La Jolla Band of Luiseño Indians

Comprehensive Safety Action Plan

APRIL 2025

Wesley Ruise, Jr.
Chairman

Jack Musick Sr.
Vice-Chairman

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Secretary

LA JOLLA BAND OF LUISEÑO INDIANS

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Resolution No. TC-2025-18
Adoption of the La Jolla Band of Luiseno Indians
2025 Comprehensive Safety Action Plan

WHEREAS: The La Jolla Band of Luiseno Indians ("Tribe") located in San Diego County, is a federally recognized Indian Tribe governing itself according to its Constitution duly approved on September 7, 1995, and amended September 20, 2010; and

WHEREAS: The Tribe has conducted a series of meetings to determine Tribal transportation safety needs and means for their resolution as a part of participation with SANDAG and the City of Vista in the U.S. Department of Transportation (US DOT) Safe Streets and Roads for All (SS4A) Vision Zero Highway Safety program; and

WHEREAS: The Tribe, with assistance from the SANDAG retained consultant, CR Associates, has prepared a Comprehensive Safety Action Plan (CSAP); and

WHEREAS: Adoption and implementation of the CSAP will result in reduction of highway accidents as well as increased highway safety for the Tribe, its Members, and passing motorists.

NOW THEREFORE BE IT RESOLVED: That the Tribal Council hereby adopts the 2025 La Jolla Band of Luiseno Indians Comprehensive Safety Action Plan.

CERTIFICATION

WE THE UNDERSIGNED OFFICIALS of the La Jolla Band of Luiseno Indians Tribal Council hereby certify that the foregoing Resolution No. TC 2025- 18 was adopted at a duly called meeting of the Tribal Council this 30th day of April 2025, by a vote of 4 in favor 0 against 1 abstaining.

Wesley Ruise, Jr., Tribal Chairman

Jack Musick Sr., Vice-Chairman

Angela Miner, Secretary

Joseph Amago, Treasurer

John Paipa, Council Member

Acknowledgements

Tribal Council

Tribal Chairman, Wesley Ruise, Jr.
Vice Chairman, Jack Musick
Tribal Secretary, Angela Miner
Tribal Treasurer, Joseph Amago
Tribal Council Member, John Paipa

Tribal Staff

Richard Rodriguez, Tribal Administrator
Nathan Howard, Public Works Director
Carla Rodriguez, Public Works Director
Rob Roy, Environmental Department Director
Joelene Tamm, Natural Resources Director
James Trujillo, Tribal Historic Preservation Officer
Daisy Sentina, Human Resources Director
Rabih Ghanem, Chief Financial Officer
Wesley Ruise, Jr., La Jolla Tribal Fire Chief

Task Force Departments & Agencies

La Jolla Band of Luiseño Indians Public Works Department
La Jolla Band of Luiseño Indians Fire Department
La Jolla Band of Luiseño Indians Tribal Police
La Jolla Band of Luiseño Indians Education Department
SANDAG
Caltrans
CalFire
California Highway Patrol

Consultants

CR Associates
Mark D. Webb, MCP

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1.0 Introduction

1.1 Project Background

The La Jolla Band of Luiseño Indians is committed to a safe, multimodal roadway system. This commitment is demonstrated through the development of multiple safety studies and planning efforts over the years, such as the Road Safety Assessment (2014), Comprehensive Economic Development Strategy (2023), Active Transportation Assessment (2023), and Long Range Transportation Plan (2024), as well as contributions to regional planning initiatives such as the Intraregional Tribal Transportation Strategy (2022) and Regional Vision Zero Action Plan (2025).

The Tribe has ambitious plans to promote economic growth that will increase job opportunities to Tribal members and contribute to the overall economic benefit of San Diego County. These plans include the continued pursuit and acquirement of lands to be placed into the Tribe's trust and expand the Reservation, as well as the development of additional visitor serving uses. The anticipated outcome will be more multimodal activity (people walking, biking, and driving) and an expanded transportation network to accommodate the growth.

Recognizing the need for safety considerations to accommodate the planned development and to address current needs, the La Jolla Band of Luiseño Indians successfully pursued grant funding to prepare a Comprehensive Safety Action Plan (CSAP), funded by the Safe Streets and Roads for All (SS4A) program. The State of California Department of Transportation (Caltrans) administers the SS4A program, which provides grant funding to regional, local, and Tribal initiatives to prevent roadway deaths and serious injuries. The SS4A program supports the U.S. Department of Transportation's (U.S. DOT) National Roadway Safety Strategy and Caltrans' goal of zero roadway deaths using a Safe System Approach.

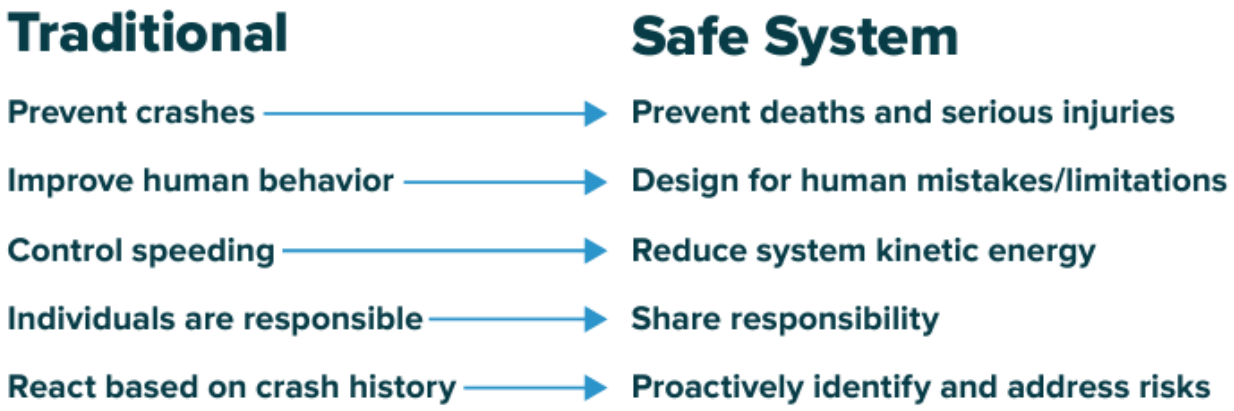
CSAP's generally include the following eight components:

1. **Leadership Commitment and Goal Setting** – An official commitment to an eventual goal of zero roadway fatalities and serious injuries.
2. **Planning Structure** – A task force charged with oversight of the Action Plan development, implementation, and monitoring.
3. **Safety Analysis** – An analysis of existing conditions and historical trends that provides a baseline level of crashes involving fatalities and serious injuries.
4. **Engagement and Collaboration** – Engagement with the public and relevant stakeholders, that allows for both community representation and feedback.
5. **Equity Considerations** – Plan development using inclusive and representative processes.
6. **Policy and Process Changes** – Assessment of current policies, plans, guidelines, and/or standards (e.g., manuals) to identify opportunities to improve how processes prioritize transportation safety.
7. **Strategy and Project Selections** – Identification of a comprehensive set of projects and strategies, informed by the analysis of data and stakeholder input.
8. **Progress and Transparency** – Method to measure progress over time after an Action Plan is developed or updated.

Appendix A provides the SS4A Self-Certification Eligibility Worksheet documenting where these requirements are fulfilled.

1.2 Safe System Approach

The SS4A grant program is guided by the Safe System Approach. This approach is a shift from traditional road safety which refocuses efforts to roadway design and operations that reduce crash severity. The Safe System Approach recognizes we must anticipate human errors will occur in our transportation networks and they must be accounted for, whereas traditional safety approaches attempted to modify behaviors while attempting to prevent all crashes.



Source: U.S. DOT National Roadway Safety Strategy

The following core principles are the foundation of the Safe System Approach:

- **Death and serious injuries are unacceptable** – prevention of the types of crashes that result in death and severe injuries should be a higher priority than non-life-threatening crashes.
- **Humans make mistakes** – transportation system design should always anticipate the likelihood that human decision-making errors will lead to crashes.
- **Humans are vulnerable** – human-centric design and scaling are essential in transportation to ensure that any crashes occur at impact levels the human body can withstand without sustaining severe injury.
- **Responsibility is shared** – all participating stakeholders in a transportation system (roadway users, equipment manufacturers, public administrators/servants, planning and design practitioners, etc.) are accountable for upholding traffic safety through their roles.
- **Safety is proactive** – safety countermeasures should also be applied preemptively to locations with safety risk characteristics, rather than solely reacting in response to crashes.
- **Redundancy is crucial** – multiple elements that provide redundancy help reduce overall risk because other parts of the system will provide backup when one part fails.

The principles of the Safe System Approach are integrated amongst five interrelated transportation system design elements as shown in the diagram below:

- **Safe Road Users** – The safety needs of all roadway users, including motorists, pedestrians, cyclists, and public transportation users are met, and similarly all roadway users are obligated to operate in a safe manner (following traffic laws, not being distracted or impaired while operating, etc.).
- **Safe Vehicles** – Vehicles are designed and regulated to minimize the occurrence of severe and fatal collisions and incorporate state-of-the-art safety equipment and technological features that help operators avoid crashes.
- **Safe Speeds** – Making safer speeds possible through design choices and the lowering of speed limits. Slower travel speeds improve the visibility of one's surroundings, enable more reaction time for parties to avoid a crash, and reduce the likelihood of fatal and severe injuries when crashes do occur.
- **Safe Roads** – The prevention of fatal and severe injury crashes through safe roadway design for the benefit of all users, first by reducing the likelihood of user error, and second, reducing collision severity when error occurs.
- **Post-Crash Care** – Ensuring services and institutions react appropriately when collisions do occur to save lives and apply lessons or make changes to improve conditions in the future. At the crash scene this includes providing effective traffic incident management, emergency response and medical care to victims, and that crashes are investigated and reported accurately.

The Safe System Approach

Source: U.S. DOT National Roadway Safety Strategy

1.3 Safety Commitment and Goals

Acceptance of this CSAP by the Tribal Council represents the following commitment:

> ***The La Jolla Band of Luiseño Indians is committed to sustaining a system of zero roadway fatalities and serious injuries on transportation facilities maintained and operated by the Tribe.***
>
> ***The La Jolla Band of Luiseño Indians is committed to continuing coordination of transportation safety efforts with regional partners responsible for roadway operations and maintenance on facilities within and adjacent to Tribal Lands.***

The commitment recognizes the unique scenario in that zero severe injuries or fatalities were reported on tribal roadways during the study period, while also recognizing the need to coordinate efforts with other agencies.

The following goals were established based on principles and elements of the Safe System Approach (Section 1.2), discussions with community members and agency stakeholders (Chapter 2), and an analysis of collision data (described in Chapter 3).

Goal 1: Zero Roadway Fatalities and Serious Injuries
Maintain zero roadway fatalities and serious injuries on roadways maintained by the Tribe by adhering to a Safe System Approach to roadway safety.

Goal 2: Proactive Coordination with Agency Partners & Community Members
Continue to collaborate with partner agencies, such as Caltrans, County of San Diego, California Highway Patrol, and CalFire, and residents and visitors to the La Jolla Band of Luiseño Indians Reservation to identify safety issues and coordinate responses in a timely manner.

Goal 3: Data Driven Safety
Utilize collision data, law enforcement and first responder data, and community input to identify safety issues and develop and implement countermeasures.

Goal 4: Implement Safety Improvements
Implement infrastructure improvements as needs are identified and maximize safety along newly constructed or maintained roadways as development projects are undertaken.

1.4 Literature Review

A literature review was performed to document recommended mobility improvements and identified issues from adopted plans and studies that have relevance to the La Jolla Band of Luiseño Indians CSAP. The review is provided as **Appendix B** and includes the following documents:

- Long Range Transportation Plan | La Jolla Band of Luiseño Indians (2024)
- Comprehensive Economic Development Strategy | La Jolla Band of Luiseño Indians (2023)
- Active Transportation Assessment | La Jolla Band of Luiseño Indians (2023)
- Intraregional Tribal Transportation Strategy | SANDAG (2022)
- 2021 Regional Plan | SANDAG (2021)
- South Grade Road Review | County of San Diego (2019)
- Active Transportation Plan | County of San Diego (2018)
- Road Safety Assessment | La Jolla Band of Luiseño Indians (2014)
- Mobility Element | County of San Diego (2013)

1.5 Study Area

The La Jolla Band of Luiseño Indians Reservation comprises nearly 10,000 acres in northern San Diego County, approximately 20 miles northeast of Escondido, California and accessible via SR-76. The project study area encompasses all roadways within the La Jolla Band of Luiseño Indians Reservation. A sphere of influence was established for the purpose of expanding the collision analysis beyond the study area to identify potential collision trends that may also be relevant to the study area but occur just outside the limits.

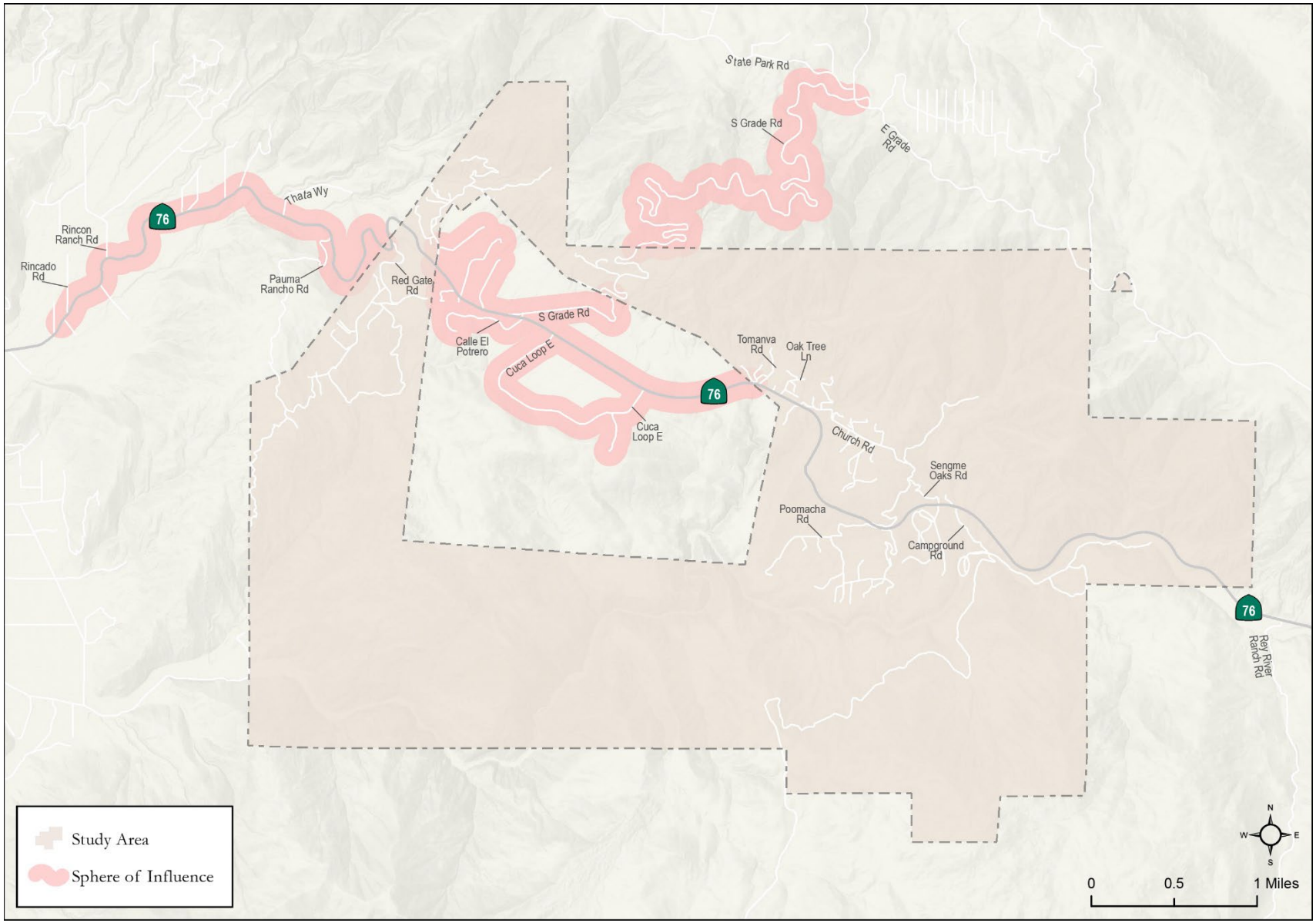
The sphere of influence was defined to include:

- Highway 76, three miles west of the western reservation boundary
- South Grade Road, from Highway 76 to East Grade Road
- The roadways internal to the reservation boundary yet not included in reservation lands

Figure 1.1 displays the project study area and sphere of influence. The east to west flowing San Luis Rey River formed the valley that extends through the Reservation, contributing to the mountainous terrain, with elevations ranging from 900 feet to over 5,200 feet. Development of the roadway network was greatly constrained by the geographical features, resulting in a network of winding roads with frequent horizontal and vertical curves. The topography may also be a limiting factor in implementing roadway improvements or countermeasures, as it may make some options physically or economically unviable.

The primary civic uses and sources for economic activity are located just south of SR-76 from the intersections of Sengme Oaks Road and Campground Road. Uses in these areas include the Tribal offices and civic center, gymnasium, grille, gas station and convenience store, mountain bike park, campground, and waterpark as well as single family homes. Additional residential uses are dispersed across the Reservation.

Figure 1.1 - Study Area + Area of Influence



2.0 Engagement

The La Jolla Band of Luiseño Indians CSAP was unique for a safety study in that no collisions were reported on roadways maintained and operated by the Tribe – further discussed in Chapter 3. Therefore, development of this CSAP was greatly informed by agencies operating within and adjacent to the reservation as well as input from Tribe members that utilize the roadways daily.

A Task Force was established early in the project as a means to convene agency representatives and solicit their input at critical points in the CSAP. Additional discussions and meetings with Tribal members were held to obtain input from the broader public, along with discussions at regularly occurring meetings, and email, social media, and telephone communications.

Engagement with these entities was organized around two main topics:

- Identification of safety needs, including site-specific issues and general topics
- Review and collaboration on recommendation development

Appendix C includes meeting presentation materials.

Agency Task Force

An Agency Task Force was established to convene representatives from agencies that plan, operate, and maintain transportation facilities and services within the study area. These agencies included representatives from the La Jolla Band of Luiseño Indians Public Works Department, Tribal Council, Fire Department, Tribal Police, and Education Department, as well as SANDAG, Caltrans, CalFire, and the California Highway Patrol.

The Task Force was charged with four primary responsibilities:

- Represent the unique perspective of their department or agency as it relates to roadway safety
- Shape the priorities and approach of the CSAP
- Determine key safety topics and locations
- Support recommendation development

Community Input

Input from Tribe members was collected at an in-person workshop at the Tribe's Gym and Recreation Center, at standing meetings, through email and social media communications, and telephone calls. Opportunities for involvement were advertised via email communication lists, social media channels, and word of mouth at other public meetings. The multifaceted approach served to maximize opportunities for people to learn about the project and voice opinions on roadway safety needs and issues and potential recommendations.

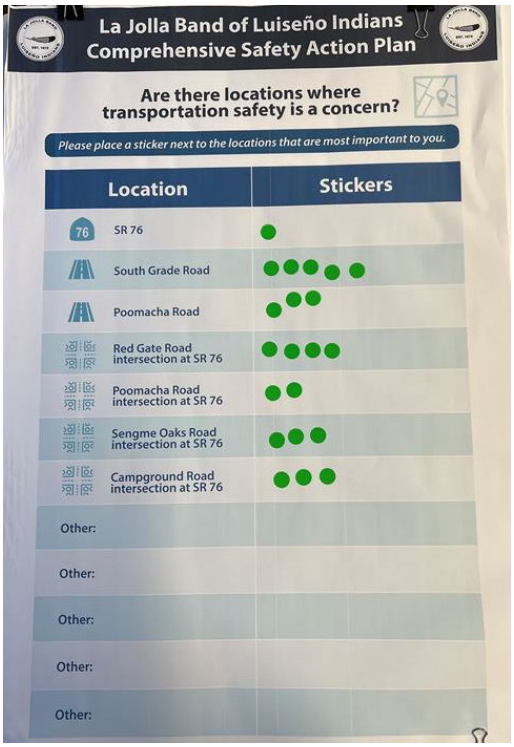
Workshop attendance was limited, however, it gave the project team opportunities to have detailed discussions with participants in one-on-one and small group formats. In addition to discussions, workshop participant input was collected via written feedback on maps and comment cards, and sticker dots used to indicate safety topics and locations of concern, and support for safety countermeasure or improvement types.

Common Themes

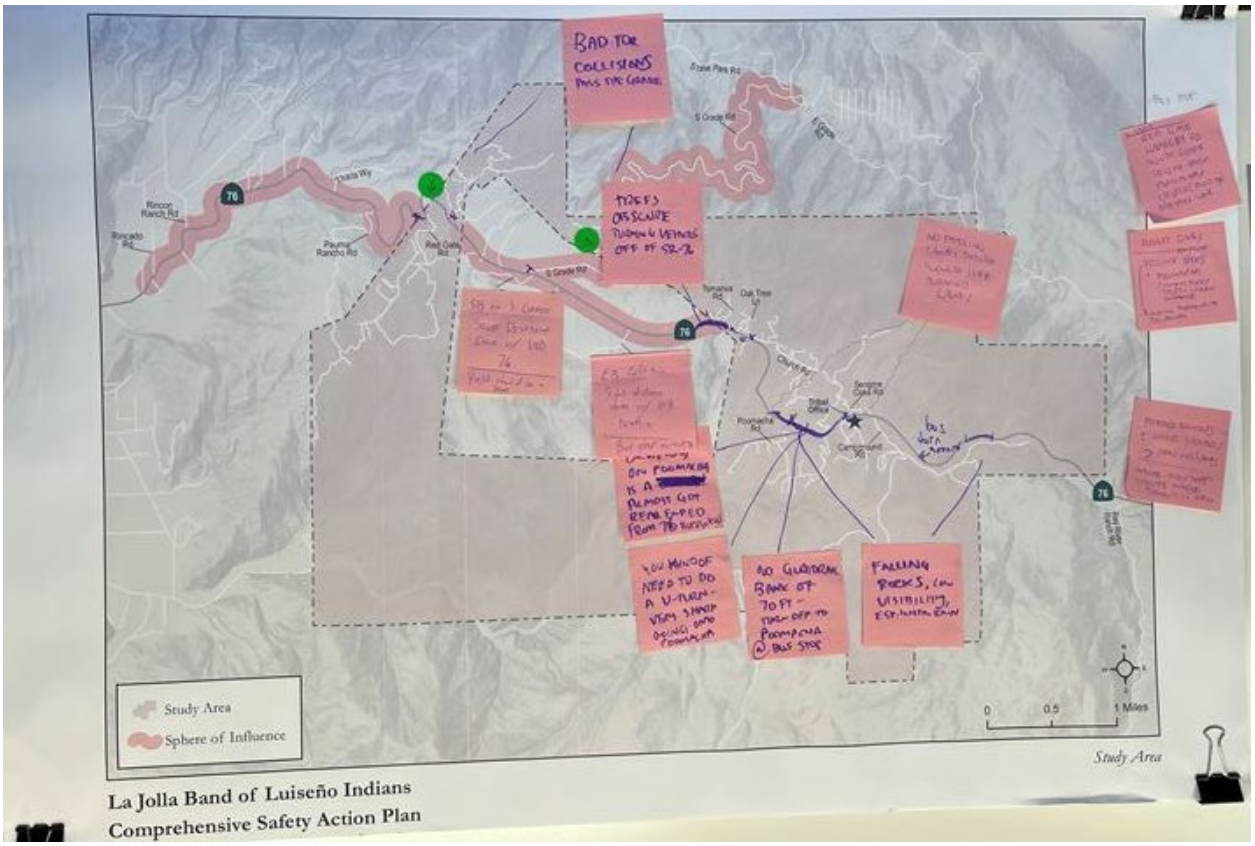
Input received from the community and Agency Task Force were very informative to understanding transportation safety issues and needs, especially given the small database of reported collision records available for analysis. Some of the common themes heard during engagement included:

- Bus stop access and safety
- The need for increased enforcement:
  - Motorcycles and sports cars racing along SR-76 and South Grade Road
  - Driving under the influence
- Visibility at driveways and intersections and the need for landscaping maintenance to clear trees/bushes/berms from blocking visibility
- Blind spots on internal circulation roadways
- Falling rocks along SR-76 after storms
- Lack of cellphone service and infrequent call boxes to report incidents
- Access and parking at the bike park
- The need for turn pockets at intersections, especially with anticipated development plans
- Roadway maintenance

This feedback was incorporated with the collision data review to develop topics needing attention during the recommendation development phase.



Feedback on locations and topics that are of concern



Map comments on locations of concern

Input on recommendation types

3.0 Safety & Equity Analysis

This chapter identifies the CSAP safety focus topics, which are the issues or concerns for which safety countermeasures are recommended. The collision and equity analysis findings are also presented.

3.1 Safety Focus Topics

The following topics were identified through an assessment of collision data as presented in this chapter, discussions with community members and agency stakeholders, and a review of previous studies and plans.

- **Bus stop access and pedestrian and bicyclist safety.** Community members and the Active Transportation Assessment identified student access to bus stops and bus stop waiting areas as a priority. Students primarily utilize informal paths to access bus stops currently.
- **Enforcement of unsafe speeds and driving under the influence.** Unsafe speed was tied as the most frequent primary collision factor attributed to fatal and severe injuries (11 of 35 collisions). Unsafe speed collisions primarily involved motorcycles. Driving under the influence was reported as the third most frequent primary collision factor for all collisions.
- **Intersection and driveway safety.** Visibility at intersections can become limited due to overgrown vegetation. Horizontal and vertical curves and variations in terrain can further limit sight distance.
- **Delayed post-crash reporting cellphone service.** Cellphone service and the presence of callboxes can be limited which can delay reporting of collisions when they occur, increasing response times for emergency personnel. When service is available, people can have difficulty identifying where the collision occurred due to infrequent cross-streets and mile-markers for reference.
- **Maintenance and roadway standards.** Maintenance of existing facilities is needed to address potholes, degrading edges, cracks, and other hazards that may result in unpredictable driver movements and contribute to crashes. Reservation roadways were not typically designed and built to best practice standards, often lacking shoulders, edge lines, and centerlines. Planned developments are anticipated to increase transportation activity which may further strain the infrastructure and add to the importance of preservation and retrofitting roadways to support the planned intent.
- **Roadway departures, overturned vehicles, and hit objects.** Roadway departures were largely the result of vehicles (primarily motorcycles) traveling at unsafe speeds or making improper turning movements near roadway curves. Hit object and overturned collisions were the reported crash type for approximately 63% of all fatal and severe injuries.

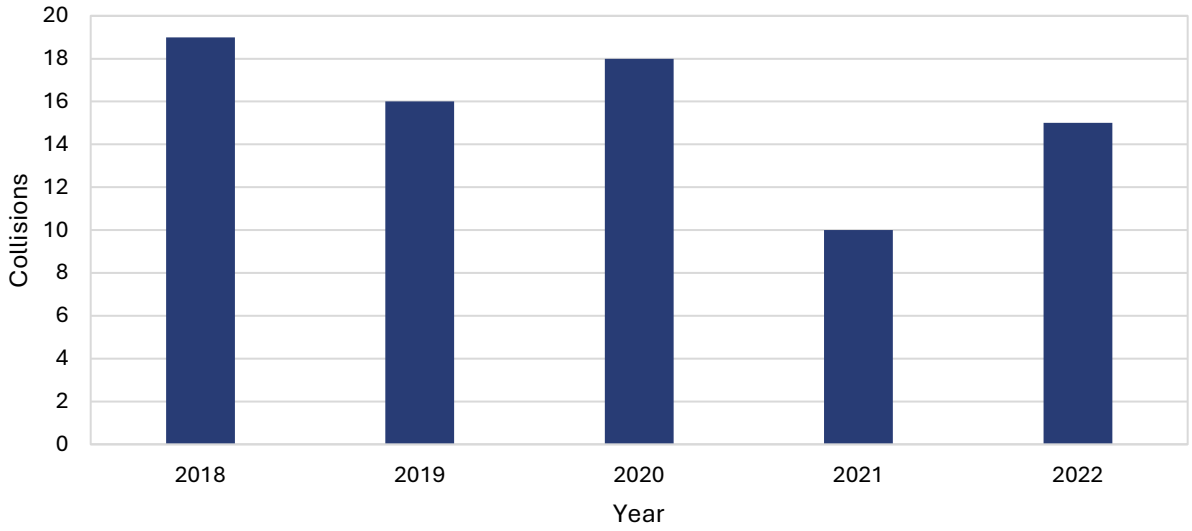
3.2 Safety Analysis

Collisions reported during the five-year period from January 1, 2018 through December 31, 2022 were the focus of the safety analysis. Collision data was obtained from the Statewide Integrated Traffic Record System (SWITRS), maintained by the California Highway Patrol.

Collisions by Year

During the five-year analysis period, 78 collisions were reported within the study area and area of influence. **Figure 3.1** depicts the frequency of collisions by year, ranging from a high of 19 collisions in 2018 to a low of 10 collisions in 2021. No discernable trends were identified.

Figure 3.1 - Collisions by Year



Source: SWITRS (2023)

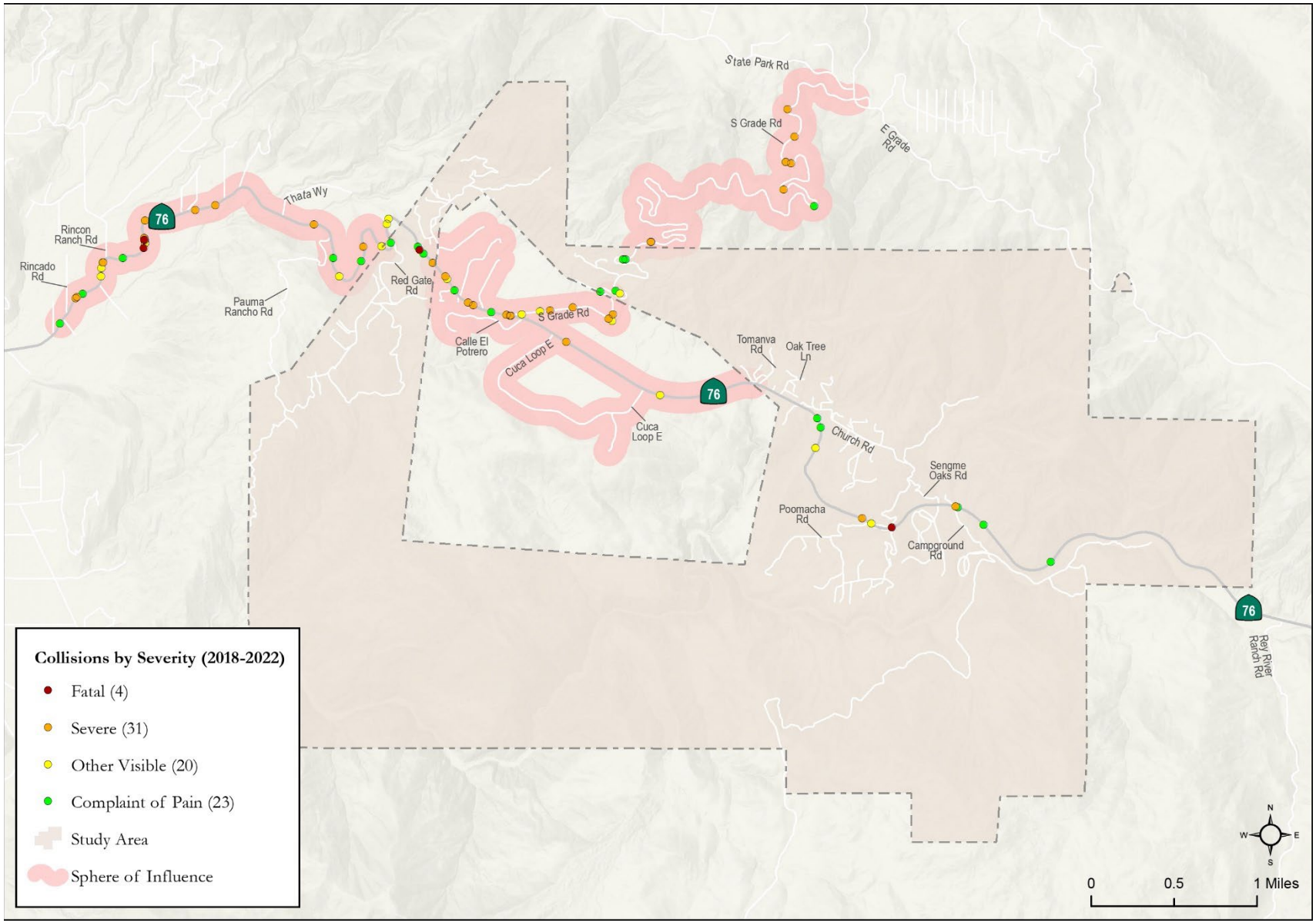
Injury Severity

Eliminating fatal and severe injuries on the roadway system is a primary goal of the SS4A program and intent of CSAP preparation, therefore it is important to identify collisions resulting in these serious injuries and contributing factors. **Figure 3.2** displays collisions by injury severity. Approximately 45% of study area collisions resulted in a fatal or severe injury, an exceptionally high rate. For comparison, an analysis of collisions across the entire San Diego County during the same five-year period indicated just 6% of collisions resulted in fatal or severe injury Countywide. In rural areas Countywide, approximately 10% of collisions resulted in fatal or severe injury [1].

Multiple factors may contribute to the high rate of fatal and severe injuries in the study area, such as the disproportionate share of motorcycle-involved collisions – discussed in the following section, the relatively high posted speed limits, and the high prevalence of both horizontal and vertical curves in the roadway which can result in limited sight distance.

[1] SANDAG Regional Vision Zero Action Plan Technical Appendix A (2025): https://www.sandag.org/-/media/SANDAG/Documents/PDF/projects-and-programs/regional-initiatives/vision-zero/vision-zero-action-plan-appendices-a-g-2024-11-21.pdf

Figure 3.2 - Collisions by Severity



Travel Mode

Travel mode refers to the method of transportation used to get from one place to another. Collision data typically reports the mode of travel as a motor vehicle, pedestrian, or bicyclist. Based on discussions with community members, law enforcement, and first responders, the motor vehicle type was further investigated to understand the prevalence of motorcycle-involved collisions. **Table 3.1** presents collisions by travel mode while also identifying the share of collisions resulting in a fatal or severe injury.

Table 3.1 - Collisions by Mode and Injury Severity

Mode	Total Collisions	% of Total Collisions	No. of Fatal and Severe Injury Collisions	% of Fatal and Severe Injury Collisions
Pedestrian	2	2.6%	1	50.0%
Bicyclist	1	1.3%	1	100.0%
Motorcyclist	46	59.0%	26	56.5%
Motorist	29	37.2%	7	24.1%
Total	**78**	**100.0%**	**35**	**44.9%**

Source: SWITRS (2023)

Figure 3.3 displays collisions by mode across the study area. Collisions along South Grade Road – where community members and stakeholders identified as an area popular with motorcycle racing – were reported almost exclusively as motorcycle collisions. Additional motorcycle collisions were reported across SR-76, including two at the intersection with Campground Road.

Table 3.2 and **Figure 3.4** identify the objects involved in collisions for each mode. Non-collisions were typically single vehicle collisions where the vehicle – primarily motorcyclists – overturned. Of the 46 motorcycle collisions, only 8 involved another vehicle. The leading cause of collisions that did not involve another motorist were due to improper turning, unsafe speeds, and driving under the influence.

Table 3.2 - Collisions by Mode and Object Involved With

Mode	Non-Collision	Motorist	Animal	Fixed or Other Object
Pedestrian	--	2	--	--
Bicyclist	--	--	--	1
Motorcyclist	24	8	2	12
Motorist	6	7	--	16
Total	**30**	**17**	**2**	**29**

Source: SWITRS (2023)

Figure 3.3 - Collisions by Mode

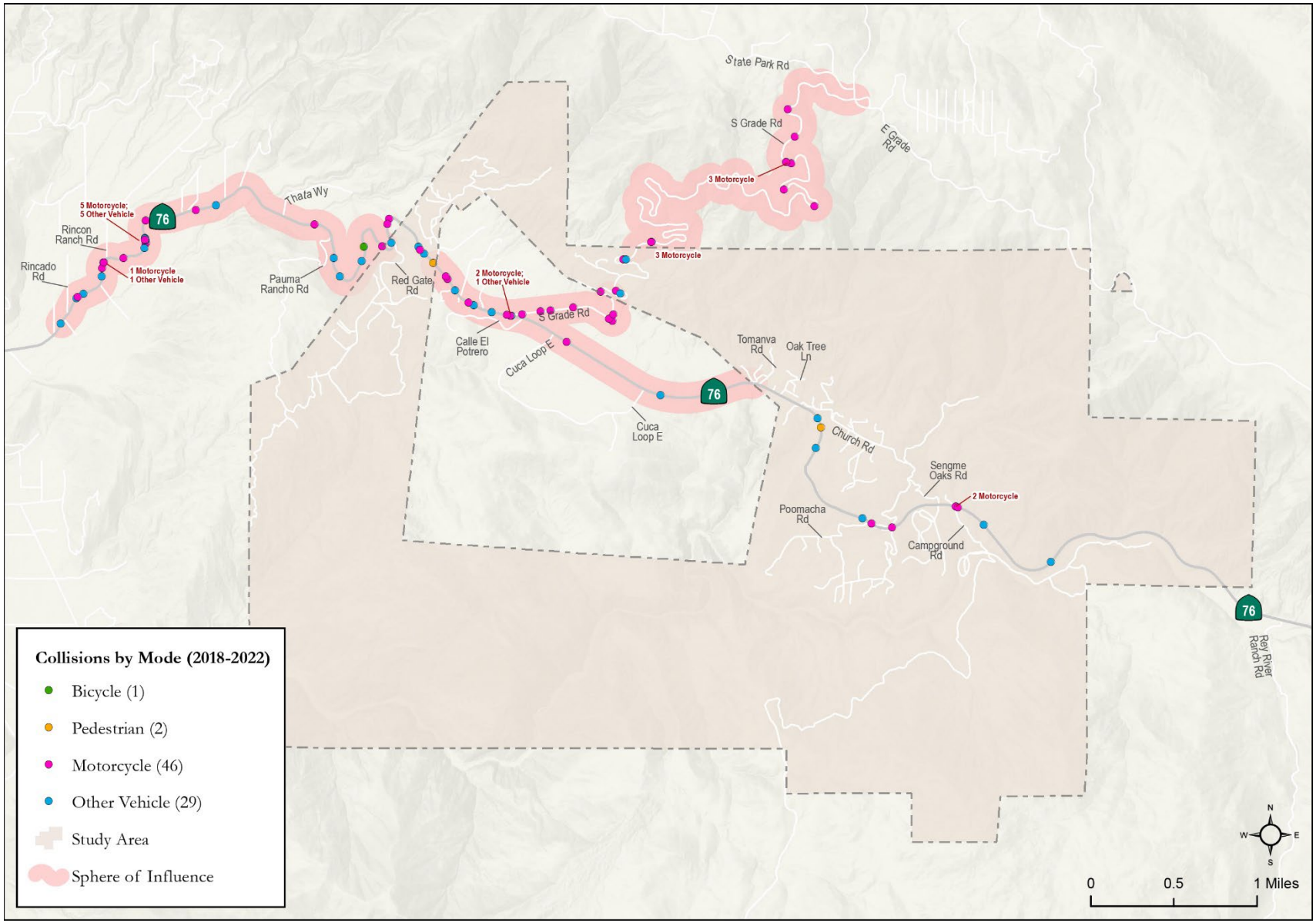
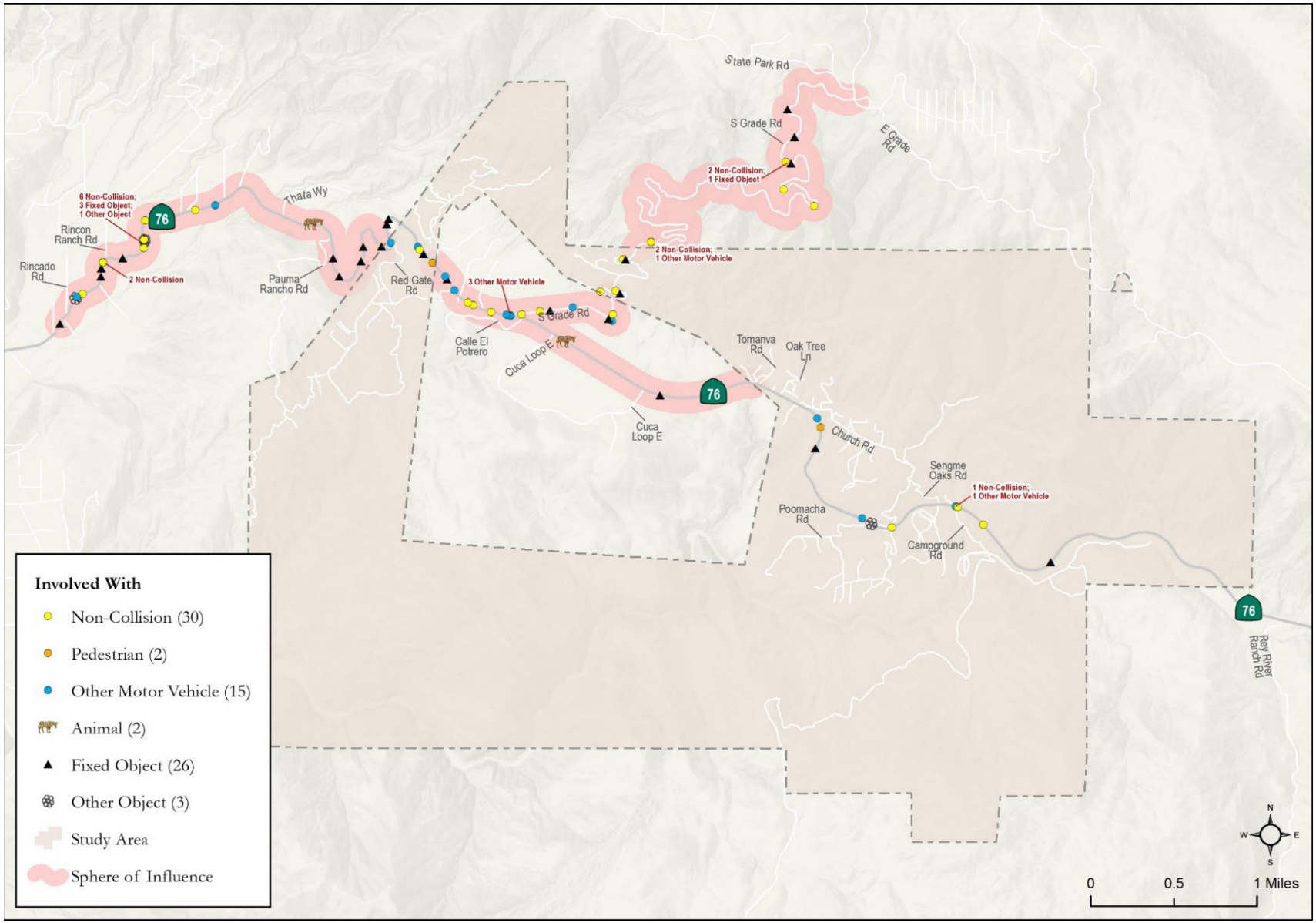


Figure 3.4 - Collisions by Object Involved With



Crash Type

Table 3.3 summarizes collisions by crash type and the resulting injury severity, while **Figure 3.5** depicts the crash types across the study area. Overturned crashes were the most frequently reported crash type. Overturned crashes were attributed to all four fatal collisions and the greatest number of severe injuries (10). Hit object crash types were the second most common crash type for all injuries and severe injuries.

Table 3.3 - Crash Type by Injury Severity

Crash Type	Fatal	Severe Injury	Other Visible Injury	Complaint of Pain	Grand Total
Head-On	--	3	--	1	**4**
Sideswipe	--	2	1	1	**4**
Rear End	--	1	--	1	**2**
Broadside	--	4	--	1	**5**
Hit Object	--	8	12	9	**29**
Overturned	4	10	7	9	**30**
Vehicle/Pedestrian	--	1	--	1	**2**
Other	--	2	--	--	**2**
Total	**4**	**31**	**20**	**23**	**78**

Source: SWITRS (2023)

Primary Collision Factor

The primary collision factor is the main crash cause as determined by the investigating law enforcement officer. **Figure 3.6** depicts the primary collision factor for each record. Improper turning was identified as the most frequent factor, reported for approximately 42% of all collisions and 31% of fatal or severe injury collisions. Motorcycles were most frequently cited for improper turning collisions, including all 11 collisions resulting in a fatal or severe injury. Motorcycles were also the mode identified for eight (8) of the 11 fatal and severe injury collisions resulting from unsafe speeds, the second most frequent primary collision factor.

SR-76 Sliding Window Analysis

A sliding window collision analysis was used to identify areas along a roadway where collisions are disproportionately concentrated. The approach assessed collisions along SR-76 within a fixed half-mile length (window) that was moved (slid) along the corridor. Collisions involving pedestrians or bicyclists, or those resulting in a fatality or severe injury were given a weight of three, whereas all other injury collisions were given a weight of one. **Figure 3.7** shows the sliding window analysis results along SR-76. The highest scoring half-mile window was found around the sharp curve just east of Rincon Ranch Road, where 15 collisions were reported. Crash types entirely consisted of overturned (9 collisions) and hit object (6 collisions), largely due to improper turning (7 collisions) and unsafe speeds (6 collisions).

Figure 3.5 - Collisions by Crash Type

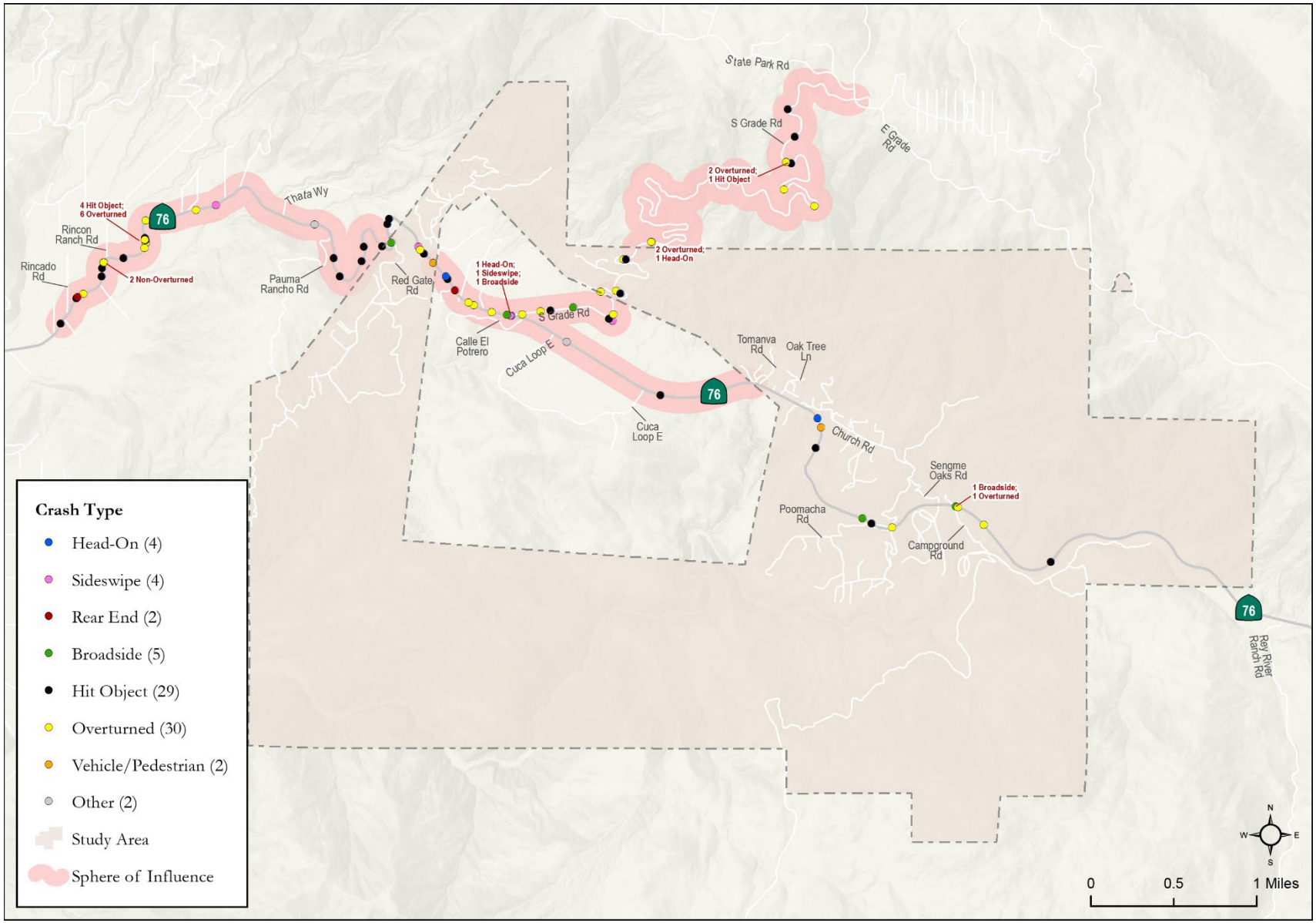


Figure 3.6 - Collisions by Primary Collision Factor

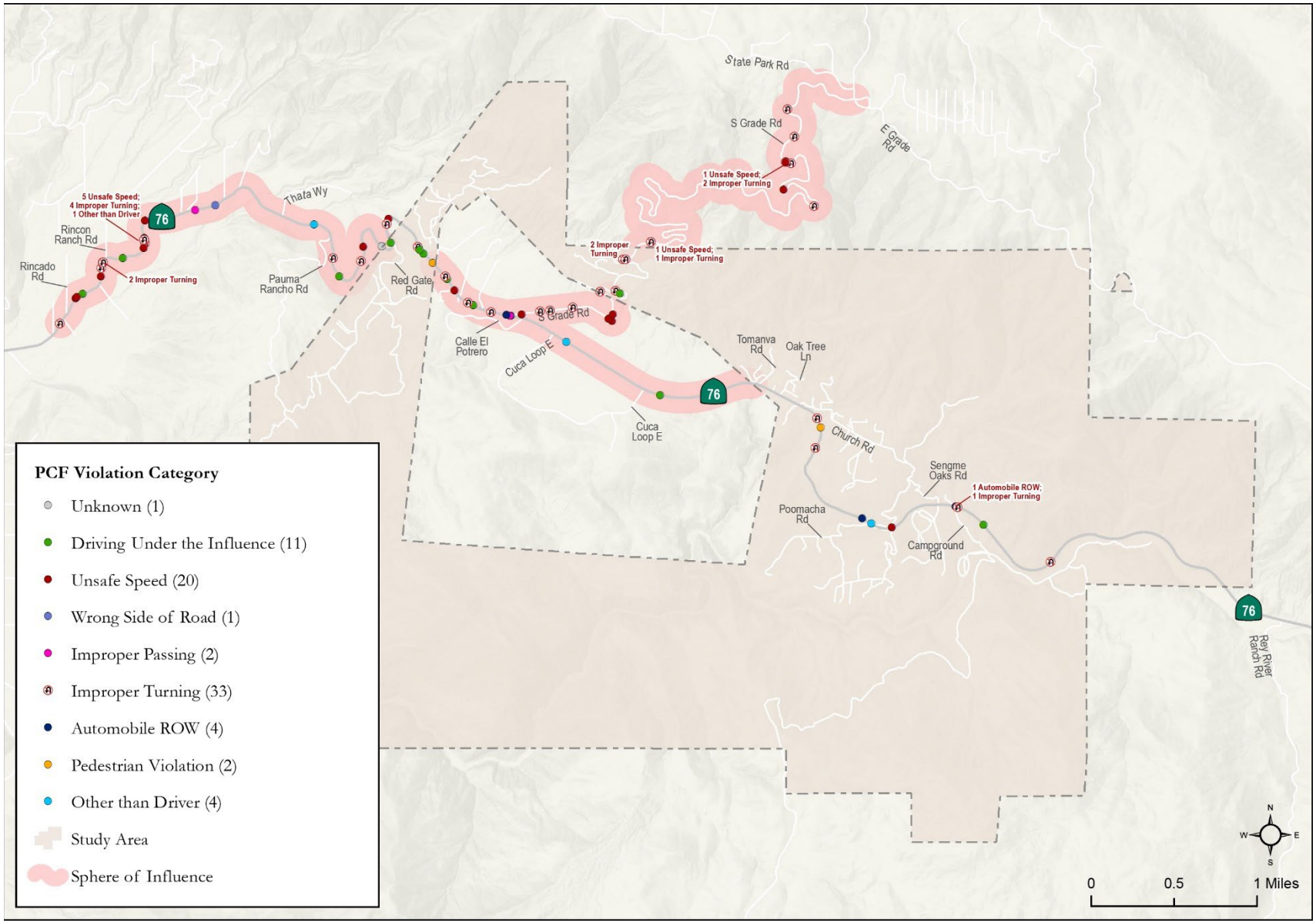
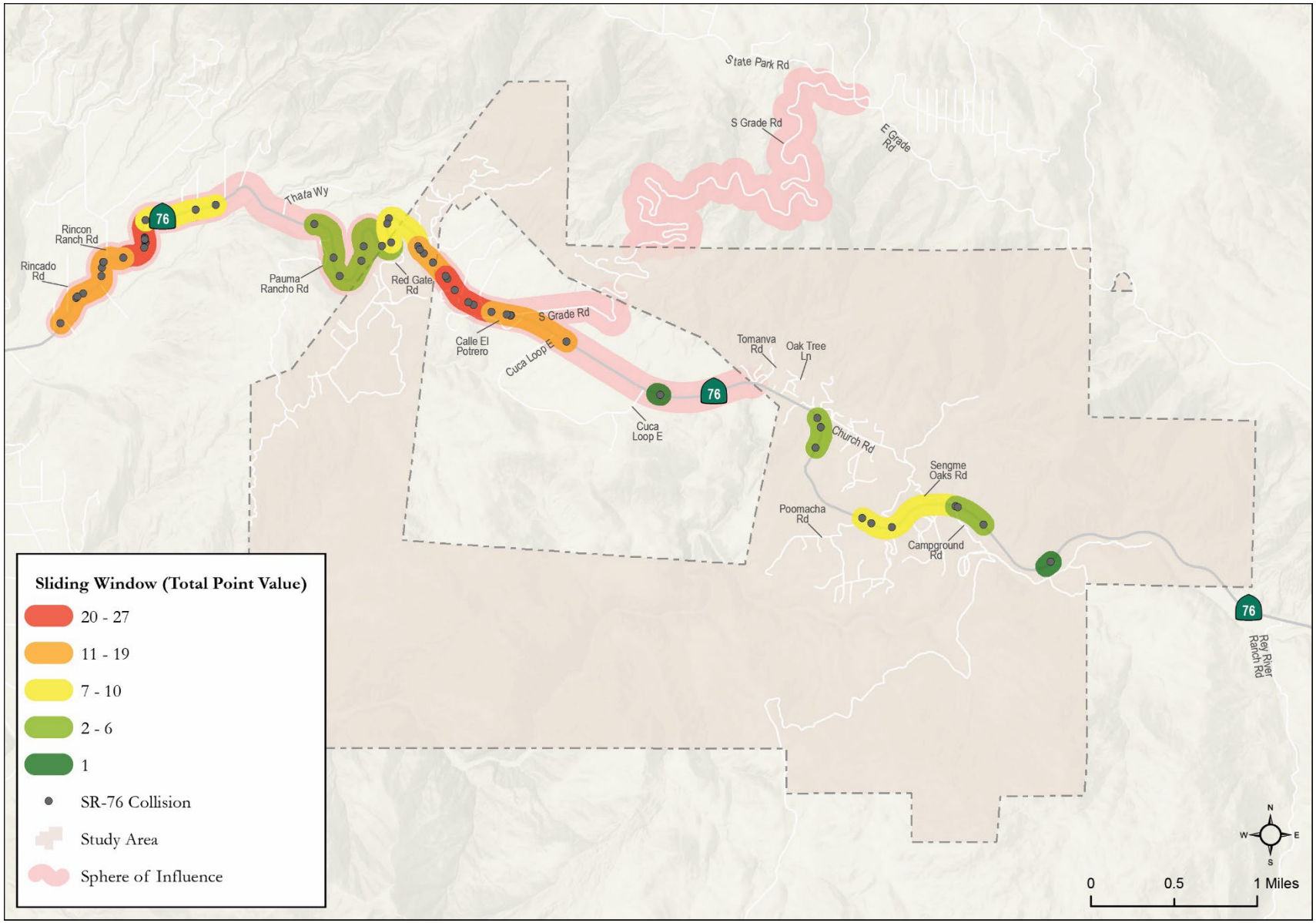


Figure 3.7 - SR-76 Sliding Window Collision Analysis



3.3 Demographic & Equity Analysis

An analysis of demographics and equity considerations is critical for the planning process and is one of the eight necessary CSAP components. Documenting the demographic makeup of the study area contributes to the understanding of community needs and serves to ensure that all factions of a community are provided the opportunity to participate in the planning process.

This section outlines the demographics of the study area, including age, sex, race/ethnicity, language fluency, household income and household access to vehicles. Equity data is presented following the demographics, including historically disadvantaged communities, areas of persistent poverty, climate and economic justice, equitable transportation, socioeconomics, and transportation disadvantaged census tracts.

Demographic Assessment

A demographic study area was developed to align with census geography, as shown in **Figure 3.7**. The figure also depicts the Reservation boundary and Area of Influence that served as the primary collision analysis study area (Figure 1.1) and identifies the Census Block Group utilized in the demographic assessment and other Census Block Group boundaries.

Race

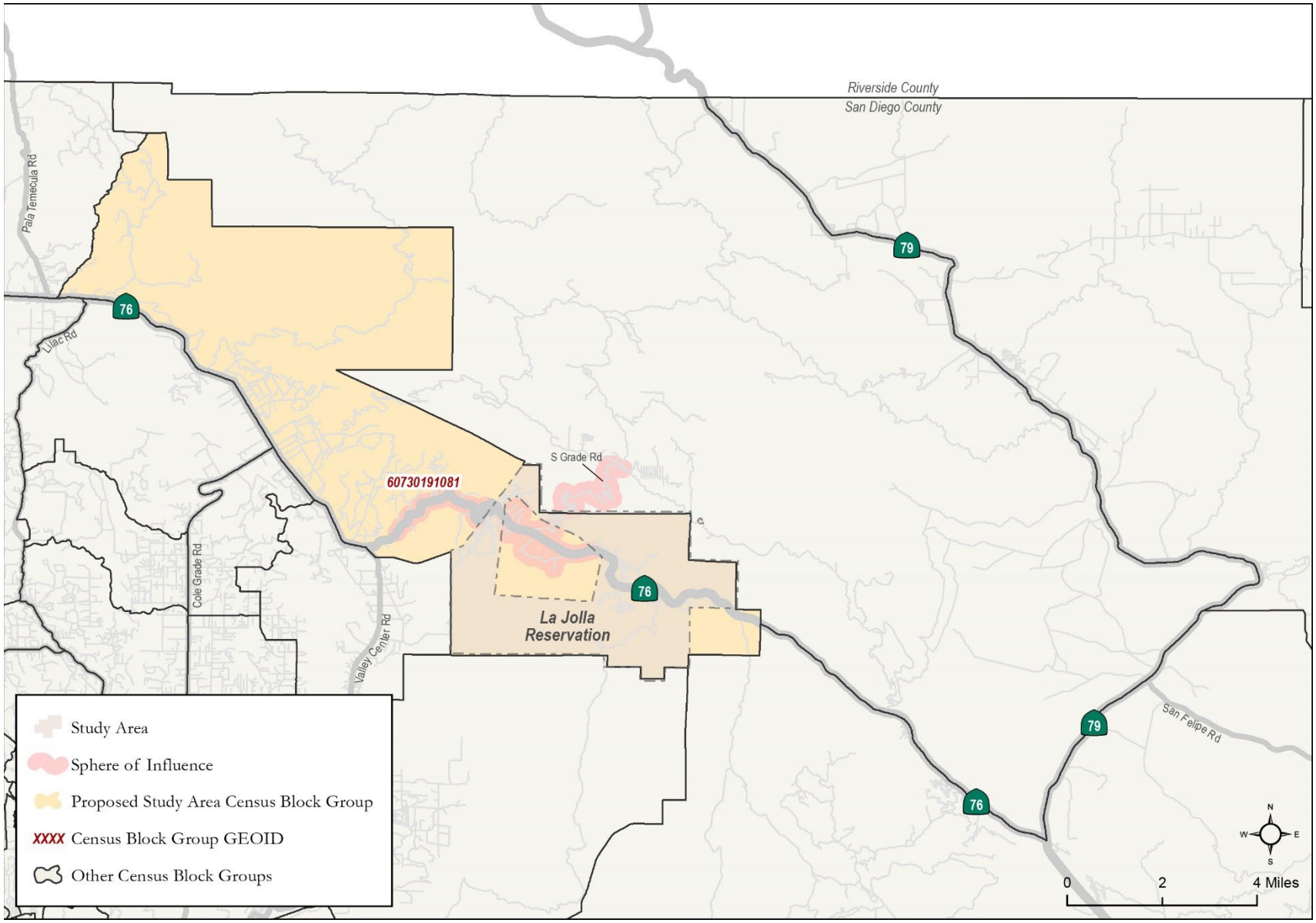
US Census data, like race information, is used to ensure fairness in the distribution of aid, enforce compliance with antidiscrimination laws, develop new programs and funding to address the needs of various groups, and address race and ethnicity issues in obtaining access to healthcare and assistance. **Table 3.4** compares race data for the demographic study area Census Block Group to San Diego County as a whole. As expected, a high proportion of the study area identified as Native American (53%), followed by 41% of people identifying as White. Countywide, less than 1% of residents identify as Native American.

Table 3.4 - Race Comparison (Study Area to San Diego County)

	Study Area		San Diego County	
Race	**Number**	**Percent**	**Number**	**Percent**
American Indian	394	53%	10,436	<1%
White	306	41%	1,455,172	67%
Asian	35	5%	385,244	18%
Black	10	1%	151,278	7%
Two or More Races	1	<1%	138,954	6%
Native Hawaiian or Pacific Islander	0	0%	12,533	1%
Other	0	0%	11,245	1%

Source: US Census 2017-2022 American Community Survey (2023)

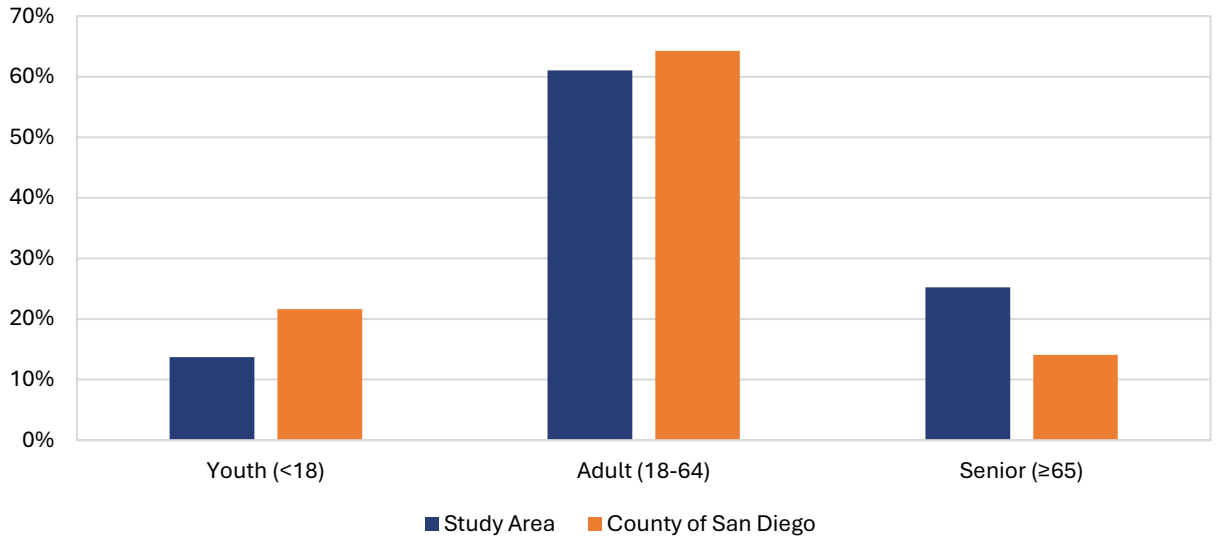
Figure 3.8 - Demographic Study Area



Age

Youth and senior populations have more limited mobility options than the general adult population, making them more vulnerable and reliant on alternative transportation modes and infrastructure, and requiring additional consideration when planning transportation networks. **Figure 3.8** summarizes the percent of youth, adult, and senior populations for the study area and San Diego County. As shown, study area residents skew older, with the senior population making up 25% of the population compared to 14% for the County as a whole, while the 17 and younger and 18 to 64 age groups both make up smaller shares of the population in the study area than the County.

Figure 3.9 - Age Comparison (Study Area to San Diego County)



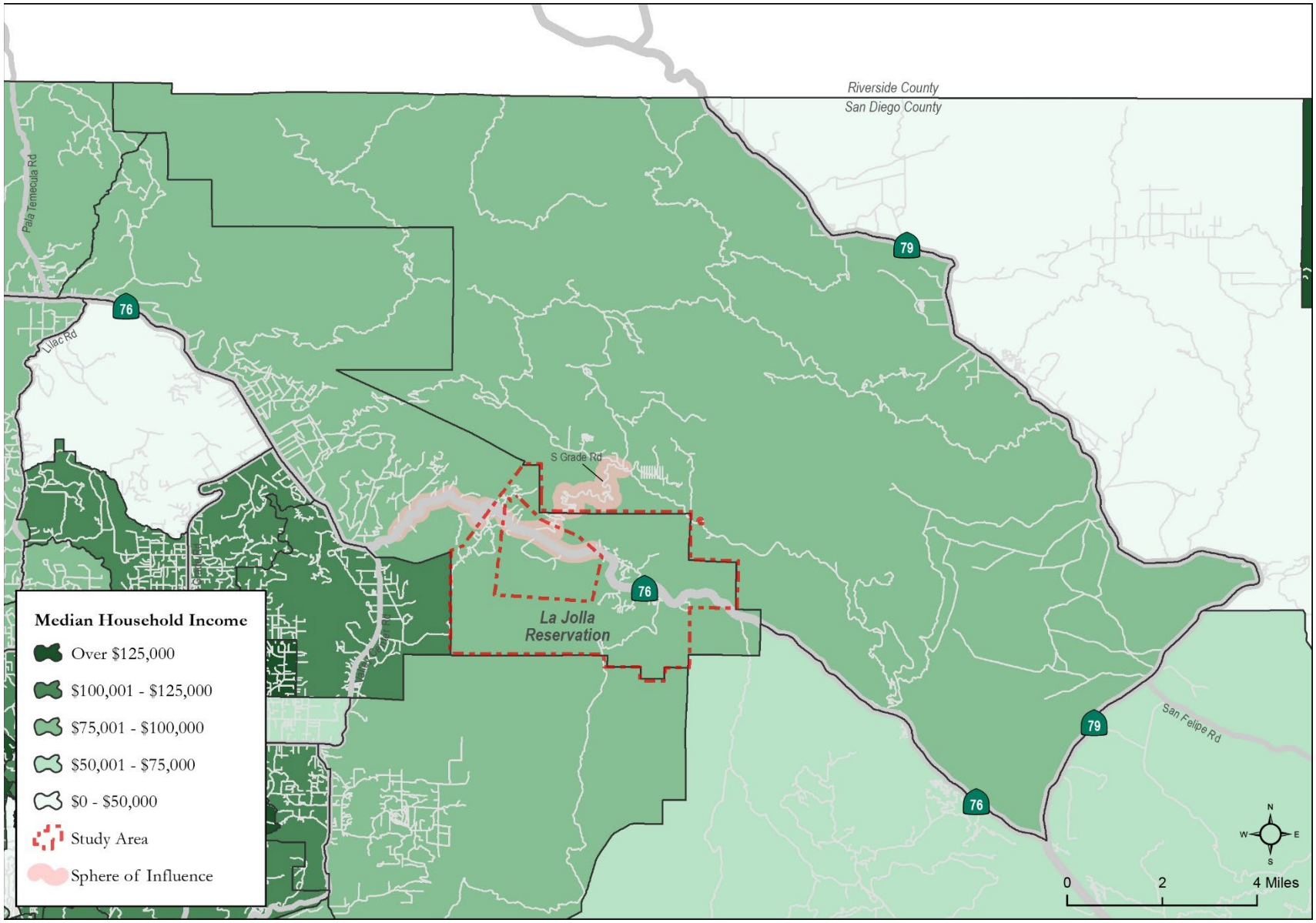
Source: US Census 2017-2022 American Community Survey (2023)

Median Household Income

Figure 3.9 depicts median household income ranges for the demographic study area census block group and surrounding areas. The study area has a median household income of $78,039, which is 88% of the Countywide average median income of $88,240.

Income data is closely connected to workforce participation, educational achievement, and health, and can be used to determine eligibility for various programs and initiatives. For example, AB 1550 identifies low-income households or as "those with household incomes at or below 80 percent of the statewide median income or with household incomes at or below the threshold designated as low-income by the Department of Housing and Community Development's (HCD) State Income Limits." These income thresholds can vary by grant, but median household income is often used because it is a good proxy for economic position compared to average median income (which can be skewed by extreme outliers).

Figure 3.10 - Median Household Income



Vehicle Ownership

An indicator of social equity is access to vehicles. Higher vehicle availability rates are positively associated with per capita number of trips, vehicle miles of travel (VMT), and trip distance, and can be associated with a lack of safe and comfortable alternative travel infrastructure for residents, such as public transit or bike infrastructure and lack of accessibility. Public transit is not available within the study area and bicycle and pedestrian facilities are largely non existent.

Table 3.2 provides a comparison of vehicles ownership in the study area to San Diego County. As shown, 3.9% of the study area households do not have access to a vehicle, compared to 5.4% of San Diego County households. Higher automobile ownership rates are consistent with the infrastructure and rural location of the study area, as the roads primarily serve automobiles over other modes such as active transportation and transit, and typical trip origins (e.g., residential uses such as houses, apartments, condominiums, etc.) are not close to trip destinations (e.g., places of employment, schools, commercial/retail uses, etc.).

Table 3.5 - Vehicle Ownership Comparison (Study Area to San Diego County)

	Study Area	San Diego County
Zero Vehicle Ownership Households	15	62,302
Zero Vehicle Availability	3.9%	5.4%
Households	386	1,149,157
Average Vehicles Per Household	2.3	2.0

Source: US Census 2017-2022 American Community Survey (2023)

Equity Assessment

California's Senate Bill (SB) 535 includes federally recognized tribal lands, such as the La Jolla Band of Luiseño Indians Reservation, in the definition of "disadvantaged communities," as identified by the California Environmental Protection Agency. The disadvantaged characterization recognizes communities that are typically marginalized by underinvestment, overburdened by pollution, have less access to economic opportunities, and have historically been excluded from planning efforts. SB 535 requires state agencies to prioritize investments in disadvantaged communities. The remainder of this section highlights additional tools used to assess various equity considerations, with the results commonly used in grant application evaluations.

CalEnviroScreen 4.0

The California Communities Environmental Health screening Tool (CalEnviroScreen) is a mapping tool provided by the California Office of Environmental Health Hazard Assessment. The tool uses environmental, health, and socioeconomic information to identify census tracts that are most affected by pollution sources and populations vulnerable to the effects of pollution. Areas with higher scores experience greater pollution levels and higher concentrations of vulnerable populations than those with lower scores.

Relative to other California tracts, the study area is located in a tract with a score of 47, meaning this tract is worse off than 47% of other California tracts in the metrics measured by this tool. Some of the environmental metrics that indicate a higher level of harm include ozone exposure (67th

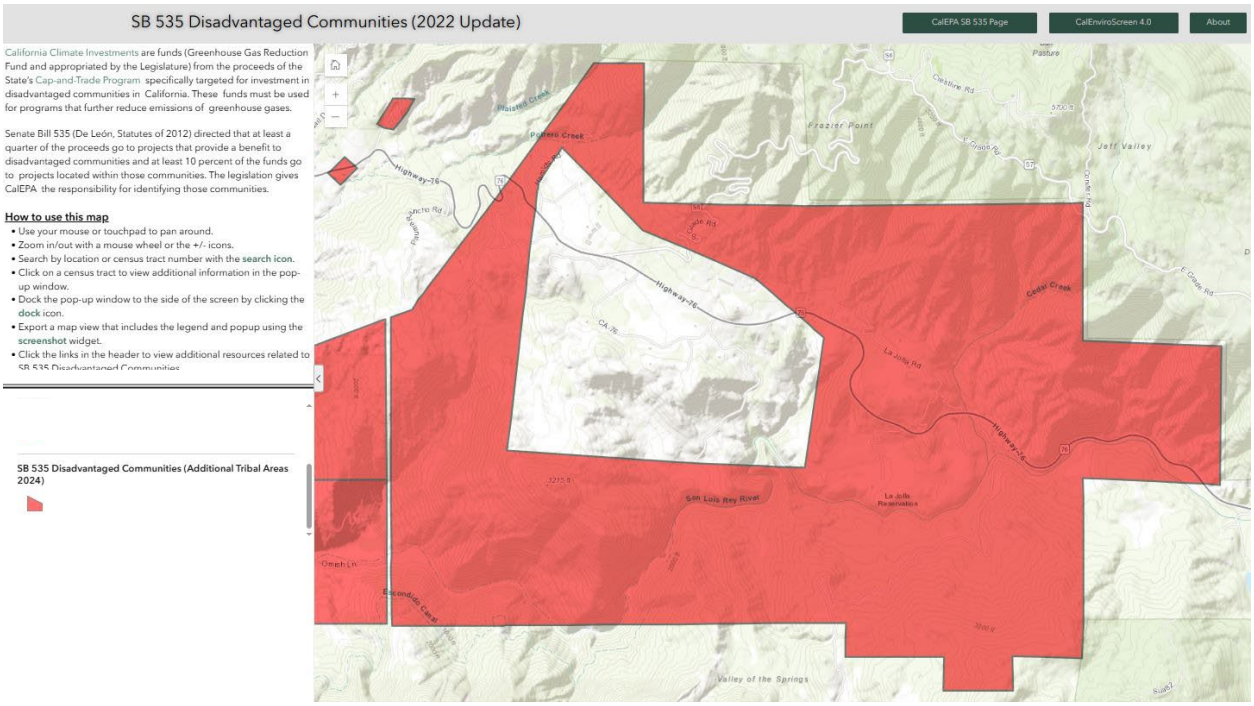
percentile), drinking water exposure (95th percentile), pesticide exposure (76th percentile), groundwater threats (83rd percentile), hazardous waste (69th percentile) and impaired waters (72nd percentile). Some higher scoring socioeconomic burden metrics include housing burden (78th percentile) and unemployment (82nd percentile).

Disadvantaged & Low-Income Communities | SB 535

Pursuant to SB 535, the CalEPA was tasked with identifying disadvantaged communities for Cap-and-Trade funding program purposes. CalEPA designated disadvantaged communities as the 25% highest scoring census tracts using the CalEnviroScreen tool.

Assembly Bill 1550 (AB 1550) requires at least 25% of Cap-and-Trade funds go to projects within and benefiting disadvantaged communities and at least an additional 10% intended for low-income households or communities. AB 1550 identifies low-income communities as "census tracts with median household incomes at or below 80 percent of the statewide median income or with median household incomes at or below the threshold designated as low-income by the Department of Housing and Community Development's State Income Limits adopted pursuant to Section 50093." **Figure 3.10** depicts the CalEPA tool results around the Reservation, indicating the community is considered disadvantaged, and is eligible for SB 535 funds.

Figure 3.11 - SB 535 Disadvantaged Communities



Source: CalEPA (2024)

Climate and Economic Justice Screening Tool (CEJST)

The Climate and Economic Justice Screening Tool (CEJST) uses eight categories of burden indicators: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. The tool uses this information to identify communities that are overburdened and underserved. Federal agencies use the tool to help identify disadvantaged communities that will benefit from programs included in the Justice40 Initiative. The

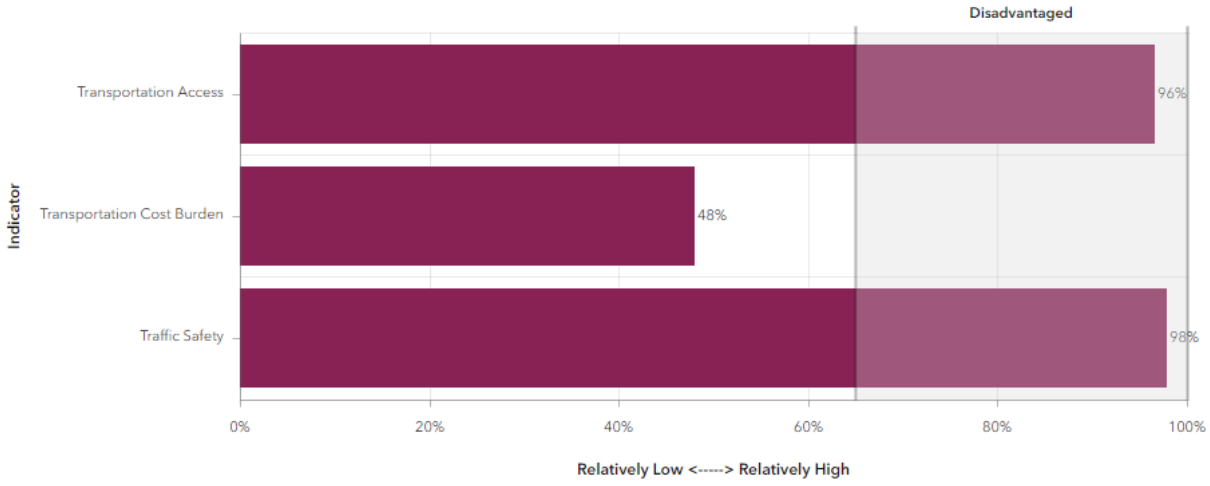
Justice40 Initiative seeks to deliver 40% of the overall benefits of investments in climate, clean energy, and related areas to disadvantaged communities. Similar to the SB 535 designation, Federally Recognized Tribes are designated as disadvantaged by the CEJST.

Equitable Transportation Community (ETC) Explorer)

The U.S. DOT Equitable Transportation Community (ETC) Explorer is an interactive web application that uses 2020 Census Tracts and data, to explore the cumulative burden communities experience, as a result of underinvestment in transportation, in the following five components: Transportation Insecurity, Climate and Disaster Risk Burden, Environmental Burden, Health Vulnerability, and Social Vulnerability. It is designed to complement the Climate & Economic Justice Screening Tool (CEJST) by providing users deeper insight into the Transportation disadvantage component of CEJST, and the ETC Explorer's Transportation Insecurity component, which will help ensure the benefits of DOT's investments are addressing the transportation related causes of disadvantage. U.S. DOT's ETC Explorer is not a binary tool indicating whether a census tract is considered disadvantaged; it is a dynamic tool that allows every tract in the country to understand how it is experiencing burden that transportation investments can mitigate or reverse.

As this tract does not meet the cumulative percentile thresholds for burden and vulnerability compared to other California Tracts, it is not considered a disadvantaged tract overall. However, it does score high in transportation insecurity metrics, which occurs when people are unable to get to where they need to go to meet the needs of their daily life regularly, reliably, and safely. In particular, the transportation access and safety in this tract are worse than over 95% of California tracts. It also scores high in social vulnerability metrics, which is a measure of socioeconomic indicators that have a direct impact on quality of life. Particularly, this tract is in the highest 26% percentile of tracts with residents without high school diplomas, without insurance, without internet access, and with high percentage of housing units that are mobile homes compared to other California tracts.

Figure 3.12 - Equitable Transportation Community Explorer – Transportation Insecurity Results



Source: U.S. DOT (2024)

4.0 Road Safety Countermeasures

Countermeasures refer to the recommendations or improvements intended to address identified road safety issues. Countermeasures are typically recommended at locations with a history of collisions, near misses, or environments with features that are of concern. As previously stated, the La Jolla Band of Luiseño Indians CSAP effort is unique in that zero collisions were reported on roadways operated and maintained by the Tribe. However, there are still significant opportunities to improve road safety on the Reservation, as well as through coordination with agency partners that do operate and maintain roadways that traverse the Reservation.

The La Jolla Band of Luiseño Indians have ambitious development plans for expanded visitor serving uses that are intended to stimulate economic benefit. The Tribe is also pursuing the expansion of their Land Bank through the acquisition of additional properties. When realized, these efforts will result in attracting more visitors and increasing the number of local residents, thereby adding more demand on the transportation system. As part of the development, new and realigned roadways are anticipated. The future developments will be concentrated south of SR-76 off Sengme Oaks Road and Campground Road, while the Land Bank properties will be outside of the existing Reservation boundaries.

The planned growth highlights the importance of developing new roadways and retrofitting existing facilities with a focus on multimodal safety. Thus, in addition to addressing the safety issues presented in the previous chapter, recommended countermeasures were identified with the intent of serving as best practice approaches for consideration as the site plan is refined and specific development sites, quantities, and access points are determined. The countermeasures were referenced from Federal and State safety resources such as the U.S. DOT/FHWA's *28 Proven Safety Countermeasures*[2] and *Pedestrian/Bicycle Safety Guide and Countermeasure Selection System*[3], U.S. DOT/National Highway Traffic Safety Administration's (NHTSA) *Countermeasures That Work*[4] and *Small Town and Rural Multimodal Networks*[5], and Caltrans' 2024 *Local Roadway Safety Manual*[6] and Traffic Calming Guide[7].

Table 4.1 identifies the recommended countermeasures and the respective safety issue(s) and/or crash type each is intended to address.

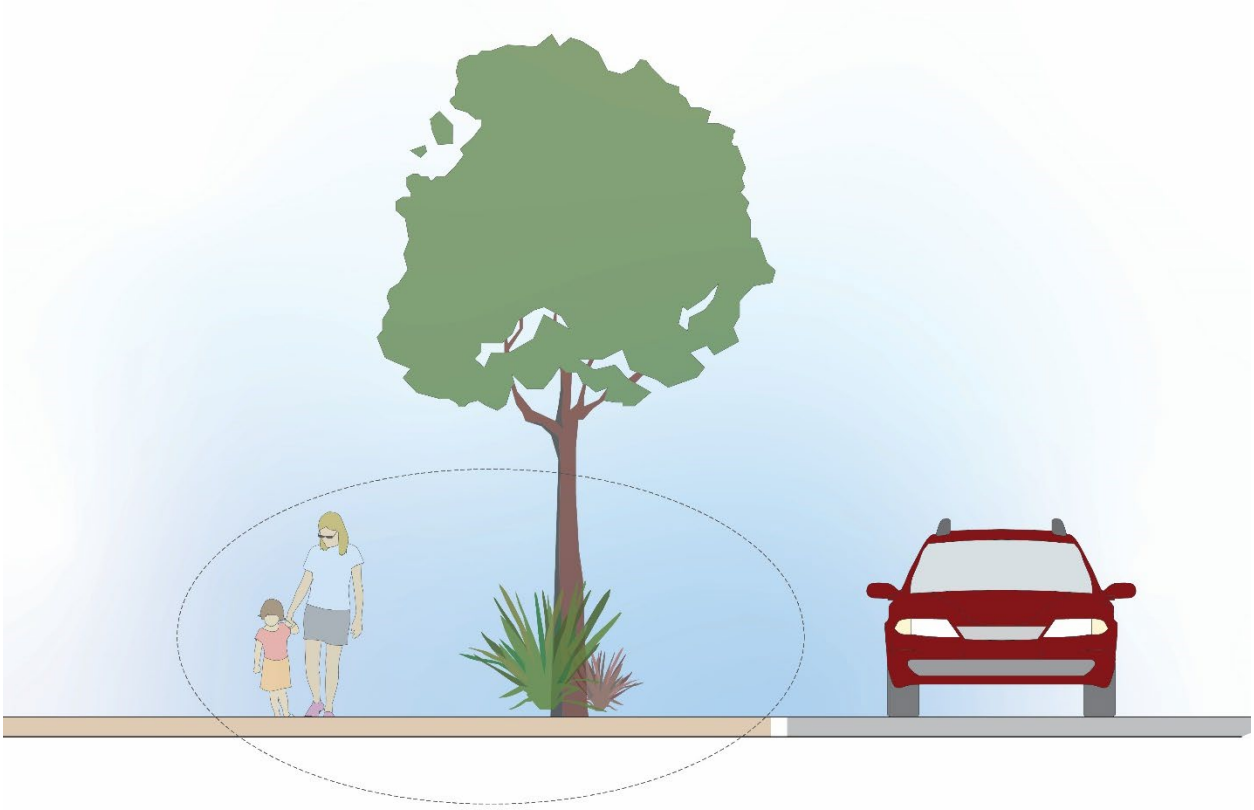
[2] U.S. DOT/FHWA 28 Proven Safety Countermeasures: https://highways.dot.gov/safety/proven-safety-countermeasures
[3] U.S. DOT/FHWA Pedestrian Safety Guide and Countermeasure Selection System: http://www.pedbikesafe.org/pedsafe/countermeasures.cfm
U.S. DOT/FHWA Bicycle Safety Guide and Countermeasure Selection System: http://www.pedbikesafe.org/bikesafe/countermeasures.cfm
[4] U.S. DOT/NHTSA Countermeasures That Work: https://www.nhtsa.gov/sites/nhtsa.gov/files/2023-12/countermeasures-that-work-11th-2023-tag_0.pdf
[5] U.S. DOT/NHTSA Small and Rural Multimodal Networks: https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/small_towns/fhwahep17024_lg.pdf
[6] Caltrans Local Roadway Safety Manual Version 1.7: https://dot.ca.gov/-/media/dot-media/programs/local-assistance/documents/hsip/2024/lrsm2024-v2.pdf
[7] Caltrans Traffic Calming Guide: https://dot.ca.gov/-/media/dot-media/programs/safety-programs/documents/traffic-calming/final-traffic-calming-guide_v2-a11y.pdf

Table 4.1 - Countermeasure Toolbox

Countermeasure	Bus Stop Access	Pedestrian Safety	Bicycle Safety	Unsafe Speeds	Driving Under the Influence	Intersection Safety/Sight Distance	Roadway Departures	Overturned Vehicles	Hit Objects	Delayed Post-Crash Reporting	Potholes & Degrading Edges
Sidewalks/Pathways	●	●	●								
Curb Extensions	●	●	●	●		●					
High Visibility Crosswalks	●	●	●			●					
Pedestrian Signal	●	●	●			●					
Rectangular Rapid Flashing Beacon	●	●	●			●					
Transit Stop Improvements	●	●									
Separated Bike Lanes	●	●	●								
Bike Lanes	●	●	●								
Edge Lines & Center Lines							●	●	●		
Enhanced Delineation for Horizontal Curves				●			●	●	●		
High Friction Surface Treatments				●			●	●	●		
Longitudinal Rumble Strips				●			●	●	●		
Guardrails				●			●	●	●		
Roadway Realignment		●	●			●					
Shoulder Widening		●	●	●			●		●		
Sight Distance Improvements		●	●			●					
Turn Pockets						●					
Roundabouts	●	●	●	●		●					
Acceleration/Deceleration Lane				●		●					
Transverse Rumble Strips		●	●	●		●	●	●	●		
Speed Humps	●	●	●	●		●					
Dynamic Speed Warning Signs	●	●	●	●		●	●	●	●		
Speed Safety Cameras	●	●	●	●		●	●	●	●		
Speed Limit Pavement Markings	●	●	●	●		●	●	●	●		
Speed Reduction Markings	●	●	●	●		●	●	●	●		
High Visibility Enforcement	●	●	●	●	●	●	●	●	●		
Changeable/Dynamic Message Signs	●	●	●	●	●	●	●	●	●		
Increased Mile-Marker Frequency										●	
Cellphone Service & Call Box Frequency										●	
Maintenance & Roadway Standards	●	●	●				●	●	●		●

The remainder of this chapter provides descriptions and potential applications of the countermeasures identified in Table 4.1. A crash reduction factor[8] is also provided for each countermeasure where available.

Sidewalks/Pathways



Walkways, such as sidewalks and paths, provide pedestrians with a safe designated area that is separate from vehicular traffic.

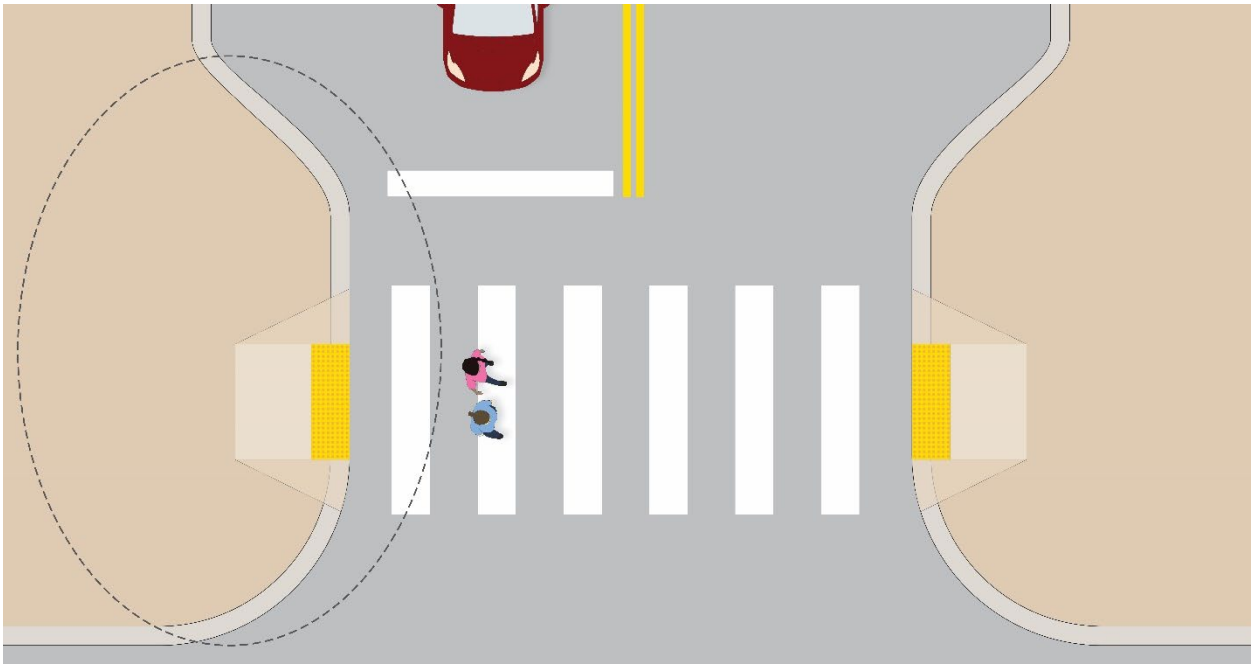
Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety

Application Considerations: Community members and stakeholders voiced strong support for dedicated walkways to improve student access to bus stops. Walkways should be designed to be accessible to people of all abilities, including those using mobility aids. Signage and other markings should be considered to direct pedestrians – and bicyclists if permitted – to facility locations. Other interventions, such as marked crosswalks, warning signs, traffic calming measures, lighting, and traffic controls should be considered at crossing points. If raised and constructed with a curb, considerations for drainage are needed. The trails identified in the ATP Needs Assessment, including Harolds Road, Red Gate Road, Church Road and Poomacha Road, are the primary routes used by students to access bus stops and should be considered for initial improvements.

Crash Reduction Factor: 80%

[8] A crash reduction factor is the estimated reduction in crashes anticipated following countermeasure implementation.

Curb Extensions



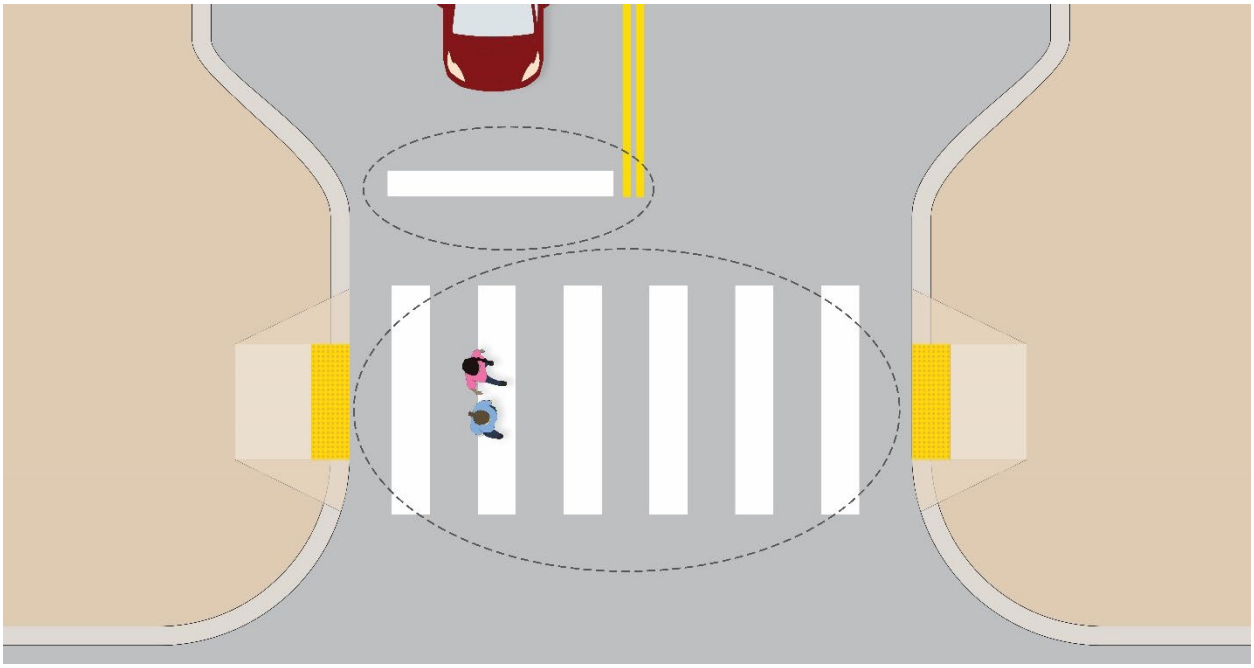
Curb extensions, also known as bulb-outs, extend the sidewalk into the street at crossing locations. Curb extensions shorten crossing distances and improve the visibility motorists have of pedestrians. They physically narrow the street width, which can facilitate slower vehicle speeds. See Highway Design Manual Section 303.4 for additional information.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety

Application Considerations: Curb extensions can be deployed at intersection or mid-block crossing locations. Turning movements for large vehicles and maintaining drainage should be considered.

Crash Reduction Factor: 35%

High Visibility Crosswalks & Advance Stop Bar



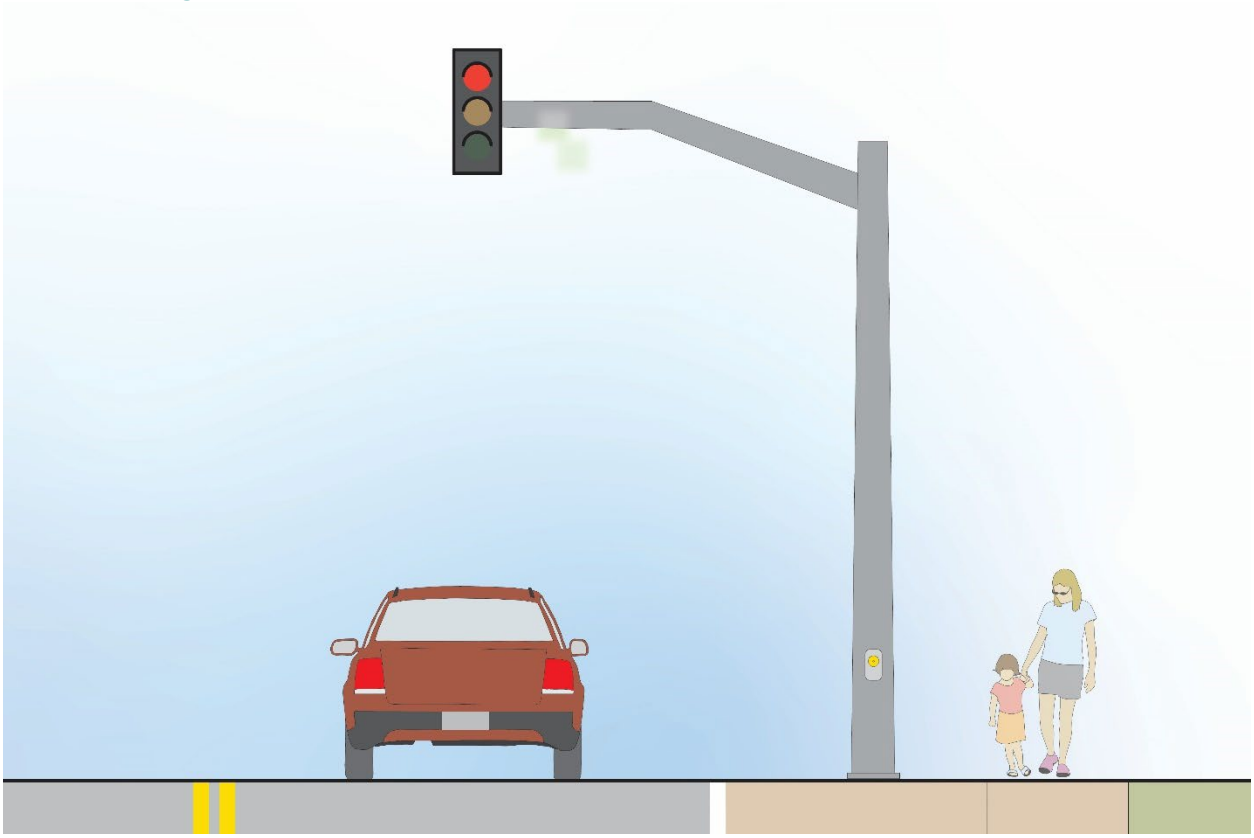
High visibility crosswalks consist of transverse markings for crosswalks, such as ladder or "continental" striping patterns, made of high-visibility material.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety

Application Considerations: High visibility crosswalks can be implemented cost efficiently during roadway construction or resurfacing. Crosswalks are recommended at roadway locations where frequent pedestrian crossings are anticipated. Crossing locations should be controlled by a traffic control, such as stop sign, roundabout, or traffic signal, or provide enhanced safety features to encourage motorists to yield to pedestrians. Examples of enhanced safety features for uncontrolled crossing locations include, but are not limited to flashing beacons, curb extensions, raised crosswalks, and speed humps.

Crash Reduction Factor: 25%

Pedestrian Signal



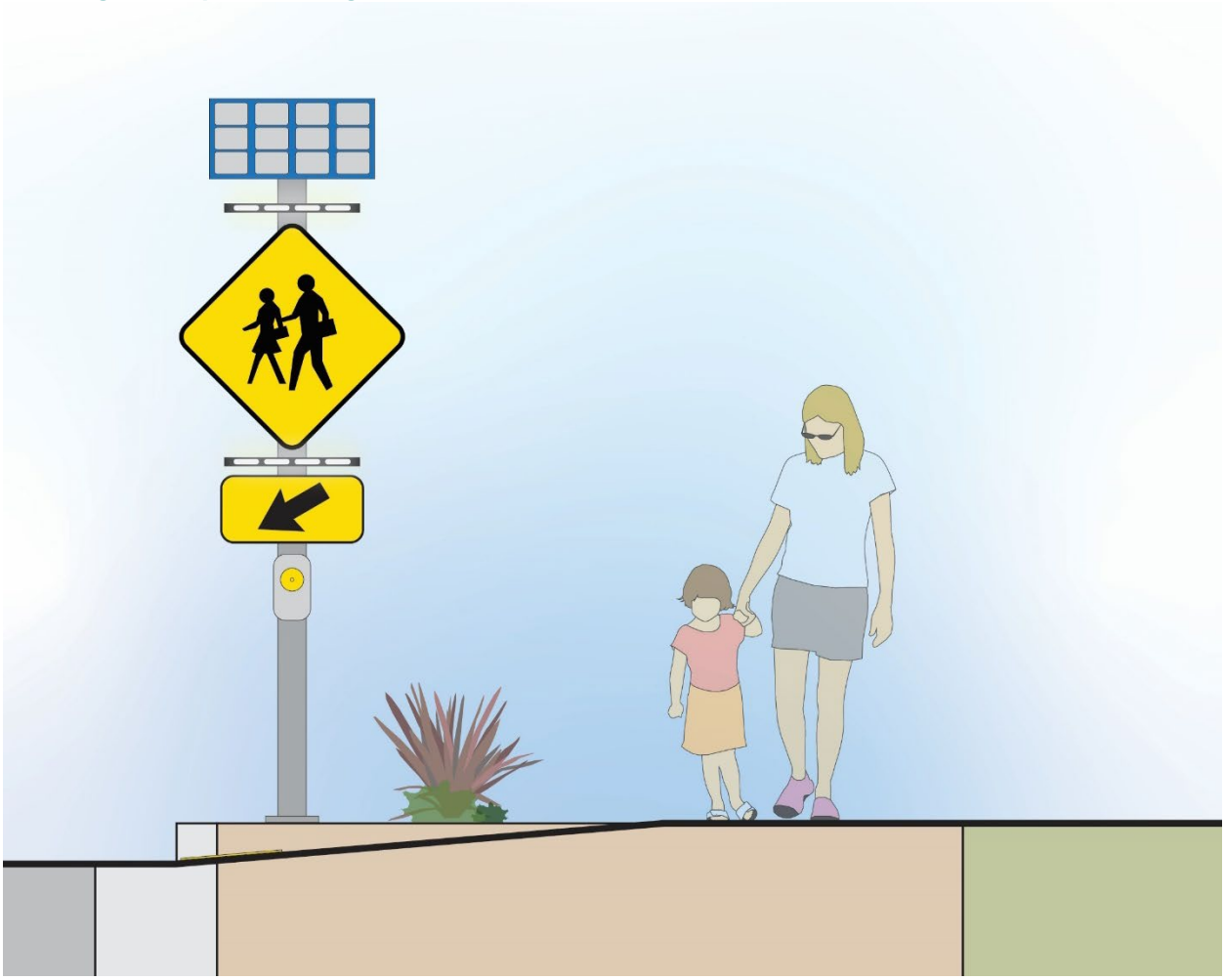
Pedestrian signals and pedestrian beacons are pedestrian-activated traffic control devices intended to stop traffic and allow pedestrians to make safe crossings.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety

Application Considerations: Pedestrian signals and beacons are typically most appropriate along roadways with higher traffic volumes and may only be relevant if the projected development significantly increases traffic volumes in the area. The control should be accompanied by additional signs and pavement markings to maximize awareness and visibility. Chapter 4F of the California MUTCD provides additional guidance.

Crash Reduction Factor: 55%

Rectangular Rapid Flashing Beacon



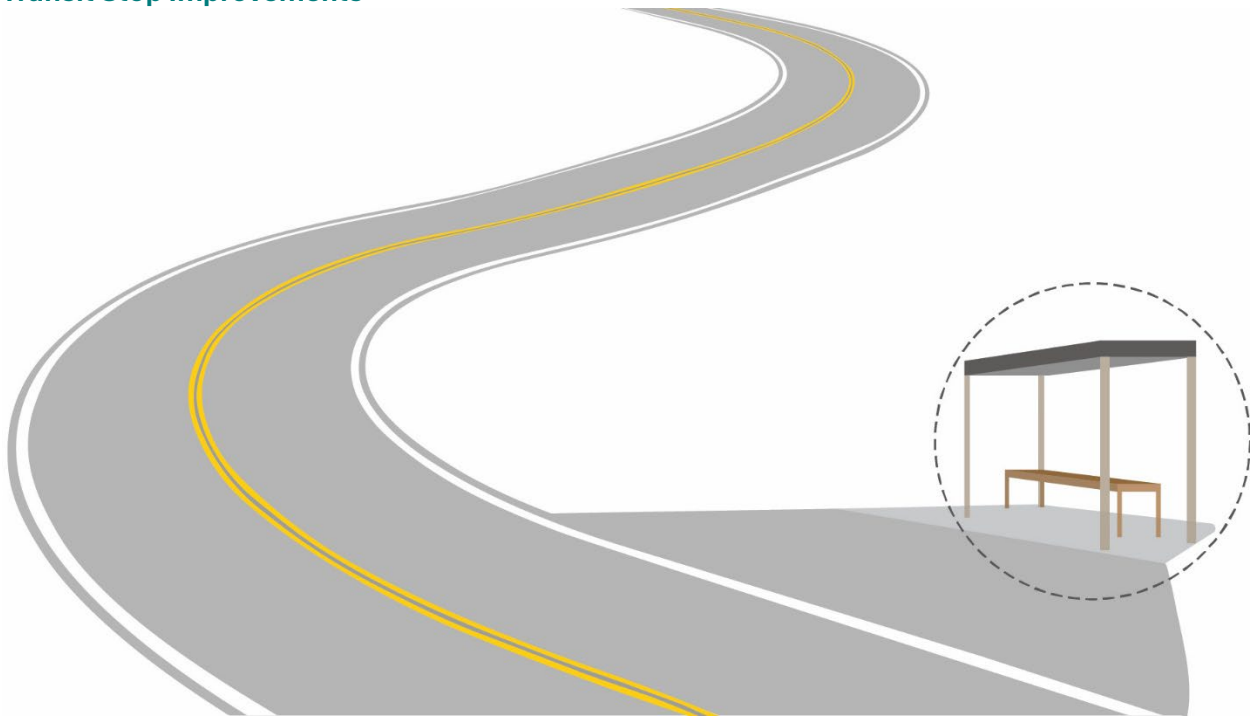
Rectangular Rapid Flashing Beacons (RRFB) consist of pedestrian-activated flashing lights with additional signage, intended to enhance the visibility of marked crosswalks and alter motorists to pedestrian crossings.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety

Application Considerations: RRFBs are intended for installation at unsignalized intersections and mid-block pedestrian crossings. As development occurs, RRFBs should be considered at frequent crossing locations.

Crash Reduction Factor: 35%

Transit Stop Improvements



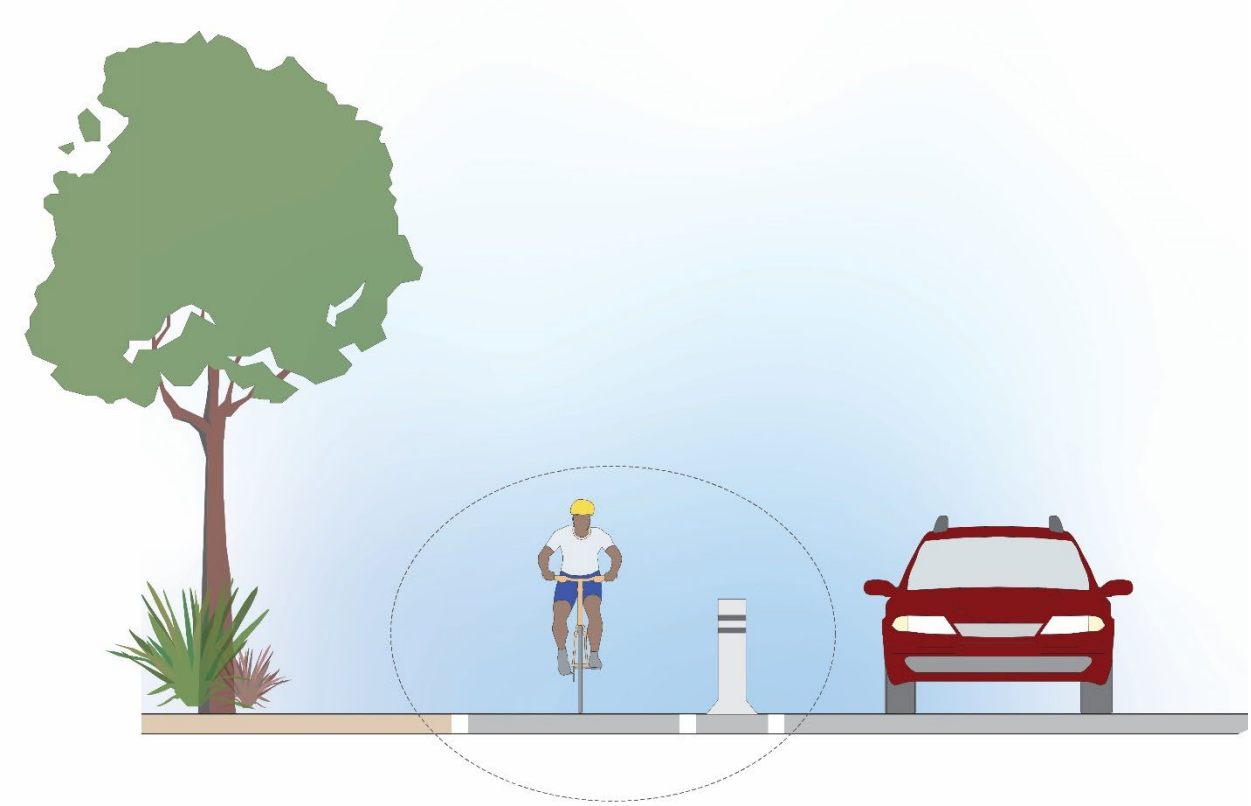
School bus stops are currently informal and lack amenities, such as sheltered seating and lighting. Ensuring the stops are accessible and in appropriately designated locations will help improve pedestrian safety while waiting for the bus to arrive and ensure the bus can stop in a location that does not obstruct the roadway. Pedestrian safety along the routes used to access bus stops is also of paramount importance and should be considered in tandem with stop improvements.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety

Application Considerations: When establishing bus stop amenities, consider the potential for roadway departures resulting from improper turning and unsafe speeds. The trails identified in the ATP Needs Assessment, including Harolds Road, Red Gate Road, Church Road and Poomacha Road, are the primary routes used by students to access bus stops and should be considered for initial improvements.

Crash Reduction Factor: Undetermined

Separated Bike Lane



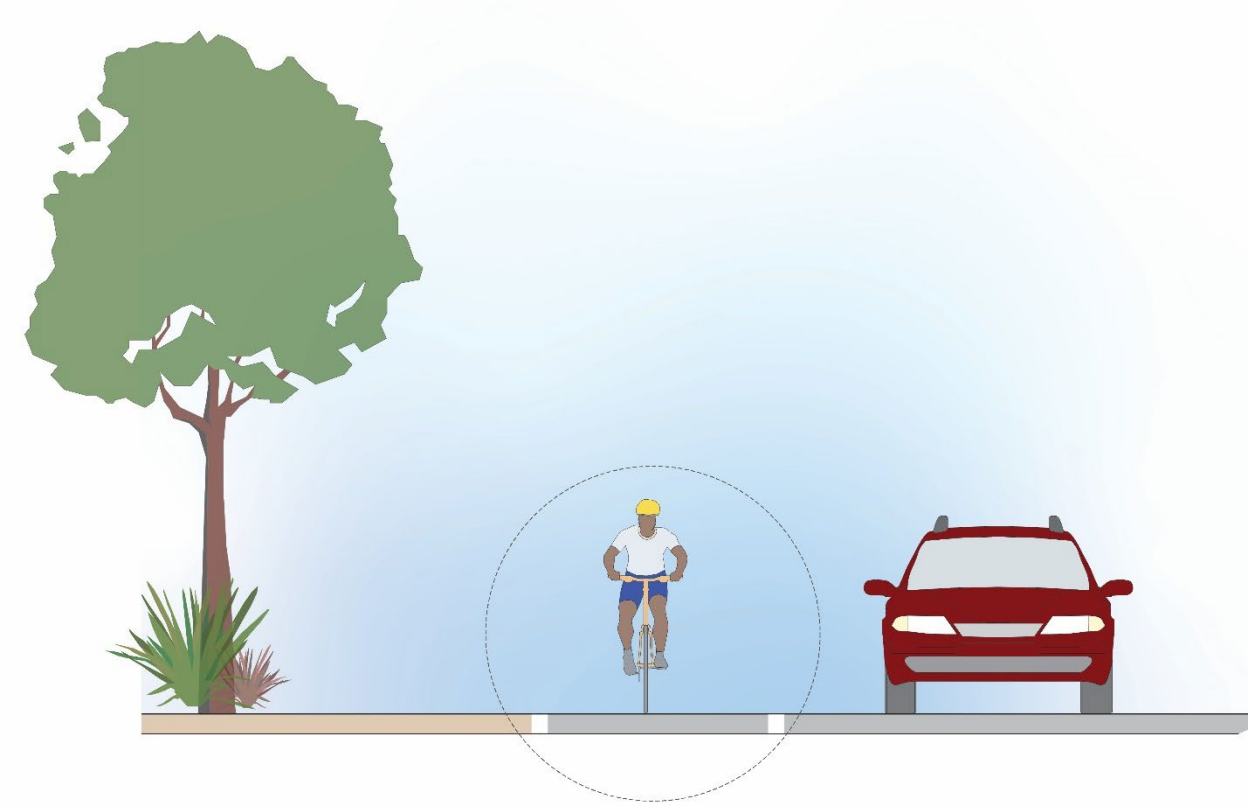
A separated bicycle lane, also known as a Class IV Bikeway, protected bike lane, or cycle track, is a space for bicyclists that is physically separated from motorist traffic by barriers such as bollards, flex posts, or raised concrete.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety

Application Considerations: Separated bike lanes can be implemented cost efficiently during roadway construction or resurfacing. Bike facilities are recommended to connect the existing bike park with future developments as roadways are realigned and/or reconstructed.

Crash Reduction Factor: 45%

Bike Lane



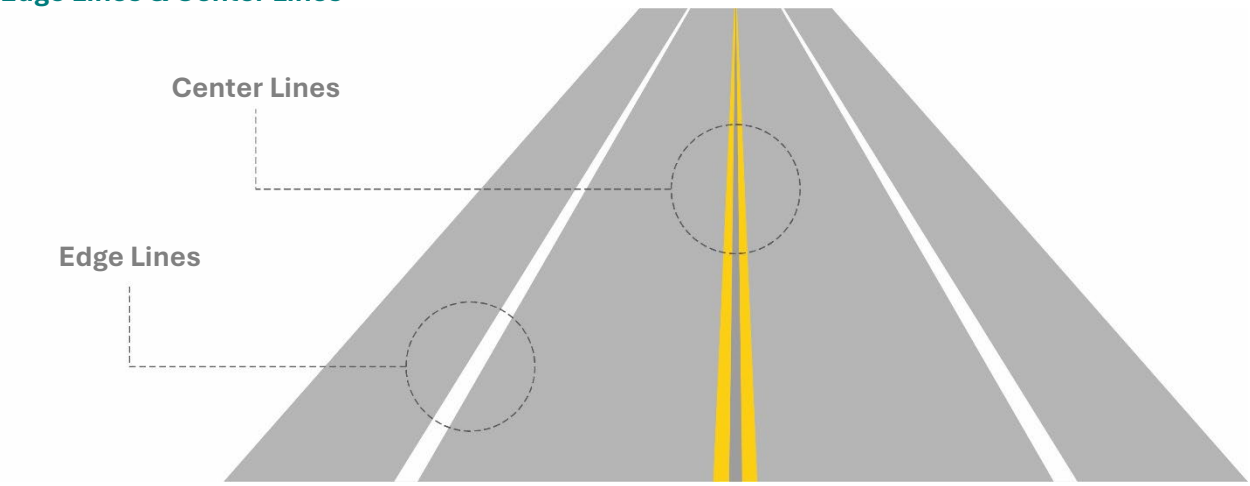
Bike lanes provide a marked, dedicated area for bicyclists to travel along the roadway. They help facilitate more predictable movements for both bicyclists and motorists. Bike lanes can help encourage bicyclists to ride with the flow of vehicular traffic which has been demonstrated to reduce the chances of a collision with a motor vehicle.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety

Application Considerations: Bike lanes can be implemented cost efficiently during roadway construction or resurfacing. Bike facilities are recommended to connect the existing bike park with future developments as roadways are realigned and/or reconstructed.

Crash Reduction Factor: 35%

Edge Lines & Center Lines



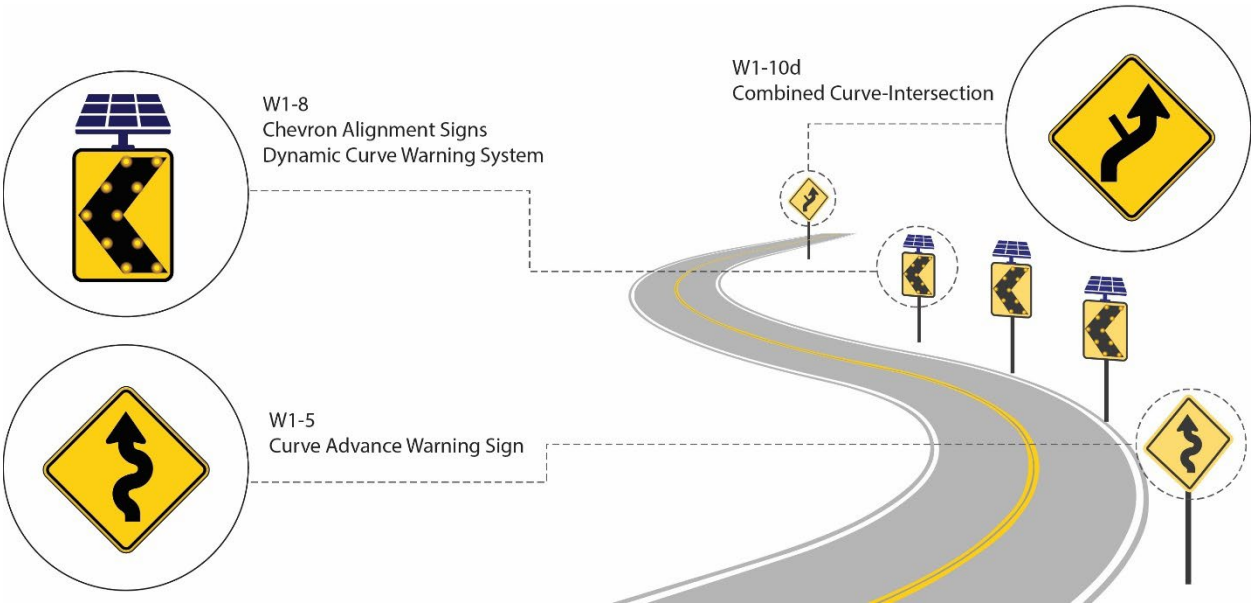
Edge lines are solid (white or yellow) pavement lines marked along the sides of a road, used to indicate the edge of the travel lane and the shoulder. They help drivers visually identify the road boundaries. Wider edge lines (6 inches in width) can further enhance the visibility of the road edge. Center lines are used to delineate roadways by separating traffic lanes that travel in opposite directions.

Issues/Crash Types Addressed: Roadway Departures, Overturned Vehicles, Hit Objects

Application Considerations: Edge lines and center lines can be implemented cost efficiently during roadway construction or resurfacing. They should be considered for the roadways providing access to future developments, such as Sengme Oaks Road and Campground Road.

Crash Reduction Factor: 25%

Enhanced Delineation for Horizontal Curves



Enhanced delineation can be used to help alert drivers to anticipate approaching horizontal curves and curve features. Signing and striping are two strategies for enhancing delineation. These treatments can advise the direction and sharpness of the curve and other approaching roadway features (e.g., driveways or intersections), and can be implemented in advance of, and/or within, curves. Examples include, but are not limited to, pavement markings, retroreflective strips on sign-posts, delineators, chevron signs, flashing lights.

Issues/Crash Types Addressed: Unsafe Speeds, Roadway Departures, Overturned Vehicles, Hit Objects

Application Considerations: **Table 4.2** summarizes potential strategy deployment locations.

Table 4.2 - Strategies for Enhanced Delineation for Horizontal Curves

Potential Strategies	In Advance of Curve	Within Curve
Pavement markings (standard width or wider)	●	●
In-lane curve warning pavement markings	●	
Retroreflective strips on sign posts	●	●
Delineators		●
Chevron signs		●
Larger, fluorescent, and/or retroreflective signs	●	●
Dynamic curve warning signs	●	
Sequential dynamic chevrons		●

Source: FHWA Office of Safety, Proven Safety Countermeasures

Crash Reduction Factor: 40%

High Friction Surface Treatments

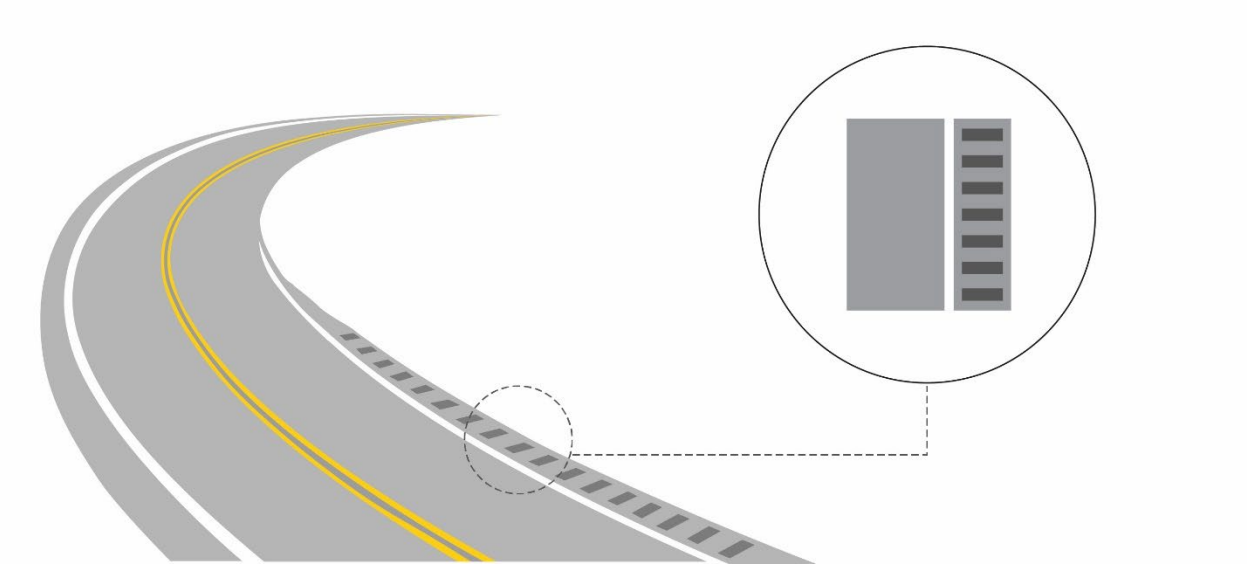
High friction surface treatment (HFST) is a pavement overlay intended to increase friction. HFST is intended to target locations where skidding is a problem, in wet or dry conditions.

Issues/Crash Types Addressed: Unsafe Speeds, Roadway Departures, Overturned Vehicles, Hit Objects

Application Considerations: Can be deployed along curves, ramps, intersections, and areas with short stopping distances.

Crash Reduction Factor: 55%

Longitudinal Rumble Strips



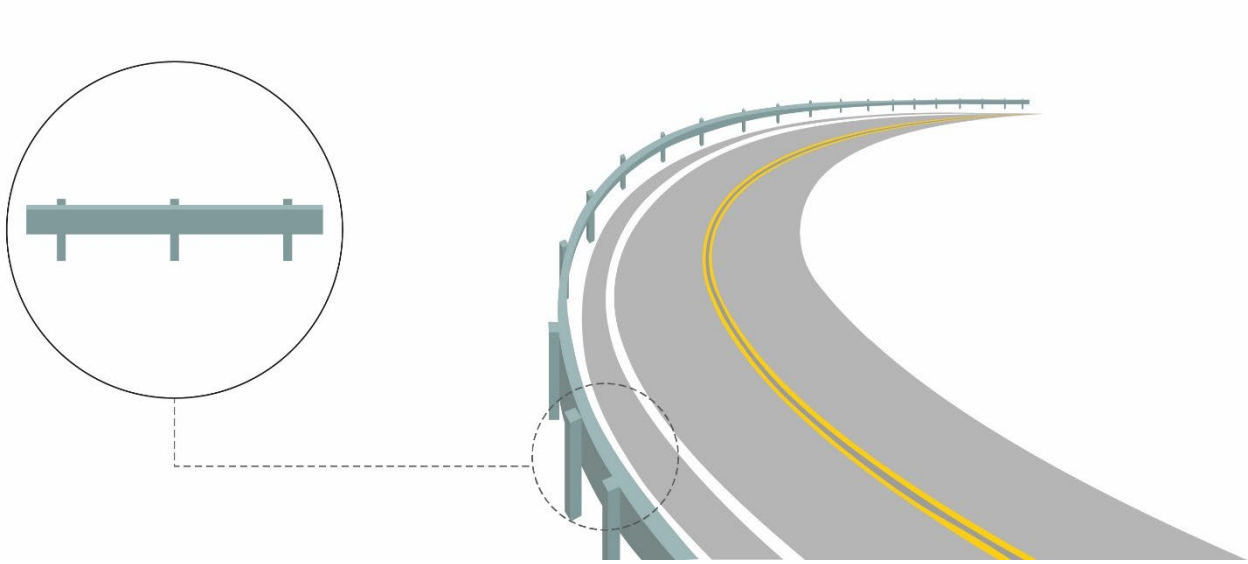
Rumble strips can be deployed along the length of a roadway to provide an auditory indication and tactile rumble when driven on, alerting drivers that they are entering the shoulder, median area, or opposing lane.

Issues/Crash Types Addressed: Pedestrian Safety, Bicycle Safety, Unsafe Speed, Intersection Safety, Roadway Departures, Overturned Vehicles, Hit Objects

Application Considerations: Nominal cost improvement intended to be applied systematically along an entire road rather than individual spots.

Crash Reduction Factor: 15-20%

Guardrails



Guardrails are intended to reduce the severity of lane departures, typically by preventing a vehicle departing the roadway from going down an embankment or hitting a fixed object such as trees or utility poles.

Issues/Crash Types Addressed: Unsafe Speeds, Roadway Departures, Overturned Vehicles, Hit Objects

Application Considerations: The starting point of the guardrail requires an end treatment. New and existing guardrails require end treatments to help absorb energy. Examples of guardrail design considerations include the length, placement, position, and slope.

Crash Reduction Factor: 25%

Roadway Realignment

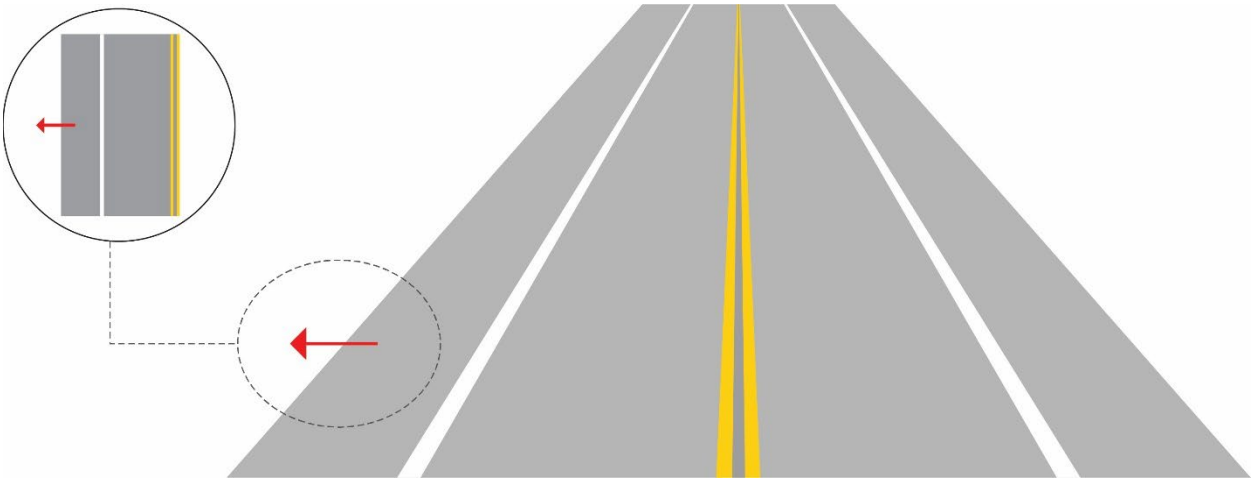
Changing the alignment of a roadway can help increase sight distance at intersection locations, improving safety for all travel modes.

Issues/Crash Types Addressed: Pedestrian Safety, Bicycle Safety, Intersection Safety/Sight Distance

Application Considerations: Potential to be very costly depending on the length, topographical challenges, utilities, and other considerations. The Comprehensive Economic Development Strategy identifies a new potential roadway and realigned intersections and roadways. Further development of the transportation network plans should focus on multimodal safety and access to the various uses.

Crash Reduction Factor: Undetermined

Shoulder Widening



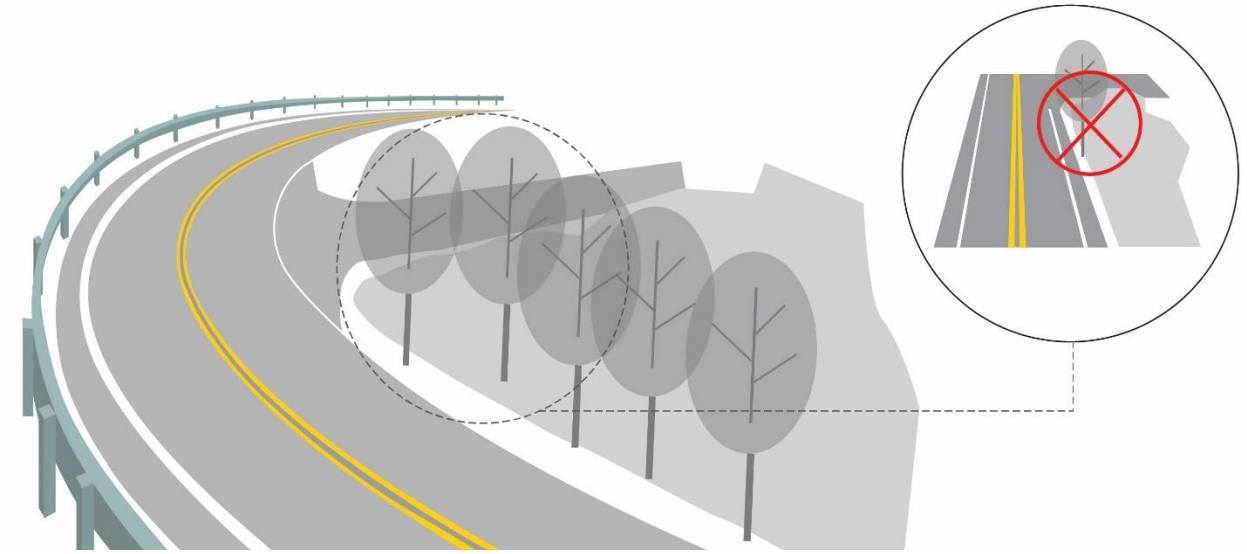
Roadway shoulders provide a safe recovery space for vehicles errantly exiting the roadway, reducing the risk of head-on and roadway departure collisions. They can also allow drivers to pull over during an emergency or needed maintenance, removing the vehicle from the main travel lane. Shoulders can also be used to provide space for pedestrians and/or bicyclists.

Issues/Crash Types Addressed: Pedestrian Safety, Bicycle Safety, Unsafe Speed, Roadway Departures, Hit Objects

Application Considerations: The shoulder can be paved or hard-surfaced material. Shoulder width should consider the potential intended uses.

Crash Reduction Factor: 30%

Sight Distance Improvements



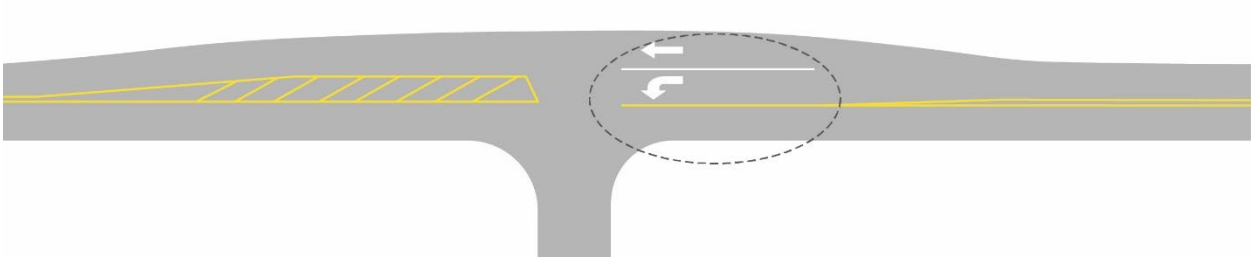
Obstacles, such as vegetation, terrain, and signage at the edges of intersections can obstruct visibility. Removing these obstacles to improve sight distance can improve safety for all roadway users.

Issues/Crash Types Addressed: Pedestrian Safety, Bicycle Safety, Intersection Safety

Application Considerations: California's AB 413, also known as the daylighting law, reinforces this principle by requiring the removal of parking spaces within 20 feet of marked crosswalks. The rural setting of the Reservation makes overgrown vegetation more of an issue than on-street parking.

Crash Reduction Factor: 20%

Turn Pockets



Turn pockets are designated areas that provide space for vehicles to move out of the main travel lane when preparing to turn right or left.

Issues/Crash Types Addressed: Intersection Safety

Application Considerations: Turn lanes can be designed to provide for deceleration prior to a turn, as well as for storage of vehicles that are stopped and waiting to turn.

Crash Reduction Factor: 20-35%

Roundabouts

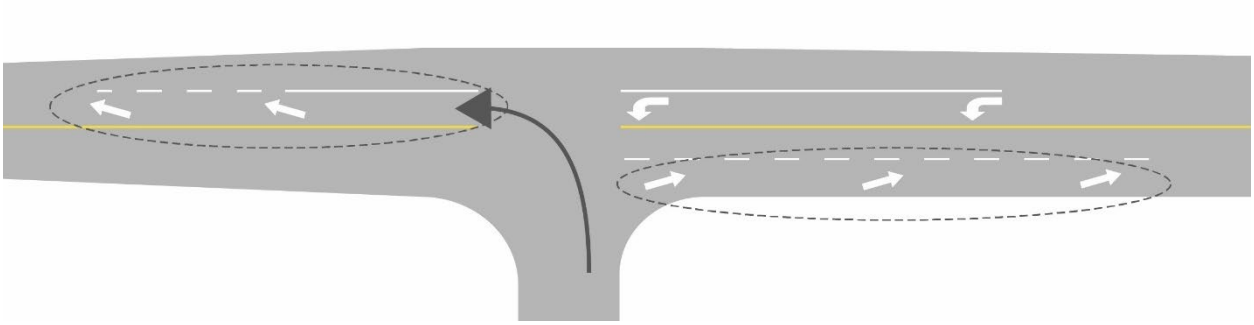
A roundabout is a traffic control device that facilitates traffic to flow in a counterclockwise direction around a central island. Traffic entering the roundabout must yield the right-of-way to traffic already in it. Roundabouts provide fewer conflict points than stop-controlled or signalized intersections and are proven to reduce crash severity.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety, Unsafe Speed, Intersection Safety

Application Considerations: The Tribe's Comprehensive Economic Development Strategy identifies roundabouts as a strategy to improve roadway safety, with locations identified at SR-76 intersections in a preliminary site plan. While these locations may be difficult or infeasible to implement, roundabouts can be considered as traffic control devices for internal roadway intersections, especially mini or compact roundabout designs. Construction costs can vary greatly depending on other improvements needed, such as pavement widening.

Crash Reduction Factor: Varies greatly, 12-78%

Acceleration/Deceleration Lane



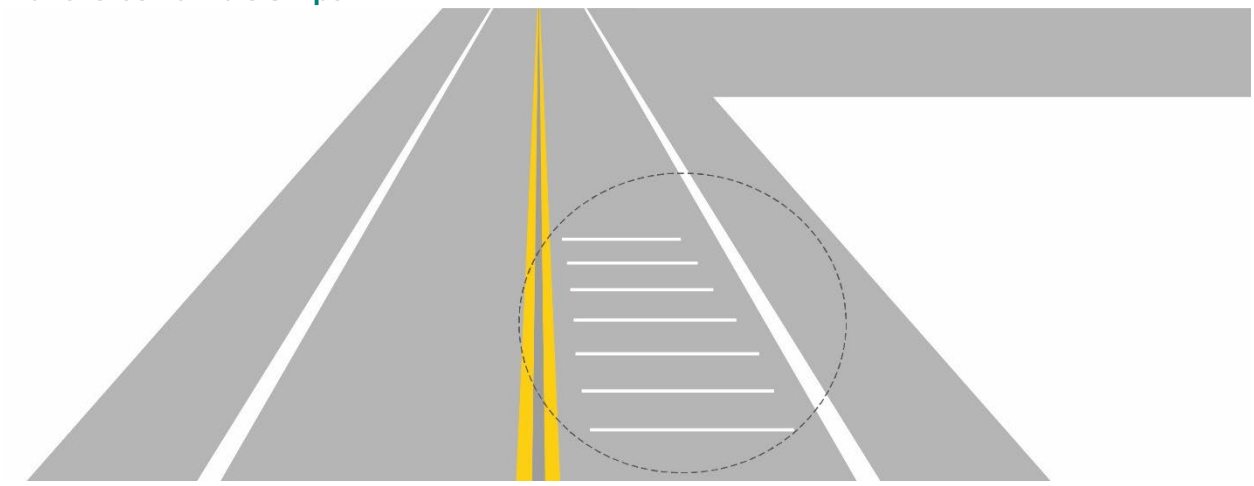
Acceleration and deceleration lanes help vehicles entering or exiting a high-speed roadway to speed up or slow down to match the flow of traffic without disrupting the flow of traffic on the main travel lanes.

Issues/Crash Types Addressed: Unsafe Speed, Intersection Safety

Application Considerations: Typically requires widening the roadway to accommodate the additional lane. May be applicable to SR-76 intersection approaches to minor streets, such as Sengme Oaks Road and/or Campground Road.

Crash Reduction Factor: 25%

Transverse Rumble Strips



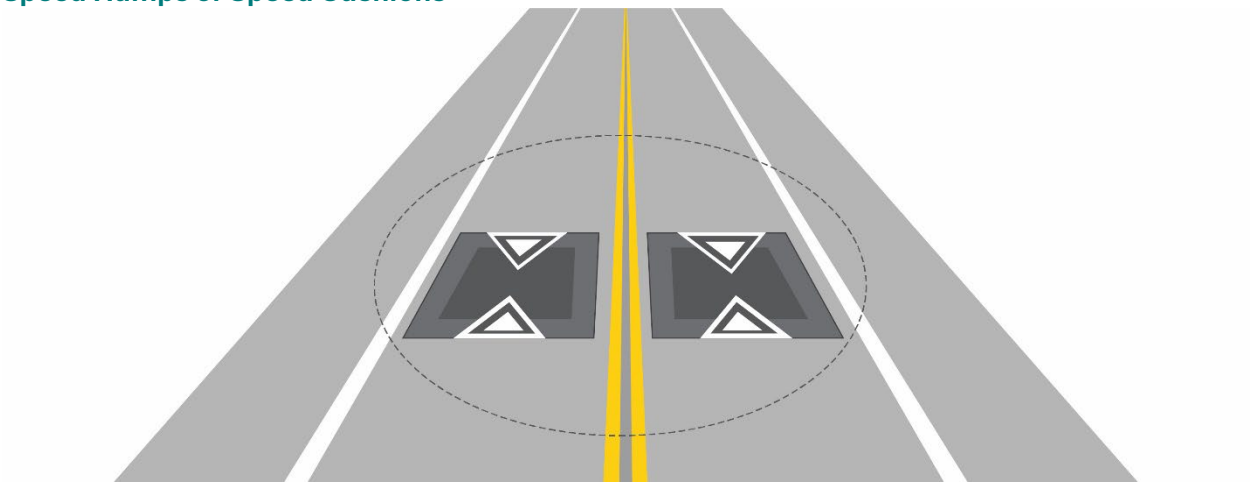
A pavement treatment applied on an intersection approach that creates an abrasive sound and vibration when a motorist drives over it, providing advanced warning of the intersection.

Issues/Crash Types Addressed: Pedestrian Safety, Bicycle Safety, Unsafe Speed, Intersection Safety

Application Considerations: Nominal cost improvement

Crash Reduction Factor: 15-20%

Speed Humps or Speed Cushions



A speed hump is a rounded, raised area of pavement used to encourage slower speeds by providing vertical deflection for traffic calming.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety, Unsafe Speed, Intersection Safety

Application Considerations: Speed humps should be deployed on low speed, low volume streets. Gaps should be placed horizontally between humps or cushions to allow emergency vehicles to pass through without going over the hump, due to their wider wheelbase. Speed humps are typically made of asphalt or concrete, while humps can be made of rubber materials.

Crash Reduction Factor: Varies

Dynamic Speed Warning Signs

Dynamic signs that give drivers a visual warning that they may be traveling over the recommended speed for the environment.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety, Unsafe Speed, Intersection Safety, Roadway Departures, Overturned Vehicles, Hit Objects

Application Considerations: Most appropriate along curved roadways where motorists travel too fast around sharp curves. The warning signs can be solar powered.

Crash Reduction Factor: 30%

Speed Safety Cameras

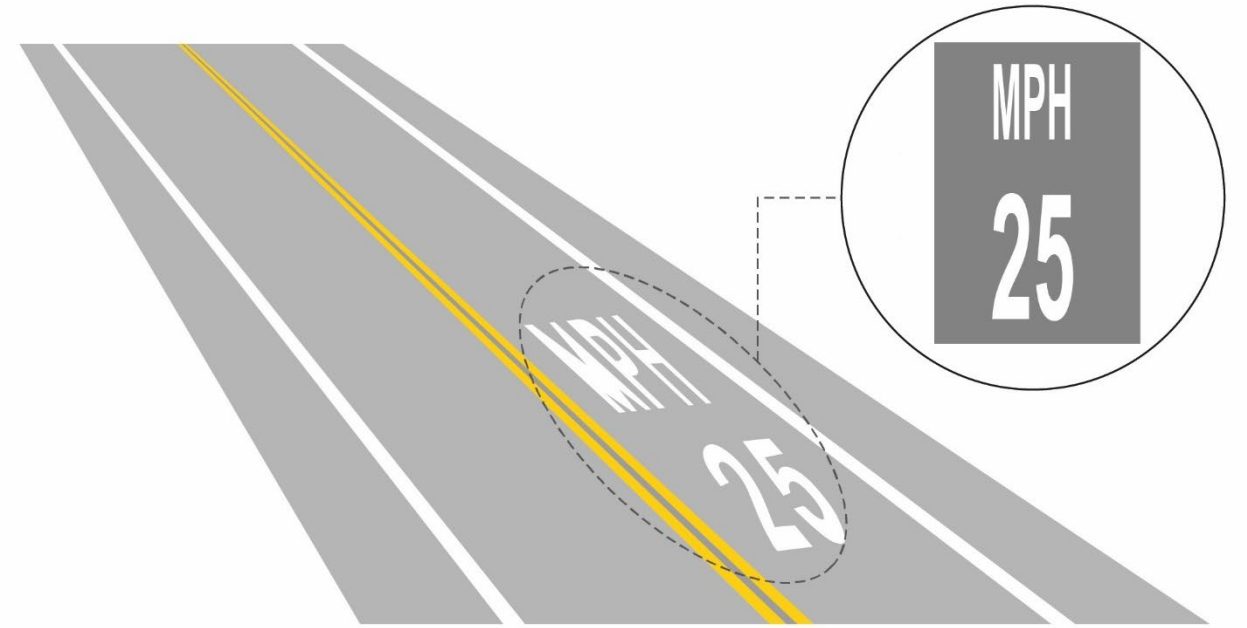
Speed safety cameras (SSCs) are an effective technology to supplement traditional speed enforcement. SSCs use speed measurement devices to detect speeding and capture photographic or video evidence that vehicles are violating the speed threshold.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety, Unsafe Speed, Intersection Safety, Roadway Departures, Overturned Vehicles, Hit Objects

Application Considerations: Can be deployed as single, fixed units, multiple units along a segment, or as mobile units that can be moved between locations.

Crash Reduction Factor: 20%

Speed Limit Pavement Markings



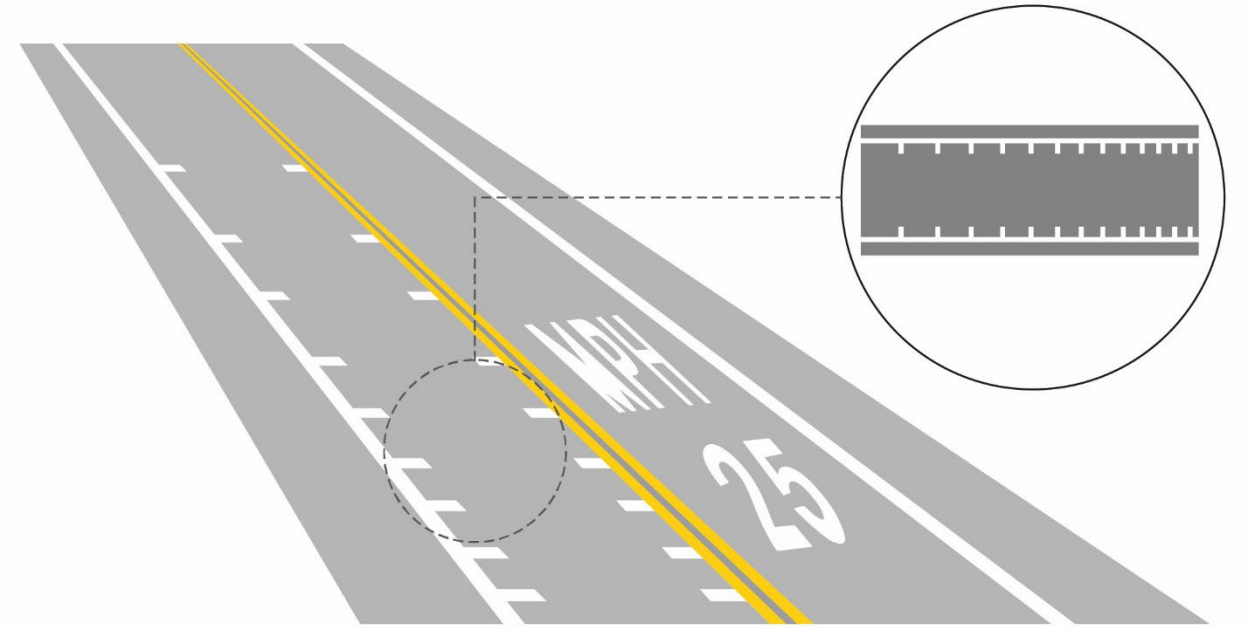
Speed limit pavement markings are used to emphasize the speed limit by displaying the posted speed limit on the pavement.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety, Unsafe Speed, Intersection Safety, Roadway Departures, Overturned Vehicles, Hit Objects

Application Considerations: The pavement markings are intended to reinforce, not replace, traditional speed limit signs.

Crash Reduction Factor: Undetermined

Speed Reduction Markings



Speed reduction markings (also known as Optical Speed Bars) are transverse pavement markings on each side of the travel lane with progressively reduced spacing. The illusion creates the perception of increased speed, encouraging drivers to slow down as they pass the markings.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety, Unsafe Speed, Intersection Safety, Roadway Departures, Overturned Vehicles, Hit Objects

Application Considerations: Speed reduction markings should be selectively used for curve approaches and should not be used for long sections of roadway. The markings should only be used on roadways with longitudinal lines (center line, edge line, or lane line) on both sides of the lane. See CA MUTCD Section 3B.22 for additional information.

Crash Reduction Factor: Undetermined

High Visibility Enforcement

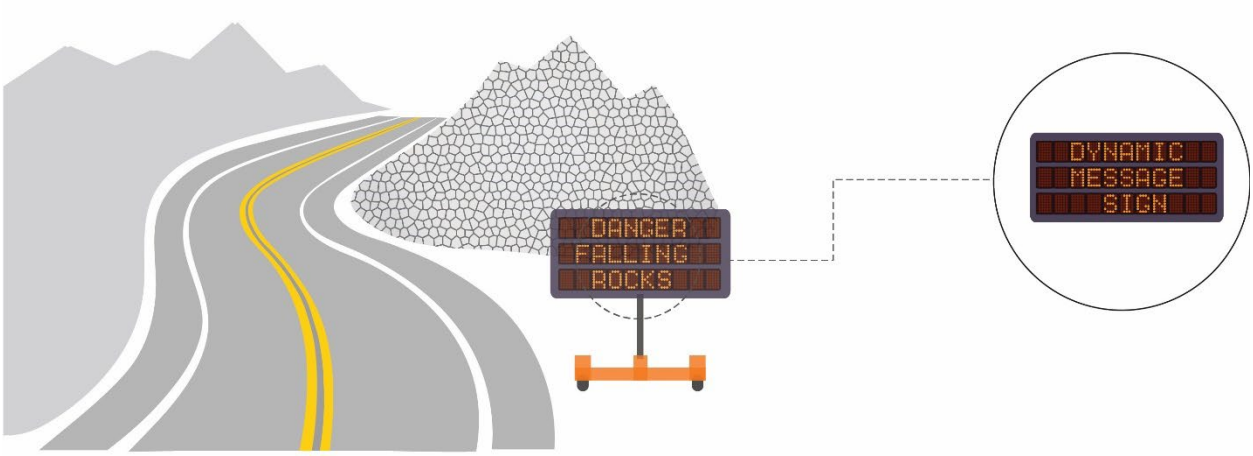
A practice where law enforcement widely publicizes that they will be enforcing against an unwanted activity or behavior in a high-crash or high-violation location. This approach raises awareness of the location's safety concern and maximizes the general deterrence of unwanted behaviors.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety, Unsafe Speed, Driving Under the Influence, Intersection Safety, Roadway Departures, Overturned Vehicles, Hit Objects

Application Considerations: Unsafe speeds and driving under the influence are two prominent issues to consider targeting with high visibility enforcement.

Crash Reduction Factor: Undetermined

Changeable/Dynamic Message Signs



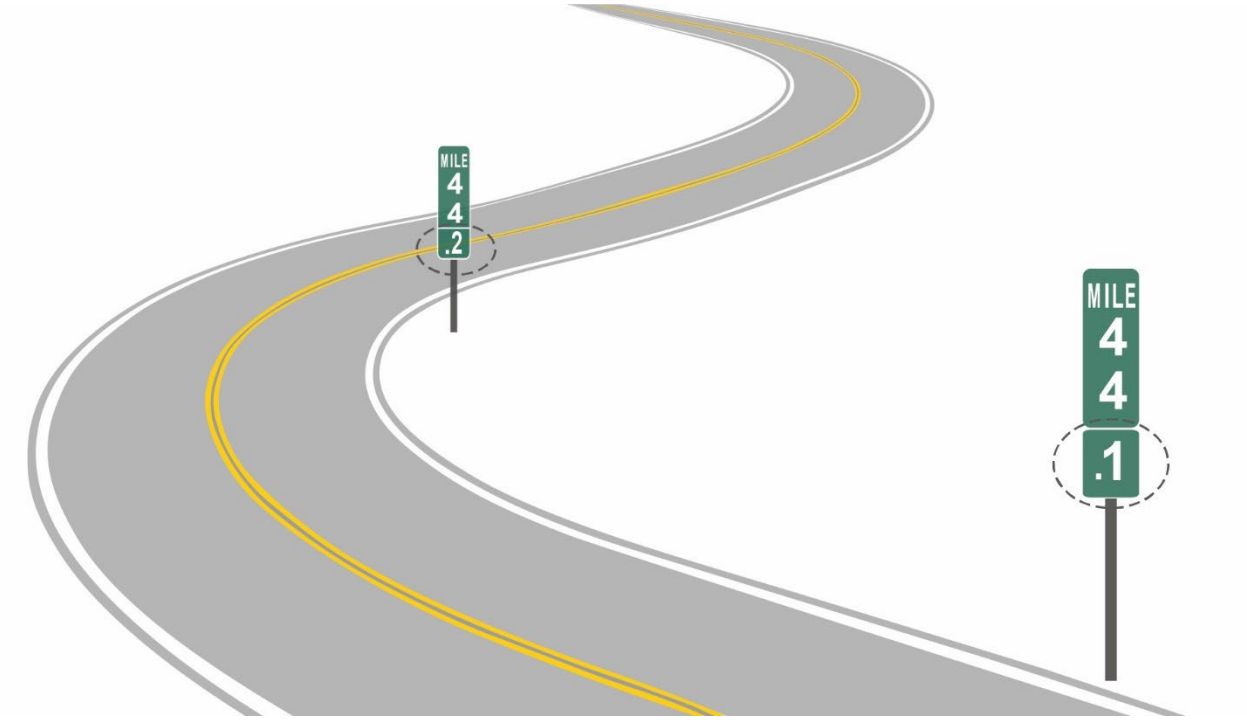
A changeable message sign (CMS) is used to provide real-time safety guidance to motorists. The signs can inform motorists of unexpected conditions, such as potential falling rocks after a storm, or as safety campaign warnings about recurring issues such as speeding or driving under the influence.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety, Unsafe Speed, Driving Under the Influence, Intersection Safety, Roadway Departures, Overturned Vehicles, Hit Objects

Application Considerations: Changeable message signs should be used to supplement, not replace, conventional traffic control devices and advisory signs. Caltrans' Headquarters CMS Coordinator is responsible for providing guidance to Caltrans personnel on when, where, and how to use a CMS.

Crash Reduction Factor: Undetermined

Increased Mile-Marker Frequency



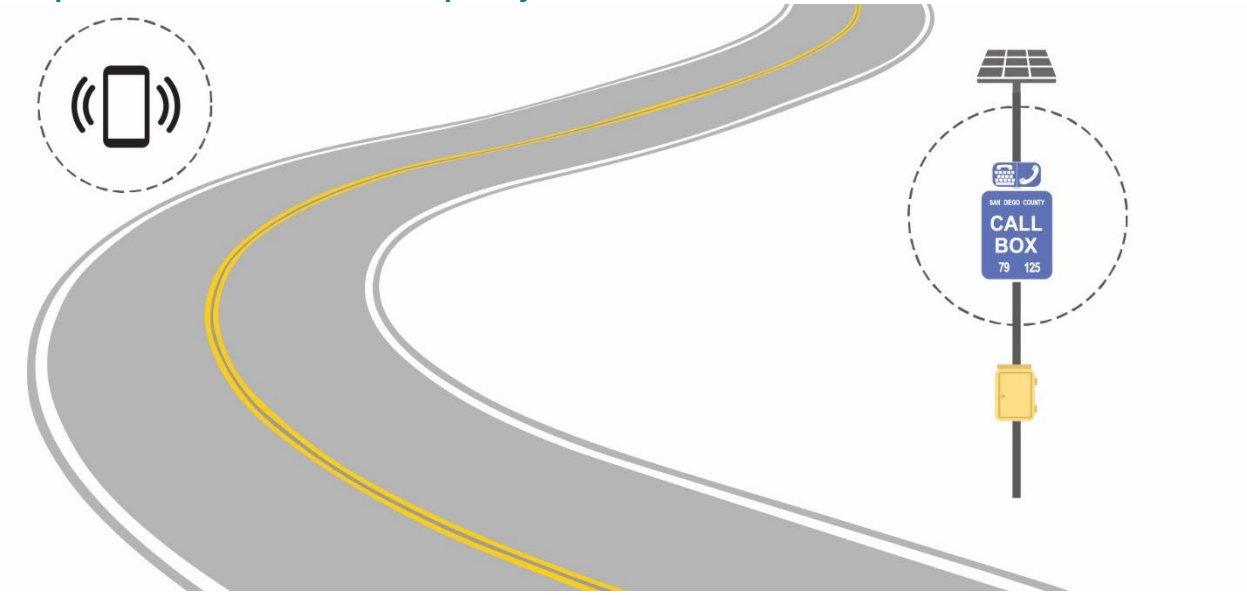
First responders indicated people having difficulty in identifying locations when reporting crashes. Mile-markers are present, however, they are infrequent. Increasing the frequency of mile-markers to every one-tenth of a mile is intended to improve the accuracy when reporting crash locations to emergency personnel, especially when cellphone service is unavailable or limited.

Issues/Crash Types Addressed: Delayed Post-Crash Reporting

Application Considerations: Primarily intended along SR-76

Crash Reduction Factor: Undetermined

Cellphone Service & Call Box Frequency



First responders indicated the lack of cellphone service and infrequency of call boxes can lead to delayed reporting of crashes after they occur, which can put victims at further risk. Improving cellphone service and/or the frequency of call boxes is intended to expedite crash reporting and get first responders on scene as quickly as possible.

Issues/Crash Types Addressed: Delayed Post-Crash Reporting

Application Considerations: Primarily intended along SR-76

Crash Reduction Factor: Undetermined

Roadway Maintenance & Reconstruction

Roadway maintenance helps prevent the roadway from deteriorating and presenting hazardous conditions, such as potholes and uneven surfaces which can cause motorists to swerve or lose control. Additionally, many roadways internal to the Reservation were not constructed to best practice standards due to the Tribe not having formal design standards. Adopting roadway design and maintenance standards can ensure improvements are made uniformly and consistently, while adhering to best practices to maximize safety and infrastructure lifespan.

Issues/Crash Types Addressed: Bus Stop Access, Pedestrian Safety, Bicycle Safety, Roadway Departures, Overturned Vehicles, Hit Objects, Potholes and Degrading Edges

Application Considerations: Roads within the Reservation are commonly missing shoulders, edge lines, center lines, and signage, and are narrow in width, often with potholes or degrading edges. The Tribe's Long Range Transportation Plan prioritizes roadways in need of maintenance. Relevant excerpts identifying the maintenance needs, including cost estimates, are provided as **Appendix D**. Appendix D also identifies roadway design standard resources to consider for adoption.

Crash Reduction Factor: Undetermined

5.0 Implementation

Implementation refers to the process of putting a plan or recommendations into action, such as the construction of an improvement or execution of an enforcement campaign. This chapter highlights potential considerations to phase implementation of recommendations and highlights the importance of agency coordination. The chapter concludes with an approach to monitoring the CSAP outcomes.

5.1 Phasing Considerations

Phasing refers to the order in which recommendations should be implemented. As stated in the previous chapters, no collisions were reported along roadways maintained and operated by La Jolla Band of Luiseño Indians, which is a typical variable for consideration when phasing or prioritizing safety improvements. Additionally, substantial developments are anticipated within the Reservation, which are likely to result in modifications to the local roadway network and warrant additional safety and operational considerations.

With these considerations in mind, the following improvements are recommended to be pursued in the near term as they are relevant to today's current needs:

- **Sidewalks/Pathways** – The trail and traffic calming locations identified in the ATP Needs Assessment and depicted in **Figure 5.1**, including Harolds Road, Red Gate Road, Church Road and Poomacha Road, are the primary routes used by students to access bus stops and should be considered for initial improvements. Community members voiced student safety as a main priority. Improvements along these pathways may include formalizing the walking areas, warning signage, striping improvements, street crossing improvements, and/or traffic calming measures.
- **Transit Stop Improvements** – In addition to access improvements to the bus stops, improvements to the stop locations are recommended. This will involve creating formal waiting areas where people can wait comfortably and, in a location, safe from vehicular traffic and from the elements. Some of the bus stop locations may be within Caltrans' right-of-way which will require additional coordination, as referenced in Section 5.2.
- **Road Maintenance** – Many local roads are in a condition requiring resurfacing, striping, and/or reconstruction improvements to be brought up to standard design. **Figure 5.2** displays the current high priority roadways in need of improvement, consistent with the prioritized needs identified Long Range Transportation Plan (excerpts provided as **Appendix D**) which also recognizes improvement priorities are anticipated to change over time. **Table 5.1** corresponds to the Figure, identifying the specific planned improvements along with additional recommendations to consider at the design stage.
- **Finalize Development Plans & Adopt Standards** – The Comprehensive Economic Development Strategy identifies the expansion of existing uses, new structures, and potential modifications to the transportation network. Finalizing the development plans, including specific quantities, intensities, and locations will inform the identification of additional transportation safety and mobility needs which can then draw from the countermeasure toolbox features identified in Chapter 4. Adoption – or formally endorsing – design standards should be considered to support implementation of best practices.

Figure 5.1 - Priority Trail and Traffic Calming Locations

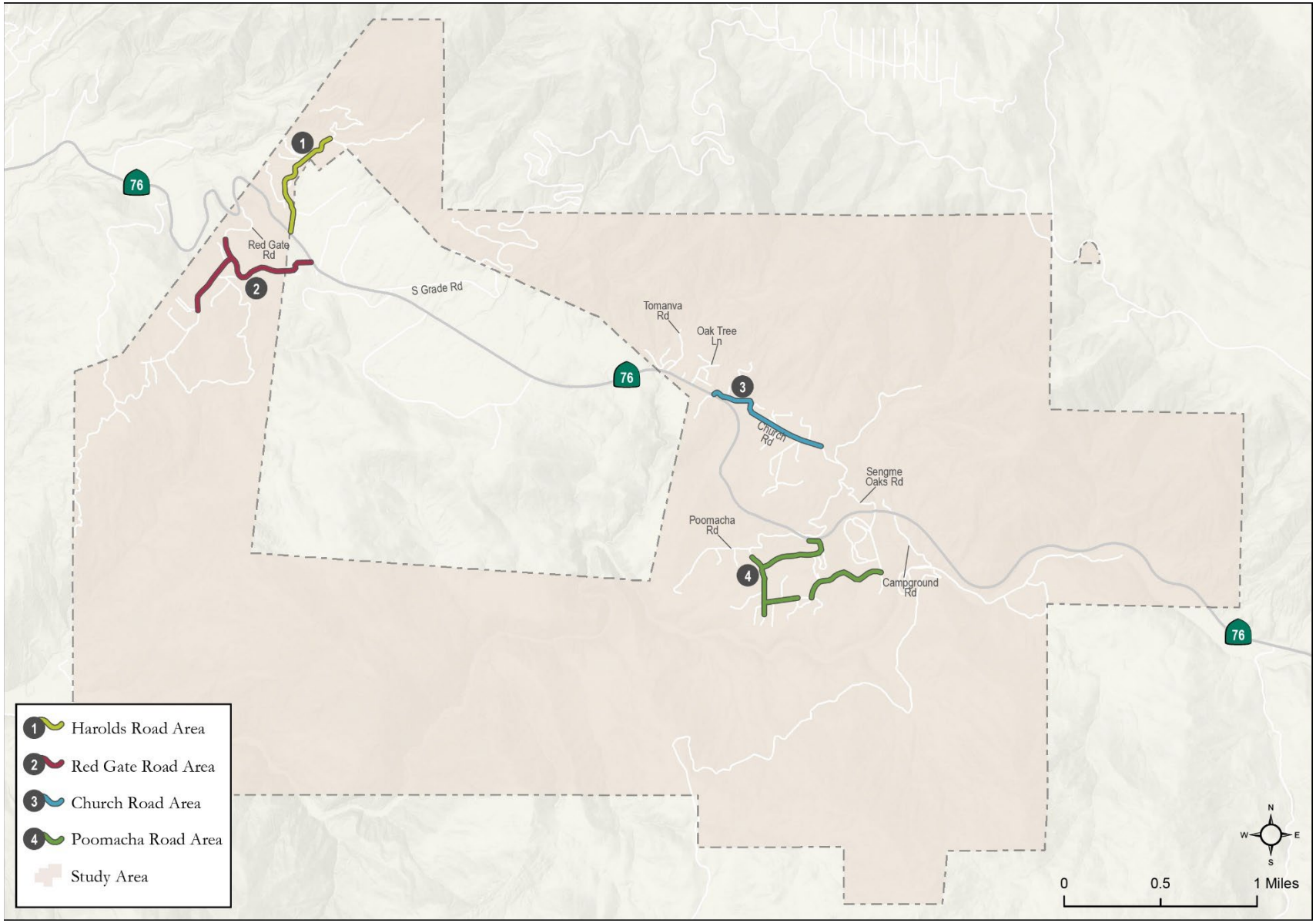


Figure 5.2 - Priority Road Maintenance & Reconstruction Locations

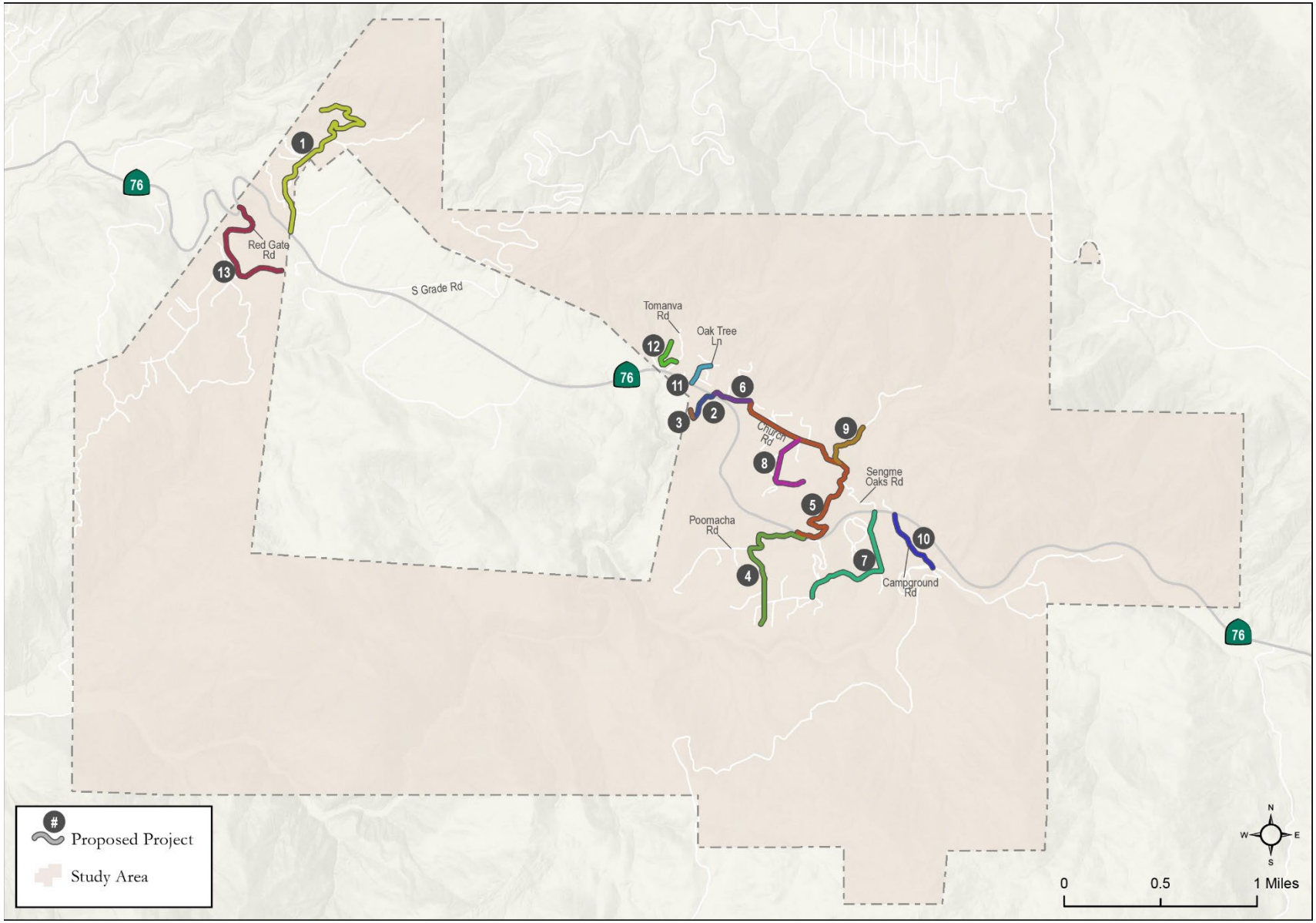


Table 5.1 - Priority Road Maintenance & Reconstruction Locations

Map ID & Road Name	Planned Improvement	Additional Considerations
1. BIA Route 50 Reconstruction (Harolds Road)	Reconstruct as a 24-foot-wide paved road, with 20-feet of paved travel way and 2-foot paved shoulders.	Consider edge lines and widening paved or hard surface shoulder (4-feet wide or greater) to accommodate space for pedestrians; opportunity to cost effectively implement Harolds Road Area trail and traffic calming improvements.
2. BIA Route 52 Reconstruction (Diamond Hill Road)	Reconstruct as a 24-foot-wide paved road, with 20-feet of paved travel way and 2-foot paved shoulders.	Consider edge lines.
3. Unnamed HUD Road	Reconstruct as a 24-foot-wide paved road, with 20-feet of paved travel way and 2-foot paved shoulders.	Consider edge lines.
4. BIA Route 41A Reconstruction (Poomacha Road)	Reconstruct as a 26-foot-wide paved road, with 20-feet of paved travel way and 3-foot paved shoulders.	Consider edge and center lines and widening paved or hard surface shoulder (4-feet wide or greater) to accommodate space for pedestrians; opportunity to cost effectively implement Poomacha Road Area trail and traffic calming improvements.
5. BIA Route 41B Reconstruction (La Jolla Road/Church Road)	Reconstruct as a 26-foot-wide paved road, with 20-feet of paved travel way and 3-foot paved shoulders.	Consider edge and center lines and widening paved or hard surface shoulder (4-feet wide or greater) to accommodate space for pedestrians; opportunity to cost effectively implement Church Road Area trail and traffic calming improvements.
6. BIA Route 41C Reconstruction (Church Road)	Reconstruct as a 24-foot-wide paved road, with 20-feet of paved travel way and 2-foot paved shoulders.	Consider edge lines and widening paved or hard surface shoulder (4-feet wide or greater) to accommodate space for pedestrians; opportunity to cost effectively implement Church Road Area trail and traffic calming improvements.

Map ID & Road Name	Planned Improvement	Additional Considerations
7. BIA Route 42 Reconstruction (Sengme Oaks Road)	Reconstruct as a 34-foot-wide paved road, with 22-feet of paved travel way and 6-foot paved shoulders, allowing on-street parking.	Consider edge and center lines and widening paved or hard surface shoulder (4-feet wide or greater) to accommodate space for pedestrians; opportunity to cost effectively implement Poomacha Road Area trail and traffic calming improvements. Reevaluate anticipated long-term development plans and associated increases in traffic.
8. BIA Route 44 Reconstruction (Amago Road)	Reconstruct as a 24-foot-wide paved road, with 20-feet of paved travel way and 2-foot paved shoulders.	Consider edge lines.
9. BIA Route 45 Reconstruction (La Jolla Road)	Reconstruct as a 24-foot-wide paved road, with 20-feet of paved travel way and 2-foot paved shoulders.	Consider edge lines.
10. BIA Route 46 Reconstruction (Campground Road)	Reconstruct as a 28-foot-wide paved road, with 20-feet of paved travel way and 4-foot paved shoulders.	Consider edge and center lines and widening paved or hard surface shoulder (4-feet wide or greater) to accommodate space for pedestrians. Reevaluate anticipated long-term development plans and associated increases in traffic.
11. BIA Route 47 Reconstruction (Oak Tree Lane)	Reconstruct as a 24-foot-wide paved road, with 20-feet of paved travel way and 2-foot paved shoulders.	Consider edge lines.
12. BIA Route 48 Reconstruction (west of Tomanva Road)	Reconstruct as a 24-foot-wide paved road, with 20-feet of paved travel way and 2-foot paved shoulders.	Consider edge lines.
13. BIA Route 49 Reconstruction (Red Gate Road)	Reconstruct as a 24-foot-wide paved road, with 20-feet of paved travel way and 2-foot paved shoulders.	Consider edge lines and widening paved or hard surface shoulder (4-feet wide or greater) to accommodate space for pedestrians; opportunity to cost effectively implement Red Gate Road Area trail and traffic calming improvements.

5.2 Agency Coordination

The two roadways with reported collisions are maintained and operated by agencies other than the La Jolla Band of Luiseño Indians, including SR-76 by Caltrans and South Grade Road by the County of San Diego, underscoring the importance of interagency coordination. The La Jolla Band of Luiseño Indians maintains working relationships and communication channels with their agency counterparts, coordinating on corridor needs, including annual site visits to identify and plan maintenance needs, with a large focus on vegetation management and responses to weather related events.

Continuing this coordination, particularly with Caltrans, will be important as future development is pursued. Access to the anticipated development areas will be taken primarily via the SR-76 intersections with Sengme Oaks Road and Campground Round. Improvements to these intersections will be based on the forecast traffic volumes associated with the planned developments, once quantities, land uses, and locations are finalized.

A traffic operations assessment was undertaken to estimate the traffic volume threshold that may necessitate a change in traffic control and additional safety considerations. As stated, the land uses and quantities have not been finalized, thus the assessment is intended to serve as an initial resource to support future site planning and discussions with Caltrans. The traffic operations assessment is provided as **Appendix E**, and includes the following:

- Sight distance evaluation at each intersection
- Trip generation assessment of potential land uses
- Future Year 2035 traffic volume development
- Intersection operations analysis under Existing Conditions
- Intersection operations analysis under Future Year 2035 Conditions
- Intersection operations analysis under Future Year 2035 with Project Conditions

The analysis estimated a change in the existing traffic control (currently side street stop control) may be required if future developments generate approximately 7,200 trips. The Future Year 2035 with Project Conditions assessment was performed using a roundabout, the control type identified in the Comprehensive Economic Development Strategy. However, alternatives to the roundabout that would provide operational and safety benefits should also be considered, including but not limited to strategies identified in the countermeasure toolbox, such as turn pockets and/or acceleration/deceleration lanes.

Caltrans staff were consulted during development of the traffic operations assessment. Further coordination will be required as the site plan is finalized and developments are further pursued. Communication will be necessary to determine and implement potential SR-76 improvements needed to accommodate the increase in traffic volumes. Caltrans representatives to involve may include:

Caltrans District Tribal Liaison → Corridor Manager → District Safety Manager

5.3 Monitoring

Safety plans, such as this CSAP, are a snapshot in time. The collision data analyzed and discussions with agency stakeholders and community members reflect current needs and issues, however, these can change. New developments and roadway modifications may alter travel patterns, new technologies and services may change how people travel, and behaviors may change.

Evaluating and monitoring in safety plans serves to track and measure safety performance over time and to assess the effectiveness of implemented projects. Tracking data enables agencies to build an understanding of emerging issues and trends compared to past performance, and to inform identification of future recommendations.

Table 5.2 identifies recommended performance measures and data that can be tracked annually or bi-annually. The information can then be used to inform CSAP updates every three to five years.

Table 6.1 - Performance Measures to Monitor

Performance Measure	Purpose	Data Source
Number and location of collisions (focus on fatal and severe injuries, collisions by mode, primary collision factor)	To track where collisions are occurring, what mode(s) are involved, and the leading causes	SWITRS, UC Berkeley TIMS
Multimodal activity levels	To inform an understanding of exposure	Traffic volumes, bicycle and pedestrian count data
Community and agency stakeholder traffic safety issues	Supplement the lack of collision data with discussions with the people who use, operate, and maintain the facilities	Communications with Tribal members and agency stakeholders
Transportation infrastructure improvements	To track what has been improved and understand potential safety benefits	Capital improvement project records, maintenance project records
Enforcement efforts	To understand enforcement frequency and relation to collision frequency	Citations and discussions with Tribal Police and California Highway Patrol
Community outreach and education	To track educational efforts aimed at improving roadway safety with the intent of understanding their efficacy	Communications with Tribe departments and agency stakeholders (SANDAG, Caltrans, CHP)

Appendix A - SS4A Self-Certification Eligibility worksheet

Safe Streets and Roads for All

Self-Certification Eligibility Worksheet

Applicants should follow the instructions in the NOFO to correctly apply for a grant. See the SS4A website for more information.

Instructions: The purpose of this worksheet is to determine whether an applicant's existing plan(s) is substantially similar to an Action Plan for purposes of applying for an Implementation Grant or to conduct Supplemental Planning/Demonstration Activities only. Use of this worksheet is required. Applicants should not adjust the formatting or headings of the worksheet.

For each question below, answer "yes" or "no." If "yes," cite the specific page in your existing Action Plan or other plan(s) that corroborate your response, or cite and provide other supporting documentation separately.

An applicant is eligible to apply for an Action Plan Grant that funds supplemental action plan activities, or an Implementation Grant, only if the following two conditions are met:

- **Answer "yes" to Questions** 3 7 9
- **Answer "yes" to at least four of the six remaining Questions** 1 2 4 5 6 8

If both conditions are *not met*, an applicant is still eligible to apply for an Action Plan Grant that funds creation of a new Action Plan.

Lead Applicant: **UEI:**

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1 Are both of the following true?

- Did a high-ranking official and/or governing body in the jurisdiction publicly commit to an eventual goal of zero roadway fatalities and serious injuries?
- Did the commitment include either setting a target date to reach zero, OR setting one or more targets to achieve significant declines in roadway fatalities and serious injuries by a specific date?

☒ YES ☐ NO

If yes, provide documentation:

Page 4

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2 To develop the Action Plan, was a committee, task force, implementation group, or similar body established and charged with the plan's development, implementation, and monitoring?

☒ YES ☐ NO

If yes, provide documentation:

Page 7

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3 Does the Action Plan include all of the following?

- Analysis of existing conditions and historical trends to baseline the level of crashes involving fatalities and serious injuries across a jurisdiction, locality, Tribe, or region;
- Analysis of the location where there are crashes, the severity, as well as contributing factors and crash types;
- Analysis of systemic and specific safety needs is also performed, as needed (e.g., high risk road features, specific safety needs of relevant road users; and,
- A geospatial identification (geographic or locational data using maps) of higher risk locations.

☒ YES ☐ NO

If yes, provide documentation:

Chapter 3

Safe Streets and Roads for All

Self-Certification Eligibility Worksheet

4 **Did the Action Plan development include all of the following activities?**

- Engagement with the public and relevant stakeholders, including the private sector and community groups;
- Incorporation of information received from the engagement and collaboration into the plan; and
- Coordination that included inter- and intra-governmental cooperation and collaboration, as appropriate.

☒ YES ☐ NO

If yes, provide documentation:

Chapter 2

5 **Did the Action Plan development include all of the following?**

- Considerations of equity using inclusive and representative processes;
- The identification of underserved communities through data; and
- Equity analysis, in collaboration with appropriate partners, focused on initial equity impact assessments of the proposed projects and strategies, and population characteristics.

☒ YES ☐ NO

If yes, provide documentation:

Chapter 3

6 **Are both of the following true?**

- The plan development included an assessment of current policies, plans, guidelines, and/or standards to identify opportunities to improve how processes prioritize safety; and
- The plan discusses implementation through the adoption of revised or new policies, guidelines, and/or standards.

☒ YES ☐ NO

If yes, provide documentation:

Chapter 3 & 4

7 **Does the plan identify a comprehensive set of projects and strategies to address the safety problems in the Action Plan, time ranges when projects and strategies will be deployed, and explain project prioritization criteria?**

☒ YES ☐ NO

If yes, provide documentation:

Chapter 4 & 5

8 **Does the plan include all of the following?**

- A description of how progress will be measured over time that includes, at a minimum, outcome data.
- The plan is posted publicly online.

☒ YES ☐ NO

If yes, provide documentation:

Section 5.1

9 **Was the plan finalized and/or last updated between 2018 and June 2023?**

☐ YES ☐ NO

If yes, provide documentation:

April 2025

Appendix B - Literature Review

The literature includes the following documents:

- Long Range Transportation Plan | La Jolla Band of Luiseño Indians (2024)
- Comprehensive Economic Development Strategy | La Jolla Band of Luiseño Indians (2023)
- Active Transportation Assessment | La Jolla Band of Luiseño Indians (2023)
- Intraregional Tribal Transportation Strategy | SANDAG (2022)
- 2021 Regional Plan | SANDAG (2021)
- South Grade Road Review | County of San Diego (2019)
- Active Transportation Plan | County of San Diego (2018)
- Road Safety Assessment | La Jolla Band of Luiseño Indians (2014)
- Mobility Element | County of San Diego (2013)

Long Range Transportation Plan | La Jolla Band of Luiseño Indians (2024)
The La Jolla Band of Luiseño Indians (the Tribe) Long Range Transportation Plan (LRTP) aims to outline the transportation needs of the Tribe, establish a framework for planning and implementing transportation projects, and integrate safety and maintenance strategies for the road system within the La Jolla Reservation. The plan aims to improve existing infrastructure, address future development needs, and ensure public safety through comprehensive assessments and community engagement. To support the Tribe's long-term land use and development objectives, the LRTP proposes the following projects:

1) Short-term projects
- Signing – Install various traffic control signs, including stop signs and curve warning signs across multiple routes.
- Unnamed HUD Road – Reconstruct an unnamed HUD road to a 24-foot-wide paved road to serve five homes.
- Bureau of Indian Affairs (BIA) Route 50 – Rebuild 1.15 miles of BIA Route 50 to a 24-ft-wide paved road to improve access for 18 homes and the fire department.
- BIA Route 52 (Red Gate Road) – Reconstruct the eastern 0.5 miles of the road to a 24-foot wide paved road to serve 9 homes.

2) Medium-Term Projects
- BIA Route 42 – Reconstruct 0.3 miles of BIA Route 42 to a 34-foot wide road to serve recreational areas.
- Campground Roads – Upgrade a 2-mile network of earth roads in the campground area to gravel surfaces.
- Poomacha Road – Reconstruct a 1.33-mile segment of Poomacha Road (BIA Route 41A) to a 26-foot-wide paved road.
- BIA Route 41B – Reconstruct 0.83 miles of BIA Route 41B to a 26-foot-wide paved road.
- BIA Route 41C – Reconstruct 0.15 miles of BIA Route 41C to a 24-foot-wide paved road.
- BIA Route 45 – Widen and overlay BIA Route 45 to a 24-foot-wide road to serve multiple community facilities.
- BIA Route 46 – Widen and overlay BIA Route 46 to a 28-foot-wide road to accommodate traffic for a large campground.
- BIA Route 49 – Reconstruct 0.6 miles of BIA Route 49 to a 24-foot-wide paved road.
- Harold's Road – Reconstruct 0.2 miles of Harold's Road to a 24-foot-wide paved road.
- Unnamed Road off SR 76 – Reconstruct 0.15 miles of an unnamed road off of SR 76 to a 24-foot-wide paved road.

- CR 56 – Overlay 1.5 miles of CR 56 to maintain its structural integrity and extend shoulders to meet current design requirements.

3) Long-Term Projects

- BIA Route 43 – Reconstruct 0.25 miles of BIA Route 43 to a 24-foot-wide paved road.
- BIA Route 44 – Reconstruct 0.5 miles of BIA Route 44 to a 24-foot-wide paved road to serve 5 homes.
- BIA Route 47 – Reconstruct 0.15 miles of BIA Route 47 to a 25-foot-wide paved road to serve 7 homes.
- BIA Route 48 – Reconstruct 0.1775 miles of BIA Route 48.
- SR 76 – Wide SR 76 to a 40-ft and install acceleration and deceleration lanes for eastbound traffic, as well as a left-turn lane for westbound traffic at the BIA Route 42 intersection.

Comprehensive Economic Development Strategy | La Jolla Band of Luiseño Indians (2023)

The Comprehensive Economic Development Strategy (CEDS) for the La Jolla Band of Luiseño Indians outlines the Tribe's historical context, economic initiatives, and future goals to enhance the community's welfare and sustainability. The Tribe has successfully leveraged its natural beauty to attract tourism while also prioritizing cultural preservation and community involvement. The plan emphasizes the importance of creating job opportunities, improving infrastructure, and fostering economic resilience in the face of challenges such as high unemployment and the impacts of natural disasters. To meet these goals, the Tribe has outlined several economic development initiatives, described below:

- Adventure Park Welcome Center – Build a unique Welcome Center to host corporate retreats, training events, and wellness retreats, while offering a scenic alternative to nearby casino hotels. The center will provide meeting spaces alongside campground amenities, a water park, zipline, hiking, and biking trails, catering to both business and leisure activities.
- Restaurant – Establish a restaurant associated with the Welcome Center to complement the conference center, offer meal packages for campers, and create jobs through staffing and catering services.
- Campground Facilities – Upgrade the campgrounds to include amenities like solar technology in the restrooms, hot water in the shower, and building cabins to create a more comfortable camping experience. Additionally, the Tribe has discussed implementing a fishing pond, mountain biking and hiking trails, a new playground, and water features to expand the campground's attractions.
- Upgrading Roads – Widen, pave, and fortify roads amidst natural disasters.
- Tribal Administration Facility – Construct a new administrative building to provide for the expanded staff and workload, as well as allow the Education Program to recover its previous space.
- Reservation-Wide Broadband Network – Install a reservation-wide broadband network to provide for disaster preparedness and response.
- Cultural Center – Under the guidance of a Tribal Historic Preservation Officer, the Tribe is repatriating artifacts for a new cultural center.
- Water Resources Development – Install water resources infrastructure to support community and economic development.
- Solar Energy Development – Provide affordable, community-wide renewable energy to Tribal facilities, enterprises, and residents.
- Housing Construction – Increase the housing stock across the community.

With respect to transportation improvements throughout the Tribe, the potential new trips generated by the proposed developments need to be accounted for in planning the roadway network and safety improvements as the development plans are finalized.

Active Transportation Assessment | La Jolla Band of Luiseño Indians (2023)

To address chronic health disparities, the La Jolla Band of Luiseño Indians created the Active Transportation Assessment (the Assessment) to increase physical activity and active transportation among residents through safe pedestrian and bike paths within tribal residential areas. This report provides feasible physical improvements in key areas and relevant policy mechanisms to facilitate implementation:

1) General Recommendations
- Cultural shift to prioritize physical activity – Communicate health and economic benefits of physical activity through education and activities, starting with children. Additionally, reinforce safety with signage and other physical changes in residential areas.
- Targeting unsafe vehicle speeds – Undertake a speed education campaign coupled with the installation of warning signs. In the long term, install traffic calming devices in key areas.
- Increase opportunities for physical activity – Prioritize walking by improving pedestrian access and safety to nearby bus stops and establishing a walking program with a united tribal goal. Create recreational areas like basketball courts and playgrounds in each residential area.
- Create safe walking and biking facilities – Implement traffic calming devices on roads with high speeds and pursue surface improvements to enhance walkway conditions. Build trails and separated paths where vehicles remain a hazard.

2) Specific Target Areas
- Poomacha Area – Reduce vehicle speeds by installing and enforcing speed-limit and other warning signs, as well as applying physical treatments like speed lumps. Slower streets can be used safely by pedestrians and bicycles, but side paths may be installed where topography and right-of-way allow. Enhance the existing hillside trail system for school bus stop access by improving trail conditions with gravel and water diversion channels to prevent erosion. Promote trail use through native-themed signs and activities and consider long-term development to meet San Diego County trail standards.
- Poomacha to Tribal Hall – Designate the roadway between Poomacha and Tribal Hall as a walking and bicycling corridor. Pursue long-term improvements to the path condition with mile markers, signage, and education to ensure safe vehicle, pedestrian, and bicycle access. Adopt a Tribal policy promoting walking and biking for children when safe, and collaborate with parents to identify and prioritize safety improvements that would make them comfortable allowing their children to walk home from the Education Center.
- Harolds Road Residential Area – Engage similar signage and traffic calming devices as the Poomacha Area to target unsafe vehicle speeds. Define the pedestrian path to school bus stops with physical barriers and construct permanent roadside paths in the long term.
- Church Road Residential Area – Place roadside rocks or logs to create a perception of a narrower roadway, implement traffic-calming speed lumps, and provide trails in high-conflict areas with limited visibility. Pursue similar changes as the Harolds Road Residential Area to increase school bus stop access. Install warning signs and a

pedestrian-activated HAWK signal at the Tribal Hall/Gas Station access to facilitate safe crossings.

- Red Gate Residential Area – Repaint side guide stripes to create a perception of a narrower road while reducing ambiguity, implement speed limit signs with education and enforcement, and consider speed lumps near homes or playground areas if other measures fail to deter speeding. Engage in similar strategies as the Poomacha area to designate walking and biking paths. Consider relocating the Red Gate bus stop to the eastern intersection of Red Gate Road and SR76, coupled with speed lumps, markings, or a 5' trail to calm traffic along the route to the new stop.

Intraregional Tribal Transportation Strategy | SANDAG (2022)

The Intraregional Tribal Transportation Strategy (Strategy) is a collaborative document prepared by SANDAG and the Southern California Tribal Chairmen's Association to address the tribal transportation needs in the San Diego region in an effective and innovative way. The Strategy was initially completed in 2018 and updated in 2022. In consists of the following components:

- Process – documents the process and outreach performed with members of the Tribal Working Group.
- Project Screening Tool – compiles the identified tribal projects, including description, location, and estimated cost.
- Strategies and Actions – describes the four strategies and its corresponding actions to help achieve the transportation vision and goals of the Tribal Working Group.

The following transportation issues identified for the SR-76 corridor are relevant to the La Jolla Band Of Luiseño Indians CSAP:

- **Safety is a major issue for tribal communities in this corridor** – In 2014, the La Jolla Band of Luiseño Indians, in consultation with FHWA, Caltrans, BIA, and others conducted a road safety audit/assessment (RSA) on the seven-mile stretch of highway at the eastern end of SR 76. Based on findings from the RSA, the La Jolla Band of Luiseño Indians suggested that SR 76 be designated as a "safety corridor" since there are no passing lanes on this stretch of highway. Members of the tribe discussed the possibility of a gateway treatment to alert motorists that they are entering a residential area with driveways, bus stops, bicyclists, and pedestrians. They recommended better signage for school bus stops and better bicycle and pedestrian access. The transportation needs survey also noted safety improvement needs between the Pala Casino and Rice Canyon Road. A 19-mile transportation improvement project is planned by Caltrans on SR 76 between SR 79 and Valley Center Road that will address road straightening, shoulder widening improvements, and lighting and fiber improvements. On tribal roads and roads leading to SR 76 there are some general safety needs related to signing, lighting, and paving.
- **Improved shoulders and bicycle facilities** – The rural sections of SR 76 are popular with bicyclists; however, opportunities exist to improve and enhance bicycle access on this route. The Tribal Mobility Needs Assessment Survey indicated needs for bike lanes and improved shoulders on sections of SR 76, and on roadways connecting to SR 76 including sections of Pala Mission Road, Temecula Road, Valley Center Road, Paradise Mountain Road, and Woods Valley Road.

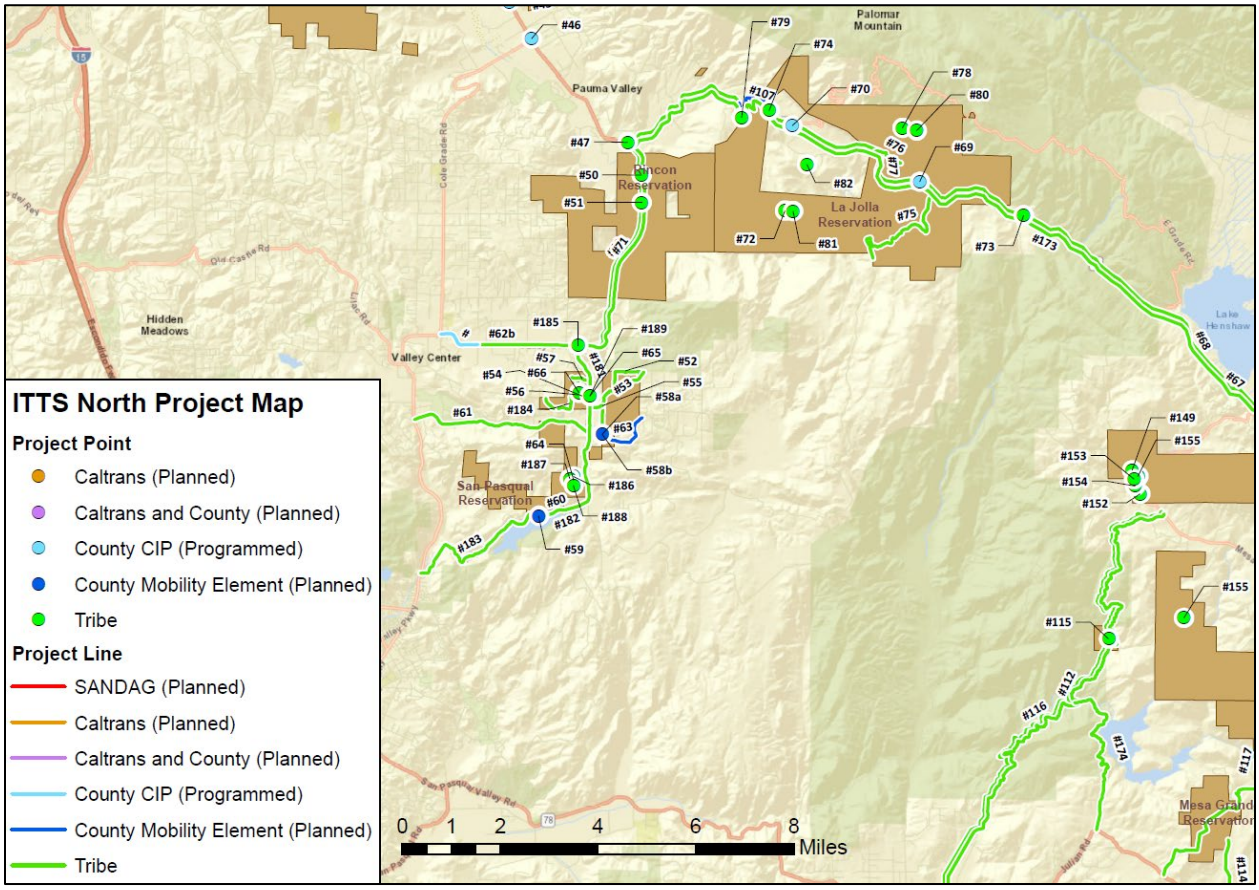
- **Intersection improvements** – Intersection needs such as new turn lanes were noted at several locations, such as SR 76/Magee Road/Pala Raceway Road and SR 76/Pala Road. Roundabout and traffic calming measures were a need for the SR 76/Palomar Mountain Road and SR 76/Sengme Oaks Road intersections.

Figure 1 and **Table 1** identify the transportation projects listed in the Strategy relevant to the La Jolla Band Of Luiseño Indians CSAP.

Table 1 - Relevant Intraregional Tribal Transportation Strategy Projects

ID	Project Description	Reference Documents / Notes
67	Shoulder widening; add bike lane at SR 76 from SR 79 to Valley Center Rd	County of San Diego General Plan
68	Straighten, widen, shoulders, lighting, fiber at SR 76 from SR 79 to Valley Center Rd.	Caltrans District Systems Management Plan, SANDAG Regional Plan
69	Roundabout / traffic calming at Sengme Oaks Rd / SR 76	N/A
70	Roundabout/traffic calming at Palomar Mountain Rd / SR 76	N/A
72	Signage, lighting at all intersections	Within the La Jolla Reservation
73	Gateway feature at Mesa Truck Trail / SR 76	N/A
74	Gateway feature at Harolds Rd / SR 76	N/A
75	Paving at Campground Rd from SR 76 to zip-line tower	N/A
76	Paving at Church Rd from BIA Rd 40 to SR 76	N/A
77	Planning: trucking / freight study, speed and traffic study at SR 76 from SR 79 to Valley Center Rd	N/A
78	Planning: develop address system	Within the La Jolla Reservation
79	New transit service: fixed route on SR 76 connecting service between Valley Center Rd and SR 79	N/A
80	Connection to high-speed rail station location to be determined	N/A
81	Electric vehicle plug-ins	Within the La Jolla Reservation
82	Vanpool / shuttle	N/A
107	Straightening at SR 76 from Harolds Rd to Pauma Ranch Rd	SANDAG Regional Plan
173	Widen SR 76 between SR 79 and Valley Center Rd	N/A

Figure 1 - Relevant Intraregional Tribal Transportation Strategy Projects



2021 Regional Plan | SANDAG (2021)

The approved 2021 Regional Plan provides a long-term blueprint for the San Diego region that seeks to meet regulatory requirements, address traffic congestion, and create equal access to jobs, education, healthcare, and other community resources. The plan combines the Regional Transportation Plan, Sustainable Communities Strategy (SCS), and Regional Comprehensive Plan. The following planned improvements yield from Appendix A: Transportation Projects, Programs, and Phasing.

There are four planned projects relevant to the study area. The first project is a series of facility improvements along SR 76, between Rincon Springs Rd and SR 79. The second project is a road straightening along SR 76 between Harolds Rd to Pauma Rancho. Active Transportation Demand Management (ATDM) and Smart Intersection Systems (SIS), aimed at improving safety, are planned for the entirety of SR 76. These improvements provide people with a variety of benefits, including expediting the movement of goods to rural communities during disaster recovery efforts. Projects related to ATDM will provide motorists with real time roadway conditions, including speeds, roadway visibility conditions, and other tactical information. Smart sensors, closed circuit television cameras, changeable message signs, and traffic detection equipment will all help provide people with a safer environment to walk and bike, while also adding the capability to prioritize the movement of freight or emergency vehicles along a rural corridor.

Table 2 - Relevant SANDAG 2021 Regional Plan Projects

Project ID	Year Built	Category	Project Name	Description	Cost ($2020 millions)
CC051	2050	Complete Corridor: Rural	SR 76 (SR 79 to Valley Center Road)	Facility Improvements	$693
CC053	2050	Complete Corridor: Rural	Rural SR 76 (Harolds Road to Pauma Rancho)	Straightening	$21
CC145	2025	Complete Corridor: ATDM/SIS	SR 76	SIS	$55
CC144	2035	Complete Corridor: ATDM/SIS	SR 76	ATDM	$159

South Grade Road Review | County of San Diego (2019)
South Grade Road is located in the North Mountain area of the unincorporated County of San Diego. It is a County maintained road approximately 6.8 miles long and extends from State Route (SR) 76 to East Grade Road. This roadway was selected for review due to a collision rate higher than the statewide average for similar roadways.

There are several recommendations for improvements along the South Grade Road corridor derived from the IHSDM software, engineering judgement, and previous scientific research that may enhance road operations. These include the following:

1. Increase the width of edge-of-travel striping from 4” to 6” in both directions for the entire road length of South Grade Road (See Supplemental Document Exhibit H, Collision Mitigation Strategy Research).
2. Install speed reduction markings in both directions on the tangent segments leading into the horizontal curves along South Grade Road (See Supplemental Document Exhibit H, and Figures 4 and 5).
3. Propose increased law enforcement related to motorcycle operating and unsafe speeds with the local police department.
4. County staff should review the existing segments along the east side of the roadway to determine if guardrail installation would reduce collision severity (See Figures 4, 5, & 8).
5. Install curve warning signs along South Grade Road (See Supplemental Document Exhibit J for ball bank slope rate testing sheets) (See Figures 4-8).
6. Install speed feedback signs along South Grade Road (IHSDM) (See Figures 4, 5, 7 and 8).
7. Install Dip signs (W8-2) and Arrow signs (W16-7P) at cattle crossings to alert vehicles.
8. Install custom sign (Motorcycles – High Crash Area Next 7 Miles) at MP 41.3 (See Supplemental Document Exhibit H and Figure 4).
9. Install centerline rumble strips (CLRS) at Mile Post 42.4 where an AC patch removed a portion of the CLRS (See Figure 5).
10. Install centerline raised reflective pavement markers along the entire road length of South Grade Road.

11. Clear vegetation to provide adequate sight lines for signs and curves along the entire road length of South Grade Road.
12. County staff should conduct an Engineering & Traffic Survey to establish an appropriate posted speed limit.
13. County staff should review the existing cattle crossings near MP 41.4, 41.8, & 42.8 to determine if the installations are necessary or if alternative methods can be utilized such as virtual cattle crossings (See Figures 4 and 5).
14. Increase paved shoulder width to 8 feet and add edge line rumble stripes (ELRS) in both directions along the entire length of South Grade Road (IHSDM) (See Supplemental Document Exhibit H).
15. Increase paved roadway width to provide a striped median along the entire road length of South Grade Road.

Active Transportation Plan | County of San Diego (2018)
The County of San Diego completed an update to the Bicycle Transportation Plan and Pedestrian Area Plans through the creation of an Active Transportation Plan (ATP), approved by the Board of Supervisors in October 2018. The ATP supports efforts to promote active transportation options through pedestrian and bicycle improvements in the unincorporated county.

The County of San Diego Active Transportation Plan proposes upgrading all of SR 76 and South Grade Road within the project boundaries to Class II bike lanes.

The County also conducted a Pedestrian Gap Analysis (PGA). The results of the PGA found that over half (approximately 400 miles) of the assessed roadways lack a pedestrian facility, indicating a deficiency of pedestrian access in the unincorporated communities. The sidewalk network is the default network on public roads where the CTMP has not identified a designated pathway. County DPW, through its CIP, will be responsible for overseeing pedestrian improvements as they pertain to the ATP pedestrian network. Sidewalk and pathway improvement projects will be completed through the CIP or by private development projects as frontage improvements or off-site mitigation requirements.

Road Safety Assessment | La Jolla Band of Luiseño Indians (2014)
La Jolla Band Of Luiseño Indians Road Safety Assessment, adopted June 27, 2014, provides a preliminary analysis of the issues along SR 76 within the La Jolla Reservation, as well as recommended solutions. It is primarily grouped by location, but there are also general and EMS-specific sections for the whole corridor.

General Issues and Recommendations:

- There are 40-foot truck restriction signs, but no signage that indicates where trucks should reroute or turn around.
- An updated traffic volume and speed study should be conducted.
- There is a lack of adequate roadway signage. In some instances, the signage may be missing, knocked over, or in a poor state.
- On shoulders, a safety edge on the aggregate should be considered.
- Given the lack of passing lanes and high severity of crashes on SR 76, SR 76 should be evaluated as a potential safety corridor.
- "NO passing for next (x) miles" signs are needed.

- Gateway signage at the west and east entrances to the La Jolla reservations is desired. [There is “Existing/Entering La Jolla Indian Reservation” signage at the SR 76 and Red Grade Road intersection.]
- There are blind spots for vehicles entering the highway. Road users need to listen for oncoming traffic before merging onto the highway.
- Visibility is an issue---first responders have been injured by oncoming vehicles.
- Center line rumble strips and raised pavement markers (RPM's) are recommended.
- Pedestrians have no facilities along SR 76.
- There is a lack of school bus signage.
- There are no facilities for cyclists, creating roadway conflicts with other road users.
- Due to a lack of passing opportunities, drivers have been known to pass other road users illegally. Additional turnouts should be investigated.
- The marine layer fog limits visibility.
- Collaboration between Tribal Government, Caltrans, FHWA, the Bureau of Indian Affairs, California Highway Patrol, The National Indian Justice Center, and staff from the Tribal Technical Assistance Program is desired for safety issue and solution identification.

Cereal Bowl/ Hwy76. 36-37.5 Issues

- Slow vehicles are known to drive on the shoulder to allow faster vehicles to pass.
- The length of turnouts may not be sufficient for passing.
- Signage should be farther away from the upcoming roadway conditions (upcoming turn, passing lane, etc.) to allow road users time to consider their intended actions.
- Roadway surface is worn/polished decreasing friction level as a result. Roadway is also slippery when wet.
- Turn out signs are not far enough ahead of the turnout location on Red Gate Road to allow slower roadway users time to consider pulling out.
- Signage should direct slower vehicles to utilize the turn outs if more than 5 vehicles are behind them.
- Residents utilize the "Turn Out" as a turning lane for Red Gate Road given the lack of other turning opportunities.
- There are inadequate roadway markings and signage to indicate the intersection of Red Gate Road and SR 76 from SR 76.
- The Culvert currently impedes the ability to add an actual turning lane.
- Drivers on Red Gate Road have impaired sight distance when turning right onto SR 76.
- Pedestrians experience congestion and safety issues at the school bus stop location within the turnout.
- There is a high volume of 40 ft or longer vehicles utilizing the highway despite the 40 ft vehicle restrictions.
- Shoulder edge drop off is evidenced throughout the corridor.
- Traffic control device visibility is limited (stop signs, construction signs, speed limit signs, landmark signs, etc.).
- Sight distance is an issue throughout this roadway segment.
- The majority of accidents are caused by west-bound motorcycles.
- The shoulder can be confused with a turnout, passing lane, or lookout point.
- There is a desire to decrease the radius of the westbound curve.

Cereal Bowl/ Hwy76. 36-37.5 Recommendations:

- Chevron road signs should be added to steep roadway curves; existing chevrons should be upgraded to become reflective.
- Optical hashing on the shoulder of roadways should be added.
- Roadway friction should be increased on curves.
- Regulatory signage for turnouts is needed.
- Passing relief around Rincon Ranch Road is desired (long term improvement).
- A restriping of lane lines is recommended.
- Striping for turnout should be added.
- Mailboxes should be removed from the roadway.
- The Green Sign should be relocated outside of sight distance triangle.
- Red Gate Road needs a turning lane.
- 40 ft vehicle prohibition should be enforced, and additional signage should be added.
- A safety edge should be installed.
- Motorcycle-friendly barriers should be installed.
- Call boxes in high crash areas should be installed.
- Signage and striping to increase driver awareness should be considered.
- Optical speed bars should be utilized on the approach to curves.
- Motorcycle focus group at curve.
- Curve signs (w8-15 plaque) should be utilized to get the attention of motorcycles.
- Sight distance should be improved.

Mile marker 37.9 Issues

- Drivers lack a passing lane.
- Roadway users over-accelerate at turns due to difficulty perceiving the curve.
- Superelevation impacts a driver's ability to judge curves.
- Vehicles encroach on the centerline.
- Intersections are not very visible.
- School bus stops (3) are difficult to see when entering residential areas.

Mile marker 37.9 Recommendations

- Engineering look needed at curve-Long Term
- Add Chevrons to curve.
- Add passing lanes and signage to encourage people to not pass in more dangerous areas.
- Add "School Bus Ahead" signs and bus stop shelters.
- LED/Solar Lighting should be used.

Emergency Response Related to Highway Safety Issues

- There is adequate lighting on apparatus when responding to incidents.
- It is difficult to pull over vehicles for enforcement and emergency response given the number of lanes and stopping opportunities.
- The sight distance on vertical curves is poor.
- Emergency responders suffer from poor visibility when responding to calls.
- Emergency response time is higher due to poor sight distance.
- There is no fire department signage.

Emergency Response Related to Highway Safety Recommendations

- Additional or enhanced turn outs for enforcement and emergency response should be installed.
- An actuated beacon and signage for the fire department should be added.

Mobility Element | County of San Diego (2013)

The Mobility Element includes several components including a description of the County's transportation network, the goals and policies that address the safe and efficient operation, maintenance, and management of the transportation network, and the Mobility Element Network Appendix, which depicts in map and matrix format the location of road network components. The goals and policies strive for a balanced multimodal transportation system with adequate capacity to support the land uses and development patterns in the Land Use Element of the County General Plan.

The road network identified by the Mobility Element is depicted on community level maps showing the road classification series and the general route of each road. The maps are accompanied by a matrix that identifies the road segment, its classification, any necessary improvements (such as a raised median, continuous or intermittent turn lanes, passing lanes, reduced shoulder width, or increased right-of-way requirements), and special circumstances including when it is deemed acceptable for a specific road segment to operate at a level of service E or F.

The SR 76 Segment that encapsulates the east and west termini of the study area is classified as a Community Collector. Improvement options identified include passing lanes, curve corrections, left and right turn lanes, channelizations, and intersection improvements. The South Grade Road Segment from SR-76 to North Mountain Subregion boundary is classified as a 2.3C Minor Collector, and the Mobility Element proposes no additional features.

Table 3 - Relevant County of San Diego Mobility Element Projects

Area	ID	Road Segment	Designation/Improvement #.#X = [# of lanes].[roadway classification][improvement]
PALA-PAUMA	2	State Route 76 Segment: Fallbrook CPA boundary to North Mountain Subregion boundary	2.1D Community Collector Improvement Options [Passing Lanes, Curve Corrections, Left and Right Turn Lanes, Channelizations, and Intersection improvements]
PALA-PAUMA	7	South Grade Road (SF 1417) Segment: SR-76 to North Mountain Subregion boundary 2.3C Minor Collector	South Grade Road (SF 1417) Segment: SR-76 to North Mountain Subregion boundary 2.3C Minor Collector

Appendix C - Engagement Presentation Materials

La Jolla Band of Luiseño Indians

Comprehensive Safety Action Plan

Workshop #1

February 10, 2024

Agenda

1. Workshop Purpose
2. Project Background
3. Collision Data Overview
4. Group Exercise: Help Us Identify Safety Needs
5. Next Steps

Workshop Purpose

Workshop Purpose

- Learn about the project
- Share your input on transportation safety needs, issues, and locations
- Shape the priorities of the safety study

Project Background

Project Background

- Build on the Road Safety Assessment prepared in 2014
- Identify transportation safety issues
  - Collision data and roadway review
  - Discussions with community members
  - Agency input

Project Background

- Identify safety improvements
- Become eligible for grant funding
- Strengthen partnerships with agencies and the community

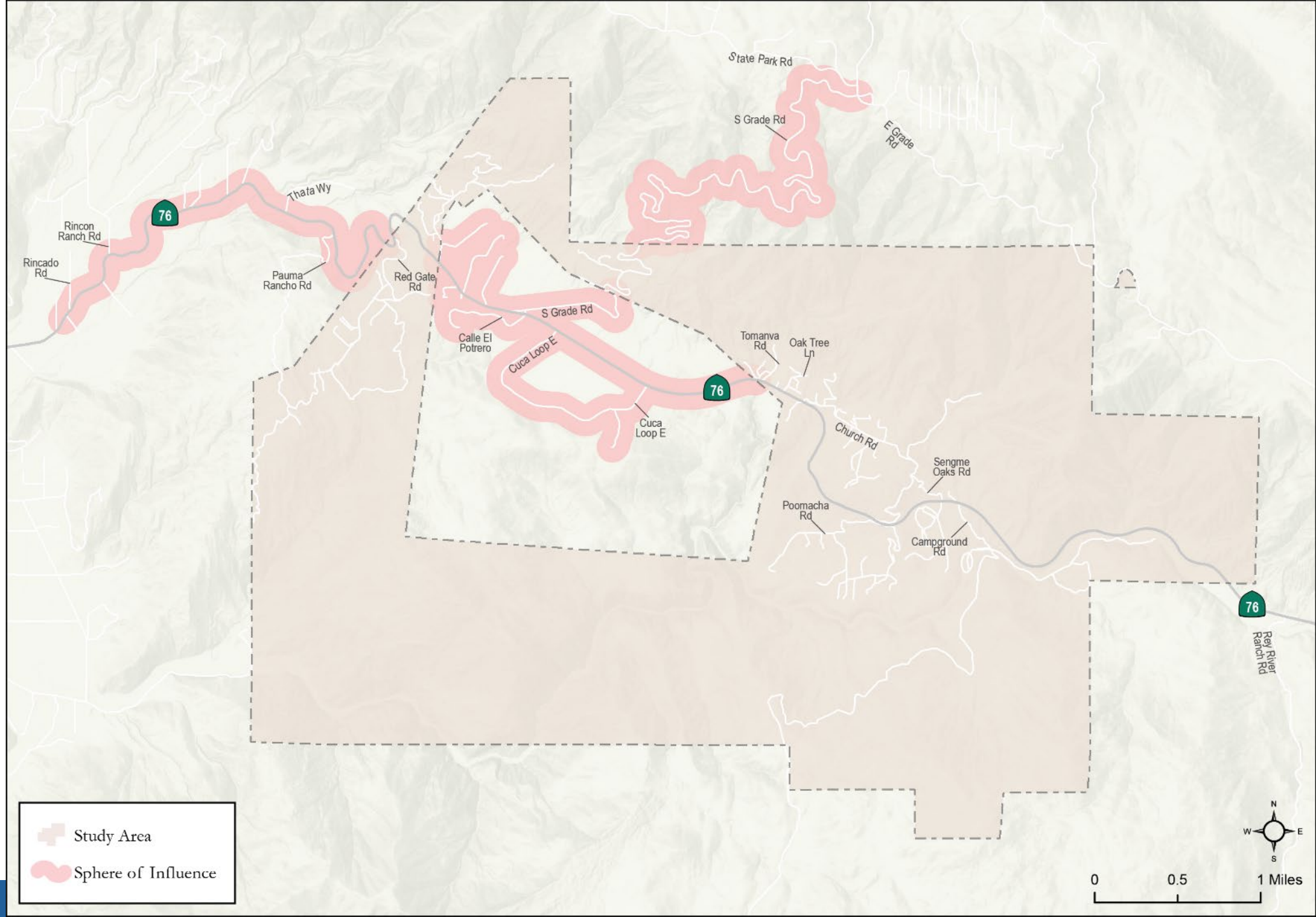
Project Components

- Safety Analysis
  - Collision Analysis, Equity Analysis, Literature Review
- Stakeholder Engagement
  - 4 Task Force Meetings, 2 Community Workshops
- Toolbox of Strategies and Countermeasures
- Project List and Priority Matrix
  - 10 Priority Project Sheets
- Draft & Final Safety Action Plan

Project Schedule

	Nov 2023	Dec 2023	Jan 2024	Feb 2024	March 2024	April 2024	May 2024
Safety Analysis							
Task Force Meetings and Community Outreach Activities							
Develop and Prioritize Strategies and Programs							
Draft & Final CSAP							

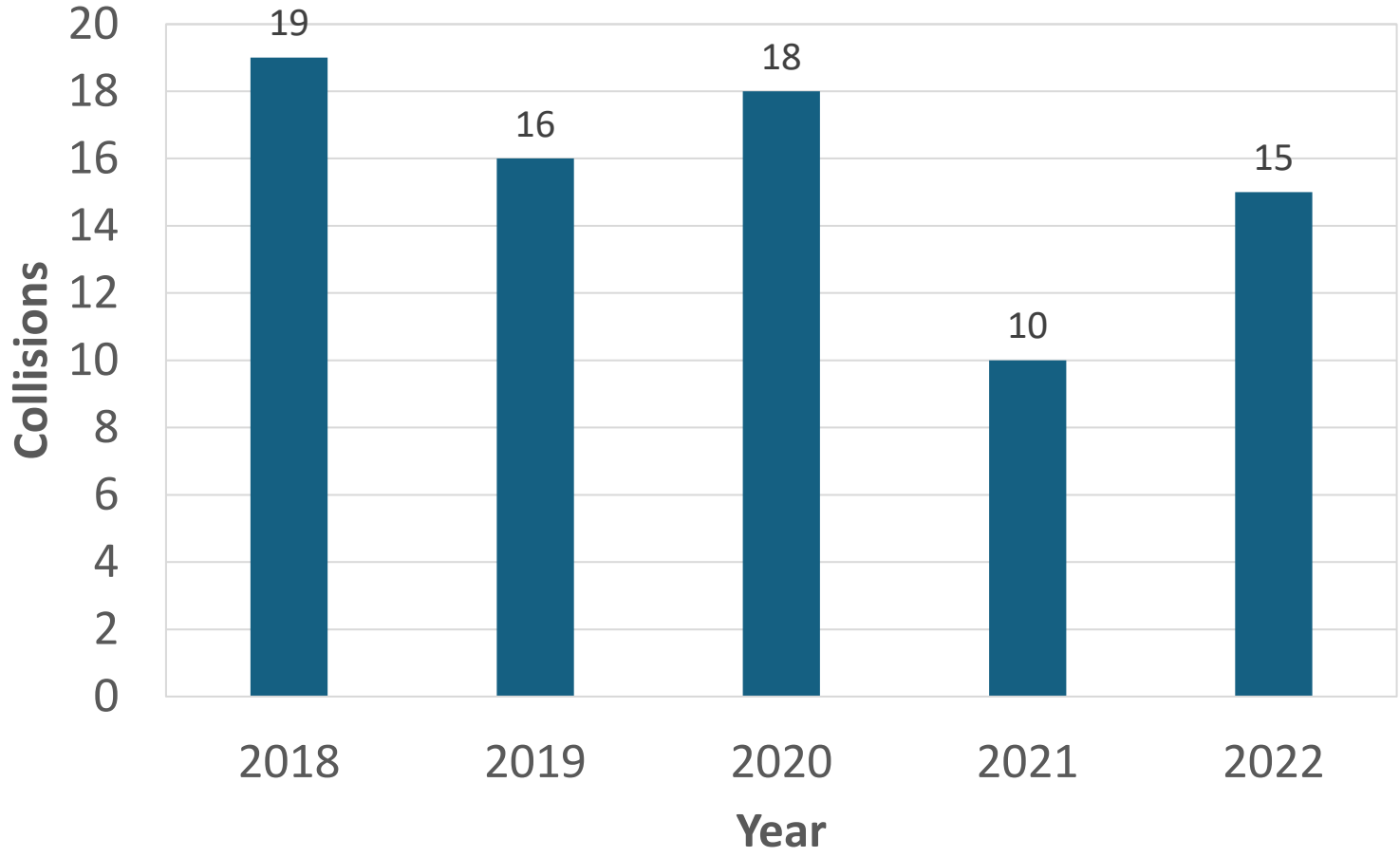
Study Area


State Park Rd
S Grade Rd
E Grade Rd
Thata Wy
76
Rincon Ranch Rd
Rincado Rd
Pauma Rancho Rd
Red Gate Rd
S Grade Rd
Calle El Potrero
Cuca Loop E
Tomanva Rd
Oak Tree Ln
76
Cuca Loop E
Church Rd
Sengme Oaks Rd
Poomacha Rd
Campground Rd
76
Rey River Ranch Rd
Study Area
Sphere of Influence
N
W
E
S
0
0.5
1 Miles

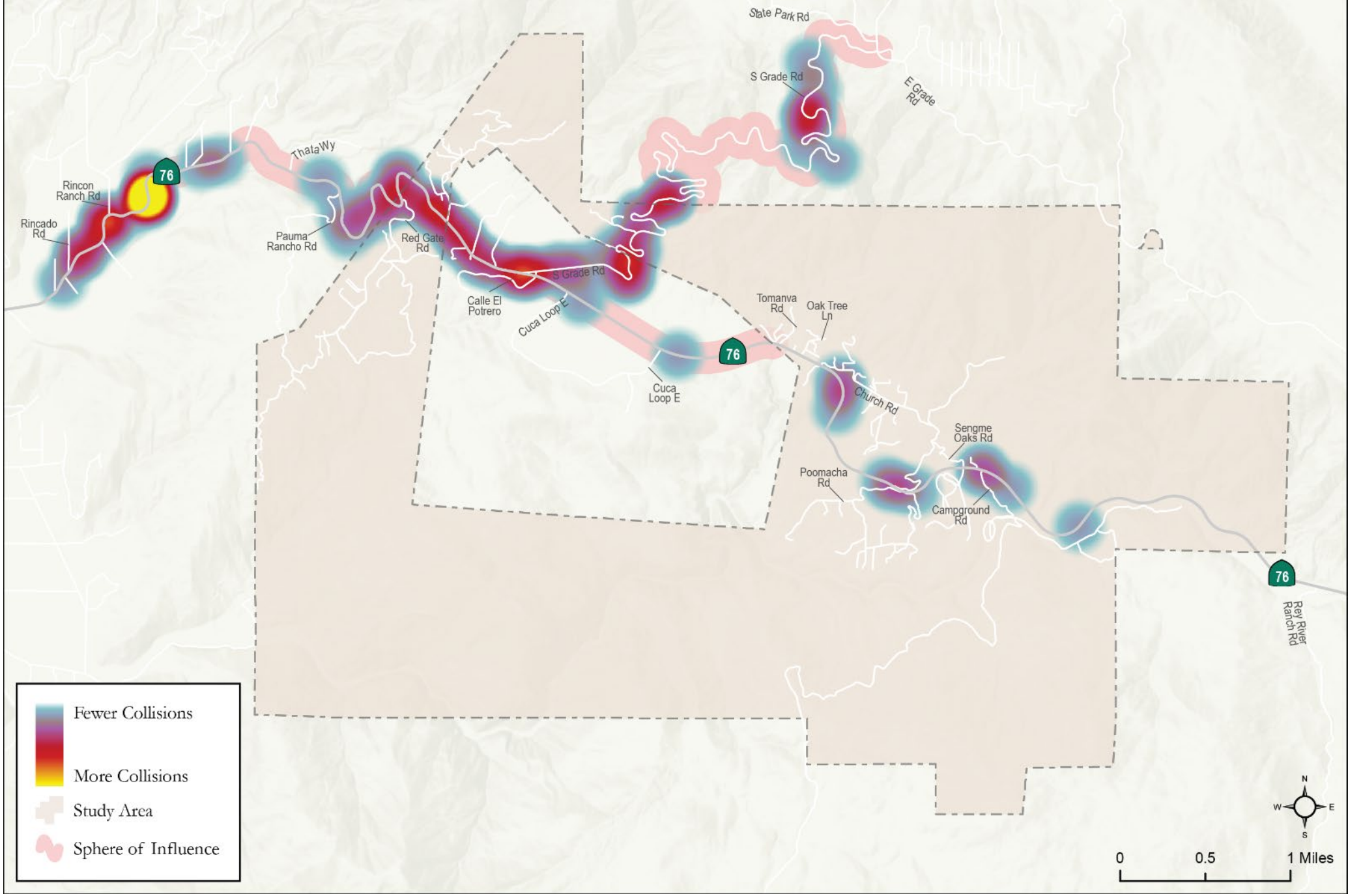
Collision Data Overview

Collisions by Year

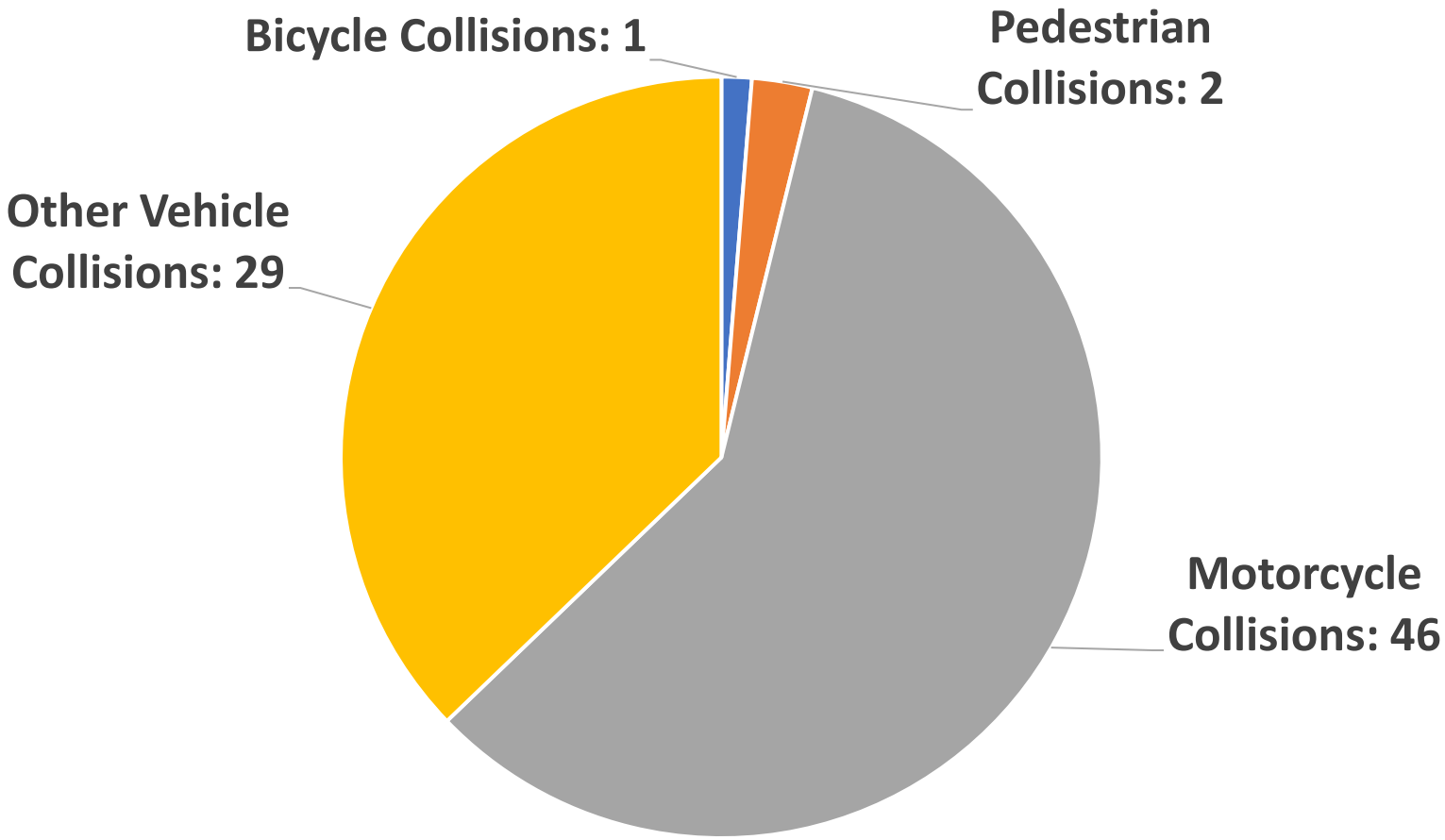
78 Collisions over 5-years (2018 – 2022)



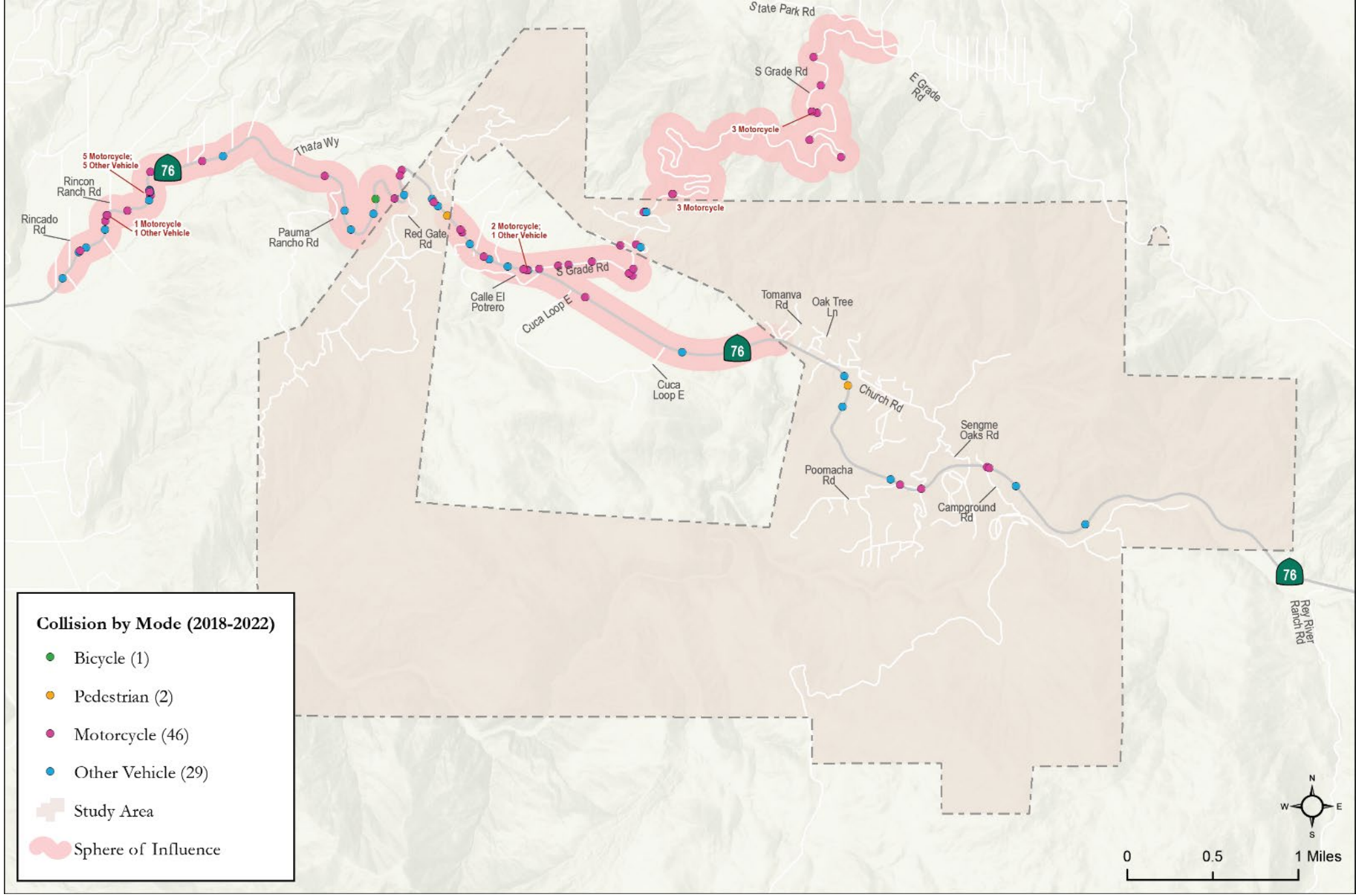
Collision Heatmap



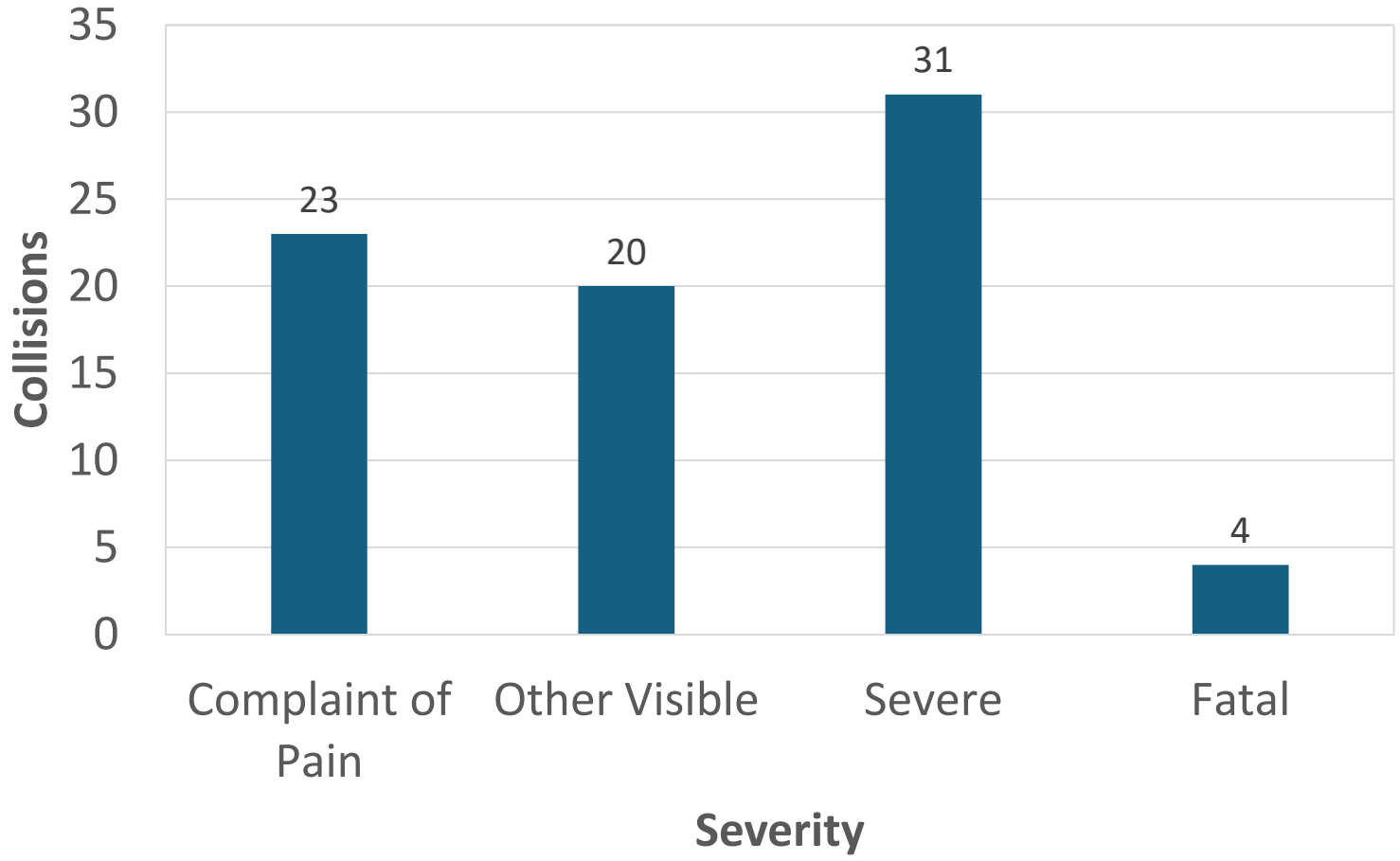
Collisions by Mode



Collisions by Mode



Collisions by Injury Severity



Collision by Crash Type

Crash Type	Collisions
Overturned	30
Hit Object	29
Broadside	5
Head-On	4
Sideswipe	4
Rear End	2
Vehicle/Pedestrian	2
Other	2
TOTAL	**78**

Collision by Primary Collision Factor

Primary Collision Factor	Collisions
Improper Turning	33
Unsafe Speed	20
Driving Under the Influence	11
Automobile Right of Way	4
Other than Driver (or Pedestrian)	4
Improper Passing	2
Pedestrian Violation	2
Unknown	1
Wrong Side of the Road	1
TOTAL	**78**

Group Exercise: Help us Identify Safety Needs

Group Exercise: Help us Identify Safety Needs

- What transportation safety topics are most important to you?
- Any there locations where transportation safety is a concern?
- How can we improve transportation safety?

Next Steps

Next Steps

- Determine focus safety topics and locations
- Identify recommendations
- Develop Safety Action Plan

Thank You!

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La Jolla Band of Luiseño Indians
Comprehensive Safety Action Plan

What transportation safety topics are most important to you?

Please place a sticker next to the topics that are most important to you.

Topic	Stickers
Cars driving too fast	
Safety for people walking	
Safety for people riding bicycles	
Driving under the influence	
School bus stop safety	
Motorcycles	
Hard to see cars at SR 76 intersections	
Cars driving off the road	
Other:	
Other:	
Other:	
Other:	

La Jolla Band of Luiseño Indians
Comprehensive Safety Action Plan

Are there locations where transportation safety is a concern?

Please place a sticker next to the locations that are most important to you.

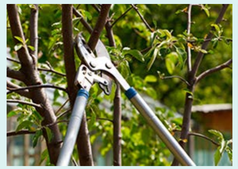
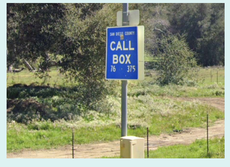
Location	Stickers
SR 76	
South Grade Road	
Poomacha Road	
Red Gate Road intersection at SR 76	
Poomacha Road intersection at SR 76	
Sengme Oaks Road intersection at SR 76	
Campground Road intersection at SR 76	
Other:	
Other:	
Other:	
Other:	
Other:	

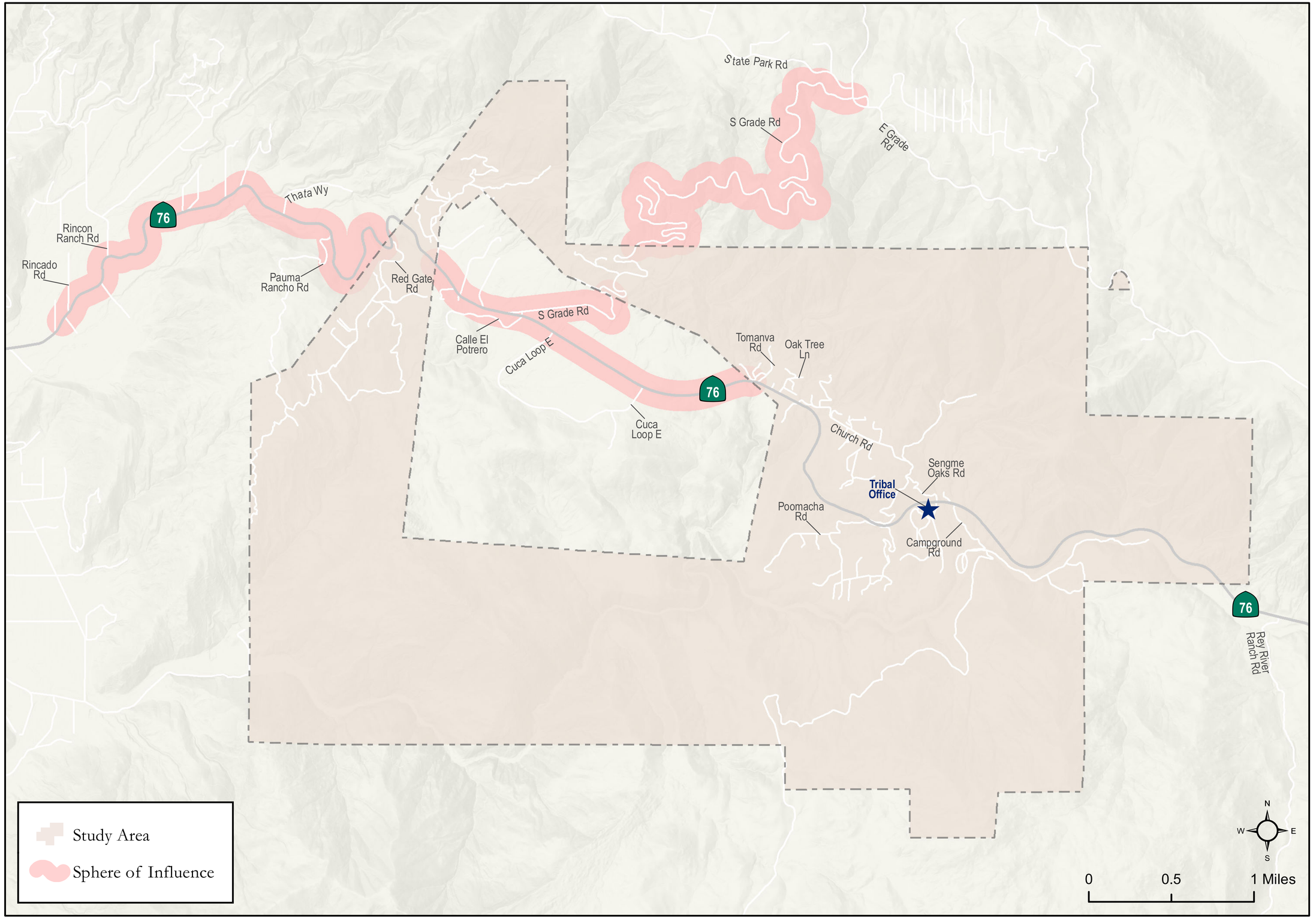
La Jolla Band of Luiseño Indians
Comprehensive Safety Action Plan

How can we improve transportation safety?

Please place a sticker next to the topics that are most important to you.

Location	Stickers
  Police enforcement (speeding, driving under the influence)	
  Improvements for people walking (crosswalks, sidewalks)	
  Improvements for people riding bikes (bike lane, bike path)	
  Safer waiting areas at bus stops	
   More warning signage (road curves, flashing lights, approaching driveways, slow down)	
Other:	

Location	Stickers
   Improvements along road curves (guardrails, wider shoulder, wider lane striping, rumble strips)	
  Trim trees, bushes, landscaping to improve visibility	
  Improvements at intersections (traffic signal, roundabout)	
  Better cellphone service or more Call Boxes to report collisions/ emergencies	
  Safety education programs or messaging	
Other:	



La Jolla Band of Luiseño Indians
Comprehensive Safety Action Plan

Study Area

La Jolla Band of Luiseño Indians Comprehensive Safety Action Plan Community Event #1 Summary

The initial community event in support of the La Jolla Band of Luiseño Indians Comprehensive Safety Action Plan (CSAP) was held on Saturday, February 10, 2024 from 10:00am—11:00am at the reservation gymnasium. The event was advertised via the tribe's social media platforms and through reservation Zone Leaders. The meeting served to introduce attendees to the project and collect input on perceived transportation safety issues and needs. The input collected will shape the focus of the CSAP. The format consisted of a brief presentation followed by an interactive breakout session.

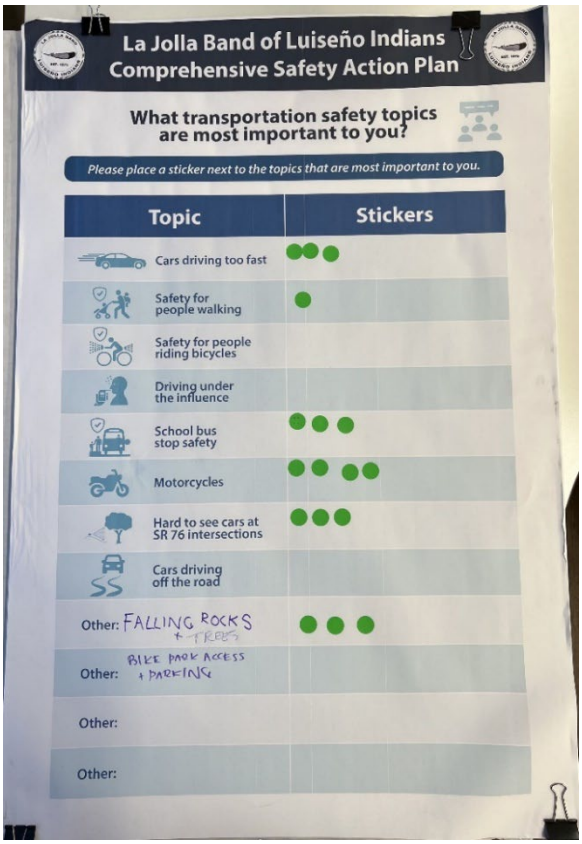
The presentation served to provide an overview of the project, including the study area, schedule, and major deliverables, summarize high-level safety analysis findings, discuss the approach to developing recommendations, and information to stay involved as the project progresses. The presentation is provided as **Attachment A**.

Following the presentation, attendees were asked to participate in an interactive brainstorming activity. Three boards were displayed to collect input on transportation safety topics of concern, locations of safety concern, and potential interventions. Attendees were provided a sticker sheet and were asked to place stickers on the boards according to the topics/locations with which they most resonated. The initial topics/locations listed on the boards were derived from conversations with Task Force members and the safety analysis. Each board also had space for write-in answers, and maps were provided as an additional platform for participants to indicate locations of concern. Key themes included sight distance along SR 76, speeding vehicles, unsafe waiting areas for school buses, and falling rocks and trees.

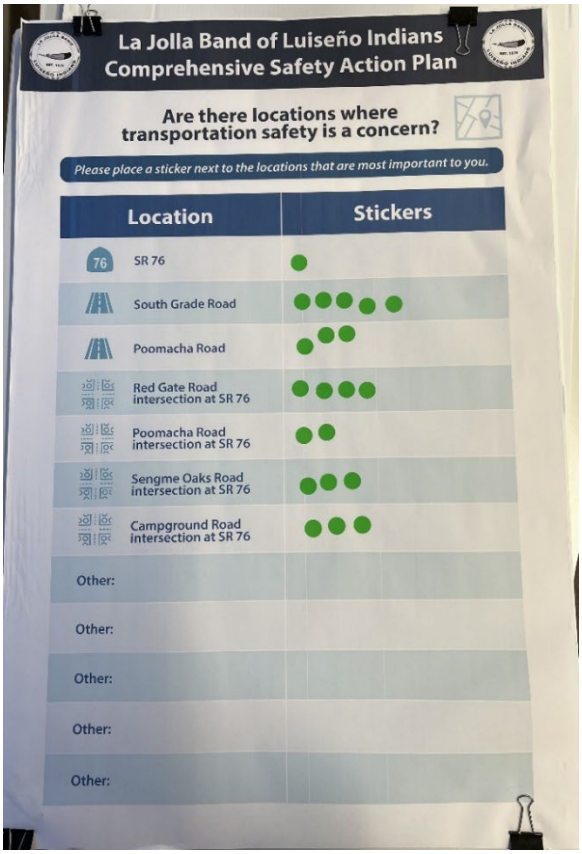
The remainder of this summary provides photos of the completed activity boards and documents the input received through discussions, notes, and comment cards.

What transportation safety topics are most important to you?

- Motorcycles: 4
- Cars Driving too fast: 3
- School bus stop safety: 3
- Hard to see cars at SR 76 intersections: 3
- Write in: “Falling rocks and trees”: 3
    - Trees on South Grade Road are prone to falling on the road.
- Safety for people walking: 1
- Bike park access and parking: Write in: 0
- Safety for people riding bicycles: 0
- Driving under the influence:0
- Cars driving off the road: 0



Are there locations where transportation safety is a concern?

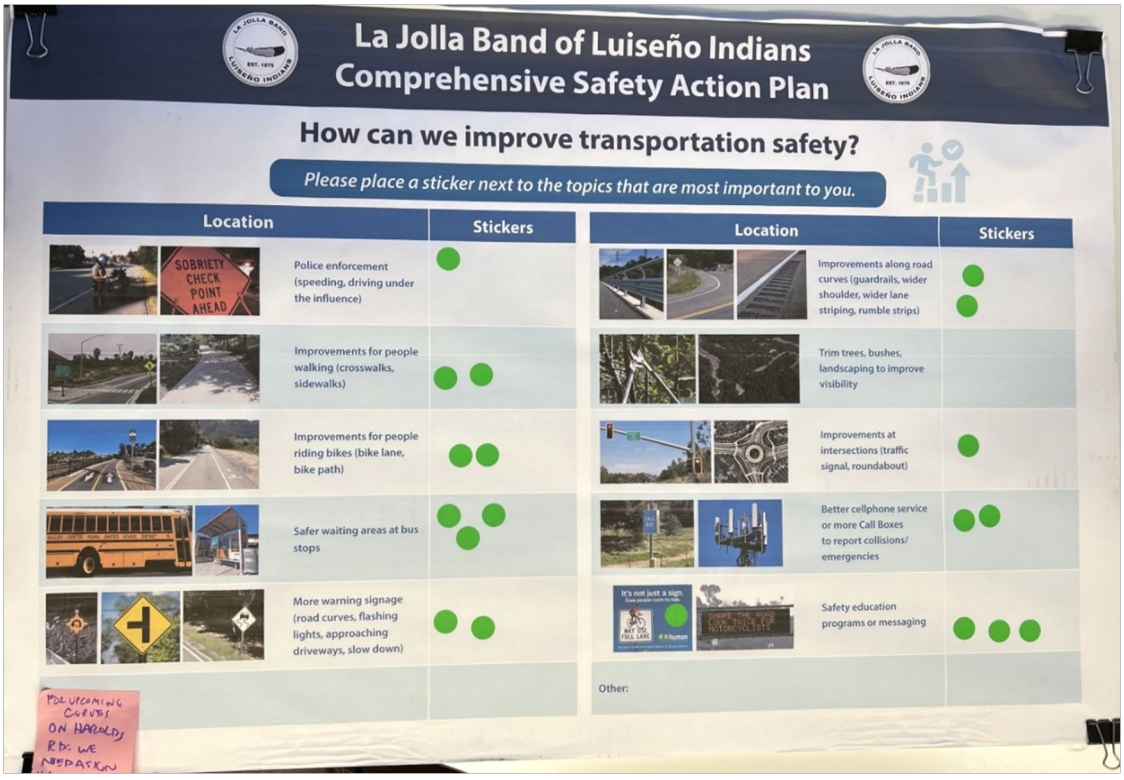


- South Grade Road: 5
    - Motorcycles on South Grade Road follow the middle yellow lines, weaving, and sometimes driving with their lights off– sports cars as well.
    - South Grade Road is a common destination for motorcycle and sports car racing. The County of San Diego added a 35-mph sign to slow travel which is largely ignored.
- Red Gate Road intersection at SR 76: 4
    - This is a T-shaped intersection located on a curve with several blind spots.
- Poomacha Road: 3
    - Poomacha Road needs center lines as people are riding in the center of the road.
- Sengme Oaks Road intersection at SR 76: 3
- Campground Road intersection at SR 75: 3
- SR 76: 1
- Poomacha Road intersection at SR 76: 2
    - One attendee was almost rear-ended driving onto Poomacha Road from SR 76. Road users must complete a sharp turn (nearly a U-turn) to enter Poomacha Road

How can we improve transportation safety?

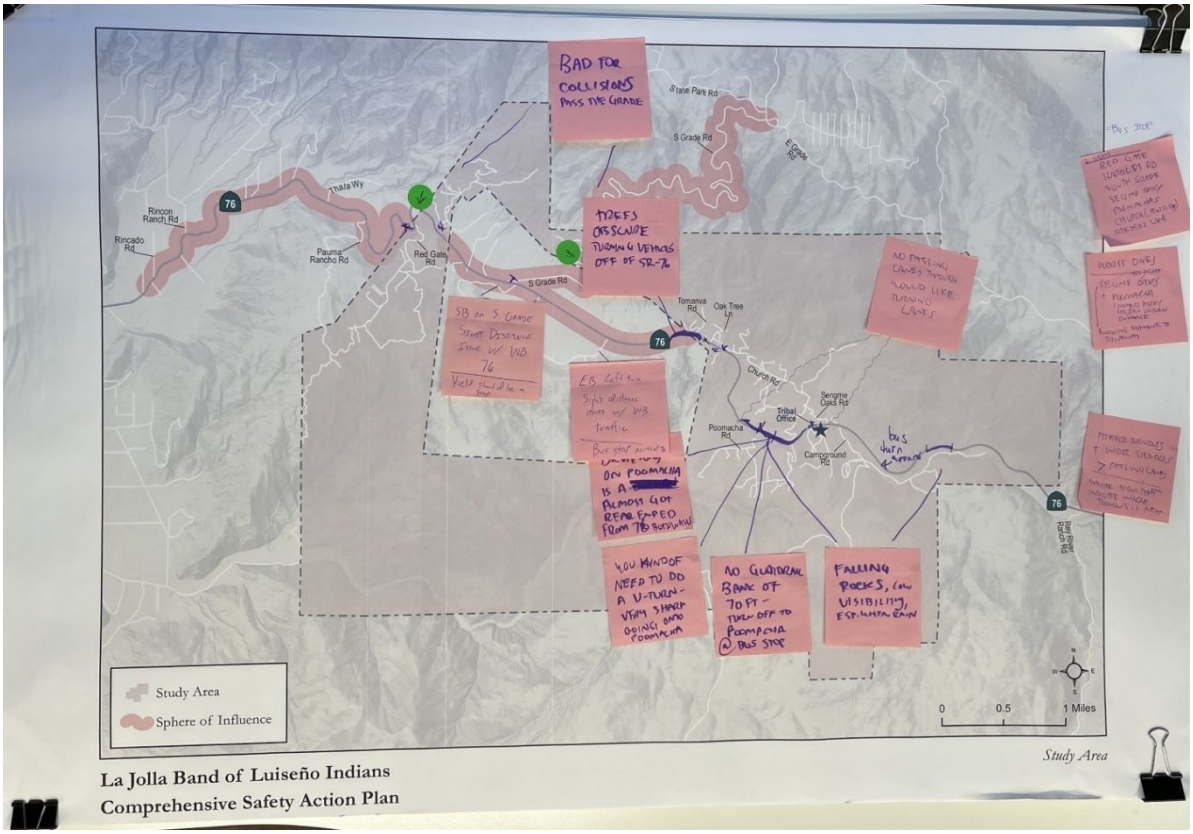
- Safer waiting areas at bus stops: 3
    - Sengme Oaks Road and SR 76 is one of the worst stopping locations because the roadway is too constrained, and the bus will block the entrance to the driveway while stopped.
    - Poomacha Road and SR 76 is one of the worst stopping locations because parents of students will park here, and because vehicles must complete a U-turn to enter Poomacha Road.
    - Bus stop safety signs and awnings were suggested.
- Safety education programs or messaging: 3
- Improvements for people walking (crosswalks, sidewalks): 2

- Improvements for people riding bikes (bike lane, bike path): 2
- More warning signage (road curves, flashing lights, approaching driveways, slow down): 2
    - Signs that indicate where the next turnout is located were suggested.
    - Fire station flashing lights and other lighting suggested.
    - “Slow down” signage suggested in advance of dangerous corners.
- Improvements along road curves (guardrails, wider shoulder, wider lane striping, rumble strips): 2
    - There is a preference for turnouts and wider shoulders as solutions for congestion over passing lanes due to excessive speeds.
    - The lack of a shoulder on mountain roads (near the mountain) is a safety issue. Deep fissures create hazards for vehicles hugging the mountainside.
    - Safety guard rails along SR 76 were suggested.
- Better cellphone service or more call boxes to report collisions/emergencies: 2
- Police enforcement (speeding driving under the influence): 1
    - One comment card indicated a desire for more CHP involvement.
- Improvements at intersections (traffic signal, roundabouts): 1
- Trim trees, bushes, landscaping to improve visibility: 0



Area-specific Discussion Not Captured Elsewhere

- There are six locations where school buses stop on SR 76: Red Gate Road, Harolds Road, South Grade Road, Sengme Oaks Road, Poomacha Road, and Church Road (both sides). The bus turns around on SR 76 East of Campground Road to drive students to school.
- Falling rocks, low visibility and a missing guardrail was noted between Campground Road and west of Poomacha Road on SR 76, especially when raining.
    - Falling rocks were also observed near Sengme Oaks Road on SR 76, and by Poomacha Road near the backside of Church Road.
- Turning lanes were suggested between Poomacha Road and Sengme Oaks Road.
- When traveling southbound on S Grade Road and attempting to merge onto westbound SR 76, it is difficult to see approaching westbound vehicles due to the skewed intersection geometry. It is currently yield-controlled which pressures drivers to merge quickly rather than a stop sign requiring people to completely stop and look.
- When traveling eastbound on SR 76 and attempting to make a left turn onto Tomanva Road, it is difficult to see approaching westbound vehicles due to landscaping. Additionally, eastbound cars that approach from behind do not have sufficient time to see a vehicle waiting to make the left-turn onto Tomanva Road.
- Parking and access to the Luiseño Bike Park is an issue.
- When it snows, Palomar Mountain causes extra congestion along roads, particularly for uphill travel.
- Cars pulling up to add snow chains block the road at SR 76 junction.



La Jolla Band of Luiseño Indians

Comprehensive Safety Action Plan

Task Force Meeting #1

January 18, 2024

Agenda

1. Role of the Task Force
2. Project Background
3. Collision Data Overview
4. Brainstorming Session: What Are Your Safety Priorities?
5. Next Steps

Role of the Task Force

Role of the Task Force

- Represent your unique perspective
- Shape the priorities/vision of the La Jolla Band CSAP (January)
- Determine key safety issues and locations (February)
- Strategize on safety recommendations (March)
- Provide input on the Draft CSAP (April)

Project Background

Project Background

- The Bipartisan Infrastructure Law (BIL) established the Safe Streets and Roads for All (SS4A) discretionary program with $5 billion in appropriated funds over 5 years, 2022-2026.

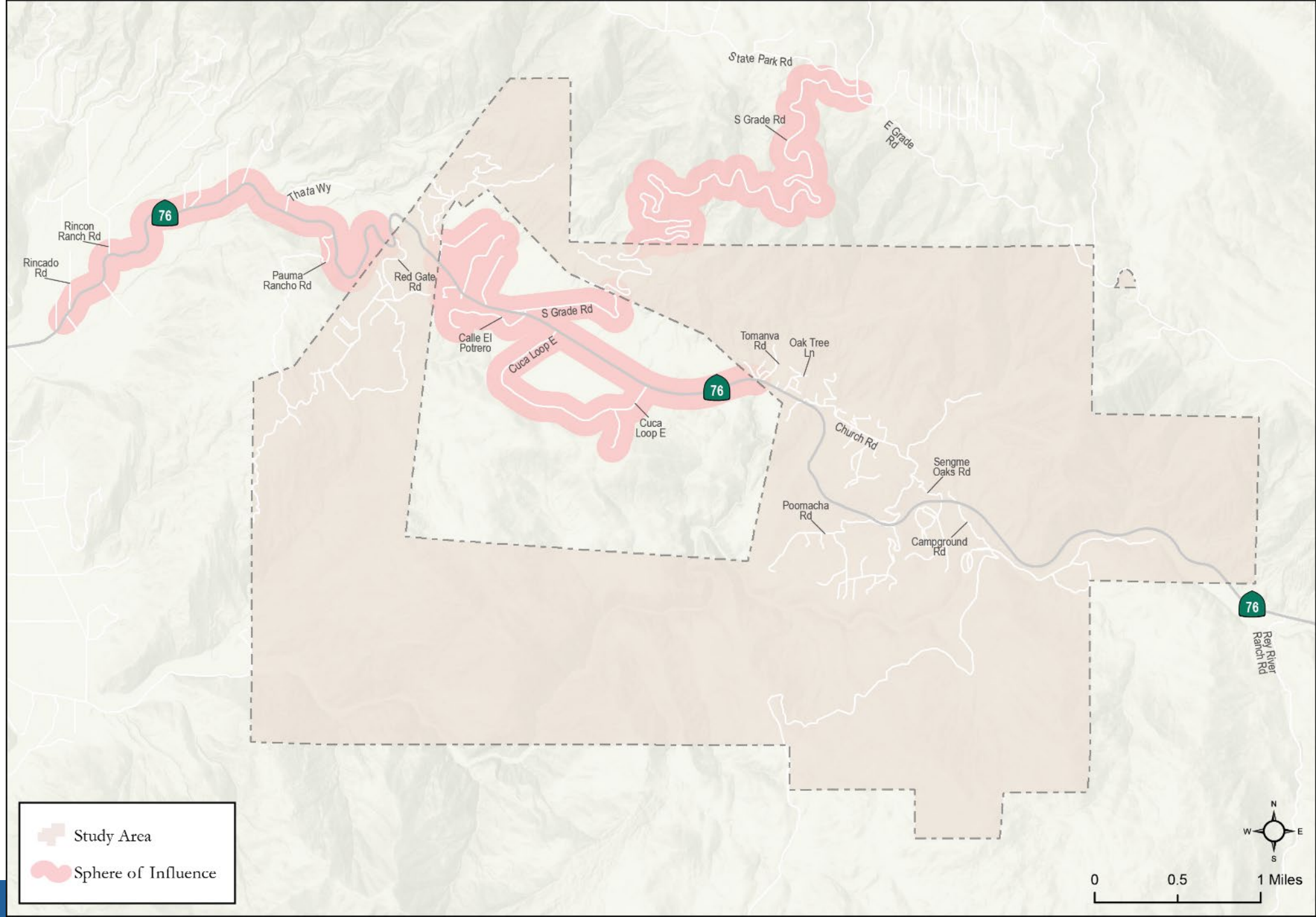
- The SS4A program funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries.

- A CSAP is required for USDOT CSAP Implementation Grants and increases competitiveness for other funding sources.

Project Purpose

- Identify and document key transportation safety issues with a focus on collisions resulting in severe and fatal injuries
- Build on the Road Safety Assessment prepared in 2014
- Strengthen partnerships: Tribe departments and members, Caltrans, SANDAG, CHP, CalFire

Study Area


State Park Rd
S Grade Rd
E Grade Rd
Thata Wy
76
Rincon Ranch Rd
Rincado Rd
Pauma Rancho Rd
Red Gate Rd
S Grade Rd
Calle El Potrero
Cuca Loop E
Tomanva Rd
Oak Tree Ln
76
Cuca Loop E
Church Rd
Sengme Oaks Rd
Poomacha Rd
Campground Rd
76
Rey River Ranch Rd
Study Area
Sphere of Influence
N
W
E
S
0
0.5
1 Miles

Project Components

- Safety Analysis
  - Collision Analysis, Equity Analysis, Literature Review
- Stakeholder Engagement
  - 4 Task Force Meetings, 2 Community Meetings
- Toolbox of Strategies and Countermeasures
- Project List and Priority Matrix
  - 10 Priority Project Sheets
- Draft & Final Safety Action Plan

Project Schedule

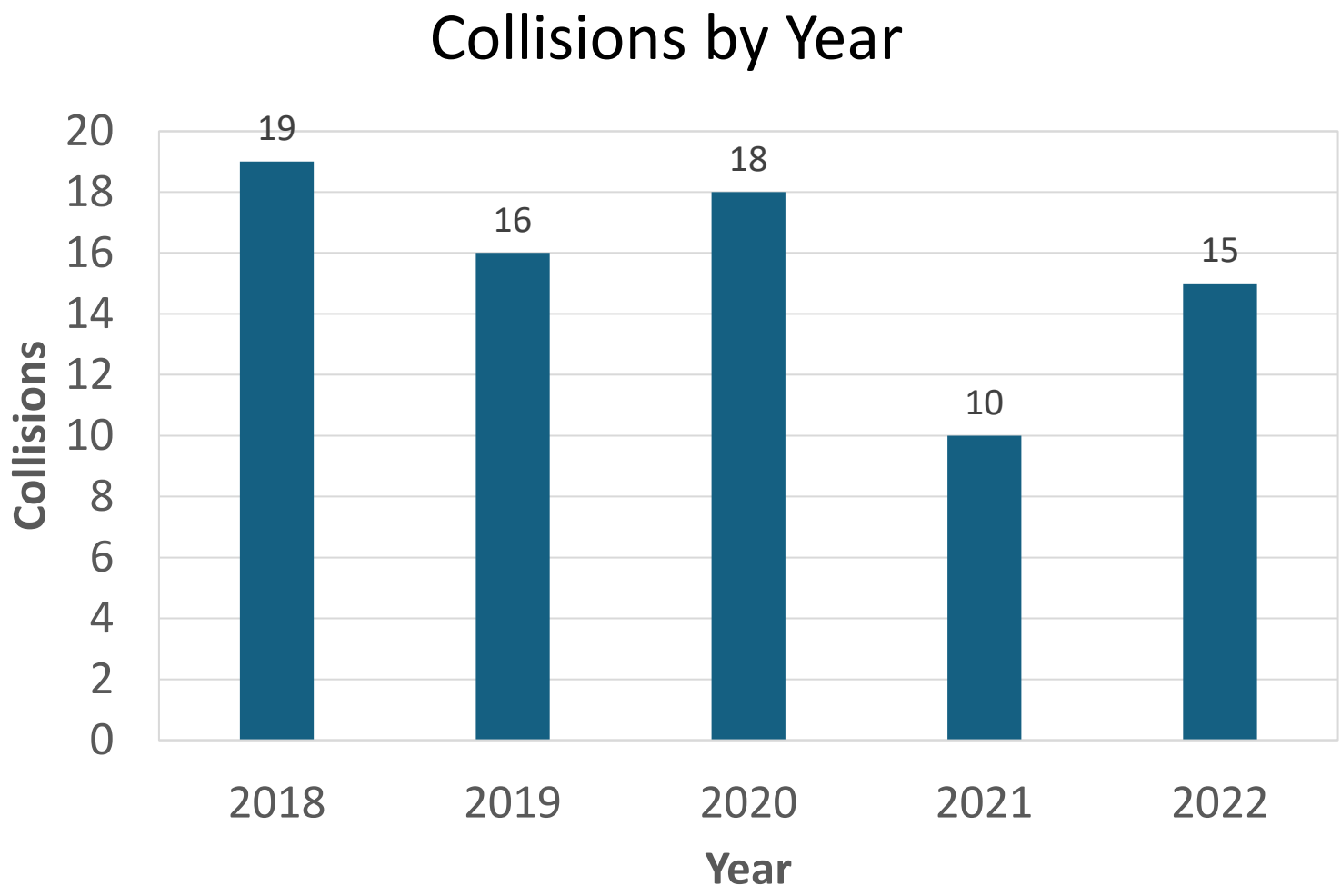
	Nov 2023	Dec 2023	Jan 2024	Feb 2024	March 2024	April 2024	May 2024
Safety Analysis							
Task Force Meetings and Community Outreach Activities							
Develop and Prioritize Strategies and Programs							
Draft & Final CSAP							

Collision Data Overview

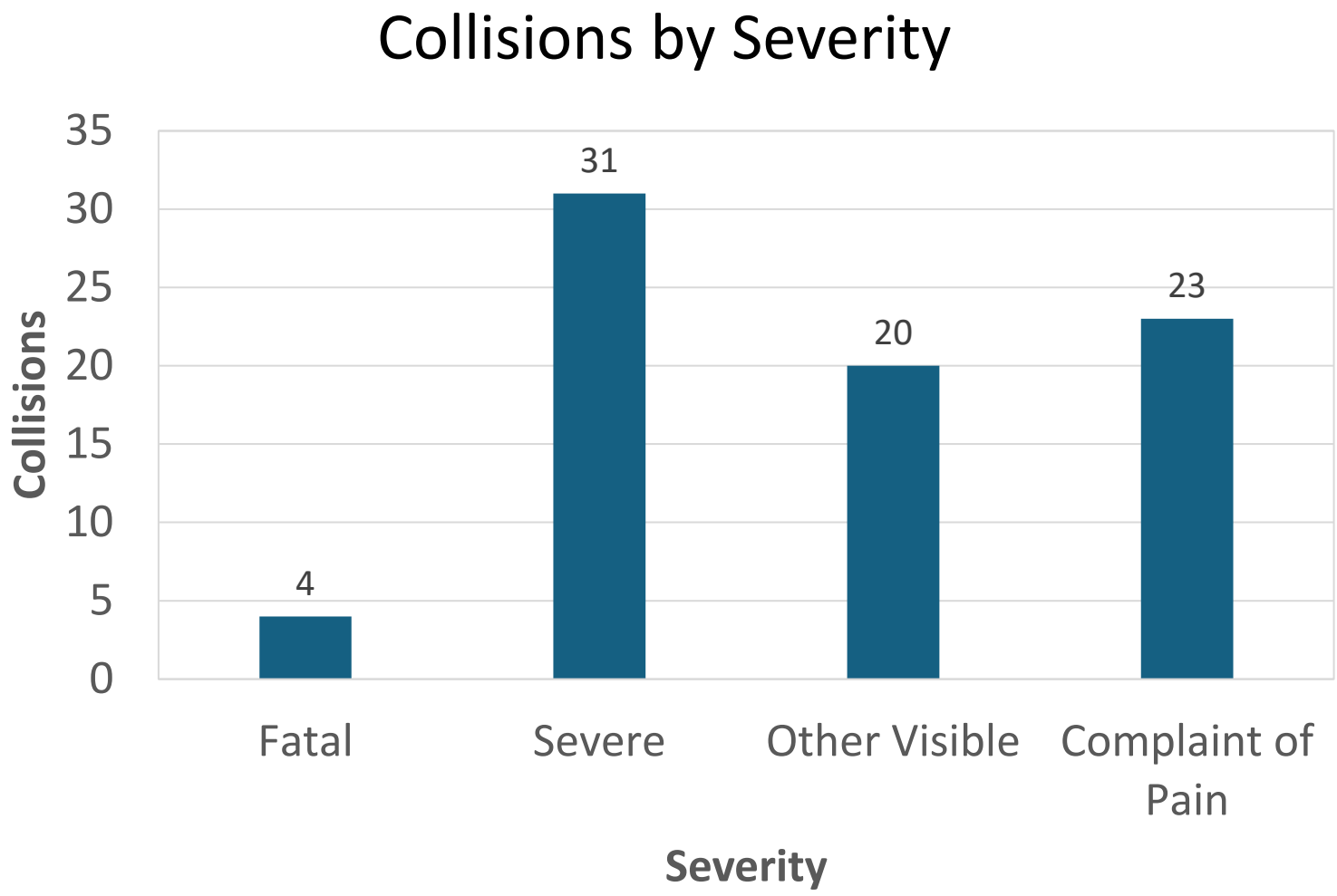
Collision Data Overview

- 78 Collision Records
  - 5-Years (2018 – 2022)
- Signage/Infrastructure
  - Posted Speed Limits
  - Warning Signage
  - Traffic Controls
- Demographics/Equity
  - Age & Population
  - Household Income & Vehicle Ownership
  - CalEnviroScreen
  - Climate and Economic Justice Screening Tool
  - Equitable Transportation Community Explorer
  - Social Vulnerability Index

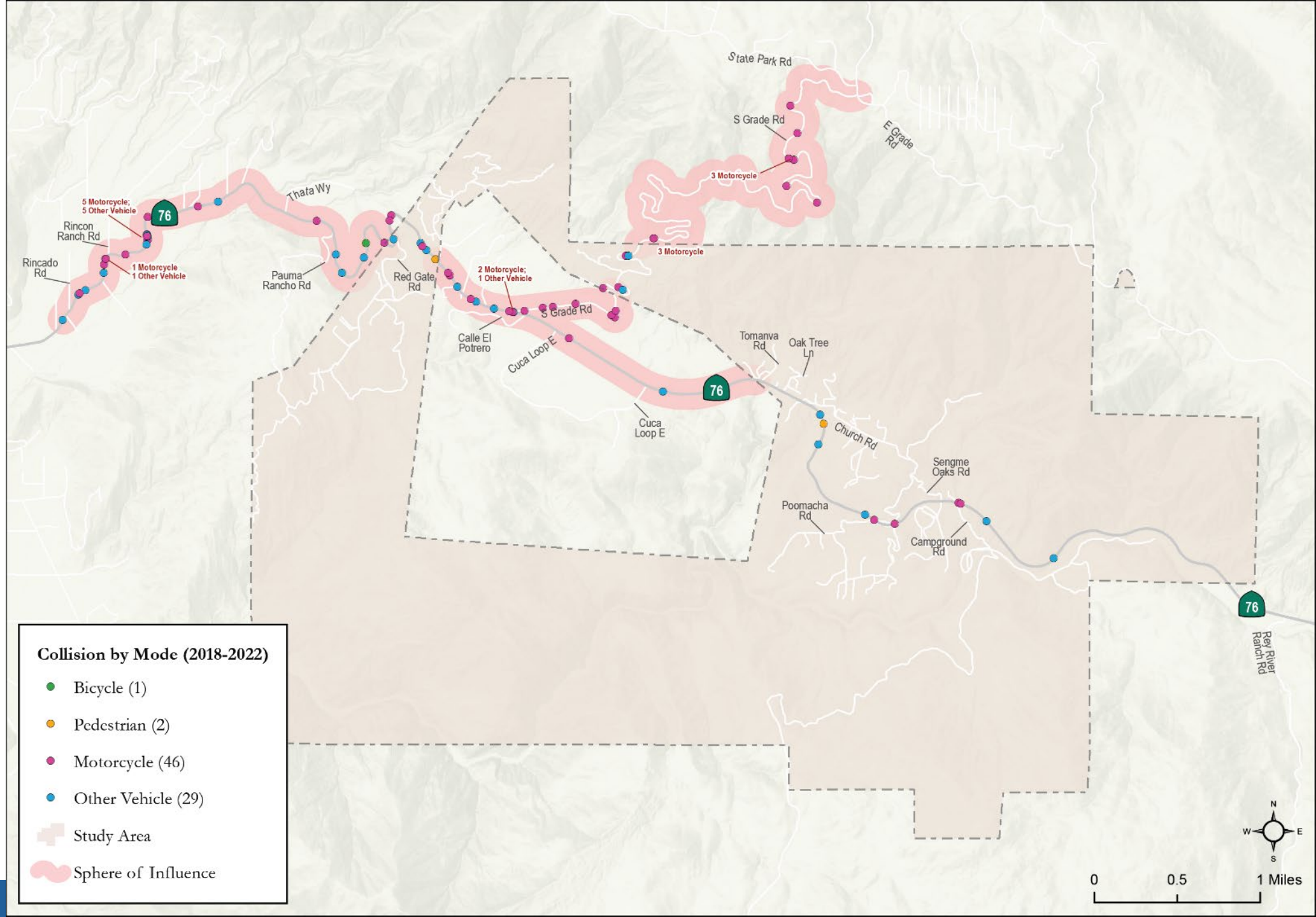
Collision Data Overview



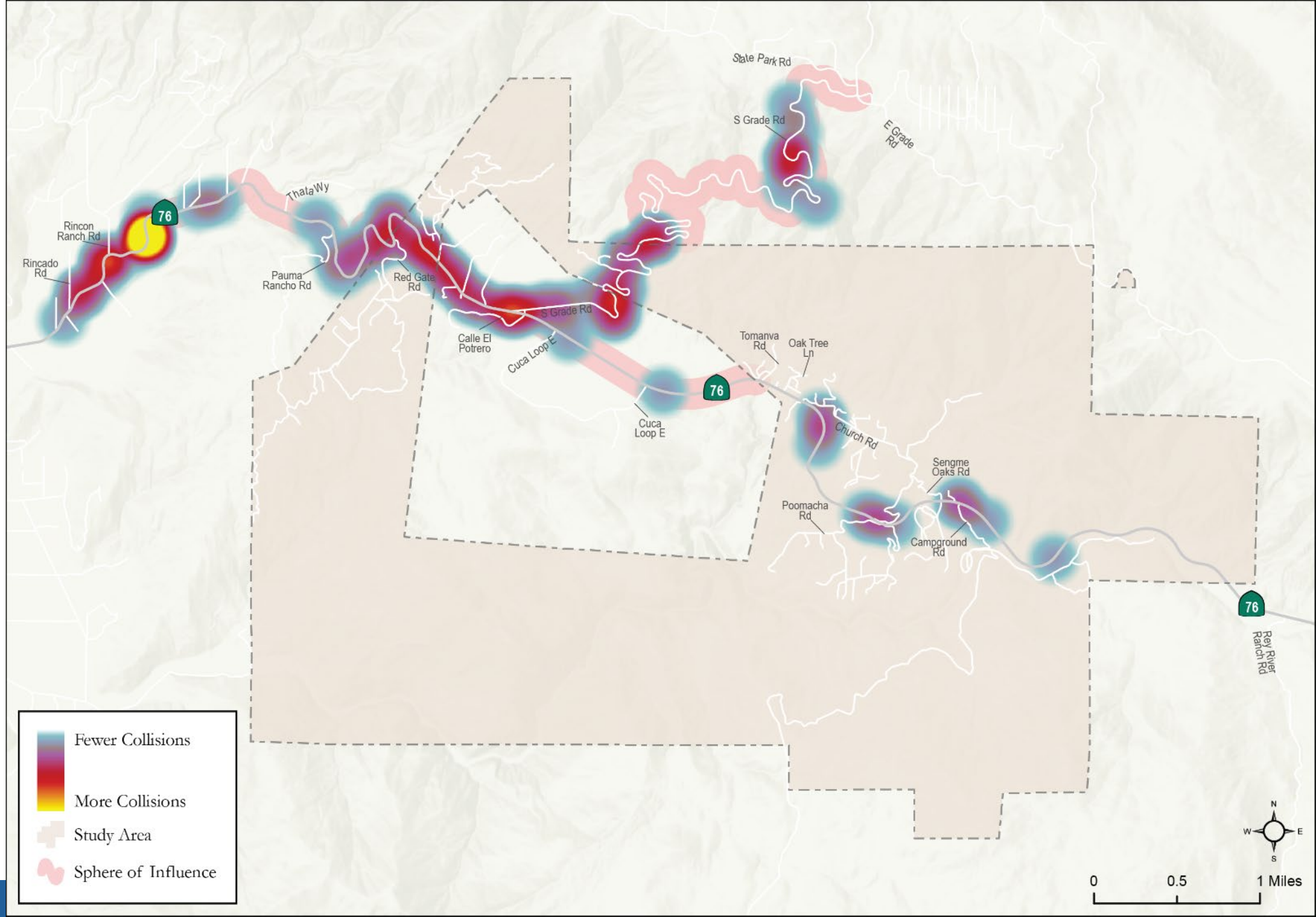
Collision Data Overview



Collisions by Mode



Collision Heatmap



Collision Data Overview

Collisions by Crash Type

Crash Type	Collisions
Overturned	30
Hit Object	29
Broadside	5
Head-On	4
Sideswipe	4
Rear End	2
Vehicle/Pedestrian	2
Other	2
TOTAL	**78**

Collision Data Overview

Collisions by Primary Collision Factor

Primary Collision Factor	Collisions
Improper Turning	33
Unsafe Speed	20
Driving Under the Influence	11
Automobile Right of Way	4
Other than Driver (or Pedestrian)	4
Improper Passing	2
Pedestrian Violation	2
Unknown	1
Wrong Side of the Road	1
TOTAL	**78**

Brainstorm: What Are Your Safety Priorities?

Brainstorm: What Are Your Safety Priorities?

- What would you like this project to achieve?
- What are the most pressing safety needs/topics?
- Any locations of concern?
- How can this project help you/your organization?

Next Steps

Next Steps

- Convene first Community Meeting
- Develop Project Goals
- Complete Safety Analysis
- Reconvene Task Force group
    - Determine key safety issues and locations

Thank You!

Carla Rodriguez

Public Works Director

La Jolla Band of Luiseño Indians

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Senior Transportation Planner

CR Associates

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La Jolla Band of Luiseño Indians Comprehensive Safety Action Plan Task Force Meeting #1
January 18, 2024, 2:00-3:00pm

Attendance:
La Jolla Band of Luiseno Indians: Public Works Director Carla Rodriguez, Chairwoman Wendy Schlater, Vice Chair Jack Musick, Treasurer Larriann Musick, Councilmember John Paipa
CR Associates: Project Manager Andrew Prescott, Transportation Planner Annabel Grealish
SANDAG: Regional Planner Sam Samford
Caltrans District 11: Public Affairs Manager Steve Welborn
CalFire/San Diego County Fire: Division Chief Robert Reynolds
California Highway Patrol: Community Outreach Supervisor Sergeant Daniel Hollywood

i. Welcome and Introductions
    - Carla welcomed the Task Force members to the first La Jolla Band of Luiseño Indians Comprehensive Safety Action Plan Task Force Meeting and began the introductions.
    - Carla spoke about the structure of the Tribal Government and Departments and provided some background on why the study was pursued.

ii. Andrew presented on the following topics:
    - Meeting agenda
    - Role of task force
    - Project background
    - Collision data

ii. Andrew introduced the brainstorm activity.
    - Chairwoman Schlater asked about the study area and Andrew clarified.
    - Chairwoman Schlater suggested that the County of San Diego build a bike lane south of SR 76 as there is a lot of bike traffic on weekends.
    - Chairwoman Schlater asked about the number of animal-involved collisions.
        - Andrew indicated that we could send her the exact number of animal-involved collisions after the meeting.
    - Vice Chair Musick indicated his interest in bus stop safety.
        - There is currently no public transportation on the reservation, but adding public transportation would be a needed to cut down on collisions and DUIs.
        - He indicated that redesign priorities would be to move bus stops that are in the road off the road, add more signage, and add flashing lights.
    - Vice Chair Musick suggested a need for guard rails going down from South Grade Road to the roundabout, and above Poomacha Road.
    - Vice Chair Musick would like to see flashing lights and signage for folks to slow down on SR 76 for the new fire station between Church Road and Oak Tree Lane.
    - Vice Chair Musick asked if the safety plan would be put together with the county and the state.
        - Andrew indicated that we would get the county involved on the Task Force, but that we are also familiar with South Grade Road due to a previous study.

- Vice Chair Musick indicated that motorcycles and racecars use Palomar Mountain and SR 76 for racing. This occurs around midnight to 2:00 am because of a lack of enforcement.
    - They request more enforcement on weekends from CHP.
- Vice Chair Musick indicated that they have a list of recommendations, and was asked to forward these to Carla, who will loop in Andrew.
- Carla indicated that her concerns were with driveways with blind spots, including at the approach to the campground and the Tribal Hall Sengme Oaks Rd entrance, especially as there will be a new welcome center opening in the future. Her recommendation is widening roads, adding roundabouts, or generally adding safer turns in and out alongside warning signage on the approach to blind spots for traffic calming purposes.
    - She noted that there has been a large increase in traffic since the 2014 safety analysis was conducted—both on the reservation and for those going through the reservation.
- Stephen Welbourn indicated that he is in tune with what's going on in the area. He is supportive of the ideas mentioned today, particularly the bike lane idea.
- Seargent Hollywood indicated he was aware of the safety issues in this area—he will look at utilizing motorcycle grants to help increase enforcement to decrease those crashes and/or have the racers move on to other locations. He is interested in what they can do to increase enforcement and work with Tribe and their needs.
- Chief Reynolds indicated that he didn't have any specific responses to the brainstorm activity but that he was looking forward to providing what will be needed.

iii. Andrew defined our project next steps, shared our contact information, and concluded the meeting.

La Jolla Band of Luiseño Indians
Comprehensive Safety Action Plan | Call with Fire Chief Ruise

- Serves from Rincon to Henshaw
- Issues
    - Red Gate Road – motorcycles hit guard rail
    - Delayed reporting due to lack of cell service
    - Missing call boxes and mile markers which help identify collision locations
        - Could use 1/10 mile markers instead of 1/5 mile
        - Missing markers delays response times
        - Lack of mile markers impacts towing also
    - Need more CHP coverage
        - Delayed responses coming from I-15 or oceanside
    - Need better maintenance of landscaping to improve sight distance
        - Support for 20' brush clearance from road through reservation also helps with fire prevention
            - Forwarded to CalFire for their input
    - Poomacha Rd driveway
        - WB turning left get rear ended
        - Potentially relocate driveway to the west
- General speed control measures
- Turn out from 30 – 36.5 helps
- DUI issues
- Charter school van speeding issues

La Jolla Band of Luiseño Indians

Comprehensive Safety Action Plan

Task Force Meeting #2

March 7, 2024

Agenda

1. Recap Task Force Meeting #1
2. Community Workshop #1 Summary
3. Proposed Focus Locations & Topics
4. Potential Solution Types
5. Next Steps

Recap Task Force Meeting #1

Recap Task Force Meeting #1

- Role of the Task Force
- Project Background
- Collision Data Overview
- Brainstorming Session: What Are Your Safety Priorities?

Recap Task Force Meeting #1

- Safety Priorities Mentioned
  - Motorcycles/racing on South Grade Road
  - Bike path along SR 76
  - Sight distance at Sengme Oaks Road and Campground Road
  - Bus stop safety
  - Additional guardrails
  - Flashing lights/signage near the Fire Station
  - Cell service and mile markers
  - Driving under the influence

Community Workshop #1 Summary

Community Workshop #1 Summary

- Held Saturday, February 10, 2024, at the La Jolla Reservation gymnasium
- Purpose:
  - Introduce the study
  - Share high-level safety findings
  - Collect input on safety issues, needs, and locations

Community Workshop #1 Summary

- Interactive brainstorming activity to help identify safety needs:
  - What transportation safety topics are most important to you?
  - Any there locations where transportation safety is a concern?
  - How can we improve transportation safety?

La Jolla Band of Luiseño Indians
Comprehensive Safety Action Plan

What transportation safety topics are most important to you?

Please place a sticker next to the topics that are most important to you.

Topic	Stickers
Cars driving too fast	
Safety for people walking	
Safety for people riding bicycles	
Driving under the influence	
School bus stop safety	
Motorcycles	
Hard to see cars at SR 76 intersections	
Cars driving off the road	
Other:	
Other:	
Other:	
Other:	

La Jolla Band of Luiseño Indians
Comprehensive Safety Action Plan

Are there locations where transportation safety is a concern?

Please place a sticker next to the locations that are most important to you.

Location	Stickers
SR 76	
South Grade Road	
Poomacha Road	
Red Gate Road Intersection at SR 76	
Poomacha Road Intersection at SR 76	
Sengme Oaks Road Intersection at SR 76	
Campground Road Intersection at SR 76	
Other:	
Other:	
Other:	
Other:	
Other:	

La Jolla Band of Luiseño Indians
Comprehensive Safety Action Plan

How can we improve transportation safety?

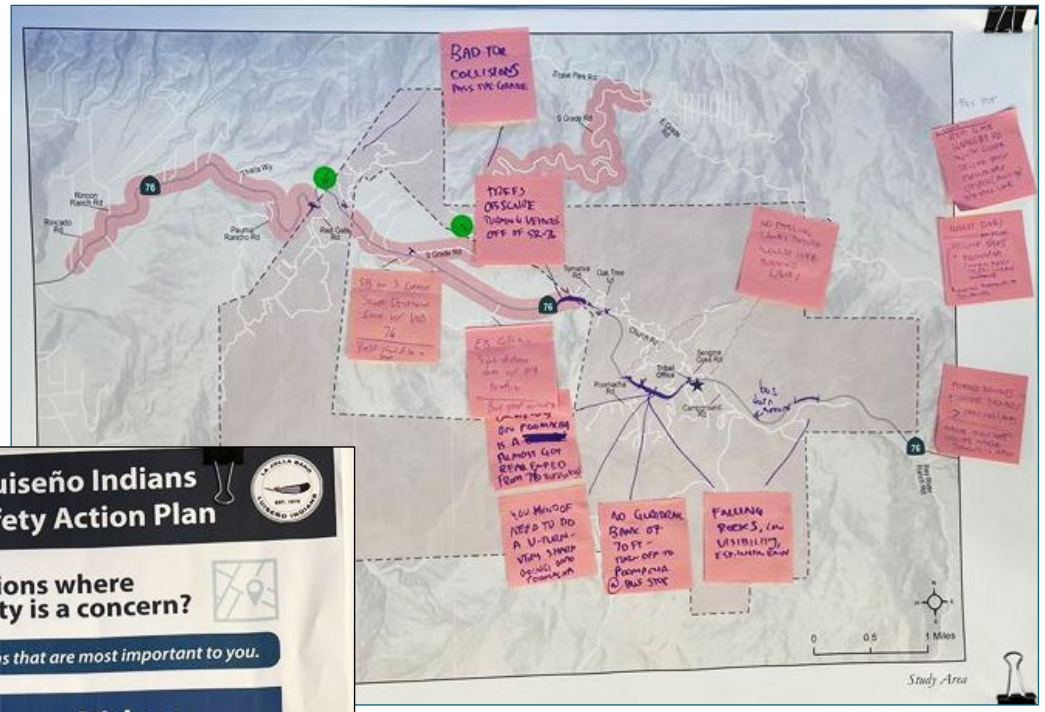
Please place a sticker next to the topics that are most important to you.

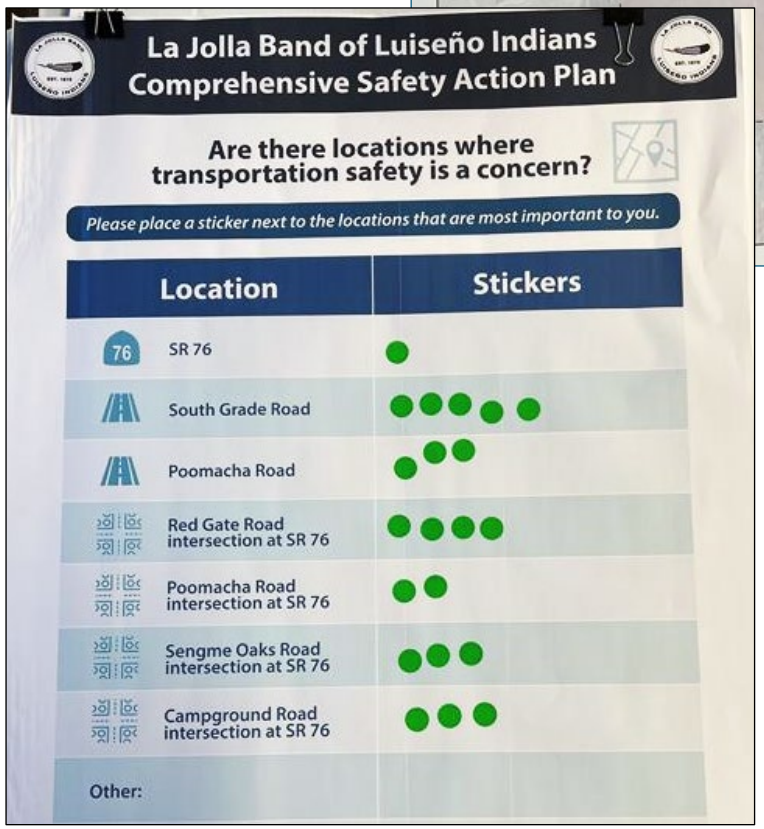
Location		Stickers
 	Police enforcement (speeding, driving under the influence)	
 	Improvements for people walking (crosswalks, sidewalks)	
 	Improvements for people riding bikes (bike lane, bike path)	
 	Safer waiting areas at bus stops	
  	More warning signage (road curves, flashing lights, approaching driveways, slow down)	
Other:		

Location		Stickers
	Improvements along road curves (guardrails, wider shoulder, wider lane striping, rumble strips)	
	Trim trees, bushes, landscaping to improve visibility	
	Improvements at intersections (traffic signal, roundabout)	
	Better cellphone service or more Call Boxes to report collisions/ emergencies	
	Safety education programs or messaging	
Other:		

Leading Issue Topics:

- Motorcycles
- School bus safety
- Sight distance along SR 76
- Speeding vehicles
- Falling rocks and trees
  - Between Campground Rd and west of Poomacha Rd on SR 76
  - South Grade Road





La Jolla Band of Luiseño Indians
Comprehensive Safety Action Plan

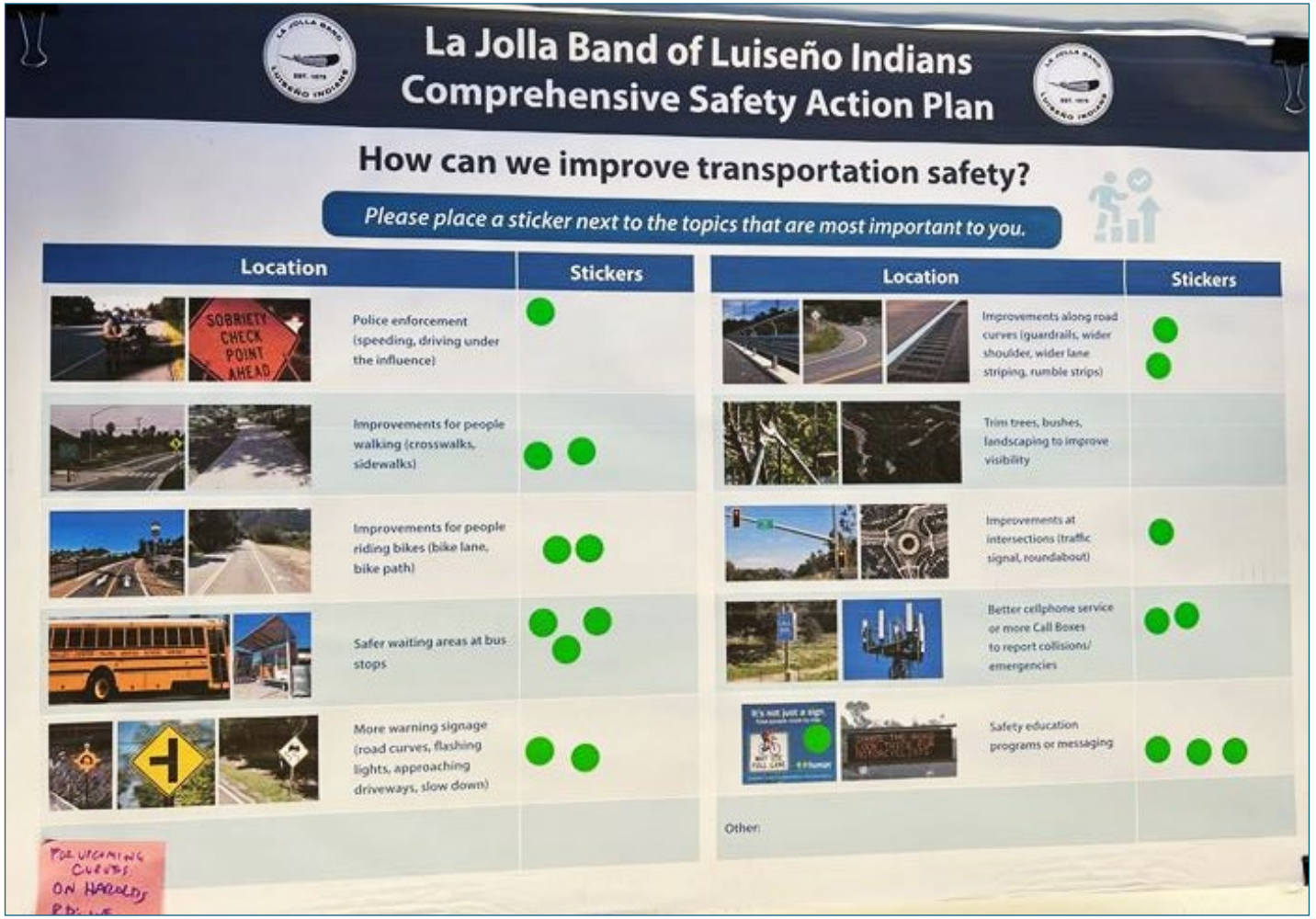
Are there locations where transportation safety is a concern?

Please place a sticker next to the locations that are most important to you.

Location	Stickers
SR 76	●
South Grade Road	●●●●●
Poomacha Road	●●●
Red Gate Road intersection at SR 76	●●●●
Poomacha Road intersection at SR 76	●●
Sengme Oaks Road intersection at SR 76	●●●
Campground Road intersection at SR 76	●●●
Other:	

Leading Locations:

- South Grade Road
  - Motorcycles and sports car racing popular; ride center line
- Red Gate Road and SR 76
  - Blind spots
- Poomacha Road and Intersection with SR 76
  - In need of center lines
  - U-Turn entrance to Poomacha Road from eastbound SR 76
- Sengme Oaks Rd and SR 76
- Campground Rd and SR 76



Leading Safety Priority Suggestions:

- Safer waiting areas at bus stops
  - Safety signs and awnings
- Safety education program or messaging
- Warning signage *(from comments/discussion)*
  - Turnout Signs
  - Fire station signage/lighting
  - “Slow down” signage at turns

Proposed Focus Locations & Topics

Proposed Focus Locations & Topics

- Collision Analysis
  - Sliding Window Methodology
  - Severe/Fatal Collision Locations
  - Primary Collision Factors & Crash Types
- Task Force Input
- Community Workshop Input

Proposed Focus Locations

- SR 76, Church Road to east of Campground Road
  - Poomacha Road
  - Sengme Oaks Road
  - Campground Road
- Red Gate Road & SR 76
- Poomacha Road
- 2nd Gate & SR 76 (bike park access)
- 3rd Gate / Water Tank Road & SR 76
- Parcell Road & South Grade Road

Proposed Focus Topics

- Unsafe Speeds
- Roadway Departure
- School Bus Stops & Bus Turnaround
- Cell Phone Service
- Driving Under the Influence
- Falling Rocks

Potential Solution Types

Potential Solution Types

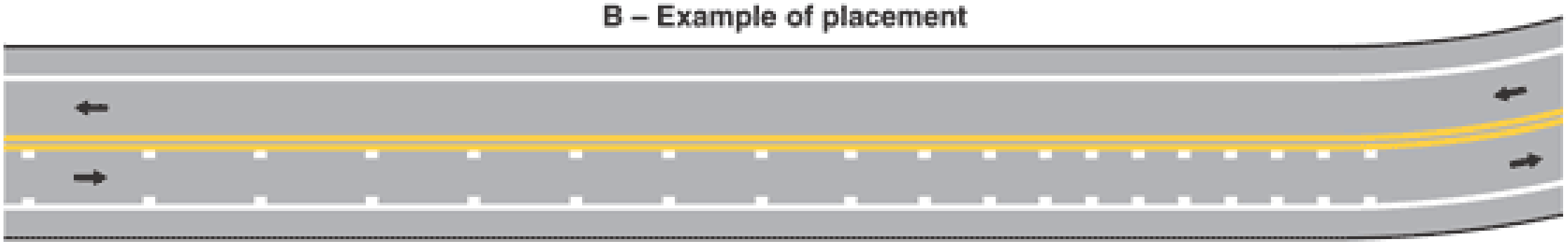
- Advance Warning Signs
  - Curves
  - Combined Curve/Intersection
- Chevron Alignment Signs
- Dynamic Curve Warning System

Potential Solution Types

- Review/retrofit existing warning signs
  - Sizes
  - Doubling up signage (each side of road)
  - Highly retroreflective and fluorescent sheeting
  - Flashing beacons

Potential Solution Types

- Speed Advisory Markings in Lane
- High Friction Surface Treatments (HFST)
- Speed Reduction Markings



Potential Solution Types

- Center Lines & Edge Lines
- Shoulder/Edge Line Rumble Strips
- Guardrails
- Landscaping/Grading at Driveways

Potential Solution Types

- Increased Mile Markers (every 1/10th of a mile)
- Improved Cell Phone Service
- Call Boxes
- Bus Shelters

Potential Solution Types

- Roadway Realignment/Relocation
- Shoulder Widening
- Turn Pocket
- Reduced Speed Limit – AB43
- Increased Enforcement
- Changeable/Dynamic Message Sign

Next Steps

Next Steps

- Complete Safety Analysis
- Apply Solutions to Focus Areas
- Reconvene Task Force
- Develop Project Sheets and Cost Estimates
- Final Report Documentation

Thank You!

Carla Rodriguez

Public Works Director

La Jolla Band of Luiseño Indians

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Andrew Prescott

Senior Transportation Planner

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Task Force Meeting #2
La Jolla Band of Luiseño Indians Comprehensive Safety Action Plan
March 7, 2024

Attendees:
La Jolla Band of Luiseño Indians: Public Works Director Carla Rodriguez, Police Chief Clay, Education Director Inez Sanchez
SANDAG: Regional Planner Jacqueline Sisk
Caltrans District 11: Public Affairs Manager Steve Welborn
California Highway Patrol: Community Outreach Supervisor Sergeant Daniel Hollywood
CR Associates: Project Manager Andrew Prescott, Transportation Planner Annabel Grealish

Summary & Notes
The second Task Force meeting served to share and obtain feedback on the proposed locations and topics that will be the focus of the CSAP moving forward. The meeting consisted of a PowerPoint presentation covering the following topics:

- Recap Task Force Meeting #1
- Community Workshop #1 Summary
- Proposed Focus Locations & Topics
- Potential Solution Types
- Next steps

1. Recap Task Force Meeting #1
    - The content, purpose, and feedback received during the first Task Force meeting held on January 18, 2024 was reviewed.

2. Community Workshop #1 Summary
    - The content, purpose, and feedback received during the initial community workshop was shared.
    - The input received during Task Force Meeting #1 was used to develop workshop boards and solicit feedback on locations and topics of transportation safety concern.
    - Workshop participants provided input via comment cards, writing on maps, placing stickers on boards, and/or discussions with project team staff.

i. Proposed Focus Locations & Topics
    - Andrew explained the inputs that informed the proposed locations and topics, including a collision analysis, feedback from the Task Force, and feedback from the first community event.
    - Andrew outlined the five proposed focus locations and the six proposed focus topics.
        - Steve Welborn provided a virtual thumbs up in response to these.

ii. Potential Solution Types
    - Andrew overviewed a series of proposed solution types for the project area, such as guardrails, increased mile markers, and speed reduction markings. He outlined how they would work to mitigate the identified issues.

iii. Next Steps

- Next steps include completing the safety analysis, applying solutions to the focus areas, reconvening the Task Force, holding a second community event, and developing project sheets and cost estimates.
    - Jacqueline Sisk asked when the comprehensive plan is estimated to be completed.
        - Andrew indicated that he expects the draft plan to be completed in May.

Appendix D - Maintenance Needs

7.0 Deferred Maintenance Roads:

7.1 Purpose and Need

The purpose in conducting the Level of Service (LOS) data collection in regards to existing Deferred Maintenance Roads is to identify existing BIA roads within the boundaries of tribal lands that are in need of future maintenance. A LOS rating is applied to existing roads to determine a priority for maintenance, which in turn is given a cost estimate by engineers, thus allows the Tribes and BIA to apply existing and future TTP funds.

7.2 Level of Service

In **Table 12.b.**, shows the existing BIA routes with LOS rating, and the ratings indicate the higher the number the higher the need for road maintenance and repair. This list will be updated in the near future to reflect the recent data collected regarding the LOS rating that was conducted in the summer of 2018. Some roads are now in better condition as a result of Tribal accomplishments to repair their road system.

Table 12.b. La Jolla: Deferred Maintenance Assessment for Roads

J54576 - La Jolla					
Route Number	Qtr	Surface Type Code	Length (mi)	Level Of Service Code	Maintenance Need ($)
0041	3	1 - Earth Road	1.1	2-Good	1,196
0041	3	4 - Bitumenous < 2"	0.7	5-Failing	3,491
0041	3	5 - Bitumenous > 2"	0.7	3-Fair	3,229
0042	3	4 - Bitumenous < 2"	0.6	4-Poor	2,385
0043	3	4 - Bitumenous < 2"	0.3	3-Fair	923
0044	3	4 - Bitumenous < 2"	0.2	2-Good	323
0045	3	1 - Earth Road	0.4	5-Failing	1,245
0046	3	4 - Bitumenous < 2"	0.5	2-Good	806
0047	3	4 - Bitumenous < 2"	0.3	3-Fair	923
0048	3	4 - Bitumenous < 2"	0.3	3-Fair	923
0049	3	5 - Bitumenous > 2"	1.4	2-Good	4,106
0050	3	1 - Earth Road	0.1	2-Good	109
0050	3	5 - Bitumenous > 2"	0.8	3-Fair	3,690
0050	3	4 - Bitumenous < 2"	0.5	3-Fair	1,538
0051	3	1 - Earth Road	0.6	2-Good	653
0052	3	4 - Bitumenous < 2"	0.3	3-Fair	923
0053	3	1 - Earth Road	0.2	3-Fair	345
		Reservation Total:	9.0		26,804

(Source: RIFDS DMR, 2013)

The LOS/DMR data collect were used by BIA Engineers to generate approximate cost estimates to rehabilitate an existing BIA road with the full depth reclamation (FDR) approach or considered a routine maintenance (ROU) activity for the tribe to consider depending on their constraint TTP funds and other funding sources. This information is listed in the next section on Suggested Implementation of LRTP: LOS & Safety Plan - Road Maintenance Projects.

7.3 Suggested Implementation of LRTP: LOS & Safety Plan - Road Maintenance Projects

The cost estimates generated by BIA staff in the tables below are based on commercial estimates. These estimates will change with time, distance, and material cost. Tribes can consider one of two possible options to address the need to repair, restore, and preserve existing roadway surface conditions within tribal lands regarding BIA own roads.

Option One – a Tribe with an established Transportation Program, with its own equipment and labor can address their road maintenance needs with TTP funds.

Option Two – to reduce the cost for road maintenance activities (patch work, signs, stripping, etc.) to Tribes. A "host" Tribe can consider the California Indian Tribal Transportation Alliance (CITTA) approach. The CITTA was initiated in the spring of 2019, which considers the "host" Tribe to apply their TTP funds for road maintenance activities and partner with other Tribes who have access to equipment and labor, hence the "host" Tribe will go into an agreement with the partnering Tribe(s) to pay for equipment and labor cost. In this approach the Tribe could have a potential savings of approximately 40% in comparison to commercial cost depending on distance, maintenance activities, and material cost.

Option Three – a Tribe can bid out for a commercial contract.

7.3.1 FY2020 & FY2025: Short Range - Road Maintenance Projects

Table 13. Rte. #41 Sec_10

Reservation Name: La Jolla	Route No. 41	Section 10		
Recommended Repair (Paved)	Quantity	Unit	Unit Cost	Amount
Crack Sealing	408.00	L.F	$2.00	816.00
Striping White fog line	6626.00	L.F	$0.50	3,313.00
Striping, Double yellow center line	3313.00	L.F	$1.50	4,969.50
Slurry seal	882.67	S.Y	$2.25	1,986.01
Culvert Cleaning	350.00	L.F	$9.51	3,328.50
Sub - Total				14,413.01
Mobilization and Traffic control				2,161.95
Sub-total-1				16,574.96
Water cost	350.00	L.F	$7.91	2,768.50
Sub-total-2				2,768.50
TOTAL COST				19,343.46

(Source: BIA Roads, 2019)

Table 14. Rte. #41 Sec_20

Reservation Name: La Jolla	Route No. 41	Section 20		
Recommended Repair (Unpaved)	Quantity	Unit	Unit Cost	Amount
Culvert Cleaning	348.00	L.F	$9.51	$3,309.48
Vegetation Removal	9656.00	L.F	$1.14	$11,007.84
Ditch Cleaning	4828.00	L.F	$1.14	$5,503.92
Curing Seal	3058.00	Gal.	$2.25	$6,880.50
Stabilized and grade surface	10193.00	S.Y	$12.00	$122,316.00
Sub- Total				$149,017.74
Mobilization and Traffic control				$22,352.66
Sub-total-1				$171,370.40
Geotechnical Report for Mix design	1.00	EACH	$5,000.00	5,000.00
R value test and compaction test	1.00	L.S	$3,000.00	3,000.00
Water cost	348.00	L.F	$7.91	2,752.68
Sub-total-2				10,752.68
TOTAL COST				182,123.08

Table 15. Rte. #41 Sec_30

Reservation Name: La Jolla	Route No. 41	Section 30		
Recommended Repair (Paved)	Quantity	Unit	Unit Cost	Amount
Striping White fog line	7246.00	L.F	$0.50	3,623.00
Striping, Double yellow center line	3623.00	L.F	$1.50	5,434.50
Slurry seal	8052.00	S.Y	$2.25	18,117.00
Culvert Cleaning	100.00	L.F	$9.51	951.00
Sub - Total				28,851.50
Mobilization and Traffic control				4,327.73
Sub-total-1				33,179.23
Water cost	100.00	L.F	$7.91	791.00
Sub-total-2				791.00
TOTAL COST				33,970.23

Table 16. Rte. #42 Sec_10, 20, 30

Reservation Name: La Jolla	Route No. 42	Section 10,20,30		
Recommended Repair (Paved)	Quantity	Unit	Unit Cost	Amount
Striping White fog line	6336.00	L.F	$0.50	3,168.00
Striping, Double yellow center line	3168.00	L.F	$1.50	4,752.00
Culvert Cleaning	28.00	L.F	$9.51	266.28
Culvert Repair (labor, equipment & material)	2.00	L.F	$200.00	400.00
Curing Seal	2022.00	Gal.	$2.50	5,055.00
Stabilize with AC Surface	6,740.00	S.Y	$23.63	159,266.20
Sub - Total				172,907.48
Mobilization and Traffic control				25,936.12
Sub-total-1				198,843.60
Geotechnical Report for Mix design	1.00	EACH	$5,000.00	5,000.00
R value test and compaction test	1.00	L.S	$3,000.00	3,000.00
Water cost	28.00	L.F	$7.91	221.48
Sub-total-2				8,221.48
TOTAL COST				207,065.08

Table 17. Rte. #43 Sec_10

Reservation Name: La Jolla	Route No.43	Section 10		
Recommended Repair (Paved)	Quantity	Unit	Unit Cost	Amount
Striping White fog line	2946.00	L.F	$0.50	1,473.00
Remove vegetation	2946.00	LF	$1.14	3,358.44
Curing Seal	688.00	Gal.	$2.50	1,720.00
Stabilize with AC Surface	2,292.00	S.Y	$23.63	54,159.96
Sub - Total				60,711.40
Mobilization and Traffic control				9,106.71
Sub-total-1				69,818.11
Geotechnical Report for Mix design	1.00	EACH	$5,000.00	5,000.00
R value test and compaction test	1.00	L.S	$3,000.00	3,000.00
Water cost	0.00	L.F	$7.91	0.00
Sub-total-2				8,000.00
TOTAL COST				77,818.11

Table 18. Rte. #44 Sec_10

Reservation Name: La Jolla	Route No. 44	Section 10		
Recommended Repair (Paved)	Quantity	Unit	Unit Cost	Amount
Striping White fog line	2030.00	L.F	$0.50	1,015.00
Slurry seal	1805.00	S.Y	$2.25	4,061.25
Remove vegetation	2030.00	LF	$1.14	2,314.20
Sub - Total				7,390.45
Mobilization and Traffic control				1,108.57
Sub-total-1				8,499.02
TOTAL COST				8,499.02

Table 19. Rte. #49 Sec_10

Reservation Name: La Jolla	Route No. 49	Section 10		
Recommended Repair (Paved)	Quantity	Unit	Unit Cost	Amount
Crack Sealing	768.00	L.F	$2.00	1,536.00
Chip Seal	10907.00	S.Y	$4.00	43,628.00
Striping White fog line	8180.00	L.F	$0.50	4,090.00
Striping, Double yellow center line	4090.00	L.F	$1.50	6,135.00
Install/Replace signs	1.00	EACH	$250.00	250.00
Slurry seal	10907.00	S.Y	$2.25	24,540.75
Remove vegetation	8180.00	LF	$1.14	9,325.20
Culvert Cleaning	760.00	L.F	$9.51	7,227.60
Culvert Repair (labor, equipment & material)	0.00	L.F	$200.00	0.00
Sub - Total				96,732.55
Mobilization and Traffic control				14,509.88
Sub-total-1				111,242.43
Water cost	760.00	L.F	$7.91	6,011.60
Sub-total-2				6,011.60
TOTAL COST				117,254.03

Table 20. Rte. #50 Sec_10

Reservation Name: La Jolla	Route No.50	Section 10		
Recommended Repair (Paved)	Quantity	Unit	Unit Cost	Amount
Crack Sealing	276.00	L.F	$2.00	552.00
Striping White fog line	5506.00	L.F	$0.50	2,753.00
Striping, Double yellow center line	2753.00	L.F	$1.50	4,129.50
Install/Replace signs	6.00	EACH	$250.00	1,500.00
Slurry seal	6730.00	S.Y	$2.25	15,142.50
Sub - Total				24,077.00
Mobilization and Traffic control				3,611.55
Sub-total-1				27,688.55
TOTAL COST				27,688.55

Table 21. Rte. #50 Sec_20

Reservation Name: La Jolla	Route No.50	Section 20		
Recommended Repair (Unpaved)	Quantity	Unit	Unit Cost	Amount
Vegetation Removal	180.00	L.F	$1.14	$205.20
Ditch Cleaning	180.00	L.F	$1.14	$205.20
Road Way Grading	1760.00	S.Y	$3.00	$5,280.00
Gravel 6" deep	294.00	C.Y	$22.00	$6,468.00
Sub- Total				$12,158.40
Mobilization and Traffic control				$1,823.76
Sub-total-1				$13,982.16
TOTAL COST				13,982.16

Table 22. Rte. #50 Sec_30

Reservation Name: La Jolla	Route No. 50	Section 30		
Recommended Repair (Paved)	Quantity	Unit	Unit Cost	Amount
Crack Sealing	440.00	L.F	$2.00	880.00
Striping White fog line	6180.00	L.F	$0.50	3,090.00
Striping, Double yellow center line	3090.00	L.F	$1.50	4,635.00
Install/Replace signs	6.00	EACH	$250.00	1,500.00
Slurry seal	7554.00	S.Y	$2.25	16,996.50
Remove vegetation	3090.00	LF	$1.14	3,522.60
Culvert Cleaning	430.00	L.F	$9.51	4,089.30
Sub - Total				34,713.40
Mobilization and Traffic control				5,207.01
Sub-total-1				39,920.41
Water cost	430.00	L.F	$7.91	3,401.30
Sub-total-2				3,401.30
TOTAL COST				43,321.71

Table 23. Rte. #51 Sec_10

Reservation Name: La Jolla	Route No.51	Section 10		
Recommended Repair (Paved)	Quantity	Unit	Unit Cost	Amount
Crack Sealing	456.00	L.F	$2.00	912.00
Striping White fog line	6410.00	L.F	$0.50	3,205.00
Striping, Double yellow center line	3205.00	L.F	$1.50	4,807.50
Install/Replace signs	6.00	EACH	$250.00	1,500.00
Slurry seal	9972.00	S.Y	$2.25	22,437.00
Remove vegetation	0.00	LF	$1.14	0.00
Culvert Cleaning	1100.00	L.F	$9.51	10,461.00
Sub - Total				43,322.50
Mobilization and Traffic control				6,498.38
Sub-total-1				49,820.88
Water cost	1100.00	L.F	$7.91	8,701.00
Sub-total-2				8,701.00
TOTAL COST				58,521.88

Table 24. Rte. #52 Sec_10

Reservation Name:La Jolla	Route No.52	Section 10		
Recommended Repair (Paved)	Quantity	Unit	Unit Cost	Amount
Striping White fog line	1788.00	L.F	$0.50	894.00
Install/Replace signs	6.00	EACH	$250.00	1,500.00
Remove vegetation	894.00	LF	$1.14	1,019.16
Curing Seal	447.00	Gal.	$2.50	1,117.50
Stabilize with AC Surface	1,490.00	S.Y	$23.63	35,208.70
Sub - Total				39,739.36
Mobilization and Traffic control				5,960.90
Sub-total-1				45,700.26
Geotechnical Report for Mix design	1.00	EACH	$5,000.00	5,000.00
R value test and compaction test	1.00	L.S	$3,000.00	3,000.00
Sub-total-2				8,000.00
TOTAL COST				53,700.26

Table 25. Rte. #53 Sec_10

Reservation Name: La Jolla	Route No. 53	Section 10		
Recommended Repair (Paved)	Quantity	Unit	Unit Cost	Amount
Crack Sealing	440.00	L.F	$2.00	880.00
Striping White fog line	3136.00	L.F	$0.50	1,568.00
Striping, Double yellow center line	1568.00	L.F	$1.50	2,352.00
Install/Replace signs	6.00	EACH	$250.00	1,500.00
Slurry seal	3833.00	S.Y	$2.25	8,624.25
Remove vegetation	3136.00	LF	$1.14	3,575.04
Culvert Cleaning	255.00	L.F	$9.51	2,425.05
Sub - Total				20,924.34
Mobilization and Traffic control				3,138.65
Sub-total-1				24,062.99
Water cost	255.00	L.F	$7.91	2,017.05
Sub-total-2				2,017.05
TOTAL COST				26,080.04

Table 26. Rte. #47 Sec_10

Reservation Name: La Jolla	Route No. 47	Section 10		
Recommended Repair (Paved)	Quantity	Unit	Unit Cost	Amount
Crack Sealing	630.00	L.F	$2.00	1,260.00
Striping White fog line	2452.00	L.F	$0.50	1,226.00
Install/Replace signs	6.00	EACH	$250.00	1,500.00
Slurry seal	1908.00	S.Y	$2.25	4,293.00
Culvert Cleaning	114.00	L.F	$9.51	1,084.14
Sub - Total				9,363.14
Mobilization and Traffic control				1,404.47
Sub-total-1				10,767.61
Water cost	114.00	L.F	$7.91	901.74
Sub-total-2				901.74
TOTAL COST				11,669.35

Table 27. Rte. #48 Sec_10

Reservation Name: La Jolla	Route No. 48	Section 10		
Recommended Repair (Paved)	Quantity	Unit	Unit Cost	Amount
Striping White fog line	2464.00	L.F	$0.50	1,232.00
Install/Replace signs	6.00	EACH	$250.00	1,500.00
Remove vegetation	1232.00	LF	$1.14	1,404.48
Culvert Cleaning	95.00	L.F	$9.51	903.45
Curing Seal	4928.00	Gal.	$2.50	12,320.00
Stabilize with AC Surface	1,643.00	S.Y	$23.63	38,824.09
Sub - Total				56,184.02
Mobilization and Traffic control				8,427.60
Sub-total-1				64,611.62
Geotechnical Report for Mix design	1.00	EACH	$5,000.00	5,000.00
R value test and compaction test	1.00	L.S	$3,000.00	3,000.00
Water cost	95.00	L.F	$7.91	751.45
Sub-total-2				8,751.45
TOTAL COST				73,363.07

Table 28. Rte #45 Sec_10

Reservation Name: La Jolla	Route No. 45	Section 10		
Recommended Repair (Unpaved)	Quantity	Unit	Unit Cost	Amount
Culvert Cleaning	20.00	L.F	$9.51	$190.20
Vegetation Removal	4276.00	L.F	$1.14	$4,874.64
Ditch Cleaning	4276.00	L.F	$1.14	$4,874.64
Curing Seal	1069.00	Gal.	$2.25	$2,405.25
Stabilized and grade surface	3564.00	S.Y	$12.00	$42,768.00
Sub- Total				$55,112.73
Mobilization and Traffic control				$8,266.91
Sub-total-1				$63,379.64
Geotechnical Report for Mix design	1.00	EACH	$5,000.00	5,000.00
R value test and compaction test	1.00	L.S	$3,000.00	3,000.00
Water cost	20.00	L.F	$7.91	158.20
Sub-total-2				8,158.20
TOTAL COST				71,537.84

Table 29. Rte. #46 Sec_10

Reservation Name: La Jolla	Route No. 46	Section 10		
Recommended Repair (Paved)	Quantity	Unit	Unit Cost	Amount
Striping White fog line	5592.00	L.F	$0.50	2,796.00
Striping, Double yellow center line	2796.00	L.F	$1.50	4,194.00
Culvert Cleaning	241.00	L.F	$9.51	2,291.91
Curing Seal	2051.00	Gal.	$2.50	5,127.50
Stabilize with AC Surface	6,835.00	S.Y	$23.63	161,511.05
Sub - Total				175,920.46
Mobilization and Traffic control				26,388.07
Sub-total-1				202,308.53
Geotechnical Report for Mix design	1.00	EACH	$5,000.00	5,000.00
R value test and compaction test	1.00	L.S	$3,000.00	3,000.00
Water cost	241.00	L.F	$7.91	1,906.31
Sub-total-2				9,906.31
TOTAL COST				212,214.84

7.3.2 FY2025 to FY2030: Intermediate Range - Road Maintenance Projects

7.3.3 FY2030 to FY2040: Long Range Road Maintenance Projects

PROPOSED PROJECTS

The following improvement projects are proposed for the La Jolla Reservation. Based on need and funding potential, the projects are listed for implementation in three groups: Near- term projects which represent immediate needs and should be implemented within the next 5 years; mid-term projects to be implemented within 6-10 years; and long-term projects which will not be implemented until after 10 years.

Preliminary planning cost estimates also are provided for each proposed project. These costs are intended for planning purposes only and do not represent construction estimates, since no engineering plans exist for these projects. As projects are better defined in the future or when preliminary engineering has taken place, these costs should be replaced with more accurate estimates. Also, for reconstruction projects, a percentage of new construction costs are sometimes used to reflect the fact that some type of road already exists.

When this occurs, the percentage will be indicated after the construction category. Unit costs for various road sections are documented in Appendix A.

1 . <u>Signing</u>

Several locations were identified where traffic control signing was required. These are:

BIA Route 41B, Section 10: New "Children Playing" sign (1 sign) BIA

Route 41C: Stop sign at [BIA Route 44] intersection (1 sign)

BIA Route 42: Stop sign at intersection with Tribal Headquarters (1 sign)
BIA Route 44: Stop sign at BIA Route 41 (1 sign)

BIA Route 45: Stop sign at BIA Route 41B (1 sign)

Unnamed Road S. of SR 76: Stop sign at SR 76 intersection (1 sign)
6: Curve warning signs (5 signs) S

11 signs	*$175/sign*	*$*	*1,925*

Total estimated cost of this project would be $1,925 and would be the responsibility of the BIA.

2 . <u>BIA Route 50: Reconstruction</u>

With the exception of the southern 0.15 of a mile, BIA Route 50 is a 12 to 18-foot wide paved road in fair to poor condition. The road serves 18 homes. The fire department, which serves a large area, is also located on the road. The road is inadequate to serve the volume of traffic it carries (over 250 ADT), and the Tribe has indicated that improvement of this road is their first priority.

Under this project, the northern 1.15 miles of the road would be reconstructed to a 24-foot wide paved road, with 20 feet of paved travel way and 2-foot paved shoulders (Rural Design Guideline 18: Rural Local). Also, shoulders would be reclaimed and the road overlaid on the first 0.15 of a mile portion. Total estimated cost of the project would be $787,800 and would be the responsibility of the BIA.

Preconstruction		*295,800*
Grade & Drain (75%)	*59,800*	
Paving	*73,600*	
Incidentals	*<u>98,900</u>*	
Overlay (0.15 of a mile @ $51,360 mile)		*<u>7,700</u>*
Subtotal	*606,000*	
Contingency (30%)	*<u>181,800</u>*	
TOTAL PROJECT COST	*787,800*	

<u>Poomacha Road (BIA Route 41A): Reconstruction</u>

Currently, BIA Route 41A (Poomacha Road) is a 1.33 mile, 10 to 18-foot wide, paved road in poor condition. The road serves 21 homes. In order to meet current design standards, the road would be reconstructed to a 26-foot paved road, with 20 feet of paved travel way and 3- foot paved shoulders (Rural Design Guideline 15: Rural Local). Total estimated cost of the project would be $918,600 and would be the responsibility of the BIA.

Preconstruction	*82,500*
Grade and Drain (75%)	*342,100*
Gravel	*74,500*
Paving	*91,800*

Incidentals	*115,700*
Subtotal	*706,600*
Contingency (30%)	*212,000*
TOTAL PROJECT COST	*918,600*

3. BIA Route 41B (La Jolla Road): Reconstruction

BIA Route 41B is a 0.83 of a mile long paved road in fair to poor condition. The first 0.58 of a mile portion of the road is 22 feet wide and serves 26 homes and a church. The last 0.25 of a mile portion is only 12 feet wide. Under this project, the road would be reconstructed to 26 feet wide, with 20 feet of paved travel way and 3-foot paved shoulders (Rural Design Guideline 15: Rural Local). Total estimated cost of the project would be $573,300 and would be the responsibility of the BIA.

Preconstruction	*51,500*
Grade and Drain (75%)	*213,500*
Gravel	*46,500*
Paving	*57,300*
Incidentals	*72,200*
Subtotal	*441,000*
Contingency (30%)	*132,300*
TOTAL PROJECT COST	*573,300*

5. BIA Route 41C: Reconstruction

BIA Route 41C is a 0.15 of a mile long, 12-foot wide paved road in poor condition. The road serves five homes. In order to meet current design standards, the road would be reconstructed to a 24-foot wide paved road, with 20 feet of paved travel way and 2-foot paved shoulders (Rural Design Guideline 18: Rural Local). Total estimated cost of this project would be $118,300 and would be the responsibility of the BIA.

Preconstruction	*9,200*
Grade and Drain	*51,500*
Gravel	*7,800*
Paving	*9,600*
Incidentals	*12,900*
Subtotal	*91,000*
Contingency (30%)	*27,300*
TOTAL PROJECT COST	*118,300*

6. BIA Route 42: Reconstruction

BIA Route 42 is a 0.3 of a mile long, 22-foot wide paved road in fair condition. The road serves three homes and provides access to a go-cart racetrack, Water Park, and the Tribal Headquarters. In order to meet current design standards, the road would be widened to 34 feet,

with 22 feet of paved travel way and 6-foot paved shoulders (Rural Design Guideline 7: Rural Major Collector). This width of road will allow on-street parking since it serves a high use recreational area in the summer. Total estimated cost of the project would be $190,500 and would be the responsibility of the BIA.

Preconstruction	*15,911*
Grade and Drain (75%)	*33,100*
Gravel	*37,200*
Paving	*36,300*
Incidentals	*24,000*
Subtotal	*146,500*
Contingency (30%)	*44,000*
TOTAL PROJECT COST	*190,500*

BIA Route 44: Reconstruction

BIA Route 44 is a 0.5 of a mile long, 14-foot wide paved road in fair condition. The road currently serves four homes and another is planned. In order to meet current design standards, the road would be reconstructed to a 24-foot wide paved road, with 20 feet of paved travel way and 2-foot paved shoulders (Rural Design Guideline 18: Rural Local). Total estimated cost of the project would be $338,100 and would be the responsibility of the BIA.

Preconstruction	*30,500*
Grade and Drain (75%)	*128,600*
Gravel	*26,000*
Paving	*32,000*
Incidentals	*43,000*
Subtotal	*260,100*
Contingency (30%)	*78,000*
TOTAL PROJECT COST	*338,100*

8. *BIA Route 45: Reconstruction*

BIA Route 45 is a 0.25 of a mile long, 20-foot wide paved road in fair condition. The road serves four homes as well as a church, cemetery, and basketball court. The Tribe also indicated plans to construct additional HUD housing on the road in the future. In order to meet current design standards, the road would be widened and overlaid to 24 feet, with 20 feet of paved travel way and 2-foot paved shoulders (Rural Design Guideline 18: Rural Local). Total estimated cost of the project would be $169,100 and would be the responsibility of the BIA.

Preconstruction	*15,300*
Grade and Drain (75%)	*64,300*
Gravel	*13,000*
Paving	*16,000*
Incidentals	*21,500*
Subtotal	*130,100*
Contingency (30%)	*39,000*
TOTAL PROJECT COST	*169,100*

9. *BIA Route 46: Reconstruction*

BIA Route 46 is a 0.35 of a mile long, 22-foot wide paved road in fair condition. Field inventory indicated pavement breaking up on steep sections of the road. The road serves the 600-unit campground and store.

Under this project, the road would be widened and overlaid to a width of 28 feet, with 20 feet of travel way and 4-foot paved shoulders (Rural Design Guideline 12: Rural Minor Collector). Total estimated cost would be $260,400 and would be the responsibility of the BIA.

Preconstruction	*23,100*
Grade and Drain (75%)	*90,000*
Gravel	*21,700*
Paving	*34,000*
Incidentals	*31,500*
Subtotal	*200,300*
Contingency (30%)	*60,100*
TOTAL PROJECT COST	*260,400*

10. *BIA Route 47: Reconstruction*

BIA Route 47 is a 0.15 of a mile long, 12-foot wide paved road in poor condition, with severe cracking. The road serves seven homes. In order to meet current design standards, the road would be reconstructed to a 24 foot wide paved road, with 20 feet of paved travel way and 2-foot paved shoulders (Rural Design Guideline 18: Rural Local). Total estimated cost of this project would be $101,500 and would be the responsibility of the BIA.

Preconstruction	*9,200*
Grade and Drain (75%)	*38,600*
Gravel	*7,800*
Paving	*9,600*
Incidentals	*12,900*
Subtotal	*78,100*
Contingency (30%)	*23,400*
TOTAL PROJECT COST	*101,500*

11. BIA Route 48: Reconstruction

BIA Route 48 is a 0.175 of a mile long project.

Preconstruction	*10,700*
Grade and Drain (75%)	*45,000*
Gravel	*9,100*
Paving	*11,200*
Incidentals	*15,100*
Subtotal	*91,100*
Contingency (30%)	*27,300*
TOTAL PROJECT	*118,400*

12. BIA Route 49: Reconstruction

BIA Route 49 is a 0.6 of a mile long, 16 to 20-foot wide earth road in fair condition. The road serves 10 homes. In order to meet current design standards, the road would be reconstructed to a 24-foot wide paved road, with 20 feet of paved travel way and 2-foot paved shoulders (Rural Design Guideline 18: Rural Local). Total estimated cost of the project would be $405,900 and would be the responsibility of the BIA.

Preconstruction	*36,600*
Grade and Drain (75%)	*154,400*
Gravel	*31,200*
Paving	*38,400*
Incidentals	*51,600*
Subtotal	*312,200*
Contingency (30%)	*93,700*
TOTAL PROJECT COST	*405,900*

13. BIA Route 52 (Red Gate Road): Reconstruction

The eastern 0.5 of a mile of BIA Route 52 is a 16-foot wide earth road in very poor condition. The road serves 9 homes. Under this project, the road would be reconstructed to a 24-foot wide paved road, with 20 feet of paved travel way and 2-foot paved shoulders (Rural Design Guideline 18: Rural Local).

Total estimated cost of the project would be $338,100 and would be the responsibility of the BIA.

Preconstruction	*30,500*
Grade and Drain (75%)	*128,600*
Gravel	*26,000*
Paving	*32,000*
Incidentals	*43,000*
Subtotal	*260,100*
Contingency (30%)	*78,000*
TOTAL PROJECT COST	*338,100*

14. *Unnamed HUD Road: Reconstruction*

This unnamed HUD road extends 0.1 of a mile north off BIA Route 52 to serve five homes. This earth road is 18 feet wide and in poor condition. In order to meet current design standards, the road would be reconstructed to a 24-foot wide paved road, with 20 feet of paved travel way and 2-foot paved shoulders (Rural Design Guideline 18: Rural Local). Total estimated cost of the project would be $67,600 and would be the responsibility of the BIA. The road should be placed on the BIA Public Road System.

Preconstruction		*6,100*
Grade and Drain		*25,700*
Gravel	*5,200*	
Paving	*6,400*	
Incidentals	*8,600*	
Sub Total	*52,000*	
Contingency (30%)	*15,600*	
TOTAL PROJECT COST		*67,600*

15. *Harold's Road: Reconstruction*

Harold's Road is a 0.2 of a mile long, 12-foot wide paved road that extends off BIA Route 50 to serve five homes. The road is in very poor condition and does not meet the current AASHTO design standards. Under this project, the road would be reconstructed to a 24-foot wide paved road with 20 feet of paved travel way and 2-foot paved shoulders (Rural Design Guideline 18: Rural Local).

Total estimated cost of the project would be $135,300 and would be the responsibility of the BIA.

Preconstruction	*12,200*
Grade and Drain (75%)	*51,500*
Gravel	*10,400*
Paving	*12,800*
Incidentals	*17,200*
Subtotal	*104,100*
Contingency (30%)	*31,200*
TOTAL PROJECT COST	*135,300*

16. Unnamed Road off SR 76: Reconstruction

Currently a 0.15 of a mile long, 12-foot wide paved road extends south off SR 76 to serve six homes. The road is in poor condition and washed out in some locations. Under this project, the road would be reconstructed to a 24-foot wide paved road, with 20 feet of paved travel way and 2-foot paved shoulders (Rural Design Guideline 18: Rural Local). Total estimated cost of this project would be $101,500 and would be the responsibility of the BIA.

Preconstruction	*9,200*
Grade and Drain (75%)	*38,600*
Gravel	*7,800*
Paving	*9,600*
Incidentals	*12,900*
Subtotal	*78,100*
Contingency (30%)	*23,400*
TOTAL PROJECT COST	*101,500*

17. SR 76 Widening

SR 76 is a 24-foot wide travel way with 1-4 foot shoulders. The highway is in fair condition; however the road does not meet the current AASHTO standards for the volume of traffic it carries. In addition, the Tribe has indicated that at the intersection of BIA Route 42, which accesses the Tribal Headquarters and water park, the narrow width of the road and sight distance problem create a dangerous situation for traffic turning onto Route 42.

Under this project, the road would be widened to 40 feet, with 24 feet of paved travel way and 8-foot paved shoulders (Rural Design Guideline 6: Rural Minor Arterial). Acceleration and deceleration lanes for eastbound traffic and a left-turn lane for westbound traffic would be added at the BIA Route 42 intersection.

Total estimated cost of this 15.5 mile project to be added at the BIA Route 42 intersection. Total estimated cost of this 15.5 mile project would be $12,281,500 and would be the responsibility of the State.

Preconstruction	*1,379,500*
Grade and Drain (50%)	*3,185,300*
Gravel (50%)	*1,085,000*
Paving	*2,123,500*
Incidentals	*1,674,000*
Acceleration/deceleration lanes	*20,000*
Left turn lane	*15,000*
Subtotal	*9,447,300*
Contingency (30%)	*2,834.200*
TOTAL PROJECT COST	*12,281,500*

18. Campground Roads Upgrade

The Tribe has a 2.0 mile network of roads serving their campgrounds along the San Luis Rey River. These roads are earth roads and range in width from 12 to 30 feet depending on how they are graded. These roads need to be upgraded to gravel surfaces in order to provide better access and to control dust which is a problem throughout the summer.

These roads should be reconstructed to a width of 24 feet with a gravel surface (Design Guideline 20: Rural Local). This 3.50 mile project is estimated to cost $1,370,700 and would be the responsibility of the BIA.

Preconstruction	*126,000*
Grade and Drain (75%)	*532,900*
Gravel	*161,000*
Incidentals	*234.500*
Subtotal	*1,054,400*
Contingency (30%)	*316,300*
TOTAL PROJECT COST	*1,370,700*

19. CR S6 Overlay

In the mid-term period (6-10 years) it is anticipated the CR S6 will need an overlay to maintain its structural integrity. When this is done, the shoulders need to be extended slightly in some areas in order to meet current AASHTO design standards. This 1.5 mile project is estimated to cost $107,900 and would be the responsibility of San Diego County.

CR S6 (1.5 miles $55,320/mile)	*83,000*
Contingency (30%)	*24,900*
TOTAL PROJECT COST	*107,900*

20. BIA Route 43: Reconstruction

BIA Route 43 is a 0.25 of a mile long, 12-foot wide paved road in fair to poor condition. In order to meet current design standards, the road would be reconstructed to a 24-foot wide paved road, with 20 feet of paved travel way and 2-foot paved shoulders (Rural Design Guideline 18: Rural Local). The estimated cost of this project would be $258,700 and would be the responsibility of the BIA.

Preconstruction	*15,300*
Grade and Drain (75%)	*64,300*
Gravel	*13,000*
Paving	*16,000*
Incidentals	*21,500*
Subtotal	*130,100*
Contingency (30%)	*169,100*
TOTAL PROJECT COST	*258,700*

PRIORITIZATION

Based on Tribal needs, the prioritization of short-term projects would be as shown below with signing being the first priority and BIA Route 52 reconstruction being the fourth priority. However, the order of priorities is not set for mid-term and long-term projects, since their order of importance is likely to change over time.

Short-term projects

1. *Signing*
2. *Unnamed HUD: - Road Upgrade*
3. *BIA Route 50: - Reconstruction*
4. *BIA Route 52: - Reconstruction*

Mid-term Projects

BIA Route 42: - Reconstruction
Campground Roads: - Upgrade
Poomacha Road (BIA Route 41A): - Reconstruction
BIA Route 41B: - Reconstruction
BIA Route 41C: - Reconstruction
BIA Route 45: - Reconstruction
BIA Route 46: - Reconstruction
BIA Route 49: - Reconstruction
Harold's Road: - Reconstruction
Unnamed Road (off SR 76): - Reconstruction
SR 56 Overlay

Long-term Projects

BIA Route 43: - Reconstruction
BIA Route 44: - Reconstruction
BIA Route 47: - Reconstruction
BIA Route 48: - Reconstruction SR 76 Widening

IMPLEMENTATION

Implementation of projects is divided into three time frames: Short-term, Mid-term, and Long-term. Short-term projects are those that can be implemented in the next five years; Mid-term projects would be implemented in the 6 to 10-year period; and Long-term projects are those in the 11 to 20-year period.

The following proposed implementation schedule is based on a realistic approach to construction timing in that it recognizes that there must be a compromise between need/priority and the ability to fund the project through whichever Agency or Agencies have the responsibility.

Road Changes

The BIA Public Road System on the Reservation would be increased by 3.95 from 8.35 miles to 13.3 miles. The following roads would be added to the BIA Public Road System:

Unnamed HUD Road (0.1 of a mile)
Harold's Road (0.2 of a mile)
Unnamed Road off SR 76 (0.15 of a mile)
Campground Roads (3.5 miles)

Maintenance

The estimated annual cost for maintenance of the projected system (8.15 miles) is $8,800.

8.05 miles of paved road @	*2,500/mile*	*20,100*
3.50 miles of gravel road @	*1,900/mile*	*6,600*
1.65 miles of earth road @	*1,300/mile*	*2,100*

Summary of Project Costs

Proposed projects call for a total of $18,645,125 in construction, $6,255,725 of which is the responsibility of the BIA. The State will be responsible for $12,281,500 and the County will be responsible for $107,900.

RECOMMENDATIONS

The Tribe should request that the unnamed Tribal housing road be placed on the BIA Public Road System as soon as possible.

All BIA routes should be named and signed for easy identification, particularly to aid emergency vehicle response.

The most critical projects to implement are: traffic control signing, improvements to BIA Routes 50 and 52, and upgrade of the unnamed HUD road.

The BIA needs to establish a regular maintenance program including seal coats, crack sealing, pothole repair, and shoulder and drainage maintenance.

Where appropriate to project implementation or for better maintenance, the BIA should work closely with the County and CalTrans to coordinate and/or jointly participate in projects.

The BIA should adopt and implement this updated Reservation transportation plan as the official long-range comprehensive planning guide for transportation on the La Jolla Reservation.

It is recommended that the Tribe adopt this updated transportation plan and eventually integrate the plan as part of a Tribal comprehensive plan. By making the transportation plan part of the Tribe's long-range plan, transportation will always be integrated with and supportive of the Tribe's long-range land use and development objectives. Furthermore, transportation plans can be updated simultaneously with other elements of the plan, thereby reflecting changes in socioeconomic needs and objectives of the Tribe.

The plan should be reviewed annually by the Tribe and the Southern California Agency Road Engineer to assess changing needs and priorities. This should be a formalized process and will require coordination between the BIA Area Office, BIA Southern California Agency, and the Tribe. Specifically, this process would evaluate maintenance priorities of the BIA system, new construction or upgrading priorities and their implementation schedule, Inter-Agency coordination to address specific problems on County Roads, and to input into the annual BIA budgeting process.

It is recommended that the BIA work with the Tribe to undertake major revisions to this plan every five years. This updating process should be coordinated at the Agency level. Further, minor alterations to the plan can occur more frequently, particularly if new projects are identified during annual Tribal/BIA/Southern California Agency review.

Appendix E - Traffic Operations Assessment

TO:	Mark Webb, La Jolla Band of Luiseño Indians
FROM:	Jonathan Sanchez, PE, TE, PTOE; CR Associates Andrew Prescott, AICP; CR Associates
RE:	La Jolla Band of Luiseño Indians Comprehensive Safety Action Plan (CSAP) – Traffic Operations Assessment

The purpose of this memo is to present the results of a traffic operations analysis conducted for the La Jolla Band of Luiseño Indians in support of the Comprehensive Safety Action Plan (CSAP). Their land, located along State Route 76 (SR-76) in San Diego County, California, is primarily accessed through eight intersections connected to SR-76. Of these, six intersections primarily serve residential areas, while the remaining two—Sengme Oaks Road and Campground Road—provide access to retail and recreational areas within the reservation. This analysis focuses on these two key intersections, which are vital for connecting the tribal lands to the regional roadway network and supporting current and future developments.

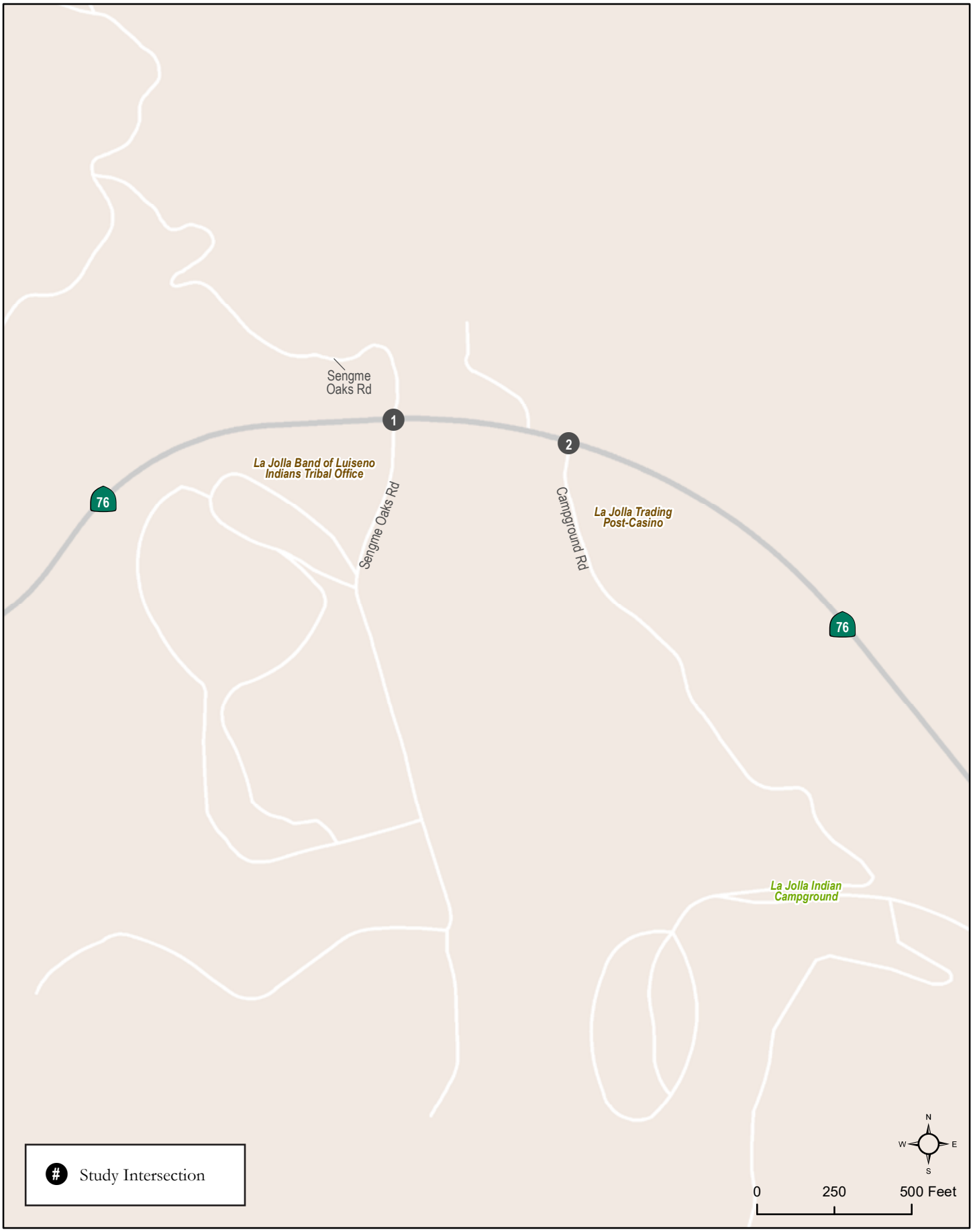
The two intersections were identified by community members and project stakeholders as locations of safety concern for vehicles entering and exiting the minor streets and thus received a more focused analysis. The study aims to evaluate safety and traffic operations, identify potential challenges, and propose solutions to enhance traffic flow, improve connectivity, and accommodate anticipated growth, ensuring the transportation system aligns with the community's evolving infrastructure needs. **Figure 1** identifies the study area.

Project Background

The California Department of Transportation (Caltrans) administers the Safe Streets and Roads for All (SS4A) program, which funds regional, local, and tribal initiatives to prevent roadway deaths and serious injuries as part of the U.S. Department of Transportation's National Roadway Safety Strategy. The La Jolla Band of Luiseño Indians secured SS4A grant funding to develop a Comprehensive Safety Action Plan (CSAP) aimed at creating a holistic strategy to reduce roadway fatalities and injuries within tribal lands.

The CSAP includes eight components: leadership commitment, planning structure, safety analysis, engagement and collaboration, equity considerations, policy and process changes, strategy and project selections, and progress tracking. It builds on the tribe's 2014 Road Safety Assessment and incorporates updates from the 2021 SANDAG Intraregional Tribal Transportation Strategy. Development was informed by collaboration with local agencies, tribal members, and public input through community meetings and Tribal Council discussions.

Traffic operations are a critical part of safety, including sight distance and operational challenges at intersections and access points to tribal lands, particularly along SR 76. Thus, this analysis focused on the sight distance analysis and traffic delay and Level of Service (LOS) for the two aforementioned intersections.



Tribal Comprehensive Safety Action Plan

Figure 1
Study Area

Existing Conditions

This section provides a description of the existing roadways that provide access to the tribal offices, campground and recreational uses, and retail areas of the La Jolla Band of Luiseño Indians land.

Vehicular Facilities

- State Route 76 (SR-76) is a two-lane, east-west highway with no median and 5-foot shoulders that provides access to the primary civic, commercial, and recreational uses on the La Jolla Band of Luiseño Indians land. The roadway is characterized by sharp curves, and moderate to steep grades in certain segments, which can pose challenges for vehicles entering or exiting the minor streets, particularly during peak recreational seasons. SR-76 is identified as a Community Collector (2.1D) with improvement options such as passing lanes, curve corrections, left-and-right turn lanes, channelization, and intersection improvements in the County of San Diego General Plan - Pala/Pauma Mobility Element Network[1].
- Sengme Oaks Road is a two-lane, north-south rural roadway and it provides access to the tribal offices, Sengme Oaks Water Park, and Amago Motocross Sport Track. It features narrow lanes and shoulders, and it sees traffic activity mainly composed of larger vehicles and vehicles with trailers. The roadway does not have any centerline or edge lines. Sengme Oaks Road is not identified as a Mobility Element roadway.
- Campground Road primarily serves as the main entrance to the La Jolla Indian Campground. It offers direct access to the La Jolla Trading Post (gas station, market, and restaurant), camping facilities, parking areas, and recreational amenities. The roadway does not have any centerline or edge lines. Campground Road is not identified as a Mobility Element roadway.

Analysis Methodology

As previously noted, the analysis focused on evaluating sight distance and assessing traffic operations, including delay and Level of Service (LOS), for the two intersections. The methodology and criteria for each assessment are outlined below.

Sight Distance

Since the project site is located within unincorporated County and accessing a County roadway and is also a State facility, the evaluation of sight distance was conducted using the County of San Diego Public Road Standards (the "Public Road Standards") and the California Department of Transportation (Caltrans) Highway Design Manual (the "HDM"). Corner Sight Distance (CSD) standards were derived from the Public Road Standards, while Stopping Sight Distance (SSD) criteria, not included in the Public Road Standards, were obtained from Section 400 of the HDM.

- Corner Sight Distance: Corner sight distance (CSD) analysis assesses the visibility at intersections to ensure drivers have adequate line of sight to perceive oncoming traffic from all directions. This analysis considers factors such as vehicle speeds, intersection angles, and the time required for a vehicle to enter or cross the roadway safely, aiming to reduce conflicts and improve intersection safety and efficiency. CSD is measured along the direction of travel

[1]https://www.sandiegocounty.gov/content/dam/sdc/pds/gpupdate/docs/MobilityNetworkAppendix_2023.pdf

from a point on the minor road at least 10 feet from the edge of the major road pavement. It is measured from an eye height of 3.5 feet on the minor road to a height of an object 4.25 feet on the major road.

- Stopping Sight Distance: Stopping sight distance (SSD) analysis evaluates the minimum distance a driver needs to perceive and react to an obstacle and bring their vehicle to a complete stop safely. This analysis considers factors such as vehicle speed, driver reaction time, roadway grade, and pavement conditions to ensure that roadways provide sufficient sight distance for drivers to stop safely under normal driving conditions. SSD is measured from the driver's eyes, which are assumed to be 3½ feet above the pavement surface, to an object ½-foot high on the road.
- Speed: Sight distance standards are directly influenced by vehicle speed, as higher speeds require longer distances for drivers to perceive, react, and safely respond to roadway conditions. For SSD higher speeds increase the required distance due to longer reaction times and the greater braking distance needed, which grows quadratically with speed. Similarly, CSD expands with speed to allow sufficient time for vehicles to safely cross, merge, or turn at intersections, accounting for acceleration and matching the speed of oncoming traffic. Per the Public Road Standards, the CSD and SSD requirements should be based on either the design speed of a roadway or the 85th percentile speed[2] of a roadway, whichever is greater.

The CSD criteria are outlined in **Table 1**, and the SSD criteria are outlined in **Table 2**, respectively.

Table 1 - Standard Corner Sight Distance at Intersections

Design Speed (mph)	Minimum Corner Intersection Sight Distance (ft)
65	650[1]
60	600
55	550[1]
50	500
45	450
40	400
30	300
20	200

Source: County of San Diego Public Road Standards, 2012

Note:
[1]Distance interpolated based on roadway speed

[2] The 85th percentile speed is a statistical measure used in traffic engineering to represent the speed at or below which 85% of vehicles are observed to travel under free-flowing conditions on a specific roadway.

Table 2 - Stopping Sight Distance Standards

Design Speed (mph)	Stopping Sight Distance (ft)
20	125
25	150
30	200
35	250
40	300
45	360
50	430
55	500
60	580
65	660

Source: Highway Design Manual, 2023

Existing Traffic Operations Analysis Methodology

The analysis of intersections focuses on Level of Service (LOS) and was based on the operational analysis procedures outlined in the Highway Capacity Manual (HCM) 6th Edition. The computerized analysis was performed utilizing Synchro Version 11 traffic analysis software by Trafficware Ltd.

Level of Service (LOS) Definition

LOS is a quantitative measure describing operational conditions within a traffic stream, and the motorist's and/or passengers' perception of operations. A LOS definition generally describes these conditions in terms of such factors as delay, speed, travel time, freedom to maneuver, interruptions in traffic flow, queuing, comfort, and convenience. **Table 3** describes generalized definitions of the various LOS categories (A through F) as applied to roadway operations.

Table 3 – LOS Definitions

LOS Category	Definition of Operation
A	This LOS represents a completely free-flow condition, where the operation of vehicles is virtually unaffected by the presence of other vehicles and only constrained by the geometric features of the highway and by driver preferences.
B	This LOS represents a relatively free-flow condition, although the presence of other vehicles becomes noticeable. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.
C	At this LOS, the influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream is clearly affected by other vehicles.
D	At this LOS, the ability to maneuver is notably restricted due to traffic congestion, and only minor disruptions can be absorbed without extensive queues forming and the service deteriorating.
E	This LOS represents operations at or near capacity. LOS E is an unstable level, with vehicles operating with minimum spacing for maintaining uniform flow. At LOS E, disruptions cannot be dissipated readily thus causing deterioration down to LOS F.
F	At this LOS, forced or breakdown of traffic flow occurs, although operations appear to be at capacity, queues form behind these breakdowns. Operations within queues are highly unstable, with vehicles experiencing brief periods of movement followed by stoppages.

Source: Highway Capacity Manual 6th Edition

Peak Hour Intersection LOS Standards and Thresholds

This section presents the methodologies used to perform peak hour intersection capacity analysis. The following assumptions were utilized in conducting all intersection LOS analyses:

- Peak Hour Factor – PHF was calculated from November 2024 peak hour intersection count data, included in **Attachment A**, and utilized for Existing and Future Year 2035 analysis.
- Saturation Flow Rate – 1,800 vehicles per hour per lane.
- Heavy Truck Percentage – The default value of 2% was utilized for existing conditions and a 6% was utilized for Future Year 2035 conditions, as a conservative approach, based on the assumptions of increased heavy truck activity as a result of potential redevelopment.
- Lane Utilization Factor – No unusual lane utilization was observed in the field; therefore, HCM 6th Edition defaults were used for all scenarios.

Unsignalized Intersections

Unsignalized intersections were analyzed using the Highway Capacity 6th Edition side-street stop (Chapter 20), all-way stop (Chapter 21), and roundabout (Chapter 22) intersection analysis methodology. The computerized analysis of intersection operations was performed utilizing the Synchro Version 11 traffic analysis software by Trafficware Ltd.

LOS was determined as follows:

- Side-Street Stop Intersections – Reported for the worst-case approach.

The LOS criteria used for the analysis of unsignalized intersections are described in **Table 4.**

Table 4 – LOS Criteria for Stop-Controlled Unsignalized Intersections

Average Stopped Delay Per Vehicle (Seconds)	LOS Characteristics
0 – 10	A
> 10 – 15	B
> 15 – 25	C
> 25 – 35	D
> 35 – 50	E
> 50	F

Source: Highway Capacity Manual 6th Edition

Traffic Volumes

Traffic counts were conducted on Tuesday, November 26, 2024, and traffic count sheets are provided in **Attachment A**.

Existing Conditions (2024)

To determine the baseline of current traffic operations within the study area, an existing conditions analysis was conducted. This scenario preserves the existing traffic control device and intersection geometry. **Table 5** provides a summary of the intersection analysis under existing conditions. **Figure 2** displays existing conditions geometry and traffic volumes. LOS calculation worksheets for Existing Conditions are provided in **Attachment B**.

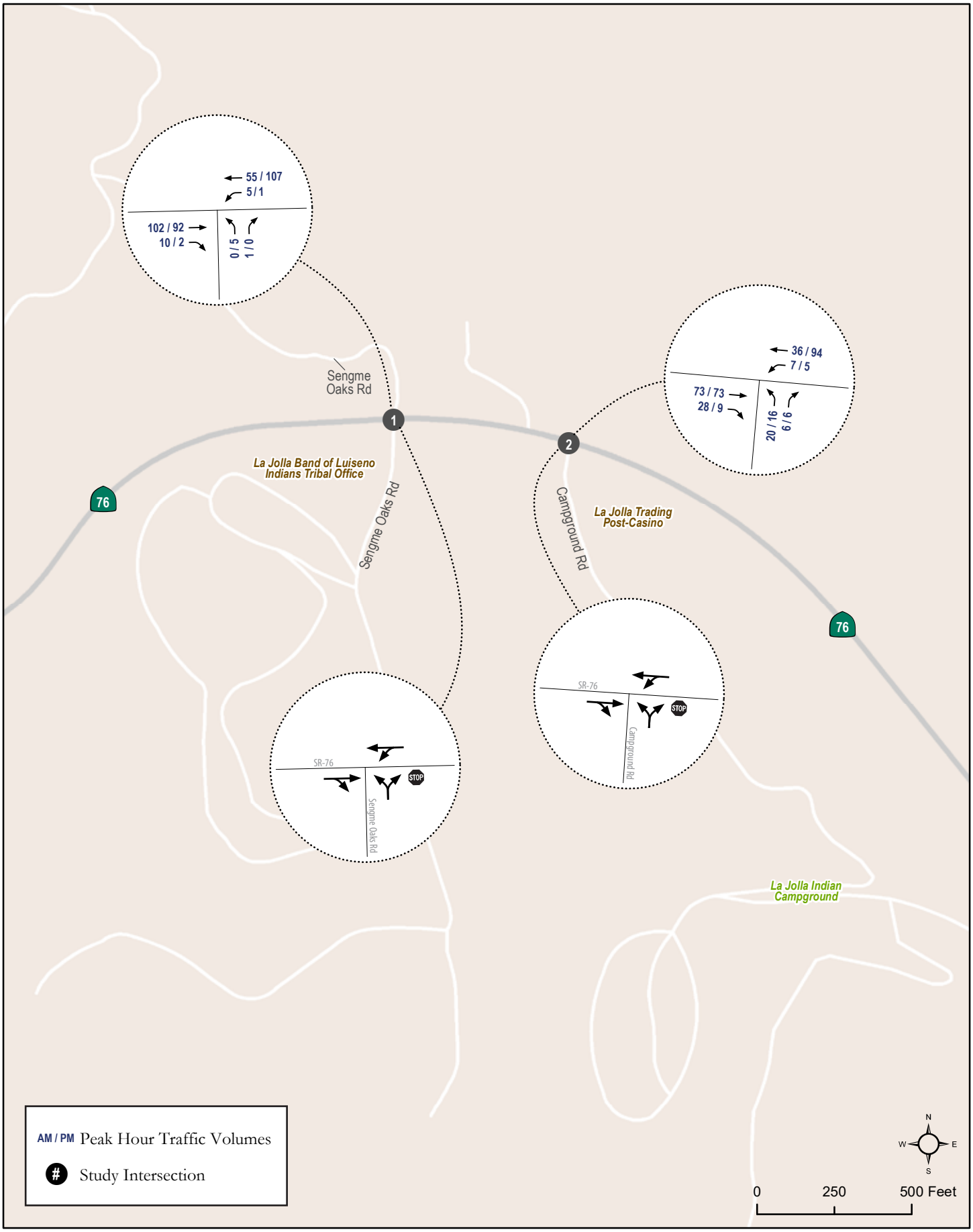
Table 5 - Existing Conditions – LOS Analysis Results

Intersection	Control	Peak Hour	Existing Conditions	
			Avg. Delay (sec)	LOS
SR-76 & Sengme Oaks Road	SSSC	AM	8.9	A
		PM	9.8	A
SR-76 & Campground Road	SSSC	AM	9.6	A
		PM	9.7	A

Source: CR Associates (2024)

Note:
SSSC: Side Street Stop Control.

As shown in Table 5, the existing intersections currently operate at LOS A.



Tribal Comprehensive Safety Action Plan

Figure 2
Existing Conditions Geometry & Traffic Volumes

C+R

Sight Distance Analysis

Corner Sight Distance – County of San Diego Standards

Per Table 2A of the Public Road Standards, SR-76 is a 2-Lane Community Collector with Improvement Options (2.1D) with a minimum design speed of 45 MPH. The posted speed limit along SR-76 is 55 MPH. Based on a speed survey conducted on November 26, 2024, the 85th percentile speeds for vehicles traveling along SR-76 are 55 MPH in the eastbound direction and 63 MPH in the westbound direction. Speed survey results are provided in **Attachment A**. The corner sight distance requirement for each approach is based on the higher of the minimum design speed (45 MPH), posted speed limit (55 MPH), and 85th percentile speed. **Table 6** summarizes the corner sight distance results. Field work photos and aerial imagery for corner and stopping sight distances from SR-76 are provided in **Figure 3** and **Figure 4**.

Table 6 - Corner Sight Distance Analysis Results

Location	Looking Left			Looking Right			Adequate?
	Speed (mph)	Required (ft)	Measured (ft)	Speed (mph)	Required (ft)	Measured (ft)	
SR-76 & Sengme Oaks Road	55[1,2]	550	475	55[3]	550	505	**No**
SR-76 & Campground Road	55[1,2]	550	455	63	650[4]	542	**No**

Source: CR Associates (2024)

Notes:
[1] 85th percentile speed.
[2] Posted speed limit.
[3] Posted speed limit higher than minimum design speed (45 MPH) and 85th percentile prevailing speed (54 MPH).
[4] Value was interpolated.

Stopping Sight Distance – Caltrans Standards

SSD analysis was conducted using the aforementioned HDM standards. **Table 7** summarizes the stopping sight distance results. Field work photos and aerial imagery for stopping sight distances at SR-76 are provided in **Figure 5** and **Figure 6**.

Table 7 - Stopping Sight Distance Analysis Results

Location	Traveling Eastbound			Traveling Westbound			Adequate?
	Design Speed (mph)	Required (ft)	Measured (ft)	Design Speed (mph)	Required (ft)	Measured (ft)	
SR-76 & Sengme Oaks Road	45[1]	360	475	45[1]	360	738	**Yes**
SR-76 & Campground Road	45[1]	360	650	45[1]	360	645	**Yes**

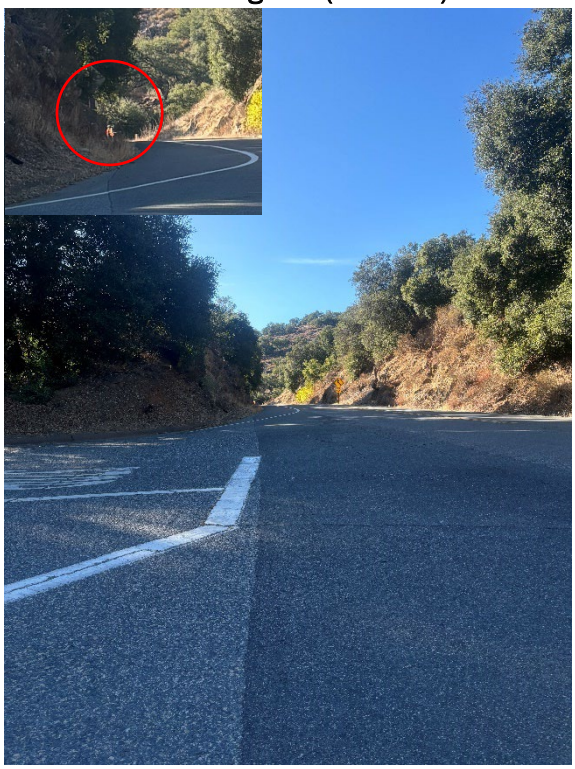
Source: CR Associates (2024)

Note:
[1] Design Speed based on Table 2A of the County of San Diego Public Road Standards.

As shown in Table 7, the measured stopping sight distances at the SR-76 intersections with Sengme Oaks Road and Campground Road meet the minimum requirements.

Figure 3 - Corner Sight Distance at SR-76 & Sengme Oaks Road

Looking Left (475 feet)



Looking Right (505 feet)

Figure 4 – Corner Sight Distance at SR-76 & Campground Road

Looking Left (455 feet)

Looking Right (542 feet)

Figure 5 – Stopping Sight Distance at SR-76 & Sengme Oaks Road

Traveling Eastbound (475 feet)

Traveling Westbound (738 feet)

Figure 6 – Stopping Sight Distance at SR-76 & Campground Road

Traveling Eastbound (650 feet)

Traveling Westbound (645 feet)

As shown in Table 6 and Figure 3 and Figure 4, the measured sight distances at the SR-76 intersections with Sengme Oaks Road and Campground Road fall short of the required 550 feet in all directions. At the SR-76 & Sengme Oaks Road intersection, the sight distance looking left is 475 feet, and looking right is 505 feet, both below the minimum requirement. Similarly, at the SR-76 & Campground Road intersection, the sight distance looking left is 455 feet, while looking right is 542 feet, neither meeting the required standard.

The following features affect the line of sight at the intersections:

- SR-76 & Sengme Oaks Road – Trees, boulders, roadside shrubbery and hilly terrain reduce line of sight.

Looking Left

Looking Right

- SR-76 & Campground Road – Trees, boulders, vegetation and hilly terrain reduce line of sight.

Looking Left

Looking Right

Therefore, it is recommended that overgrown shrubbery and trees be trimmed, and any other objects obstructing the line of sight should be cleared. For topographical features that impede visibility, grading or recontouring of the terrain is advised, provided it is feasible.

Future Development Analysis

In 2024, the La Jolla Band of Luiseño Indians conducted a Comprehensive Economic Development Strategy (CEDS) in cooperation with the Tribal Council, Tribal members and consultants. The CEDS serves as a roadmap for fostering sustainable economic growth and development within the La Jolla Band of Luiseño Indians Reservation. This strategy reflects the tribe's commitment to enhancing community well-being, supporting self-sufficiency, and preserving cultural heritage while addressing the economic needs of its members. Developed through community engagement and guided by federal and regional economic development frameworks, the CEDS outlines actionable goals, strategies, and priorities that align with the tribe's long-term vision for economic prosperity. Some of the goals identified in the CEDS are the following:

- Expand Opportunities for visitors by supporting the creation of an Adventure Park Welcome Center to host Tribal enterprises, dining, corporate events and wellness activities.
- Provide facilities to serve food for visitors.
- Enhance the C-store on the reservation with new amenities including a deli and a 24-hour gas station.
- Enhance campground amenities and services.

The CEDS specifically identifies a planning area called "West Enterprise Zone", which calls for the potential development of the following:

- A hotel with surface parking and future garage;
- A lazy river; and
- A cultural center with trails, an event center, and a restaurant.

These potential developments, if realized, would result in an increase in vehicular activity, including turning movements to/from SR-76 and the two roads providing access: Campground Road and Sengme Oaks Road. Currently, no specific development plans have been finalized. However, as part of the planning process, a traffic operations analysis was conducted for future conditions to identify the most suitable traffic control measures for the two studied intersections that would also provide safety benefits. Further traffic operations analyses and associated environmental documentation will be required once the actual land use plans are defined.

Since the land uses, quantities, and site development plan are not final, the analysis presented in this section identified the traffic volumes and land use quantity that would degrade vehicular operations to a substandard level of service (LOS E) and trigger the need for a change in intersection geometry and/or traffic control. To support the analysis, trip generation rates were obtained from the SANDAG (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, published in 2002. **Table 8** displays the different trip generation rates associated with the potential land uses within Tribal Lands.

Table 8 - Trip Generation Rates

Land Use	Quantities[1]	Trip Generation Rate	Trip Generation (ADT)
Event Center with Restaurant[2]	3 Acres	300/Acre	900 Daily Trips
Lazy River (Water Park)[3]	10 Acres	80/Acre	800 Daily Trips
Hotel with Convention Facilities and Restaurant	720 Rooms	10/Room	7,200 Daily Trips

Source: SANDAG (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (April 2002)

Notes:
[1] Quantities are based on assumptions and/or estimate measurements/dimensions.
[2] Trip generation rate per acres for Hotel (w/convention facilities/restaurant) was used as a conservative approach. Per the Institute of Transportation Engineers Trip Generation Manual, this land use (LU Code 310) includes a full-service restaurant, meeting rooms, banquet room, and convention facilities.
[3] Trip generation rate of a "Theme Park" was used as a conservative approach.

The land use with the potential to generate this greatest number of trips – Hotel with Convention Facilities and Restaurant – was the focus of the traffic operations analysis conducted herein. The land use quantity, or number of rooms, was increased until it triggered LOS E during one or more peak hours under future year conditions. This approach aims to anticipate and address traffic-related challenges, facilitating sustainable growth aligned with the Tribe's economic and cultural objectives.

Future Year Traffic Operations Analysis

A traffic operations analysis for the future year was conducted using projected traffic volumes, which were developed based on anticipated regional growth combined with the trips expected to be generated by the proposed land use (7,200 trips generated from the Hotel with Convention Facilities and Restaurant). A description of future year traffic volume development is provided below.

Future Year Traffic Volume Development

As previously mentioned, there are no immediate plans for the potential developments. Therefore, a 10-year projection to the year 2035 will be used as the baseline for the traffic operations analysis. To develop future traffic volume projections, an average growth per year in average daily traffic (ADT) was first established utilizing big data[3] from *Replica's*[4] hosting services. **Table 9** displays information about ADT for the past five (5) years along SR-76, fronting the La Jolla Indian Campground.

Table 9 - ADT Along SR-76 in the Last 5 Years

Year	ADT along SR-76	Growth % by Year
2019	3,670	-
2021	3,960	8%
2022	3,910	-1%
2023	3,960	1%
2024	3,830	-3%
Average Growth Per Year		**1%**

Source: Replica (2024)

[3] Big Data – Describes the collection of complex and large data sets that is difficult to capture, process, store, search and analyzed using conventional data systems.
[4] A web platform that provides big data information associated with population, transportation modes, travel patterns.

Future Year 2035 volumes were developed by utilizing the growth factor of 1% over 11 years between Year 2024 (year of existing conditions traffic counts) and Year 2035. The formula[5] below was employed to calculate the Future Year 2035 traffic volumes:

$$\text{Future Volume} = \text{Existing Volume} \times \left(1 + \frac{\text{rate}}{100}\right)^{\text{\# of years}}$$

Where:

Future Volume = Future year projected traffic volume (veh/hr)
Existing Volume = Current year traffic volume counts (veh/hr)
Rate = Average yearly growth factor
# of Years = Number of years projected out in the future

Figure 6 displays the Future Year 2035 without "Project" volumes.

Trip Distribution and Assignment

The trip distribution for this analysis was developed using existing traffic counts and observed traffic patterns, assuming that trips generated by the proposed land use would be evenly distributed between the two intersections accessing SR-76. The distribution assumes that 70% of trips would travel westward toward Interstate 15 (I-15), while 30% would travel eastward toward the community of Julian. It is important to note that actual trip distribution patterns may evolve over time due to changes in land use, development patterns, or other external factors.

Trips associated with the potential land uses were then added to the Future Year traffic volumes to arrive at those utilized in the traffic operation analysis presented in the next section. **Figure 7** displays the Project's trips assignment, and **Figure 8** displays the Future Year 2035 with Project traffic volumes.

Future Year 2035 with Project Conditions

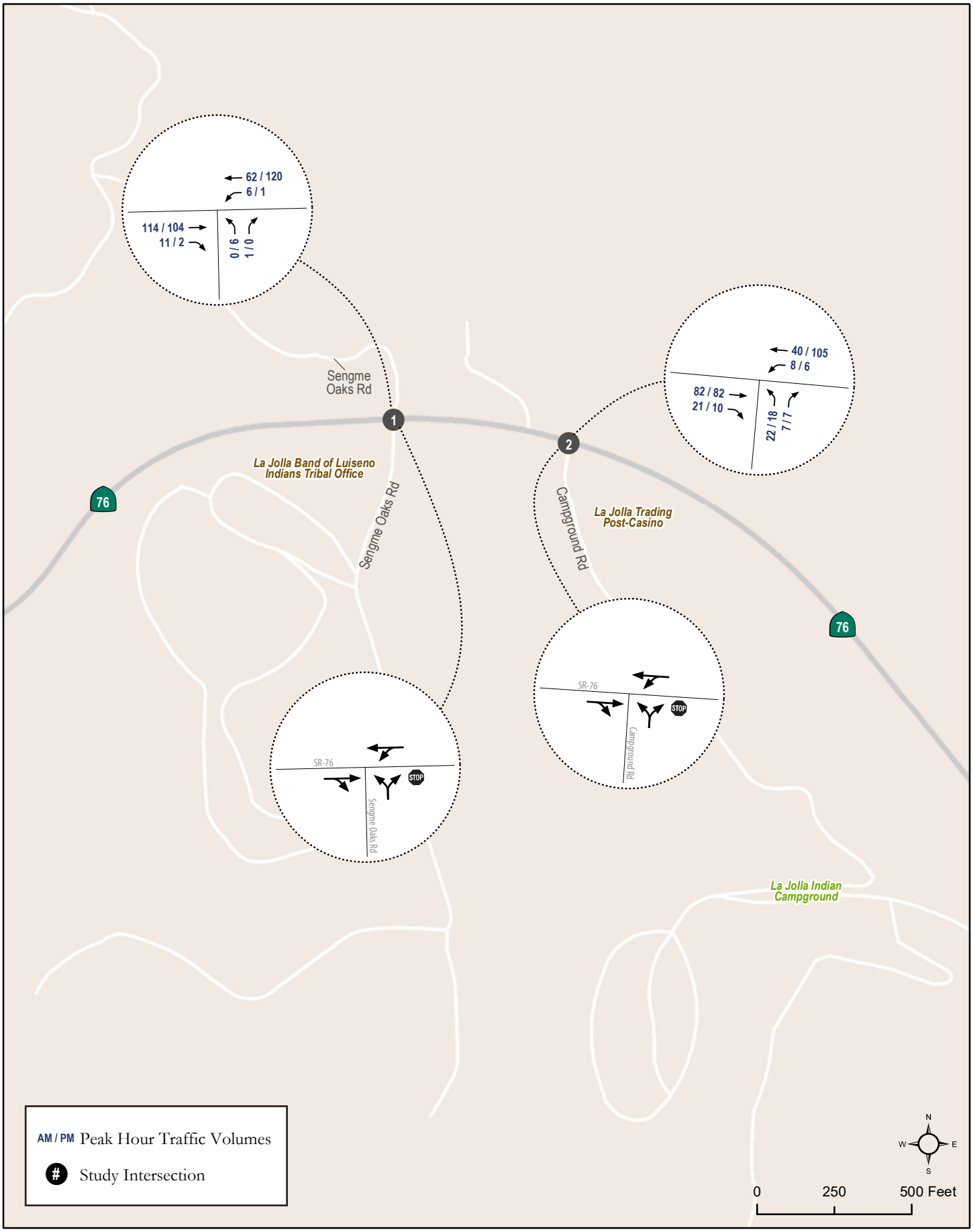
Table 10 provides a summary of the intersection analysis under Future Year 2035 conditions, both with and without Project. LOS calculation worksheets for Existing Conditions are provided in **Attachment C**.

Table 10 - Future Year 2035 with and without Project – LOS Analysis Results

Intersection	Control	Peak Hour	Future Year 2035		Future Year 2035 with Project	
			Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS
SR-76 & Sengme Oaks Road	SSSC	AM	9.0	A	23.2	C
		PM	9.9	A	36.8	**E**
SR-76 & Campground Road	SSSC	AM	10.1	B	19.1	C
		PM	10.4	B	33.0	D

Source: CR Associates (2024)

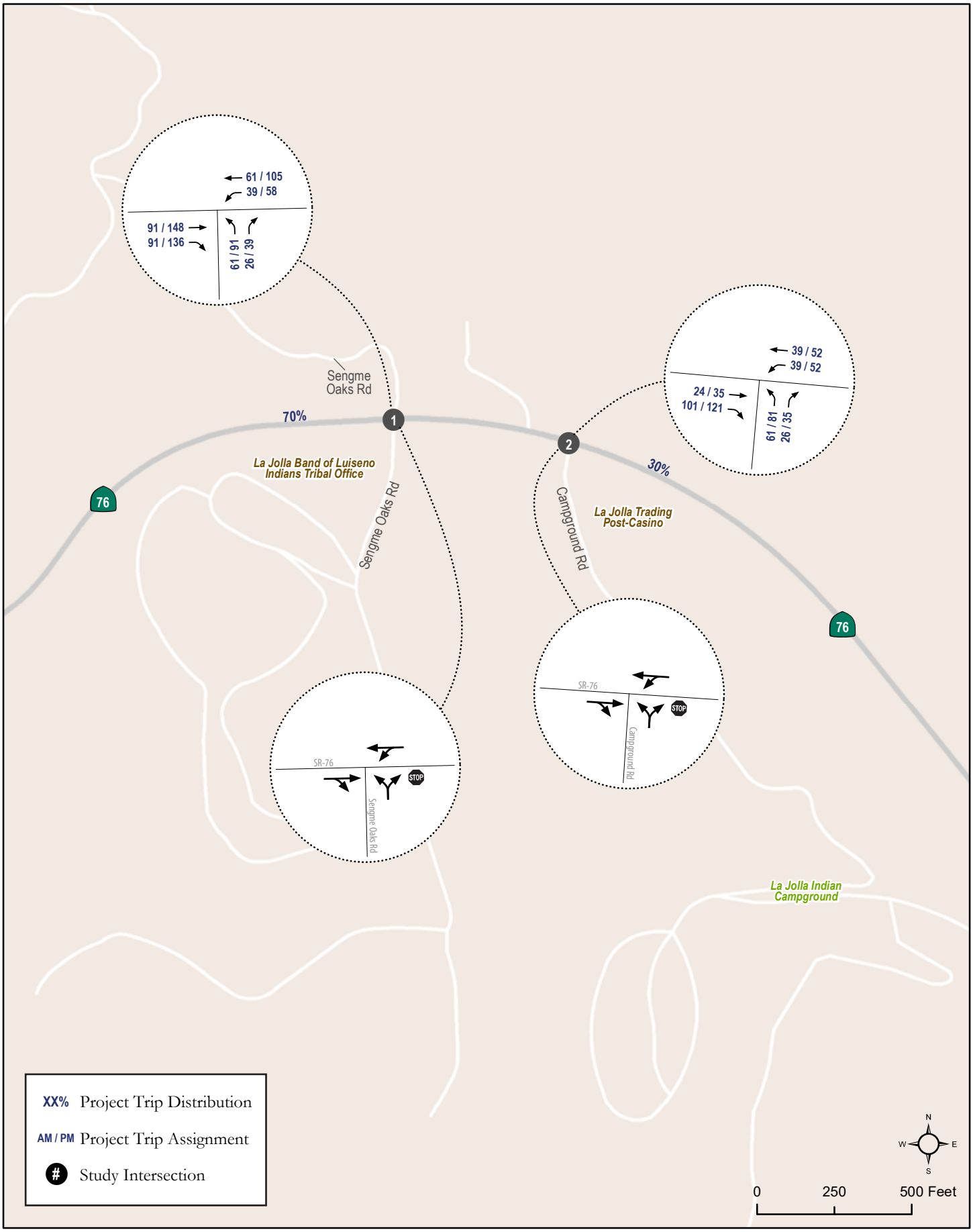
[5] The source of this formula is the Institute of Transportation Engineers (ITE) Manual of Transportation Engineering Studies, 2nd Edition.



Tribal Comprehensive Safety Action Plan

Figure 6
Future Year 2035 Conditions Geometry & Traffic Volumes

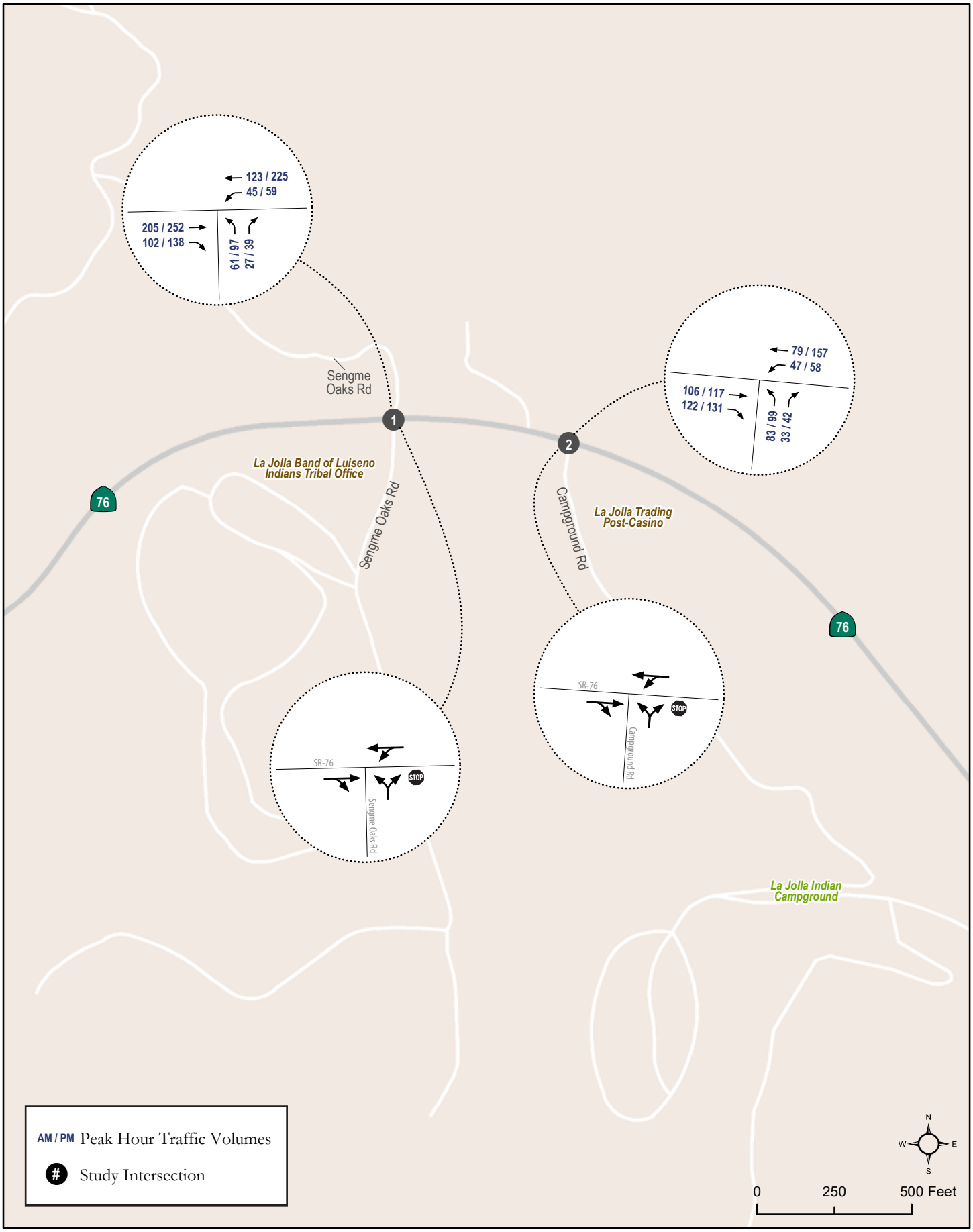
C+R



Tribal Comprehensive Safety Action Plan

Figure 7
Project Trip Distribution, Assignment & Geometry

C+R



Tribal Comprehensive Safety Action Plan

Figure 8
Future Year 2035 with Project Conditions Geometry & Traffic Volumes

C+R

As shown in Table 10, the intersections are anticipated to operate at LOS B or better under Future Year 2035 without Project. However, under Future Year 2035 with Project conditions, the following intersection is anticipated to operate at a substandard LOS:

- SR-76 & Sengme Oaks Road – LOS E during the PM peak hour.

The County of San Diego General Plan - Pala/Pauma Mobility Element Network classifies SR-76 as a Community Collector (2.1D) with improvement options such as:

- Passing Lanes;
- Curve Corrections;
- Left-and-Right Turn Lanes;
- Channelizations; and
- Intersection improvements (i.e., change in traffic control)

Currently the traffic control at the intersection of SR-76 & Sengme Oaks Road is Side-Street Stop Control (SSSC). Side-street stop control is appropriate at intersections where traffic volumes on the side street are relatively low compared to the main roadway (SR-76), and where the primary goal is to ensure that vehicles on the side street yield to mainline traffic to prevent unnecessary delays. This configuration is most suitable for intersections in suburban or rural areas with low traffic demand, where the volume of vehicles entering from the side street is insufficient to warrant more complex traffic control measures such as signalization or roundabouts. Additionally, side-street stop control is typically used in situations where the geometry of the intersection allows for clear sight distance, where drivers on the side street can observe and yield to oncoming traffic.

Given the plans for development at the site and the associated increase in traffic assumed in this analysis, as well as the sight distance limitations described earlier in this report, modifying the traffic control at the intersection of SR-76 & Sengme Oaks Road is recommended as one option improve traffic operations and user safety. A roundabout was identified as the preferred traffic control in discussions with staff and community members, however, signalizing the intersection and/or adding turn lanes may also be considered to improve operations and clarify user movements, thus contributing to improved safety. Considering the support for a roundabout and inclusion of roundabouts in previous planning documents, the subsequent operational analysis focuses on roundabout performance. As the site plan and land uses and quantities are finalized, additional analysis will need to be performed. The future evaluation will further aid in the determination of the appropriate traffic control and features.

Roundabouts offer benefits in terms of both traffic flow and safety. By reducing the frequency of stops and allowing for continuous movement, a roundabout can alleviate congestion during peak hours. Additionally, research shows that roundabouts lower the likelihood of severe accidents by eliminating high-speed right-angle and left-turn collisions that are more common at traditional intersections[6]. Furthermore, roundabouts are efficient in handling turning movements, which makes them appropriate for intersections, where left or right-turn movements are difficult to maneuver for drivers. Importantly, roundabout design would need to incorporate traffic calming features or treatments such as striping modifications, signage, flashing beacons, improved sight distance, etc. to facilitate appropriate speeds for the roundabout approach and entry.

[6] https://www.fhwa.dot.gov/publications/research/safety/00067/00067.pdf

Safety Analysis

Crash Modification Factors

Crash Modification Factors (CMF) are provided by FHWA in their technical report "Desktop Reference for Crash Reduction Factors"[7]. Additionally, CMFs were also obtained from the CMF Clearinghouse website[8]. The analysis documented herein contains a CMF for converting a side-street stop control intersection to a roundabout. The existing conditions at the two study intersections to have their traffic control device modified are the following: The CMF factors for both – total collisions and fatal/severe injury types are provided below:

CMF for total collisions:

- CMF for converting side-street stop control to roundabout is 56% with +/- 6% standard error.

CMF for fatal/severe injury collision

- CMF for converting side-street stop control to roundabout is 78% with +/- 7% standard error.

The higher CMF directly correlates to a greater reduction in collision rates. See **Attachment D** for detailed CMF information.

Conflicting Points

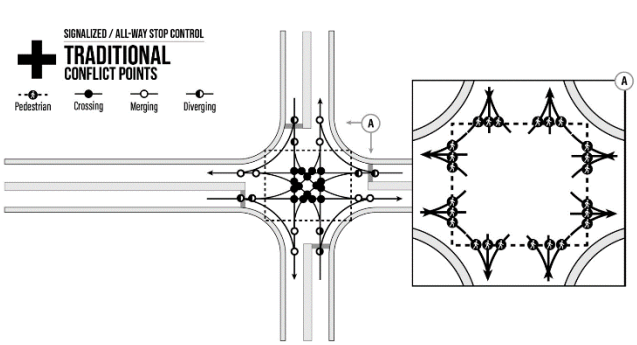
The number of conflicting points within an intersection directly correlates to the risk of a collision, especially at intersections. Conflicting points are locations at which a roadway user can cross, merge, diverge, etc. with another roadway user. A diagram of conflict locations at typical intersections is provided below. According to the FHWA report "A System Based-Framework and Analytical Methodology for Assessing Intersections, FHWA 2021)[9], a traditional intersection can have up to 32 conflict points, whereas a roundabout can have up to 20 conflict points. **Table 11** shows a comparison of the conflict points found in a traditional intersection and a roundabout.

Table 11 - FHWA A System Based-Framework and Analytical Methodology for Assessing Intersections

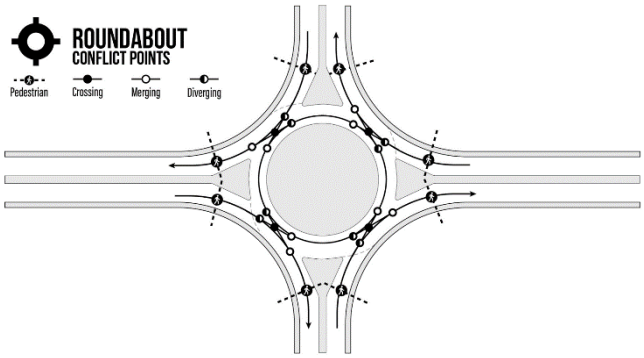
Movement Based Conflict points	Traditional Intersection	Roundabout
Vehicle-vehicle – total	32	20
Vehicle-vehicle – crossing	16	4
Vehicle-vehicle – merging	8	8
Vehicle-vehicle – diverging	8	8
Nonmotorized[10] - vehicle	24	8

Source: CR Associates (2024)

[7] https://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa1304/resources/CRF%20Desktop%20Reference.pdf
[8] https://www.cmfclearinghouse.org/results.php##
[9] https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/fhwasa21008.pdf
[10] The FHWA report and diagram implies that nonmotorized is a pedestrian and did not include conflicts between bicycle and pedestrian or bicycle and vehicle. However, for a like-for-like comparison, conflict between bicycles, which is classified as a vehicle in the California Vehicle Code is provided in the Table 16 of this report.



Source: FHWA



Source: FHWA

Reduced Speed Potential and Crash Severity Potential

Typically, the roundabout design forces the driver to reduce the speed in the intersection to 20 MPH. Because of the anticipated reduced travel speeds at a roundabout and fewer conflict points, the roundabout alternative is likely to reduce the severity of collisions.

Roundabout Traffic Operations Analysis

The analysis results shown below assume the conversion of the two analyzed intersections from SSSC to roundabouts. The implementation of two roundabouts allows for several advantages, particularly in managing traffic flow and improving safety, as they can better accommodate traffic from multiple directions and reduce congestion by providing more opportunities for vehicles to enter and exit the transportation system smoothly.

Table 12 provides a summary of the intersection analysis under Future Year 2035 conditions, both with Project. LOS calculation worksheets for Existing Conditions are provided in Attachment C.

Table 12 - Future Year 2035 with and without Project – LOS Analysis Results

Intersection	Control	Peak Hour	Future Year 2035 with Project		Future Year 2035 with Project and Roundabouts	
			Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS
SR-76 & Sengme Oaks Road	SSSC/Roundabout	AM	23.2	C	6.7	A
		PM	36.8	**E**	7.5	A
SR-76 & Campground Road	SSSC/Roundabout	AM	19.1	C	5.1	A
		PM	33.0	D	5.8	A

Source: CR Associates (2024)

As shown in Table 12, the intersections are anticipated to operate at LOS A or better under Future Year 2035 with Project and roundabouts.

Conclusion and Recommendations

Given the concerns about safety for vehicles entering and exiting streets providing access to tribal lands—particularly regarding left-turns into minor streets and right- and left-turns from minor streets (Sengme Oaks Road and Campground Road) onto SR-76 due to limited sight distance and high vehicular speeds, a roundabout is recommended for the following reasons:

1. **Improved Sight Distance**: One of the benefits of roundabouts is that they provide better sight distance compared to traditional intersections. The curvature of a roundabout allows drivers to approach the intersection at slower speeds, giving them more time to observe oncoming traffic. Roundabouts eliminate the sharp angles typical of intersections, providing drivers with a clearer view of traffic conditions, and potentially reducing collision instances when turning from minor streets onto SR-76.

2. **Reduced Conflict Points**: Traditional intersections, especially those involving high-speed roads like SR-76, often create multiple conflict points where collisions may occur, such as head-on and side-impact collisions. A roundabout reduces these conflict points by eliminating left turns across opposing lanes of traffic. Vehicles traveling in the roundabout move in the same direction, and drivers only need to yield to traffic already in the circle, which reduces the potential of high-impact collisions and may improve safety.

3. **Safer Turning Movements**: Roundabouts facilitate safer left- and right-turns from minor streets onto a major road like SR-76. In traditional intersections, sharp turns, especially at high speeds, can be hazardous, particularly when sight distance is limited. Roundabouts provide a smoother, more gradual path for vehicles to navigate, reducing the chances of vehicles making abrupt or dangerous turns.

4. **Improved Traffic Flow**: Roundabouts may improve traffic flow by allowing vehicles to move continuously without stopping. This is especially important in areas with high vehicular speeds, as it prevents the build-up of traffic queues, which can lead to unsafe driving behavior, such as drivers rushing through the intersection or running red lights. Additionally, roundabouts efficiently handle traffic volumes and reduce delays, potentially improving overall traffic safety by minimizing congestion and ensuring a smoother driving experience.

5. **Potential Traffic Calming**: Roundabouts, along with appropriate signing and striping, and other traffic calming tools such as: speed feedback signs, may reduce vehicular speeds.

Therefore, based on the analysis documented herein, as well as its anticipated traffic operations (LOS), potential improvements in safety[11], and consistency with the Project goals, a roundabout is recommended for consideration as the site plan is further progressed.

However, it is important to note that the analysis presented in this report is based on high-level assumptions and planning-level data intended to evaluate traffic operations under the given scenarios. While the roundabout recommendation is supported by projected operational and potential safety benefits, further detailed analyses are recommended once more details are known related to the planned developments within tribal lands in order to assess the feasibility and constructability of these improvements.

These future analyses may include, but are not limited to, detailed geometric design studies, site-specific topographical and environmental assessments, right-of-way evaluations, and cost-benefit analyses to ensure that the proposed roundabout configurations are both practical and achievable within the context of the project. Determination of the adequate traffic control shall utilize Caltrans' Intersection Safety and Operational Assessment Process (ISOAP) Guide[12], considering SR-76 is a Caltrans facility.

[11] https://safety.fhwa.dot.gov/road_diets/guidance/info_guide/rdig.pdf

[12] https://dot.ca.gov/-/media/dot-media/programs/traffic-operations/documents/isoap/20240910-isoap-process-info-guide--a11y.pdf

Attachment A - Traffic Counts

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: ELITE TRAFFIC DYNAMICS, LLC

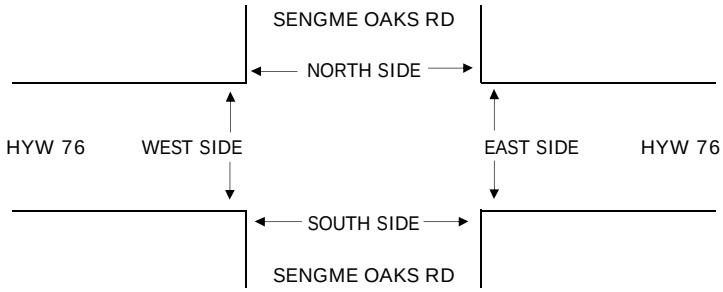
DATE:	LOCATION:	PAUMA VALLEY - LAJOLLA IR	PROJECT #:	ETD24-1129-01
11/26/24	NORTH & SOUTH:	SENGME OAKS RD	LOCATION #:	1
TUESDAY	EAST & WEST:	HYW 76	CONTROL:	STOP

NOTES:

INCLUDES BIKE & PED

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND SENGME OAKS RD			SOUTHBOUND SENGME OAKS RD			EASTBOUND HYW 76			WESTBOUND HYW 76				U-TURNS				
	LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	0	0	1					14	4	2	12		33					0
	7:15 AM	1	0	0					13	0	0	7		21					0
	7:30 AM	0	0	0					21	1	0	3		25					0
	7:45 AM	2	0	0					20	3	0	14		39					0
	8:00 AM	0	0	0					20	3	1	9		33					0
	8:15 AM	0	0	1					30	2	0	12		45					0
	8:30 AM	0	0	0					25	4	2	16		47					0
	8:45 AM	0	0	0					27	1	2	18		48					0
	VOLUMES	3	0	2	0	0	0	0	170	18	7	91	0	291	0	0	0	0	0
	APPROACH %	60%	0%	40%	0%	0%	0%	0%	90%	10%	7%	93%	0%						
	APP/DEPART	5	/	0	0	/	25	188	/	172	98	/	94	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	0	0	1	0	0	0	0	102	10	5	55	0	173					
	APPROACH %	0%	0%	100%	0%	0%	0%	0%	91%	9%	8%	92%	0%						
	PEAK HR FACTOR		0.250			0.000			0.875			0.750		0.901					
	APP/DEPART	1	/	0	0	/	15	112	/	103	60	/	55	0					
PM	4:00 PM	3	0	2					14	1	1	35		56					0
	4:15 PM	1	0	0					18	0	0	24		43					0
	4:30 PM	4	0	0					26	0	0	23		53					0
	4:45 PM	0	0	0					21	1	0	28		50					0
	5:00 PM	1	0	0					25	0	0	31		57					0
	5:15 PM	0	0	0					21	1	1	25		48					0
	5:30 PM	1	0	0	1				12	5	2	20		41					0
	5:45 PM	0	0	0					14	8	2	16	1	41					0
	VOLUMES	10	0	2	1	0	0	0	151	16	6	202	1	389	0	0	0	0	0
	APPROACH %	83%	0%	17%	100%	0%	0%	0%	90%	10%	3%	97%	0%						
	APP/DEPART	12	/	1	1	/	22	167	/	154	209	/	212	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	5	0	0	0	0	0	0	93	2	1	107	0	208					
	APPROACH %	100%	0%	0%	0%	0%	0%	0%	98%	2%	1%	99%	0%						
	PEAK HR FACTOR		0.313			0.000			0.913			0.871		0.912					
	APP/DEPART	5	/	0	0	/	3	95	/	93	108	/	112	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15 AM					0					0					0
	8:30 AM					0					0					0
	8:45 AM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM					0					0					0
	4:15 PM					0					0					0
	4:30 PM					0					0					0
	4:45 PM					0					0					0
	5:00 PM					0					0					0
	5:15 PM					0					0					0
	5:30 PM					0					0					0
	5:45 PM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: ELITE TRAFFIC DYNAMICS, LLC

DATE:	LOCATION:	PAUMA VALLEY - LAJOLLA IR	PROJECT #:	ETD24-1129-01
11/26/24	NORTH & SOUTH:	CAMPGROUND RD	LOCATION #:	2
TUESDAY	EAST & WEST:	HYW 76	CONTROL:	STOP

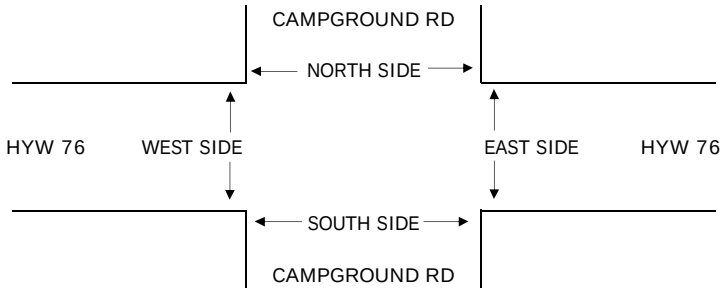
NOTES:

INCLUDES BIKE & PED

AM / PM / MD / OTHER / OTHER

N ▲ S ▼ E ► ◄ W

		NORTHBOUND CAMPGROUND RD			SOUTHBOUND CAMPGROUND RD			EASTBOUND HYW 76			WESTBOUND HYW 76				U-TURNS				
	LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM	3		1					8	6	0	10		28					0
	7:15 AM	2		0					12	1	1	5		21					0
	7:30 AM	1		0					18	1	0	1		21					0
	7:45 AM	4		3					18	4	1	10		40					0
	8:00 AM	4		1					15	5	1	5		31					0
	8:15 AM	2		1					19	13	3	8		46					0
	8:30 AM	5		1					16	8	2	13		45					0
	8:45 AM	9		3					23	2	1	10		48					0
	VOLUMES	30	0	10	0	0	0	0	129	40	9	62	0	280	0	0	0	0	0
	APPROACH %	75%	0%	25%	0%	0%	0%	0%	76%	24%	13%	87%	0%						
	APP/DEPART	40	/	0	0	/	49	169	/	139	71	/	92	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	20	0	6	0	0	0	0	73	28	7	36	0	170					
	APPROACH %	77%	0%	23%	0%	0%	0%	0%	72%	28%	16%	84%	0%						
	PEAK HR FACTOR		0.542			0.000			0.789			0.717		0.885					
	APP/DEPART	26	/	0	0	/	35	101	/	79	43	/	56	0					
PM	4:00 PM	7		3					14	4	2	30		60					0
	4:15 PM	2		3					16	1	2	21		45					0
	4:30 PM	3		0					23	3	0	20		49					0
	4:45 PM	4		0					20	1	1	23		49					0
	5:00 PM	0		0					26	1	0	29		56					0
	5:15 PM	6		1					10	10	1	19		47					0
	5:30 PM	3		2					13	2	0	17		37					0
	5:45 PM	2		1					13	1	0	17		34					0
	VOLUMES	27	0	10	0	0	0	0	135	23	6	176	0	377	0	0	0	0	0
	APPROACH %	73%	0%	27%	0%	0%	0%	0%	85%	15%	3%	97%	0%						
	APP/DEPART	37	/	0	0	/	29	158	/	145	182	/	203	0					
	BEGIN PEAK HR		4:00 PM																
	VOLUMES	16	0	6	0	0	0	0	73	9	5	94	0	203					
	APPROACH %	73%	0%	27%	0%	0%	0%	0%	89%	11%	5%	95%	0%						
	PEAK HR FACTOR		0.550			0.000			0.788			0.773		0.846					
	APP/DEPART	22	/	0	0	/	14	82	/	79	99	/	110	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15 AM					0					0					0
	8:30 AM					0					0					0
	8:45 AM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM					0					0					0
	4:15 PM					0					0					0
	4:30 PM					0					0					0
	4:45 PM					0					0					0
	5:00 PM					0					0					0
	5:15 PM					0					0					0
	5:30 PM					0					0					0
	5:45 PM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#REF!

EASTBOUND

#REF!

#REF!

PREPARED BY: ELITE TRAFFIC DYNAMICS, LLC

Time	1 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41- 45	46 - 50	51 - 55	56 - 60	61 - 65	66 +	TOTAL	%VEHICLES
12:00:00 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	2	0.15%
12:15:00 AM	0	0	0	0	0	0	0	0	0	1	1	0	1	3	0.22%
12:30:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0.07%
12:45:00 AM	0	0	0	0	0	0	0	1	3	0	0	0	0	4	0.29%
1:00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
1:15:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0.15%
1:30:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
1:45:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
2:00:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.07%
2:15:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
2:30:00 AM	0	0	0	0	0	1	0	0	1	0	0	0	0	2	0.15%
2:45:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
3:00:00 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0.15%
3:15:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.07%
3:30:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0.07%
3:45:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.07%
4:00:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.07%
4:15:00 AM	0	0	0	0	0	0	0	0	0	1	1	1	0	3	0.22%
4:30:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0.15%
4:45:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.07%
5:00:00 AM	0	0	0	0	0	0	0	0	2	3	3	2	0	10	0.73%
5:15:00 AM	0	0	0	0	0	0	0	0	1	1	1	0	2	5	0.37%
5:30:00 AM	0	0	0	0	0	0	1	1	1	4	3	2	0	12	0.88%
5:45:00 AM	0	0	0	0	0	0	2	9	1	1	1	0	0	14	1.02%
6:00:00 AM	0	0	0	0	0	0	1	1	3	3	3	0	1	12	0.88%
6:15:00 AM	1	0	0	0	0	1	0	2	1	9	2	0	0	16	1.17%
6:30:00 AM	0	0	0	0	0	0	1	1	2	5	3	0	1	13	0.95%
6:45:00 AM	0	0	0	0	0	3	2	5	1	3	8	0	0	22	1.61%
7:00:00 AM	1	1	0	0	1	0	1	2	6	3	2	0	0	17	1.24%
7:15:00 AM	0	0	0	0	0	0	0	2	1	5	3	1	0	12	0.88%
7:30:00 AM	0	0	0	0	0	0	3	1	2	9	5	1	0	21	1.54%
7:45:00 AM	0	0	0	0	0	0	1	6	0	9	2	0	2	20	1.46%
8:00:00 AM	0	0	0	0	0	1	0	0	4	13	1	2	0	21	1.54%
8:15:00 AM	0	0	0	1	0	4	6	3	8	7	1	0	0	30	2.19%
8:30:00 AM	0	0	0	0	1	1	2	6	7	5	0	0	0	22	1.61%
8:45:00 AM	0	0	0	0	0	0	4	3	3	12	5	0	0	27	1.98%
9:00:00 AM	0	0	0	0	0	3	0	3	8	6	0	0	0	20	1.46%
9:15:00 AM	0	0	0	0	1	0	2	3	10	8	1	0	0	25	1.83%
9:30:00 AM	0	0	0	1	0	1	2	3	8	4	6	1	0	26	1.90%
9:45:00 AM	0	0	0	0	1	1	1	6	8	6	4	1	0	28	2.05%
10:00:00 AM	0	0	0	0	1	0	1	4	14	12	1	1	0	34	2.49%
10:15:00 AM	0	0	0	0	0	0	0	9	8	3	2	0	0	22	1.61%
10:30:00 AM	0	0	0	1	0	5	3	7	8	9	2	0	0	35	2.56%
10:45:00 AM	0	0	0	0	0	0	1	4	10	3	0	0	0	18	1.32%
11:00:00 AM	0	0	0	0	1	0	2	10	17	3	0	0	0	33	2.41%
11:15:00 AM	0	0	0	0	0	0	1	14	8	5	0	0	0	28	2.05%
11:30:00 AM	0	0	0	1	0	1	6	6	2	5	2	0	0	23	1.68%
11:45:00 AM	0	0	0	0	1	1	1	9	14	4	2	0	0	32	2.34%
AM TOTAL	2	1	0	4	7	23	44	124	164	165	71	13	7	625	45.72%
PERCENTAGE	0.3%	0.2%	0.0%	0.6%	1.1%	3.7%	7.0%	19.8%	26.2%	26.4%	11.4%	2.1%	1.1%		
CUMULATIVE	2	3	3	7	14	37	81	205	369	534	605	618	625		
PERCENTAGE	0.3%	0.5%	0.5%	1.1%	2.2%	5.9%	13.0%	32.8%	59.0%	85.4%	96.8%	98.9%	100.0%		

15th Percentile	42	Mean Speed Average	48
50th Percentile	49	10 MPH Pace Speed	46-55
85th Percentile	55	Number in Pace	307
95th Percentile	59	Percent in Pace	49%

#REF!

#REF!

EASTBOUND

#REF!

PREPARED BY: ELITE TRAFFIC DYNAMICS, LLC

Time	1 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41- 45	46 - 50	51 - 55	56 - 60	61 - 65	66 +	TOTAL	%VEHICLES
12:00:00 PM	0	0	0	0	1	1	6	12	7	10	0	0	0	37	2.71%
12:15:00 PM	0	0	0	1	0	0	6	11	11	3	1	1	0	34	2.49%
12:30:00 PM	0	0	0	0	1	1	5	8	8	4	1	0	0	28	2.05%
12:45:00 PM	0	0	0	0	1	1	10	5	9	5	1	0	0	32	2.34%
1:00:00 PM	0	0	0	0	0	0	5	10	15	2	1	0	0	33	2.41%
1:15:00 PM	0	0	0	0	0	1	3	5	12	4	1	0	0	26	1.90%
1:30:00 PM	0	0	0	0	0	0	4	6	12	4	1	0	0	27	1.98%
1:45:00 PM	0	0	0	2	0	2	0	7	8	4	1	0	0	24	1.76%
2:00:00 PM	0	0	0	0	3	0	13	6	7	2	0	0	0	31	2.27%
2:15:00 PM	0	0	0	0	1	4	3	8	4	2	0	0	0	22	1.61%
2:30:00 PM	0	0	0	0	0	0	3	8	4	4	1	0	0	20	1.46%
2:45:00 PM	0	0	0	0	4	0	0	2	4	8	1	0	0	19	1.39%
3:00:00 PM	0	0	0	0	0	6	5	5	8	5	3	0	0	32	2.34%
3:15:00 PM	0	0	0	0	0	1	3	5	2	2	1	0	0	14	1.02%
3:30:00 PM	0	0	0	1	3	1	5	4	6	6	0	0	0	26	1.90%
3:45:00 PM	0	0	0	0	1	1	1	5	11	10	2	1	0	32	2.34%
4:00:00 PM	0	0	0	0	1	2	1	1	3	7	0	0	0	15	1.10%
4:15:00 PM	0	0	0	0	0	1	1	1	7	6	4	0	0	20	1.46%
4:30:00 PM	0	0	0	0	0	0	0	4	13	6	1	2	0	26	1.90%
4:45:00 PM	0	0	1	0	0	0	1	1	6	7	3	1	0	20	1.46%
5:00:00 PM	0	0	0	0	0	2	6	3	7	4	2	0	1	25	1.83%
5:15:00 PM	0	0	0	0	1	1	5	5	5	4	0	0	0	21	1.54%
5:30:00 PM	0	0	0	0	0	0	0	0	6	5	0	1	0	12	0.88%
5:45:00 PM	0	0	0	0	0	0	2	1	5	5	1	0	0	14	1.02%
6:00:00 PM	0	0	0	0	0	1	4	4	5	2	0	0	0	16	1.17%
6:15:00 PM	0	0	0	0	0	0	3	3	5	5	2	0	0	18	1.32%
6:30:00 PM	0	0	0	0	0	0	0	4	2	2	2	1	1	12	0.88%
6:45:00 PM	0	0	0	0	0	0	2	0	2	4	2	0	0	10	0.73%
7:00:00 PM	0	0	0	0	0	0	1	3	2	1	1	1	0	9	0.66%
7:15:00 PM	0	0	0	0	0	1	1	2	6	5	2	0	0	17	1.24%
7:30:00 PM	0	0	0	0	2	0	1	1	2	2	1	0	0	9	0.66%
7:45:00 PM	0	0	0	0	0	0	1	3	3	1	1	0	0	9	0.66%
8:00:00 PM	0	0	0	0	0	0	0	1	0	1	3	1	0	6	0.44%
8:15:00 PM	0	0	0	0	0	0	0	0	0	1	3	2	0	6	0.44%
8:30:00 PM	0	0	0	0	0	2	0	1	2	3	1	0	0	9	0.66%
8:45:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0.15%
9:00:00 PM	0	0	0	0	0	0	0	0	2	2	0	0	1	5	0.37%
9:15:00 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0.15%
9:30:00 PM	0	0	0	0	0	2	0	1	0	0	0	0	0	3	0.22%
9:45:00 PM	0	0	0	0	0	0	0	1	2	0	0	1	0	4	0.29%
10:00:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0.07%
10:15:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0.15%
10:30:00 PM	0	0	0	0	0	0	0	0	2	1	2	1	0	6	0.44%
10:45:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%
11:00:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.07%
11:15:00 PM	0	0	0	0	0	0	0	0	1	0	1	0	0	2	0.15%
11:30:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	2	0.15%
11:45:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0.07%
PM TOTAL	0	0	1	4	19	31	101	148	217	154	49	14	4	742	54.28%
PERCENTAGE	0.0%	0.0%	0.1%	0.5%	2.6%	4.2%	13.6%	19.9%	29.2%	20.8%	6.6%	1.9%	0.5%		
CUMULATIVE	0	0	1	5	24	55	156	304	521	675	724	738	742		
PERCENTAGE	0.0%	0.0%	0.1%	0.7%	3.2%	7.4%	21.0%	41.0%	70.2%	91.0%	97.6%	99.5%	100.0%		

15th Percentile	39	Mean Speed Average	46
50th Percentile	47	10 MPH Pace Speed	46-55
85th Percentile	53	Number in Pace	341
95th Percentile	58	Percent in Pace	46%

DAY TOTAL	2	1	1	8	26	54	145	272	381	319	120	27	11	1,367	100.00%
PERCENTAGE	0.1%	0.1%	0.1%	0.6%	1.9%	4.0%	10.6%	19.9%	27.9%	23.3%	8.8%	2.0%	0.8%	1,367	100.00%

HWY 76 - 900' EAST OF CAMPGROUND RD
WESTBOUND

ETD24-1129-01

Tuesday, November 26, 2024

PREPARED BY: ELITE TRAFFIC DYNAMICS, LLC

Time	1 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41- 45	46 - 50	51 - 55	56 - 60	61 - 65	66 +		TOTAL	%VEHICLES
12:00:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0		1	0.10%
12:15:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
12:30:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
12:45:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
1:00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
1:15:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0		1	0.10%
1:30:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0		1	0.10%
1:45:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
2:00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
2:15:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
2:30:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
2:45:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
3:00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
3:15:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
3:30:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0		1	0.10%
3:45:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
4:00:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
4:15:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1		1	0.10%
4:30:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0		1	0.10%
4:45:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1		2	0.20%
5:00:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0		2	0.20%
5:15:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	3		3	0.31%
5:30:00 AM	0	0	0	0	0	0	0	0	0	2	2	0	1		5	0.51%
5:45:00 AM	0	0	0	0	0	1	0	0	0	1	0	1	1		4	0.41%
6:00:00 AM	0	0	0	0	0	0	0	0	2	1	1	1	2		7	0.72%
6:15:00 AM	0	0	0	0	0	0	0	0	1	1	0	1	1		4	0.41%
6:30:00 AM	0	0	0	0	0	0	0	0	0	3	0	2	0		5	0.51%
6:45:00 AM	0	0	0	0	0	0	0	0	0	0	1	3	3		7	0.72%
7:00:00 AM	0	0	0	0	0	0	0	0	1	0	1	6	2		10	1.02%
7:15:00 AM	0	0	0	0	0	0	0	0	1	1	2	1	0		5	0.51%
7:30:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1		1	0.10%
7:45:00 AM	0	0	0	0	0	0	0	3	0	0	1	4	2		10	1.02%
8:00:00 AM	0	0	0	0	0	0	0	0	0	4	1	1	0		6	0.61%
8:15:00 AM	0	0	0	0	0	0	0	0	0	2	3	4	0		9	0.92%
8:30:00 AM	0	0	0	0	0	0	0	0	2	5	1	2	1		11	1.12%
8:45:00 AM	0	0	0	0	0	0	0	0	1	2	4	2	3		12	1.23%
9:00:00 AM	0	0	0	0	0	0	0	4	2	3	4	0	1		14	1.43%
9:15:00 AM	0	0	0	0	0	0	0	0	1	1	4	3	2		11	1.12%
9:30:00 AM	0	0	0	0	0	1	0	0	3	3	5	1	3		16	1.63%
9:45:00 AM	0	0	0	0	0	0	0	0	4	3	3	1	1		12	1.23%
10:00:00 AM	0	0	0	0	0	0	0	1	5	4	0	1	1		12	1.23%
10:15:00 AM	0	0	0	0	0	0	0	0	7	2	1	1	0		11	1.12%
10:30:00 AM	0	0	0	0	0	0	0	0	10	9	4	0	0		23	2.35%
10:45:00 AM	0	0	0	0	0	0	0	1	2	14	4	1	0		22	2.25%
11:00:00 AM	0	0	0	0	0	0	1	0	4	3	6	3	0		17	1.74%
11:15:00 AM	0	0	0	0	0	0	0	3	10	14	4	2	0		33	3.37%
11:30:00 AM	0	0	0	0	0	0	0	2	10	5	7	0	1		25	2.55%
11:45:00 AM	0	0	0	0	0	0	0	1	3	5	5	2	0		16	1.63%
AM TOTAL	0	0	0	0	0	2	1	16	70	89	68	44	31		321	32.79%
PERCENTAGE	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.3%	5.0%	21.8%	27.7%	21.2%	13.7%	9.7%			
CUMULATIVE	0	0	0	0	0	2	3	19	89	178	246	290	321			
PERCENTAGE	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.9%	5.9%	27.7%	55.5%	76.6%	90.3%	100.0%			

15th Percentile	49	Mean Speed Average	55
50th Percentile	55	10 MPH Pace Speed	50-59
85th Percentile	63	Number in Pace	182
95th Percentile	70	Percent in Pace	57%

HWY 76 - 900' EAST OF CAMPGROUND RD
WESTBOUND

ETD24-1129-01

Tuesday, November 26, 2024

PREPARED BY: ELITE TRAFFIC DYNAMICS, LLC

Time	1 - 10	11 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41- 45	46 - 50	51 - 55	56 - 60	61 - 65	66 +		TOTAL	%VEHICLES
12:00:00 PM	0	0	0	0	0	0	0	1	7	4	2	2	1		17	1.74%
12:15:00 PM	0	0	0	0	0	0	0	5	4	2	7	2	0		20	2.04%
12:30:00 PM	0	0	0	0	0	0	0	8	4	7	3	1	1		24	2.45%
12:45:00 PM	0	0	0	0	0	0	0	0	2	9	9	4	0		24	2.45%
1:00:00 PM	0	0	0	0	0	0	0	0	5	9	3	2	2		21	2.15%
1:15:00 PM	0	0	0	0	0	0	0	0	4	8	11	5	0		28	2.86%
1:30:00 PM	0	0	0	0	0	0	0	0	2	5	6	4	1		18	1.84%
1:45:00 PM	0	0	0	0	0	0	0	0	7	11	10	2	1		31	3.17%
2:00:00 PM	0	0	0	0	0	0	0	0	1	3	5	0	0		9	0.92%
2:15:00 PM	0	0	0	0	0	0	0	1	4	8	5	3	0		21	2.15%
2:30:00 PM	0	0	0	0	0	0	0	1	4	7	6	2	0		20	2.04%
2:45:00 PM	0	0	0	0	0	1	1	0	7	15	6	0	0		30	3.06%
3:00:00 PM	0	0	0	0	0	0	0	3	14	2	4	3	0		26	2.66%
3:15:00 PM	0	0	0	0	0	0	0	2	12	4	7	2	0		27	2.76%
3:30:00 PM	0	0	0	0	0	0	0	0	6	14	13	0	1		34	3.47%
3:45:00 PM	0	0	0	0	0	0	0	0	2	9	10	2	1		24	2.45%
4:00:00 PM	0	0	0	0	0	0	0	1	3	20	5	2	1		32	3.27%
4:15:00 PM	0	0	0	0	0	0	0	0	3	12	3	4	0		22	2.25%
4:30:00 PM	0	0	0	0	0	0	1	0	4	3	8	0	2		18	1.84%
4:45:00 PM	0	0	0	0	0	0	1	1	1	10	10	3	2		28	2.86%
5:00:00 PM	0	0	0	0	0	0	0	5	7	4	7	3	1		27	2.76%
5:15:00 PM	0	0	0	0	0	0	0	0	7	7	7	1	0		22	2.25%
5:30:00 PM	0	0	0	0	0	0	0	0	3	5	7	0	0		15	1.53%
5:45:00 PM	0	0	0	0	0	0	0	1	3	9	2	1	0		16	1.63%
6:00:00 PM	2	0	1	0	0	0	0	0	1	5	1	1	0		11	1.12%
6:15:00 PM	0	0	0	0	0	0	0	3	3	10	2	0	1		19	1.94%
6:30:00 PM	0	0	0	0	0	0	0	0	0	0	2	2	0		4	0.41%
6:45:00 PM	0	0	0	0	0	0	0	0	1	4	1	1	1		8	0.82%
7:00:00 PM	0	0	0	0	0	0	0	3	1	2	0	0	0		6	0.61%
7:15:00 PM	0	0	0	0	0	0	0	3	0	3	2	0	0		8	0.82%
7:30:00 PM	0	0	0	0	0	0	0	0	2	2	0	2	0		6	0.61%
7:45:00 PM	0	0	0	0	0	0	0	1	1	1	1	0	0		4	0.41%
8:00:00 PM	0	0	0	0	0	0	0	0	1	1	2	1	0		5	0.51%
8:15:00 PM	0	0	0	0	0	0	0	0	4	1	0	1	0		6	0.61%
8:30:00 PM	0	0	0	0	0	0	1	0	0	2	1	1	0		5	0.51%
8:45:00 PM	0	0	0	0	0	0	0	0	0	1	1	1	0		3	0.31%
9:00:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0		2	0.20%
9:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1		1	0.10%
9:30:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0		2	0.20%
9:45:00 PM	0	0	0	0	0	0	0	0	1	0	0	2	0		3	0.31%
10:00:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0		1	0.10%
10:15:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
10:30:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0		1	0.10%
10:45:00 PM	0	0	0	0	0	0	0	0	2	1	0	0	0		3	0.31%
11:00:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0		1	0.10%
11:15:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0		1	0.10%
11:30:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0.00%
11:45:00 PM	0	0	0	0	0	0	0	0	1	1	1	1	0		4	0.41%
PM TOTAL	2	0	1	0	0	1	4	40	134	226	171	62	17		658	67.21%
PERCENTAGE	0.3%	0.0%	0.2%	0.0%	0.0%	0.2%	0.6%	6.1%	20.4%	34.3%	26.0%	9.4%	2.6%			
CUMULATIVE	2	2	3	3	3	4	8	48	182	408	579	641	658			
PERCENTAGE	0.3%	0.3%	0.5%	0.5%	0.5%	0.6%	1.2%	7.3%	27.7%	62.0%	88.0%	97.4%	100.0%			

15th Percentile	48	Mean Speed Average	54
50th Percentile	54	10 MPH Pace Speed	50-59
85th Percentile	59	Number in Pace	442
95th Percentile	63	Percent in Pace	67%

DAY TOTAL	2	0	1	0	0	3	5	56	204	315	239	106	48		979	100.00%
PERCENTAGE	0.2%	0.0%	0.1%	0.0%	0.0%	0.3%	0.5%	5.7%	20.8%	32.2%	24.4%	10.8%	4.9%		979	100.00%

Attachment B - Existing Conditions LOS Calculation Worksheets

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	102	10	5	55	0	1
Future Vol, veh/h	102	10	5	55	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	75	75	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	116	11	7	73	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	127	0	209	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	87	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1459	-	779	929
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	936	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1459	-	775	929
Mov Cap-2 Maneuver	-	-	-	-	775	-
Stage 1	-	-	-	-	903	-
Stage 2	-	-	-	-	931	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	8.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	929	-	-	1459	-
HCM Lane V/C Ratio	-	0.004	-	-	0.005	-
HCM Control Delay (s)	0	8.9	-	-	7.5	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	73	28	7	36	20	6
Future Vol, veh/h	73	28	7	36	20	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	72	72	54	54
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	92	35	10	50	37	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	127	0	180	110
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	70	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1459	-	810	943
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	953	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1459	-	804	943
Mov Cap-2 Maneuver	-	-	-	-	804	-
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	946	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	832	-	-	1459	-
HCM Lane V/C Ratio	0.058	-	-	0.007	-
HCM Control Delay (s)	9.6	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	93	2	1	107	5	0
Future Vol, veh/h	93	2	1	107	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	87	87	31	31
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	102	2	1	123	16	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	104	0	228	103
Stage 1	-	-	-	-	103	-
Stage 2	-	-	-	-	125	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1488	-	760	952
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	901	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1488	-	759	952
Mov Cap-2 Maneuver	-	-	-	-	759	-
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	900	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	759	-	-	-	1488	-
HCM Lane V/C Ratio	0.021	-	-	-	0.001	-
HCM Control Delay (s)	9.8	0	-	-	7.4	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	73	9	5	94	16	6
Future Vol, veh/h	73	9	5	94	16	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	77	77	55	55
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	92	11	6	122	29	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	103	0	232	98
Stage 1	-	-	-	-	98	-
Stage 2	-	-	-	-	134	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1489	-	756	958
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	892	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1489	-	753	958
Mov Cap-2 Maneuver	-	-	-	-	753	-
Stage 1	-	-	-	-	926	-
Stage 2	-	-	-	-	888	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	800	-	-	1489	-
HCM Lane V/C Ratio	0.05	-	-	0.004	-
HCM Control Delay (s)	9.7	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Attachment C - Future Year 2035 Conditions both with and without Project (LOS Calculation Worksheets

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	102	10	5	55	0	1
Future Vol, veh/h	102	10	5	55	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-5	-	-	5	-3	-
Peak Hour Factor	88	88	75	75	25	25
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	130	13	7	82	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	143	0	233	137
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	96	-
Critical Hdwy	-	-	4.16	-	5.86	5.96
Critical Hdwy Stg 1	-	-	-	-	4.86	-
Critical Hdwy Stg 2	-	-	-	-	4.86	-
Follow-up Hdwy	-	-	2.254	-	3.554	3.354
Pot Cap-1 Maneuver	-	-	1415	-	776	911
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	933	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1415	-	772	911
Mov Cap-2 Maneuver	-	-	-	-	772	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	928	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	911	-	-	1415	-
HCM Lane V/C Ratio	-	0.005	-	-	0.005	-
HCM Control Delay (s)	0	9	-	-	7.6	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	73	28	7	36	20	6
Future Vol, veh/h	73	28	7	36	20	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-5	-	-	5	6	-
Peak Hour Factor	79	79	72	72	54	54
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	103	40	11	56	41	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	143	0	201	123
Stage 1	-	-	-	-	123	-
Stage 2	-	-	-	-	78	-
Critical Hdwy	-	-	4.16	-	7.66	6.86
Critical Hdwy Stg 1	-	-	-	-	6.66	-
Critical Hdwy Stg 2	-	-	-	-	6.66	-
Follow-up Hdwy	-	-	2.254	-	3.554	3.354
Pot Cap-1 Maneuver	-	-	1415	-	728	899
Stage 1	-	-	-	-	857	-
Stage 2	-	-	-	-	911	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1415	-	722	899
Mov Cap-2 Maneuver	-	-	-	-	722	-
Stage 1	-	-	-	-	857	-
Stage 2	-	-	-	-	904	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	756	-	-	1415	-
HCM Lane V/C Ratio	0.071	-	-	0.008	-
HCM Control Delay (s)	10.1	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	93	2	1	107	5	0
Future Vol, veh/h	93	2	1	107	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-5	-	-	5	-3	-
Peak Hour Factor	91	91	87	87	31	31
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	114	2	1	138	18	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	116	0	255	115
Stage 1	-	-	-	-	115	-
Stage 2	-	-	-	-	140	-
Critical Hdwy	-	-	4.16	-	5.86	5.96
Critical Hdwy Stg 1	-	-	-	-	4.86	-
Critical Hdwy Stg 2	-	-	-	-	4.86	-
Follow-up Hdwy	-	-	2.254	-	3.554	3.354
Pot Cap-1 Maneuver	-	-	1448	-	757	936
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1448	-	756	936
Mov Cap-2 Maneuver	-	-	-	-	756	-
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	897	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	756	-	-	-	1448	-
HCM Lane V/C Ratio	0.024	-	-	-	0.001	-
HCM Control Delay (s)	9.9	0	-	-	7.5	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	73	9	5	94	16	6
Future Vol, veh/h	73	9	5	94	16	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-5	-	-	5	6	-
Peak Hour Factor	79	79	77	77	55	55
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	103	13	7	137	33	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	116	0	261	110
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	151	-
Critical Hdwy	-	-	4.16	-	7.66	6.86
Critical Hdwy Stg 1	-	-	-	-	6.66	-
Critical Hdwy Stg 2	-	-	-	-	6.66	-
Follow-up Hdwy	-	-	2.254	-	3.554	3.354
Pot Cap-1 Maneuver	-	-	1448	-	659	916
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	825	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1448	-	656	916
Mov Cap-2 Maneuver	-	-	-	-	656	-
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	821	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	711	-	-	1448	-
HCM Lane V/C Ratio	0.063	-	-	0.005	-
HCM Control Delay (s)	10.4	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	100

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	205	102	45	123	61	27
Future Vol, veh/h	296	193	84	184	122	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-5	-	-	5	-3	-
Peak Hour Factor	88	88	75	75	25	25
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	336	219	112	245	488	212

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	555	0	915	446
Stage 1	-	-	-	-	446	-
Stage 2	-	-	-	-	469	-
Critical Hdwy	-	-	4.16	-	5.86	5.96
Critical Hdwy Stg 1	-	-	-	-	4.86	-
Critical Hdwy Stg 2	-	-	-	-	4.86	-
Follow-up Hdwy	-	-	2.254	-	3.554	3.354
Pot Cap-1 Maneuver	-	-	996	-	~ 347	627
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	672	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	996	-	~ 302	627
Mov Cap-2 Maneuver	-	-	-	-	~ 302	-
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	585	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	228.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	302	627	-	-	996	-
HCM Lane V/C Ratio	1.616	0.338	-	-	0.112	-
HCM Control Delay (s)	$ 322.4	13.6	-	-	9.1	0
HCM Lane LOS	F	B	-	-	A	A
HCM 95th %tile Q(veh)	29.5	1.5	-	-	0.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	43.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	108	122	47	79	83	33
Future Vol, veh/h	134	213	86	118	144	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-5	-	-	5	6	-
Peak Hour Factor	79	79	72	72	54	54
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	170	270	119	164	267	109

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	440	0	707	305
Stage 1	-	-	-	-	305	-
Stage 2	-	-	-	-	402	-
Critical Hdwy	-	-	4.16	-	7.66	6.86
Critical Hdwy Stg 1	-	-	-	-	6.66	-
Critical Hdwy Stg 2	-	-	-	-	6.66	-
Follow-up Hdwy	-	-	2.254	-	3.554	3.354
Pot Cap-1 Maneuver	-	-	1099	-	313	690
Stage 1	-	-	-	-	667	-
Stage 2	-	-	-	-	583	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1099	-	276	690
Mov Cap-2 Maneuver	-	-	-	-	276	-
Stage 1	-	-	-	-	667	-
Stage 2	-	-	-	-	514	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.7	123.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	334	-	-	1099	-
HCM Lane V/C Ratio	1.126	-	-	0.109	-
HCM Control Delay (s)	123.1	-	-	8.7	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	14.8	-	-	0.4	-

Intersection	
Int Delay, s/veh	296.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	225	123	53	201	87	35
Future Vol, veh/h	346	244	105	282	168	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-5	-	-	5	-3	-
Peak Hour Factor	91	91	87	87	31	31
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	426	300	135	363	607	253

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	726	0	1209	576
Stage 1	-	-	-	-	576	-
Stage 2	-	-	-	-	633	-
Critical Hdwy	-	-	4.16	-	5.86	5.96
Critical Hdwy Stg 1	-	-	-	-	4.86	-
Critical Hdwy Stg 2	-	-	-	-	4.86	-
Follow-up Hdwy	-	-	2.254	-	3.554	3.354
Pot Cap-1 Maneuver	-	-	859	-	~ 242	534
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	~ 580	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	859	-	~ 194	534
Mov Cap-2 Maneuver	-	-	-	-	~ 194	-
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	~ 466	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.7	$ 716.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	194	534	-	-	859	-
HCM Lane V/C Ratio	3.129	0.474	-	-	0.157	-
HCM Control Delay (s)	$ 1008	17.7	-	-	10	0
HCM Lane LOS	F	C	-	-	A	A
HCM 95th %tile Q(veh)	55.7	2.5	-	-	0.6	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	165.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	117	131	58	157	99	42
Future Vol, veh/h	152	252	110	209	180	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-5	-	-	5	6	-
Peak Hour Factor	79	79	77	77	55	55
Heavy Vehicles, %	6	6	6	6	6	6
Mvmt Flow	192	319	143	271	327	140

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	511	0	909	352
Stage 1	-	-	-	-	352	-
Stage 2	-	-	-	-	557	-
Critical Hdwy	-	-	4.16	-	7.66	6.86
Critical Hdwy Stg 1	-	-	-	-	6.66	-
Critical Hdwy Stg 2	-	-	-	-	6.66	-
Follow-up Hdwy	-	-	2.254	-	3.554	3.354
Pot Cap-1 Maneuver	-	-	1034	-	~ 222	644
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	470	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1034	-	~ 186	644
Mov Cap-2 Maneuver	-	-	-	-	~ 186	-
Stage 1	-	-	-	-	625	-
Stage 2	-	-	-	-	393	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.1	$ 490.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	236	-	-	1034	-
HCM Lane V/C Ratio	1.98	-	-	0.138	-
HCM Control Delay (s)	$ 490.2	-	-	9	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	34.1	-	-	0.5	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Intersection Delay, s/veh	6.7
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	375	239	394
Demand Flow Rate, veh/h	398	253	417
Vehicles Circulating, veh/h	70	289	261
Vehicles Exiting, veh/h	472	389	207
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.8	6.2	7.9
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	398	253	417
Cap Entry Lane, veh/h	1285	1028	1057
Entry HV Adj Factor	0.943	0.943	0.945
Flow Entry, veh/h	375	239	394
Cap Entry, veh/h	1211	969	999
V/C Ratio	0.310	0.246	0.394
Control Delay, s/veh	5.8	6.2	7.9
LOS	A	A	A
95th %tile Queue, veh	1	1	2

Intersection	
Intersection Delay, s/veh	5.1
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	309	189	234
Demand Flow Rate, veh/h	327	200	248
Vehicles Circulating, veh/h	76	178	148
Vehicles Exiting, veh/h	302	218	255
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.3	4.9	5.1
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	327	200	248
Cap Entry Lane, veh/h	1277	1151	1187
Entry HV Adj Factor	0.944	0.945	0.944
Flow Entry, veh/h	309	189	234
Cap Entry, veh/h	1205	1087	1120
V/C Ratio	0.256	0.174	0.209
Control Delay, s/veh	5.3	4.9	5.1
LOS	A	A	A
95th %tile Queue, veh	1	1	1

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	414	310	437
Demand Flow Rate, veh/h	439	329	464
Vehicles Circulating, veh/h	72	330	279
Vehicles Exiting, veh/h	587	413	232
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.2	7.5	8.9
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	439	329	464
Cap Entry Lane, veh/h	1282	986	1038
Entry HV Adj Factor	0.944	0.944	0.942
Flow Entry, veh/h	414	310	437
Cap Entry, veh/h	1210	930	978
V/C Ratio	0.342	0.334	0.447
Control Delay, s/veh	6.2	7.5	8.9
LOS	A	A	A
95th %tile Queue, veh	2	1	2

Intersection	
Intersection Delay, s/veh	5.8
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	337	295	281
Demand Flow Rate, veh/h	357	313	298
Vehicles Circulating, veh/h	88	210	162
Vehicles Exiting, veh/h	435	250	283
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.6	6.2	5.6
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	357	313	298
Cap Entry Lane, veh/h	1261	1114	1170
Entry HV Adj Factor	0.944	0.943	0.943
Flow Entry, veh/h	337	295	281
Cap Entry, veh/h	1190	1051	1103
V/C Ratio	0.283	0.281	0.255
Control Delay, s/veh	5.6	6.2	5.6
LOS	A	A	A
95th %tile Queue, veh	1	1	1

Attachment D - CFM Information

CRASH MODIFICATION FACTORS CLEARINGHOUSE

CMF COMPARISON

Below you will find comparisons for the CMFs you chose.
Please note that the rows ***highlighted and bold/italic*** contain the differences in the selected CMFs.

Countermeasure Name	Convert intersection with minor-road stop control to modern roundabout	Conversion of intersection into single-lane roundabout	Conversion of intersection into single-lane roundabout	Conversion of intersection into single-lane roundabout	Conversion of intersection into high-speed roundabout
CMF ID	235	9316	9344	9359	10440
CMF	0.88	0.56	0.78	0.72	0.17
Study Reference	RODEGERDTS ET AL., 2007	JENSEN, S. U., 2017	JENSEN, S. U., 2017	JENSEN, S. U., 2017	BAGLEY, D.L., 2020
Unadjusted Standard Error AMF	***0.17***	***0.209***	***0.105***	***0.145***	***0.13***
CMFunction					
Star Rating	★★☆☆☆	★★☆☆☆	★★☆☆☆	★★☆☆☆	★★★☆☆
Rating Score Total	***55***	***65***	***70***	***55***	***105***
Crash Type	***All***	***Vehicle/bicycle***	***Other***	***Other***	***All***
Crash Severity	***All***				
Crash Time of Day		***All***	***All***	***All***	***All***
Area Type	***Urban***	***All***	***All***	***All***	***All***
Road Division Type		***All***	***All***	***All***	
Road Type	***Not Specified***	***Not specified***	***Not specified***	***Not specified***	***All***
Min Number of Lanes	***2***				
Max Number of Lanes	***2***				

Number of Lanes Direction					
Number of Lanes Comment					
Intersection Type	Roadway/roadway (not interchange related)	Roadway/roadway (not interchange related)	Roadway/roadway (not interchange related)	Roadway/roadway (not interchange related)	Roadway/roadway (not interchange related)
Intersection Geometry	***4-leg***	***No values chosen.***	***No values chosen.***	***No values chosen.***	***3-leg***
Traffic Control	***Stop-controlled***	***Not specified***	***Not specified***	***Not specified***	***Roundabout***
Minimum Speed Limit		***40***	***40***	***40***	***35***
Maximum Speed Limit		***130***	***130***	***130***	***55***
Speed Unit		***km/h***	***km/h***	***km/h***	***mph***
Speed Limit Comment					
Study Type	***2***	***1***	***1***	***1***	***2***
Years From					***1999***
Years To					***2019***
Traffic Volume Unit	***Unit Unknown***	***Annual Average Daily Traffic (AADT)***	***Annual Average Daily Traffic (AADT)***	***Annual Average Daily Traffic (AADT)***	***Annual Average Daily Traffic (AADT)***
Min Traffic Volume					
Max Traffic Volume					
Min Major Rd Volume					
Max Major Rd Volume					
Min Minor Rd Volume					
Max Minor Rd Volume					
Avg Traffic Volume					
Avg Major Rd Volume					
Avg Minor Rd Volume					
State of Origin		***notusa***	***notusa***	***notusa***	***NC***
Municipality					
Country		***Denmark***	***Denmark***	***Denmark***	
Comments	***Countermeasure name changed from "convert two-way stop-controlled***	***Central island height=2 to 10mAll central***	***Crash type: All except bicycle crashesType of bicycle facility:***	***Crash type: All except bicycle crashesType of bicycle facility:***	***The number of crashes in the after period were not reported in this study, however, they have been***

	intersection to roundabout" to match HSM	***island diameters (0-60m)***	***Cycle laneCentral island height=0 to 1.9mCentral island diameter: All***	***Cycle trackCentral island height: AllCentral island diameter: All***	***recorded as 300 to give 10 points as a beneift of doubt for one or more of the following: (1) number of miles/sites in the reference/treatment group, (2) number of crashes in the references/treatment group, (3) reporting AADTs for the aggregate dataset but not for the disaggragate dataset used for CMF development.***

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