Technical Memorandum

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Project Name	Humboldt County Regional Vision Zero Action Plan		
Subject	Priority Countermeasures, Strategies, and Projects Memorandum		

1. Introduction

To create a safer transportation network, the U.S. Department of Transportation (USDOT) has adopted the Safe System Approach to guide the assessment of roadways and intersections and the subsequent development of collision countermeasures in the pursuit of zero fatalities and severe injuries in the future. The Safe System Approach is a cornerstone of the USDOT National Roadway Safety Strategy and is centered around understanding both human behavior and human vulnerabilities to develop mitigations for high-severity collision locations.[1] Additionally, through the Strategic Highway Safety Plan (SHSP), the 4 E's of safety (Engineering, Education, Enforcement, and Emergency Medical Services) are emphasized to guide safety projects toward developing countermeasures and strategies for reducing collisions[2].

Building on the *Injury & Collision Data Analysis Memorandum*, this memorandum presents the engineering countermeasures identified for the priority (high severity) locations. Additionally, engineering countermeasures that mitigate on a systemic basis, while also addressing the priority locations, are presented.

In addition to these engineering strategies, non-engineering strategies (i.e., programs and policies) are presented that mitigate on a systemic basis, as well as at priority locations.

A key feature that distinguishes this Vision Zero Action Plan (VZAP) from prior Local Road Safety Plans (LRSPs) is the inclusion of all jurisdictional agencies in Humboldt County, including the California Department of Transportation (Caltrans). As documented in this memorandum, the Humboldt County Regional VZAP includes multiple Caltrans facilities, including priority locations, which have been coordinated and confirmed with Caltrans.

[1] "What is a Safe System Approach", U.S. Department of Transportation, January 14, 2025, **What Is a Safe System Approach? | US Department of Transportation**
[2] "About the State Strategic Highway Safety Plan (SHSP)", FHWA, September 19, 2022, **https://highways.dot.gov/safety/hsip/shsp/about**

2. Priority Locations

2.1 Guidance

The *Federal Highway Administration (FHWA) California High Injury Network and Planning for Zero Safety Data Case Study*[3] states Vision Zero is a data-driven approach that, in the development of engineering countermeasures and policies to improve existing facilities, acknowledges human errors that lead to collisions. Within the Vision Zero methodology, a High Injury Network (HIN) is a data-driven, strategic method for identifying locations with high collision severities, which indicates facilities that provide opportunities for reducing fatal and severe injuries within the transportation network.

The *Caltrans Local Roadway Safety Manual (LRSM)*[4] recommends ranking locations with higher severity as higher focus. The *Highway Safety Manual* ranks relative severity by Equivalent Property Damage Only (EPDO).

2.2 Methodology

As detailed in the *Injury & Collision Data Analysis Memorandum*, consistent with the *Caltrans LRSM* ranking and prioritization, high-injury locations were determined by assessing the following for each collision: crash severity type (e.g., property damage only, F+SI, other injury), location type (e.g., roadway, non-signalized intersection, and signalized intersection), and severity ranking (i.e., crash cost and EPDO). This methodology ensures that F+SI collisions receive the highest values, to distinguish the high-severity locations. For each network and each intersection, the EPDO of each and all collisions was summed, with EPDO 119 and below categorized as “low severity” and EPDO 120 and above categorized as “high severity.” Hot spots are “high severity” high-injury locations, which comprise the HIN.

2.3 Priority Locations

As listed in the *Injury & Collision Data Analysis Memorandum*, the top 10 hot spot intersections (Table 4.1 of the memo) and the top 10 hot spot networks (Table 4.2 of the memo) were shared with stakeholders (e.g., County of Humboldt and Caltrans) for input and consensus (as the priority locations). Stakeholders identified plans, projects, and improvements that would address certain hot spots, as well as other modifications, resulting in slight revisions and updates. For the top 10 hot spot intersections, four intersections were removed (recent/planned Caltrans safety projects), one intersection was revised (broken into two intersections), and three intersections were added (next highest EPDO). For the top 10 hot spot networks, no networks were revised.

The final list of priority locations selected for countermeasure and strategy analysis is presented in **Table 2.1** and **Table 2.2**.

[3] “California High Injury Network and Planning for Zero Safety Data Case Study FHWA-SA-22-007”, FHWA, October 20, 2022, **https://highways.dot.gov/safety/data-analysis-tools/california-high-injury-network-and-planning-zero-safety-data-case-study**

[4] “Local Roadway Safety Manual, A Manual for California’s Local Road Owners”, Caltrans, Version 1.7, April 18, 2024, **https://dot.ca.gov/-/media/dot-media/programs/local-assistance/documents/hsip/2024/lrsm2024-v2.pdf**

Table 2.1 Priority Intersections

Intersection	Control Type	Jurisdiction	Facility Owner
4th St / R St	Signalized	City of Eureka	Caltrans
Alliance Rd / Stromberg Ave	Unsignalized	City of Arcata	City of Arcata
Ocean Ave / W Henderson St	Unsignalized	City of Eureka	City of Eureka
Broadway / W Washington St	Signalized	City of Eureka	Caltrans
H St / Henderson St	Signalized	City of Eureka	City of Eureka
US 101 SB Off Ramp / Singley Rd	Unsignalized	Unincorporated	Caltrans
G St / Samoa Blvd	Signalized	City of Arcata	Caltrans
H St / Harris St	Signalized	City of Eureka	City of Eureka
5th St / H St	Signalized	City of Eureka	Caltrans
4th St / H St	Signalized	City of Eureka	Caltrans

Table 2.2 Priority Segments

Street Name	Street Limits	Jurisdiction	Facility Owner
Broadway	W Hawthorne St to Vigo St	City of Eureka	Caltrans
SR 96	0.6 miles south of Bull Creek to Mill Creek Road	Unincorporated	Caltrans
SR 299	1.1 miles east of Cedar Creek Road to 200 ft east of Willow Creek	Unincorporated	Caltrans
US 101	L P Mill Rd to Kane Rd	Unincorporated	Caltrans
SR 299	New 3 Creeks Road to M and W Ranch Road	Unincorporated	Caltrans
SR 255 Bridge	100 ft east of Vance Avenue to Startare Drive	City of Eureka	Caltrans
US 101	Redwood Trails Circle to Old State Highway	Unincorporated	Caltrans
US 101	1.6 mile south of Humboldt/Del Norte County Border to 600 ft south of Humboldt/Del Norte County Border	Unincorporated	Caltrans
US 101	Hidden Creek Rd to SR 299	City of Arcata	Caltrans
US 101	0.6 miles north of Lake Benbow Drive to US 101 Redwood Drive Off Ramp	Unincorporated	Caltrans

3. Identified Strategies

The Safe System Approach considers both human behavior and human vulnerabilities to develop mitigations for high-severity collision locations. In accordance with this approach, both engineering countermeasures and non-engineering strategies were assessed in the pursuit of reducing collisions, as described below.

3.1 Engineering Countermeasures

3.1.1 Priority Locations

For each priority location, based on location characteristics (e.g., collision characteristics and existing condition observations), engineering countermeasures were developed. The majority of the countermeasures are from the *Caltrans LRSM*.

The *Caltrans LRSM* provides an easy-to-use and comprehensive framework for identifying locations with roadway safety issues and the appropriate countermeasures. Initially, *the Caltrans LRSM* (Version 1.0) was developed to support the Caltrans Highway Safety Improvement (HSIP) funding program. The *Caltrans LRSM* has since been updated to incorporate feedback and lessons learned, while maintaining a focus on HSIP funding opportunity and eligibility. The *Caltrans LRSM* includes details for each countermeasure, including where to use, why it works, general qualities (time, cost and effectiveness), crash type(s) addressed, crash reduction factor, and specific values for use in Caltrans HSIP calls-for-projects.

3.1.1.1 Countermeasures

For each priority location, the characteristics are summarized in **Table 3.1** and **Table 3.2**.

- For the priority intersections, the top collision type is “broadside” and the top violation category is “traffic signals and signs.”
- For the priority segments, the top collision type is “hit object” and the top violation category is “unsafe speed.”

For each priority location, the recommend countermeasures are listed in **Table** 3.3 and **Table 3.4**.

- For eight priority segments, Countermeasure R26 (Install Dynamic/Variable Speed Warning Signs) is recommended to reduce collisions due to unsafe speeds. Example signage (**Figure 3.1**) currently is in place at one priority segment (US 101, L P Mill Road to Kane Road). As Caltrans is already in the process of implementing signage for unsafe conditions, such as sharp curves, this recommendation may build off this process. Additionally, multiple collisions occurred in construction zones, indicating a need for better signage for warning drivers approaching construction zones along the roadway and increased enforcement of reduced speed zones.
- For two priority segments (i.e., Caltrans facilities), speed study is recommended to reduce collisions due to unsafe speeds. Speed study is not a listed countermeasure in the *Caltrans LRSM.* Assembly Bill 43 may allow new flexibility to lower speed limits without a speed study.

Figure 3.1 Dynamic / Variable Speed Warning Signage

For each recommended countermeasure, the associated Crash Reduction Factor (CRF) and Crash Modification Factor (CMF) are listed in **Table 3.3** and **Table 3.4**. CMFs and CRFs describe the safety impact of the countermeasures, with CMF being a multiplicative factor applied to predict crashes after a countermeasure and CRF expressing the same effect as a percentage reduction (CMFs below 1.0 indicate fewer crashes; CRFs convert that into an intuitive percent decrease).

The *Caltrans LRSM* includes countermeasures with proven CRFs and notes the following:

> *Selecting an appropriate countermeasure and corresponding CMF is similar to choosing the right tool for a job. In some cases, a countermeasure and CMF may not be perfect but will still work well enough to get the job done by providing a reasonable estimation of the countermeasure's effect. In other cases, using an improper countermeasure or CMF may do more harm than good. Applying a CMF that does not fit a specific situation may give a false sense of the countermeasure's safety effectiveness and may result in an increased safety problem.*

For each priority location, multiple countermeasures are recommended to increase the safety impact/effectiveness.

3.1.1.2 Costs and Funding

For each priority location, overall benefit and cost details are provided in **Table 3.5 and Table 3.6.** In addition to Caltrans HSIP, other funding opportunities include the USDOT Safe Streets for All (SS4A) Program, the Caltrans Active Transportation Program (ATP) (e.g., Safe Routes to School), and the California Office of Traffic Safey (OTS) Program.

Table 3.1 Characteristics: Priority Intersections

Intersection (Jurisdiction)	Facility Owner	Control	Collision Characteristics											
			Relative Severity (EPDO)	Total Crashes	Top Type of Collision (Number of Collisions)	Top Violation Category (Number of Collisions)	Fatal + Severe Injury	Pedestrian Collision	Bicycle Collision	Involv. w/Fixed Object	% at Night	% Wet Roadway	DUI	Dark with No Streetlights
4th St / R St (Eureka)	Caltrans	Signalized	608	27	Broadside (13)	Traffic Signals and Signs (9)	4	2	0	3	19%	19%	0	0
Alliance Rd / Stromberg Ave (Arcata)	City of Arcata	Unsignalized	594	9	Broadside (2), Rear End (2), Hit Object (2), Veh/Ped (2)	Improper Turning (3)	3	2	1	2	33%	22%	0	1
Ocean Ave / W Henderson St (Eureka)	City of Eureka	Unsignalized	573	3	Other-Bicycle (2)	Other Hazardous Movement (3)	3	1	2	0	67%	0%	0	0
Broadway / W Washington St (Eureka)	Caltrans	Signalized	451	14	Broadside (3), Rear End (3)	Unsafe Speed (4)	3	1	2	2	36%	21%	3	0
H St / Henderson St (Eureka)	City of Eureka	Signalized	424	12	Broadside (9)	Traffic Signals and Signs (9)	3	1	0	0	25%	8%	0	0
US 101 SB Off Ramp / Singley Rd (Unincorporated)	Caltrans	Unsignalized	395	5	Broadside (4)	Auto R/W Violation (4)	2	0	1	0	20%	0%	0	1
G St / Samoa Blvd (Arcata)	Caltrans	Signalized	337	29	Broadside (8)	Auto R/W Violation (8)	2	2	0	4	41%	21%	3	0
H St / Harris St (Eureka)	City of Eureka	Signalized	323	15	Broadside (12)	Traffic Signals and Signs (11)	2	1	0	1	40%	33%	1	0
5th St / H St (Eureka)	Caltrans	Signalized	277	9	Broadside (4)	Traffic Signals and Signs (4)	2	2	0	1	44%	0%	1	0
4th St / H St (Eureka)	Caltrans	Signalized	262	4	Sideswipe (2), Veh/Ped (2)	Improper Turning (1), Other Hazardous Movement (1), Unsafe Lane Change (1), Unsafe Speed (1)	2	2	0	0	50%	25%	0	0

Table 3.2 Characteristics: Priority Segments

Segment (Jurisdiction)	Facility Owner	Collision Characteristics											
		Relative Severity (EPDO)	Total Crashes	Top Type of Collision (Number of Collisions)	Top Violation Category (Number of Collisions)	Fatal + Severe Injury	Pedestrian Collision	Bicycle Collision	% Involv. w/Fixed Object	% at Night	% Wet Roadway	DUI	Dark with No Streetlights
Broadway St, W Hawthorne St to Vigo St (Eureka)	Caltrans	1088	24	Rear End (10)	Unsafe Speed (8)	7	3	1	13%	33%	8%	4	1
SR 96, 0.6 mi s/o Bull Creek to Mill Creek Rd (Unincorporated)	Caltrans	1071	42	Hit Object (28)	Improper Turning (26)	7	0	0	64%	36%	17%	4	14
SR 299, 1.1 mi e/o Cedar Creek Rd to 200 ft e/o Willow Creek Rd (Unincorporated)	Caltrans	912	32	Hit Object (16)	Unsafe Speed (12)	7	0	0	56%	25%	50%	3	5
US 101, L P Mill Rd to Kane Rd (Unincorporated)	Caltrans	899	73	Hit Object (56)	Improper Turning (38)	6	0	0	78%	41%	55%	12	26
SR 299, New 3 Creeks Rd to M and W Ranch Rd (Unincorporated	Caltrans	899	63	Hit Object (38)	Unsafe Speed (31)	5	0	0	68%	25%	76%	4	14
SR 255 Bridge, 100 ft e/o Vance Ave to Startare Dr (Eureka)	Caltrans	890	30	Hit Object (11)	Unsafe Speed (13)	5	0	0	27%	43%	20%	2	8
US 101, Redwood Trails Cir to Old State Hwy (Unincorporated)	Caltrans	859	24	Hit Object (11)	Other/Animal (8)	5	0	0	42%	71%	50%	3	15
US 101, 1.6 mile s/o Humboldt/Del Norte County Border to 600 feet s/o border (Unincorporated)	Caltrans	755	19	Hit Object (11)	Unsafe Speed (9)	4	0	0	68%	26%	68%	3	5
US 101, Hidden Creek Rd to SR 299 (Arcata)	Caltrans	753	47	Hit Object (28)	Other/Animal (15)	4	0	1	40%	55%	15%	6	17
US 101, 0.6 mi n/o Lake Benbow Dr to US 101 Redwood Dr Off Ramp (Unincorporated)	Caltrans	736	25	Hit Object (12)	Other/Animal (11)	4	0	0	44%	64%	28%	3	12

Table 3.3 Recommended Countermeasures: Priority Intersections

Intersection (Jurisdiction)	Control	Relative Severity (EPDO)	Total Crashes	Top Type of Collision	Countermeasure Number	CRF	CMF	HSIP Funding Eligibility	Recommended Countermeasures	Reasoning
4th St / R St (Eureka)	Signalized	608	27	Broadside (13)	SI03	15%	0.85	50%	Improve signal timing (coordination, phases, red, yellow, or operation)	Broadside was the most common collision type. Adding / increasing all red time is recommended.
					SI06	30%	0.70	90%	Provide protected left turn phase (left turn lane already exists)	Broadside collisions are a result of the permissive left turn phase.
Alliance Rd / Stromberg Ave (Arcata)	Unsignalized	594	9	Broadside (2), Rear End (2), Hit Object (2), Veh/Ped (2)	NS01NT	40%	0.60	90%	Add intersection lighting (NS.I.)	There is one cobra head on one approach, but there is no lighting within the intersection. Three collisions occurred at night (two vehicle / pedestrian). Both vehicle/pedestrian collisions resulted in severe injuries.
					NS02	50%	0.50	90%	Convert to all-way STOP control (from 2-way or Yield control)*	The intersection is two-way stop-controlled (TWSC) with free movements for the northbound and southbound approaches. Both vehicle / pedestrian collisions were due to northbound vehicles crossing the paths of pedestrians in the crosswalks (eastbound). Google Streetview imagery (2024) indicates vehicles making northbound left turns might be entering the intersection with unsafe speeds (tire marks). Improper turning (resulting in hit-objects) and unsafe speeds were reported. An engineering study will need to be done to implement the countermeasure.
					NS11	30%	0.70	90%	Install flashing beacons as advance warning (NS.I.)	The intersection is a TWSC with free movements for the northbound and southbound approaches. Nearby intersections along Stormberg Avenue are TWSC. The nearest all-way stop-controlled (AWSC) intersection is approximately 0.4 miles to the south. Flashing beacons are recommended to be installed along Alliance Road leading up to the intersection to warn for potential crossing traffic.
					NS25PB	55%	0.45	90%	Install Pedestrian Signal (including Pedestrian Hybrid Beacon (HAWK))	Pedestrian signals are recommended for the mitigation of pedestrian collisions in lieu of an AWSC.

* Intersection must meet CA MUTCD warrants to implement countermeasure

Table 3.3 Recommended Countermeasures: Priority Intersections (Continued)

Intersection (Jurisdiction)	Control	Relative Severity (EPDO)	Total Crashes	Top Type of Collision	Countermeasure Number	CRF	CMF	HSIP Funding Eligibility	Recommended Countermeasures	Reasoning
Ocean Ave / W Henderson St (Eureka)	Unsignalized	573	3	Other-Bicycle (2)	NS01NT	40%	0.60	90%	Add intersection lighting (NS.I.)	There is no lighting nearby and within the intersection. One vehicle/pedestrian and one vehicle / bicyclist collision occurred at night. Both collisions resulted in severe injuries.
					NS22PB	25%	0.75	90%	Install pedestrian crossing at uncontrolled locations (new signs and markings only)	The intersection is located between a shopping center and a residential community. There are no marked crossings.
					-	-	-	-	Bicycle track	Both bicyclists were travelling in the wrong direction (eastbound). Henderson Street is a one-way (westbound) street. A two-way bicycle track along Henerson will provide better access. An alternative to a bicycle track along Henderson Street is to look for an alternative east-west corridor to propose a two-way cycle track. Looking into policies that can provide better east-west access is recommended.
Broadway / W Washington St (Eureka)	Signalized	451	14	Broadside (3), Rear End (3)	SI03	15%	0.85	50%	Improve signal timing (coordination, phases, red, yellow, or operation)	Broadside was one of the most common collision types. Adding / increasing all red time is recommended. Drivers seem to be running the red to make it through the intersection within the cycle.
					SI01NT	40%	0.60	90%	Add intersection lighting (S.I.)	There are cobra head lights on only two corners of the intersection.
					SI07	30%	0.70	90%	Convert signal to mast arm (from pedestal-mounted)	Signals along Washington Street are pedestal mounted and somewhat hard to see. Converting would reduce broadside collisions from that direction.
H St / Henderson St (Eureka)	Signalized	424	12	Broadside (9)	SI03	15%	0.85	50%	Improve signal timing (coordination, phases, red, yellow, or operation)	Broadside was the most common collision type. Adding / increasing all red time is recommended. Drivers seem to be running the red to make it through the intersection within the cycle.
					SI01NT	40%	0.60	90%	Add intersection lighting (S.I.)	There is one cobra head light at the intersection.

Table 3.3 Recommended Countermeasures: Priority Intersections (Continued)

Intersection (Jurisdiction)	Control	Relative Severity (EPDO)	Total Crashes	Top Type of Collision	Countermeasure Number	CRF	CMF	HSIP Funding Eligibility	Recommended Countermeasures	Reasoning
US 101 SB Off Ramp / Singley Rd (Unincorporated)	Unsignalized	395	5	Broadside (4)	NS08	15%	0.85	90%	Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs	There is no signage indicating an intersection (US-101 off-ramp) is located on the other side of the blind corner.
					NS11	30%	0.70	90%	Install flashing beacons as advance warning (NS.I.)	There is no signage indicating an intersection (US-101 off-ramp) is located on the other side of the blind corner.
					NS12	20%	0.80	90%	Install transverse rumble strips on approaches	Transverse rumble strips can be used in combination with advance warning signs to provide auditory and tactile indications for drivers to be attentive.
G St / Samoa Blvd (Arcata)	Signalized	337	29	Broadside (8)	SI03	15%	0.85	50%	Improve signal timing (coordination, phases, red, yellow, or operation)	Broadside was the most common collision type. Adding / increasing all red time is recommended. Drivers seem to be running the red to make it through the intersection within the cycle.
					SI06	30%	0.70	90%	Provide protected left turn phase (left turn lane already exists)	Broadside collisions are occurring as a result of the permissive left turn phase. A protected left turn phase for both left turns on Samoa Boulevard is recommended.
H St / Harris St (Eureka)	Signalized	323	15	Broadside (12)	SI03	15%	0.85	50%	Improve signal timing (coordination, phases, red, yellow, or operation)	Broadside was the most common collision type. Adding / increasing all red time is recommended. Drivers seem to be running the red to make it through the intersection within the cycle.
					SI01NT	40%	0.60	90%	Add intersection lighting (S.I.)	There are cobra head lights on only two corners of the intersection. 40% of collisions occurred at night / low light conditions.

Table 3.3 Recommended Countermeasures: Priority Intersections (Continued)

Intersection (Jurisdiction)	Control	Relative Severity (EPDO)	Total Crashes	Top Type of Collision	Countermeasure Number	CRF	CMF	HSIP Funding Eligibility	Recommended Countermeasures	Reasoning
5th St / H St (Eureka)	Signalized	277	9	Broadside (4)	SI01NT	40%	0.60	90%	Add intersection lighting (S.I.)	There are cobra head lights on only two corners of the intersection. 44% of collisions occurred at night / low light conditions.
					SI03	15%	0.85	50%	Improve signal timing (coordination, phases, red, yellow, or operation)	Broadside was the most common collision type. Adding / increasing all red time is recommended. Drivers seem to be running the red to make it through the intersection within the cycle.
4th St / H St (Eureka)	Signalized	262	4	Sideswipe (2), Veh/Ped (2)	SI01NT	40%	0.60	90%	Add intersection lighting (S.I.)	There are cobra head lights on only two corners of the intersection. Half of the collisions occurred at night / low light conditions.

Table 3.4 Recommended Countermeasures: Priority Segments

Segment (Jurisdiction)	Relative Severity (EPDO)	Total Crashes	Top Type of Collision	Countermeasure Number	CRF	CMF	HSIP Funding Eligibility	Recommended Countermeasures	Reasoning
Broadway St, W Hawthorne St to Vigo St (Eureka)	1088	24	Rear End (10)	-	-	-	-	Parking study	Multiple collisions were due to parked vehicles along the side of the road. By reducing on-street parking, conflicts between merging vehicles and flowing traffic will be reduced. This will also improve sight distance from business driveways along Broadway.
				-	-	-	-	Speed study	Unsafe speed was the top violation category along the segment. Reducing speeds will help reduce rear ends and provide better gaps for vehicles utilizing the two-way left-turn lane, further reducing broadside collisions and collision severity.
				R26	30%	0.70	90%	Install dynamic/variable speed warning signs	This will be used to prompt drivers to reduce their speed. Unsafe speed was the most common violation category.

Table 3.4 Recommended Countermeasures: Priority Segments (Continued)

Segment (Jurisdiction)	Relative Severity (EPDO)	Total Crashes	Top Type of Collision	Countermeasure Number	CRF	CMF	HSIP Funding Eligibility	Recommended Countermeasures	Reasoning
SR 96, 0.6 mi s/o Bull Creek to Mill Creek Rd (Unincorporated)	1071	42	Hit Object (28)	R25	30%	0.70	90%	Install curve advance warning signs (flashing beacon)	There were a lot of hit object and sideswipe collisions in the tight curves where advance warning signs might warn drivers to reduce their speeds before entering the curves. A study may be performed to determine locations where flashing beacon signs would be the most beneficial. At locations where there are already signs, evaluate if a beacon should be added. Beacons are recommended to provide additional visibility in low light / nighttime conditions.
				-	-	-	-	Limit trucks along roadway	Multiple collisions occurred at common narrow roadway locations where trucks were striking objects (embankments, guardrails, etc.).
	1071	42	Hit Object (28)	-	-	-	-	Speed study	The current speed limit is 55-mph. However, multiple collisions have occurred due to speeds that were unsafe for conditions at those times. Lowering the speed limit and installing reduced speed limit signs are recommended.
				R31	15%	0.85	90%	Install edgeline rumble strips/stripes	Multiple collisions were due to sleepy / fatigued drivers. There are no shoulders, so drivers are running off the road. Edgeline rumble strips will help keep drivers within the lanes.
				R26	30%	0.70	90%	Install dynamic/variable speed warning signs	This will be used to prompt drivers to reduce their speeds. Improper turning is commonly due to unsafe speeds for current conditions. Improper turning was the most common violation category.
				R27	15%	0.85	90%	Install delineators, reflectors and/or object markers	Placing object markers / reflectors on guardrails, walls, and any objects that extend into the roadway is recommended. The roadways are narrow along curves and beside objects near the roadway. There is no clear recovery zone near the roadway, so drivers are hitting objects close to the roadway.

Table 3.4 Recommended Countermeasures: Priority Segments (Continued)

Segment (Jurisdiction)	Relative Severity (EPDO)	Total Crashes	Top Type of Collision	Countermeasure Number	CRF	CMF	HSIP Funding Eligibility	Recommended Countermeasures	Reasoning
SR 299, 1.1 mi e/o Cedar Creek Rd to 200 ft e/o Willow Creek Rd (Unincorporated)	912	32	Hit Object (16)	-	-	-	-	Sign audit	There are some signs posted for advance warning of curves, but there may be additional locations where advance warning may be useful for warning drivers to reduce their speeds before entering curves. The audit may identify signage that needs to be replaced to improve visibility.
				R22	15%	0.85	90%	Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	This can be used as needed as per the results of the sign audit.
				R27	15%	0.85	90%	Install delineators, reflectors and/or object markers	Placing object markers / reflectors on guardrails, walls, and any objects that extend into the roadway is recommended. There are portions of the roadway without shoulders.
				R26	30%	0.70	90%	Install dynamic/variable speed warning signs	This will be used to prompt drivers to reduce their speeds. Unsafe speed was the most common violation category.
US 101, L P Mill Rd to Kane Rd (Unincorporated)	899	73	Hit Object (56)	R31	15%	0.85	90%	Install edgeline rumble strips/stripes	There is a centerline rumble strip, but there are none along the shoulders. There are segments with narrow shoulders.
				R27	15%	0.85	90%	Install delineators, reflectors and/or object markers	Placing object markers / reflectors on guardrails, walls, and any objects that extend into the roadway is recommended. The roadways are narrow along curves and beside objects near the roadway. There is no clear recovery zone near the roadway, so drivers are hitting objects close to the roadway.
				-	-	-	-	Sign audit	There is currently a lot of signage that may need to be updated.

Table 3.4 Recommended Countermeasures: Priority Segments (Continued)

Segment (Jurisdiction)	Relative Severity (EPDO)	Total Crashes	Top Type of Collision	Countermeasure Number	CRF	CMF	HSIP Funding Eligibility	Recommended Countermeasures	Reasoning
SR 299, New 3 Creeks Rd to M and W Ranch Rd (Unincorporated)	899	63	Hit Object (38)	R31	15%	0.85	90%	Install edgeline rumble strips/stripes	There is a centerline rumble strip, but there are none along the shoulders. There are segments with narrow shoulders. There were 22 run off the road collisions, and rumble strips may be used to help prevent more in the future.
				R27	15%	0.85	90%	Install delineators, reflectors and/or object markers	Placing object markers / reflectors on guardrails, walls, and any objects that extend into the roadway is recommended. The roadways are narrow along curves and beside objects near the roadway. There is no clear recovery zone near the roadway, so drivers are hitting objects close to the roadway.
				R26	30%	0.70	90%	Install dynamic/variable speed warning signs	This will be used to prompt drivers to reduce their speeds. Unsafe speed was the most common violation category.
SR 255 Bridge, 100 ft e/o Vance Ave to Startare Dr (Eureka)	890	30	Hit Object (11)	R27	15%	0.85	90%	Install delineators, reflectors and/or object markers	Hit object collisions were the most common collision type. Placing reflectors on guardrails, fences, posts, etc. is recommended.
				R26	30%	0.70	90%	Install dynamic/variable speed warning signs	Installing speed feedback signs to notify drivers of speeds unsafe for conditions is recommended.
				R01NT	35%	0.65	90%	Add segment lighting	43% of collisions occurred at night. This is recommended for the non-bridge portions of the roadway unless dark sky policies and wildlife area restrictions do not permit.

Table 3.4 Recommended Countermeasures: Priority Segments (Continued)

Segment (Jurisdiction)	Relative Severity (EPDO)	Total Crashes	Top Type of Collision	Countermeasure Number	CRF	CMF	HSIP Funding Eligibility	Recommended Countermeasures	Reasoning
US 101, Redwood Trails Cir to Old State Hwy (Unincorporated)	859	24	Hit Object (11)	R39AL	80%	0.20	90%	Install animal fencing	Animal collisions were the top violation category. Guiding animals into designated locations to cross will help drivers know when to expect animals on the roadway.
				R31	15%	0.85	90%	Install edgeline rumble strips/stripes	Six run off the road collisions occurred on the segment. Edgeline rumble strips are recommended to help drivers maintain course in their lane.
				R26	30%	0.70	90%	Install dynamic/variable speed warning signs	Six run off the road collisions occurred on the segment. Speed warning signs are recommended to help drivers maintain safe speeds for roadway conditions.
				R27	15%	0.85	90%	Install delineators, reflectors and/or object markers	Hit object collisions were the most common collision type. Placing reflectors on guardrails, terrain extending into the roadway, posts, etc. is recommended.
US 101, 1.6 mile s/o Humboldt/Del Norte County Border to 600 feet s/o border (Unincorporated)	755	19	Hit Object (11)	R26	30%	0.70	90%	Install dynamic/variable speed warning signs	Unsafe speed was the top violation category along the segment. Reducing speeds will help reduce hit object collisions and collision severity.
				R27	15%	0.85	90%	Install delineators, reflectors and/or object markers	Hit object collisions were the most common collision type. Placing reflectors on guardrails, terrain extending into the roadway, posts, etc. is recommended.
				R25	30%	0.70	90%	Install curve advance warning signs (flashing beacon)	Six collisions resulted in vehicles running off the road due to improper turning and unsafe speeds. There are signs indicating curves in the roadway at the southern end of the segment but none at the middle / northern end. There are back-to-back curves along the segment. A study may be performed to determine locations where flashing beacon signs would be the most beneficial. At locations where there are already signs, evaluate if a beacon should be added. Beacons are recommended to provide additional visibility in low light / nighttime conditions.

Table 3.4 Recommended Countermeasures: Priority Segments (Continued)

Segment (Jurisdiction)	Relative Severity (EPDO)	Total Crashes	Top Type of Collision	Countermeasure Number	CRF	CMF	HSIP Funding Eligibility	Recommended Countermeasures	Reasoning
US 101, Hidden Creek Rd to SR 299 (Arcata)	753	47	Hit Object (28)	R39AL	80%	0.20	90%	Install animal fencing	10 collisions involved animals. Guiding animals into designated locations to cross will help drivers know when to expect animals on the roadway.
				R01NT	35%	0.65	90%	Add segment lighting	55% of collisions occurred at night / low light conditions. Lighting is located at the northern end, but there is no lighting along the middle and at the end of the segment.
				R26	30%	0.70	90%	Install dynamic/variable speed warning signs	Unsafe speed was reported for 13 collisions. Installing speed feedback signs to notify drivers of speeds unsafe for conditions is recommended.
				R31	15%	0.85	90%	Install edgeline rumble strips/stripes	10 collisions involved vehicles running off the roadway. Edgeline rumble strips are located on portions of the roadway. Installing rumble strips for the remaining locations to ensure they are included along the entire segment is recommended.
US 101, 0.6 mi n/o Lake Benbow Dr to US 101 Redwood Dr Off Ramp (Unincorporated)	736	25	Hit Object (12)	R39AL	80%	0.20	90%	Install animal fencing	11 collisions involved animals. Guiding animals into designated locations to cross will help drivers know when to expect animals on the roadway.
				R25	30%	0.70	90%	Install curve advance warning signs (flashing beacon)	There are back-to-back curves without signage indicating the roadway curves along the segment. 10 collisions involved improper turning. A study may be performed to determine locations where flashing beacon signs would be the most beneficial. At locations where there are already signs, evaluate if a beacon should be added. Beacons are recommended to provide additional visibility in low light / nighttime conditions.
				R26	30%	0.70	90%	Install dynamic/variable speed warning signs	10 collisions involved improper turning, and three collisions were reported involving unsafe speeds. Both factors are closely related, and speed warning signs will help drivers maintain safe speeds for roadway conditions to avoid unsafe turns on curving roadway segments.

Table 3.5 Costs: Priority Intersections

Intersection (Jurisdiction)	Recommended Countermeasures	Countermeasure B/C Ratio	Preliminary B/C Ratio	Expected Benefit	Total Expected Benefit	Estimated Countermeasure Cost	Preliminary Estimated Project Cost*	HSIP Funding Reimbursement Ratio
4th St / R St (Eureka)	Improve signal timing (coordination, phases, red, yellow, or operation)	33.1	115.2	$2,151,262	$11,234,365	$65,000	$97,500	50%
	Provide protected left turn phase (left turn lane already exists)	908.3		$9,083,103		$10,000		90%
Alliance Rd / Stromberg Ave (Arcata)	Add intersection lighting (NS.I.)	133.9	73.9	$9,376,143	$43,464,517	$70,000	$588,250	90%
	Convert to all-way STOP control (from 2-way or Yield control) *	425.7		$8,513,586		$20,000		90%
	Install flashing beacons as advance warning (NS.I.)	503.0		$6,286,956		$12,500		90%
	Install Pedestrian Signal (including Pedestrian Hybrid Beacon (HAWK))	55.1		$19,287,832		$350,000		90%
Ocean Ave / W Henderson St (Eureka)	Add intersection lighting (NS.I.)	157.2	124.3	$11,001,972	$16,159,147	$70,000	$130,000	90%
	Install pedestrian crossing at uncontrolled locations (new signs and markings only)	171.9		$5,157,175		$30,000		90%
Broadway / W Washington St (Eureka)	Improve signal timing (coordination, phases, red, yellow, or operation)	31.2	45.3	$2,026,351	$13,240,428	$65,000	$292,500	50%
	Add intersection lighting (S.I.)	38.0		$2,658,376		$70,000		90%
	Convert signal to mast arm (from pedestal-mounted)	95.1		$8,555,701		$90,000		90%
H St / Henderson St (Eureka)	Improve signal timing (coordination, phases, red, yellow, or operation)	34.1	32.5	$2,214,587	$5,698,079	$65,000	$175,500	50%
	Add intersection lighting (S.I.)	49.8		$3,483,492		$70,000		90%
US 101 SB Off Ramp / Singley Rd (Unincorporated)	Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs	110.3	109.0	$882,497	$3,824,154	$8,000	$35,100	90%
	Install flashing beacons as advance warning (NS.I.)	141.2		$1,764,994		$12,500		90%
	Install transverse rumble strips on approaches	181.0		$1,176,663		$6,500		90%
G St / Samoa Blvd (Arcata)	Improve signal timing (coordination, phases, red, yellow, or operation)	21.0	71.3	$1,367,011	$7,138,832	$65,000	$100,100	50%
	Provide protected left turn phase (left turn lane already exists)	481.0		$5,771,821		$12,000		90%
H St / Harris St (Eureka)	Improve signal timing (coordination, phases, red, yellow, or operation)	16.6	12.1	$1,080,901	$2,127,261	$65,000	$175,500	50%
	Add intersection lighting (S.I.)	14.9		$1,046,360		$70,000		90%
5th St / H St (Eureka)	Add intersection lighting (S.I.)	2.3	9.4	$162,800	$1,647,201	$70,000	$175,500	90%
	Improve signal timing (coordination, phases, red, yellow, or operation)	22.8		$1,484,401		$65,000		50%
4th St / H St (Eureka)	Add intersection lighting (S.I.)	89.7	69.0	$6,280,000	$6,280,000	$70,000	$91,00	90%

Table 3.6 Costs: Priority Segments

Segment (Jurisdiction)	Recommended Countermeasures	Countermeasure B/C Ratio	Preliminary B/C Ratio	Expected Benefit	Total Expected Benefit	Estimated Countermeasure Cost	Estimated Project Cost*	HSIP Funding Reimbursement Ratio
Broadway St, W Hawthorne St to Vigo St (Eureka)	Install dynamic/variable speed warning signs	492.1	378.5	$9,841,808	$9,841,808	$20,000	$26,000	90%
SR 96, 0.6 mi s/o Bull Creek to Mill Creek Rd (Unincorporated)	Install curve advance warning signs (flashing beacon)	177.4	89.0	$8,871,808	$26,615,424	$50,000	$299,000	90%
	Install edgeline rumble strips/stripes	59.1		$4,435,904		$75,000		90%
	Install dynamic/variable speed warning signs	147.9		$8,871,808		$60,000		90%
	Install delineators, reflectors and/or object markers	98.6		$4,435,904		$45,000		90%
SR 299, 1.1 mi e/o Cedar Creek Rd to 200 ft e/o Willow Creek Rd (Unincorporated)	Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)	64.7	64.2	$3,235,564	$12,942,259	$50,000	$201,500	90%
	Install delineators, reflectors and/or object markers	71.9		$3,235,565		$45,000		90%
	Install dynamic/variable speed warning signs	107.9		$6,471,130		$60,000		90%
US 101, L P Mill Rd to Kane Rd (Unincorporated)	Install edgeline rumble strips/stripes	44.1	42.4	$3,304,880	$6,609,760	$75,000	$156,000	90%
	Install delineators, reflectors and/or object markers	73.4		$3,304,880		$45,000		90%
SR 299, New 3 Creeks Rd to M and W Ranch Rd (Unincorporated)	Install edgeline rumble strips/stripes	48.6	64.6	$3,887,030	$15,548,119	$80,000	$240,500	90%
	Install delineators, reflectors and/or object markers	86.4		$3,887,030		$45,000		90%
	Install dynamic/variable speed warning signs	129.6		$7,774,059		$60,000		90%
SR 255 Bridge, 100 ft e/o Vance Ave to Startare Dr (Eureka)	Install delineators, reflectors and/or object markers	95.1	94.5	$4,281,661	$26,408,225	$45,000	$279,500	90%
	Install dynamic/variable speed warning signs	428.2		$8,563,321		$20,000		90%
	Add segment lighting	90.4		$13,563,243		$150,000		90%
US 101, Redwood Trails Cir to Old State Hwy (Unincorporated)	Install animal fencing	1.1	14.2	$229,680	$7,015,368	$200,000	$494,000	90%
	Install edgeline rumble strips/stripes	23.1		$1,733,131		$75,000		90%
	Install dynamic/variable speed warning signs	57.8		$3,466,261		$60,000		90%
	Install delineators, reflectors and/or object markers	35.3		$1,586,296		$45,000		90%

Table 3.6 Costs: Priority Segments (Continued)

Segment (Jurisdiction)	Recommended Countermeasures	Countermeasure B/C Ratio	Preliminary B/C Ratio	Expected Benefit	Total Expected Benefit	Estimated Countermeasure Cost	Estimated Project Cost*	HSIP Funding Reimbursement Ratio
US 101, 1.6 mile s/o Humboldt/Del Norte County Border to 600 feet s/o border (Unincorporated)	Install dynamic/variable speed warning signs	102.6	76.4	$6,156,520	$15,391,300	$60,000	$201,500	90%
	Install delineators, reflectors and/or object markers	68.4		$3,078,260		$45,000		90%
	Install curve advance warning signs (flashing beacon)	123.1		$6,156,520		$50,000		90%
US 101, Hidden Creek Rd to SR 299 (Arcata)	Install animal fencing	1.5	30.6	$293,600	$23,244,035	$200,000	$760,500	90%
	Add segment lighting	45.9		$11,483,158		$250,000		90%
	Install dynamic/variable speed warning signs	131.8		$7,908,467		$60,000		90%
	Install edgeline rumble strips/stripes	47.5		$3,558,810		$75,000		90%
US 101, 0.6 mi n/o Lake Benbow Dr to US 101 Redwood Dr Off Ramp (Unincorporated)	Install animal fencing	3.6	27.1	$717,192	$10,907,530	$200,000	$403,000	90%
	Install curve advance warning signs (flashing beacon)	101.9		$5,095,169		$50,000		90%
	Install dynamic/variable speed warning signs	84.9		$5,095,169		$60,000		90%

Notes:
* Includes 30% contingency.

3.1.2 Systemic

When selecting countermeasures for roadway safety planning, a reactive approach focuses on locations with recent crashes and crash concentrations, often targeting hot spot locations. However, the reactive approach omits locations that may lack crash concentrations but experience similar features as the hot spot locations.

The *Caltrans LRSM* encourages a proactive approach, utilizing both hot spot location improvements and systemic improvements. A comprehensive approach incorporates human behavior issues as well.

The recommended countermeasures that can be applied systemically throughout the county are presented in **Table 3.7**. In this table, priority location and countywide collision findings are referenced to support the countermeasures.

Table 3.7 Recommended Countermeasures: Systemic

Location	Countermeasure	Reasoning
Segment	Edgeline rumble strips	For priority segments, run off the road collisions were noted. This countermeasure will help to reduce collision potential.[5]
	Speed survey	For priority segments, collisions with unsafe speeds were common. This countermeasure will help to reduce collision potential.
Signalized Intersections	Signal timing - Include red time	For priority intersections, broadside collisions at signalized intersections were common. Many were the result of traffic signals, signs, and auto right-of-way violations. This countermeasure will clear the intersection and reduce conflicts for the following green cycle, especially at Caltrans intersections that are part of high-traffic volume Caltrans corridors.
	Lighting – All marked crossings	For priority intersections, pedestrian collisions in dark conditions were noted. This countermeasure will increase pedestrian visibility at night, especially at Caltrans intersections that are part of high-traffic volume Caltrans corridors.
	Signal timing - Leading pedestrian interval	Countywide, pedestrian collisions were noted. Also, priority intersections mostly are in urban areas. This countermeasure will allow pedestrians to cross the street several seconds before parallel vehicles get a green light, allowing pedestrians to travel farther into the intersection where they are more visible to drivers and bicyclists. This will be most beneficial in Downtown Eureka, where there are the most pedestrian collisions. This may be applicable to other locations as needed, especially at Caltrans intersections that are part of high-traffic volume Caltrans corridors.
Unsignalized Intersections	High visibility crosswalks	Countywide, pedestrian collisions were noted. Also, priority intersections mostly are in urban areas. This countermeasure provides a high visual contrast and patterns that are visible to both the driver and the pedestrian from further away (compared to conventional crosswalks).

[5] The *Caltrans LRSM* notes, "Shoulder and edge line milled rumble strips/stripes should be used on roads with a history of roadway departure crashes. It is recommended that rumble strips/stripes be applied systematically along an entire route instead of only at spot locations."

3.2 Non-Engineering Strategies

A comprehensive approach to selecting countermeasures recognizes that not all safety issues can be addressed through infrastructure improvements. This VZAP goes beyond engineering countermeasures and includes non-engineering strategies, including programs and policies.

3.2.1 Programs

The recommended programs developed to reduce collision potential in the county are presented in **Table 3.8**.

Table 3.8 Recommended Programs

Program	Reasoning
Inclement Weather Education	For priority locations, collisions occurring during inclement weather conditions and resulting in fatal and severe injuries were noted. Undesirable weather conditions may reduce drivers' ability to see roadway hazards, leading to collisions with objects and other roadway users. To promote driver awareness, an Inclement Weather Education program is recommended.
Alcohol and Drug Awareness	For priority locations and countywide, collisions involving alcohol and drug use were noted. Impairment due to the influence of alcohol and/or drugs reduces drivers' ability to react to roadway hazards and other roadway users. To promote driver awareness, an Alcohol and Drug Awareness program is recommended.
Sign Audit	For priority locations, deficient signage was noted. The 2024 *Humboldt County Local Road Safety Plan*, limited to County of Humboldt jurisdiction/facilities, recommended a sign audit program as a systemic countermeasure based on county collision data from 2018 to 2022. Continuation and expansion of the Sign Audit program (for all jurisdictional agencies in the county), whereby jurisdictional agencies identify and replace deficient signage (e.g., during maintenance or for new projects), is recommended.
Share the Road Awareness	Countywide, pedestrian and bicycle collisions were noted. The transportation network is used by both motorized and non-motorized users. To reduce collision potential and promote driver understanding of the vulnerabilities and rights of non-motorized users on the road, a Share the Road Awareness program is recommended.

3.2.1.1 Inclement Weather Education

From 2018 through 2024, for the 20 priority locations, over 20 percent of collisions occurred during inclement weather conditions (raining, foggy, misty, snowing), 10 percent of which resulted in fatal or severe injuries.

Inclement weather conditions may reduce driver's ability to see hazards on the roadway and react in time. To promote driver awareness of the impacts of weather conditions, an inclement weather education program is proposed.

3.2.1.2 Alcohol and Drug Awareness

From 2018 through 2024, for the 20 priority locations, 10 percent of collisions involved roadway users under the influence, 25 percent of which resulted in fatal or severe injuries.

From 2018 through 2024, countywide, 21 percent of collisions involved roadway users under the influence. Additionally, of all the countywide fatal and severe injuries, 27 percent involved roadway users under the influence.

To promote a safer environment for all roadway users, an alcohol awareness education program is proposed.

3.2.1.3 Sign Audit

Signage provides roadway users with advance warning and guidance needed for the safe and efficient operation of roadways and other transportation facilities. Signage degrades with sunlight, weather, and environmental damage. Replacing worn out signage and maintaining proper retroreflectivity has demonstrated safety benefits.

The *Caltrans LRSM* notes, “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.

3.2.1.4 Share the Road Awareness

Non-motorized roadway users are often difficult for drivers to see, leading to collisions when their travel paths overlap. To promote driver awareness of non-motorized users’ presence on the roadway, their needs and vulnerabilities, and relevant traffic laws, a “Share the Road Awareness” program is recommended.

3.2.2 Policies

The recommended policies developed to reduce collision potential in the county are presented in **Table 3.9**.

Table 3.9 Recommended Policies

Policy	Reasoning
Evaluate Habitat Connectivity and Wildlife Corridor Crossings	Multiple priority location collisions (i.e., along US 101) involved “hit object” collision type, with “other/animal” violation category. Parallel roadway safety planning and wildlife corridor crossing planning efforts, as well as long-term infrastructure, may be needed.
Expand and Connect Bicycle Networks	Within the City of Eureka, there are many one-way streets. One priority location collision (i.e., at Henderson St) included “other-bicycle” collision type, with “other hazardous movement” violation category. Bicyclists appear to be traveling against traffic on one-way streets. An expanded and connected bicycle network is needed.
Evaluate Truck Routes	Multiple priority location collisions (i.e., along SR 96) involved “hit object” collision type, including with fixed object. SR 96 is very narrow and curvy. Policy modifications and/or long-term infrastructure may be needed.

3.2.2.1 Evaluate Habitat Connectivity and Wildlife Corridor Crossings

Animal collisions accounted for over 7 percent of the priority segment collisions. This could indicate a need to evaluate habitat connectivity and wildlife corridors, including infrastructure opportunities for safe wildlife crossings.

3.2.2.2 Evaluate Bicycle Network Facilities and Connectivity

The City of Eureka actively promotes multimodal transportation and has proposed bicycle facility upgrades through the city’s Complete and Green Streets Policy, Bike Plan, and General Plan. To reduce multimodal collisions within the city and promote a wider, integrated bicycle network, a bicycle facility network connectivity policy may be implemented to address the disconnect of facilities along one-way roadway facilities and gaps between segments that could form a long-range corridor / route through the city.

3.2.2.3 Evaluate Truck Routes

Some Caltrans corridor segments analyzed within the segment priority list were truck routes with histories of trucks colliding with objects along and adjacent to the roadway. Particularly, over a quarter of collisions along the State Route (SR) 96 segment from 0.6 miles south of Bull Creek to Mill Creek Road involved trucks colliding with guardrails and embankments adjacent to the roadway as a result of improper turning or other hazardous movements. A closer inspection of the roadway segment using Google aerial imagery and Streetview indicated multiple sharp, blind curves along the roadway, approximately 8 ft wide lanes in some areas, and portions without shoulders beside embankments and rockfaces. **Figure 3.2** presents a location along the SR 96 segment with a blind curve, no shoulders, narrow lanes, and a rockface adjacent to the roadway.

Figure 3.2 Blind Curve Along SR 96

The Caltrans District 1 *Truck Networks on California State Highways*[6] map (presented in **Figure 3.3**) indicates the SR 96 segment described above is a truck route allowing 65 ft California Legal trucks to operate on the 55-mph facility. The SR 96 facility is the only connection to SR 169 that leads further into the Hoopa Valley Reservation and northeast to serve communities such as Orleans and Happy Camp (Siskiyou County). The collision data indicates the segment (and other similar Caltrans corridor segments) pose a safety issue for roadway users. Therefore, it is recommended Caltrans assess trucking infrastructure through the county to work toward providing infrastructure improvements along critical truck routes.

[6] "Truck Networks on California State Highways, District 1", Caltrans, February 24, 2023, **https://dot.ca.gov/programs/traffic-operations/legal-truck-access/truck-network-map**

It is acknowledged that the segment is located within the Hoopa Valley Reservation. Therefore, discussions between Caltrans and the Hoopa Valley Tribe will be required to implement roadway improvements within tribal lands.

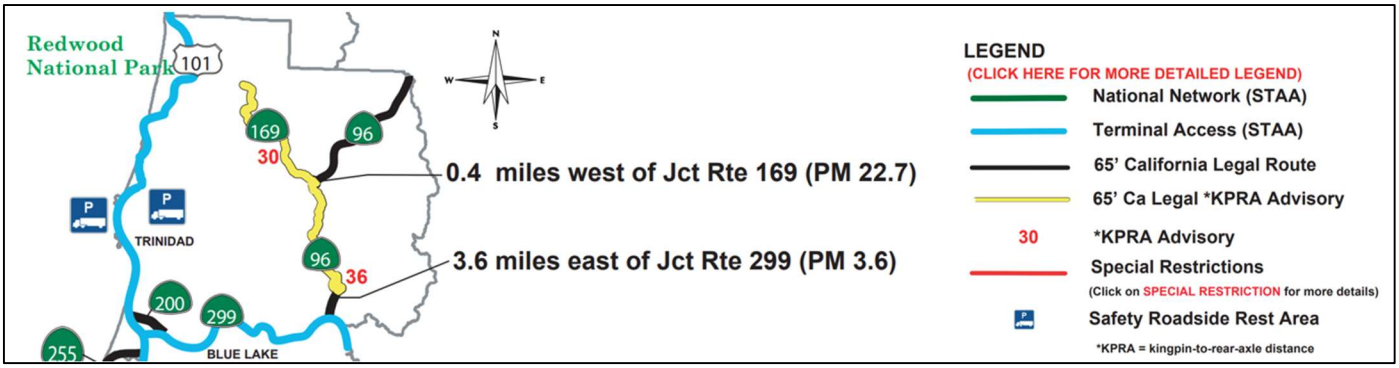

Figure 3.3 Caltrans District 1 Truck Networks on California State Highways[6]

4. Next Steps

The next step is jurisdictional agency review of and concurrence on the recommended engineering countermeasures and non-engineering strategies. Following concurrence, the countermeasures and non-engineering strategies can be integrated into the final VZAP.