Kickapoo Traditional Tribe of Texas Local Road Safety Focus Approach - Technical Assistance

Federal Highway Administration Office of Safety

August 2025

U.S. Department of Transportation

Federal Highway Administration

ZERO IS OUR GOAL

A SAFE SYSTEM IS HOW WE GET THERE

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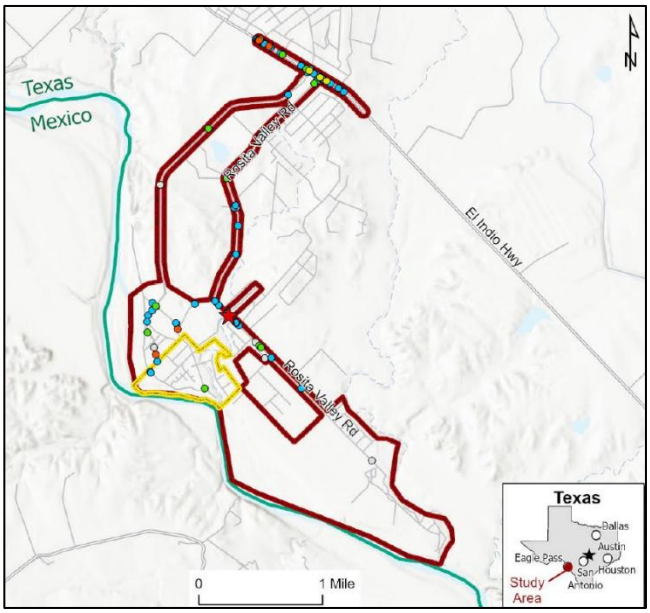
Executive Summary

The Federal Highway Administration (FHWA) offers technical assistance targeting highway safety on local and rural roads. Greenlight Traffic Engineering is the contractor providing this technical assistance. FHWA and the contracting team held a stakeholder workshop in the Kickapoo Traditional Tribe of Texas (Tribe) on May 8th, 2024, to discuss the proposed technical assistance for the Tribe. The workshop included a review of pertinent documents applicable to the Tribe's road safety.

The project team obtained crash data for the years 2019 to 2025 for Maverick County and the Tribe from TxDOT. This data included crash type, persons involved in the crash, and vehicle type information for each crash.



The key takeaways of the November 20th, 2024, meeting include the Tribe's desire to identify specific corridor safety issues along with low-cost and effective safety countermeasures to address them, with the goal of implementing strategies through future funding opportunities. The Tribe requested the completion of a field review with the project team and FHWA on specific corridors experiencing safety issues. The entire study area was reviewed with special attention given to these corridors:

- Tierra Soberana Boulevard
- Rosita Valley Road
- Rosita Gardens Road
- River Park Road
- Lucky Eagle Drive

A crash data review and field review were performed on the Tribal Reservation, and study area crashes were refrenced. Recommended safety project scopes, countermeasures, and cost estimates were developed for implementation. Examples of these countermeasures include:

- Thermoplastic centerline markings
- Speed feedback signs
- Guardrails and end treatments
- Street lighting
- Curve warning signs and delineators
- Turn lanes
- School zone signage

Background

The Federal Highway Administration (FHWA) offers technical assistance targeting highway safety on local and rural roads. Greenlight Traffic Engineering is serving as the contractor providing this technical assistance. The Kickapoo Traditional Tribe of Texas (Tribe), formerly known as the Texas Band of Traditional Kickapoo, is one of three federally recognized Tribes of the Kickapoo people. The Tribe has a current population of 1134 enrolled members and was officially recognized by the Texas Indian Commission in 1977. The Tribal Reservation is located within the Rosita Valley community by the Rio Grande on the US-Mexico border in western Maverick County, Texas.

Kickoff Meeting

FHWA held a virtual kickoff meeting on November 20th, 2024, to discuss the technical assistance available to the Tribe.

The meeting attendees were as follows:

- Rosemarie Anderson, (FHWA Office of Safety)
- Mike Blankenship, (Greenlight)
- Josh Barger, (Greenlight)
- Meg Miller, (FHWA)
- Chris Kwilinski, (FHWA)
- Jerry Roche, (FHWA)
- Ed Burgos-Gomez, (FHWA)
- Catherine Saine, (VHB)
- Tori Brinkly, (FHWA)
- Lee Krezdorn, (Kickapoo)
- Ricardo Barcena, (Kickapoo)

During the meeting, the Tribe expressed:

- Concern over the lack of a Transportation Safety Plan (TSP) that enables the tribe to apply for federal funding
- Overall concerns with behavior-related crashes, such as speeding
- A desire to upgrade key corridors for the Tribe, such as Tierra Soberana Boulevard and Rosita Valley Road
- The need to partner with Maverick County to implement improvements near the Tribal community

The Tribe's corridors with the most safety concerns were determined to be:

- Tierra Soberana Boulevard
- Rosita Valley Road
- Rosita Gardens Road
- River Park Road
- Lucky Eagle Drive

The Tribe concluded that it would like to consider technical assistance that could aid in its future applications for federal funding. Options for technical assistance could include assisting with individual steps during the development of a Tribal Transportation Safety Plan, gathering and analyzing crash data, identifying safety issues and strategies, or conducting a closer review of individual high-priority corridors.

Stakeholder Meeting

FHWA held a virtual stakeholder workshop meeting on March 6th, 2025, to discuss the selection of technical assistance for the Tribe.

The meeting attendees were as follows:

- Anderson, Rosemarie (FHWA Office of Safety)
- Barger, Josh (Greenlight)
- Barcena, Ricardo (Kickapoo Road and Bridge Department)
- Blankenship, Mike (Greenlight)
- Flores, Benjamin (Food Services)
- Flores, Jimena (Kickapoo Legal)
- Garcia, Gonzalo (Tribal Administrador)
- Garza, Carolina (Kickapoo Housing Department)
- Guerrero, Erika (Kickapoo Education Department)
- Herrera, Jaime (Tribal Police)
- Jimenez, Andres (Tribal Services)
- Krezdorn, Lee (Kickapoo Road and Bridge Department)
- Larsen, Adam (FHWA)
- Mata, Melinda (Tribal Transportation)
- Miller, Meg (FHWA Office of Safety)
- Moreno, Ana (Kickapoo Housing Department)
- Rodriguez, Trinidad (Kickapoo Food Services)
- Ruiz, Epifanio (Tribal Police)
- Salazar, Darold (Tribal Reservation Services Administration)
- Sierra, Xalixa (Kickapoo Education Administrator)
- Trevino, Joseph (Kickapoo Public Works)
- Gomez, Juan (Kickapoo Public Works)

The stakeholder meeting focused on improving roadway safety on Tribal lands, specifically addressing the need to reduce fatalities and injuries among Tribal members and the general public. During the meeting, the Tribe mentioned:

- The ongoing development of a Kickapoo Tribal Transportation Safety Plan that may be of use during the technical assistance, and will be shared upon completion
- The tribe would like for the technical assistance efforts to help enhance road safety in the Tribe, including signage improvements and addressing road pavement conditions on critical routes

A workshop exercise was conducted with the stakeholders to identify safety issues. Critical routes with safety concerns include:

- Rosita Valley Road
- River Park Street
- Tierra Soberana Boulevard
- Rosita Garden Street
- Lucky Eagle Road
- Grass Valley and the Tierra Soberana intersection
- Rosita Valley Road and the Lucky Eagle Drive intersection

Example safety concerns at these locations included:

- Lack of adequate lighting
- Lack of signage
- Rough and deteriorated pavement conditions
- Tight curves with unrecoverable shoulders or no shoulders
- Flooding on roadways
- Narrow roadways

The Tribe concluded that the technical assistance team could help with its high-priority crash corridors. The team will review the problem areas in person to gain an invaluable first-hand perspective of the corridors' safety needs. The team conducted a field review that provided spot and systemic safety solutions for the Tribe and, in some areas, Maverick County, to implement.

Document Review and Data Analysis

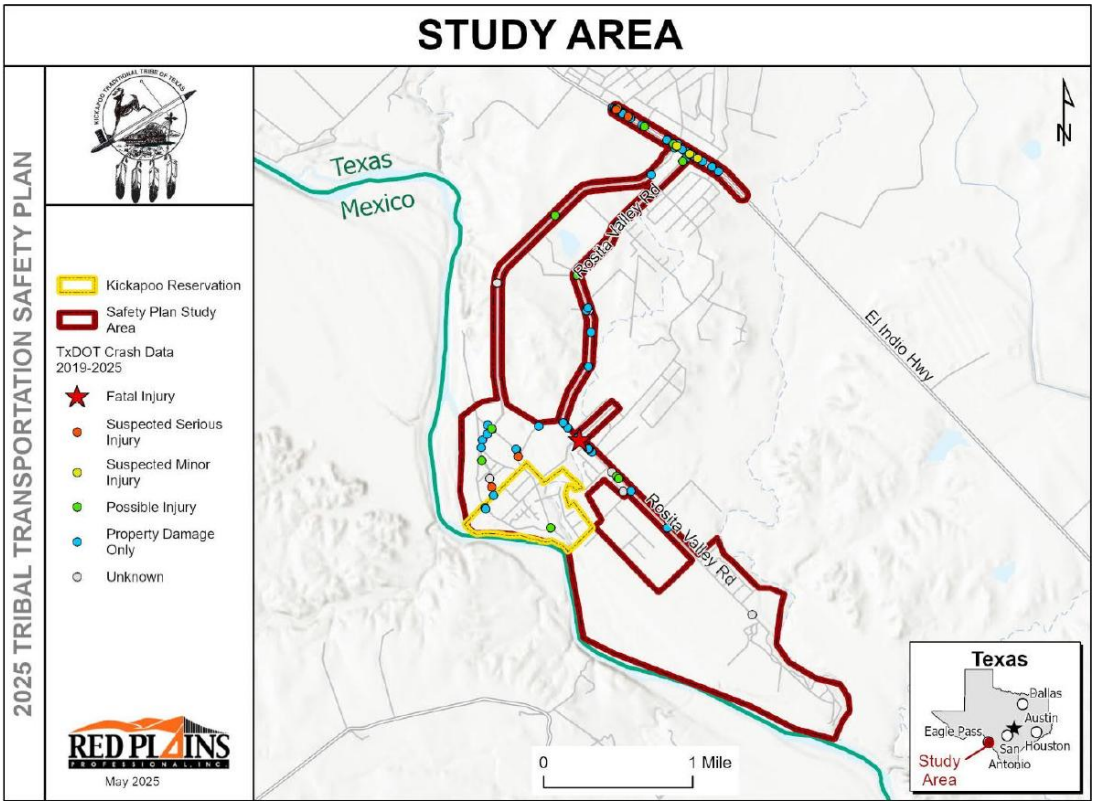
A review of pertinent documents applicable to the Tribe's road safety technical assistance was performed. The documents reviewed included:

- Kickapoo Traditional Tribe of Texas 2025 Strategic Tribal Transportation Safety Plan (STTSP)
- Texas Strategic Highway Safety Plan (SHSP)
- Kickapoo Traditional Tribe of Texas Transportation Safety Management Plan
- Texas Department of Transportation (TxDOT) Vulnerable Road User (VRU) Safety Assessment

Document Review Summary

Kickapoo Traditional Tribe of Texas 2025 Strategic Tribal Transportation Safety Plan

The Kickapoo STTSP provides a strategic approach for the Tribe to improve the safety of its roads for the welfare and safety of its people and their neighbors. It establishes a vision that states, "a Commitment to the Safety of the Kickapoo People and Their Neighbors." The study area included the Kickapoo Reservation and significant Maverick County roadways. A crash review in the study, for 2019 to 2025, was conducted using available crash data.



After reviewing the available data, five emphasis areas are selected for added attention in the transportation safety efforts of the Kickapoo Traditional Tribe of Texas. These emphasis areas represent the most significant opportunities to accomplish the Tribe's vision:

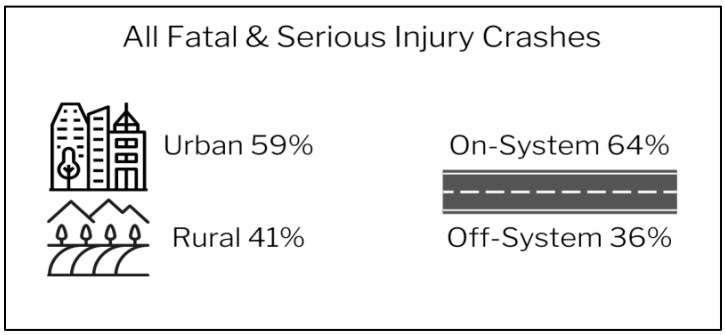
- Roadway Safety Audit
- Infrastructure Improvements
- Vulnerable Road User Improvements
- Reducing Roadway Departure and Risky Driving Behavior Crashes
- Transportation Data Management

Texas Strategic Highway Safety Plan (2022 – 2027)

The Texas SHSP is a statewide framework aimed at reducing traffic fatalities and serious injuries with a long-term vision of achieving zero deaths by 2050. The plan sets an interim goal of reducing fatalities to approximately 1,800 by 2035. The SHSP identifies key emphasis areas such as speeding, impaired driving, distracted driving, intersection safety, and vulnerable road users. The plan integrates data-driven strategies, including systemic safety analysis, infrastructure improvements, policy recommendations, public education, and enforcement initiatives.

The plan establishes the following vision: “Texas envisions a future with zero traffic fatalities and serious injuries,” and mission: “Texans will work together on the road to zero traffic fatalities and serious injuries”.

The Texas SHSP uses a crash data analysis with data from 2017 to 2021 to identify problem areas and trends. The analysis revealed that the majority of crashes occurred on the State roadway system, with 59 percent of all fatal and serious injury crashes taking place in urban areas.



Overall, the Texas SHSP 2022–2027 serves as a strategic framework to systematically reduce roadway fatalities and serious injuries through targeted, data-informed actions and collaborative efforts.

Kickapoo Traditional Tribe of Texas Transportation Safety Management Plan (2015)

The plan outlines existing programs and policies and identifies issues, procedures, and projects that can be implemented to further improve transportation safety for the Tribe, its people, and others living within or visiting the Tribal Reservation.

The plan was developed with input from a variety of agencies and individuals within the Tribe, in cooperation with the United States Government, Texas State Government, and various non-Tribal communities sharing the roads within and surrounding the Tribal Reservation. Its focus areas and safety issues included:

- Excessive speed
- Roadway geometry concerns, such as blind curves
- Poor shoulder and pavement conditions at certain locations
- Insufficient sight distance, especially on hills and curves, and obstructed by vegetation.
- Lacking a formal traffic code
- Tribal Police not cross-deputized
- Impaired and distracted driving
- Lack of parental involvement
- No active Injury Prevention Program
- Staff not trained on emergency and safety issues.
- The Tribe lacks a dedicated EMS or Fire Department
- No access to Tribe-specific 911 services
- No communication system for weather, disaster, or safety alerts
- Absence of a fire plan, fire drills, or a comprehensive disaster management plan

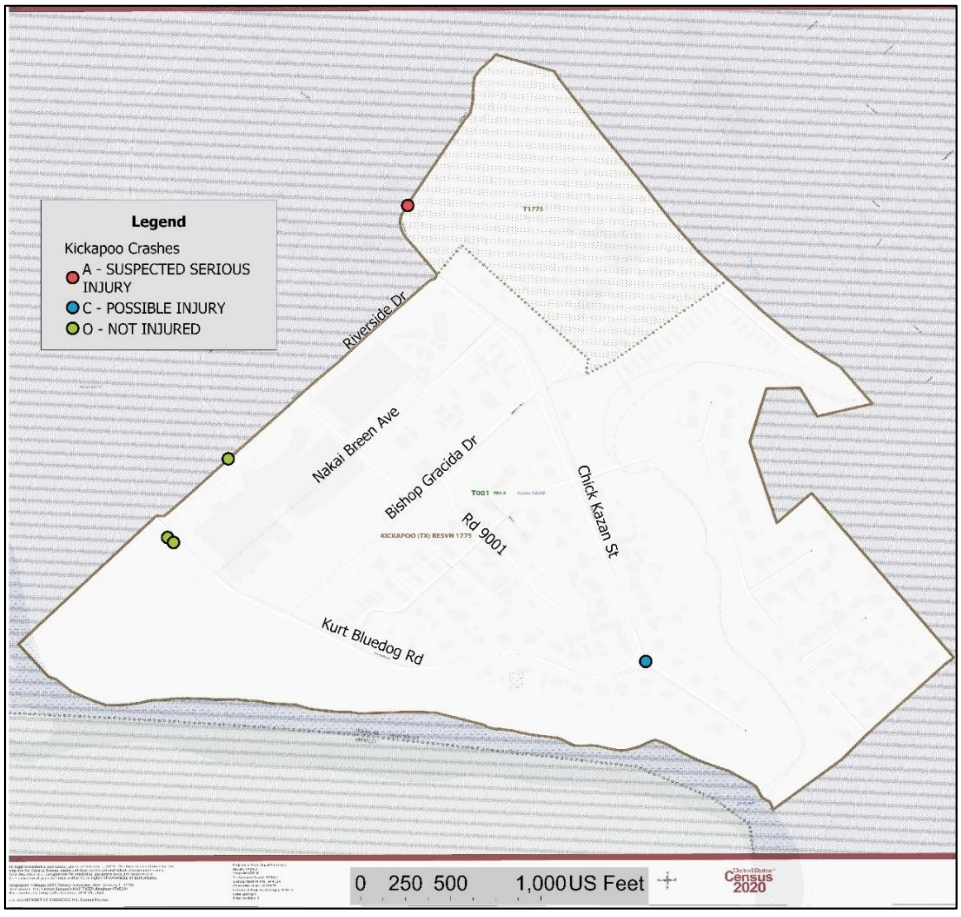
TxDOT Vulnerable Road User Safety Assessment (2023)

The document is a critical resource for improving VRU safety through data-driven decision-making, stakeholder engagement, and targeted safety measures. The document’s emphasis on reducing crashes involving pedestrians and cyclists through systemic analysis, targeted hot spot identification, and tailored countermeasures aligns with the Tribe's focus on improving roadway

safety and infrastructure within the reservation. Strategies such as adding lighting, implementing speed management measures, and addressing high-risk demographic and geographic areas directly complement the Tribe's identified priorities, such as improving road geometry, enhancing signage, and enforcing tribal traffic codes. The TxDOT focuses on collaboration with local agencies, and its guidance on leveraging funding opportunities is favorable for the Tribe to pursue grants and resources for implementing their identified safety countermeasures. By integrating the findings of the VRU Safety Assessment into their safety program, the Tribe can implement effective, data-driven strategies to improve VRU safety.

Data Analysis Summary

The project team obtained crash-level, unit-level data (e.g., type of vehicle involved in the crash) and person-level data (e.g., who is involved in the crash) for the years 2019 to 2024 for Maverick County, TX, from the Texas Department of Transportation's (TxDOT's) online crash dashboard. TxDOT noted that the 2024 data may be incomplete during the analysis, but the project team's approach focuses on proportions. It can easily be updated and replicated as data becomes available. The data provided included characteristics such as location, crash severity, and roadway classifications.



The following are areas potentially contributing to higher crash frequencies:

- Hours commuting to and from work
- Hours with low light conditions
- Days closer to the end of the week
- Speeding
- Inattentive or distracted drivers

Data Analysis Summary

The small sample size limits the ability to clearly determine who was involved in the crashes. Additionally, it limits the ability to identify the region's crash clusters and priority locations. The information provided will influence discussions with the Kickapoo Tribe and its stakeholders to determine the direction of the road safety technical assistance. A systemic analysis based on roadway infrastructure and crash types can be used to proactively determine appropriate safety improvement focus, especially if informed by crashes in surrounding regions in addition to the Kickapoo Tribe data.

Technical Assistance Provided

A safety assessment of high-priority roadways in the Tribe and relevant Maverick County roadways was conducted at the Tribe's request. This assessment primarily, but not exclusively, focused on the safety aspects of the following route segments:

- Tierra Soberana Boulevard
- Rosita Valley Road
- River Park Road
- Lucky Eagle Drive
- Chick Kazen Street
- Pecan Farms Subdivision roads

Field Reviews

A daytime field visit was conducted on Wednesday, July 30th. The weather was mild and dry. The site review involved driving and walking the study area and observing road users. The field review team included:

- Paul LaFleur, Federal Highway Administration
- Josh Barger, Greenlight Traffic Engineering
- Mike Blankenship, Greenlight Traffic Engineering
- Ricardo Barcena, Kickapoo
- Lee Krezdorn, Kickapoo
- Randi Creek, Kickapoo

Corridor segments were selected to receive a field review through a combination of a crash data analysis and Tribe request. These corridors show a disproportionate number and severity of crashes and are general concerns of the Tribe.

Key review corridor segments and their reported crashes between 2019 and 2025 are shown on **Figure 1**. This figure shows the location, number, and severity of crashes; corridors highlighted in yellow were included in the field review as the primary study corridors.

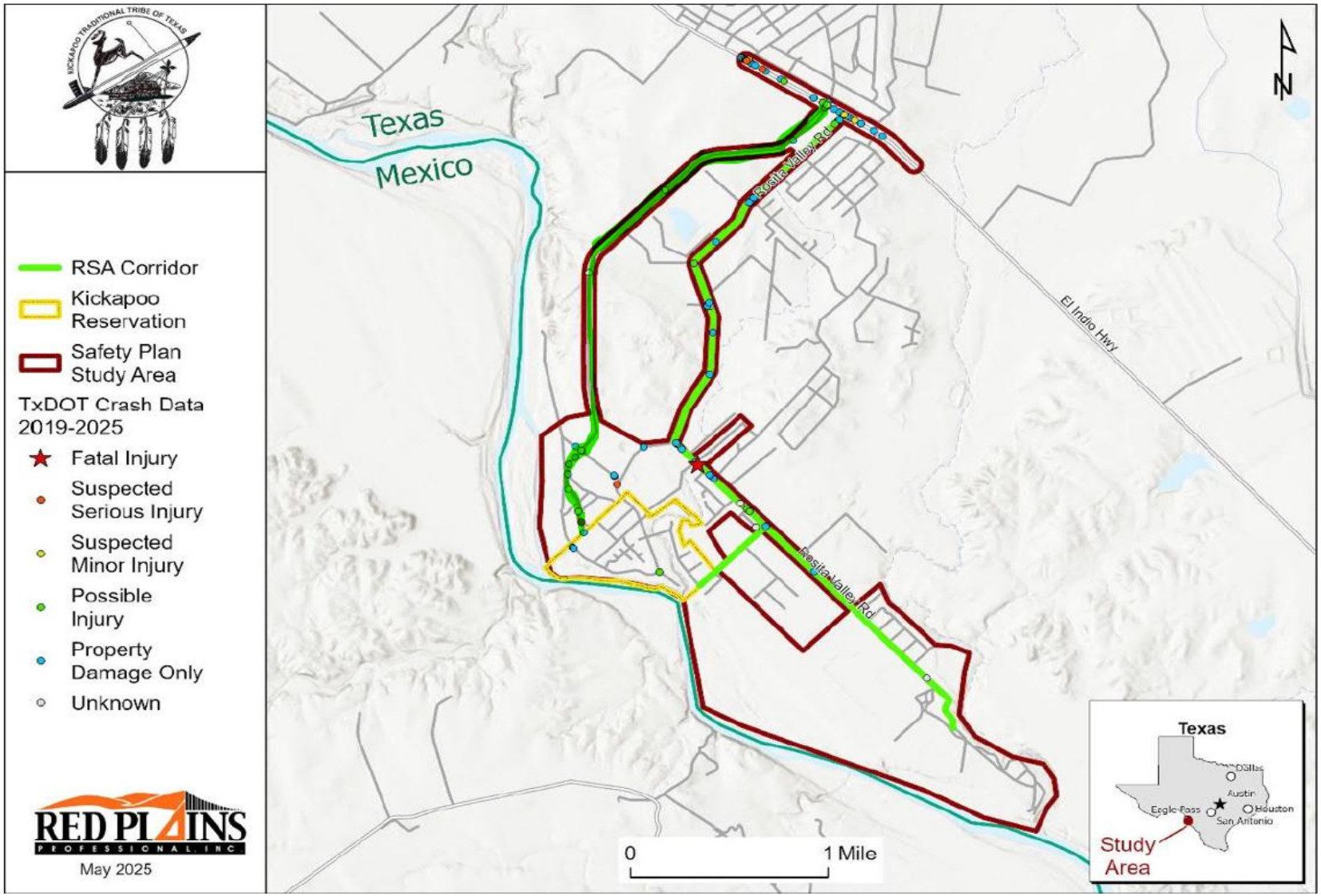


Figure 1: Primary Study Corridors and 2019-2015 Crashes

The review team noted several existing roadway safety features on multiple corridors in the study area, including the following:

- Signs are generally in good condition
- Road curve advance warning signs
- Roadside object markers
- Crosswalk pedestrian warning signs
- Speedhumps and warning signs throughout the community
- ADA sidewalk ramps
- Street lighting

Existing signage on the study corridors (Photos taken during a FHWA contract)

Outcomes from Technical Assistance

Specific safety issues and recommendations for consideration are discussed in the following sections. Additionally, the locations of the existing safety issues, as determined by the safety assessment team, are displayed in **Table 1**: Suggested Improvements/Countermeasures for Consideration.

Corridors

Tierra Soberana Corridor

Tierra Soberana Boulevard from El Indo Highway to Grass Valley Road serves as the main access corridor for traffic traveling to and from the Lucky Eagle Casino. This corridor segment had the following safety concerns:

- Observed vehicle speeds higher than the posted speed limit
- Some S-curves without curve chevron signs
- No superelevation in curves
- Wavey pavement with steep dips and crests
- Narrow paved shoulders
- Limited drainage infrastructure
- No turn lanes at side street intersections

Tierra Soberana Blvd. corridor (Source: FHWA)

A paved shoulder was observed on the Tierra Soberana Boulevard corridor. Some stretches of the corridor had about two to three feet of paved shoulder only. Paved shoulders at or above five feet in width provide more opportunity for motorists to recover during a lane departure event. Wider paved shoulders on this corridor would be more appropriate.

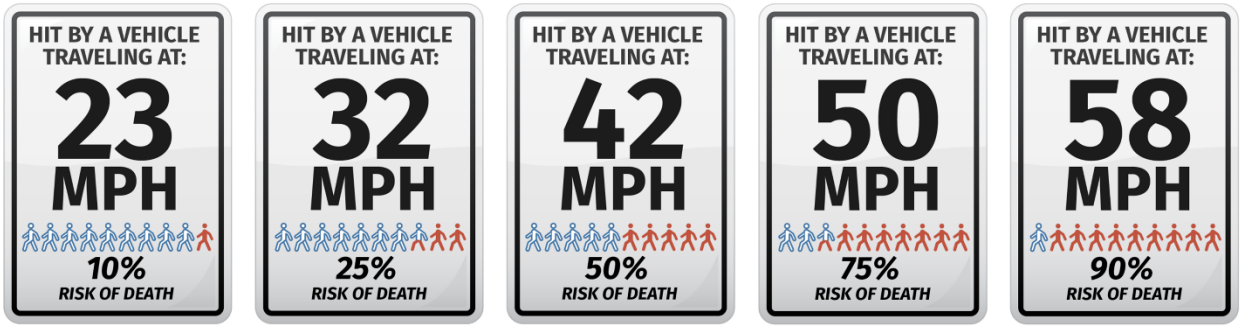
Tierra Soberana Blvd. corridor shoulder (Source: Google)

Of note, the Tierra Soberana Boulevard corridor has planned improvements to include upgrading to a four-lane corridor, installation of superelevation at curves, raised pavement markers, rumble strips, safety edge treatment, curve warning signs, turn lanes at intersections, median streetlights, curbing, gutters, and culverts, among others.

Corridor Speeds

In the Tribe's 2025 STTSP roadway safety audit emphasis area, speed mitigation is listed as a focus area. Speeding was also reported as being a factor in 17% of the 72 total crashes in the RSA priority corridors. The study team observed higher speed vehicle movement around sharp curves on Tierra Soberana Boulevard and Rosita Valley Road. High speeds in combination with tight curves can result in run-off-road crashes. High-speed crashes typically result in a risk of serious injury or fatal injuries, particularly for vulnerable road user-involved crashes. Speeding can be addressed at a

systemic level to help reduce travel speeds network-wide. The following graphic from the May 2022 issue of ITE Journal illustrates the impact of speed and pedestrian risk of death:

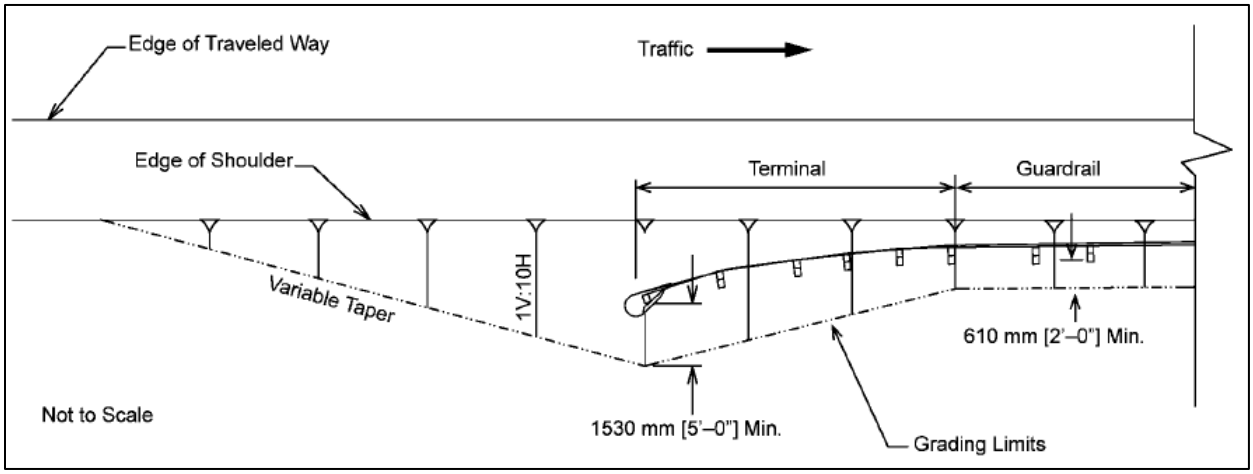


Guard Rails

Guard rails on the study corridors appear to be non-engineered and do not meet the AASHTO Roadside Design Guide standards. Key design failures on most existing guard rails include a lack of end treatments, non-standard posts, and non-standard flared terminals.

Study corridor guard rails (Source: FHWA)

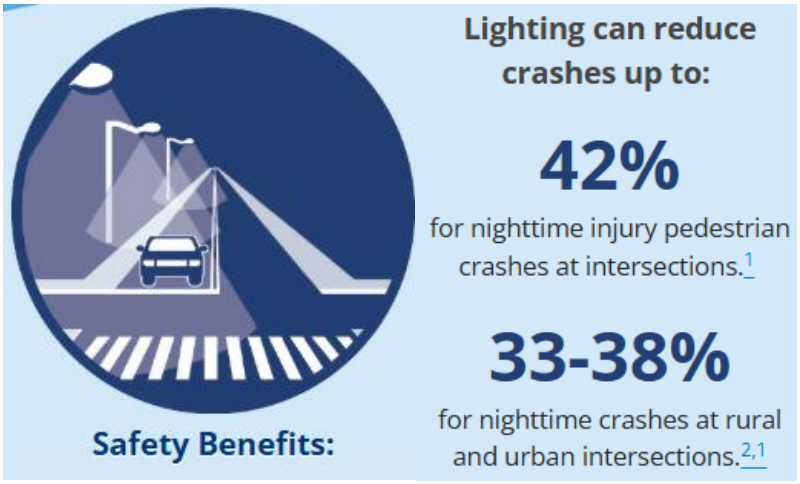
Sample guard rail end treatment and posts (Source: AASHTO Roadside Design Guide 4th Edition)



Sample guard rail flared terminal (Source: AASHTO Roadside Design Guide 4th Edition)

Lighting

The lighting on Rosita Valley Road from El Indo Highway to Standing Rock Lane was observed to be limited throughout. The lack of lighting in the corridor increases the risk of nighttime collisions, particularly at intersections and road curves. Roadway lighting can reduce overall rural nighttime crashes by up to 38% and 42% for pedestrians at intersections.



Streetlighting benefits (Source: FHWA)

Speed Humps

Speed humps were observed throughout the community roadways. Some speed humps had faded or non-high-visibility pavement markings. Limited speed hump warning signage was observed in advance of speed hump placement on roadways such as Tierra Soberana Boulevard and Lucky Eagle Drive.

Speed hump warning sign W17-1 (Source: MUTCD)

Sample speed hump observed (Source: Google)

Concrete Headwalls in Clear Zone

A narrow passage on Rosita Valley Road, approximately 180 feet southwest of Garcia Drive, has unprotected concrete headwalls without an object marker or warning signage. The presence of roadside fixed objects within the clear zone of a roadway introduces a hazard to motorists, particularly when not marked with signage or shielded by guardrail.

Unprotected headwalls at narrow passage on Rosita Valley Road (Source: FHWA)

Pavement Markings

Rosita Valley Road is a main access road to the Tribe that is classified as a major collector by the TxDOT. Throughout the corridor, there are no centerline or edge line markings to assist motorists in proper lane positioning and to separate the opposing directions of travel. The FHWA MUTCD Chapter 3B.01 guidance states that "centerline markings should also be placed on all rural arterials and collectors that have a traveled way of 5.5 m (18 ft) or more in width and an ADT of 3,000 vehicles per day or greater."

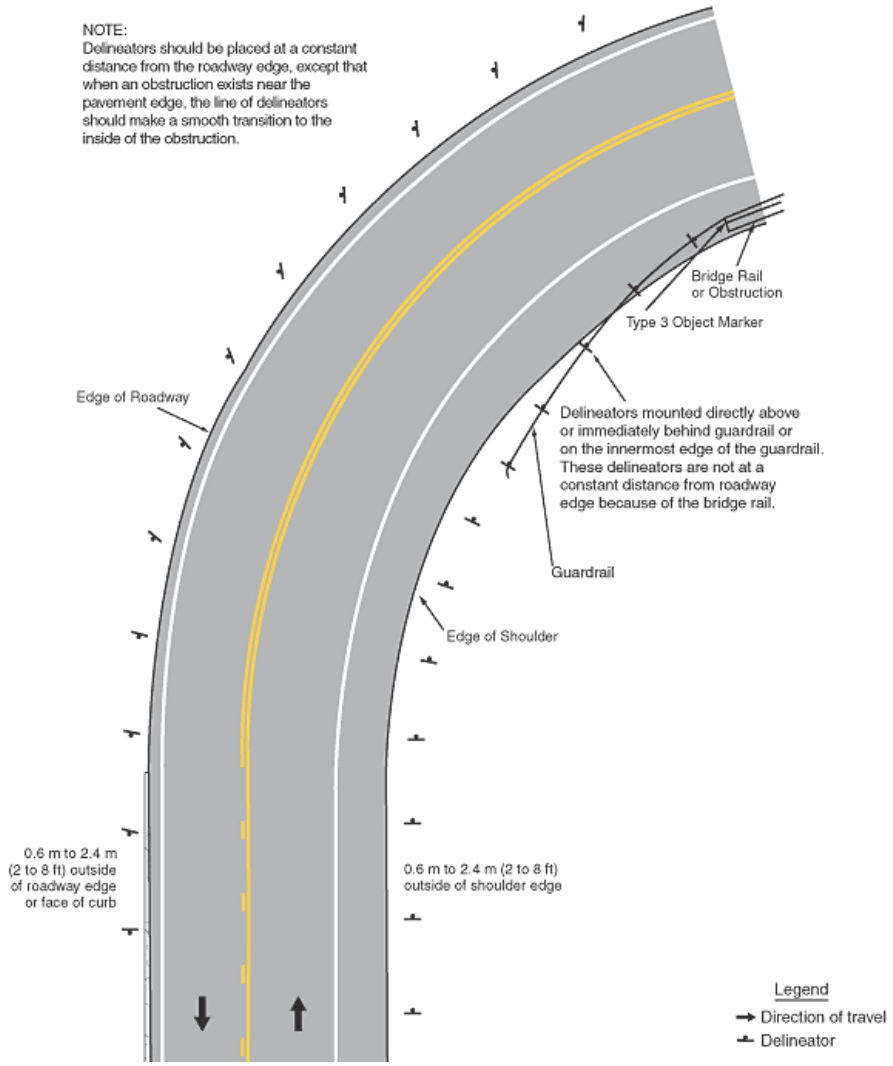
Rosita Valley Road (Source: FHWA)

Curves

Curve warning signs, chevrons, and curve delineation improve driver awareness of tight horizontal roadway curves. These features were intermittently found in the study area but are absent on the Tierra Soberana Boulevard S curve just north of the Casino, and on Rosita Valley Road. Chevron alignment signs (W1-8) and delineator placement examples are shown below.

Chevron alignment signs (W1-8) (Source: FHWA MUTCD)

Figure 3D-1. Examples of Delineator Placement



Sample of roadside retroreflective delineator placement (Source: FHWA MUTCD)

School Zone

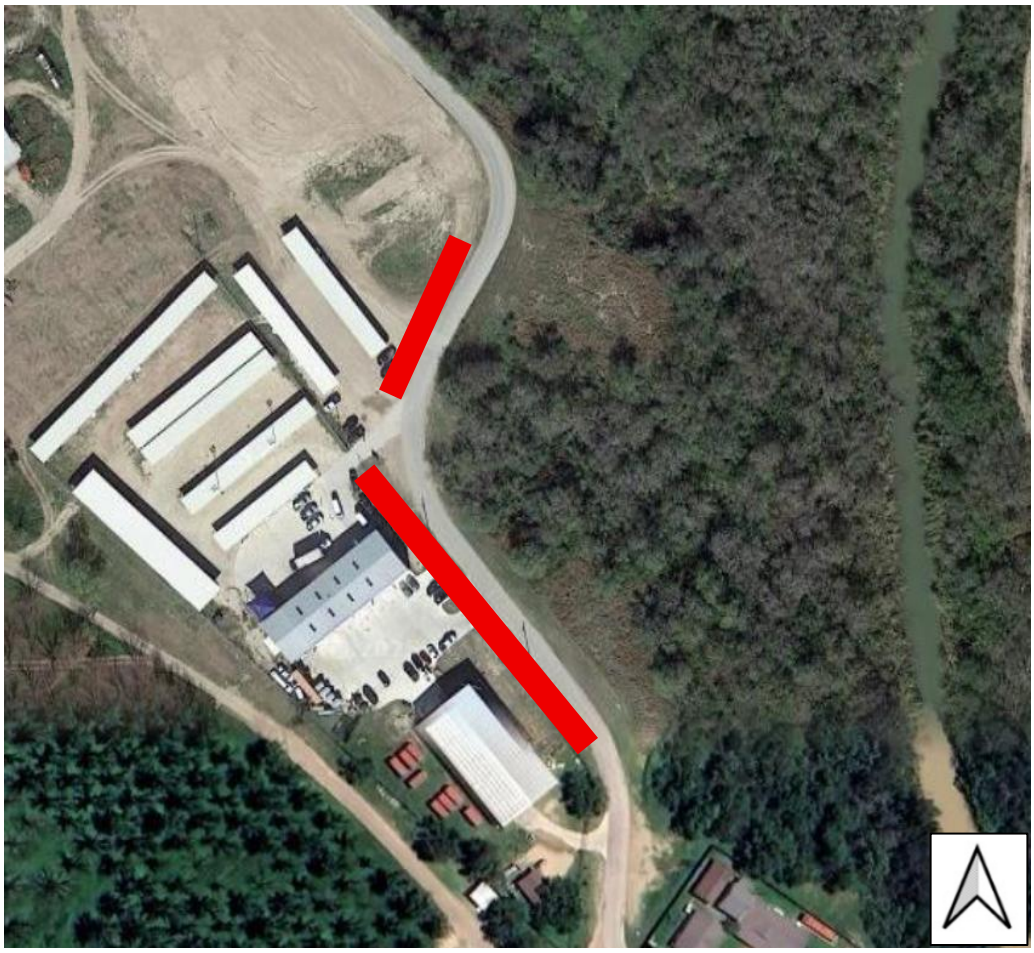
To the north and south of Rosita Valley Elementary School on Rosita Valley Road, there are damaged and non-functional flashing beacons with suspected missing school zone signs. The replacement or repair of these enhanced school zone warning signs will improve motorists' awareness of potential school-aged children in and along the roadway near the elementary school.

Rosita Valley Road damaged and missing school zone signs and flashing beacons (Source: FHWA)

Parking

Parked vehicles along Regan Street at the Transportation Department extended into the roadway, creating unsafe conditions as shown in the image below. Parking on the road narrows travel lanes and creates sight obstructions. The extent of the parked vehicles is shown in the red zones in the map below. A dedicated parking location set back from the roadway would be more appropriate.

Parking on Regan Street (Source: FHWA)



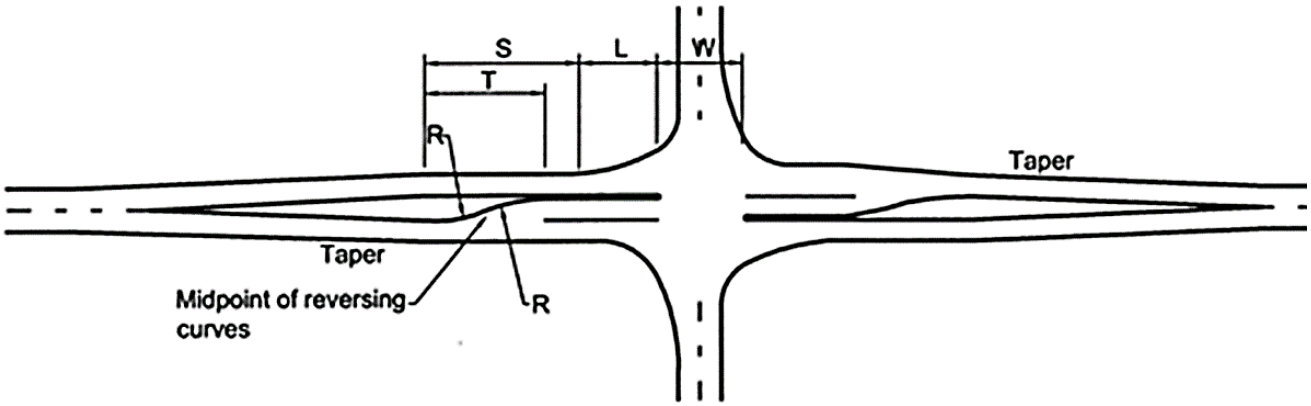
Regan Street on-street parking locations (Source: Google)

Intersections

Turn Lanes

Few turn lanes were observed at major route intersections. Some intersections on Tierra Soberana Boulevard and Rosita Valley Road appear to receive adequate traffic to justify turn lanes. Turn lanes would have the effect of reducing conflicts between turning and through traffic on the route. This conflict was noted particularly at the intersection of Tierra Soberana Boulevard and County Road 253. There is also a crash history at this intersection.

Tierra Soberana Blvd at County Road 253 looking south (Source: FHWA)

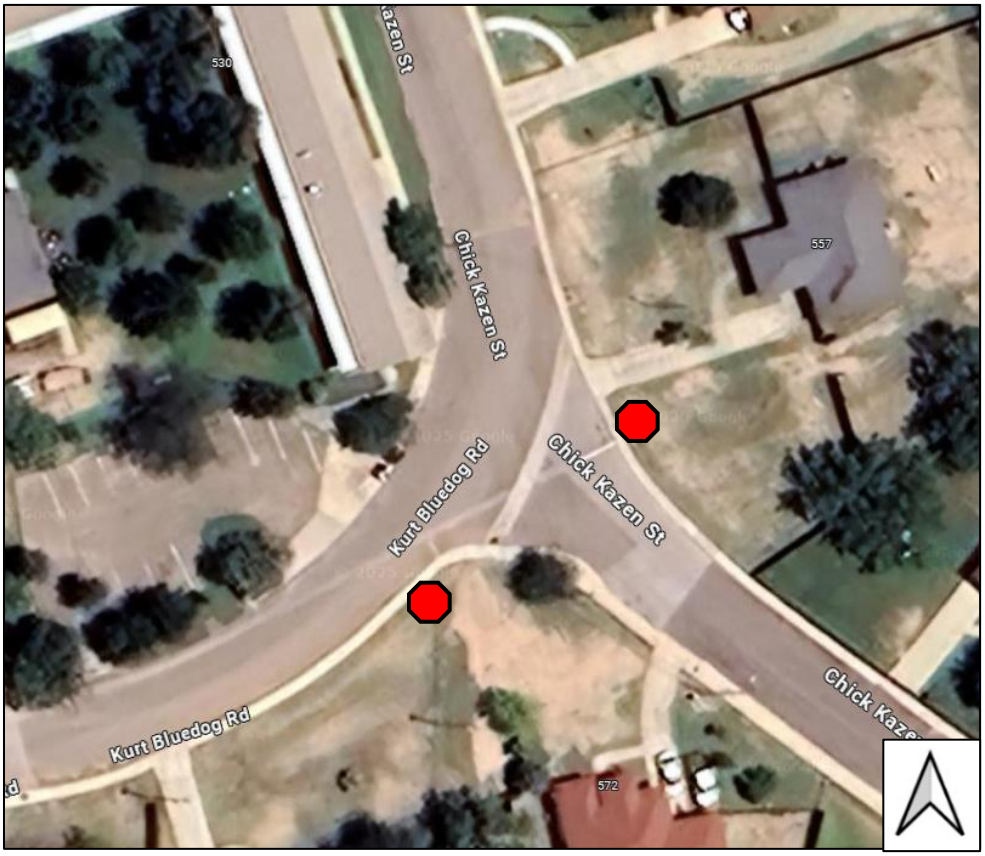


Example of intersection turn lanes (Source: FHWA-HRT-04-091, August 2004)

Intersection Sight Distance

The turning sight distance at the intersection of Kurt Bluedog Road and Chick Kazen Street appeared inadequate. The stop-controlled eastbound leg enters the intersection at a skew, with its stop sign placement back from the intersection. The presence of a building on the northwest corner limits the sight distance at the intersection. Paring is also present in the intersection on the northwest corner, further reducing sight distance when vehicles are parked. Signing of no parking

and relocating the stop signs closer to the intersection would help mitigate the sight distance deficiencies.



Aerial view of the Kurt Bluedog Road and Chick Kazen Street intersection (Source: Google)

Kurt Bluedog Road and Chick Kazen Street intersection looking northeast (Source: FHWA)

Suggested Improvements/Countermeasures for Consideration

The following table summarizes the field review observations and potential opportunities to improve safety at spot locations and systemically. These suggested improvements/countermeasures are presented as recommendations for consideration; the road owner may also identify other effective alternative improvements and countermeasures. An engineering study should be conducted where appropriate before implementing specific countermeasures.

Table 1: Suggested Improvements/Countermeasures for Consideration

IMPROVEMENT TYPE	PROJECT LOCATION	Jurisdiction	Scope	Probable Cost*	Timeline	Priority
Markings and Delineation	Rosita Valley Rd from El Indio Hwy to Lucky Eagle Rd	County	Install centerline and edge line markings	$180,000	Near-term	Medium
Corridor Speed	Tierra Soberana Blvd from El Indio Hwy to Grass Valley Rd, Rosita Valley Rd from El Indio Hwy to Lucky Eagle Rd	County	Install speed feedback signs	$75,000	Near-term	High
	Tierra Soberana Blvd and Rosita Valley Rd	Tribe/County	Conduct targeted speed enforcement campaigns	N/A	Near-term	High
	Tierra Soberana Blvd and Lucky Eagle Dr	Tribe/County	Install speed hump warning signs (W-17) and speed hump high-visibility pavement markings	$50,000	Near-term	Medium
Pavement	Tierra Soberana from El Indio Hwy to Grass Valley Rd	County	Install paved shoulders	$12,500,000	Mid-term	Medium
	Regan Street at the Transportation Department (1,500 feet southeast of Democracy St)	Tribe/County	Install off-street parking stalls	$350,000	Long-term	Medium
School Zone	Rosita Valley Road at Rosita Valley Elementary School	County	Repair/replace existing flashing beacons and school zone signage (S1-1 and W16-9P)	$60,000	Mid-term	High
Intersections	Tierra Soberana Blvd/County Rd 253 and Tierra Soberana Blvd/Wagon Wheel Rd	County	Install turn lanes	$270,000 each	Mid-term	Low
	Kurt Bluedog Rd and Chick Kazen St	Tribe	Relocate stop signs closer to the intersection and install no-parking signs at the intersection	$30,000	Near-term	High
Systemic	Regan St 1,500 feet southeast of Democracy St, Rosita Valley Rd 180 feet southwest of Garcia Drive, Rosita Valley Rd 500 feet northeast of Los Guajillos St, Rosita Valley Rd 150 feet southeast of Standing Rock Ln	County	Install/replace guardrails	$150,000	Near-term	High
	Tierra Soberana Blvd, Rosita Valley Rd curves	County	Install roadway delineators and curve chevron signs (W1-8)	$45,000/curve	Mid-term	High
	Rosita Valley Rd from El Indio Highway to Standing Rock Lane	County	Street lighting	$2,200,000	Long-term	Low

*Cost estimate values are planning level and are approximations intended to provide an idea of the magnitude of the cost of the countermeasure(s). Costs originate from comparable recent project estimates nationally.