Road Safety Plan development process to develop the County's LRSP as shown in **Figure 1.2**.

Figure 1.2 LRSP Development Process

The LRSP outlines the County's approach and recommendations for developing and implementing the County's LRSP. Overall, competitive HSIP applications include low-cost improvements that can be easily implemented. Therefore, these types of recommendations are prioritized for HSIP applications while long-term higher-cost improvements will need to be further studied for potential incorporation in the County's General Plan.

1.3 Mission, Vision, and Goals

Alongside the stakeholders, the project team developed the following mission, vision, and goals for the LRSP. These guiding principles were developed using input from County staff, feedback from the Stakeholder Working Group, and HCAOG's Vision Zero goals.

Mission

Provide a safe and maintainable roadway system for all modes of travel in the County of Humboldt.

Vision

Work together to increase road safety for all mode choices to achieve zero fatal and severe injury collisions in the County.

Goals

1. Decrease the number of traffic fatalities and severe injuries in the County by 50% and 25% each year, respectively, until no fatalities and severe injuries occur.
2. Reduce collisions through engineering, enforcement, education, and emerging technologies strategies.
3. Improve safety around schools, transit stops, and other key destinations through a connected multimodal system, enhanced crossings, education, and enforcement.
4. Reduce pedestrian and bicycle collisions by 50% each year through enhanced crossings and multimodal accommodations.
5. Reduce emergency response time by installing clear and uniform signage.

1.4 Safe System Approach

The Federal Highway Administration (FHWA) is using the Safe System Approach to work towards their goal of zero fatalities in vehicles. The Safe System Approach aims to provide a comprehensive approach to safety by designing our vehicles and infrastructure in a manner that anticipates human error and accommodates human tolerances with a goal of reducing fatal and serious injuries. The following framework is intended to assist the vehicle and infrastructure communities in making decisions in alignment with Safe System principles. Implementing and selecting safe system practices and design will incrementally improve safety over time.

FHWA defines the Safe System Approach Principles and Elements as follows:

- Safe Road Users—The safety of all road users is equitably addressed, including those who walk, bike, drive, ride transit, or travel by other modes.
- Safe Vehicles—Vehicles are designed and regulated to minimize the frequency and severity of collisions using safety measures that incorporate the latest technology.

- Safe Speeds—Humans are less likely to survive high-speed crashes. Reducing speeds can accommodate human-injury tolerances in three ways: reducing impact forces, providing additional time for drivers to stop, and improving visibility.
- Safe Roads—Designing transportation infrastructure to accommodate human mistakes and injury tolerances can greatly reduce the severity of crashes that do occur. Examples include physically separating people traveling at different speeds, providing dedicated times for different users to move through a space, and alerting users to hazards and other road users.
- Post-Crash Care—People who are injured in collisions rely on emergency first responders to quickly locate and stabilize their injuries and transport them to medical facilities. Post-crash care also includes forensic analysis at the crash site, traffic incident management, and other activities.

Source: FHWA.

Figure 1.3 Principles and Elements of the Safe System Approach

Adopting a Safe System approach does not absolve users of their responsibility. Other safety practices such as speed management strategies, driver education, enforcement, and effective emergency response will remain essential to improving road safety.

1.5 Guiding Documents

The following standards and guidelines were followed during the development of the LRSP.

1.5.1 Federal and State Standards

- "Local Roadway Safety, A Manual for California's Local Road Owners", Caltrans, Version 1.6, April 2022.
- 2020-2024 California's Strategic Highway Safety Plan (SHSP), "California Safe Roads: 2020-2024 Strategic Highway Safety Plan", Caltrans.

- "Local and Rural Road Safety Briefing Sheets: Local Road Safety Plans," Federal Highway Administration, November 2014.
- "Developing Safety Plans, A Manual for Local Rural Road Owners", Federal Highway Administration, March 2012.
- "Systemic Safety Project Selection Tool," Federal Highway Administration, 2013.
- "Highway Safety Manual", American Association of State Highway Officials (AASHTO), 1st Edition, 2014 supplement.
- "California Manual of Uniform Traffic Control Devices (CA MUTCD)", Revision 8, 2014.

2. Establish Leadership

Humboldt County realizes that it is crucial to involve various stakeholders and community members to comprehensively identify and address safety patterns throughout the County. As a result, leadership involved in developing the plan included a project team, stakeholder working group, and public engagement.

2.1 Project Team

The project team included representatives from the Engineering Division of the County of Humboldt's Department of Public Works and the consulting firm, GHD. This project team met bi-weekly to establish the vision and priorities for the plan, track progress, and discuss feedback to comprehensively identify and address safety patterns throughout the County.

2.2 Stakeholder Working Group

2.2.1 Members

Since many of the safety countermeasures include engineering, enforcement, and emergency response, it is important to interact with stakeholders to develop an understanding of how the LRSP will be implemented. Therefore, based on community connections, the County of Humboldt led the formation of the LRSP Working Member Group. This leadership group was crucial in the development of the LRSP and helped capture the safety needs, goals, and priorities including safety countermeasures specific to the County of Humboldt.

The LRSP Working Group included the following representatives:

- County of Humboldt
  - Public Works
  - Health and Human Services
  - Office of Emergency Services
  - Office of Education
- Humboldt County Association of Governments (HCAOG)
- Humboldt Bay Fire
- Volunteer Fire Representative
- California Highway Patrol (CHP)
- Caltrans District 1
- Humboldt Bay Bicycle Commuters Association
- Humboldt Transit Authority
- City of Eureka
- McKinleyville Municipal Advisory Committee (MckMAC)
- Coalition for Responsible Transportation Priorities
- Redwood Community Action Agency
- Tribal Communities

2.2.2 Meetings

Two virtual meetings were held with the stakeholder working group and facilitated by GHD. The virtual meetings were as follows:

Meeting #1: January 18, 2024, from 2:00pm to 3:30pm

Discussed the LRSP overall process, working group member's safety priorities, past five years of collisions, vision, goals, and priorities.

Meeting #2: March 25, 2024, from 9:30am to 11:00am

Reviewed first meeting, discussed current progress, discussed recommended safety countermeasures/strategies, and explained next steps for the plan's progress.

The meeting summaries for the stakeholder working group meetings are included in the Appendices.

2.3 Public Engagement

2.3.1 Public Website

A public website was created on the Social Pinpoint platform to inform the public about the LRSP and provide a platform for input. **Figure** 2.1 displays the homepage for the website found at **ghd.mysocialpinpoint.com/humboldt**. Visitors to the page were invited to provide comments on an interactive project map and share their thoughts through a project survey.

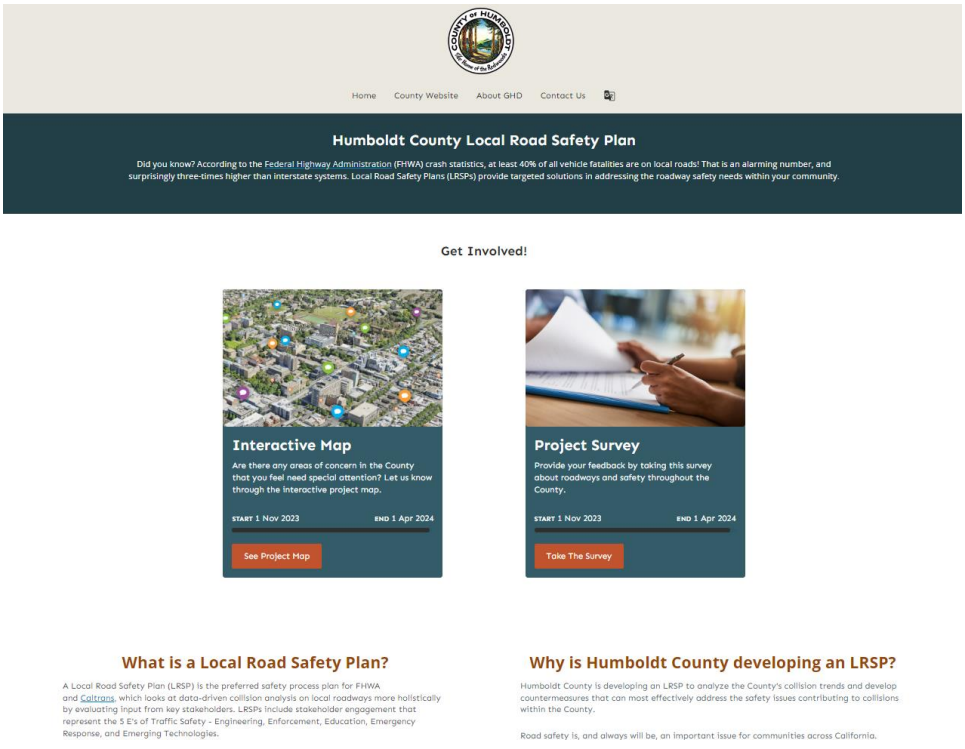


Figure 2.1 Public Website Homepage

2.3.1.1 Interactive Map

The interactive map feature on the website allowed the public to drag icons to a location within the County and leave a comment regarding driving, biking, pedestrians, schools, transit, or collisions at that location. **Figure 2.2** shows the interactive map feature from the website.

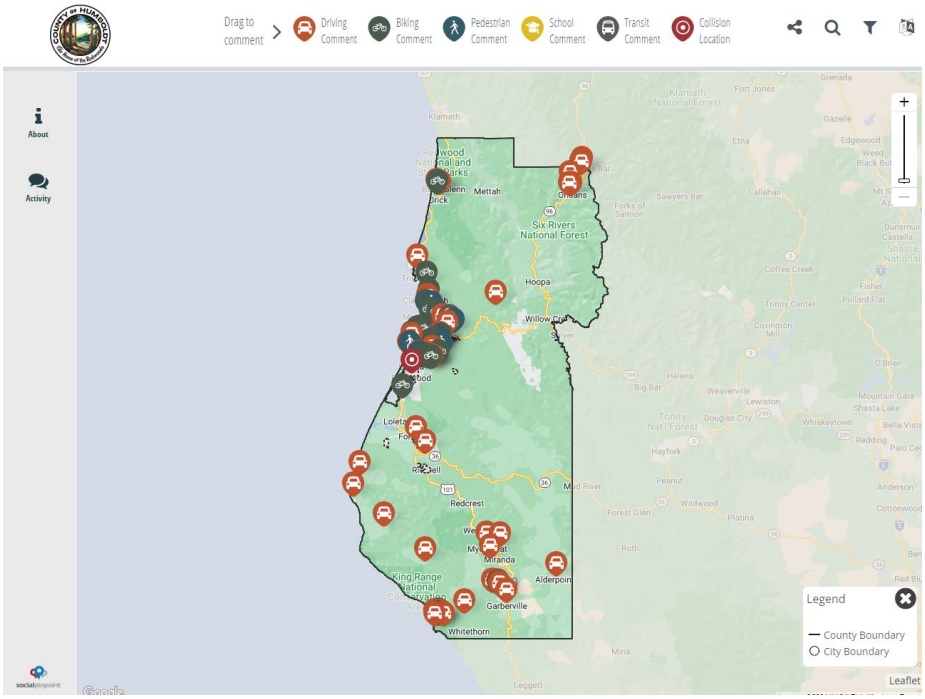


Figure 2.2 Interactive Map

2.3.1.2 Project Survey

The LRSP Project Survey was added to the public website to help gather an understanding of the primary safety issues for community members. The questions asked in the survey include those listed below. To view a summary of the results of the survey, refer to Section 3.3.2.

- What are the main roadway safety issues in Humboldt County? Select all that apply.
- Please provide any other additional details regarding the main safety concerns selected above.
- In the past 5 years, are there any locations you have witnessed a collision or near miss on a County roadway?
- Please list any locations where you have witnessed a collision or near miss below.
- Would you like to see more of the following safety measures in Humboldt County?
- What other roadway safety improvements would you like to see?
- Please rate your level of comfort using each mode of transportation in Humboldt County.
- Would you be willing to use alternative modes of travel (walking, biking, transit, etc.) to get to work, school, shopping, etc.?
- What improvements would encourage you to use alternative modes of travel more often?
- Are you a parent/guardian of a student that attends school in Humboldt County?
- How often do you/your student use the following modes travel to attend school in a typical week?
- Are there any roadway improvements that you would like to see implemented near schools in Humboldt County?

3. Analyze Safety Data

3.1 Previous and Planned Safety Projects

3.1.1 Completed Projects

These roadway safety projects were completed within the County of Humboldt during the five-year project analysis period (2018-2022).

- High Reflectivity Striping Project (2018): Centerline and edgeline traffic stripes with increased retroreflectivity – Freshwater Road and Kneeland Road.
- Pedestrian Safety Crossing Project (2019): Installed Rectangular Rapid Flashing Beacons (RRFBS) and Flashing Pedestrian Crossing Signs for advance warning – at three existing unsignalized crosswalks in Myrtletown near Eureka.
- Pedestrian Countdown Signal Heads (2019): Installed pedestrian countdown signal heads at existing signalized intersections – 8 intersections on Central Avenue and 1 intersection on Myrtle Avenue.
- Guardrail Replacements (2022): Repair and replace guardrail and end treatments – 31 locations countywide.
- Manila Highway 255 Trail (2023) – Constructed a class 1 trail exclusive to non-motorized users along highway 255 between Pacific Avenue and Lupin Street.

3.1.2 Planned and In-Progress Projects

To ensure all roadway safety priorities are addressed, the following planned and in-progress projects were identified.

- Garberville Complete Streets Project (Awaiting Funding): Angled/parallel parking, bike lanes, RRFBs, bulbouts, median refuges, wayfinding signage, and midblock crossings – Redwood Drive in Garberville.
- Oak Street and F Street Traffic Signal Project (Awaiting Funding): Repave, install bulbouts, bike detection, high visibility school crossings, flashing yellow left turn arrows, and new signal & signal timing.
- Edgelines on Indian Reservation Roads (Funded): Placing edgelines on rural roads within Indian Reservation Roads System
- Advance Warning and Flashing Beacon (Funded): Pedestrian activated beacon – Willow Creek
- Guardrail Replacement (Funded): Repair, replace, and upgrade guardrails and end treatments throughout the County.
- Hammond Trail and Mid-Town Crossings (Funded, In Design): RRFBs, curb extensions, pedestrian refuge islands, and ADA compliant curb ramps.
- Redway Drive and Redwood Drive HSIP Project (In Progress, Estimated Completion in 2024): Enhanced pedestrian crossing with bulbouts, warning signs, restriping, and lane realignment.
- Humboldt Bay Trail South: A 4-mile-long class 1 trail which will close the gap in the existing trail system between Arcata and Eureka. The trail is exclusive for non-motorized users and is an alternative to US 101.

- Myrtle Avenue STIP (funded, in design): Repave and stripe for bike lanes.

3.1.3 Recommended Projects

The Central Avenue Corridor in McKinleyville was identified for various improvements in the McKinleyville Multimodal Connections Project. This plan and it's recommended projects were considered and incorporated in this plan's countermeasures. The recommendations are as follows:

From School Road to Railroad Drive:

- Road diet lane reduction
- Buffered bike lanes
- Multi-use trail on westerly side

From North Bank Road/Reserve Road to School Road:

- Buffer treatment between northbound travel lanes and shoulder/bike lames
- Paved pedestrian and bicycle paths
- Roadway restriping including shoulder widening
- Rectangular Rapid Flashing Beacon (RRFB) crosswalk
- Landscaping maintenance

3.1.3.1 Public Requested Projects

During the development of these recommended projects and the McKinleyville Town Center plan, public input was collected. The following projects were highlighted:

- Crosswalk enhancements
- Roundabouts, medians, vehicle lane reductions, and traffic calming along Central Ave

3.2 5-Year Collision Data

The County of Humboldt collision data was gathered using the Statewide Integrated Traffic Records System (SWITRS) and supplemented using Transportation Injury Mapping System (TIMS) and support from County staff. This data set was analyzed, crosschecked, and compiled to create a comprehensive data set. The past five years' worth of collisions spanning from January 1, 2018, to December 31, 2022, were analyzed for purposes of this plan.

3.2.1 General Analysis

Between 2018 and 2022, over 2,400 collisions were reported on Humboldt County roadways. These collisions were categorized into intersection-related collisions and roadway segment-related collisions.

The chart in **Figure 3.1** depicts the percentage of collisions by collision location (intersection or segment). As shown in the chart, over two-thirds of collisions occurred on County roadway segments.

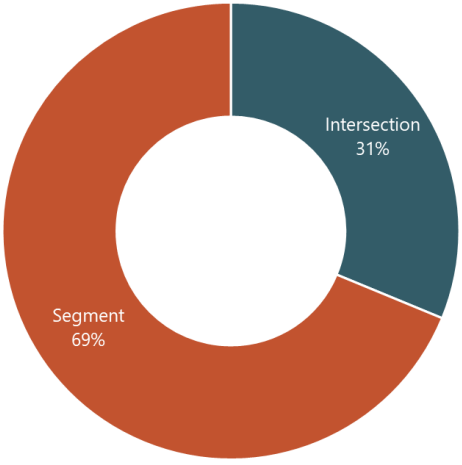


Figure 3.1 Collision Facility Type

To visualize where the collisions occurred, a collision density map was created. As seen in **Figure 3.2**, high densities of collisions are located along Briceland Thorn Road, Alderpoint Road, Central Avenue, and Myrtle Road.

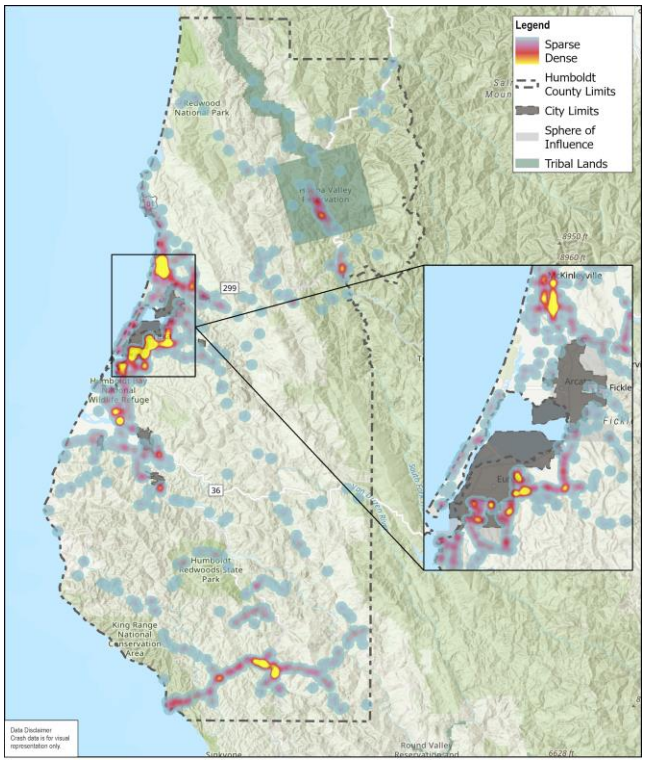


Figure 3.2 Collision Density Map

The severity of the collisions throughout the County are shown in **Figure 3.3**. Almost three quarters of the collisions in the County did not result in injury (coded as 'Property Damage Only').

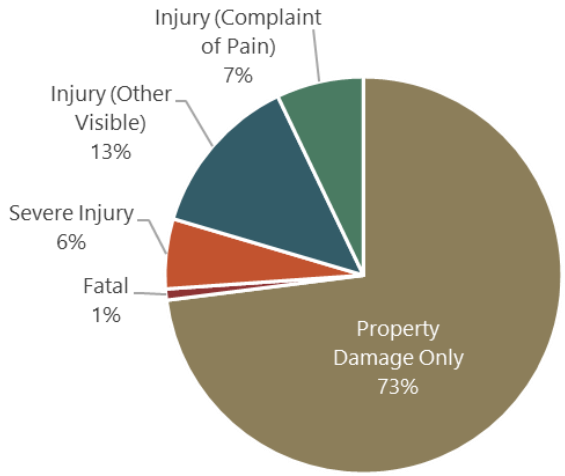


Figure 3.3 Collision Severity

The main types of collisions were hit objects. These collisions typically occur on segments with objects located within the Clear Recovery Zone or high-speed

roadways with significant curvature. Additionally, hit object, overturned, and head-on collisions are classified as lane departures, making lane departures the leading cause of collisions in the County. This is discussed further in **Section 4.4**.

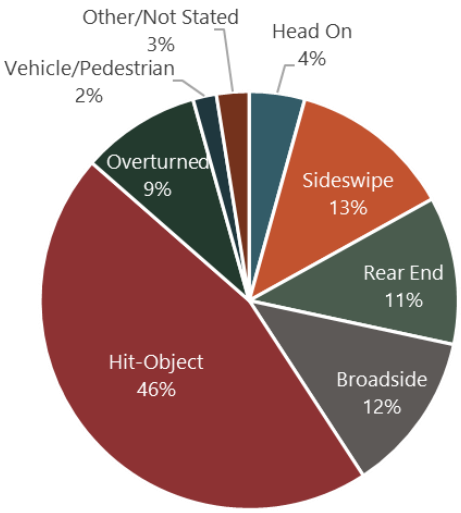


Figure 3.4 Collision Type

As shown in **Figure 3.5**, the top five violation categories for collisions were improper turning, driving/biking under the influence, unsafe speed, automobile right of way, and unsafe starting or backing.

The figure also shows how the top collision types related to the top violation types. Most of the improper turning violations resulted in a hit object collision. Therefore, targeting these types of collisions and violations could help to mitigate overall collision numbers.

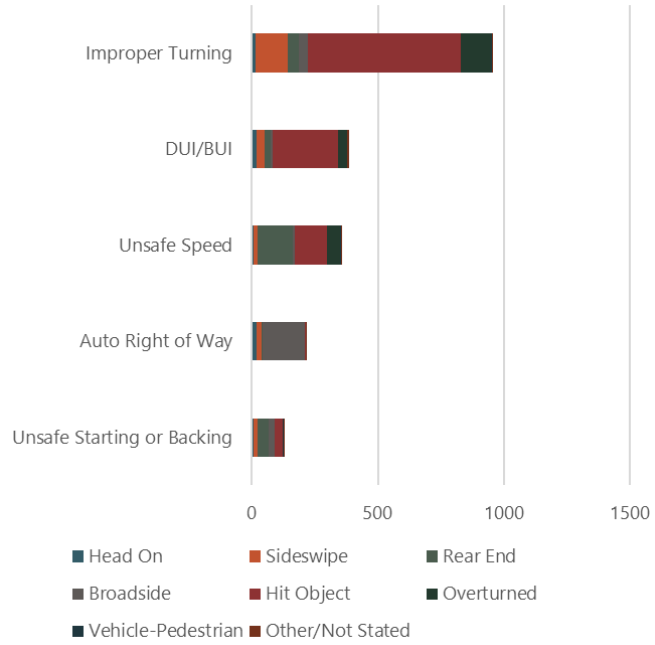


Figure 3.5 Top Five Violation Categories

3.2.2 High Severity Collisions

A focused analysis was performed for high-severity collisions resulting in a fatality or a severe injury, since a primary goal of the plan is to eliminate high severity collisions. On roadways within County jurisdiction between 2018 and 2022, approximately 6% of collisions resulted in a severe injury and 1% of collisions resulted in a fatality. Of the fatal collisions, approximately 68% were due to driving or biking under the influence of drugs or alcohol (DUI).

Many of the high-severity collision locations (refer to **Figure 3.6)** correspond with the locations with high collision density (refer to **Figure** 3.2).

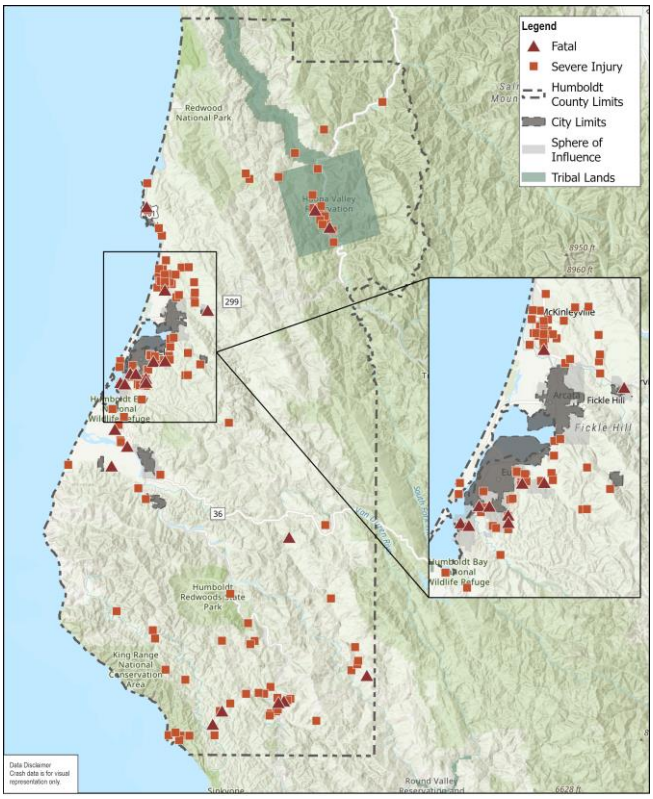


Figure 3.6 ***Fatal and Severe Injury Collision Map***

In high severity collisions, motor vehicles were involved with either a pedestrian, other motor vehicle, bicycle, or fixed object. 21% of the severity collisions are classified as a non-collision. This means that the vehicle did not come in contact with an object, other motor vehicle, or other roadway user. Overturned collisions typically fall into this category meaning that a fifth of the fatal and severe injury collisions were single-vehicle collisions.

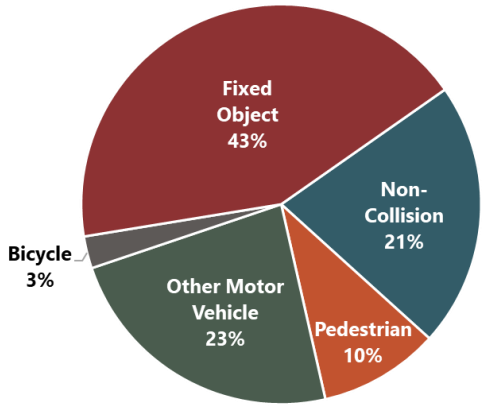


Figure 3.7 ***Motor Vehicle Involved With (High Severity Collisions)***

3.2.3 Multimodal Collisions

Approximately 13% of the high-severity collisions in the County over the past 5 years involved pedestrians or bicyclists.

3.2.3.1 Pedestrian Related Collisions

Between 2018 and 2022, there were 44 pedestrian-related collisions recorded on County roadways. **Figure 3.8** shows the locations of pedestrian collisions on roadways under County jurisdiction. As shown in the map, many pedestrian collisions occurred in the greater Eureka area and McKinleyville.

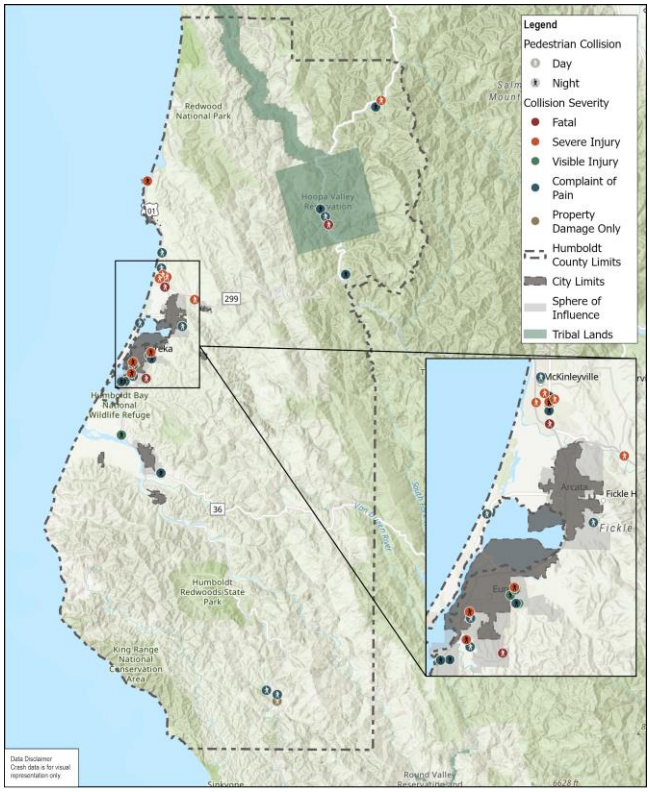


Figure 3.8 ***Pedestrian Collision Map***

The top three violation categories for pedestrian-related collisions were pedestrian right of way, pedestrian violation, and unsafe speed.

3.2.3.2 Bicycle Related Collisions

Between 2018 and 2022, there were 36 bicycle-related collisions recorded in the SWITRS database. **Figure 3.9** shows the locations of bicycle collisions in

Humboldt. As shown in the map, many bicycle collisions occurred at similar locations to the pedestrian collisions. Approximately one fourth of the bicycle-related collisions occurred on Central Avenue in McKinleyville.

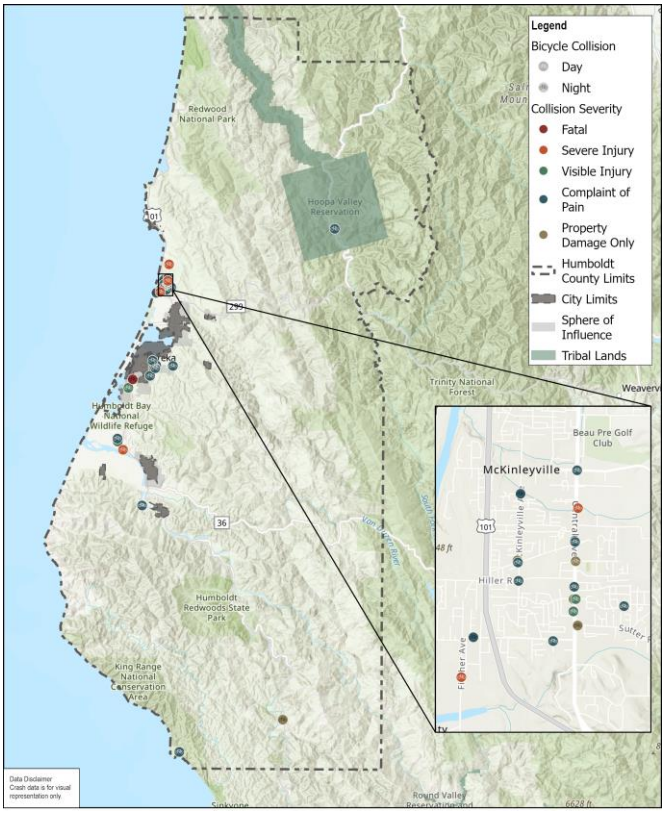


Figure 3.9 Bicycle Collision Map

The top three violation categories for bicycle-related collisions were automobile right of way, unsafe speed, and improper turning.

3.2.4 Priority Locations

3.2.4.1 Ranking

The Caltrans Local Roadway Safety Manual recommends ranking locations with higher severity as higher focus. The Highway Safety Manual (HSM) methodology for ranking relative severity is Equivalent Property Damage Only (EPDO). The EPDO weight for a specific degree of severity is calculated by dividing the comprehensive collision costs for the severity (fatal, severe injury, other visible injury, complaint of pain, or property damage only) by the comprehensive collision costs of a property damage only collision. Thereby, a property damage only collision is given a weight of 1.

Table 3.1 provides the comprehensive collision costs and relative severities that were used in ranking the collisions. Comprehensive collision costs include both direct and indirect costs. Direct costs include emergency response services (emergency medical response, police, and fire), property damage, insurance, and other costs directly related to the crashes. Indirect costs are an estimate of the costs incurred by pain and suffering or loss of life associated with a collision.

Table 3.1 Equivalent Property Damage Only (EPDO)

Crash Severity	Location Type	Crash Cost*	Severity Ranking**
Local Roadway Safety Manual (LRSM)* **			
Fatal & Severe Injury	Signalized Intersection	$1,590,000	120
	Non-Signalized Intersection	$2,530,000	190
	Roadway	$2,190,000	165
Other Visible Injury	-	$ 142,300	11
Complaint of Pain	-	$ 80,900	6
Property Damage Only	-	$ 13,300	1

* *Based on Table 7-1, Highway Safety Manual (HSM), First Edition, 2010. Adjusted to 2020 dollars.*

** *Based on Equivalent Property Damge Only (EPDO)*

*** *Local Roadway Safety: A Manual for California's Local Road Owners (LRSM), Version 1.5, 2020.*

3.2.4.2 Evaluation

The total number of collisions and the relative severity of collisions (EPDO) were assessed to determine the top study locations (refer to the appendices).

The top intersections and roadway segments in each of these categories were identified. For the purpose of this analysis, collisions on roadway segments under Caltrans jurisdiction and city jurisdictions were not considered in the evaluation. In addition, when evaluating collisions by EPDO the locations that

averaged less than one collision per year were removed from the list.

Overall, seven unique intersections and seven unique road segments were chosen as priority locations for the plan. The priority locations and their corresponding collision characteristics are displayed in **Table 3.2** and **Table 3.3**. Other characteristics evaluated include:

- number of fatal and severe injury collisions,
- number of pedestrian collisions,
- number of bicycle collisions,
- number of collisions involved with a fixed object,
- percentage of collisions at night,
- percentage of collisions on a wet roadway,
- location of pedestrian at time of the collision,
- number of collisions with alcohol involved, and
- number of collisions that occurred in the dark with no streetlights.

Many of the top intersections were along Central Avenue, which is one of the roadways with the highest traffic volumes under County jurisdiction. Due to the similarity of the intersections along Central Avenue, only the intersections with the highest EPDO were chosen as priority intersections. The remaining intersections were captured as a systemic signal countermeasure along Central Avenue (refer to Section 5.1.2).

Table 3.2 ***Priority Intersection Characteristics***

		Collision Characteristics			
Location	**Control**	**Relative Severity (EPDO)**	**Total Collisions**	**Top Type of Collision**	**Top Violation Category**
Myrtle Ave / Hall Ave	Two-Way Stop Control	217	8	Broadside	Automobile Right of Way
Mckinleyville Ave / Hiller Rd	All-Way Stop Control	215	11	Broadside	Automobile Right of Way
Central Ave / Gwin Rd / City Center Rd	Signalized	146	7	Sideswipe, Broadside	Traffic Signals and Signs
Myrtle Ave / Hubbard Ln (East)	Signalized	135	6	Head-on	Automobile Right of Way
Anna Sparks Way / Central Ave	Signalized	135	6	Sideswipe, Rear End	Unsafe Speed, Unsafe Lane Change
Central Ave / Hiller Rd	Signalized	135	6	Sideswipe, Broadside	Traffic Signals and Signs
F St / Oak St	Unsignalized	37	12	Broadside	Automobile Right of Way

Table 3.3 ***Priority Segment Characteristics***

		Collision Characteristics			
Location	**Length (mi)**	**Relative Severity (EPDO)**	**Total Collisions**	**Top Type of Collision**	**Top Violation Category**
Myrtle Ave from Harrison Ave to Indianola Ave	6.8	1736	80	Hit Object	Improper Turning
Briceland Thorn Rd from Redwood Dr to Southern County Limits	17.9	1253	94	Hit Object	Improper Turning
Alderpoint Rd from 2mi North of Sunrise Rd to Southern County Limit	31.4	1168	59	Hit Object	Improper Turning
Central Ave from Norton Ave to 600ft South of Henry Rd	2.7	1021	76	Broadside	Automobile Right of Way
Pine Creek Rd from French Camp Rd to SR 96	6.2	598	26	Hit Object	Improper Turning
Redwood Dr from US 101 (Redway) to Bear Canyon	4.1	592	30	Hit Object	Improper Turning
Shelter Cove Rd from Upper Pacific Dr to Briceland Thorn Rd	9.1	260	31	Hit Object	Improper Turning

3.3 Public Engagement

3.3.1 Interactive Map

This feature was available to the public between October 2023 and March 2024 and 99 comments were received. As shown through **Figure 3.10**, driving-related comments were most prevalent.

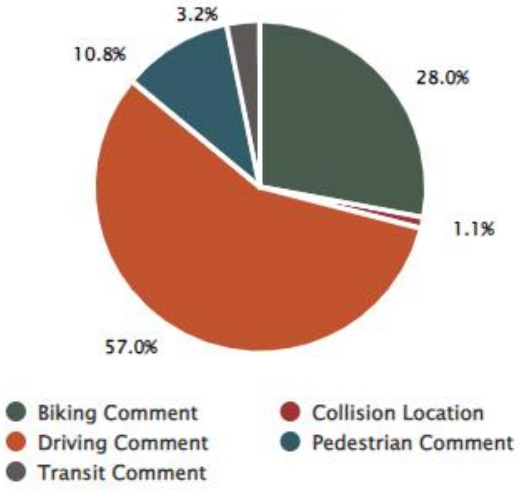


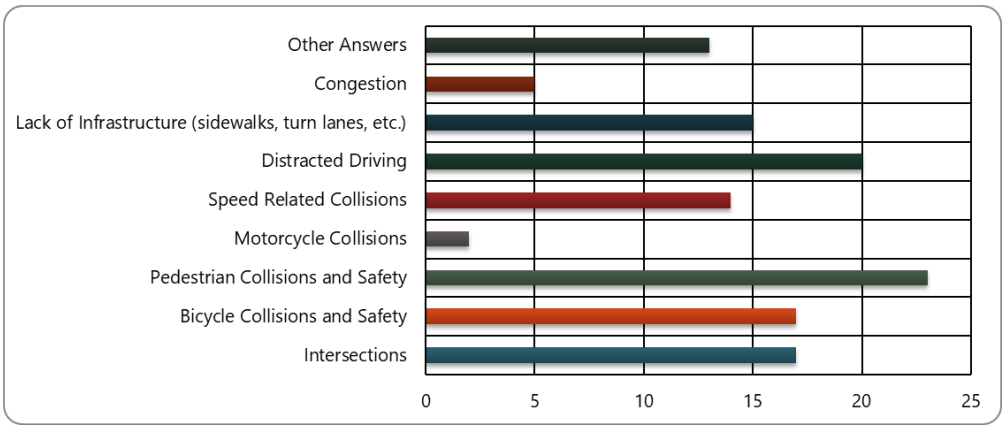
Figure 3.10 Types of Interactive Map Comments

The comments received from the interactive map were reviewed and considered during the plan's countermeasure development. Comments from the interactive map are included in the appendices.

3.3.2 Project Survey

The project survey received 39 responses between October 16, 2023, and March 31, 2024. The results of the survey questions are summarized below.

What are the main roadway safety issues in Humboldt County? Select all that apply.



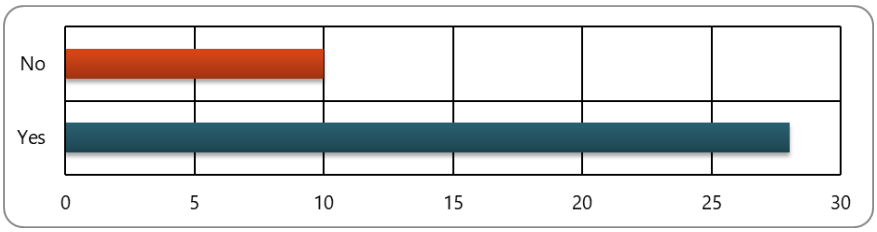
Other answers include:

- Impaired driving
- Unmaintained roads
- Lack of enforcement

Please provide any other additional details regarding the main safety concerns selected above.

- Lack of sidewalks or space to walk along roadways
- Increasing/significant number of drunk and distracted drivers
- Lack of safe bicycle infrastructure
- Roads need to be maintained with more frequency

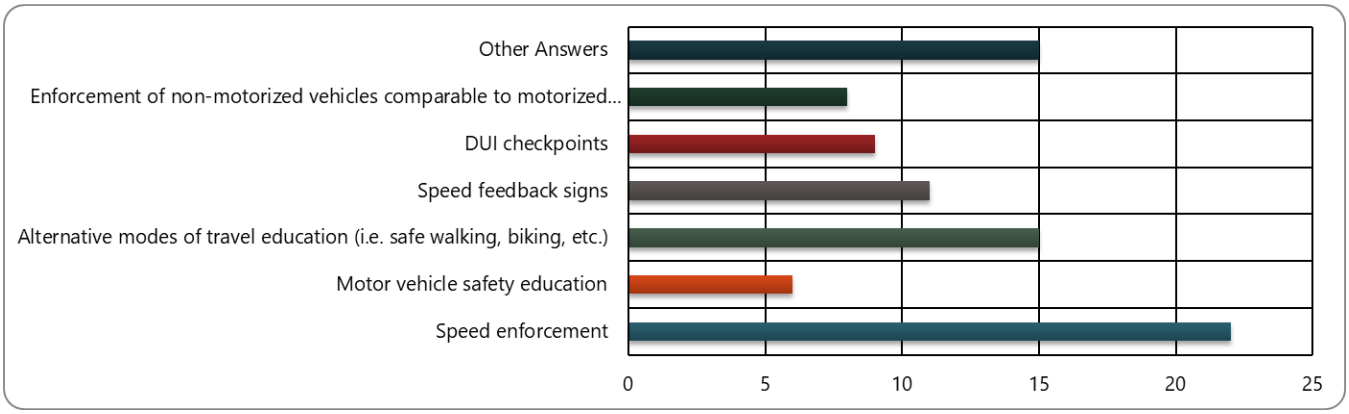
In the past 5 years, are there any locations you have witnessed a collision or near miss on a County roadway?



Please list any locations where you have witnessed a collision or near miss below.

- F Street and Oak Street
- Central Avenue in McKinleyville
- H Street[1]
- Old Arcata Road
- Myrtle Avenue

Would you like to see more of the following safety measures in Humboldt County?

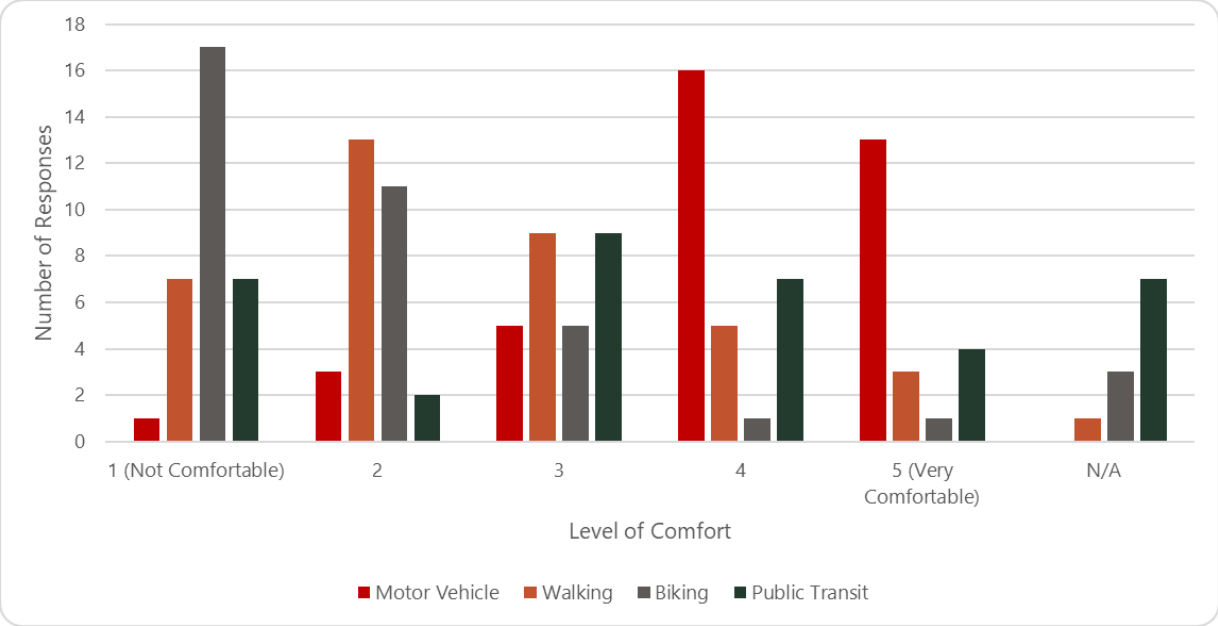


What other roadway safety improvements would you like to see?

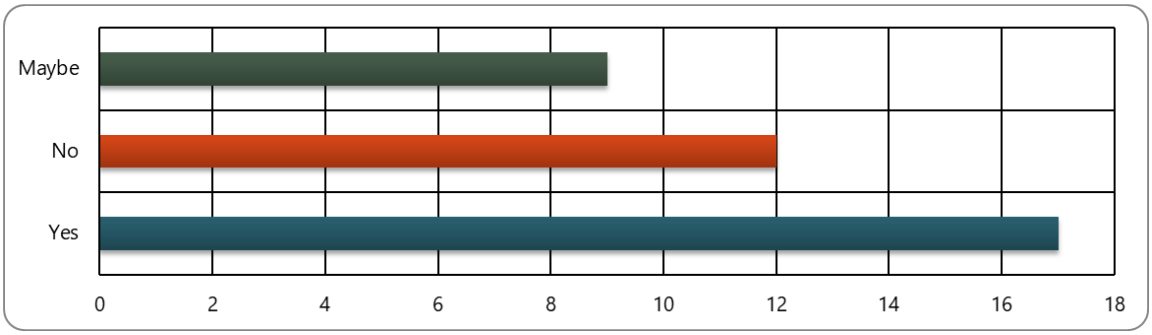
- Better sidewalks
- Bicycle-only lanes
- Reflective markers on center stripes
- Traffic calming
- Convert all-way stops to roundabouts
- Crosswalks with flashing lights

[1] Under City of Eureka jurisdiction

Please rate your level of comfort using each mode of transportation in Humboldt County.



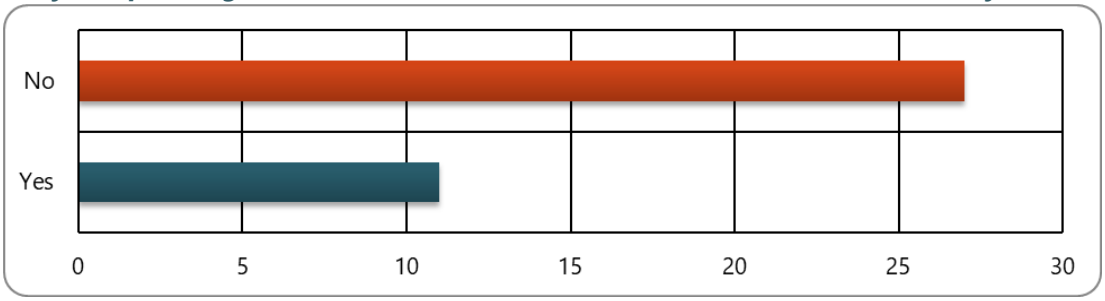
Would you be willing to use alternative modes of travel (walking, biking, transit, etc.) to get to work, school, shopping, etc.?



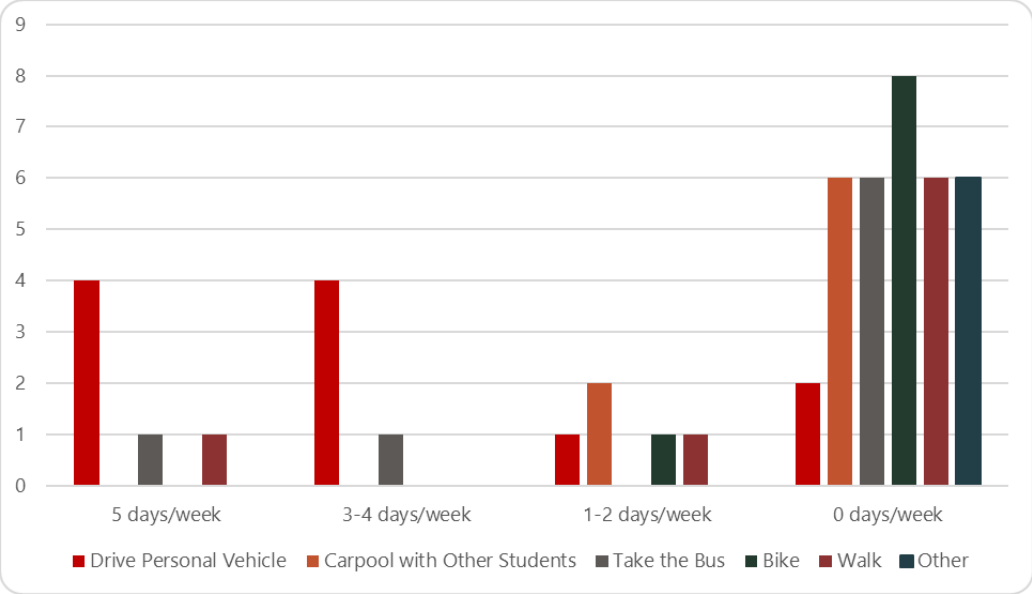
What improvements would encourage you to use alternative modes of travel more often?

- Multi-use paths
- Rapid transit, more bus routes, and bus shelters
- Complete sidewalks
- Bike lockers
- Wider and/or protected bike lanes
- Increased accessibility
- Restricting vehicle traffic

Are you a parent/guardian of a student that attends school in Humboldt County?



How often do you/your student use the following modes travel to attend school in a typical week?



Are there any roadway improvements that you would like to see implemented near schools in Humboldt County?

- Crossing guards
- Speed bumps or traffic calming
- Police enforcement
- Bike lanes
- Refreshed crosswalk striping

3.3.3 Street Story

Beginning in 2019, the Berkeley SafeTREC Street Story platform began collecting public input on crashes, near-misses, and general hazards along all roadways in the County. This platform allows the public to report locations where they feel improvements are needed, where they have encountered a near miss or collision, or where there may be hazards for roadway users. This data was reviewed and considered when developing countermeasures.

In the Crash/Near-miss category, many reported the cause as either vehicles not yielding or speeding. Many of the crashes or near misses are reported within the City of Eureka and the City of Arcata. Within the County boundary, many reports were within the McKinleyville area, along Myrtle Avenue, and Old Arcata Road. In the Hazardous Location category, many reported people driving at unsafe speeds and poor/missing bike lanes or paths. Of the improvements suggested, most wanted to see better or more bike lanes or pathways, more enforcement of unsafe behavior, and slower speeds. Much of the gathered feedback from Street Story coincides with Social Pinpoint comments and collision trends identified in this plan.

4. Determine Emphasis Areas

The emphasis areas for the LRSP will complement California's SHSP 2020-2024. This plan will focus on challenge/emphasis areas that are determined through data analysis and stakeholder input. Per this plan, the recommended challenge areas are circled in **Figure 4.1**.

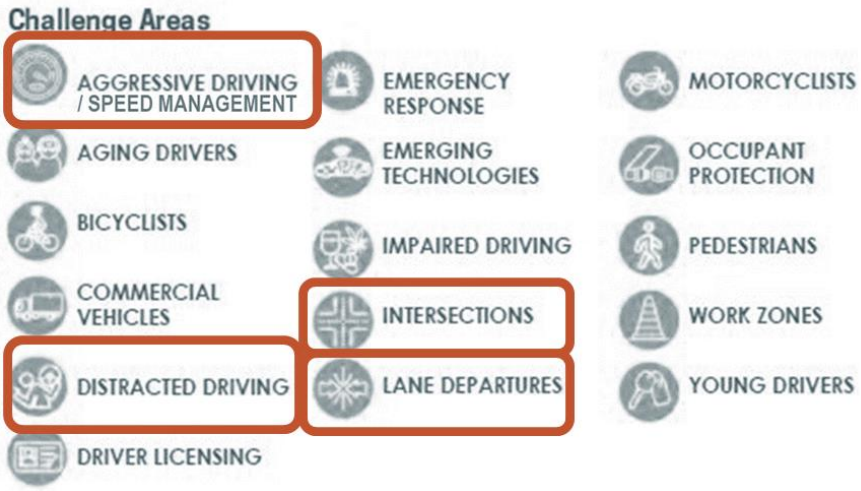


Figure 4.1 SHSP Challenge Areas

Further collision analysis was conducted for these emphasis areas and is outlined in the following sections. This analysis helped to guide the types of countermeasures recommended in the plan.

4.1 Intersections

As defined for the purposes of this plan, an intersection-related collision is any collision that occurs within 50 feet of the intersection of two roadways or within 150 feet of the intersection of two roadways, involving 2 or more parties, and resulting in a rear end. About one third of the collisions on Humboldt County roads from the past five years (2018 to 2022) were quantified as intersection related. The top violation category for intersections was improper turning, followed by driving/bicycling under the influence, unsafe speed, and automobile right of way. The majority of improper turning violations resulted in hit object collisions. This is possibly due to vehicles marking too wide or too narrow turning movements onto rural intersecting roadways and hitting objects along the shoulders.

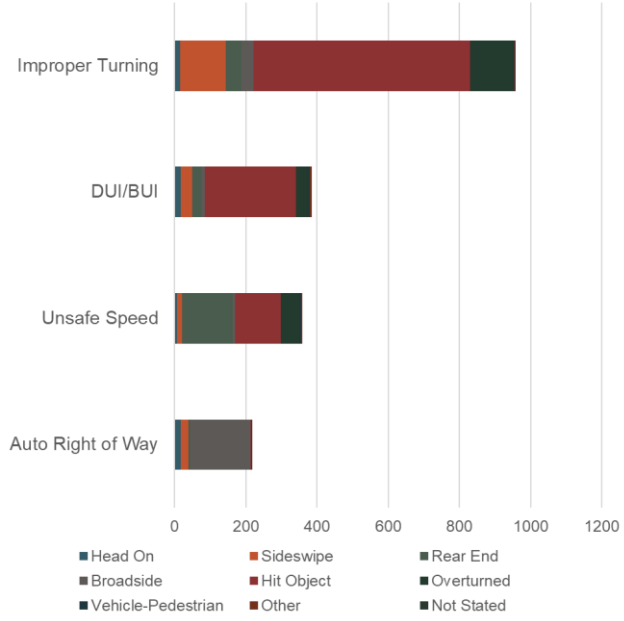


Figure 4.2 Top Violation Categories for Intersection-Related Collisions

4.2 Aggressive Driving/Speed Management

Aggressive driving can be quantified in collision data through unsafe speed violations. Unsafe speed violations are the third highest violation category for the County in the past 5 years. Approximately 15% of all reported collisions in the County between 2018 and 2022 were due to this type of violation. Over 75% due to unsafe speed in the County resulted in rear ends or hit objects. Although over 80% of these collisions are relatively low severity (property damage only or complaint of pain), targeting unsafe speed can have potential to reduce the total number of collisions in the County.

4.2.1 Assembly Bill 43

Assembly Bill (AB) 43 was signed into law by Governor Newsom on October 8, 2021. This law will go into effect by June 30, 2024, and will change several aspects of speed setting and enforcement in California with a goal to make roadways safer for all road users. Once effective, the law allows agencies more flexibility with keeping the previous speed limit, allows business and residential districts to have 15 and 20 mph speed limits, and allows the agency to round down the proposed speed limit based on an engineering study due to a high presence of bicycles or pedestrians.

4.3 Distracted Driving

Distracted driving is categorized in collision data as inattention. Categories for inattention include distraction by cell phones (handheld or hands-free), electronic equipment, radio/CD, smoking, eating, children, animals, and personal hygiene. There were 75 collisions between 2018 and 2022 that reported inattention as a factor of the collision. Many of these collisions were listed an "Other" type of inattention and the second highest type of inattention was using a handheld cell phone while driving (refer to **Figure 4.3**).

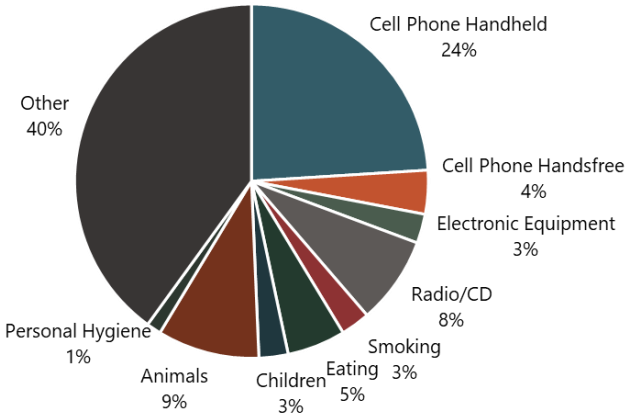


Figure 4.3 ***Inattention Type for Collisions Involving Distracted Driving***

4.4 Lane Departures

Per the California Strategic Highway Safety Plan (SHSP), a lane departure is classified as an instance where a vehicle runs off the road or crosses into an opposing lane prior to a crash. This is quantified through head-on, hit object, and overturned crashes.

Approximately 59% of collisions on County roadways from 2018 to 2022 were as a result of a lane departure. A break down of the lane departure collisions reveals that 77% were classified as hit object, 16% were overturned, and 7% were head-on. 90% of the lane departure crashes can be attributed to one of three violations – improper turning, unsafe speed, or DUI/BUI. **Figure 4.4** presents these violation categories in relation to each lane departure collision type.

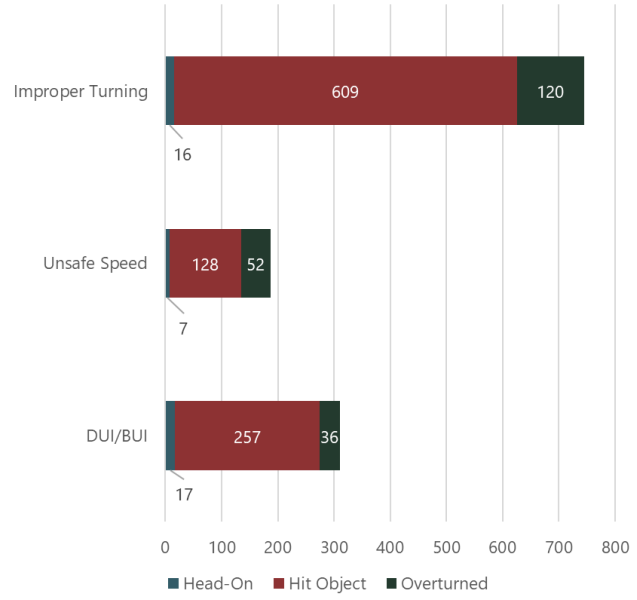


Figure 4.4 Top Violation Categories for Lane Departure Collisions

5. Identify Strategies

Through coordination and feedback from the project team, stakeholder working group, and public engagement, safety projects and strategies were identified for the LRSP.

The following section recommends engineering projects at specific locations, along with systemic safety applications. Additionally, safety strategies and projects that address the other E's (Enforcement, Education, Emergency Response, and Emerging Technologies) are included and will be discussed below.

5.1 Engineering Strategies

5.1.1 Projects at Priority Locations

To develop recommended countermeasures for the priority locations, various factors were, or will be, considered, including:

- collision characteristics,
- observations of existing conditions,
- public input from the project's website (interactive map comments, survey responses, etc.),
- review of Street Story,
- existing plans and recent projects throughout the County,
- guidance from County representatives, and
- review from the stakeholder working group (to be evaluated after concurrence with the County representatives).

Many countermeasures identified are from the most recent Caltrans Local Roadway Safety Manual (Version 1.6), April 2022. The countermeasures recommended for these locations are presented in **Table 5.1** and **Table 5.2**.

Table 5.1 ***Priority Intersection Countermeasures***

Intersection	Control	Countermeasure Number	CRF	Funding Eligibility	Recommended Countermeasures	Reasoning
Myrtle Ave / Hall Ave	Two-Way Stop Control	NS03	30%	90%	Install signals*	Reduced sight distance at intersection due to intersection skew, curvature, and vegetation as well as higher speed limit on Myrtle Ave causes difficult conditions for drivers turning from Hall Ave. Signal control may reduce number of broadside collisions caused by automobile right of way violations
		NS11	20%	90%	Improve sight distance to intersection (Clear Sight Triangles)	Already reduced sight distance may be made worse by overgrown vegetation. Ensure vegetation remains cleared
		NS09	30%	90%	Install flashing beacons as advance warning (NS.I.)	Intersection appears relatively quickly for westbound vehicles traveling uphill on Myrtle. Flashing beacon for advance warning will alert drivers further back and warn about potentially crossing vehicles. Should also be installed if intersection is converted to AWSC for advance stop warning
Mckinleyville Ave / Hiller Rd	All-Way Stop Control	NS04	Varies	90%	Convert intersection to roundabout (from all way stop)	Skewed intersection with wide pavement may benefit from roundabout control to mitigate broadside collisions.
					OR	
		NS03	30%	90%	Install signals*	Alternative to installing a roundabout
					OR	
		NS06	15%	90%	Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs	Interim improvement to increase visibility of signage especially in poor weather/visibility conditions
		-	-	-	Restripe approach on Hiller Road to better differentiate movements and add bike lanes	Wide pavement width for through and right vehicle movements on Hiller Rd that may cause confusion in driver movement and right of way
Central Ave / Gwin Rd / City Center Rd	Signalized	S03	15%	50%	Improve signal timing (coordination, phases, red, yellow, or operation)	Add or increase clearance intervals to reduce vehicle conflicts
		S08	30%	90%	Convert signal to mast arm (from pedestal-mounted)	On Gwin Rd/City Center Rd, signals are pedestal/light pole mounted. Converting to mast arms can increase signal visibility and potentially reduce the risk of broadside collisions.
		S09	10%	90%	Install raised pavement markers and striping (Through Intersection)	Can reduce sideswipe collisions and better guide vehicles through awkward turning movements
		-	-	-	Evaluate intersection sight distance	Visibility at intersection seemed to be limited by shopping center sign. Multiple traffic signal and sign violations.

* Intersection must meet CA MUTCD warrants to implement countermeasure

Intersection	Control	Countermeasure Number	CRF	Funding Eligibility	Recommended Countermeasures	Reasoning
Myrtle Ave / Hubbard Ln (East)	Signalized	S02	15%	90%	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	Install retroreflective borders on backplates if not yet previously completed for better signal visibility
		S03	15%	50%	Improve signal timing (coordination, phases, red, yellow, or operation)	Add or increase clearance intervals to reduce vehicle conflicts
		S07	30%	90%	Provide protected left turn phase (left turn lane already exists)	As part of improved signal timing, add protected left turn phase to reduce broadside collisions as a result of auto right of way violations
Anna Sparks Way / Central Ave	Signalized	S02	15%	90%	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	Replace 8" signal heads with 12" signal heads
		S03	15%	50%	Improve signal timing (coordination, phases, red, yellow, or operation)	Add or increase clearance intervals to reduce vehicle conflicts
Central Ave / Hiller Rd	Signalized	S03	15%	50%	Improve signal timing (coordination, phases, red, yellow, or operation)	Add or increase clearance intervals to reduce vehicle conflicts
		S07	30%	90%	Provide protected left turn phase (left turn lane already exists)	As part of improved signal timing, add protected left turn phase to reduce broadside collisions as a result of auto right of way violations
		S08	30%	90%	Convert signal to mast arm (from pedestal-mounted)	On Hiller Rd, signals are pedestal/light pole mounted and not very apparent to drivers. Converting to mast arms can increase signal visibility and potentially reduce the risk of broadside collisions.
		S21PB	60%	90%	Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	One pedestrian collision. Active commercial area that would provide pedestrians with increased crossing time and lead out in front of turning vehicles.
F St / Oak St	Two-Way Stop Control	NS03	30%	90%	Install signals*	To help reduce collisions due to automobile right of way. Signal warrants are met at this location and the County has 100% plans, specifications, and a cost estimate for a traffic signal. Additional funding is needed to implement project.
		OR				
		NS02	50%	90%	Convert to all-way STOP control (from 2-way or Yield control)*	If funding for signal is unavailable. All Way Stop Control may reduce number of broadside collisions as a result of auto right of way violations.
		OR				
		NS22PB	35%	90%	Install Rectangular Rapid Flashing Beacon (RRFB)	If interim improvements are deemed necessary, upgrade existing school crossing into RRFB for increased pedestrian safety
		-	-	-	Remove or improve pedestrian refuge island and curb bulbout for better turning radius	Pedestrian refuge island on F St appears to be frequently hit. Lanes are slightly narrow and may be making the turning radius too sharp

* Intersection must meet CA MUTCD warrants to implement countermeasure

Table 5.2 Priority Segment Countermeasures

Segment	Length (mi)	Countermeasure Number	CRF	Funding Eligibility	Recommended Countermeasures	Reasoning
Myrtle Ave from Harrison Ave to Indianola Ave	**6.78**	R27	15%	90%	Install delineators, reflectors and/or object markers	For any objects within Clear Recovery Zone (CRZ), install or replace reflectors for better nighttime and low visibility conditions
		R31	15%	90%	Install edgeline rumble strips/stripes	Recommended for rural segments of the corrridor. Will warn drivers that they are departing the lane and potentially provide them time to recover before hitting any objects or running off the road. Consider bicyclists' use of shoulders and roadways before implementing rumble strips as to not add additional obstructions to biking routes.
		R33PB	45%	90%	Install Separated Bike Lanes	Consider parking protected bike lanes in Myrtletown where bike lanes already exist. Public recommendation.
		-	-	-	Replace Bott Dots centerline striping with painted or thermoplastic centerline striping	Where not yet replaced, convert Bott dots striping to painted or thermoplastic striping to increase centerline visibility; Head-on, fatal collision in this area due to improper turning
		-	-	-	Install transit stop near Indianola Cutoff	Per public comment.
Briceland Thorn Rd from Redwood Dr to Southern County Limits	**17.9**	R22	15%	90%	Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	Per feedback from first responders and public, there is either a lack of signage or signage is difficult to see due to fading and/or foliage. A Countywide reflectivity study should be completed.
		R27	15%	90%	Install delineators, reflectors and/or object markers	Many objects (including trees) in close proximity to the roadway; For any objects within Clear Recovery Zone (CRZ), install or replace reflectors for better nighttime and low visibility conditions
		R23	40%	90%	Install chevron signs on horizontal curves	Many significant horizontal curves that may be difficult to see in low visibility conditions or be unexpected and difficult to navigate at higher speeds
		R28	25%	90%	Install edge-lines and centerlines	Can define the edge of the roadway to help reduce run-off-the-road collisions
		R12	25%	90%	Widen lane (initially less than 10 ft)	Public comment expressed concern about the width and grade of pavement north of the intersection with Shelter Cove Road
		R31	15%	90%	Install edgeline rumble strips/stripes	Will warn drivers that they are departing the lane and potentially provide them time to recover before hitting any objects or running off the road. Consider bicyclists' use of shoulders and roadways before implementing rumble strips as to not add additional obstructions to biking routes.
Alderpoint Rd from 2mi North of Sunrise Rd to Southern County Limit	**31.4**	R22	15%	90%	Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	Per feedback from first responders and public, there is either a lack of signage or signage is difficult to see due to fading and/or foliage. A Countywide reflectivity study should be completed.
		R28	25%	90%	Install edge-lines and centerlines	No existing edgelines
		R23	40%	90%	Install chevron signs on horizontal curves	Many significant horizontal curves that may be difficult to see in low visibility conditions or be unexpected and difficult to navigate at higher speeds
		R27	15%	90%	Install delineators, reflectors and/or object markers	For any objects within Clear Recovery Zone (CRZ), install or replace reflectors for better nighttime and low visibility conditions

Segment	Length (mi)	Countermeasure Number	CRF	Funding Eligibility	Recommended Countermeasures	Reasoning
Central Ave from Norton Ave to 600ft South of Henry Rd	**2.71**	R32PB	35%	90%	Install bike lanes	Multiple bicycle-related collisions along the corridor; Complete the bicycle network along Central Ave (e.g. from the southern end of Central Ave to the Mad River Bridge bike path, south of Murray Rd) to increase multimodal access and remain in line with McKinleyville Community Plan. Shoulder widening south of Henry Rd and roadway restriping from Reserve Rd to School Rd to include bike lane recommended in McKinleyville Multimodal Connections Project.
		R26	30%	90%	Install dynamic/variable speed warning signs	Install permanent speed limit sign with speed warning sign on northbound approch to Henry Road. Many collisions due to unsafe speed violations.
		-	-	-	Maintain existing bike lanes	Several public comments related to the condition of the shoulder (uneven pavement, glass in travelled way, etc.). Interim improvement until proposed paved path and multi-use trail (as recommended in McKinleyville Multimodal Connections Project) can be installed.
		-	-	-	Increase enforcement for speeding and driving under the influence	Many speed-related collisions along the corridor. Multiple high-severity collisions with alcohol involved, specifically near Henry Lane.
		-	-	-	Replace Bott Dots centerline striping with painted or thermoplastic centerline striping	Where not yet replaced, convert Bott dots striping to painted or thermoplastic striping to increase centerline visibility
Pine Creek Rd from French Camp Rd to SR 96	**6.24**	R27	15%	90%	Install delineators, reflectors and/or object markers	For any objects within Clear Recovery Zone (CRZ), install or replace reflectors for better nighttime and low visibility conditions
		R22	15%	90%	Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	Per feedback from first responders and public, there is either a lack of signage or signage is difficult to see due to fading and/or foliage. A Countywide reflectivity study should be completed.
		R23	40%	90%	Install chevron signs on horizontal curves	Many significant horizontal curves that may be difficult to see in low visibility conditions or be unexpected and difficult to navigate at higher speeds
		R31	15%	90%	Install edgeline rumble strips/stripes	Will warn drivers that they are departing the lane and potentially provide them time to recover before hitting any objects or running off the road. Consider bicyclists' use of shoulders and roadways before implementing rumble strips as to not add additio
		R17	50%	90%	Improve horizontal alignment (flatten curves)	Many horizontal curves along roadway segment. In particular, on Pine Creek Road approximately 0.35 mi south of Kateri Lane has a horizontal curve that could benefit from this treatment.

Segment	Length (mi)	Countermeasure Number	CRF	Funding Eligibility	Recommended Countermeasures	Reasoning
Redwood Dr from US 101 (Redway) to Bear Canyon	**4.07**	R22	15%	90%	Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	Per feedback from first responders and public, there is either a lack of signage or signage is difficult to see due to fading and/or foliage. A Countywide reflectivity study should be completed.
		R27	15%	90%	Install delineators, reflectors and/or object markers	For any objects within Clear Recovery Zone (CRZ), install or replace reflectors for better nighttime and low visibility conditions
		R31	15%	90%	Install edgeline rumble strips/stripes	Will warn drivers that they are departing the lane and potentially provide them time to recover before hitting any objects or running off the road. Consider bicyclists' use of shoulders and roadways before implementing rumble strips as to not add additional obstructions to biking routes.
Shelter Cove Rd from Upper Pacific Dr to Briceland Thorn Rd	**9.13**	R22	15%	90%	Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	Per feedback from first responders and public, there is either a lack of signage or signage is difficult to see due to fading and/or foliage. A Countywide reflectivity study should be completed.
		R23	40%	90%	Install chevron signs on horizontal curves	Many significant horizontal curves that may be difficult to see in low visibility conditions or be unexpected and difficult to navigate at higher speeds
		R27	15%	90%	Install delineators, reflectors and/or object markers	For any objects within Clear Recovery Zone (CRZ), install or replace reflectors for better nighttime and low visibility conditions

5.1.1.1 Countermeasure Limitations

The Caltrans Local Road Safety Manual (LRSM) states that Countermeasure R22, Install/Upgrade signs with new fluorescent sheeting (regulatory or warning), "is not eligible unless it is done as part of a larger sign audit project, including the study of: 1) the existing signs' locations, sizes and information per MUTCD standards, 2) missing signs per MUTCD standards, and 3) sign retroreflectivity."

5.1.2 Systemic Safety Countermeasures

When selecting countermeasures, just focusing on locations with current collision issues is a reactive approach to roadway safety planning. A reactive approach targets recent hot-spots and specific problems that are associated with these locations. As a result of this approach, locations with low traffic volumes but with similar safety issues as hot spot locations are not addressed. To mitigate collisions in both a reactive and proactive approach, Caltrans' Local Roadway Safety Manual suggests agencies utilize a comprehensive approach that includes systemic and hot spot location improvements in the development of a safety plan.

Potential countermeasures that can be applied systemically throughout various locations in the County are presented in **Table 5.3** below.

Table 5.3 Systemic Countermeasures

Location	Countermeasure	Reasoning
High Priority Segments	Roadway Safety Signing Audit (RSSA) and Upgrade Project	Required to implement some of the sign-related countermeasures suggested; Stakeholders indicated that signage needs improvement
	Install delineators, reflectors and/or object markers	For any objects within Clear Recovery Zone (CRZ), install or replace reflectors for better nighttime and low visibility conditions
	Install edgeline rumble strips/stripes	Will warn drivers that they are departing the lane and potentially provide them time to recover before hitting any objects or running off the road
	DUI Saturation Patrol	High densities of DUI collisions
Signals along Central Avenue	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	Three priority intersections from the plan are signals along Central Avenue. Stakeholder feedback indicated the need for bicycle detection at signalized intersections for increased bicycle safety.
	Improve signal timing (coordination, phases, red, yellow, or operation)	
	Bicycle detection	

Some of the signalized intersections along Central Avenue that can be considered for the systemic countermeasures shown in Table 5.3 include the following, in order of highest density of collisions to lowest.

- Central Avenue & School Road
- Central Avenue & Heartwood Drive
- Central Avenue & Sutter Road
- Central Avenue & Pickett Road
- Central Avenue & Railroad Drive

5.1.2.1 Sign Audit

Roadway signage helps roadway users with navigation and provide warning and guidance needed for uniform and efficient operation of roadways. Signage degrades with sunlight, weather, and environmental damage. Replacing worn out sign and maintaining proper retroreflectivity has demonstrated safety benefits.

Caltrans notes the following in the LRSM: “When considering any type of federally funded sign upgrade project, California local agencies are encouraged to consider "Roadway Safety Signing Audit (RSSA) and Upgrade Projects".” The County does not currently have a program for sign audit. A RSSA would be beneficial in identifying sign deficiencies and needs.

5.2 Non-Engineering Strategies

A comprehensive approach to selecting countermeasures recognizes that not all safety issues can be addressed through infrastructure improvements. The comprehensive approach to safety involves the 5 E’s of traffic safety. Besides engineering safety countermeasures, it is important to recommend safety countermeasures to coincide with the other safety E’s. Non-engineering strategies for the Humboldt LRSP are shown in **Table 5.4**.

Table 5.4 Recommended Non-Engineering Strategies

Strategy Type	Potential Stakeholder Champions	Recommended Strategy
Education	Public Works Departments; Bicycle and Pedestrian Advocacy Groups	Bicycle and pedestrian safety campaigns
		Driver education and campaigns related to driving under the influence, distracted driving, and rules of the road
	Schools	Encourage safe practices within the roadway for all users and the continuation of driver education programs in the classrooms
		Crossing guards for school crossings
	All Stakeholder Agencies	Social media blasts with education campaigns
	All Stakeholder Agencies	"Go Slow, Watch the Road" campaign
	California Highway Patrol, Police Departments	Dangers of speeding/speed management campaigns
Emerging Technologies	Public Works Departments	Upgraded controllers for flashing yellow arrows and leading pedestrian intervals
		Install touchless Accessible Pedestrian Signals
		Install dynamic speed feedback signs
		Obtain portable traffic data collector that records speeds and traffic volumes bidirectionally (through grant funding)
		Use electronic message boards to alert citizens to construction zones, construction activities, lane closures, and detours
Enforcement	California Highway Patrol, Police Departments	Targeted speed enforcement
		DUI saturation patrols and checkpoints
		Dangers of speeding/speed management campaigns
Emergency Response	Public Works Departments, Police Departments, Fire Departments	Consider emergency vehicle pre-emption at signalized intersections
		Install clear road name signage to allow for quicker response times
		Improvements to roadways to increase access, reduce congestion, and potentially shorten response times

5.2.1 Mitigating DUI Collisions

Given the high percentage of DUI-related fatalities from the past five years (68%), emphasizing strategies that discourage this behavior (i.e. DUI saturation patrols and checkpoints) in areas with known patterns of DUI collisions can make a significant impact on the number of fatalities in the County. Roadways with higher densities of DUI collisions include Myrtle Avenue, Briceland Thorn Road, Pine Creek Road, and Central Avenue (all priority segments in this plan).

6. Prioritize and Incorporate Strategies

6.1 Prioritized Projects

A prioritized list of the proposed projects at priority locations was developed based on the highest collision severity, which is an overall indicator of where the largest impact to safety can be made and how well projects will rank for funding. There are a variety of funding sources that each have their own ranking criteria, some of which are described below.

The recommended priority of projects based on collision severity (EPDO) is shown in the list below, from highest to lowest priority.

1. Myrtle Avenue from Harrison Avenue to Indianola Avenue
2. Briceland Thorn Road from Redwood Drive to Southern County Limits
3. Alderpoint Road from 2 miles North of Sunrise Road to Southern County Limit
4. Central Avenue from Norton Avenue to 600 feet South of Henry Road
5. Pine Creek Road from French Camp Road to SR 96
6. Redwood Drive from US 101 (Redway) to Bear Canyon
7. Shelter Cove Road from Upper Pacific Drive to Briceland Thorn Road
8. Myrtle Avenue & Hall Avenue
9. McKinleyville Avenue & Hiller Road
10. Central Avenue & Gwin Road/City Center Road
11. Myrtle Avenue & Hubbard Lane (East)
12. Anna Sparks Way & Central Avenue
13. Central Avenue & Hiller Road
14. F Street & Oak Street

As shown by the list above, the roadway segment projects were prioritized higher than intersection projects. This is due to the significant difference in relative severity between the roadway segments and intersections. The lowest priority roadway segment has a higher relative severity than the highest priority intersection. Therefore, safety projects targeted for roadway segments can result in a more significant safety impact than for intersections.

6.2 Funding Sources

Funding opportunities can come through grant funding such as the HSIP, Active Transportation Program (ATP), Safe Streets and Roads for All (SS4A), and other state and federally funded grants.

The primary source of potential funding for projects recommended in this plan is HSIP funding. HSIP is a core federal-aid program for the purpose of achieving a significant reduction in fatalities and serious injuries on all public roads. The Caltrans Division of Local Assistance (DLA) manages California's local agency share of HSIP funds. California's Local HSIP focuses on infrastructure projects with nationally recognized crash reduction factors (CRFs). Local HSIP projects must be identified based on crash experience, crash potential, crash rate, or other data-supported means. Each cycle has available project funding for Benefit-to-Cost Ratio (BCR) and funding set-aside projects. BCR projects use expected benefit and estimated cost to determine eligibility and likelihood for receiving funding. The expected benefit is determined using the crash history and severity and the predicted collision reduction from the recommended countermeasures. Even though the minimum benefit-to-cost ratio (BCR) for the HSIP Cycle 11 grant application was 3.5, the projects submitted were very competitive. The BCR cutoff was 18.0 and the average BCR was 35.5.

Alternatively, funding set-aside projects do not require a collision history. According to the last call for HSIP projects (Cycle 11, which closed in 2022), the set-aside countermeasures available to local agencies included funding for guardrail upgrades, pedestrian crossing enhancements, installing edgelines, bike safety improvements, and set-aside for tribes. These set-aside countermeasures could be applied at multiple locations as long as the requested funding was within the amount available per agency.

ATP is another potential grant funding source focused on encouraging the increased use of active modes of transportation by achieving the following goals:

- Increase the proportion of trips accomplished by biking and walking
- Increase safety and mobility for non-motorized users
- Advance the active transportation efforts of regional agencies to achieve Greenhouse Gas (GHG) reduction goals, pursuant to SB 375 (of 2008) and SB 341 (of 2009)
- Enhance public health
- Ensure that disadvantaged communities fully share in the benefits of the program
- Provide a broad spectrum of projects to benefit many types of active transportation users

Eligible ATP projects include:

- **Infrastructure Projects**: Capital improvements that will further the goals of this program.
- **Non-Infrastructure (NI) Projects**: Education, encouragement, and enforcement activities that further the goals of the ATP.
- **Combination Projects**: A project that combines Infrastructure and Non-Infrastructure components.
- **Plans**: The development of a community wide bicycle, pedestrian, safe routes to school, or active transportation plan that is located in a disadvantaged community.

Projects are more probable to receive ATP funding if it helps to increase the number of non-motorized users, benefits a disadvantaged community, or improves the safety of vulnerable users, specifically in school zones. Ultimately, the goal of this funding is to increase the use of active transportation.

For funding non-engineering strategies, the California Office of Traffic Safety has resources that can be used by the County to support traffic safety education campaigns. Some campaigns highlighted in their website include impaired driving, distracted driving, pedestrian & bicycle safety, and speeding. The website provides educational materials, safety tips, facts, and resources to use in educating the public on traffic safety.

7. Evaluate and Update

7.1 Evaluation Process

The following measurable goals have been established to evaluate the effectiveness of this plan.

1. *Decrease the number of traffic fatalities and severe injuries in the County by 50% and 25% each year, respectively, until no fatalities and severe injuries occur.*

   Measure of Success: Reduce fatal collisions by 50% each year and severe injury collisions by 25% each year.

2. *Reduce collisions through engineering, enforcement, education, and emerging technologies strategies.*

   Measure of Success: Reduce collisions Countywide by 10% over 5 years.

3. *Improve safety around schools, transit stops, and other key destinations through a connected multimodal system, enhanced crossings, education, and enforcement.*

   Measure of Success: Reduce collisions within close proximity to schools, transit stops, and other key destinations by 5% over 5 years.

4. *Reduce pedestrian and bicycle collisions by 50% each year through enhanced crossings and multimodal accommodations.*

   Measure of Success: Reduce pedestrian and bicycle collisions by 50% each year.

5. *Reduce emergency response time by installing clear and uniform signage.*

   Measure of Success: After implementation of clear and uniform signage, emergency response times reduce.

7.2 Next Steps

This safety plan will be a living document and will guide the County's roadway safety needs for the next five years. It will be updated as needed and the goals will be monitored. For the next revision of the LRSP, analyzing 2023 to 2027 traffic data is recommended.

Low-cost projects that are easy to implement will be prioritized for implementation within the County, while higher-cost, long-term projects will be incorporated into other capital planning documents.

It is important to understand the upcoming funding opportunities to successfully implement these safety projects. Most of the proposed countermeasures are HSIP fundable. However, countermeasures can be implemented through other funding sources including but not limited to the following:

- Safe Streets and Roads for All (SS4A)
- Active Transportation Program (ATP),
- Congestion Mitigation and Air Quality (CMAQ) program,
- Sustainable Transportation Planning Grant (Sustainable Communities),
- Stimulus funding sources, and
- Capital Improvement Program or with on-going maintenance work.

8. References

- "Developing Safety Plans, A Manual for Local Rural Road Owners", Federal Highway Administration, March 2012, **http://safety.fhwa.dot.gov/local_rural/training/fhwasa12017/**.
- 2020-2024 California's Strategic Highway Safety Plan (SHSP), "California Safe Roads: 2020-2024 Strategic Highway Safety Plan", Caltrans.
- "Local Roadway Safety, A Manual for California's Local Road Owners", Caltrans, Version 1.6, April 2022.
- "Highway Safety Manual", American Association of State Highway Officials (AASHTO), 1st Edition, 2014 supplement.
- "Strategic Highway Safety Plan (SHSP)", Caltrans, **https://dot.ca.gov/programs/safety-programs/shsp**.
- "Local Roadway Safety Plan (LRSP) and Systemic Safety Analysis Report Program (SSARP)", Caltrans, **https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/highway-safety-improvement-program/local-roadway-safety-plans**.
- "Safe Systems", Institute of Transportation Engineers, **https://www.ite.org/technical-resources/topics/safe-systems/**.
- County of Humboldt Local Roadway Safety Plan, GHD, **https://ghd.mysocialpinpoint.com/humboldt.**
- "Street Story Reports – Humboldt (County)", Berkeley Safe TREC, **https://streetstory.berkeley.edu/reports.php?juris_type=county&juris_name=HUMBOLDT**.
- "Safe Streets and Roads for All (SS4A) Grant Program", U.S. Department of Transportation, **https://www.transportation.gov/grants/SS4A**.
- "Local HSIP Call-for-projects", Caltrans, **https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/highway-safety-improvement-program/apply-now**.
- "Summary of Local HSIP Cycle 11 Projects", Division of Local Assistance, Caltrans, **Summary of Local HSIP Cycle 11 Projects 01/03/2023**.
- "Humboldt County GENERAL PLAN Community Plan Areas: McKinleyville Community Plan", September 2018.
- "McKinleyville Multimodal Connections Project", Mark Thomas, March 2023.
- "California Safe Roads: Enhanced Road Striping", Thomas K. Mattson, September 12-14, 2023, Oklahoma City, OK.
- County of Humboldt (Unincorporated) Raw Collision Data, Statewide Integrated Traffic Records System (SWITRS), 2018-2022.

Appendix A

Stakeholder Engagement

Meeting Notes

January 18, 2024

Project	Humboldt County LRSP	**From**	Emily Perry
Subject	Stakeholder Working Group Meeting #1	**Tel**	+1 916 865-5309
Date/Time	January 18, 2024 from 2:00 p.m. to 3:30 p.m.	**Project no.**	12609148

1. Introductions

a. LRSP Stakeholder Working Group members (16 in attendance)
   i. Role and safety priorities in the County
      1. County of Humboldt, Public Works Department: reflect the concerns of the community and data; see the impact of existing efforts to reduce run-off the road collisions; implement systemic countermeasures
      2. County of Humboldt, Office of Education: safer roads for school buses; visibility and clearing of brush; students walking to/from school
      3. Southern Humboldt County Fire Chiefs' Association: life safety; emergency vehicle access; keeping roads clear; implementing signage at cross streets for those dialing 911
      4. California Highway Patrol: save lives, reduce injury; assist with collision data gathering where needed
      5. Caltrans, District 1: investigate collision data/reports; implement strategies successful in other LRSPs (multimodal approach, writing HSIP grants, etc.)
      6. City of Eureka: pedestrian/bicycle safety, in particular on Herrick Avenue
      7. McKinleyville Municipal Advisory Committee: compare data with areas already identified in McKinleyville
      8. Coalition for Responsible Transportation Priorities: pedestrian/bicycle safety; safe access to transit stops; evidence-based solutions for proposed projects

2. Background

a. Purpose of LRSP
   i. Requirement for future HSIP Cycles
   ii. Contains elements of a safety action plan for SS4A grants
   iii. Engages stakeholders representing all E's and other local community stakeholders (neighboring jurisdictions, advocacy groups, and officials) in developing a plan of action to increase safety and create a prioritized list of projects
b. LRSP Process

i.

c. County Safety Projects (Planned, In Progress, and Recently Completed)
    i. Planned or In Progress
        1. Garberville Complete Streets – Awaiting Funding
        2. Oak St and F St Traffic Signal Project – Awaiting Funding
        3. Redway Dr and Redwood Dr HSIP Project – In Progress, Estimated Completion in 2024
        4. Hammond Trail and Mid Town Crossings – Funded, In Design
        5. Edge Lines on County roads and roads within Tribal jurisdictions – Funded
        6. Replace and upgrade guardrail on County roads and within Tribal jurisdictions – Funded, In-Design
    ii. Recently Completed
        1. High Reflectivity Striping Project – 2018
        2. Pedestrian Safety Crossing Project – 2019
        3. Guardrail Replacements – 2022
        4. Pedestrian Countdown Signal – 2019
    iii. There is an ongoing Countywide effort to convert 4" edgelines to 6"
    iv. The County has coordinated with various local agencies for the recent HSIP guardrail project

3. Data Analysis

a. Collision data from the past 5 complete years (2018-2022)
    i. Location
        1. Around 2/3 of collisions on County-maintained roadways were located on County segments
    ii. Collision Type and Violation Category
        1. Top violation category was improper turning, followed by DUI and unsafe speed
        2. Top collision type was hit object
        3. Hit objects typically trees, fences, drainage ditches, etc.
    iii. Collision Severity and Years
        1. Around 3 in 4 collisions resulted in property damage only
    iv. Fatal and Severe Injury Collisions
        1. Caltrans is considering a joint project at Herrick Ave and Elk River Rd (a location with a bike fatality)
        2. Where jurisdiction is shared (between County, cities, Caltrans, tribes, etc.), communication between applicable jurisdictions is highly encouraged
    v. Pedestrian Collisions
        1. The County has limited pedestrian infrastructure

2. Street Story has collected data on near misses and collisions since 2019; can be a referred to in the development of the plan

vi. Bicycle Collisions

1. Many bicycle collisions occurred on Central Avenue

b. Top ranking intersections and segments

i. Priority Intersections

1. Myrtle Ave / Hall Ave
2. Central Ave / Gwin Rd / City Center Rd
3. McKinleyville Ave / Hiller Rd
4. Myrtle Ave / Hubbard Ln
5. Anna Sparks Way / Central Ave
    a. This location has been identified prior to this plan
6. Central Ave / Hiller Rd
7. F St / Oak St

ii. Priority Segments

1. Myrtle Ave (Hubbard Ln to Indianola Ave)
2. Briceland Thorn Rd (Redwood Dr to Southern County Limits)
3. Alderpoint Rd (2mi North of Sunrise Rd to Southern County Limit)
4. Central Ave (Norton Ave to 600ft South of Henry Rd)
5. Pine Creek Rd (French Camp Rd to SR 96)
6. Redwood Dr (US 101 (Redway) to Bear Canyon)
7. Shelter Cove Rd (Upper Pacific Dr to Briceland Thorn Rd)

c. Safety Approach

i. Safe System Approach

1. Source: FHWA.
2. The tribes have existing safety plans
    a. The Tribal Transportation Committee hosts a monthly meeting which may be a good opportunity to engage with tribes

ii. Countermeasures

1. Next step in LRSP development

4. Vision, Goals, & Priorities

a. Focus challenge areas per the Strategic Highway Safety Plan

i. Attendees were asked to vote on the top challenge areas for the County based on California's Strategic Highway Safety Plan challenge areas (see below)

b. Proposed Vision
    i. Work together to increase road safety for all mode choices, striving towards zero fatal and severe injury collisions in the County
c. Proposed Mission Statement
    i. Provide a safe and sustainable roadway system for all modes of travel in the County of Humboldt
        1. Consider changing wording from sustainable to maintainable
d. Proposed Goals
    i. Strive toward zero fatal and severe injury collisions by 2030.
    ii. Reduce speeding collisions through engineering, enforcement, education, and emerging technologies strategies.
        1. Consider changing wording from speeding to speed-related
        2. Consider removing the word “speeding” and just have the goal be “Reduce collisions through…”
    iii. Improve safety around schools through a connected multimodal system, enhanced crossings, education, and enforcement.
        1. Consider adding language to include transit stops and other key destinations into the goal about schools
    iv. Reduce pedestrian and bicycle collisions through enhanced crossings, multimodal accommodations, and lighting.
        1. The County does not do many lighting projects (consider removing this word from the goal). Community utility service districts (MCSD, HCSD, etc) are responsible for lighting.
    v. General Comments
        1. HCOG has existing vision zero goals
        2. Add a goal about emergency response time
        3. Include text about having “clear and uniform signage”

5. Other Items

a. Public Outreach
    i. Public website can be found at https://ghd.mysocialpinpoint.com/humboldt
        1. Current engagement: 57 comments, 35 survey responses
b. Next Meeting
    i. Discussion of preliminary countermeasures/safety strategies, public outreach, etc.
c. Action Items
    i. Provide any feedback you have related to meeting topics (priority locations, preferred countermeasures/safety strategies, public outreach, etc.)
    ii. Let us know your specific roadway concerns via the public website
    iii. Promote the public website to your respective communities

Meeting Minutes

March 25, 2024

Project name	Humboldt County Local Road Safety Plan (LRSP)	**From**	Emily Perry
Subject	Stakeholder Working Group Meeting #2	**Tel / email address**	(916) 865-5309 / emily.perry@ghd.com
Date / Time	March 25, 2024	**Project no.**	12609148
Attendees inc. company	Emily Perry, GHD Kiera Kwan, GHD Frank Penry, GHD Mark Mueller, Humboldt Bay Bicycle Commuters Association Christine Marney, Humboldt County Office of Education Brandi Natt, Yurok Tribe Pat Kaspari, McKinleyville Municipal Advisory Committee Matthew Seno, County of Humboldt Jeff Ball, County of Humboldt Tom Mattson, County of Humboldt Josh Wolf, GHD Colin Fiske, Coalition for Responsible Transportation Priorities Ryan Derby, Humboldt County Office of Emergency Services Stevie Luther, HCAOG Noah Rodriguez, Trinidad Rancheria	**Location**	Virtual (MS Teams)
Objective	Discuss current plan progress, review recommended safety countermeasures/strategies, and explain next steps for the plan's progress		

Topic	Minutes
First Stakeholder Meeting	***Background*** – Humboldt County is developing an LRSP to analyze the County's collision trends and develop countermeasures that can most effectively address the safety issues contributing to collisions on County-maintained roadways. – Requirement for state funding through HSIP and contains elements of safety action plans, which are a requirement for federal funding through SS4A – Incorporates not only engineering strategies but also enforcement, education, emergency response, and emerging technologies ***LRSP Process*** – First stakeholder meeting discussed steps 1 through 3 (Establish Leadership, Analyze Safety Data, Determine Emphasis Areas) – Second stakeholder meeting intended to discuss steps 4 and 5 (Identify Strategies, Prioritize and Incorporate Strategies) ***Vision, Mission, and Goals*** – Incorporated feedback from previous stakeholder meeting. Specifically, a lot of the changes included capturing HCAOG's vision zero goals

This document is in draft form. The contents, including any opinions, conclusions or recommendations contained in, or which may be implied from, this draft document must not be relied upon. GHD reserves the right, at any time, without notice, to modify or retract any part or all of the draft document. To the maximum extent permitted by law, GHD disclaims any responsibility or liability arising from or in connection with this draft document.

Topic	Minutes
	– Vision: Work together to increase road safety for all mode choices to achieve zero fatal and severe injury collisions in the County – Mission Statement: Provide a safe and maintainable roadway system for all modes of travel in the County of Humboldt – Goals: • Decrease the number of traffic fatalities and severe injuries in the County by 50% and 25% each year, respectively, until no fatalities and severe injuries occur. • Reduce collisions through engineering, enforcement, education, and emerging technologies strategies. • Improve safety around schools, transit stops, and other key destinations through a connected multimodal system, enhanced crossings, education, and enforcement. • Reduce pedestrian and bicycle collisions by 50% each year through enhanced crossings and multimodal accommodations. • Reduce emergency response time by installing clear and uniform signage. ***Challenge Areas*** – Sent out poll to stakeholder group during and after the first working group meeting to provide input on the challenge/emphasis areas for the LRSP. – Top 3 emphasis areas were Aggressive Driving/Speed Management, Intersections, and Distracted Driving. Strategies related to these categories were incorporated into the countermeasures and will be considered into the next steps.
Public Input	***Project Website*** – Website includes details on the LRSP process, an interactive map, and a project survey. – To date, the website has received 98 comments and 44 survey responses. – Street Story was also referenced and results from Street Story seemed to be consistent with survey results. The last comments noted were in 2019. • *There are more recent comments since 2019. Colin offered help to find these.* – Last day to provide public input is March 31, 2024.

This document is in draft form. The contents, including any opinions, conclusions or recommendations contained in, or which may be implied from, this draft document must not be relied upon. GHD reserves the right, at any time, without notice, to modify or retract any part or all of the draft document. To the maximum extent permitted by law, GHD disclaims any responsibility or liability arising from or in connection with this draft document.

Countermeasure Development	***Considerations*** – To develop recommended countermeasures for the priority locations, various factors were, or will be, considered, including: collision characteristics (past 5 years of collision data), observations of existing conditions, public input from the project's website (interactive map comments, survey responses, etc.), review of Street Story, existing plans and recent projects throughout the County, guidance from County representatives, and review from the stakeholder working group. ***Priority Intersection Countermeasures –*** • *Consider adding a countermeasure for bicycle detection at signalized intersection, as many of the signalized intersections throughout the County do not currently have bicycle detection.* – Myrtle Ave & Hubbard Ln (East) – *Consider looking at traffic calming measures* • Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number • Improve signal timing (coordination, phases, red, yellow, or operation) • Provide protected left turn phase (left turn lane already exists) – Myrtle Ave & Hall Ave • Install signals* • Improve sight distance to intersection (Clear Sight Triangles) • Install flashing beacons as advance warning (NS.I.) – McKinleyville Ave & Hiller Rd • Convert intersection to roundabout (from all way stop) • OR Install signals* • OR Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs AND Restripe approach on Hiller Road to better differentiate movements and add bike lanes – Central Ave & Gwin Rd/City Center Rd • Improve signal timing (coordination, phases, red, yellow, or operation) • Convert signal to mast arm (from pedestal-mounted) • Install raised pavement markers and striping (Through Intersection) • Evaluate intersection sight distance – Anna Sparks Way & Central Ave • Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number • Improve signal timing (coordination, phases, red, yellow, or operation) – Central Ave & Hiller Rd • Improve signal timing (coordination, phases, red, yellow, or operation) • Provide protected left turn phase (left turn lane already exists) • Convert signal to mast arm (from pedestal-mounted) • Modify signal phasing to implement a Leading Pedestrian Interval (LPI) – *Stakeholders provided support of this countermeasure* – F St & Oak St – *Discussion occurred about the bulbout at this location. Stakeholders noted that pedestrian safety is very important at this location, due to the proximity of the school. They commented that they support speed reduction here and like the bulbout. On the other hand, a stakeholder noted that adding bulb-outs and refuge island creates sharper turns that can be difficult for large vehicles, such as school buses and commercial trucks, to navigate. Both school buses and commercial vehicles frequent this location.* • Install signals* - *Preferred countermeasure.* • OR Convert to all-way STOP control (from 2-way or Yield control)* - *This countermeasure is not preferred by the County, as it would likely direct traffic to nearby alternate routes, which are residential neighborhoods. A study has been performed here by the County.* • OR Install Rectangular Rapid Flashing Beacon (RRFB) AND Remove or improve pedestrian refuge island and curb bulbout for better turning radius – *RRFBs are funded at this location.*

This document is in draft form. The contents, including any opinions, conclusions or recommendations contained in, or which may be implied from, this draft document must not be relied upon. GHD reserves the right, at any time, without notice, to modify or retract any part or all of the draft document. To the maximum extent permitted by law, GHD disclaims any responsibility or liability arising from or in connection with this draft document.

	Priority Segment Countermeasures • *Discussion occurred about the effect of rumble strips on bicyclists. Stakeholders noted that rumble strips can make it difficult for bicyclists on the side of the roadway to move out of the bike lane or shoulder for hazards, debris, narrow shoulders, etc.* • *The County noted that they have implemented updates from 4" edgelines to 6" edgelines with high-visibility paint. There was an overall reduction in crashes at the areas studied, except for Redwood Drive (implemented last September). The County is still looking into the reasoning for this and will send further information for GHD to analyze.* – Myrtle Ave from Harrison Ave to Indianola Ave • Install delineators, reflectors and/or object markers • Install edgeline rumble strips/stripes • Install Separated Bike Lanes • Replace Bott Dots centerline striping with painted or thermoplastic centerline striping • Install transit stop near Indianola Cutoff – *There has been discussion about this in the past. There are no existing transit routes near this location. However, in the past, an on-demand service has been attempted here and it was not utilized often. Consider reaching out to HTA about this countermeasure.* – Central Ave from Norton Ave to 600' South of Henry Rd – *Multiple studies have been performed along Central Avenue. Reference the McKinleyville Town Center Master Plan and the McKinleyville Multimodal Connection Plan (in progress).* • Install dynamic/variable speed warning signs • Install bike lanes • Maintain existing bike lanes • Replace Bott Dots centerline striping with painted or thermoplastic centerline striping • Increase enforcement for speeding and driving under the influence – Briceland Thorn Rd from Redwood Dr to Southern County Limit • Install/Upgrade signs with new fluorescent sheeting (regulatory or warning) • Install delineators, reflectors and/or object markers • Install chevron signs on horizontal curves • Install edge-lines and centerlines • Widen lane (initially less than 10 ft) • Install edgeline rumble strips/stripes – Alderpoint Rd from 2mi North of Sunrise Rd to Southern County Limit • Install/Upgrade signs with new fluorescent sheeting (regulatory or warning) • Install delineators, reflectors and/or object markers • Install chevron signs on horizontal curves • Install edge-lines and centerlines – Pine Creek Rd from French Camp Rd to SR 96 • Install/Upgrade signs with new fluorescent sheeting (regulatory or warning) • Install delineators, reflectors and/or object markers • Install chevron signs on horizontal curves • Install edgeline rumble strips/stripes • Improve horizontal alignment (flatten curves) – Redwood Dr from US 101 (Redway) to Bear Canyon • Install/Upgrade signs with new fluorescent sheeting (regulatory or warning) • Install delineators, reflectors and/or object markers • Install edgeline rumble strips/stripes – Shelter Cove Rd from Upper Pacific Dr to Briceland Thorn Rd • Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)

This document is in draft form. The contents, including any opinions, conclusions or recommendations contained in, or which may be implied from, this draft document must not be relied upon. GHD reserves the right, at any time, without notice, to modify or retract any part or all of the draft document. To the maximum extent permitted by law, GHD disclaims any responsibility or liability arising from or in connection with this draft document.

- Install delineators, reflectors and/or object markers
- Install chevron signs on horizontal curves

Systemic Countermeasures

– High Priority Segments
  - Roadway Safety Signing Audit (RSSA) and Upgrade Project
  - Install delineators, reflectors and/or object markers
  - Install edgeline rumble strips/stripes
– Signals along Central Avenue
  - Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number
  - Improve signal timing (coordination, phases, red, yellow, or operation)

Systemic Countermeasures

Strategy Type	Potential Stakeholder Champions	Recommended Strategy
Education	Public Works Departments; Bicycle and Pedestrian Advocacy Groups	Bicycle and pedestrian safety campaigns
		Driver education and campaigns related to driving under the influence, distracted driving, and rules of the road
	Schools	Encourage safe practices within the roadway for all users and the continuation of driver education programs in the classrooms
		Crossing guards for school crossings
	All Stakeholder Agencies	Social media blasts with education campaigns
	All Stakeholder Agencies	"Go Slow, Watch the Road" campaign
	California Highway Patrol, Police Departments	Dangers of speeding/speed management campaigns
Emerging Technologies	Public Works Departments	Upgraded controllers for flashing yellow arrows and leading pedestrian intervals
		Install touchless Accessible Pedestrian Signals
		Install dynamic speed feedback signs
		Obtain portable traffic data collector that records speeds and traffic volumes bidirectionally (through grant funding)
		Use electronic message boards to alert citizens to construction zones, construction activities, lane closures, and detours
Enforcement	California Highway Patrol, Police Departments	Targeted speed enforcement
		DUI saturation patrols and checkpoints
		Dangers of speeding/speed management campaigns
Emergency Response	Public Works Departments, Police Departments, Fire Departments	Consider emergency vehicle pre-emption at signalized intersections
		Install clear road name signage to allow for quicker response times
		Improvements to roadways to increase access, reduce congestion, and potentially shorten response times

– *Consider adding a countermeasure for bicycle detection at signalized intersection, as many of the signalized intersections throughout the County do not currently have bicycle detection.*
– *Consider adding an emerging technology strategy to update the County fleet with intelligent speed assistance.*
– *Support was expressed for Leading Pedestrian Intervals.*

This document is in draft form. The contents, including any opinions, conclusions or recommendations contained in, or which may be implied from, this draft document must not be relied upon. GHD reserves the right, at any time, without notice, to modify or retract any part or all of the draft document. To the maximum extent permitted by law, GHD disclaims any responsibility or liability arising from or in connection with this draft document.

Topic	Minutes
Other Items	– Tentative Timeframe – Action Items • Provide your feedback on the recommended countermeasures by April 5, 2024 • Leave any remaining comments on public website by March 31, 2024

This confirms and records GHD's interpretation of the discussions which occurred and our understanding reached during this meeting. Unless notified in writing within 7 days of the date issued, we will assume that this recorded interpretation or description is complete and accurate.

NOTE: If the information in this report does not agree with your record of this meeting or if there are any omissions, will you kindly advise this office immediately, otherwise we shall assume its contents to be correct.

Distribution: All Present/Absent

This document is in draft form. The contents, including any opinions, conclusions or recommendations contained in, or which may be implied from, this draft document must not be relied upon. GHD reserves the right, at any time, without notice, to modify or retract any part or all of the draft document. To the maximum extent permitted by law, GHD disclaims any responsibility or liability arising from or in connection with this draft document.

Appendix B

Public Outreach

Interactive Map Comments

Humboldt County LRSP

ID	Created on	Type	Comment	Up Votes	Down Votes	Latitude	Longitude
1	11/16/2023 15:49	Collision Location	Speed humps. Like arcata does on OAR by jacoby creek school.	0	1	40.771027	-124.16364
2	11/16/2023 15:53	Driving Comment	Bayshore Way is a terrible street with pedestrians and many, many people driving the WRONG WAY from the Bayshore Mall Parking lot onto Bayshore Way. Also, the city has not maintained the driveways into the Six Rivers National Forest Building, Applebees or Evan's Mechanical. This street, which houses five businesses and is a major Thorofare to Walmart needs work.	0	0	40.824202	-124.178467
3	11/16/2023 16:03	Transit Comment	A transit stop here (and maybe a few other points along this road) would be great, there are many commuters to Eureka/Arcata that would benefit from a bus stop on this road, especially with the under pass being worked on, fewer cars makes it easier on bikers/ walkers	1	0	40.810627	-124.085585
4	11/16/2023 16:04	Biking Comment	Very unsafe interchangeable for bikes & pedestrian	0	0	40.920203	-124.095756
5	11/16/2023 16:06	Driving Comment	Could use roundabout for traffic control	1	0	40.956254	-124.100824
6	11/16/2023 16:07	Biking Comment	This road (all the way to eureka) needs to be adjusted for bike & pedestrian safety, there is not enough room. I would love to be able to ride my bike from Arcata to eureka on this road but will not do so now due to safety concerns, I am hoping for road improvements so that I can utilize biking to the underpass when it is competed and bike to and from Eureka/Arcata for work and recreation.	0	0	40.828839	-124.075607
7	11/16/2023 16:08	Pedestrian Comment	Bikes & pedestrian along McKinleyville Ave for school children are unsafe	0	0	40.943107	-124.110768
8	11/16/2023 16:09	Transit Comment	Bus stop here would be useful	1	0	40.785497	-124.085795
9	11/16/2023 17:08	Driving Comment	Intersection improvements needed	1	0	40.785529	-124.085169
10	11/16/2023 17:11	Biking Comment	Need bike route from Eureka to College of the Redwoods	2	0	40.697755	-124.200783
11	11/16/2023 21:45	Biking Comment	Larger/actual bike lanes needed on Myrtle Avenue from Eureka to Freshwater Road in both directions.	0	0	40.784875	-124.085491
12	11/17/2023 12:54	Driving Comment	Replace one lane bridge	0	0	40.40848	-124.390783

Interactive Map Comments

Humboldt County LRSP

ID	Created on	Type	Comment	Up Votes	Down Votes	Latitude	Longitude
13	11/17/2023 12:56	Driving Comment	Replace one lane bridge	0	0	40.320828	-124.272974
14	11/17/2023 13:36	Driving Comment	Tight corner is very off camber and has led to multiple vehicles going off road, including a rolled cement truck in 2021.	0	0	40.473028	-124.365503
15	11/17/2023 15:04	Pedestrian Comment	Sidewalk ends on 14th ST at the gulch after N ST, I walk this way often to get to West/S ST. It would be nice to have a sidewalk that spans the entire legnth from N to West/	0	0	40.791221	-124.1376
16	11/17/2023 17:01	Driving Comment	Road is barely a lane and when dark and foggy very hard to see if road is even there afraid one day soon it will not be	2	0	40.219413	-124.111884
17	11/18/2023 7:57	Driving Comment	Road is deteriorating and has large pot holes. Used to be the nicest road in town	0	0	41.289998	-124.05492
18	11/18/2023 8:01	Driving Comment	Ditch is full of vegetation. Water now constantly covers road all winter and road is nothing but filled pot holes resulting in horrid driving and biking conditions	0	0	41.29404	-124.068502
19	11/18/2023 8:03	Driving Comment	Ditch by the big red barn is completely filled with vegetation which resulted in constant water all winter long. Road then develops extremely large pot holes	0	0	41.289922	-124.065627
20	11/18/2023 8:03	Biking Comment	Water sitting on road makes it dangerous in winter travel to navigate any traffic and unknown pot holes	0	0	41.289972	-124.065768
21	11/18/2023 9:49	Driving Comment	The road is steep, the bed unstable (so it is regularly pocked with holes), and traffic should just go slow. Mucking around on that slope will only provide temporary safety relief. There are worse problems on Mattole Road that can be addressed - like making sure the striping is maintained and visible for night/fog driving, and by not attempting to widen the road (costly!) which causes more slope instability leading to worse conditions in the future.	0	0	40.473028	-124.365503
22	11/18/2023 9:55	Driving Comment	not a high priority; rather see more paving on the beach road for the same money	0	0	40.40848	-124.390783
23	11/20/2023 4:13	Driving Comment	Myrtle Ave/Old Arcata Road from Eureka to Arcata. Speed exceeds the posted limits; center line markers are ignored (people ignoring doublt line/ cant see/poorly marked); excessive speed kills large wildlife population, unsafe for biking or walking	0	0	40.794058	-124.105682
24	11/20/2023 4:19	Biking Comment	Biking lanes on Old Arcata Road are too narrow (bikers are trying to ride double wide instead of single file); biking lanes are incomplete from Arcata to Eureka forcing bikes into traffic during most dangerous/curves of the roadway; bike lanes are rarely swept = trash, auto parts after accidents, tree limbs, rocks that are extreme bike rider hazards are blocking bike lanes, forcing bikers quickly into auto traffic lanes due to evasive manuervers	0	0	40.797177	-124.060364

Interactive Map Comments

Humboldt County LRSP

ID	Created on	Type	Comment	Up Votes	Down Votes	Latitude	Longitude
25	11/20/2023 4:24	Pedestrian Comment	Traffic travels above posted speed levels and disregard for others using roadway. Pedestrians trying to cross road at intersects along the Myrtle Ave/Old Arcata Road are at great risk! No crosswalks, no pedestrial signs: Mitchel, Spears, Pigeon Point, Bettie/Felt, Three Corners all need markings and reduced speed	0	0	40.820045	-124.049377
26	11/20/2023 7:44	Driving Comment	The section of Briceland Road in Redway between Redway Drive and the Eel River bridge is heavily travelled. It is narrow and windy with dangerous pavement edge drop offs over the bank and into ditches.	0	0	40.123899	-123.832336
27	11/20/2023 8:01	Biking Comment	put a bike lane in. One of your workers ran me off the side of the road- when there was no on coming traffic	0	0	40.914251	-124.065857
28	11/20/2023 8:02	Biking Comment	Along Central north of Murray all the way to the Clam Beach exit of 101, the shoulders are often very narrow. When paved they are often badly potholed. There isn't a safe margin for pedestrians and bicycles. In some places the pavement was clearly once wider, but has been neglected. It's not safe for kids to walk or bike to Dows Prairie School. There's a lot of broken glass, a deterrent to bicyclists. However, along most of the route, there is a wide right of way available.	1	0	40.975945	-124.099159
29	11/20/2023 8:03	Driving Comment	Pave! 5ft areas missing asphalt all along here. Have put numerous road requests in to no avail	0	0	40.900537	-124.047318
30	11/20/2023 9:14	Pedestrian Comment	The recent connection between Sutter and Park, through the housing development, has caused an increase in traffic, especially trucks and speeding cars.	0	0	40.937775	-124.087368

Interactive Map Comments

Humboldt County LRSP

ID	Created on	Type	Comment	Up Votes	Down Votes	Latitude	Longitude
31	11/20/2023 10:23	Pedestrian Comment	Extend Annie and Mary Rail trail to extend Arcata trail	0	0	40.889055	-124.003716
32	11/20/2023 10:25	Pedestrian Comment	Put a sidewalk and traffics calming measures along this road to slow traffic down.	0	0	40.840023	-124.066586
33	11/20/2023 10:26	Pedestrian Comment	Add a pedestrian bridge along the 3 spans between Eureka and Samoa	2	0	40.822611	-124.171858
34	11/20/2023 10:27	Transit Comment	Add a bus stop for access to the market	0	0	40.899663	-124.020109
35	11/20/2023 12:05	Driving Comment	The entire West End Rd section from Giuntoli to Hatchery Rd is inadequate for the volume of traffic and use by recreational users. ie. walkers, runners, bicyclers. The increase in traffic and narrow lane and 1/2 configuration and poor vegetation management by the county will lead to increased traffic and damage to private property	0	0	40.883215	-124.027061

Interactive Map Comments

Humboldt County LRSP

ID	Created on	Type	Comment	Up Votes	Down Votes	Latitude	Longitude
36	11/20/2023 15:46	Driving Comment	So, what you're saying is… don't work on the road? Paint isn't gonna hold the road together and to avoid potholes the center line is arbitrary anyway. Also, just last month they repainted said center lines! It didn't seem necessary compared to other road issues but hey the attention is absolutely appreciated. I'd like to see more potholes and sudden or blind drops addressed. Also the tight spots with no downhill shoulder where vehicles slip off , which happens frequently w/out reporting.	0	0	40.473028	-124.365503
37	11/22/2023 8:37	Driving Comment	Drivers frequently cut the blind curves on the very busy Rohnerville Road. There are no shoulders to use as escape routes. Also, it is not a safe road for pedestrians or cyclists.	0	0	40.534713	-124.111176
38	11/22/2023 12:44	Pedestrian Comment	Back in the 1920s when the Redway Summer Homes Subdivision first came about, there were walkig trails that connected the upper part of Redway to lower Redway and the river. Back then there was no need for pedestrians to use Briceland Road between Redway Drive and the Eel River bridge. Today pedestrians must use this section of roadway which is narrow and windy with little to no shouders available. This area gets a lot of foot traffic and is extremely hasardous.	0	0	40.122707	-123.832912
39	11/22/2023 13:13	Biking Comment	Briceland Road in Redway between Redway Drive and the Eel River bridge is very narrow and windy with little or no shouders. It is a steep hill that connects upper Redway to lower Redway. It is not only dangerous for bicyclists, but for pedestrians and vehicle traffic also.	0	0	40.121056	-123.831193
40	11/22/2023 17:17	Biking Comment	Central Avenue has a well-intentioned bike path that is very close to traffic and littered with broken glass. I usually ride on the sidewalk along Central (dismounting for pedestrians).	0	0	40.941316	-124.100511
41	11/24/2023 8:34	Driving Comment	Because of the width of Horrell people drive way too fast and it needs some type of traffic calming	0	0	40.960922	-124.103521
42	11/27/2023 13:13	Driving Comment	Turning from Park on to Myrtle Avenue is my most dangerous turn of the day. Cars from the car dealership are constantly parked along Myrtle Ave, which keeps me from seeing oncoming traffic from the left. The curb should be marked "no parking" or something else to open up visibility at that intersection. Lots of people turn there before and after school dropoff at Lafayette, increasing the chances of collision.	1	0	40.795031	-124.136394
43	12/1/2023 13:27	Biking Comment	North Bank has been hazardous since I moved here in 1976 and there have been no improvements for cyclists' safety. The recent work on the 101/299 connectors have put more traffic on North Bank, making it less safe.	0	0	40.914251	-124.065857

Interactive Map Comments

Humboldt County LRSP

ID	Created on	Type	Comment	Up Votes	Down Votes	Latitude	Longitude
44	12/3/2023 9:41	Biking Comment	Hwy 255 needs consistently wider shoulders between Arcata and Manila and from Samoa to the North Spit. It isn't safe for cyclists now and alternate roads would be more rideable if they were gravel rather than the crumbling asphalt they are now.	0	0	40.861239	-124.117012
45	1/12/2024 12:15	Driving Comment	This spot flood really bad every time it rains and the right lane is always completely full of water.	1	0	40.034203	-124.063636
46	1/12/2024 15:04	Driving Comment	A streetlight at this corner would improve safety when turning from southbound Redwood Drive on to Briceland Road. I've nearly hit pedestrians at this corner because of the angle and darkness	0	0	40.121961	-123.833728
47	1/12/2024 15:07	Driving Comment	This intersection is rather busy, it is very narrow for vehicles turning from Lower Pacific onto wave. There is a large water drainage in the corner that is poorly maintained that people often drive into when trying to turn the corner. There is also drainage ditch that is not properly maintained that creates an enormous puddle across the road at that intersection	0	0	40.035024	-124.076736
48	1/12/2024 15:09	Driving Comment	There are two massive undermined holes where the drainage ditch used to be, the holes are probably at least 2 to 3 feet deep and undermining the surface of the road.	0	0	40.034154	-124.075577
49	1/12/2024 15:11	Driving Comment	This is a very narrow intersection, with a large runoff collection culvert in the corner that people often drive into when trying to turn from Upper Pacific onto Wave. Directly after the intersection on wave Drive, when it rains the water pools a crossed most of the road very deeply due to unmaintained drainage ditches going into the drainage culvert	0	0	40.033883	-124.077723
50	1/12/2024 17:03	Driving Comment	I own 996 Toth Rd. Every year, the road continues to erode and there's now a 2ft deep ditch, about 30-50ft long. It's caused from the water rushing from blocked culvert on the other side of the road, making the water rush heavily right into our property. There needs to be roadwork on both sides of the road. There are trees along this part of the property, next to power lines, that can eventually fall into lines and the road if the soil holding them continues to be eroded by poor road mainten	0	0	40.028424	-124.039845
51	1/13/2024 16:49	Driving Comment	Edge of pavement eroded. Road dangerously narrow. Sharp edge of pavement, likely will cause vehicle damage.	0	0	40.06574	-123.962495
52	1/13/2024 17:29	Driving Comment	This section has already thrown several vehicles into ditch and opposite side into field. It's pitched unevenly and going into ditch is hard to avoid.	0	0	40.06574	-123.962495
53	1/16/2024 8:03	Biking Comment	The biking area stretch from here south to Mitchell Road is narrow and cars regularly drive close to bicyclists over the fog line.	0	0	40.786878	-124.10888
54	1/16/2024 8:05	Biking Comment	Protected bike lanes on Myrtle would be wonderful for those of us who REGULARLY bike along Myrtle from Hall to West	0	0	40.792856	-124.135144
55	1/16/2024 8:07	Biking Comment	The condition of the bike lane right here is bad. There's a dip that is dangerous for cyclists.	0	0	40.785172	-124.102646

Interactive Map Comments

Humboldt County LRSP

ID	Created on	Type	Comment	Up Votes	Down Votes	Latitude	Longitude
56	1/16/2024 8:09	Biking Comment	The condition of the bike lane on Myrtle is terrible. Especially in this area there is a lip if you veer towards the land trust. Then the Approach south Forces you to be very close to the vehicles next to the guard rail. We need a lot wider safer bike lane along this route.	0	0	40.783596	-124.091188
57	1/17/2024 14:08	Driving Comment	Road is close to being undercut by ocean erosion. Each storm makes it worse.	0	0	40.028325	-124.076291
58	1/20/2024 8:59	Driving Comment	Rippled road at on blind down hill section of road. Super dangerous if you were to catch the ripples pavement	0	0	40.127334	-123.85308
59	1/20/2024 9:01	Driving Comment	Pothole	0	0	40.097523	-123.798858
60	1/20/2024 23:58	Driving Comment	Craig Avenue doesn't exist here. This is a private driveway on private property. This is the property we own and live on.	0	0	40.174111	-123.606963
61	1/21/2024 8:20	Driving Comment	Main Street in Garberville is terrible!	0	0	40.097523	-123.798858
62	1/21/2024 9:03	Driving Comment	Missing Thomas Road sign	0	0	40.22785	-123.86126
63	1/22/2024 8:27	Biking Comment	I ride my bike to work and this section of Shelter Cove Road is a mess! Pot holes, cracks. Makes it dangerous on my bike.	0	0	40.037602	-124.064467
64	1/22/2024 8:31	Biking Comment	This section of Toth is haggard. Very broken road. Many times I have to ride on the incorrect side of the street, which is dangerous on curvy roads. I ride my bike to the General Store almost daily, and work 4-5 days a week.	0	0	40.036299	-124.0576
65	1/22/2024 8:38	Biking Comment	Bumpy, rough section on the bike. So bumpy, my chain will sometimes fall off. I ride this section 4-5 times per week going to work.	0	0	40.029061	-124.06414
66	1/22/2024 19:32	Driving Comment	Major potholes and the road is about to slide off the hillside	0	0	40.262286	-123.824222
67	1/23/2024 13:50	Driving Comment	Need a roundabout here!	0	0	40.785261	-124.085308
68	1/23/2024 13:51	Driving Comment	Regularly floods which limits access for all modes of transportation. Drainage improvements are needed.	0	0	40.838441	-124.068807
69	1/23/2024 13:52	Pedestrian Comment	Road very narrow and frequently used by non-motorized users. Pavement condition is also horrendous and needs to be fixed.	0	0	40.848959	-124.058958
70	1/23/2024 13:52	Driving Comment	Road very narrow and frequently used by non-motorized users. Pavement condition is also horrendous and needs to be fixed.	0	0	40.848213	-124.054517
71	1/23/2024 13:52	Biking Comment	Road very narrow and frequently used by non-motorized users. Pavement condition is also horrendous and needs to be fixed.	0	0	40.845908	-124.052489
72	1/23/2024 13:53	Driving Comment	Suggest narrowing the travel lanes to create more space for bikes and peds. This road used regularly by non-motorized users but there are no facilities and vehicle speeds are high.	0	0	40.838327	-124.054924

Interactive Map Comments

Humboldt County LRSP

ID	Created on	Type	Comment	Up Votes	Down Votes	Latitude	Longitude
73	1/23/2024 13:54	Biking Comment	Suggest narrowing the travel lanes to create more space for bikes and peds. This road used regularly by non-motorized users but there are no facilities and vehicle speeds are high.	0	0	40.839561	-124.057746
74	1/23/2024 13:54	Pedestrian Comment	Suggest narrowing the travel lanes to create more space for bikes and peds. This road used regularly by non-motorized users but there are no facilities and vehicle speeds are high.	0	0	40.838871	-124.056265
75	1/23/2024 13:55	Driving Comment	roundabout works well here	0	0	40.810171	-124.085791
76	1/23/2024 13:55	Biking Comment	Extend the trail to Arcata!	0	0	40.851897	-124.163833
77	1/23/2024 13:56	Biking Comment	Connect Bay Trail to Manila!	0	0	40.868093	-124.124222
78	1/23/2024 13:56	Driving Comment	Blind corner and very narrow	0	0	40.848955	-124.061608
79	1/23/2024 17:53	Biking Comment	Need a bike path between Clam Beach Dr and Scenic Dr.	0	0	41.025985	-124.107313
80	1/23/2024 17:54	Driving Comment	Need safer parking for trailhead. Lighting too!	0	0	41.075586	-124.141656
81	1/23/2024 17:56	Driving Comment	The road to Redwood Valley is very dangerous. One lane sections need repair.	0	0	40.970372	-123.840466
82	1/23/2024 17:58	Driving Comment	Eel River drive intersection with Kenmar Road is difficult to navigate with all the traffic in Kenmar.	0	0	40.573691	-124.148941
83	1/23/2024 17:59	Driving Comment	Please fix Golf Course Road!	0	0	40.849795	-124.05618
84	1/23/2024 18:01	Driving Comment	Really busy during morning school drop off. The intersection needs improvements.	0	0	40.785428	-124.084815
85	1/23/2024 18:03	Biking Comment	Need a way for bikes to get from Bayside cut off to the bay Trail.	0	0	40.834877	-124.080899
86	1/24/2024 8:24	Driving Comment	Needs pavement badly. It’s just one section of dirt in between paved roads. Please pave it! Also, maybe add sidewalks to Redway!	0	0	40.117789	-123.827932
87	1/24/2024 8:27	Driving Comment	Missing fern sign on both ends	0	0	40.117744	-123.828111
88	1/24/2024 16:23	Driving Comment	At this intersection, there is a left-hand turn lane for those coming from the north. These motorists have the right-of-way and don't need to stop. However, the westbound and northbound motorists are often unaware of this, resulting in near misses. A roundabout would solve this problem.	0	0	40.824657	-124.176278
89	1/24/2024 16:25	Driving Comment	This intersection has a death toll. Over the years, many people have been killed. It is a nightmare for motorists, as well as pedestrians and bicyclists. A roundabout would solve this problem.	0	0	40.84732	-124.165989

Interactive Map Comments

Humboldt County LRSP

ID	Created on	Type	Comment	Up Votes	Down Votes	Latitude	Longitude
90	1/24/2024 16:30	Biking Comment	One can ride a bicycle between Arcata and Manila and stay safely away from vehicle traffic, except for along this stretch of roadway between the Mad River Slough Bridge and Jackson Ranch Road. There is almost no should at all. Cars whiz by inches away. It's dangerous. When you get to Jackson Ranch Road, you can go north or south, and take one of the crumbling Arcata Bottom Roads, which have little traffic.	0	0	40.866292	-124.143652
91	1/24/2024 16:32	Biking Comment	Hey, there's a used railroad bed right here that could be converted to a dedicated pedestrian pathway.	0	0	40.868483	-124.135643
92	1/31/2024 7:50	Driving Comment	Edgeline and/or reflective paddles badly needed along this entire stretch of road for foggy/snow/stormy conditions. Very narrow, dark road with no lighting. Is often foggy and difficult to see the edge of the road which is a sheer drop-off.	0	0	41.349796	-123.514595
93	1/31/2024 7:55	Driving Comment	Narrow, very rough, multi-patched sinking area in the road that just continually gets worse. This area is potentially damaging to vehicles traveling in the area.	0	0	41.359016	-123.50717
94	1/31/2024 7:57	Driving Comment	The entire length of Ishi Pishi Road needs reflective edgeline and/or reflective paddles. This road is very narrow, windy, and a sheer drop-off to the river most of the length. It is often foggy and difficult to see the edge of the road.	0	0	41.347393	-123.512346
95	1/31/2024 8:27	Driving Comment	This road is the GO Road, a USFS route. It is considered an alternate emergency access/egress route for residents on Donahue Flat Road and Bark Shanty Road. This road needs to be re-striped as it's very foggy at times and there are many areas which are sheer cliffs. It's icy and gets a lot of snow in winter. There are several locations that need guardrail. It's not only an alternate route for some but is also the main route of travel for multiple residences and should be maintained year-round.	0	0	41.317577	-123.555197
96	1/31/2024 8:38	Driving Comment	Red Cap Road needs reflective edgeline and/or reflective paddles from this point on out. It is a narrow, windy road with a sheer edge and can get very icy and foggy in winter.	0	0	41.28656	-123.548466
97	1/31/2024 8:40	Driving Comment	This area is constantly sinking toward the river. It has slid out numerous times in the past, leaving residents stranded. It's currently patched and is a low section in the road. A permanent fix needs to be set in place for this section of the road.	0	0	41.286861	-123.556949
98	2/16/2024 9:26	Driving Comment	Culvert is damaged and pinched. Needs to be replaced. Water backs up and floods Orchard Way in heavy rains	0	0	40.264057	-123.875095
99	3/24/2024 16:46	Driving Comment	Rough road and blind corner with concrete extending into lane that can “catch on” your tire and push you into the other lane. Also people drive on the wrong side of the road because of broken up pavement and potholes.	0	0	40.033106	-124.051555

Appendix C

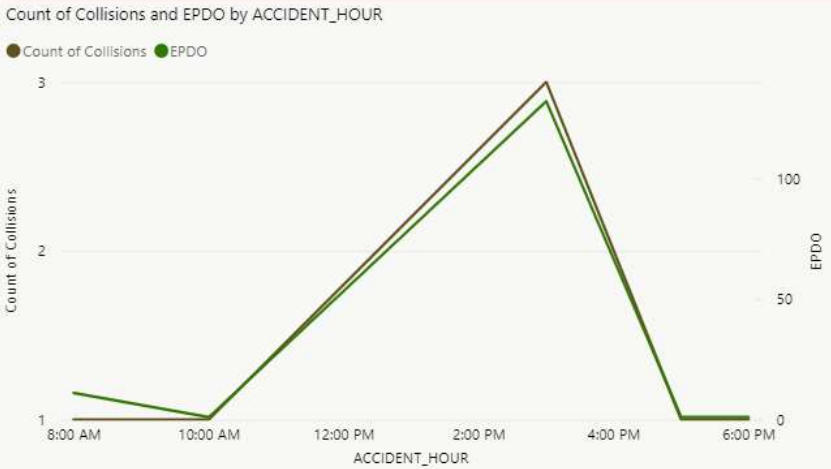
Select Collision Data

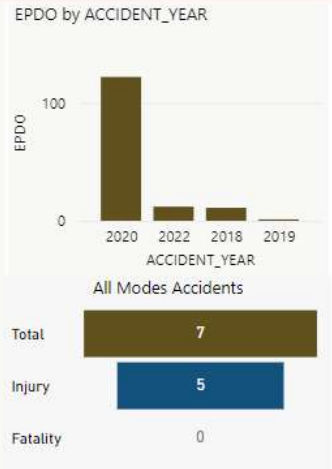
Search Street Name

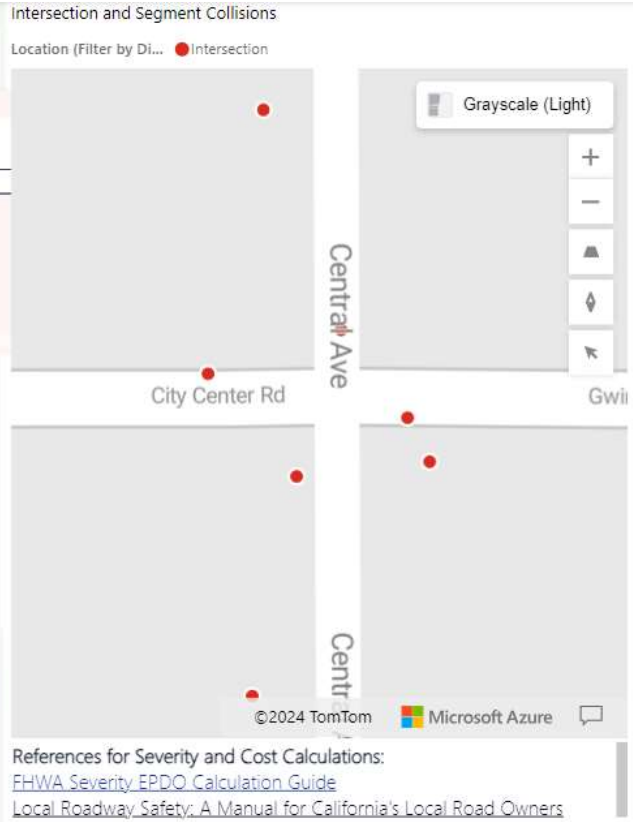
Central Ave / Gwin Rd / City Center Rd

Intersection Collisions

INTX_NAME	Relative Severity (EPDO)	Cost	Count of Collisions	Top Category	Top Violation
CENTRAL AVE / GWIN RD / CITY CENTER RD	146	$1,927,800	7	Broadside	Traffic Signals and Signs
Total	**146**	**$1,927,800**	**7**	**Broadside**	**Traffic Signals and Signs**







References for Severity and Cost Calculations:

FHWA Severity EPDO Calculation Guide

Local Roadway Safety: A Manual for California's Local Road Owners

Search Street Name

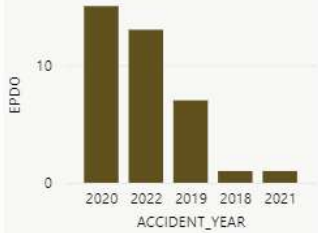
F St / Oak St

Intersection Collisions

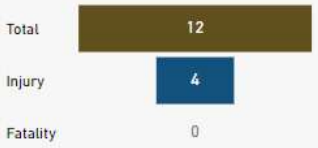
INTX_NAME	Relative Severity (EPDO)	Cost	Count of Collisions	Top Category	Top Violation
F ST / OAK ST	37	$485,200	12	Broadside	Automobile Right of Way
Total	**37**	**$485,200**	**12**	**Broadside**	**Automobile Right of Way**

Count of Collisions and EPDO by ACCIDENT_HOUR

EPDO by ACCIDENT_YEAR



All Modes Accidents



Intersection and Segment Collisions

References for Severity and Cost Calculations:

FHWA Severity EPDO Calculation Guide

Local Roadway Safety: A Manual for California's Local Road Owners

Search Street Name

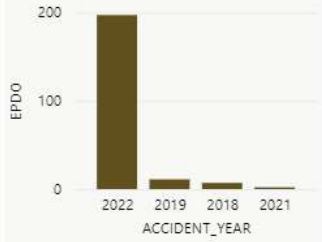
Myrtle Ave / Hall Ave

Intersection Collisions

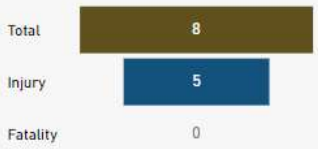
INTX_NAME	Relative Severity (EPDO)	Cost	Count of Collisions	Top Category	Top Violation
MYRTLE AVE / HALL AVE	217	$2,887,300	8	Broadside	Automobile Right of Way
Total	**217**	**$2,887,300**	**8**	**Broadside**	**Automobile Right of Way**

Count of Collisions and EPDO by ACCIDENT_HOUR

EPDO by ACCIDENT_YEAR



All Modes Accidents



Intersection and Segment Collisions

References for Severity and Cost Calculations:

FHWA Severity EPDO Calculation Guide

Local Roadway Safety: A Manual for California's Local Road Owners

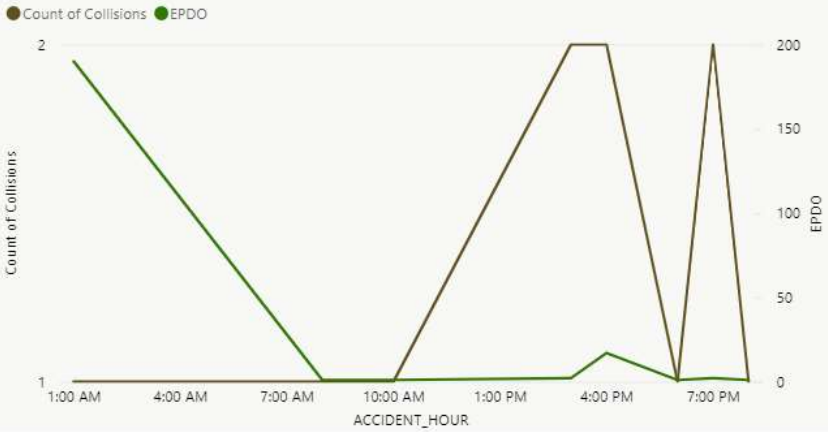
Search Street Name

Mckinleyville Ave / Hiller Rd

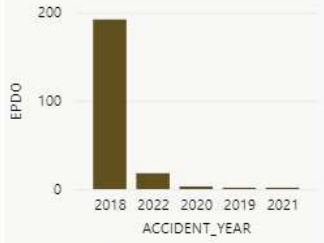
Intersection Collisions

INTX_NAME	Relative Severity (EPDO)	Cost	Count of Collisions	Top Category	Top Violation
MCKINLEYVILLE AVE / HILLER RD	215	$2,859,600	11	Broadside	Automobile Right of Way
Total	**215**	**$2,859,600**	**11**	**Broadside**	**Automobile Right of Way**

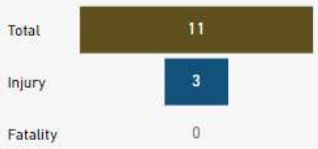
Count of Collisions and EPDO by ACCIDENT_HOUR



EPDO by ACCIDENT_YEAR



All Modes Accidents



Intersection and Segment Collisions

References for Severity and Cost Calculations:

FHWA Severity EPDO Calculation Guide

Local Roadway Safety: A Manual for California's Local Road Owners

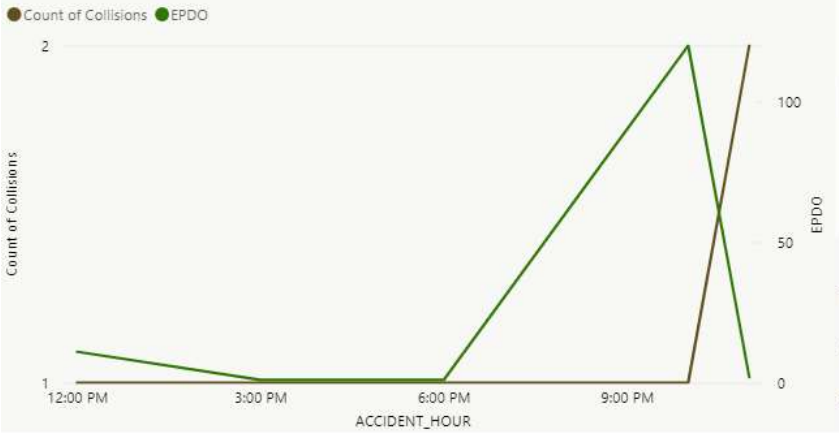
Search Street Name

Central Ave / Hiller Rd

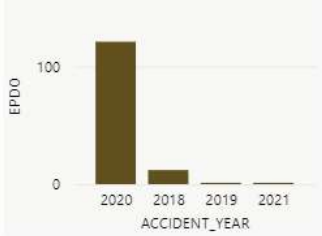
Intersection Collisions

INTX_NAME	Relative Severity (EPDO)	Cost	Count of Collisions	Top Category	Top Violation
CENTRAL AVE / HILLER RD	135	$1,785,500	6	Broadside	Traffic Signals and Signs
Total	**135**	**$1,785,500**	**6**	**Broadside**	**Traffic Signals and Signs**

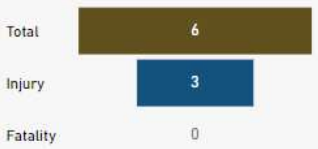
Count of Collisions and EPDO by ACCIDENT_HOUR



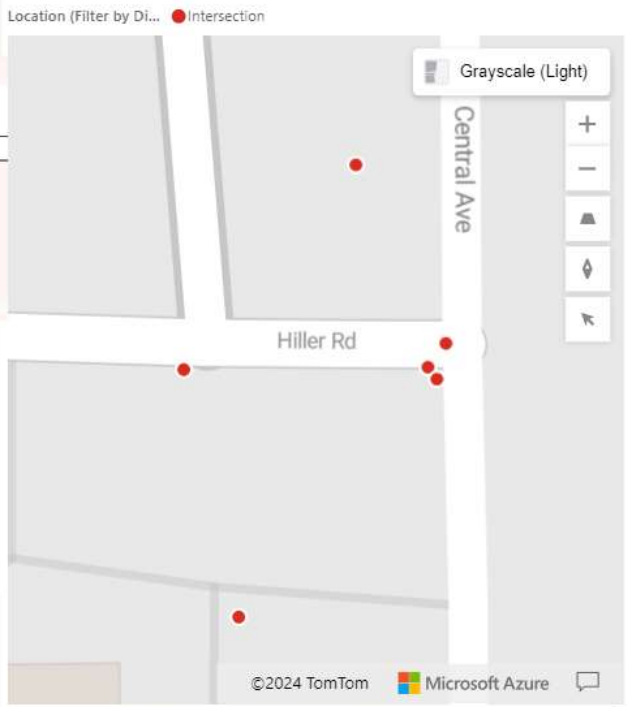
EPDO by ACCIDENT_YEAR



All Modes Accidents



Intersection and Segment Collisions



References for Severity and Cost Calculations:

FHWA Severity EPDO Calculation Guide

Local Roadway Safety: A Manual for California's Local Road Owners

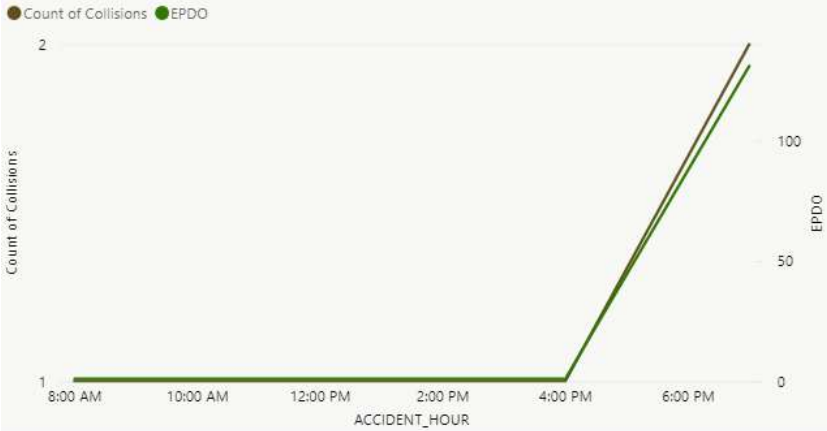
Search Street Name

Myrtle Ave / Hubbard Ln

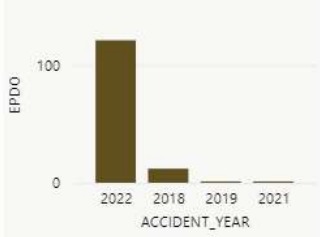
Intersection Collisions

INTX_NAME	Relative Severity (EPDO)	Cost	Count of Collisions	Top Category	Top Violation
MYRTLE AVE / HUBBARD LN (EAST)	135	$1,785,500	6	Head On	Automobile Right of Way
Total	**135**	**$1,785,500**	**6**	**Head On**	**Automobile Right of Way**

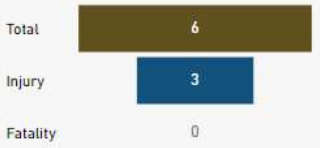
Count of Collisions and EPDO by ACCIDENT_HOUR



EPDO by ACCIDENT_YEAR

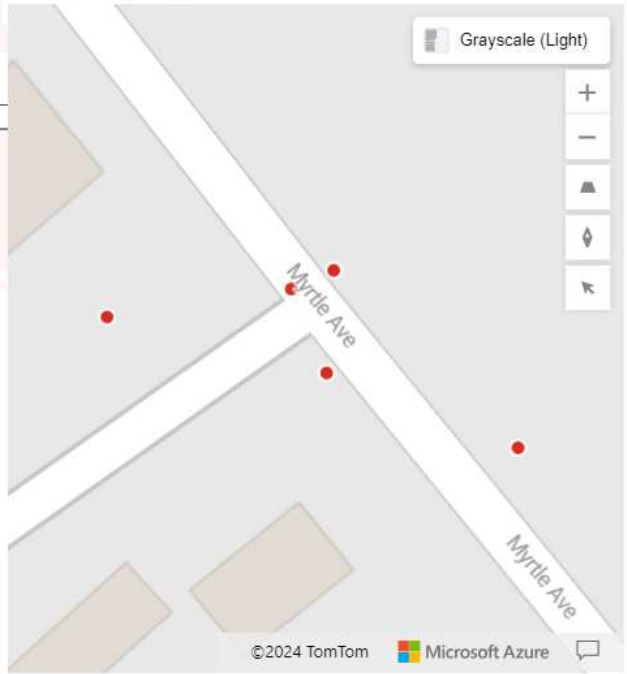


All Modes Accidents



Intersection and Segment Collisions

Location (Filter by Di... Intersection



References for Severity and Cost Calculations:

FHWA Severity EPDO Calculation Guide

Local Roadway Safety: A Manual for California's Local Road Owners

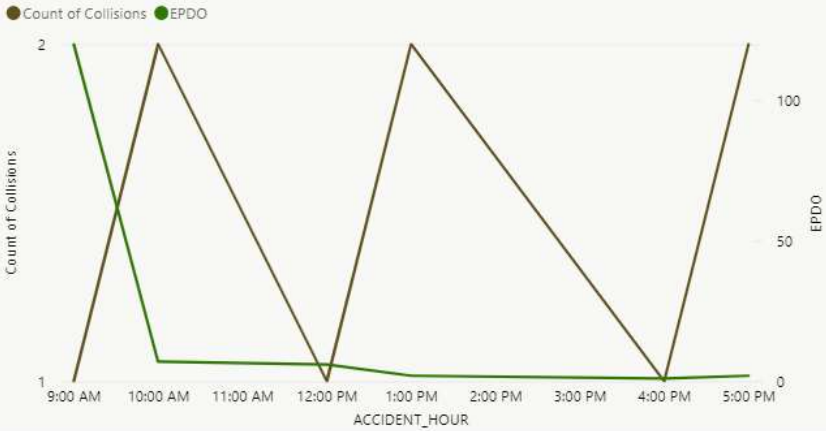
Search Street Name

Anna Sparks Way / Central Ave

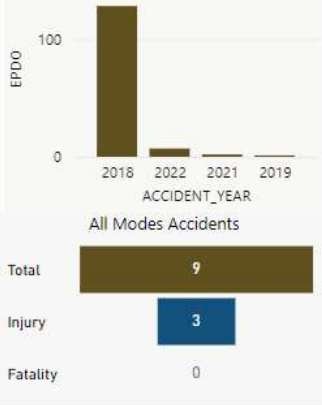
Intersection Collisions

INTX_NAME	Relative Severity (EPDO)	Cost	Count of Collisions	Top Category	Top Violation
ANNA SPARKS WAY / CENTRAL AVE	135	$1,791,700	6	Rear End	Unsafe Lane Change
CENTRAL AVE / ANNA SPARKS WAY	3	$39,900	3	Rear End	Unsafe Speed
Total	**138**	**$1,831,600**	**9**	**Rear End**	**Unsafe Speed**

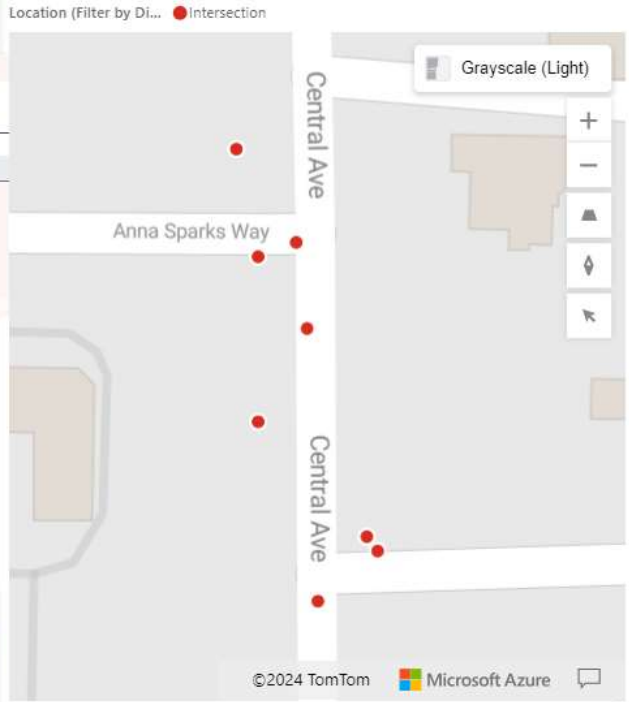
Count of Collisions and EPDO by ACCIDENT_HOUR



EPDO by ACCIDENT_YEAR



Intersection and Segment Collisions



References for Severity and Cost Calculations:

FHWA Severity EPDO Calculation Guide

Local Roadway Safety: A Manual for California's Local Road Owners

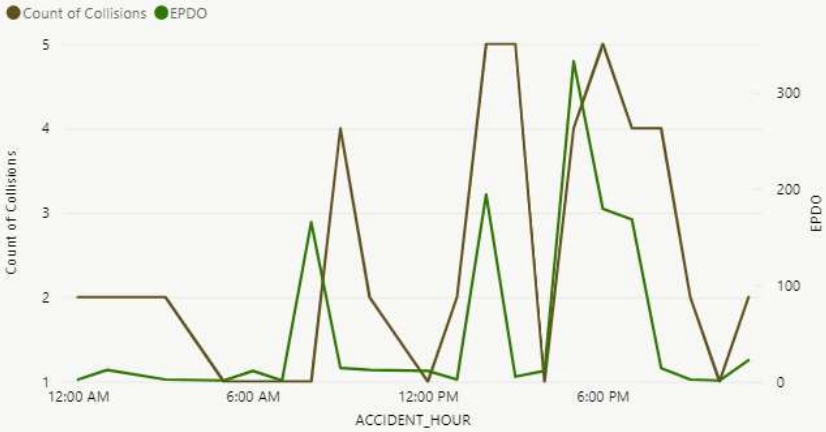
Search Street Name

Alderpoint Rd

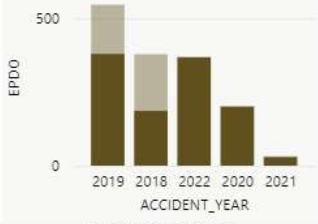
Segment Collisions

SEG_NAME	Relative Severity (EPDO)	Cost	Count of Collisions	SEG_LENGTH (mi)	Top Category	Top Violation
Alderpoint Rd	1168	$15,460,500	59	31.4	Hit-Object	Improper Turning
Total	**1168**	**$15,460,500**	**59**	**31.4**	**Hit-Object**	**Improper Turning**

Count of Collisions and EPDO by ACCIDENT_HOUR



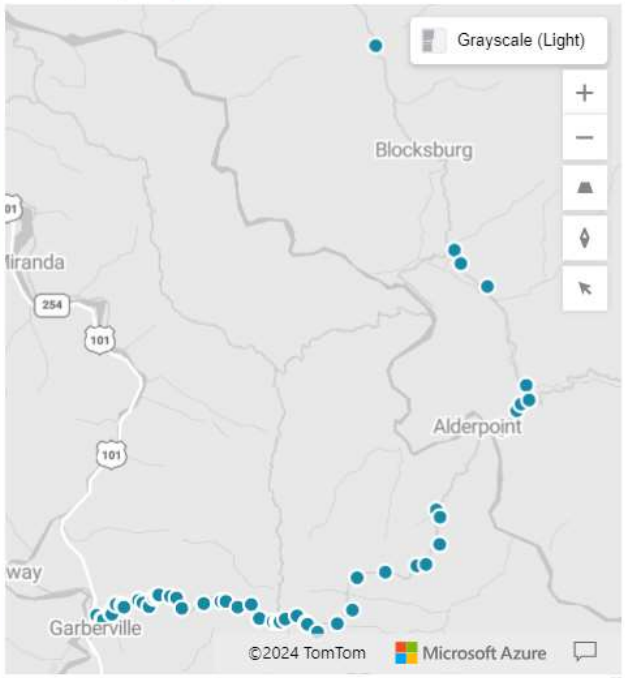
EPDO by ACCIDENT_YEAR



All Modes Accidents

Intersection and Segment Collisions

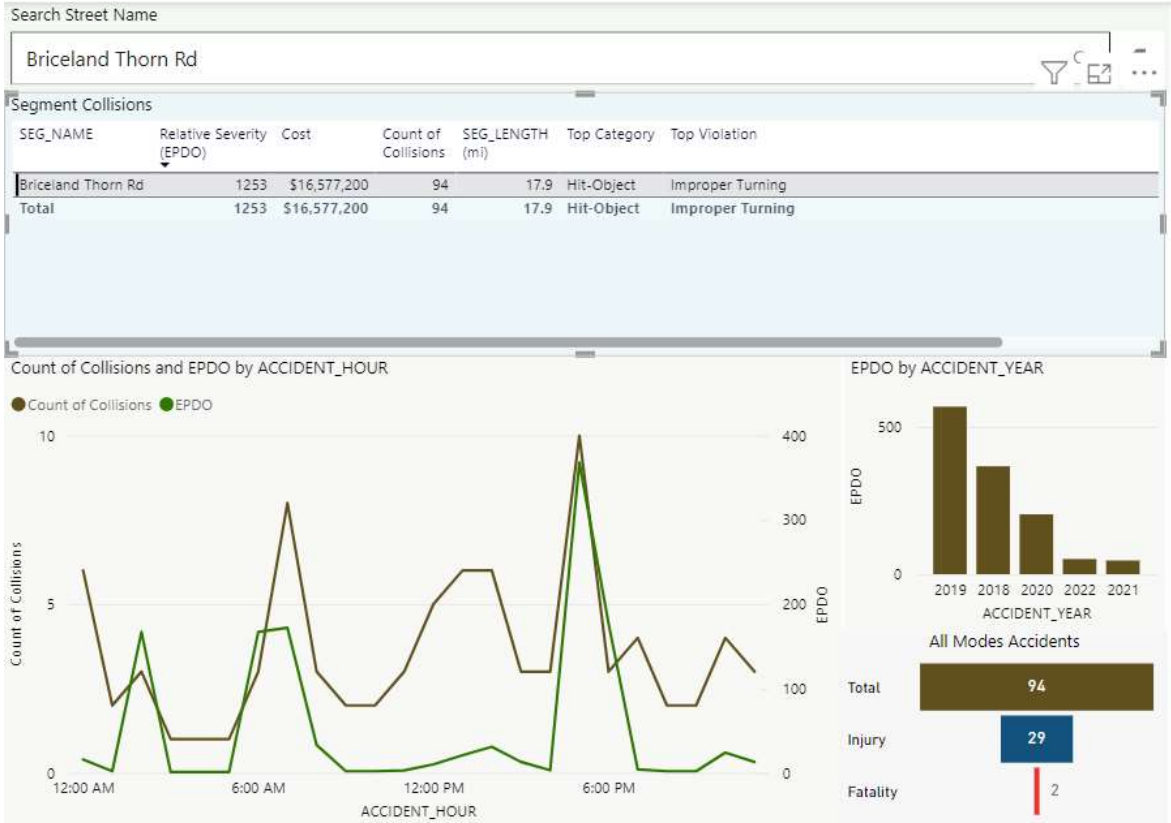
Location (Filter by Di... Segment

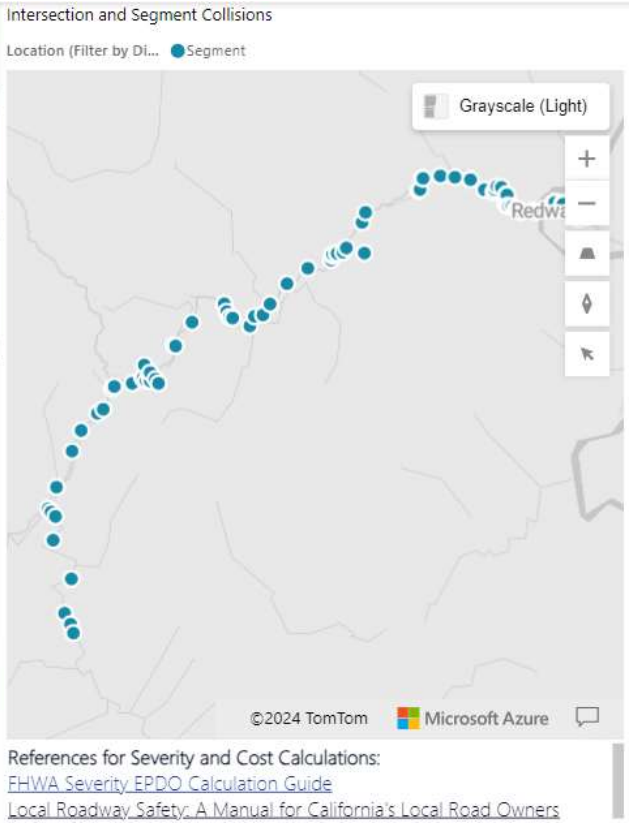


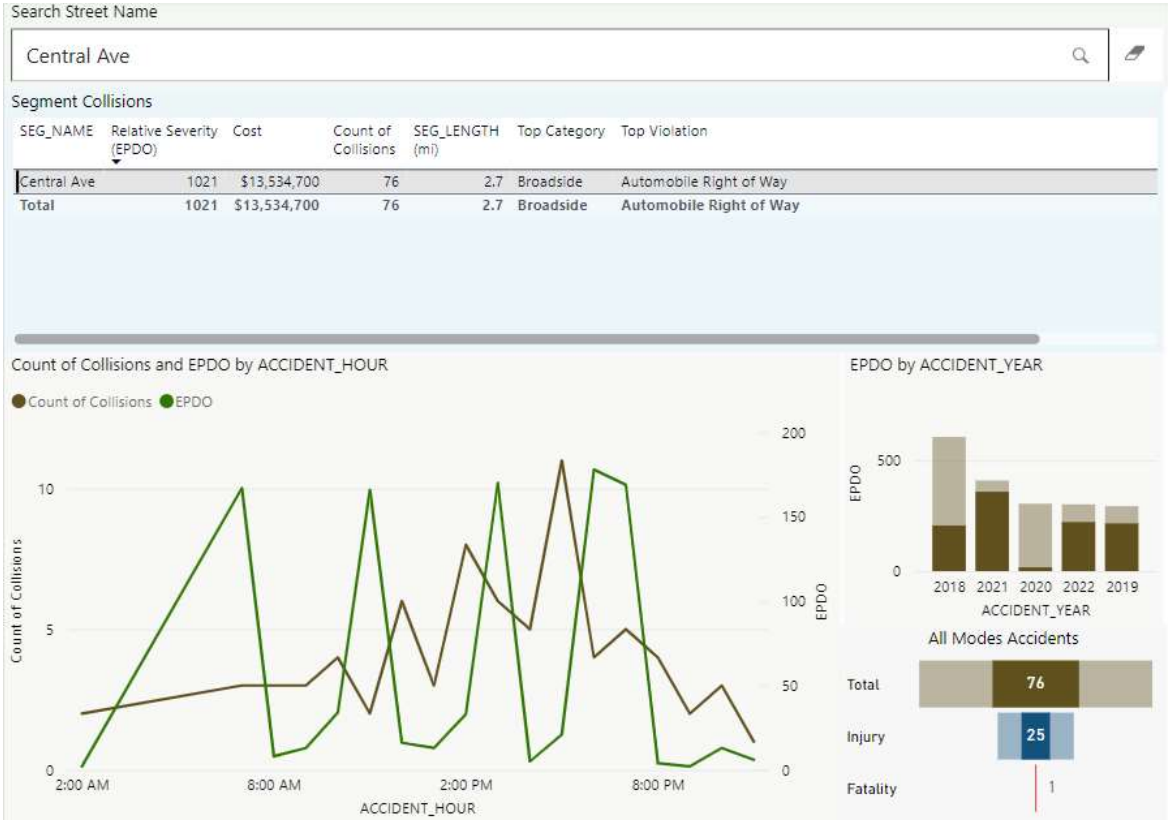
References for Severity and Cost Calculations:

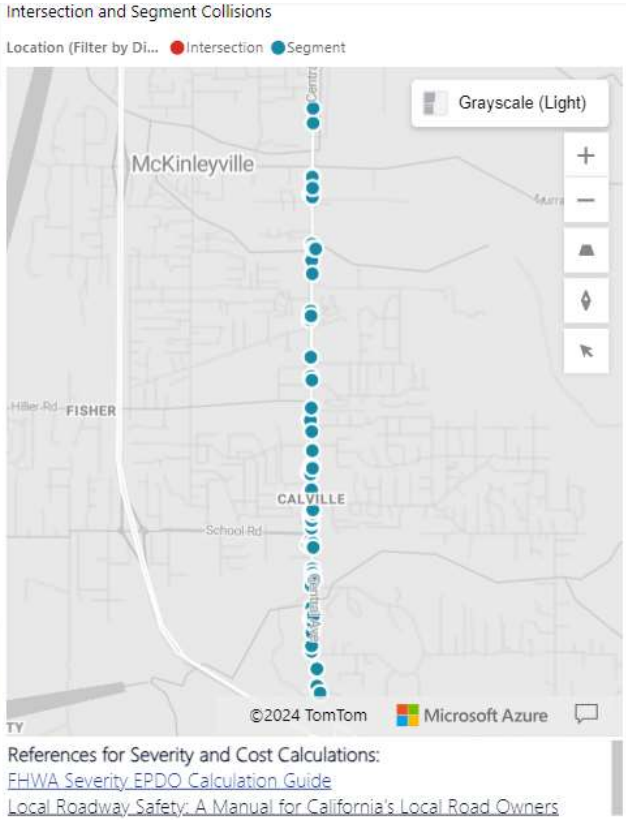
FHWA Severity EPDO Calculation Guide

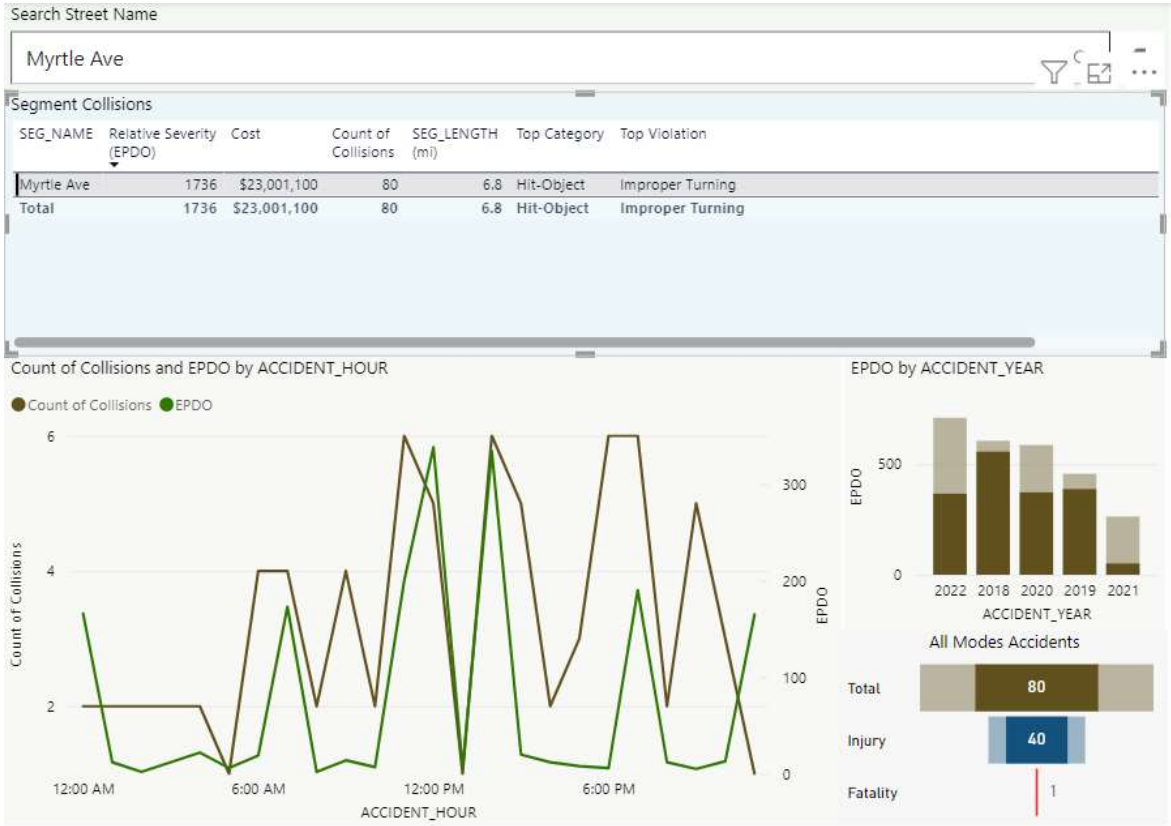
Local Roadway Safety: A Manual for California's Local Road Owners

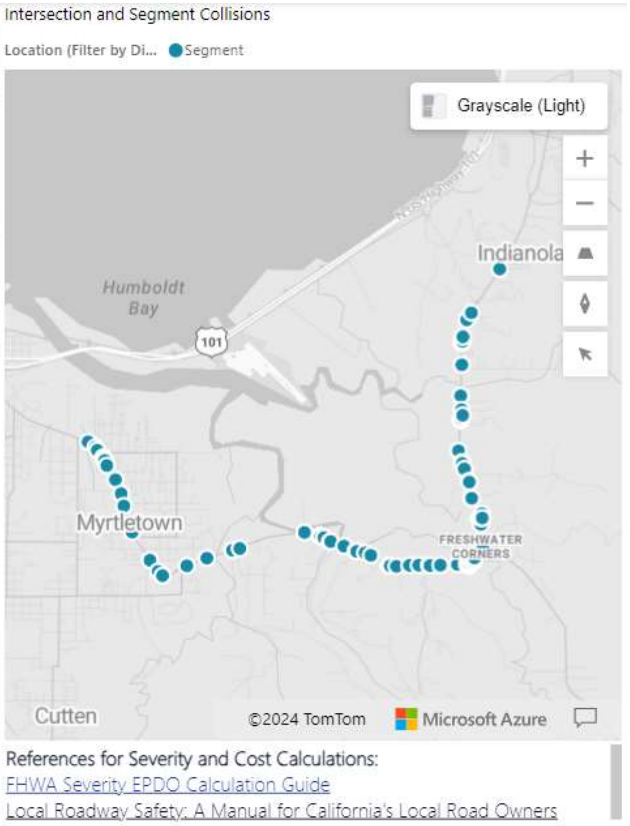

Search Street Name
Briceland Thorn Rd
Segment Collisions
SEG_NAME | Relative Severity (EPDO) | Cost | Count of Collisions | SEG_LENGTH (mi) | Top Category | Top Violation
Briceland Thorn Rd | 1253 | $16,577,200 | 94 | 17.9 | Hit-Object | Improper Turning
Total | 1253 | $16,577,200 | 94 | 17.9 | Hit-Object | Improper Turning
Count of Collisions and EPDO by ACCIDENT_HOUR
Count of Collisions
EPDO
Count of Collisions
EPDO
ACCIDENT_HOUR
12:00 AM
6:00 AM
12:00 PM
6:00 PM
EPDO by ACCIDENT_YEAR
EPDO
ACCIDENT_YEAR
2019
2018
2020
2022
2021
All Modes Accidents
Total
94
Injury
29
Fatality
2


Intersection and Segment Collisions
Location (Filter by Di...
Segment
Grayscale (Light)
©2024 TomTom
Microsoft Azure
References for Severity and Cost Calculations:
FHWA Severity EPDO Calculation Guide
Local Roadway Safety: A Manual for California's Local Road Owners


Search Street Name
Central Ave
Segment Collisions
SEG_NAME | Relative Severity (EPDO) | Cost | Count of Collisions | SEG_LENGTH (mi) | Top Category | Top Violation
Central Ave | 1021 | $13,534,700 | 76 | 2.7 | Broadside | Automobile Right of Way
Total | 1021 | $13,534,700 | 76 | 2.7 | Broadside | Automobile Right of Way
Count of Collisions and EPDO by ACCIDENT_HOUR
Count of Collisions
EPDO
Count of Collisions
EPDO
ACCIDENT_HOUR
2:00 AM
8:00 AM
2:00 PM
8:00 PM
EPDO by ACCIDENT_YEAR
EPDO
ACCIDENT_YEAR
2018
2021
2020
2022
2019
All Modes Accidents
Total
76
Injury
25
Fatality
1


Intersection and Segment Collisions
Location (Filter by Di...
Intersection
Segment
Grayscale (Light)
McKinleyville
FISHER
CALVILLE
School Rd
©2024 TomTom
Microsoft Azure
References for Severity and Cost Calculations:
FHWA Severity EPDO Calculation Guide
Local Roadway Safety: A Manual for California's Local Road Owners


Search Street Name
Myrtle Ave
Segment Collisions
SEG_NAME | Relative Severity (EPDO) | Cost | Count of Collisions | SEG_LENGTH (mi) | Top Category | Top Violation
Myrtle Ave | 1736 | $23,001,100 | 80 | 6.8 | Hit-Object | Improper Turning
Total | 1736 | $23,001,100 | 80 | 6.8 | Hit-Object | Improper Turning
Count of Collisions and EPDO by ACCIDENT_HOUR
Count of Collisions
EPDO
Count of Collisions
EPDO
12:00 AM
6:00 AM
12:00 PM
6:00 PM
ACCIDENT_HOUR
EPDO by ACCIDENT_YEAR
EPDO
2022
2018
2020
2019
2021
ACCIDENT_YEAR
All Modes Accidents
Total
80
Injury
40
Fatality
1


Intersection and Segment Collisions
Location (Filter by Di...
Segment
Grayscale (Light)
Humboldt Bay
101
Indianola
Myrtletown
FRESHWATER CORNERS
Cutten
©2024 TomTom
Microsoft Azure
References for Severity and Cost Calculations:
FHWA Severity EPDO Calculation Guide
Local Roadway Safety: A Manual for California's Local Road Owners

Search Street Name

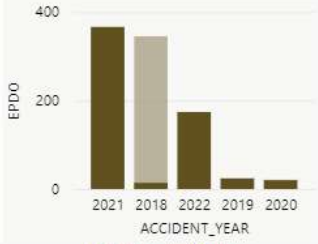
Pine Creek Rd

Segment Collisions

SEG_NAME	Relative Severity (EPDO)	Cost	Count of Collisions	SEG_LENGTH (mi)	Top Category	Top Violation
Pine Creek Rd	598	$7,914,100	26	6.2	Hit-Object	Improper Turning
Total	**598**	**$7,914,100**	**26**	**6.2**	**Hit-Object**	**Improper Turning**

Count of Collisions and EPDO by ACCIDENT_HOUR

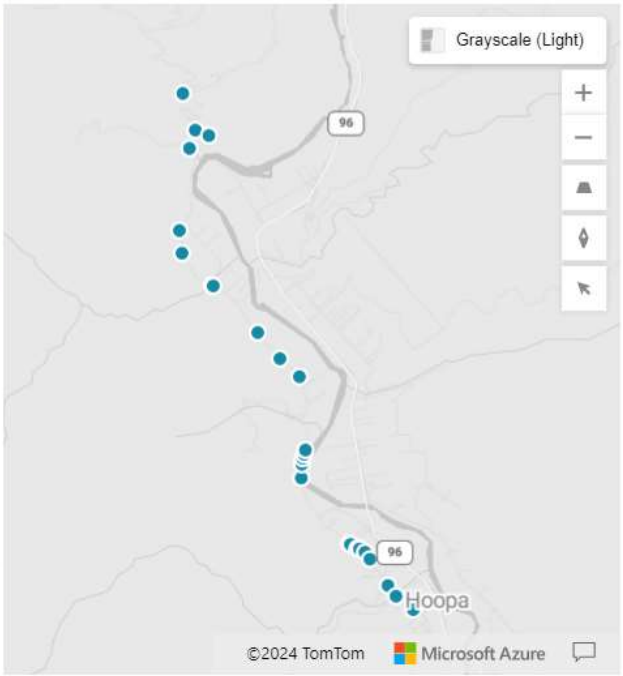
EPDO by ACCIDENT_YEAR



All Modes Accidents

Intersection and Segment Collisions

Location (Filter by Di... Segment



References for Severity and Cost Calculations:

FHWA Severity EPDO Calculation Guide

Local Roadway Safety: A Manual for California's Local Road Owners

Search Street Name

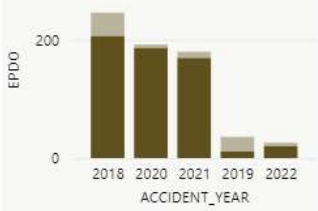
Redwood Dr

Segment Collisions

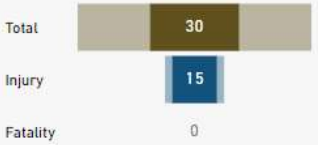
SEG_NAME	Relative Severity (EPDO)	Cost	Count of Collisions	SEG_LENGTH (mi)	Top Category	Top Violation
Redwood Dr	592	$7,844,500	30	4.1	Hit-Object	Improper Turning
Total	**592**	**$7,844,500**	**30**	**4.1**	**Hit-Object**	**Improper Turning**

Count of Collisions and EPDO by ACCIDENT_HOUR

EPDO by ACCIDENT_YEAR

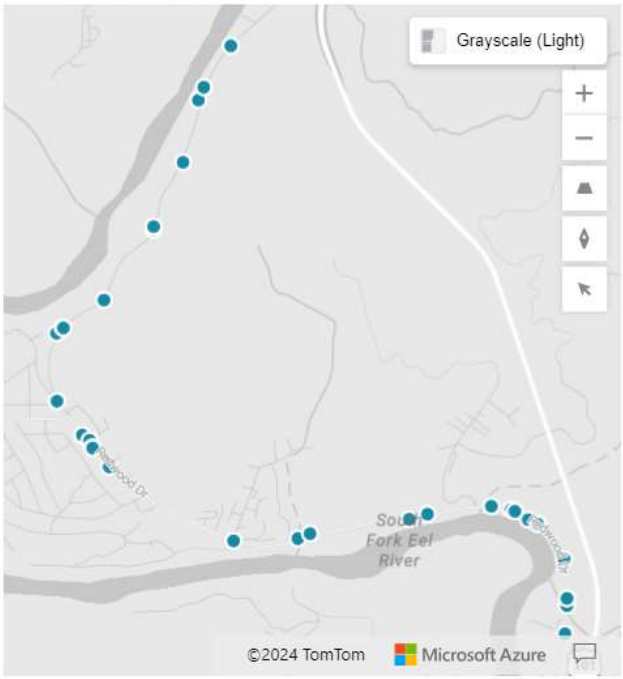


All Modes Accidents



Intersection and Segment Collisions

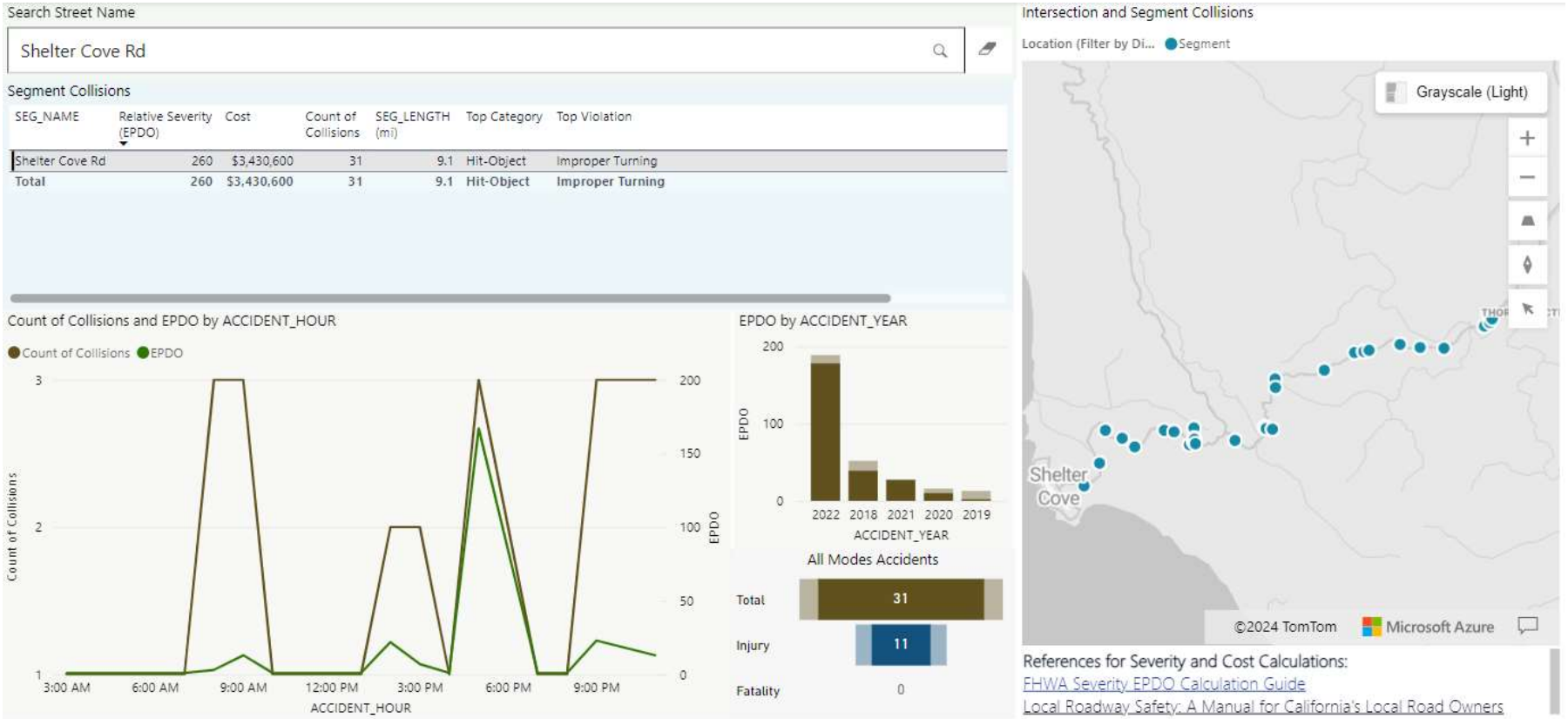
Location (Filter by Di... Segment



References for Severity and Cost Calculations:

FHWA Severity EPDO Calculation Guide

Local Roadway Safety: A Manual for California's Local Road Owners


Search Street Name
Shelter Cove Rd
Segment Collisions
SEG_NAME
Relative Severity (EPDO)
Cost
Count of Collisions
SEG_LENGTH (mi)
Top Category
Top Violation
Shelter Cove Rd 260 $3,430,600 31 9.1 Hit-Object Improper Turning
Total 260 $3,430,600 31 9.1 Hit-Object Improper Turning
Count of Collisions and EPDO by ACCIDENT_HOUR
Count of Collisions
EPDO
Count of Collisions
EPDO
3:00 AM
6:00 AM
9:00 AM
12:00 PM
3:00 PM
6:00 PM
9:00 PM
ACCIDENT_HOUR
EPDO by ACCIDENT_YEAR
EPDO
2022
2018
2021
2020
2019
ACCIDENT_YEAR
All Modes Accidents
Total
31
Injury
11
Fatality
0
Intersection and Segment Collisions
Location (Filter by Di...
Segment
Grayscale (Light)
Shelter Cove
©2024 TomTom
Microsoft Azure
References for Severity and Cost Calculations:
FHWA Severity EPDO Calculation Guide
Local Roadway Safety: A Manual for California's Local Road Owners

Appendix D

Draft Document Comments

Draft LRSP Comments		
Date	**Section**	**Comment**
5/2/2024	General (Location-Based Comment)	Loleta - Old Redwood Hwy the stretch between the train trellis at Main Street and toward Ferbridge: Pot holes and terrible condition of the road The road needs desperately to be repaved. Thank you.
4/26/2024	General (Traffic Calming, roundabout intersection)	Street Story doesn't seem set up to take comments unless they are directly related to a collision or close call. I want to make sure roundabouts, medians, vehicle lane reduction and narrowing make it into the LRSP for Central Avenue as were part of Planning/Buildings takeaway for the Town Center zoning area and will be a part of the EIR study for traffic in the Town Center area. I really don't want this LRSP to undermine that potential because it is lacking those recommendations. I really hope you can add these traffic calming solutions into the LRSP for Central at Hiller, Gwin and Pickett.
4/26/2024	General (Maintaining striping and markings)	Repainting crosswalks at key locations. Also, I wanted to follow up on my question at Wednesday's MMAC meeting. The crosswalk I would love to see repainted is near the intersection of Sutter Ave and Lime / Park Streets. I often cross here and 90 % of the time cars do not stop to allow me to cross, I have to wait until traffic clears. The curve in Sutter to the east of this crosswalk makes it hard to see cars approaching in that direction, especially if they are speeding. Also, the paint is barely there on the westbound lane. I've attached pictures, taken yesterday, of this crosswalk.
4/26/2024	General (Traffic Calming)	Street Art for traffic calming. I also mentioned wondering if I can organize a group to repaint this crosswalk, in a way that may get more attention than the standard white stripes. I have attached a picture of what I have in mind, something I think I could draw out pretty easily. If I could organize a group (maybe Committee for Active Transportation members and friends?) and get paint from ACE Hardware, is this something we could coordinate with you sometime this summer? I'll leave the bigger job of quickbuild designs and implementation for Hiller Road to you.
4/24/2024	2.2.1	"County of Eureka" change to "City of Eureka"
4/24/2024	2.2.2	"Three virtual meeting…" should be "Two virtual meetings…"
4/24/2024	1	I don’t think zero fatalities and serious injuries is an attainable goal. I have always been told that Goals need to be attainable, or no-one will ever take them seriously
4/24/2024	5	Speaking solely about the McKinleyville countermeasures. Other than the roundabout proposed for the McKinleyville Ave./Hiller Intersection (which I think is a very good idea), it seems like the countermeasures are minimal fixes. Not saying mast arm signals are cheap but they do seem like the minimal structural fix that can be done. I am fully aware that sometimes you do want to put into plans things that you can reasonably afford to do, so you can report that you are doing what you said you were going to do. Not sure if that is the approach being used here or not. Not sure how much pushback you will get from the Public or not. One of the problems is that the MMAC and McKinleyville community has been talking extensively about structural changes to the road cross section on Central and Hiller and none of those appear in this document. I’m not saying they necessarily should, just saying that they are on the top of people’s minds.

Appendix E

Report Tables

Table 3.1 Equivalent Property Damage Only

Crash Severity	Location Type	Crash Cost*	Severity Ranking**
Local Roadway Safety Manual (LRSM)* **			
Fatal & Severe Injury	Signalized Intersection	$ 1,590,000	120
	Non-Signalized Intersection	$ 2,530,000	190
	Roadway	$ 2,190,000	165
Other Visible Injury	-	$ 142,300	11
Complaint of Pain	-	$ 80,900	6
Property Damage Only	-	$ 13,300	1

* *Based on Table 7-1, Highway Safety Manual (HSM), First Edition, 2010. Adjusted to 2020 dollars.*

** *Based on Equivalent Property Damge Only (EPDO)*

*** *Local Roadway Safety: A Manual for California's Local Road Owners (LRSM), Version 1.5, 2020.*

Table 3.2 Priority Intersection Characteristics

		Collision Characteristics			
Location	**Control**	**Relative Severity (EPDO)**	**Total Collisions**	**Top Type of Collision**	**Top Violation Category**
Myrtle Ave / Hall Ave	Two-Way Stop Control	217	8	Broadside	Automobile Right of Way
Mckinleyville Ave / Hiller Rd	All-Way Stop Control	215	11	Broadside	Automobile Right of Way
Central Ave / Gwin Rd / City Center Rd	Signalized	146	7	Sideswipe, Broadside	Traffic Signals and Signs
Myrtle Ave / Hubbard Ln (East)	Signalized	135	6	Head-on	Automobile Right of Way
Anna Sparks Way / Central Ave	Signalized	135	6	Sideswipe, Rear End	Unsafe Speed, Unsafe Lane Change
Central Ave / Hiller Rd	Signalized	135	6	Sideswipe, Broadside	Traffic Signals and Signs
F St / Oak St	Unsignalized	37	12	Broadside	Automobile Right of Way

Table 3.3 Priority Segment Characteristics

		Collision Characteristics			
Location	**Length (mi)**	**Relative Severity (EPDO)**	**Total Collisions**	**Top Type of Collision**	**Top Violation Category**
Myrtle Ave from Harrison Ave to Indianola Ave	6.8	1736	80	Hit Object	Improper Turning
Briceland Thorn Rd from Redwood Dr to Southern County Limits	17.9	1253	94	Hit Object	Improper Turning
Alderpoint Rd from 2mi North of Sunrise Rd to Southern County Limit	31.4	1168	59	Hit Object	Improper Turning
Central Ave from Norton Ave to 600ft South of Henry Rd	2.7	1021	76	Broadside	Automobile Right of Way
Pine Creek Rd from French Camp Rd to SR 96	6.2	598	26	Hit Object	Improper Turning
Redwood Dr from US 101 (Redway) to Bear Canyon	4.1	592	30	Hit Object	Improper Turning
Shelter Cove Rd from Upper Pacific Dr to Briceland Thorn Rd	9.1	260	31	Hit Object	Improper Turning

Table 5.1 Priority Intersection Countermeasures

Intersection	Control	Countermeasure Number	CRF	Funding Eligibility	Recommended Countermeasures	Reasoning
Myrtle Ave / Hall Ave	Two-Way Stop Control	NS03	30%	90%	Install signals*	Reduced sight distance at intersection due to intersection skew, curvature, and vegetation as well as higher speed limit on Myrtle Ave causes difficult conditions for drivers turning from Hall Ave. Signal control may reduce number of broadside collisions caused by automobile right of way violations
		NS11	20%	90%	Improve sight distance to intersection (Clear Sight Triangles)	Already reduced sight distance may be made worse by overgrown vegetation. Ensure vegetation remains cleared
		NS09	30%	90%	Install flashing beacons as advance warning (NS.I.)	Intersection appears relatively quickly for westbound vehicles traveling uphill on Myrtle. Flashing beacon for advance warning will alert drivers further back and warn about potentially crossing vehicles. Should also be installed if intersection is converted to AWSC for advance stop warning
Mckinleyville Ave / Hiller Rd	All-Way Stop Control	NS04	Varies	90%	Convert intersection to roundabout (from all way stop)	Skewed intersection with wide pavement may benefit from roundabout control to mitigate broadside collisions.
						OR
		NS03	30%	90%	Install signals*	Alternative to installing a roundabout
						OR
		NS06	15%	90%	Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs	Interim improvement to increase visibility of signage especially in poor weather/visibility conditions
		-	-	-	Restripe approach on Hiller Road to better differentiate movements and add bike lanes	Wide pavement width for through and right vehicle movements on Hiller Rd that may cause confusion in driver movement and right of way
Central Ave / Gwin Rd / City Center Rd	Signalized	S03	15%	50%	Improve signal timing (coordination, phases, red, yellow, or operation)	Add or increase clearance intervals to reduce vehicle conflicts
		S08	30%	90%	Convert signal to mast arm (from pedestal-mounted)	On Gwin Rd/City Center Rd, signals are pedestal/light pole mounted. Converting to mast arms can increase signal visibility and potentially reduce the risk of broadside collisions.
		S09	10%	90%	Install raised pavement markers and striping (Through Intersection)	Can reduce sideswipe collisions and better guide vehicles through awkward turning movements
		-	-	-	Evaluate intersection sight distance	Visibility at intersection seemed to be limited by shopping center sign. Multiple traffic signal and sign violations.
Myrtle Ave / Hubbard Ln (East)	Signalized	S02	15%	90%	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	Install retroreflective borders on backplates if not yet previously completed for better signal visibility
		S03	15%	50%	Improve signal timing (coordination, phases, red, yellow, or operation)	Add or increase clearance intervals to reduce vehicle conflicts
		S07	30%	90%	Provide protected left turn phase (left turn lane already exists)	As part of improved signal timing, add protected left turn phase to reduce broadside collisions as a result of auto right of way violations
Anna Sparks Way / Central Ave	Signalized	S02	15%	90%	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	Replace 8" signal heads with 12" signal heads
		S03	15%	50%	Improve signal timing (coordination, phases, red, yellow, or operation)	Add or increase clearance intervals to reduce vehicle conflicts
Central Ave / Hiller Rd	Signalized	S03	15%	50%	Improve signal timing (coordination, phases, red, yellow, or operation)	Add or increase clearance intervals to reduce vehicle conflicts

Intersection	Control	Countermeasure Number	CRF	Funding Eligibility	Recommended Countermeasures	Reasoning
		S07	30%	90%	Provide protected left turn phase (left turn lane already exists)	As part of improved signal timing, add protected left turn phase to reduce broadside collisions as a result of auto right of way violations
		S08	30%	90%	Convert signal to mast arm (from pedestal-mounted)	On Hiller Rd, signals are pedestal/light pole mounted and not very apparent to drivers. Converting to mast arms can increase signal visibility and potentially reduce the risk of broadside collisions.
		S21PB	60%	90%	Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	One pedestrian collision. Active commercial area that would provide pedestrians with increased crossing time and lead out in front of turning vehicles.
F St / Oak St	Two-Way Stop Control	NS03	30%	90%	Install signals*	To help reduce collisions due to automobile right of way. Signal warrants are met at this location and the County has 100% plans, specifications, and a cost estimate for a traffic signal. Additional funding is needed to implement project.
						OR
		NS02	50%	90%	Convert to all-way STOP control (from 2-way or Yield control)*	If funding for signal is unavailable. All Way Stop Control may reduce number of broadside collisions as a result of auto right of way violations.
						OR
		NS22PB	35%	90%	Install Rectangular Rapid Flashing Beacon (RRFB)	If interim improvements are deemed necessary, upgrade existing school crossing into RRFB for increased pedestrian safety
		-	-	-	Remove or improve pedestrian refuge island and curb bulbout for better turning radius	Pedestrian refuge island on F St appears to be frequently hit. Lanes are slightly narrow and may be making the turning radius too sharp

* Intersection must meet CA MUTCD warrants to implement countermeasure

Table 5.2 Priority Segment Countermeasures

Segment	Length (mi)	Countermeasure Number	CRF	Funding Eligibility	Recommended Countermeasures	Reasoning
Myrtle Ave from Harrison Ave to Indianola Ave	**6.78**	R27	15%	90%	Install delineators, reflectors and/or object markers	For any objects within Clear Recovery Zone (CRZ), install or replace reflectors for better nighttime and low visibility conditions
		R31	15%	90%	Install edgeline rumble strips/stripes	Recommended for rural segments of the corrridor. Will warn drivers that they are departing the lane and potentially provide them time to recover before hitting any objects or running off the road. Consider bicyclists' use of shoulders and roadways before implementing rumble strips as to not add additional obstructions to biking routes.
		R33PB	45%	90%	Install Separated Bike Lanes	Consider parking protected bike lanes in Myrtletown where bike lanes already exist. Public recommendation.
		-	-	-	Replace Bott Dots centerline striping with painted or thermoplastic centerline striping	Where not yet replaced, convert Bott dots striping to painted or thermoplastic striping to increase centerline visibility; Head-on, fatal collision in this area due to improper turning
		-	-	-	Install transit stop near Indianola Cutoff	Per public comment.
Briceland Thorn Rd from Redwood Dr to Southern County Limits	**17.9**	R22	15%	90%	Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	Per feedback from first responders and public, there is either a lack of signage or signage is difficult to see due to fading and/or foliage. A Countywide reflectivity study should be completed.
		R27	15%	90%	Install delineators, reflectors and/or object markers	Many objects (including trees) in close proximity to the roadway; For any objects within Clear Recovery Zone (CRZ), install or replace reflectors for better nighttime and low visibility conditions
		R23	40%	90%	Install chevron signs on horizontal curves	Many significant horizontal curves that may be difficult to see in low visibility conditions or be unexpected and difficult to navigate at higher speeds
		R28	25%	90%	Install edge-lines and centerlines	Can define the edge of the roadway to help reduce run-off-the-road collisions
		R12	25%	90%	Widen lane (initially less than 10 ft)	Public comment expressed concern about the width and grade of pavement north of the intersection with Shelter Cove Road
		R31	15%	90%	Install edgeline rumble strips/stripes	Will warn drivers that they are departing the lane and potentially provide them time to recover before hitting any objects or running off the road. Consider bicyclists' use of shoulders and roadways before implementing rumble strips as to not add additional obstructions to biking routes.
Alderpoint Rd from 2mi North of Sunrise Rd to Southern County Limit	**31.4**	R22	15%	90%	Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	Per feedback from first responders and public, there is either a lack of signage or signage is difficult to see due to fading and/or foliage. A Countywide reflectivity study should be completed.
		R28	25%	90%	Install edge-lines and centerlines	No existing edgelines
		R23	40%	90%	Install chevron signs on horizontal curves	Many significant horizontal curves that may be difficult to see in low visibility conditions or be unexpected and difficult to navigate at higher speeds
		R27	15%	90%	Install delineators, reflectors and/or object markers	For any objects within Clear Recovery Zone (CRZ), install or replace reflectors for better nighttime and low visibility conditions
Central Ave from Norton Ave to 600ft South of Henry Rd	**2.71**	R32PB	35%	90%	Install bike lanes	Multiple bicycle-related collisions along the corridor; Complete the bicycle network along Central Ave (e.g. from the southern end of Central Ave to the Mad River Bridge bike path, south of Murray Rd) to increase multimodal access and remain in line with McKinleyville Community Plan. Shoulder widening south of Henry Rd and roadway restriping from Reserve Rd to School Rd to include bike lane recommended in McKinleyville Multimodal Connections Project.
		R26	30%	90%	Install dynamic/variable speed warning signs	Install permanent speed limit sign with speed warning sign on northbound approch to Henry Road. Many collisions due to unsafe speed violations.
		-	-	-	Maintain existing bike lanes	Several public comments related to the condition of the shoulder (uneven pavement, glass in travelled way, etc.). Interim improvement until proposed paved path and multi-use trail (as recommended in McKinleyville Multimodal Connections Project) can be installed.
		-	-	-	Increase enforcement for speeding and driving under the influence	Many speed-related collisions along the corridor. Multiple high-severity collisions with alcohol involved, specifically near Henry Lane.
		-	-	-	Replace Bott Dots centerline striping with painted or thermoplastic centerline striping	Where not yet replaced, convert Bott dots striping to painted or thermoplastic striping to increase centerline visibility

Segment	Length (mi)	Countermeasure Number	CRF	Funding Eligibility	Recommended Countermeasures	Reasoning
Pine Creek Rd from French Camp Rd to SR 96	**6.24**	R27	15%	90%	Install delineators, reflectors and/or object markers	For any objects within Clear Recovery Zone (CRZ), install or replace reflectors for better nighttime and low visibility conditions
		R22	15%	90%	Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	Per feedback from first responders and public, there is either a lack of signage or signage is difficult to see due to fading and/or foliage. A Countywide reflectivity study should be completed.
		R23	40%	90%	Install chevron signs on horizontal curves	Many significant horizontal curves that may be difficult to see in low visibility conditions or be unexpected and difficult to navigate at higher speeds
		R31	15%	90%	Install edgeline rumble strips/stripes	Will warn drivers that they are departing the lane and potentially provide them time to recover before hitting any objects or running off the road. Consider bicyclists' use of shoulders and roadways before implementing rumble strips as to not add additio
		R17	50%	90%	Improve horizontal alignment (flatten curves)	Many horizontal curves along roadway segment. In particular, on Pine Creek Road approximately 0.35 mi south of Kateri Lane has a horizontal curve that could benefit from this treatment.
Redwood Dr from US 101 (Redway) to Bear Canyon	**4.07**	R22	15%	90%	Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	Per feedback from first responders and public, there is either a lack of signage or signage is difficult to see due to fading and/or foliage. A Countywide reflectivity study should be completed.
		R27	15%	90%	Install delineators, reflectors and/or object markers	For any objects within Clear Recovery Zone (CRZ), install or replace reflectors for better nighttime and low visibility conditions
		R31	15%	90%	Install edgeline rumble strips/stripes	Will warn drivers that they are departing the lane and potentially provide them time to recover before hitting any objects or running off the road. Consider bicyclists' use of shoulders and roadways before implementing rumble strips as to not add additional obstructions to biking routes.
Shelter Cove Rd from Upper Pacific Dr to Briceland Thorn Rd	**9.13**	R22	15%	90%	Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	Per feedback from first responders and public, there is either a lack of signage or signage is difficult to see due to fading and/or foliage. A Countywide reflectivity study should be completed.
		R23	40%	90%	Install chevron signs on horizontal curves	Many significant horizontal curves that may be difficult to see in low visibility conditions or be unexpected and difficult to navigate at higher speeds
		R27	15%	90%	Install delineators, reflectors and/or object markers	For any objects within Clear Recovery Zone (CRZ), install or replace reflectors for better nighttime and low visibility conditions

Table 5.3 Systemic Countermeasures

Location	Countermeasure	Reasoning
High Priority Segments	Roadway Safety Signing Audit (RSSA) and Upgrade Project	Required to implement some of the sign-related countermeasures suggested; Stakeholders indicated that signage needs improvement
	Install delineators, reflectors and/or object markers	For any objects within Clear Recovery Zone (CRZ), install or replace reflectors for better nighttime and low visibility conditions
	Install edgeline rumble strips/stripes	Will warn drivers that they are departing the lane and potentially provide them time to recover before hitting any objects or running off the road
	DUI Saturation Patrol	High densities of DUI collisions
Signals along Central Avenue	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	Three priority intersections from the plan are signals along Central Avenue. Stakeholder feedback indicated the need for bicycle detection at signalized intersections for increased bicycle safety.
	Improve signal timing (coordination, phases, red, yellow, or operation)	
	Bicycle detection	

Table 5.4 Recommended Non-Engineering Strategies

Strategy Type	Potential Stakeholder Champions	Recommended Strategy
Education	Public Works Departments; Bicycle and Pedestrian Advocacy Groups	Bicycle and pedestrian safety campaigns
		Driver education and campaigns related to driving under the influence, distracted driving, and rules of the road
	Schools	Encourage safe practices within the roadway for all users and the continuation of driver education programs in the classrooms
		Crossing guards for school crossings
	All Stakeholder Agencies	Social media blasts with education campaigns
	All Stakeholder Agencies	"Go Slow, Watch the Road" campaign
	California Highway Patrol, Police Departments	Dangers of speeding/speed management campaigns
Emerging Technologies	Public Works Departments	Upgraded controllers for flashing yellow arrows and leading pedestrian intervals
		Install touchless Accessible Pedestrian Signals
		Install dynamic speed feedback signs
		Obtain portable traffic data collector that records speeds and traffic volumes bidirectionally (through grant funding)
		Use electronic message boards to alert citizens to construction zones, construction activities, lane closures, and detours
Enforcement	California Highway Patrol, Police Departments	Targeted speed enforcement
		DUI saturation patrols and checkpoints
		Dangers of speeding/speed management campaigns
Emergency Response	Public Works Departments, Police Departments, Fire Departments	Consider emergency vehicle pre-emption at signalized intersections
		Install clear road name signage to allow for quicker response times
		Improvements to roadways to increase access, reduce congestion, and potentially shorten response times

ghd.com

→ The Power of Commitment