

Communities of La Cienega & La Cieneguilla Road Safety Audit Santa Fe, NM

Draft Report
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Prepared for:



Prepared By:



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EXECUTIVE SUMMARY

The following report summarizes a Road Safety Audit (RSA) conducted for the communities of La Cienega and La Cieneguilla, Santa Fe, New Mexico, on November 20, 2025. This RSA study area evaluates safety issues on eight county-prioritized roadways and other local roads. This report details the RSA scope, procedure, data analyses, field observations, and recommended countermeasures.

An RSA is a Federal Highway Administration-recognized formal process for evaluating and documenting potential road safety challenges and the recommended safety measures that benefit all road users. This RSA study aims to identify safety deficiencies and challenges for users in the public Right-of-Way (ROW), assess pedestrian operations, and investigate potential near-, medium-, and long-term safety countermeasures for the identified safety challenges in the study area. The RSA study area is shown in Figure 2.

Findings of the study yielded the following:

- The crash analysis highlights: crashes are more concentrated at major intersections and along sharp curves and winding roadways.
- Crash history indicated dark and low-light conditions are overrepresented, especially between 11 PM and 2 AM.
- Many intersections were observed to have undefined geometry and skewed intersections, which limit the sight distance and encourage non-compliant and unsafe turning maneuvers.
- Sight-lines were seen obstructed at many intersections and along the segments due to vegetation outgrowth and narrow lanes.
- Recurring speeding and egregious driving behavior were observed and can be confirmed with data analysis.
- Significant night-time visibility challenges have been observed during the field review, and there is an acute need to enhance existing delineation, especially on horizontal curves.
- There are very limited multi-modal facilities, highlighting a need to strategically plan accommodation for vulnerable road users.
- Crash history indicates that the majority of the incidents were single-vehicle, indicating a need for additional warning and roadway alignment communication with the drivers, and potentially speed-related.
- Crash history indicated two ATV crashes involving underage drivers.
- Social challenges related to DWI, vandalism, and littering have been observed within the study area, which emphasizes the need for education and awareness.

To tackle these challenges, the following central mitigation themes are included in the report:

- Resolve intersection skew and improve sight distance obstruction
- Introduce traffic calming measures to improve speed compliance in the study area
- Improve intersection illumination and roadway delineation near curves
- Improve signing, paving, and pavement marking
- Plan for VRU and multi-modal accommodations
- Provide ATV, DWI, and Littering safety education services to the community

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INTRODUCTION

RSA PROCESS

A Road Safety Audit (RSA) is a Federal Highway Administration-recognized formal process of evaluating and documenting potential road safety challenges and the recommended safety countermeasures benefiting all road users. An independent, multidisciplinary RSA team conducts this study based on a holistic observation of crash patterns and safety challenges during field reviews. Throughout the process, the RSA team can successfully recognize and recommend countermeasures to ameliorate the safety challenges observed in the field. Figure 1 shows the process and procedural flow used for this RSA.

The La Cienega and La Cieneguilla RSA team comprises engineers, safety experts, transportation planners, and law enforcement. Table 1 lists the members of the RSA team for this study.

Table 1: La Cienega and La Cieneguilla RSA Team

TEAM MEMBER	ORGANIZATION
Carrie Tremblatt	Santa Fe County, Growth Management Department
Marvelous Echeng	Santa Fe County, Growth Management Department
Ryan Ward	Santa Fe County, Public Works
Gary (Brett) Clavio	Santa Fe County, Growth Management Department
Leah Yngve	MPO
Phil Rowe	Transportation Advisory Committee
Daniel Goodman	Las Golondrinas
Kyle Elliot	Santa Fe County
Kayla	NMDOT
Jose Villegas	La Cienega Community member
Chris	NMDOT

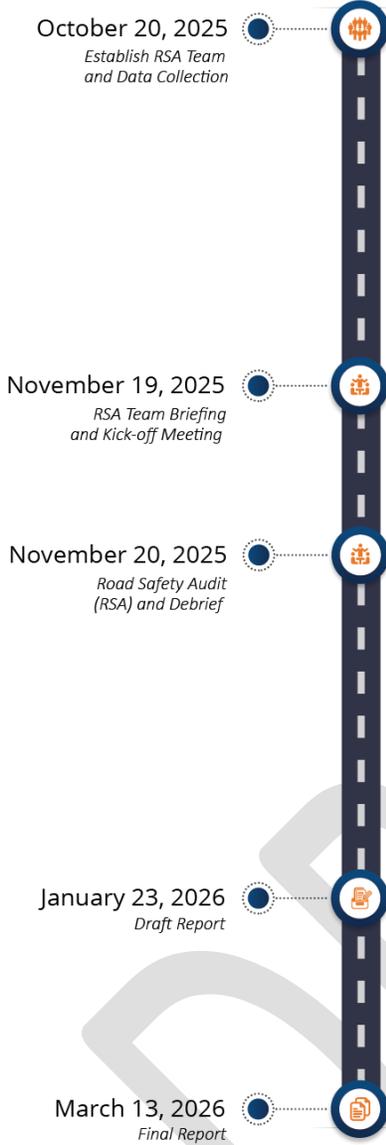


Figure 1: RSA Procedure and Schedule

PURPOSE OF THE RSA, LA CIENEGA & LA CIENEGUILLA, SANTA FE, NM

The Santa Fe County (SFC) strives to provide a safe and efficient transportation system for all road users on SFC’s roads. The SFC contracted Lee Engineering (LEE) to evaluate the safety of eight (8) roadways in the communities of La Cienega and La Cieneguilla for the traveling public. These roads are mostly two-lane rural roadways that serve as a vital link for the residents of these two communities and also support mobility for significant visitor traffic accessing the landmarks and attractions within the communities. Some known safety issues along these roadways include speeding, a lack of pedestrian and bicycle facilities, sharp horizontal curves, and sight-distance issues at driveways and intersections. This RSA aims to identify safety deficiencies along the study corridor, focusing on intersection safety, access, lighting, and multimodal safety, and recommend near-, mid-, and long-term countermeasures for the observed safety challenges, considering the limited right-of-way (ROW) availability and the community’s desire to maintain rural character and value their traditional land use practices.

RSA STUDY AREA

The study area is located in La Cienega, Santa Fe County, NM. The study area comprises eight (8) roadways. Figure 2 shows the study corridors and field review area.

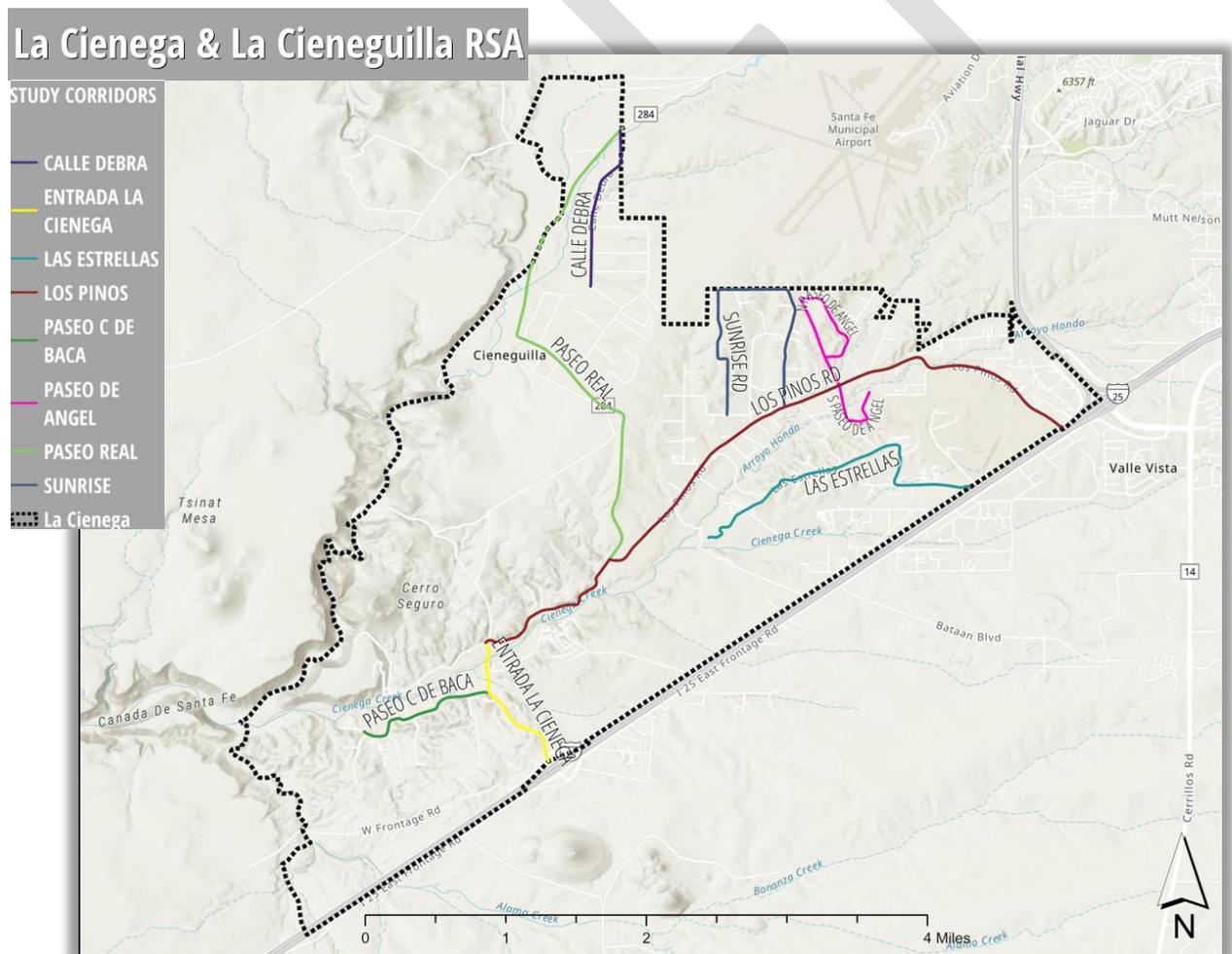


Figure 2: Study Corridor

Demographics and Socioeconomic Profile

Demographic, socioeconomic, and transportation mode choice data describing La Cienega (including La Cieneguilla community), Santa Fe County, and New Mexico are summarized in Table 2 (Source: American Community Survey 2022 5-Year Estimates). This data is sourced from the United States Census Bureau. The La Cienega community's population is younger and slightly less affluent than the populations of Santa Fe County. La Cienega is comparable to the state of New Mexico (NM) in terms of median age; however, it is more affluent than NM. It comprises a larger proportion of Hispanics than the rest of Santa Fe County and marginally less than the State. Furthermore, the La Cienega has a high proportion of households without a vehicle, and the mean travel time to work is approximately 14 miles further than that of Santa Fe County and NM residents.

Table 2: Selected Demographic and Socioeconomic Data

	La Cienega	Santa Fe County	New Mexico
Population	3,780	155,175	2,114,768
Median Age	38	48.5	39.2
Median Household Income	\$68,676	\$74,689	\$62,125
Employment Rate	52.4%	46.4%	53.5%
Hispanic or Latino	78.5%	48%	48.2%
American Indian	3.23%	0.7%	10%
Percent of Population with a Disability	-	15.5%	16.7%
Rate of Households without a Vehicle	2.34%	1.58%	5.7%
Mean Travel Time to Work (minutes)	24.6	23.3	23.2

Several factors, including physical ability, financial situation, personal preference, and commute time and distance, influence individual's mode choice of individuals within a population. Table 3 shows individuals' primary mode of transportation to work in the La Cienega (including La Cieneguilla community), Santa Fe County, and New Mexico (Source: American Community Survey 2022 5-Year Estimates). The proportion of residents whose primary mode is a motor vehicle (Drove Alone) is slightly lower than the State and higher than Santa Fe County however, carpooling is higher in La Cienega than in Santa Fe County and the State. Walking and/or cycling is much less common in La Cienega than in Santa Fe County and the State.

Table 3: Means of Transportation to Work

Transportation Mode	La Cienega	Santa Fe County	New Mexico
Drove Alone	73.1%	69.7%	75.1%
Carpooled	12.9%	8.65%	9.6%
Public Transit	0.6%	1.4%	0.7%
Bicycle	0.0%	0.7%	0.5%
Walked	0.1%	2.0%	2.0%
Other	0.1%	0.5%	1.2%
Worked at Home	8.61%	17%	11.0%

PREVIOUS AND CONCURRENT STUDY EFFORTS

This section comprises summaries of previous studies and planning efforts in the study area. At the time of this RSA, there were no concurrent study efforts.

Santa Fe County La Cienega and La Cieneguilla Plan Update (2015) - This plan identifies safety issues within the LCLC community. These include narrow, winding roads that do not have adequate shoulders and a lack of pedestrian and bicycle facilities. Crashes in low-light conditions are articulated, putting an emphasis on lighting and visibility. Included in this plan is an analysis of the intersection geometry and the lack of ADA compliance. Community members are looking for cost-effective countermeasures that will increase safety on the roadways and pedestrian facilities.

2025 La Cienega/La Cieneguilla Communities Plan (2025) – This is an updated version of the 2015 plan update. It acknowledges the community is served by narrow winding roads. The plan hopes to balance growth and safety while preserving the cultural context of La Cienega. The plan aims to revisit past goals and strategies and produce development standards. The 2025 plan acts as a guide for residents and stakeholders to shape how roads, safety, water, housing and land is managed in La Cienega.

Santa Fe Complete Streets (2022) – This resolution states that the City of Santa Fe, Santa Fe and the Santa Fe MPO (SFMPO) partners are committed to designing roadways in compliance with Complete Streets principles before funding or approval. This will shift the focus toward pedestrian and bicycle infrastructure, along with traffic-calming features. Complete Streets prioritizes the use of multimodal features to be installed in roadways. The adoption of complete streets is meant to reduce crash rates and improve overall safety for vulnerable roadway users.

NCRTD Long Range Strategic Plan 2023 - This plan sets a 20-year vision to expand and improve public transit across the 10,000-square-mile service area in north central New Mexico with emphasis on sustainability, efficiency, and financial responsibility. Additionally it features transition to a zero-emission fleet, enhancing rural and micro transit services, and developing high-frequency connections like bus rapid transit between major hubs such as Taos, Española, and Santa Fe.

Santa Fe County Sustainable Growth Management Plan (SGMP) (2015) – The SGMP emphasizes maintaining narrow, rural roads, focusing on safety rather than speed. The report aims to implement safety improvements without capacity expansion. The report also supports an integrated, countywide trail and bike network to improve connectivity to key destinations. SGMP looks to maintain the rural character of the roadways while also improving safety by analyzing safety, limited sight distance, and high crash potential. This plan puts increased emphasis on maintaining the rural character of LCLC, while increasing connectivity to Santa Fe without becoming a pass-through corridor.

SFMPO Local Road Safety Plan (LRSP) (2022) – LRSPs are SFMPO sponsored safety plans that look at substantially reducing traffic fatalities on local roads. An analysis of crash data from 2015-2019 is included within this report, which found that during that period, 2,852 crashes resulted in injury, and 109 crashes had one or more fatalities. This analysis also found 85% of serious crashes happened on 7% of the roadway network. This report makes suggestions to conduct RSAs on the streets that are determined to be high risk and make upgrades that will lead to improved safety. Finally, the report aims to reduce fatalities and serious injuries on local roads by 50% by 2027.

Santa Fe County Traffic Calming Resolution (2013) – The Santa Fe County Resolution formally adopts the county's traffic calming policy, creating an official process for residents to request safety measures on county-maintained local roads. The resolution reestablishes a structured framework for evaluating speeding, cut-through traffic, and neighborhood safety concerns. This resolution assures that emergency service access, snow removal, and utility maintenance will be considered in implementing

safety measures. Overall, the resolution allows citizens to formally request traffic calming and consider rural roads when investigating mitigation.

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EXISTING CONDITIONS

ROADWAY SEGMENTS

Los Pinos Road is an SFC-maintained roadway classified as a minor collector with one lane in each direction. In the study area, the road runs approximately northeast-southwest for most of its length before its alignment transitions to northwest-southeast near its intersection with the I-25 frontage road. Los Pinos Road runs approximately 3.4 miles within the study area. Curb, gutter, shoulder, and sidewalk are limited on the roadway.

Paseo Real Road is an SFC-maintained roadway classified as a major collector and is also known as Santa Fe County Road 56. Paseo Real Road runs approximately 6.08 miles from central La Cienega, heading north and east, through the community of La Cieneguilla and around the Santa Fe Regional Airport. Within the study area, curb, gutter, and sidewalks are not present along the roadway.

Entrada La Cienega Road is an SFC-maintained, two-lane roadway, classified as a major collector. In the study area, the road runs approximately northwest-southeast for most of its length. Entrada La Cienega road runs approximately 1.16 miles within the study area. Facilities are limited on the roadway. Curb, gutter, and sidewalk are absent on the roadway.

Calle Debra Road is an SFC-maintained, two-way local road. In the study area, the road runs approximately north-south for most of its length, with two slight bends on the northern section. Calle Debra road runs approximately 1.16 miles within the study area. Facilities are limited on the roadway.

Las Estrellas Road is an SFC-maintained roadway classified as a local road. In the study area, the road overall runs east-west, meandering through residential areas. Notably, is a quarter-mile jog to the north, including two sharp corners. Las Estrellas Road runs approximately 1.81 miles within the study area. Facilities are limited on the roadway. No curb, gutter, or sidewalk exists on the roadway.

Pso C de Baca Road is an SFC-maintained two-lane roadway classified as a local road. In the study area, the road runs approximately east-west for most of its length. Paseo C De Baca Road runs approximately 1.01 miles within the study area. Curb and gutter are not present on the roadway.

Paseo De Angel Road is an SFC-maintained roadway classified as a local road. In the study area, the road runs northwest-southeast for the majority of the roadway. On the northern section of the roadway, Paseo De Angel makes a loop that feeds back into itself. Along most of its length, the roadway is unpaved. Paseo De Angel Road runs approximately 1.9 miles within the study area. Curb, gutter, and sidewalk do not exist on the roadway.

Sunrise Road is an SFC-maintained roadway classified as a local road. Starting from the southeast section of the roadway, Sunrise Road runs north-south, before hooking left to run east-west, then making another left turn to run approximately north-south. Sunrise Road runs approximately 2.18 miles within the study area. Curb, gutter, and sidewalk are absent on the roadway.

STOP-CONTROLLED INTERSECTIONS

Los Pinos Road & I-25 Frontage Road is a three-legged, minor stop-controlled intersection between two minor collectors. The west approach (Los Pinos Road) is stop-controlled and consists of a single unmarked lane for both left and right turns. The north approach has one through lane and one right turn lane. The south approach has one through lane. No marked pedestrian crossings or curb ramps are present.

Las Estrellas & I-25 Frontage Road is a three-legged, minor stop-controlled intersection between a local road and a minor collector. The Las Estrellas, eastbound, is stop-controlled and features a single, but wide, unmarked lane for both left- and right-hand turns. The southbound approach of the I-25 Frontage has one through lane and one right-turn lane. The northeast approach has a single lane for left turns or straight-ahead traffic. An off-road trail/path exists on the north side of the I-25 Frontage Road. No curb ramps are present.

Paseo Real & Los Pinos Road is a three-legged, minor stop-controlled intersection between a major collector and a minor collector. Los Pinos form east and south legs at the intersection. The westbound approach is stop-controlled and consists of a single unmarked lane for both left and right turns. Both the north and south approaches have one through lane. No marked pedestrian crossings or curb ramps are present.

Paseo Real & Calle Debra is a three-legged, minor stop-controlled between a major collector and a local road with skewed geometry. The south approach is stop-controlled and consists of a single unmarked lane for both left and right turns. Both the northeast and southwest approaches have one through lane. No marked pedestrian crossings or curb ramps are present.

Paseo Real & Paseo De Canon is a three-legged, minor stop-controlled intersection with a skewed geometry between a major collector and a local road. The south approach is stop-controlled and consists of a single unmarked lane for both left and right turns. Both the east and west approaches have one through lane. No marked pedestrian crossings or curb ramps are present.

Los Pinos Road & Paseo De Angel is a four-legged, two-way stop-controlled intersection between a minor collector and a local road. The northwest and southeast approaches are stop-controlled with a single unmarked lane. Both the east and west approaches have one through lane. No marked pedestrian crossings or curb ramps are present.

Los Pinos Road and Sunrise Road is a three-legged, minor stop-controlled intersection between a major collector and a local road. The south approach is stop-controlled and consists of a single unmarked lane for both left and right turns. Both the east and west approaches have one through lane. Centerline striping terminates near the west leg (Los Pinos Road). No marked pedestrian crossings or curb ramps are present.

Entrada La Cienega & Los Pinos Road/Cam Capilla Vieja is a three-legged, all-way stop-controlled intersection between two minor collectors and a local road. Each leg has the option to turn right or left. All legs are marked with a stop bar. No pedestrian facilities or curb ramps are present.

Entrada La Cienega & Paseo C De Baca is a three-legged, all-way stop-controlled intersection between a minor collector and a local road. The west leg has a single lane for left and right turns. The southbound approach has a single lane, with a choice to go straight or right. On the northbound approach, one lane to either turn left or continue straight. All legs are marked with a stop bar, but no arrow markings exist. No pedestrian facilities are present.

ZONING

According to the Santa County zoning map, La Cienega and La Cieneguilla are designated as a County Rural Area Zone. However, land use within this area appears to vary, with predominantly rural residential development, with few areas identified for planned development. Minimal concentration of commercial land uses is observed. The surrounding areas include federal and state lands.

TRANSIT

'MyBlue, an on-demand transit service exists and it serves both the communities of La Cienega and La Cieneguilla with connections to Santa Fe County hubs, including Presbyterian Medical Center, Santa Fe Place, the Fashion Outlets of Santa Fe, the NM-599 Rail Runner Station and various state facilities.

DRAFT

TRAFFIC DEMAND CHARACTERISTICS

Pneumatic Tube Counters

The project team deployed ten (10) pneumatic tube counters on the roadways that are major traffic generators. The team deployed four (4) pneumatic tube counters on Los Pinos Road, two (2) along Paseo Real, one (1) each on Entrada La Cienega, Pso C de Baca, Calle Debra, and Las Estrellas. Figure 3 shows the pneumatic tube counter locations. The pneumatic tubes collected 24 hours of traffic data on Tuesday, October 21, 2025. Traffic data provides insight into motor vehicle speed, class, and traffic volumes. The data indicates the Average Daily Traffic (ADT) ranging between 569 and 4,278 vehicles daily, with a fairly even directional distribution. Figure 3 shows the data collection location sites.

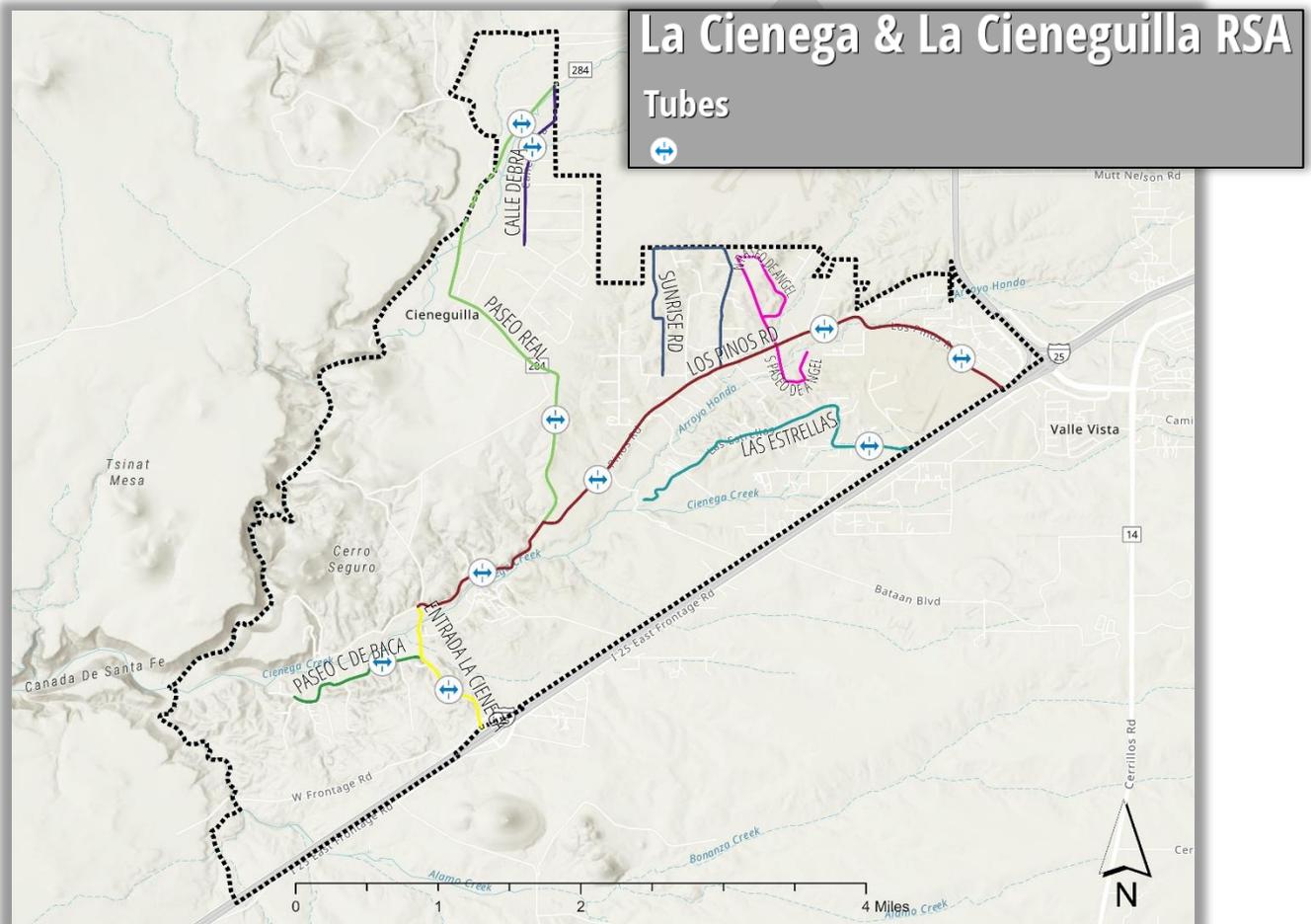


Figure 3: Pneumatic Tube Count Sites

Figure 4 through Figure 13 show bidirectional vehicle volumes per 15-minute daily period at each data collection site. Table 4 and Table 5 shows the speed profiles and vehicular classification at each data collection site.

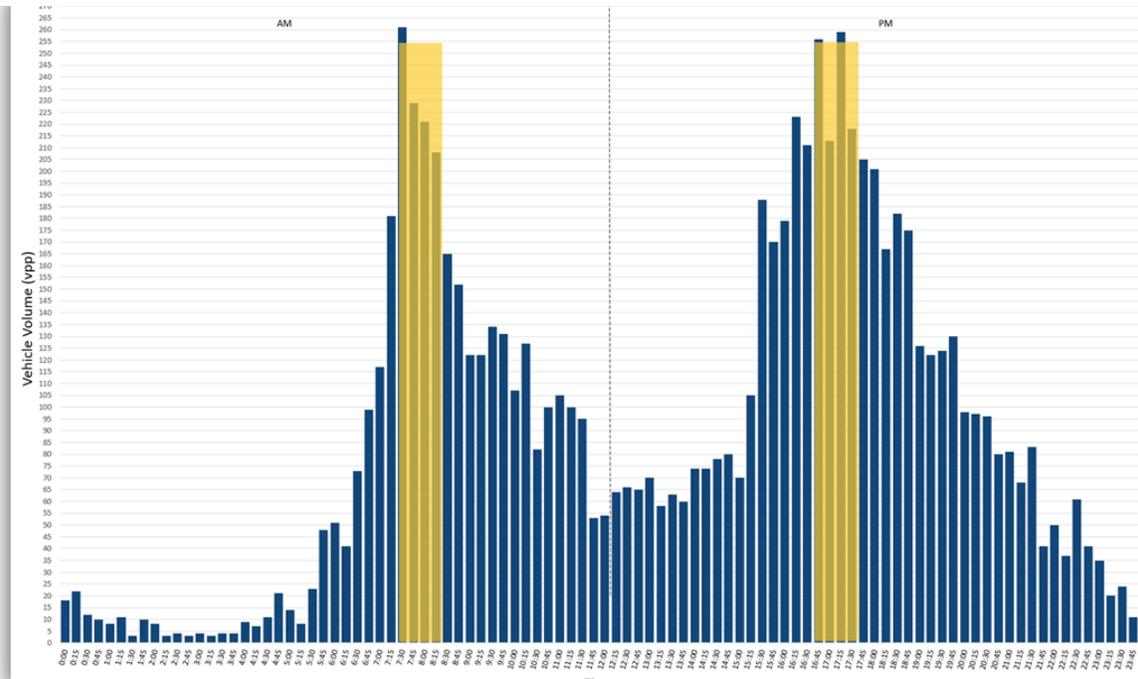


Figure 4: Bidirectional Vehicles Volumes (vpp), Los Pinos Road (Tube 1)

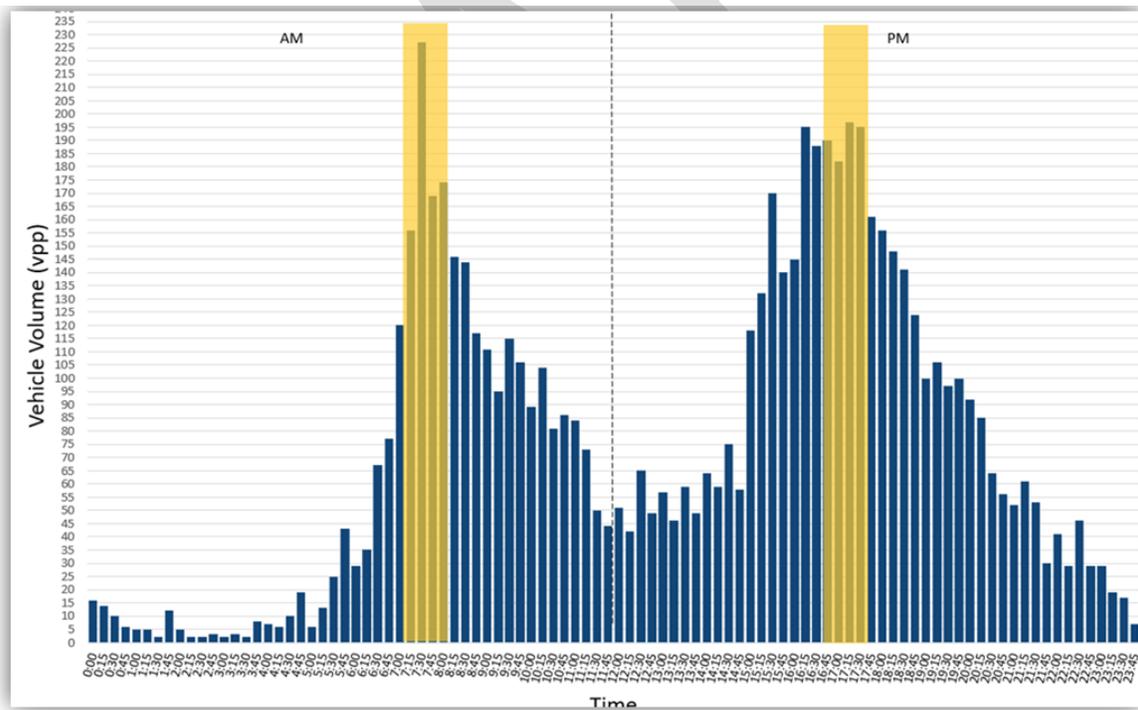


Figure 5: Bidirectional Vehicles Volumes (vpp), Los Pinos Road (Tube 2)

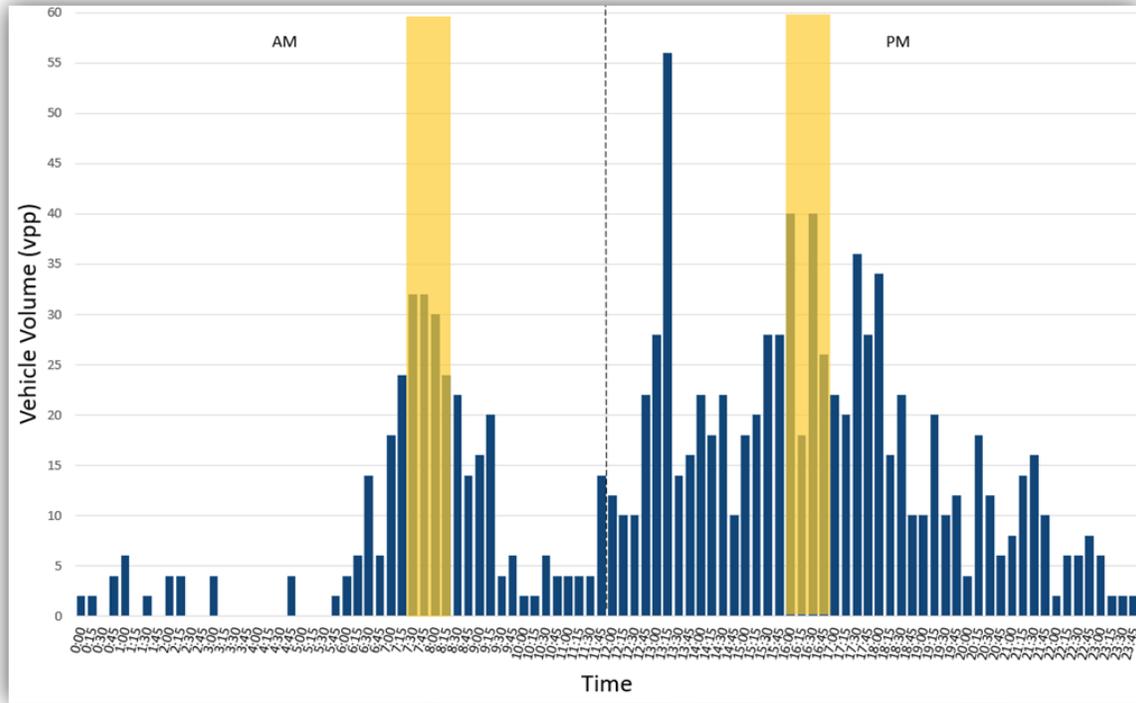


Figure 6: Bidirectional Vehicles Volumes (vpp), Paseo Real (Tube 3)

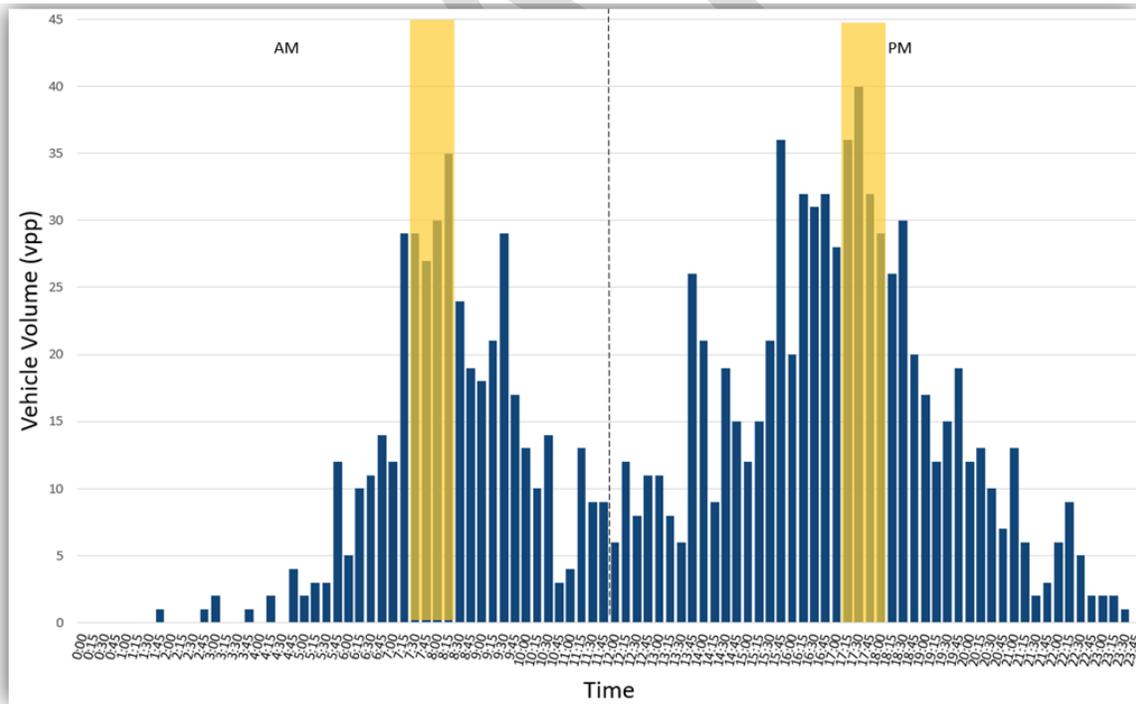


Figure 7: Bidirectional Vehicles Volumes (vpp), Calle Debra (Tube 4)

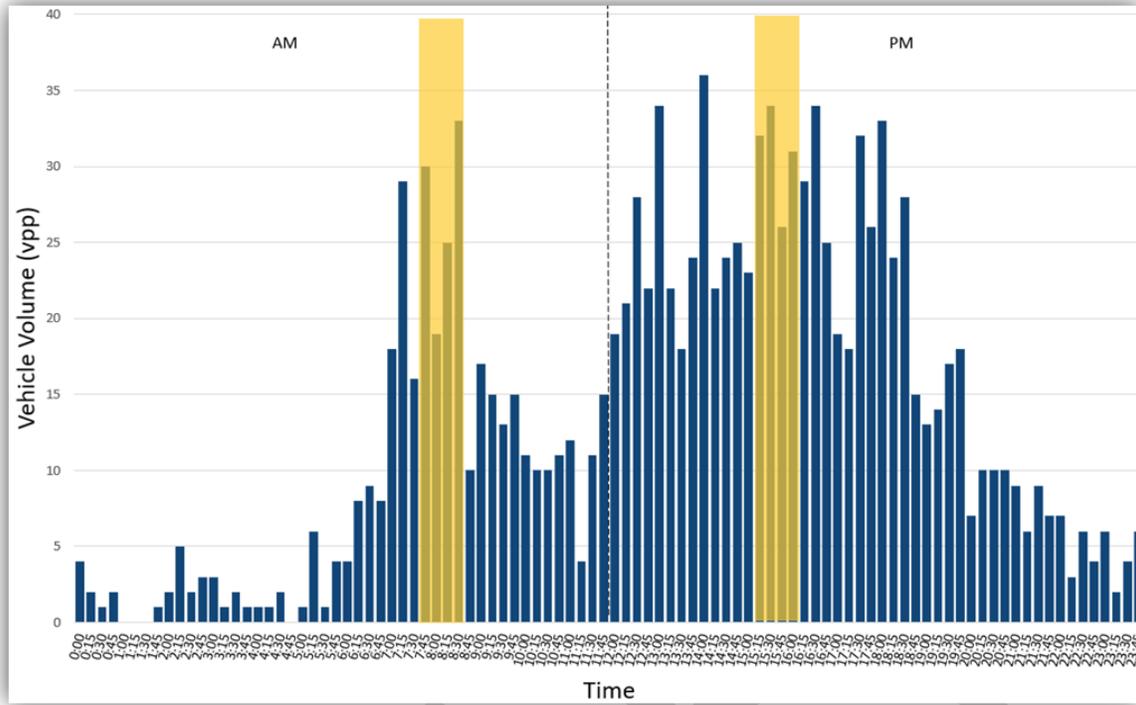


Figure 8: Bidirectional Vehicles Volumes (vpp), Los Pinos Road (Tube 5)

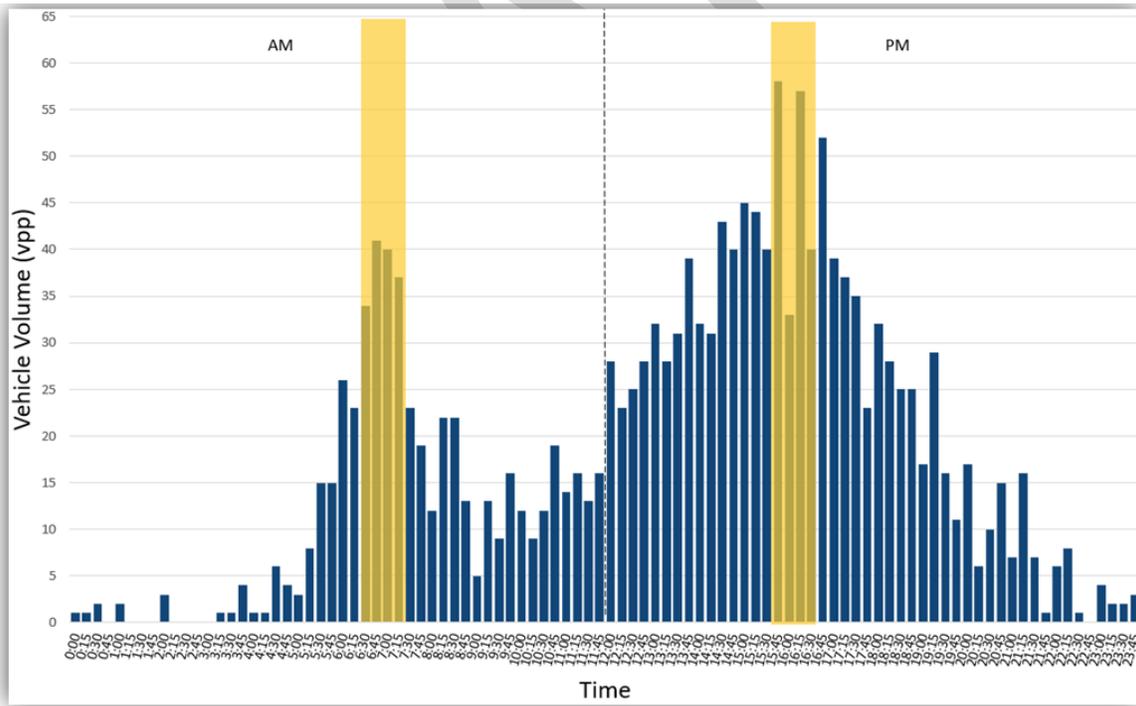


Figure 9: Bidirectional Vehicles Volumes (vpp), Paseo Real (Tube 6)

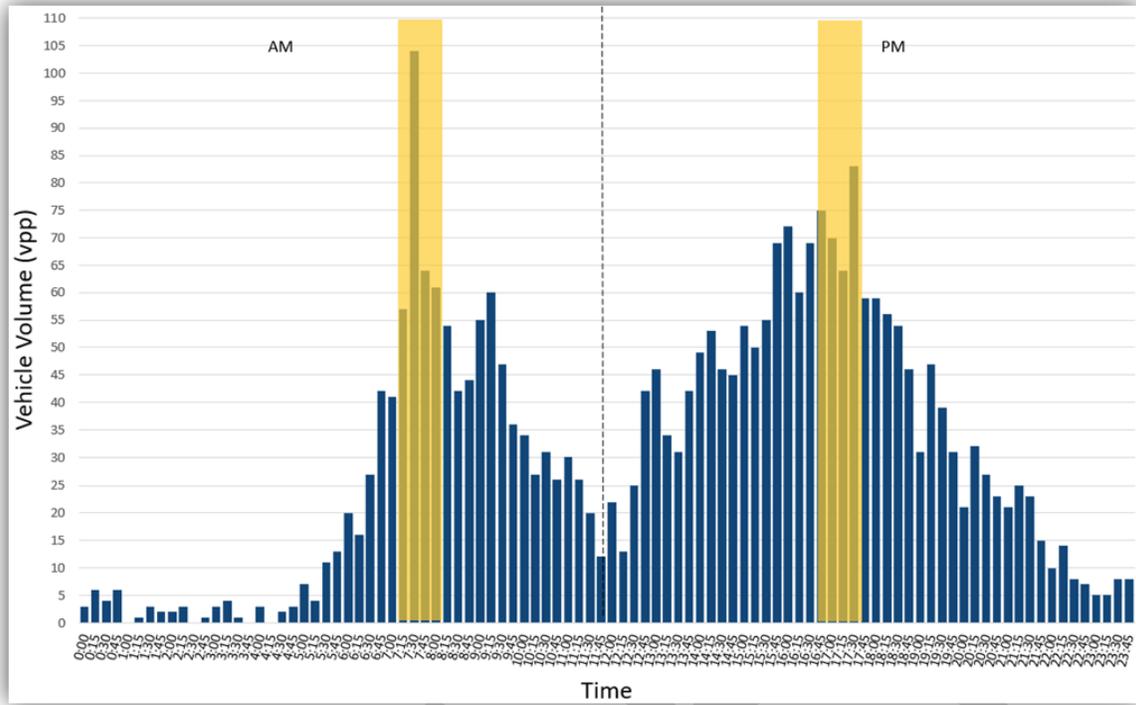


Figure 10: Bidirectional Vehicles Volumes (vpp), Entrada La Cienega (Tube 7)

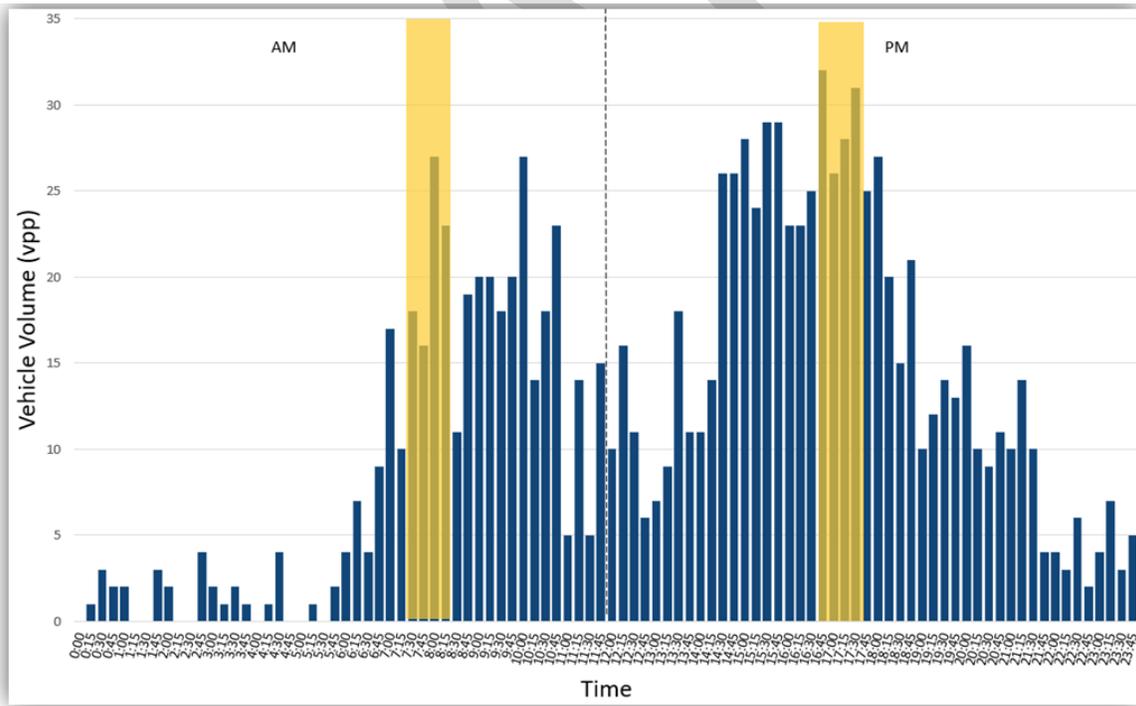


Figure 11: Bidirectional Vehicles Volumes (vpp), Los Pinos Road (Tube 8)

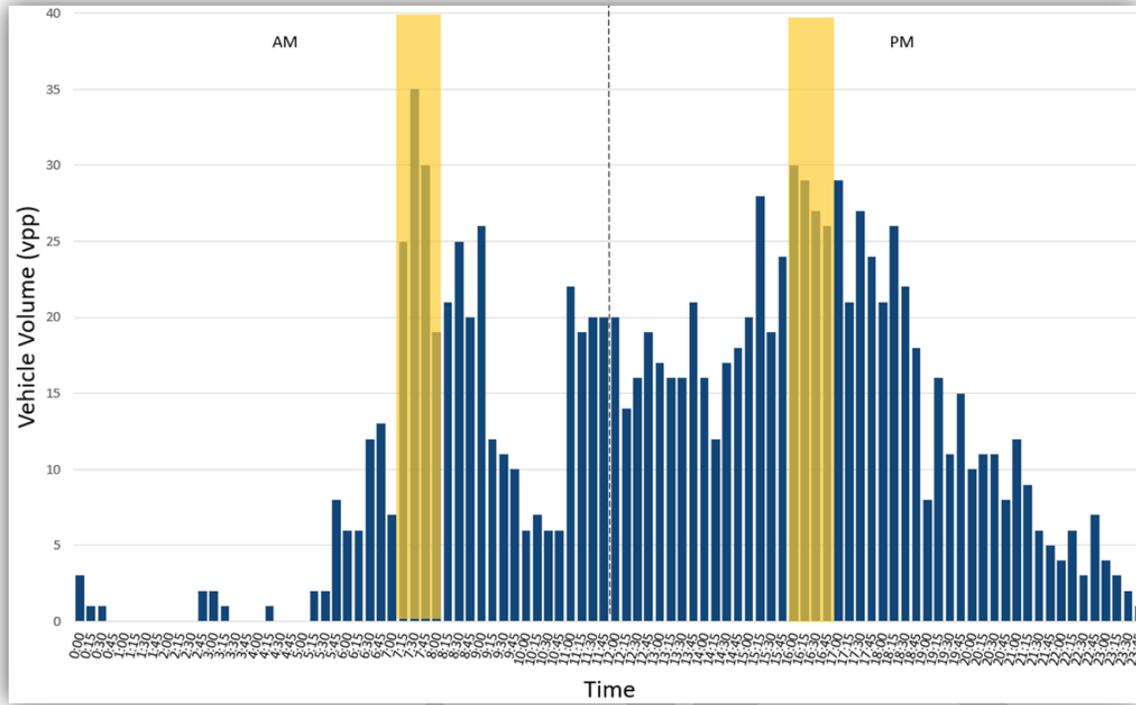


Figure 12: Bidirectional Vehicles Volumes (vpp), Paseo C de Baca (Tube 9)

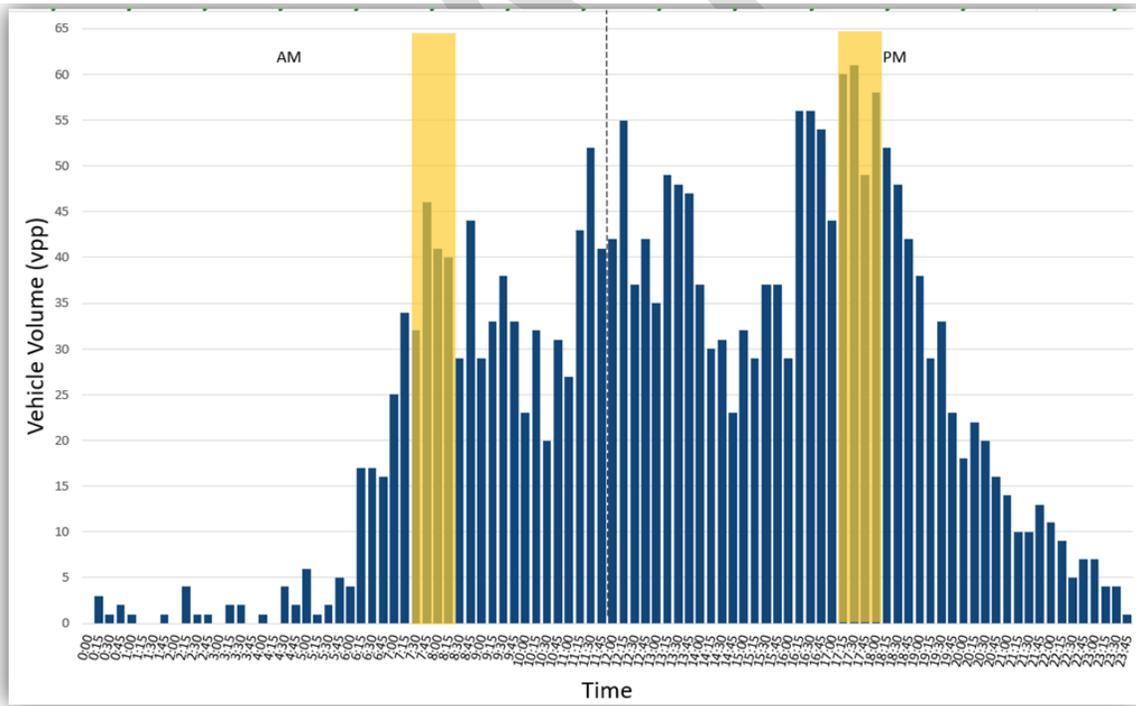


Figure 13: Bidirectional Vehicles Volumes (vpp), Las Estrellas (Tube 10)

Table 4 Speed Profiles

Tube Location	Posted Speed (MPH)	85 th Percentile Speed (MPH)	Mean Speed (MPH)
Los Pinos Road near I-25 Frontage Road	30	43.9	37.6
Los Pinos Road near Downs	30	43.7	38.2
Los Pinos Road near Ojo Resort	30	55.7	46.7
Los Pinos Road near winding curve	30	43	35.7
Paseo Real near Paseo Del Canon	25	55.2	46.7
Paseo Real near Calle Debra	45	54.8	48.5
Calle Debra	25	41.8	35.7
Entrada La Cienega	25	42.4	37.7
Pso C De Baca	25	32.1	26.7
Las Estrellas	25	41.1	34.3

Table 5 Vehicle Classification

Tube Location	Cars (%)	Pickups & Vans (%)	2 Axle, 6 Tire Single Unit (%)	Heavy Trucks (%)	Buses (%)	Motorcycle (%)
Los Pinos Road near I-25 Frontage Road	54.3	26.4	15.8	2.4	0.5	0.5
Los Pinos Road near Downs	53.8	26.4	16.7	2.4	0.4	0.4
Los Pinos Road near Ojo Resort	59.1	23.6	12	2.3	1.1	1.9
Los Pinos Road near winding curve	56.2	25.3	14.2	2.1	1.8	0.4
Paseo Real near Paseo Del Canon	54.3	25.1	15.1	2.7	0.9	1.9
Paseo Real near Calle Debra	53.1	30.3	14	1.8	0.2	0.7
Calle Debra	56.5	26	14	2.4	0.5	0.7
Entrada La Cienega	58	22.8	14.1	2.4	2.1	0.6
Pso C De Baca	51.8	24.1	19.2	3.3	1.2	0.3
Las Estrellas	51.2	29.3	16.7	2.4	0.3	0.2

Turning Movement Counts

13-hour Turning movement counts (TMC) were collected at the nine (9) intersections i.e. Los Pinos Rd & I-25 W Frontage Rd, Las Estrellas & I-25 W Frontage Rd, Los Pinos Rd & Paseo de Angel, Los Pinos Rd & Sunrise Rd, Los Pinos Rd & Paseo Real, Los Pinos Rd & Entrada La Cienega, Entrada La Cienega & Paseo C de Baca, Calle Debra & Paseo Real, and Paseo Real & Paseo del Canon from 6:00 AM to 7:00 PM on October 22, 2025. The TMC locations are shown in Figure 14. Figure 15 depicts the TMC counts collected at the nine intersection sites.

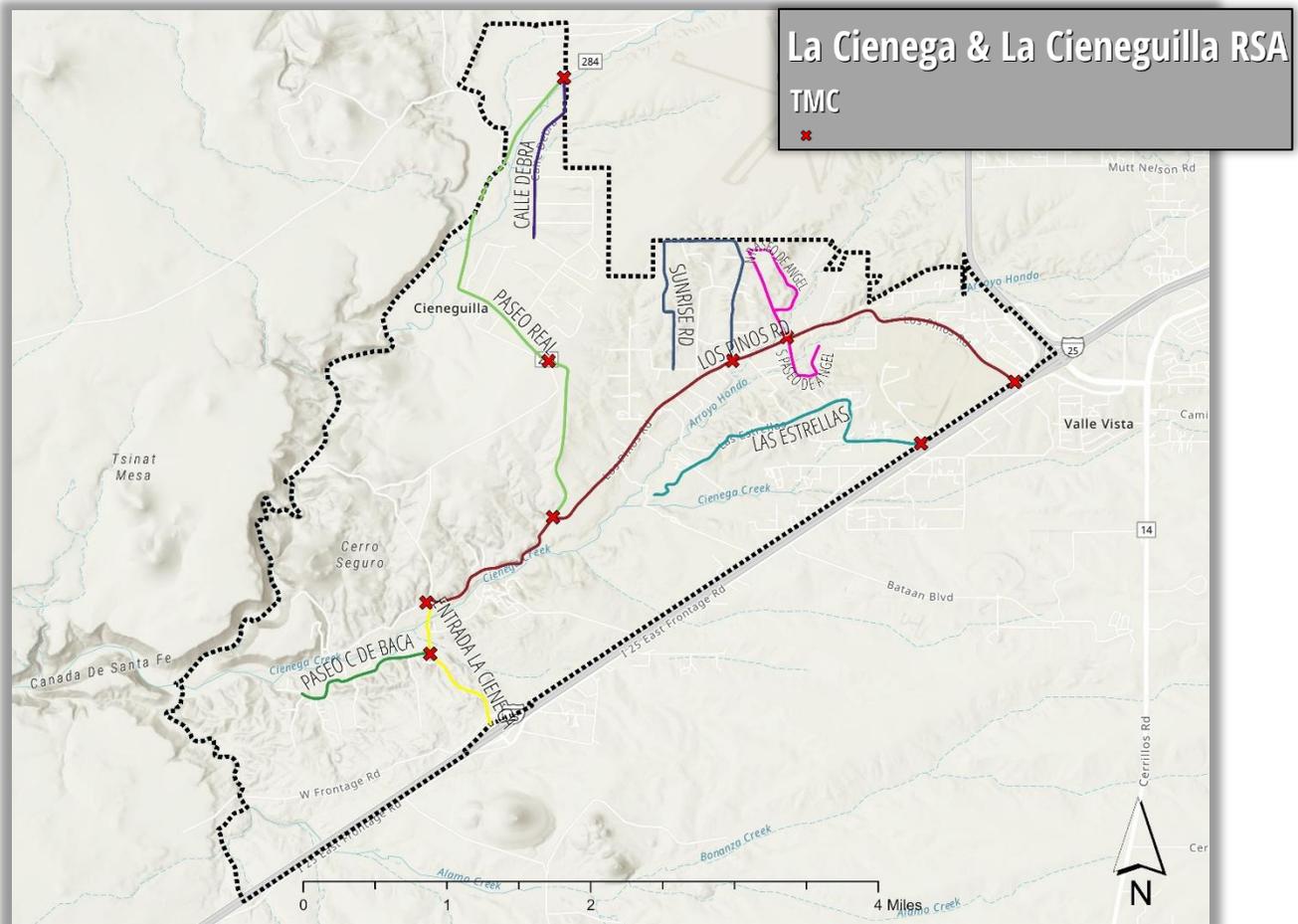


Figure 14 TMC Sites

As expected, the turning movement counts show that the heaviest traffic volumes are collected on the intersection of I-25 Frontage Road and Los Pinos Road followed by the intersection of I-25 Frontage Road and Las Estrellas. This suggests a significant number of people utilize this intersection to enter and exit La Cienega. The turning movement volumes at the intersection of Paseo de Angel and Los Pinos Road also highlight that significant amount of residential trips end at this intersection. The volume considerably decreases going west from the intersection of Paseo de Angel and Los Pinos Road. The heavier traffic going from west to the east in the study area aligns with the tube counts to the east having higher volumes than those to the west. Additionally, Table 6 summarizes the total pedestrian and bike volumes at these study locations. It includes only the intersections where pedestrian and bike volumes were recorded.

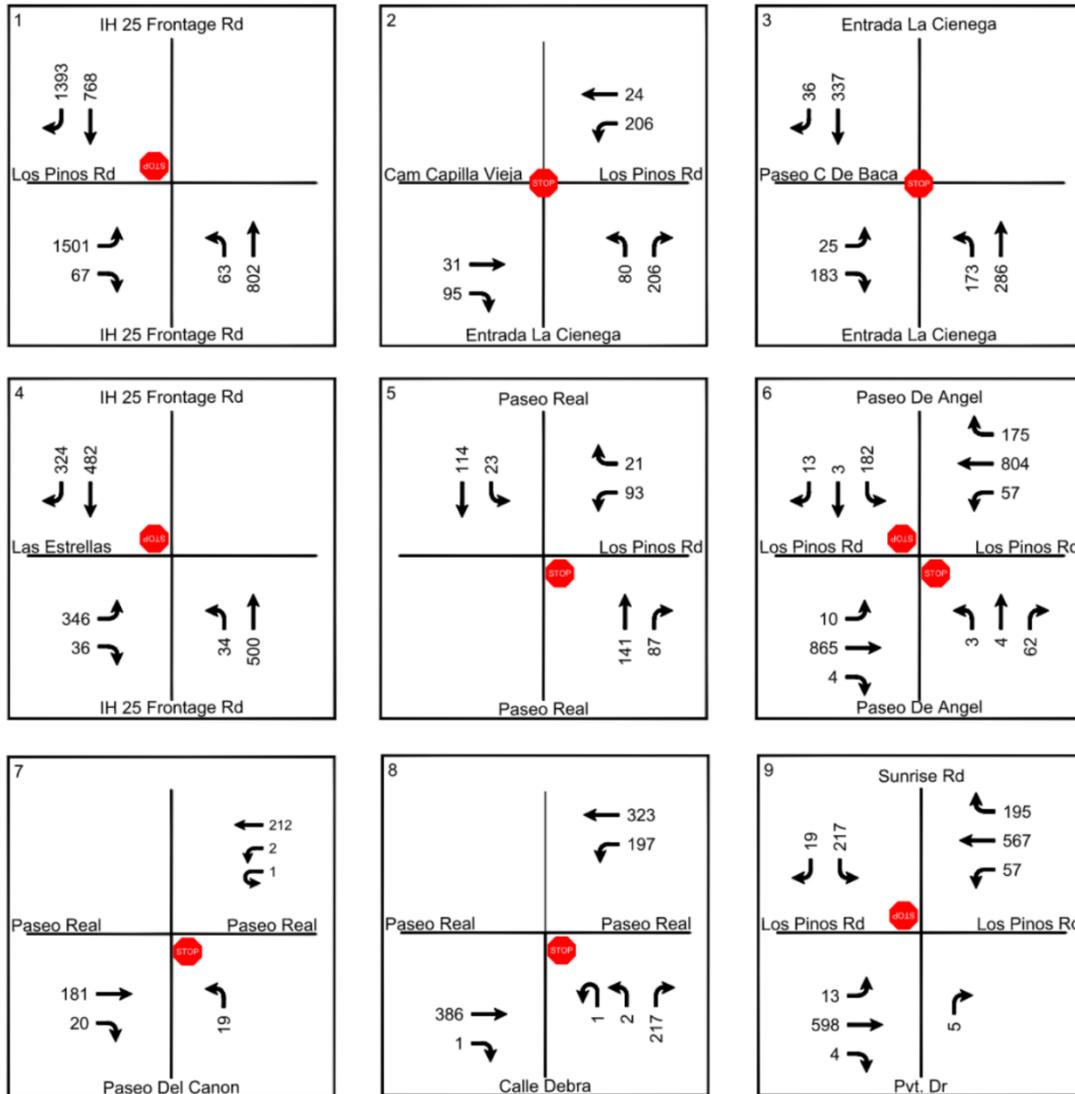


Figure 15 TMC at the study intersections

Table 6 Pedestrian and Bike Volumes at study intersections

Intersection	Ped & Bike Volume
Los Pinos Rd & IH-25 W Frontage Rd	1
Los Pinos Rd & Paseo de Angel	4
Los Pinos Rd & Entrada La Cienega	3
Entrada La Cienega & Paseo C de Baca	5
Los Pinos Rd & Paseo Real	2
Paseo Real & Paseo del Canon	3
Total	18

CRASHES

This study analyzed nine (9) years of crashes occurring in the study corridor between 2015 and 2023. Although requested, the New Mexico Statewide Traffic Records System (NMSTRS) did not provide any crashes for 2013 or 2014. The crash dataset used in this study, the most recent available at the time, contained 212 crashes. The crash data is extracted from crash reports filed with law enforcement.

Known challenges within the dataset include excluded minor crashes below property damage thresholds, unreported crashes, or near-misses. While these dataset challenges are common statewide, this study could be disproportionately affected due to its rural nature and frequency of single-vehicle crashes. Figure 16 shows a heat map of the reported crashes in the study corridor.

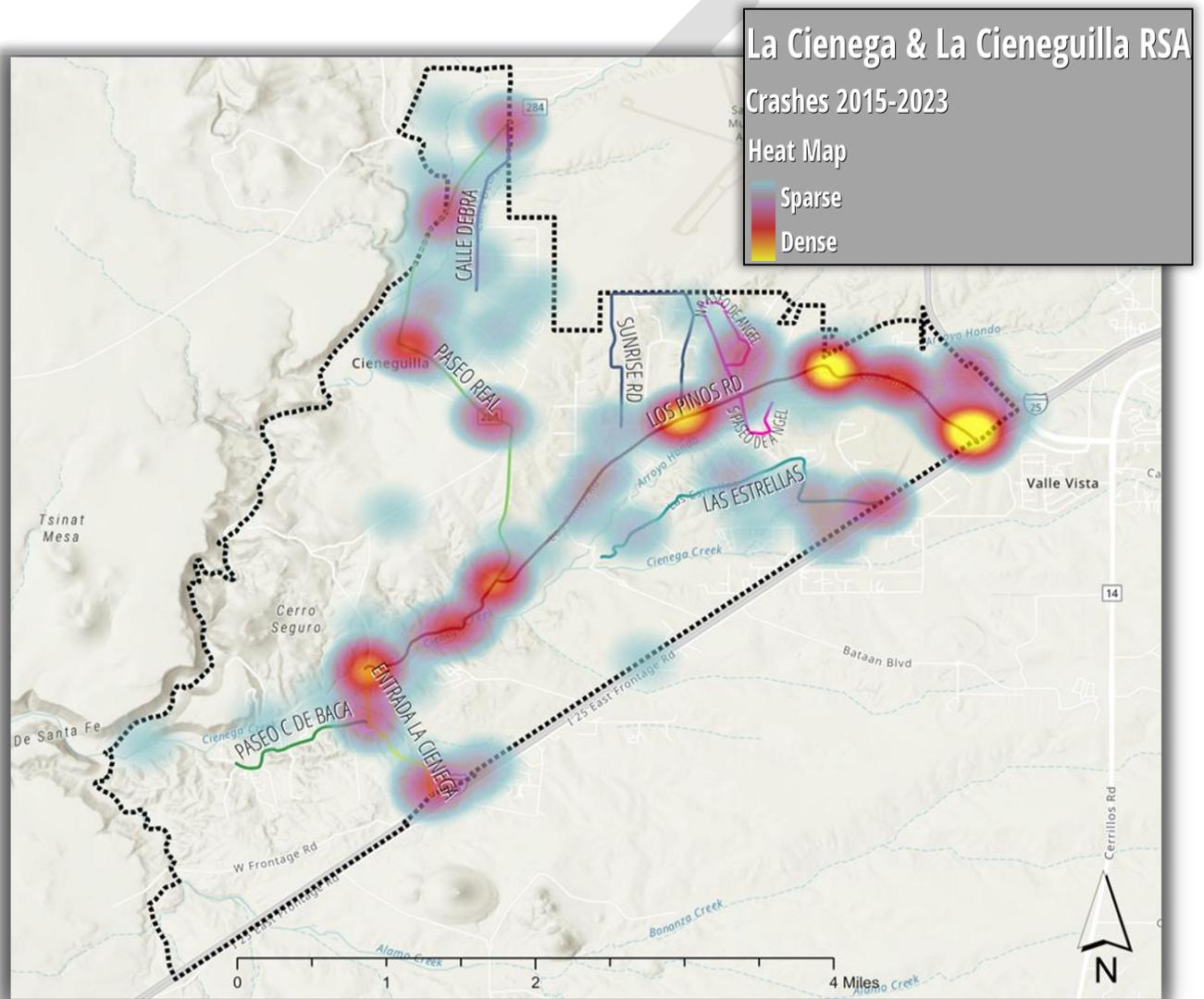


Figure 16: Crash Heat Map, 2015-2023

Crash Data Analysis

The crash data analysis presented below summarizes the crashes by severity, year, month, time of day, lighting condition, and mode.

Severity

The KABCO scale classifies crash severity in New Mexico. The letters in KABCO represent the severity of a crash:

- K – Killed (Fatal)
- A – Incapacitated (Serious Injury)
- B – Minor Injury
- C – Complaint of Injury (Suspected Injury)
- O – No Apparent Injury (Property Damage Only)

This study reviewed 9 years of crash data. During that time, 212 crashes were reported; one was Fatal (K), and 10 resulted in Serious Injury (A). Two crashes involved bicyclists or pedestrians, 33 crashes resulted in Minor Injury (B), and 137 crashes involved property damage only. Figure 17 illustrates the crashes in the study area by location and severity. Additionally, it is worth mentioning that two crashes in crashes involved underage ATV drivers and 13 involved motorcyclists.

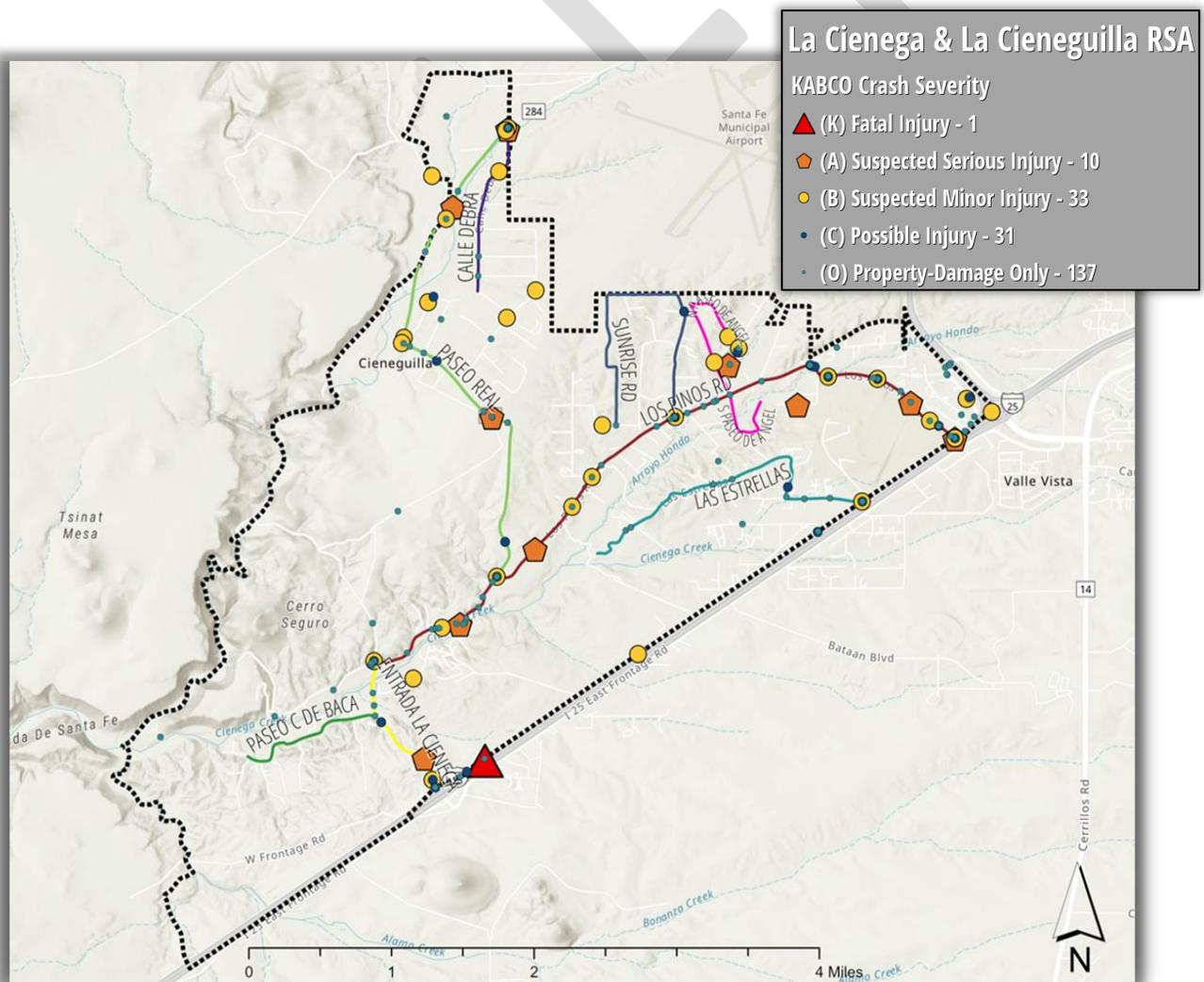


Figure 17: Crashes by Severity (N=17), 2015-2023

Year

Figure 18 summarizes the number of crashes per year by crash severity for 2015 through 2023 within the study corridor. In 2016, there was one fatal crash, and from 2018 to 2023, the number of crashes appears to have risen consistently.

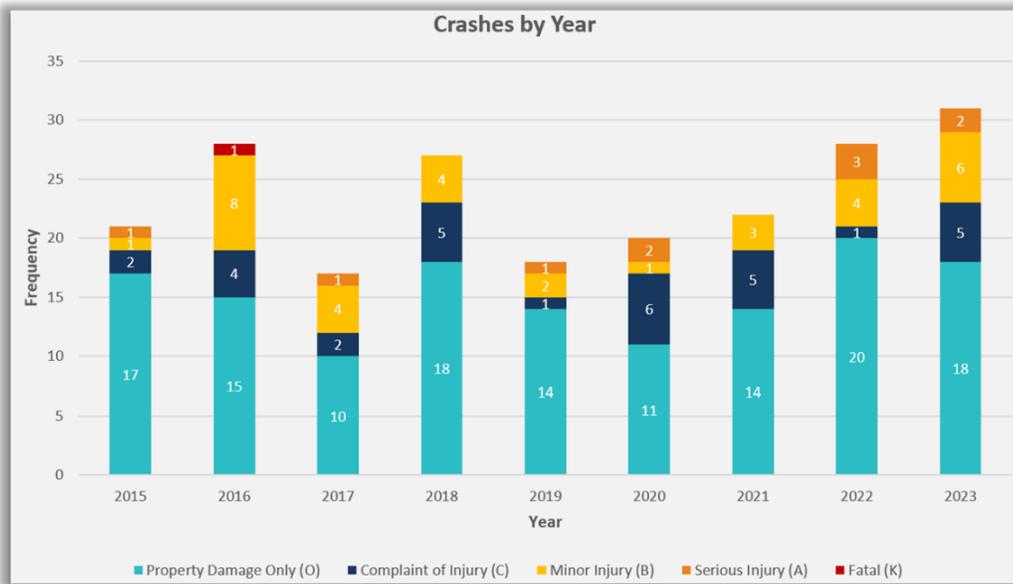


Figure 18: Crashes per year, 2015-2023

Month

Figure 19 summarizes crashes by month of the year and severity. October experienced the highest crash frequency. In general, the summer months experience higher crash frequency, possibly due to higher traffic volumes, especially around recreational attractions like Downs, Museum, and Resort in the area. January also saw more crashes, suggesting the impact of adverse weather conditions.

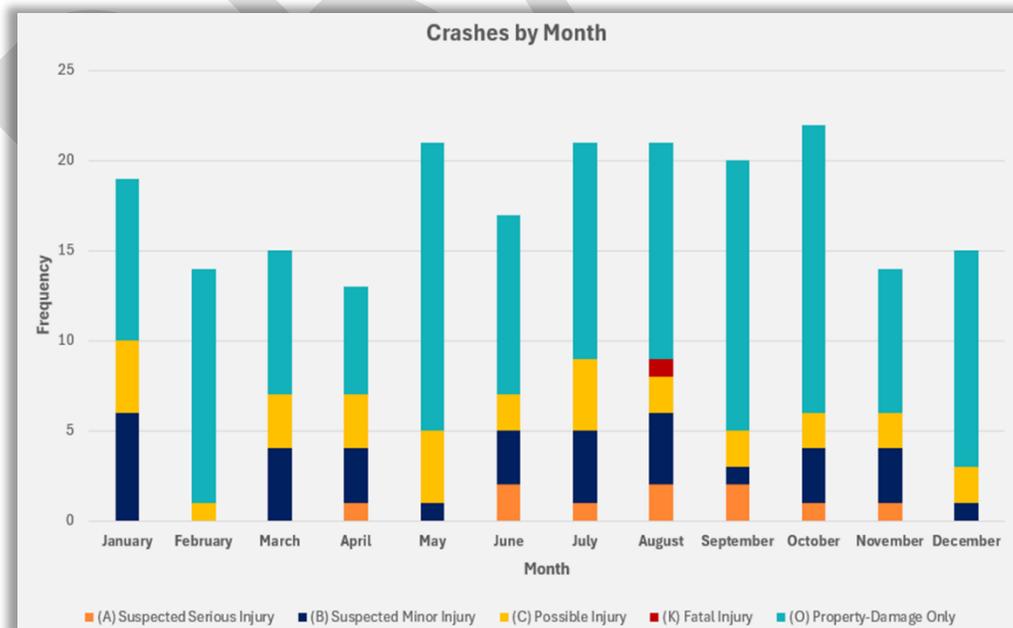


Figure 19: Crash severity by month, 2015-2023

Day of Week

Figure 20 summarizes crashes by day of the week and severity. Tuesdays experienced the highest crash frequency. In general, crashes are observed to be more as the week progresses to the weekend, highlighting higher traffic volumes.

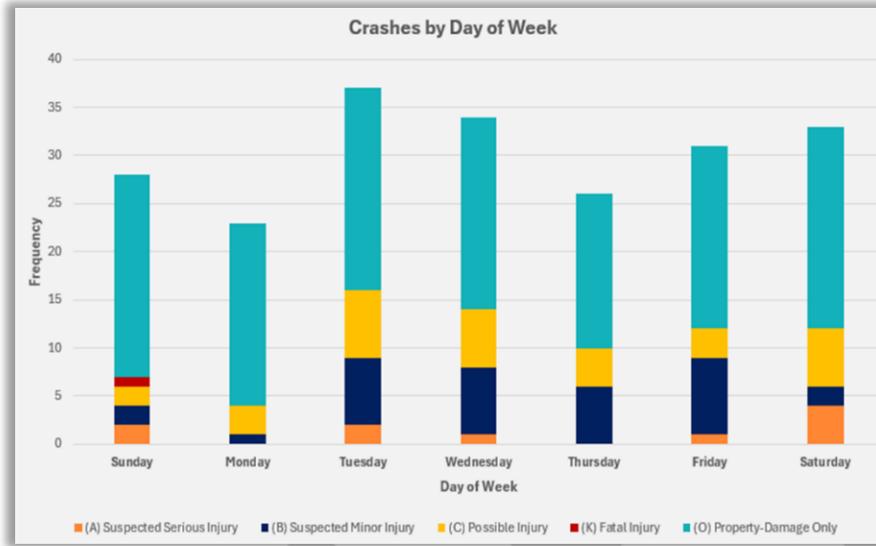


Figure 20: Crash severity by day of week, 2015-2023

Time of Day

Crashes are observed to be consistent with typical commuter peak periods, as shown by the superimposition of traffic volume trends and crash frequency (i.e., higher crash frequency during peak periods). The highest frequency is between 7:00 AM and 9:00 AM, and 4:00 PM and 7:00 PM. Conversely, despite low night-time traffic volumes, significant crashes were observed, especially between 10:00 PM and 2:00 AM. This suggests that night-time crashes are over-represented. Figure 21 summarizes crashes by time of day and crash severity.

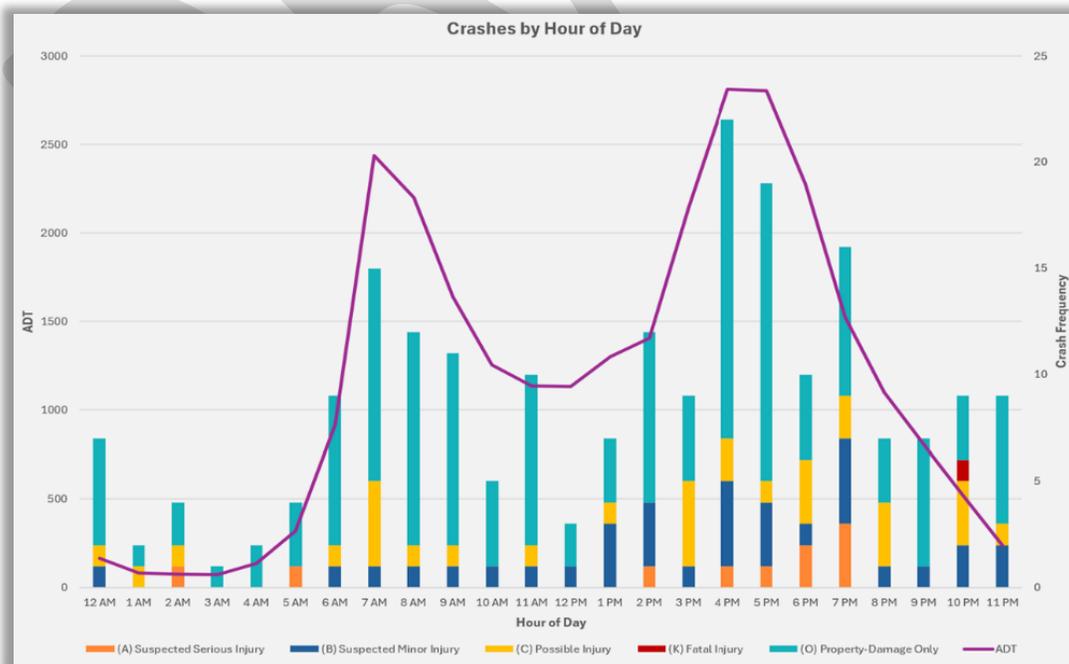


Figure 21: Crash severity by the time of day, 2015-2023

Lighting Condition

National crash data trends typically show a correlation between traffic volume and crashes during daylight and dusk/dark conditions. Simply, if 80% of the traffic volumes occur during the day, we expect 80% of the crashes to happen during the lighted conditions. When LEE compared the crash data against the traffic volume to deduce the impact of lighting conditions in the study area, we observed that daylight traffic volumes amounted to 74%, while nighttime traffic volumes constituted only 26%. However, almost 45% of crashes occurred under limited lighting conditions, with just over half of all crashes (55%) occurring during daylight. This indicates that the share of Dark-Not-Lighted crashes is disproportionate to the amount of nighttime traffic in the rural area, and lighting may be a concern within the corridor. Figure 22 depicts the proportional comparison between crashes and volumes based on daytime and nighttime, and Figure 23 represent the spatial distribution of crashes as per lighting condition, overlaid with a heat map.

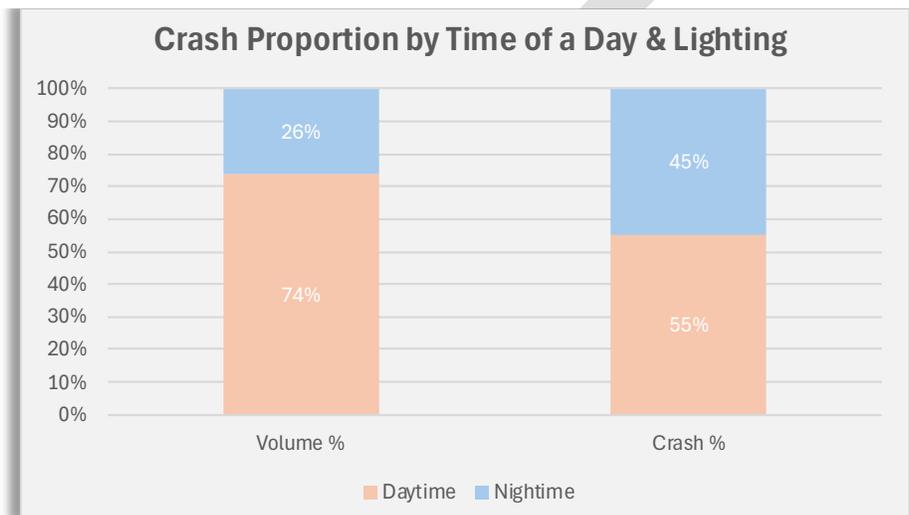


Figure 22: Crash Severity Proportions by Lighting Condition, 2015-2023

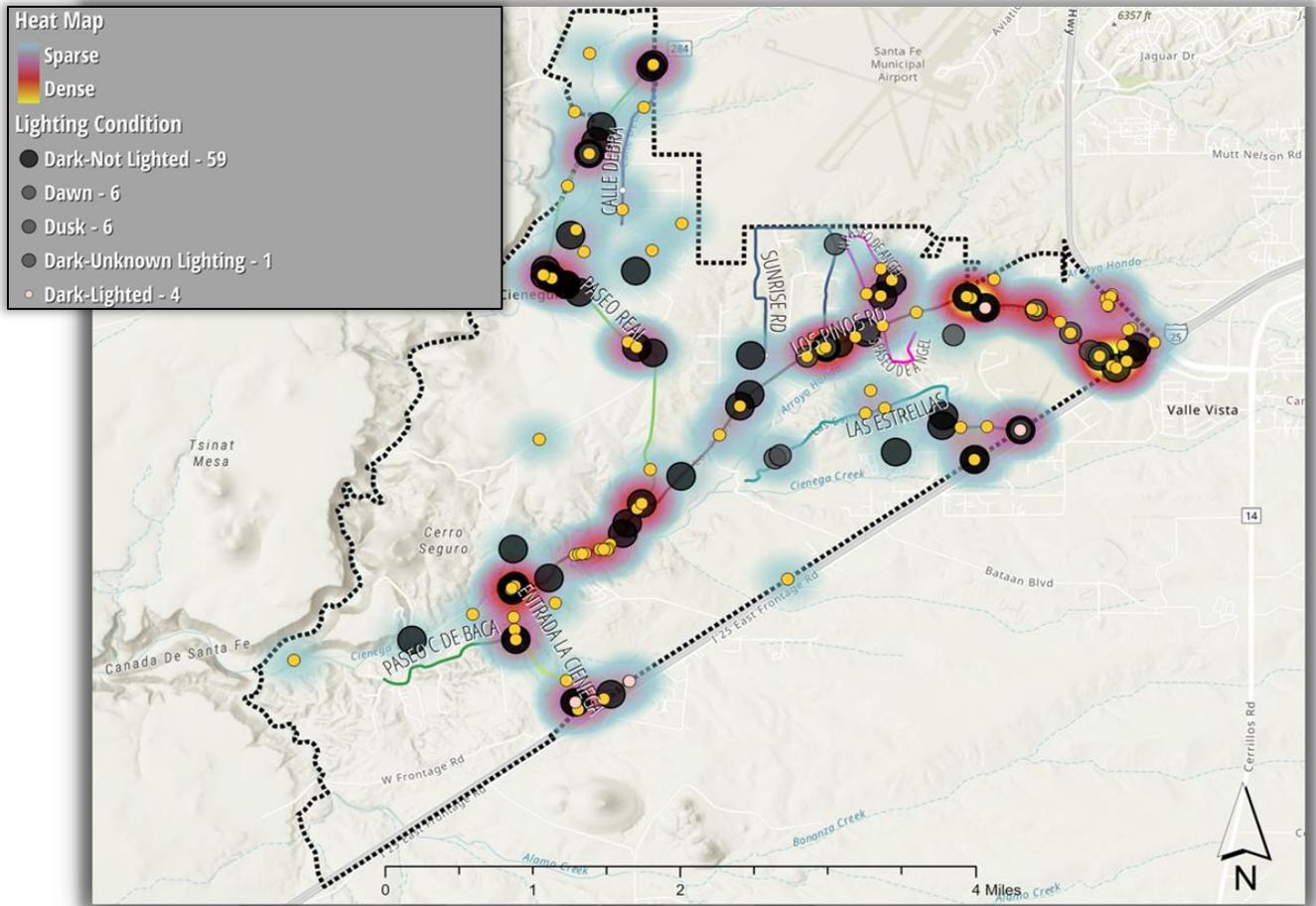


Figure 23: Crashes by Lighting Condition, 2015-2023

Multimodal Crashes

Transportation safety challenges disproportionately impact the most vulnerable road users. Pedestrians, bicyclists, and other active transportation modes are subject to more significant consequences when involved in a crash with a motor vehicle. Of the reported crashes, one involved a pedestrian, one a bicyclist, two ATVs, and thirteen motorcyclists. LEE compared the collected vehicular class data versus the proportion of crashes. The data revealed that motorcycles accounted for only 1% of traffic but 6% of crashes in the study area. Similarly, heavy trucks accounted for 2% of the total traffic mix but were involved in more than 3% of total crashes. Figure 24 summarizes the proportion of crashes by mode and crash severity.

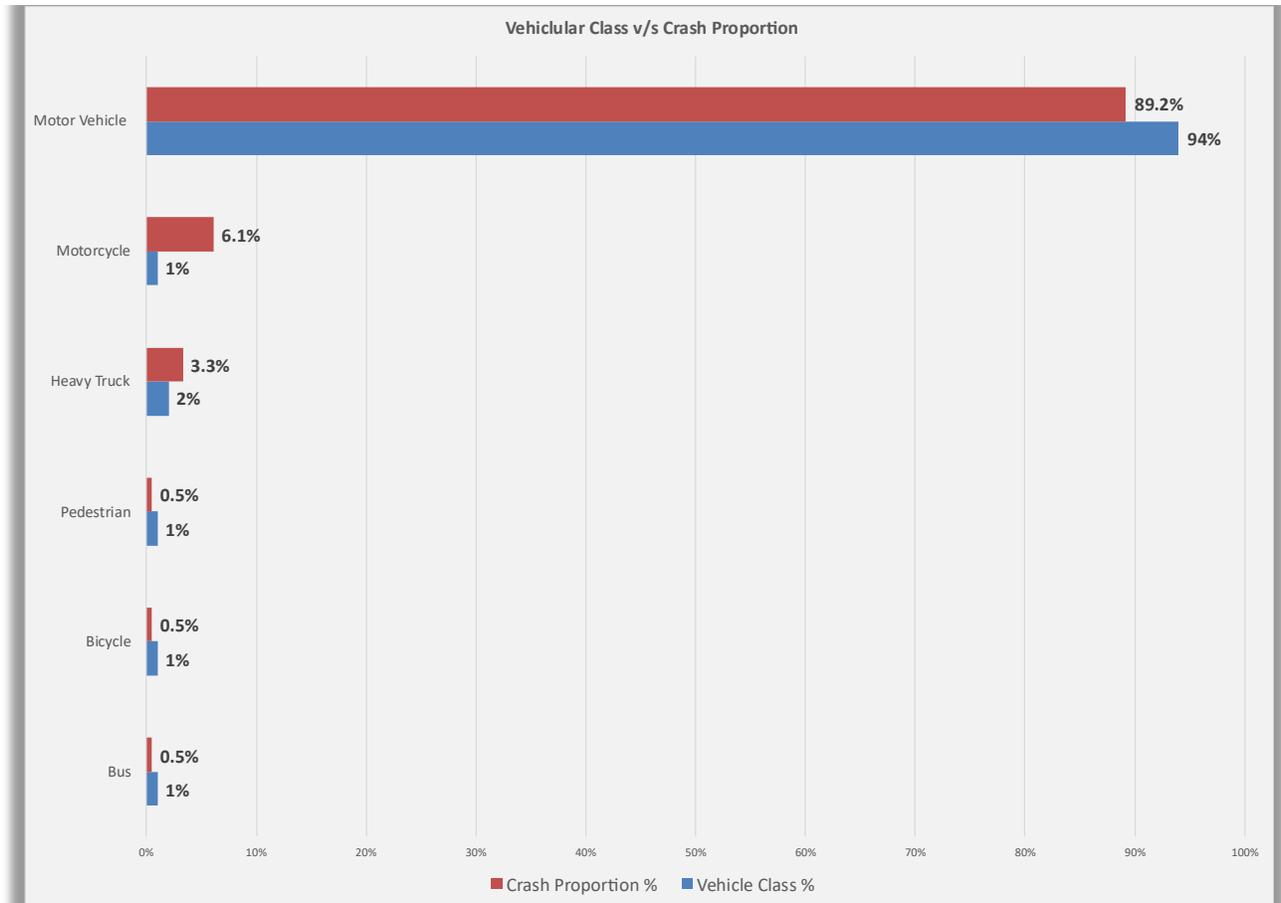


Figure 24: Proportion of crashes by mode and severity (2015-2023)

Alcohol Involved Crashes

The impact of alcohol or drug involvement on road safety is often understated, especially in rural areas. LEE performed crash analysis to identify the number of crashes that involved alcohol and/or drug use in the study area. Over 10% of crashes that occurred in the study area involved alcohol and/or drug use, which is almost double the New Mexico state average (4.9%) and is also higher than the Santa Fe County average (5.5%). The fatal crash that occurred in the study area also had alcohol involvement as shown in Figure 25.

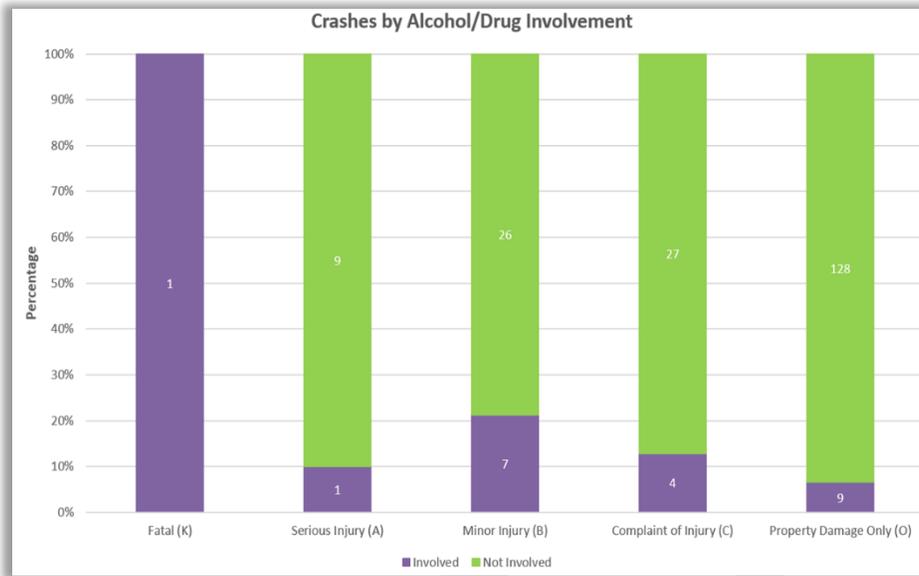


Figure 25 Proportion of crashes by alcohol/drug involvement and severity (2015-2023)

Speeding Involved Crashes

According to the Federal Highway Administration (FHWA), speeding accounted for almost 30% of all fatalities nationwide, and it is a safety concern on all roads and for all road users. Speed is a factor in crashes that directly affects crash severity. When considering the kinetic energy involved in a crash, speed increases the kinetic energy exponentially. The kinetic energy of a vehicle of mass (m) traveling at a speed (v) is $\frac{1}{2}mv^2$. Managing speed is critical to eliminating fatal and serious injury crashes. Speed-related crashes are interpreted as crashes in which the contributing factor is reported as "Excessive Speed," "High-Speed Pursuit," or "Speed Too Fast for Conditions." Speed contributes to nearly 13 percent of crashes in the study area. This dataset suggests that speed did contribute to one fatality and a few injury crashes. Of these 13% of crashes, almost 75% resulted in motor vehicles hitting fixed objects (trees, fences, mail-posts, traffic sign etc.).

It is noteworthy that, due to the 25 MPH speed limit in most study corridors and a significant proportion of single-vehicle crashes (33%), speed as a contributing factor may be less conspicuous and not attributed to every crash in which it was a contributing factor.

Uniform Crash Reports

Redacted crash reports are obtained for serious injury and fatal crashes. Summaries of crash reports for serious injury crashes are as follows:

- 23355110 - A pedestrian injury occurred at 7:11 p.m. on September 20, 2016, on Los Pinos Road. At the time of the injury, the weather was clear, and it was dusk. No contributing factors were listed. Driver 1 was traveling in the right lane when Pedestrian 1 turned from the left lane into the right lane in front of Driver 1. Pedestrian 1 was riding a bicycle pulling a baby trailer, which had Pedestrian 1's child inside. Driver 1 did not have time to react and collided with Pedestrian 1. The child was medically transported and only sustained minor injuries. Pedestrian 1 was cited for passing in a no-passing zone.
- 23386188 - A driver injury occurred at 4:53 p.m. on October 16, 2015, on County Road 54A, .3 miles south of Paseo Real. At the time of the injury, the weather was clear, and it was daylight. The contributing factor was "Driver Inattention" and "Excessive Speed." One Vehicle was involved in the crash. The driver was traveling southbound on County Road 54A when the driver lost control, making a 180-degree turn, and turning over in a ditch. The driver was citation for careless driving was issued to the driver due to excessive speeds.
- 23462485 – A driver injury occurred at 6:11 p.m. on September 29th, 2019, on the I-25 Frontage Road just south of the intersection of Los Pinos. At the time of the injury, the weather was clear, and it was daylight. The contributing factor was "Other improper driving." The driver who was operating an ATV was traveling north on the I-25 Frontage Road when the driver took both hands off the handlebars. The driver lost control, running into a tree on the side of the road. The Driver was transported to the hospital with serious injuries.
- 23474463 - A driver injury occurred at 2:08 p.m. on June 20, 2017, on Entrada La Cienega, around 1,000 feet from the intersection with W. Frontage Road. At the time of the injury, the weather was clear and daylight. The contributing factors were "Driver Inattention and Speed too fast for conditions." Driver one was operating a fire engine responding to a fire. The driver had the lights and sirens active and was attempting to pass a vehicle when the driver lost control while attempting to make a left turn. Vehicle 1 skidded through a barbed wire fence and traveled down a dirt embankment, flipping onto the passenger side. The driver was transported to a hospital and was released shortly after.
- 30272376 – A pedestrian injury occurred at 7:15 p.m. on April 4th, 2020, on Camino Colores. At the time of the injury, the weather was clear, and it was dusk. No contributing factors were listed. Driver 1 was traveling west on Camino Colores when Pedestrian 1 (an 18-month-old child) fell into the road and was struck by Driver 1 before being able to get back up. Pedestrian 1 was transported to UNMH, where he was found to have multiple broken bones and possible internal bleeding but remained in a stable condition.
- 30320028 – A driver injury occurred at 7:53 p.m. on June 18th, 2022, on Paseo De Angel. At the time of the injury, the weather was clear, and it was daylight. The contributing factors were "Other improper driving" and "Under Influence of alcohol". A blood test was conducted that

showed that the driver had consumed alcohol. Driver 1 was operating an ATV while heading east on Paseo De Angel near 125 Paseo De Angel when the ATV began to swerve, then rolled over. The driver was suspected of having a broken arm and bleeding on his face. He was transported to the hospital. The driver was cited for DWI, Revoked Driver's License, and careless driving.

- 30320240 – A driver injury occurred at 7:15 p.m. on September 20th, 2022, near Los Pinos Rd. At the time of the injury, the weather was clear, and it was dusk. The contributing factor was “Driver Inattention”. Driver 1 (9 years old) got on his father's three-wheeled ATV and accidentally pressed the throttle, causing the ATV to flip over. Driver 1 was transported to the hospital. Driver 1 was found to have multiple skull fractures but remained stable.
- 30320380 – A driver injury occurred at 5:46 a.m. on November 19, 2022, on Paseo Real near the intersection with County Rd 56C. At the time of the injury, the weather was clear, and it was Dark-Not Lighted. The contributing factors listed are “Driver Inattention, Drove left of center, and Excessive Speed”. Driver 1 was traveling south, attempting to make a left turn, when he lost control of the vehicle. Multiple swerve marks were found on the road, and evidence of a rollover was present. Excessive speed is blamed for Driver 1's inability to maintain control of the vehicle. The Driver was transported to the hospital for his injuries.
- 30348957 – A driver injury occurred at 3:31 a.m. on July 16, 2023, on Los Pinos Rd near 310 Los Pinos Rd. The contributing factors listed are “Drove left of center and Excessive Speed”. Driver 1 was traveling north on Los Pinos Rd when the driver swerved to the right, then abruptly to the left, overcorrecting. Driver 1 struck a fence and a ditch, causing the vehicle to roll over. No driver or passenger was found, but blood was found at the scene of the accident.
- 30349047 – A passenger injury occurred at 7:31 p.m., on August 19, 2023, on Los Pinos Rd near Farmers Pond Rd. At the time of the injury, it was clear and daylight. The contributing factors listed are “Driver inattention and Excessive Speed”. Driver 1 was headed south on Los Pinos Rd, attempting to make a right turn, when he struck Driver 2, who was in the opposite lane attempting to make a left turn. Driver 1 was said to be driving too fast for conditions and stated he removed the ABS system from his car, making him skid into the opposite lane of traffic when attempting to slow down for the curve. Driver 1 struck Driver 2 on the left corner of his vehicle. Driver 1 was found liable for the accident and cited for Careless driving. Passenger 1 had a suspected broken ankle and was transported to the hospital.
- 710375608 – A driver fatality occurred at 10:14 p.m. on August 21, 2016, on I-25 near the La Cienega exit. At the time of the accident, the road was wet, and it was Dark-Not Lighted. Driver 1 was traveling south on I-25 when the vehicle left the interstate, going across the median, through a fence, and coming to rest across both lanes of the opposite direction of I-25 against a tree.

PUBLIC MEETINGS AND OUTREACH

SFC and LEE conducted two public meetings, and one additional meeting will be held in February 2026 to gather inputs, feedback, and concerns from community members of both La Cienega and La Cieneguilla. This step in the RSA process eminently helps with getting deeper insights into existing safety issues and challenges that community members face on a regular basis on the roadways, which can greatly supplement the crash data analysis and, in turn, help address safety issues by developing prudent countermeasures that can benefit the community members with safer roads. During both public meetings, LEE explained the RSA process, presented crash and data analyses, and shared SFC's goals for safer roads in these communities. Community provided input through feedback forms and stick-on notes on a roll plot (map), which were considered in developing countermeasures.

During both public meetings, community members raised concerns about safety issues, as listed below. The list also includes drainage, flash flooding, and event planning-related concerns, which are beyond the scope of this road safety study. We have recommended improvements to signage and pavement markings that will benefit the community.

- Potential for wrong-way west to north right-turn from Entrada La Cienega onto the I-25 Frontage is off-ramp during unlit and dark conditions.
- A need for improving pedestrian and bicycle infrastructure, especially near the trail parallel to I-25 Frontage Road and on Los Pinos Road near Ojo Resort.
- Recurrent and concerning challenges related to speeding and drag racing near Downs on Los Pinos Road, near its intersection with Paseo De Angel, near Camino Torcido loop, and on the Paseo Real linear stretch.
- Need for planning during biking events on Los Pinos Road
- Safety hazard due to potholes on Calle Debra
- Flash flooding and drainage issues due to inadequate storm drain facilities near Los Pinos Road, Entrada La Cienega, Pso C De Baca, and Cam Capilla Vieja.
- Need for lighting at the intersections of I-25 Frontage Road with Los Pinos Road and with Las Estrellas.
- Need for better delineation on Los Pinos Road at the horizontal curves on its winding roadway alignment west of its intersection with Paseo Real.
- Better sign visibility and repetitive knockdowns of the mailboxes on Los Pinos Road.
- Community members also showed a desire to install a roundabout at the two closely spaced intersections of Los Pinos Road and CR-54B and Entrada La Cienega and Los Pinos Road/Cam Capilla Vieja.



Figure 26: Public Meeting 1 at SFC office



Figure 27: LEE Engineering presentation - RSA process



Figure 28: Public Meeting 2 in La Cienega Community Center



Figure 29: Community engagement during Public Meeting 2

FIELD REVIEWS

A virtual RSA Team preparation meeting was held via Microsoft Teams on November 17th from 2:30 PM to 3:30 PM to discuss background information, study area history, and observations. The meeting included a presentation on the background of this RSA's study corridor, a review of existing conditions, crash data analysis, and a preliminary review of observed challenges. The remainder of the meeting was spent by the RSA Team discussing initial insights.

The RSA Team conducted field reviews on Thursday, November 20th, 2025, according to the following schedule:

- 10:00 AM – 1:00 PM: Midday Field Investigations
- 2:00 PM – 4:30 PM: PM Field Investigations
- 4:30 PM – 5:00 PM: RSA Debriefing
- 5:30 PM – 7:00 PM: Dark/PM Field Investigations



Figure 30: RSA Day PM Review



Figure 31: RSA Day AM Review

Subsequent sections of this report document the challenges observed during the field reviews and the recommended safety countermeasures.

FIELD OBSERVATIONS AND COUNTERMEASURES

The following sections present the findings from the RSA team's investigations and analyses, along with recommended safety countermeasures. The observed challenges and recommended countermeasures are presented and organized by intersections and segments of the study corridor. Each field-observed safety challenge is described along with its recommended safety countermeasures. Where available, crash reduction factors (CRF) show the potential for crash reductions of the recommended safety countermeasures. The CRFs are from the Crash Modification Factor Clearinghouse or the FHWA's Proven Safety Countermeasures. CRFs do not exist for some of the recommended countermeasures. Therefore, not all the recommended countermeasures have an associated CRF.

SKEWED INTERSECTIONS

During the RSA field review, the team observed common challenges: skewed intersections with issues such as limited sight distance, non-adherence to yielding before making a right turn, sign visibility constraints due to unconventional road geometry, and vegetation outgrowth. These attributes can lead to safety issues and hazardous conditions, particularly at night or in adverse weather. Figure 32 through Figure 35 shows existing geometry and Figure 36 through Figure 39 depicts the proposed improvements at these intersections in the study area. Additionally, Figure 40 demonstrates the typical spacing of a stop sign at the intersection.



Figure 32: Paseo Real and Calle Debra (Existing Condition)

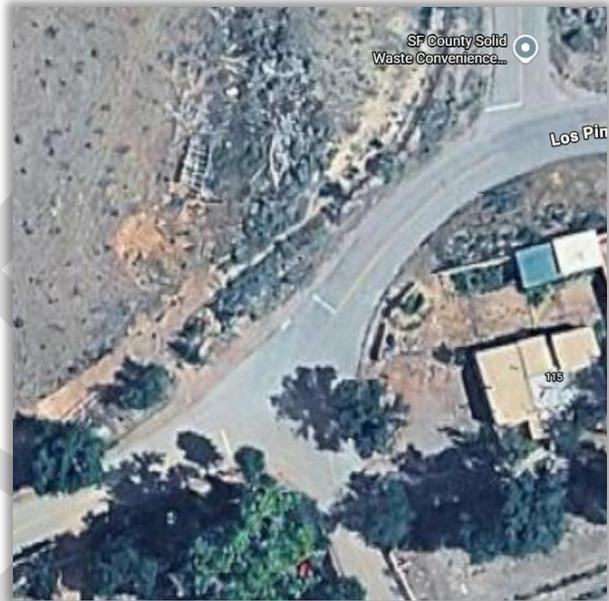


Figure 33: Entrada La Cienega and Los Pinos Road (Existing Condition)



Figure 34: Entrada La Cienega and I-25 Frontage Road (Existing Condition)



Figure 35: Las Estrellas and I-25 Frontage Road (Existing Condition)

Recommended Countermeasure: Geometric improvements at the intersection

- It is recommended to change the approach geometry to align the stopped vehicles perpendicular to the main roadway. Acute minor street alignments, or cutting the corner, reduce sight distance, discourage stop sign compliance, and increase the potential for sign knockdowns. Varied use of striping, paving, and rolled curbing can encourage the desired alignment. In many cases, striping alone is not enough to induce behavioral change. Therefore, a rolled curb is recommended at the intersections of Paseo Real and Calle Debra, Los Pinos Road and I-25 Frontage Road, Las Estrellas and I-25 Frontage Road to encourage passenger vehicles to “square up” at the intersection rather than cutting the corner. The curbing also allows off-tracking for right-turning RV traffic and other heavy vehicles. Figure 41 depicts an example of a traversable curb constructed to guide passenger vehicles, while allowing heavy vehicles to off-track.
- It is recommended to make tighter turning radii through geometric improvements, as such, it encourages the motorists to comply with the Stop Sign and helps reduce the potential for ‘failure to yield’ related crashes.
- In order to mitigate the sight distance obstruction, it is recommended to pull the stop bar closer to the approaches of cross traffic. Some of the intersections where this improvement is recommended are Paseo Real and Calle Debra, Los Pinos Road and I-25 Frontage Road, Las Estrellas and I-25 Frontage Road, Los Pinos Road and Sunrise Road, Los Pinos Road and Paseo Real, Entrada La Cienega and Los Pinos Road, and Entrada La Cienega and Pso C De Baca. Additionally, it is recommended to restripe the stop bar with 24-inch stop bars.
- Relocate and reposition the stop sign at the intersections of Paseo Real and Calle Debra, Los Pinos Road and I-25 Frontage Road, Las Estrellas and I-25 Frontage Road, Los Pinos Road and Sunrise Road, Los Pinos Road and Paseo Real, Entrada La Cienega and Los Pinos Road, and Entrada La Cienega and Pso C De Baca. Providing better positioning of the stop sign in conjunction with the striping, paving, and pavement marking improvements will enhance visibility and ensure motorists have sufficient time to react, reducing the likelihood of repeated impacts, and promoting safe off-tracking from trailers and heavy vehicles without the concern of knockdown hazard.
- It is recommended to install a hard corner edge line and chevron striping on the westbound Entrada La Cienega approach to the I-25 Exit Ramp to discourage wrong-way right-turning movement.

These mitigation measures can be implemented at additional intersections within the La Cienega and La Cieneguilla communities, which were not explicitly mentioned in the report, where similar conditions exist and can be improved while implementing the above-described countermeasures at the discretion of SFC.



Figure 36: Paseo Real and Calle Debra (Conceptual Layout)



Figure 37: Entrada La Cienega and Los Pinos Road (Conceptual Layout)



Figure 38: Entrada La Cienega and I-25 Frontage Road (Conceptual Layout)



Figure 39: Las Estrellas and I-25 Frontage Road (Conceptual Layout)

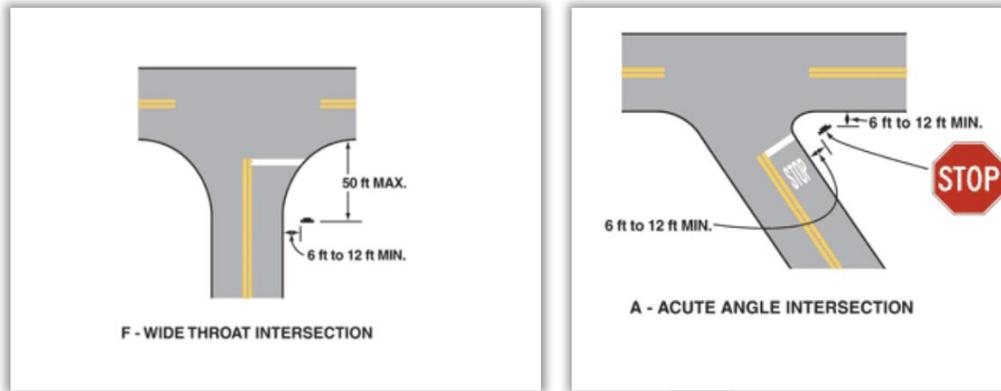


Figure 40: MUTCD Figure 2A-3. Example of Locations for Some Typical Signs at Intersections



Figure 41: Low profile/Rolled Curb on the intersection of Rio Grande Blvd and Candelaria Rd, NM

TRAFFIC CALMING

During the series of stakeholder meetings and public meetings, speeding as a known challenge has been consistently brought to the attention of both the communities of La Cienega and La Cieneguilla and has also been observed during the RSA Field review and from the pneumatic tube data that LEE collected especially on the major roadways like Los Pinos Road and Paseo Real within the study area. Many drivers ignore statutory and posted speed limits; as such, the design modifications of the road, along with physical devices, can discourage drivers from driving at speeds exceeding those that suit the conditions prevailing in residential areas. Traffic calming measures are proven countermeasures to effectively tackle the speeding challenge within the communities. Additionally, it provides an opportunity to improve the aesthetic elements within the community, which are community-centric and help with retaining the cultural and rural fabric within the community. LEE developed the list of countermeasures that are consistent with SFC traffic calming resolution 2013-102, which can help reduce the speeding-related crashes within the study area.

Recommended Countermeasure: Install Traffic Calming measures - Mid-block Medians, Chicanes, Speed Cushions, and Speed Feedback Sign

- Mid-block medians/splitter islands are recommended on the Los Pinos Road approximately 350 feet east and approximately 500 feet west of its intersection with Paseo De Angel. A Mid-Block Island is a deliberate physical obstacle placed in the center of the road by narrowing the lane widths to effectively reduce the speed of vehicles by forcing motorists to slow down in order to maneuver around the island. Object Markers Type II or III can also be mounted for better night-time visibility. Figure 44 shows the example of a mid-block splitter island in NM.
- It is recommended to install a radar speed feedback sign, as shown in Figure 45, showcasing FHWA example along the Paseo Real Road, approximately 800 feet west of its intersection with Calle Debra. Additionally, it is recommended to install a posted speed limit signs on the existing speed feedback signposts. This will alert approaching drivers of their current speed, reinforce compliance with the posted speed limit, and enhance speed management as vehicles enter the community area.
- A single-lane mini roundabout is recommended at the intersection of Entrada La Cienega and Los Pinos Road/ Cam Capilla Vieja to improve the yield compliance and to mitigate sight distance challenges. A mini roundabout generally has 45 feet to 80 feet inscribed circle and can have 26 feet of raised and traversable central island to easily accommodate the vehicles like delivery trucks , RVs with a larger turning radius. The raised traversable central island are prefabricated and ready to install. Mini roundabouts are proven and effective traffic calming measures without compromising efficiency and improve intersection safety for all road users with its smaller footprint as it does not require purchasing additional right-of way.
- It is recommended to install four speed cushions along the Paseo Real approximately 2000 feet and 5000 feet west of its intersection with Calle Debra, approximately 500 feet north of its intersection with Paseo Del Canon, and 0.5 miles east of its intersection with Los Pinos Road. It is additionally recommended to install two speed cushion on Los Pinos Road, one approximately 850 feet and the second 2800 feet west of its intersection with Paseo Real to reinforce speed reduction while traversing the winding curve section. Speed cushions are asphalt mounds engineered and constructed on streets intended to reduce speeds along a length of the street and consists of two or more raised areas placed laterally across a roadway with height and length are comparable to the dimensions of a speed hump and have cutouts (gaps) between the raised areas to enable a vehicle with a wide track (e.g., a large emergency vehicle, transit vehicles) to pass though without any vertical deflection. This feature makes it a preferred alternative to speed humps, and it also features a levelled top on the raised area to provide a

comfortable ride when traversed at approximately 20 to 25 MPH. The FHWA example of speed cushions is shown in Figure 46.

- It is recommended to install two chicanes along the linear section of Paseo Real, one approximately 3000 feet and the second approximately 6000 feet west of its intersection with Calle Debra where frequent concerns regarding drag racings are discussed. Chicanes are artificial blockages constructed on opposite sides of the street by series of alternating curves and lane shifts to create an S-curvature on naturally straight street. Since chicanes require vehicles to meander through the roadway alignment, it can force a motorist to steer back and forth out of a straight travel path. The curvilinear path is intended to reduce the speed at which a motorist is comfortable travelling through the feature. Figure 47 depicts the example of how blockages can be constructed on two-lane roadway.
- It is recommended to install transverse rumble strips on eastbound Los Pinos Road near the Las Golondrinas to ensure recovery for strayed vehicles and to avoid hitting the property or fence. This location is suitable because it is not near any residential area that could be impacted by noise from repeated tire impacts on the rumble strips.



Figure 42 Pre-fabricated mini-roundabout in Jackson, GA (Source: Vortex)



Figure 43 Mini-roundabout Alberta, CA (Source: Vortex)



Figure 44 Mid-block median on Meadowlark Lane, NM



Figure 45 FHWA example for Radar Speed Feedback sign



Figure 46 FHWA Example of Speed Cushions



Figure 47 Chicane example in Queen Anne, WA

NIGHT-TIME VISIBILITY AND DELINEATION

From the crash data analysis and during the nighttime field review of the study corridor, it was observed that nighttime visibility is a serious challenge, especially on these narrow and winding roads within the communities. Safety lighting at the intersections and delineation features along the horizontal curves significantly improve the visibility of the roadway. Currently, the intersection lacks sufficient lighting, which reduces driver awareness of roadway geometry, signage, and potential conflicts during nighttime or adverse weather conditions. Insufficient illumination is particularly hazardous for vulnerable road users such as pedestrians and cyclists, and older drivers. Installing lighting will improve safety, visibility, and overall intersection safety. Enhanced delineation treatments can alert drivers to upcoming curves, the direction and sharpness of the curve, and appropriate operating speed. Figure 48 through Figure 52 shows the existing curve protection and delineation inadequacy.



Figure 48: Current condition Los Pinos Rd and I-25 Frontage Road



Figure 49: Westbound Intersection View



Figure 50 Limited delineation and worn-out reflectors



Figure 51 Worn-out centerline striping on Los Pinos Road



Figure 52 Inadequate curve protection in the absence of chevron alignment sign and delineators

Safety Lighting

The crash records and analysis showed a disproportionate number of nighttime crashes in dark, unlit conditions, given the study area's rural nature. Additionally, the potential for unreported crashes and near-misses in rural settings will likely worsen this disproportionality. For these reasons, additional illumination is recommended to improve safety at the intersection.

Recommended Countermeasure: Install Lighting at Intersections: (Los Pinos Road and I-25 Frontage Road, Las Estrella and I-25 Frontage Road, Entrada La Cienega and I-25 Frontage Road, and Paseo Real and Los Pinos Road)

- Based on the data analysis and the field review, we recommend installing safety lighting at these four intersections, as shown in Figure 53 through Figure 56, i.e.; Los Pinos Road and I-25 Frontage Road, Las Estrella and I-25 Frontage Road, Entrada La Cienega and I-25 Frontage Road, and Paseo Real and Los Pinos Road. Two luminaires at the intersection of Los Pinos Road and I-25 Frontage Road, two luminaires at the intersection of Las Estrellas and I-25 Frontage Road, three luminaires at the intersection of Entrada La Cienega and I-25 Frontage Road, and two luminaires at the intersection of Paseo Real and Los Pinos Road. The approximate locations of the luminaires are shown in the figures below. In accordance with NMDOT standards, the luminaires shall be night-sky-compliant with full cutoff, as required by the New Mexico Night Sky Protection Act. Typically, NMDOT does not bear the ongoing cost of illumination electrical service; therefore, a lighting agreement must be established between the communities, the County, and NMDOT to successfully install luminaires at this intersection.

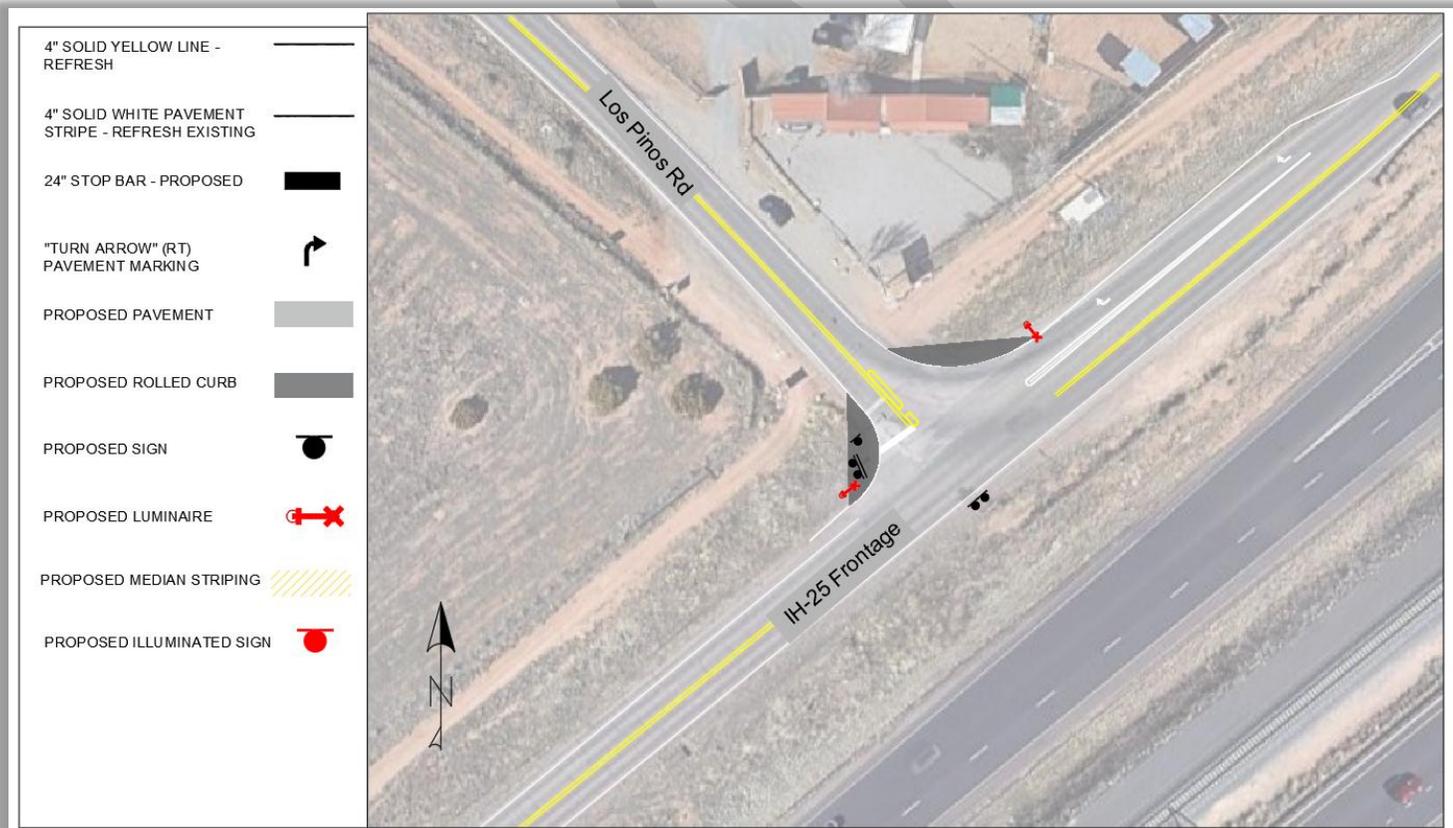


Figure 53 Conceptual Layout with proposed Luminaire locations (Los Pinos Road & I-25 Frontage Road)



Figure 54 Conceptual Layout with proposed Luminaire locations (Las Estrellas & I-25 Frontage Road)

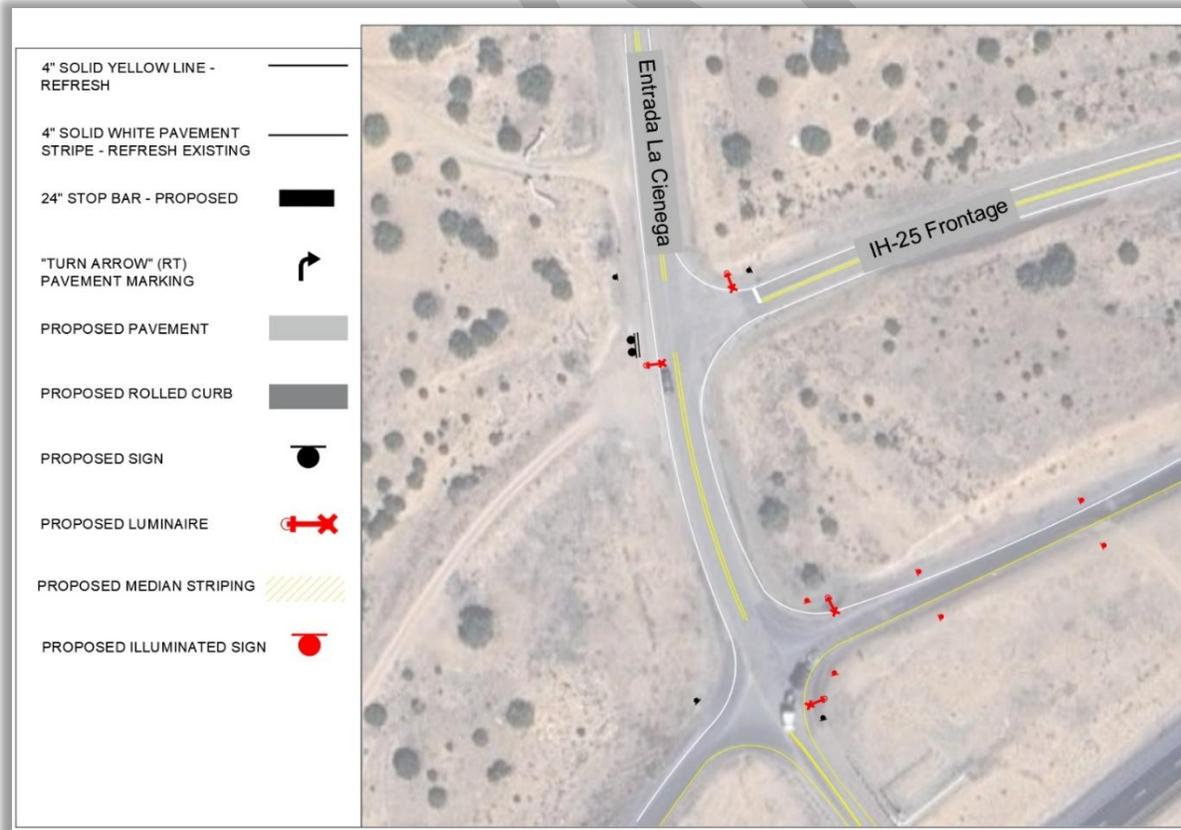


Figure 55 Conceptual Layout with proposed Luminaire locations (Entrada La Cienega & I-25 Frontage Road)

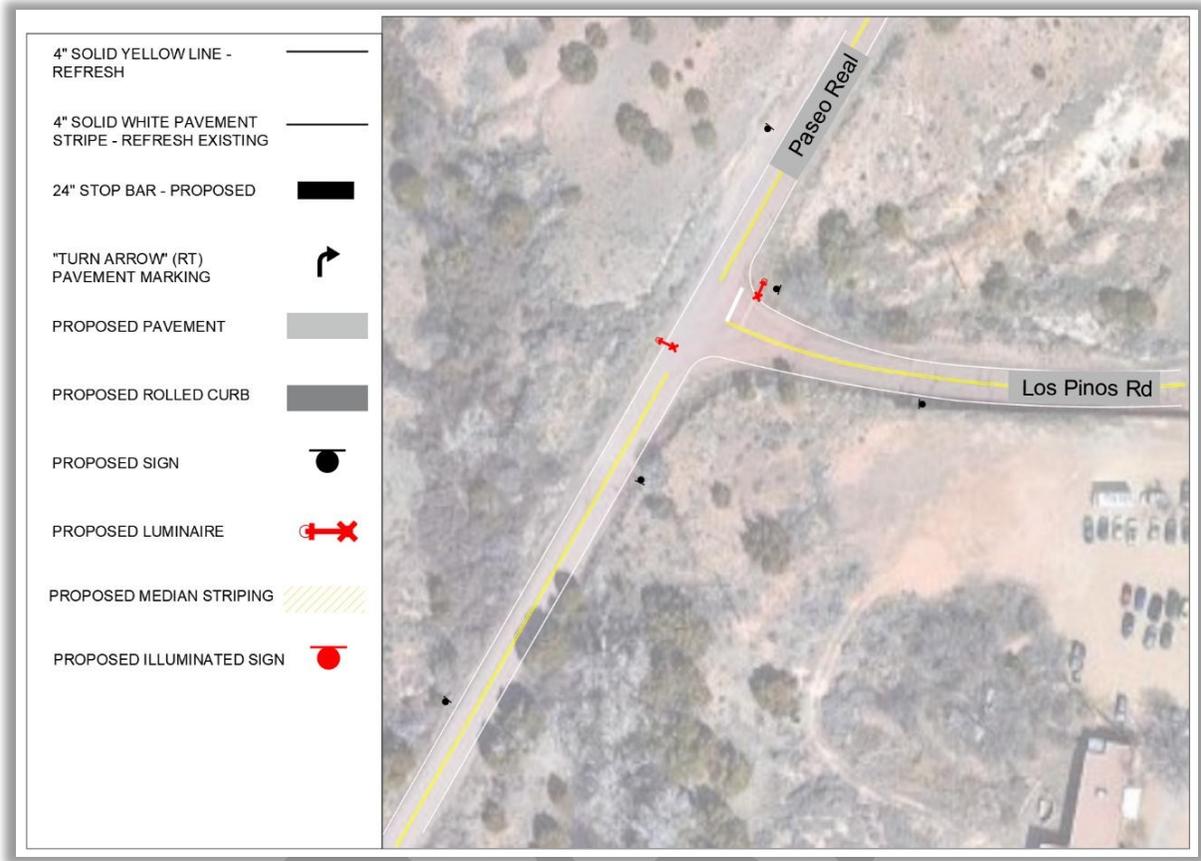


Figure 56 Conceptual Layout with proposed Luminaire locations (Los Pinos Road & Paseo Real)

Delineation

Per the crash records and analysis, it is evidential that crashes are more concentrated at the curves due to the winding alignment of the roadways in the study area. It becomes more concerning when the nighttime crashes in dark, unlit conditions are disproportionate as well as rural nature of the study area. Delineators are particularly beneficial at locations where the alignment might be confusing or unexpected, such as at winding curves. Delineators are effective guidance devices at night and especially during adverse weather as they remain visible when the roadway is wet or snow covered. Additionally, during the field visit, few guardrail end treatments were found to be outdated or damaged and inconsistent rail heights were also observed, which may compromise the system's effectiveness during crashes. Upgrading end treatments with energy-absorbing treatments like crash cushion/impact attenuators and ensuring proper guardrail height throughout the corridor can help improve overall performance and align with current safety guidelines. Figure 57 shows the guardrails system with its components as provided by FHWA.



Figure 57: FHWA- Example of Guardrail System

Recommended Countermeasure:

Los Pinos Road

- It is recommended to improve the chevron spacing to eliminate the wide sweeping turns from abutting private driveways and install yellow retroreflective strips on the existing posts to enhance the delineation . Figure 58 displays pertinent horizontal alignment signs and plaques (highlighted in red block), which are recommended in this section.
- It is recommended that curve segments along the eastbound approach of Los Pinos Road near its intersection with the SFC waste treatment facility roadway (CR 54-B) be improved with additional chevron alignment signs, thus improving driver awareness and reducing the likelihood of roadway departures, especially at night or during adverse weather.
- It is recommended that additional Chevron Alignment Signs (W1-8) be installed approximately 750 feet west of its intersection with Paseo Real so that the entire reverse curve section is delineated. Additionally, it is recommended to clear vegetation around the existing guardrail to improve its visibility.
- It is recommended that the guardrails be replaced and updated to current standards along the Los Pinos Road (WB), approximately 1050 feet west of its intersection with Paseo De Angel, to prevent run-off crashes and provide a safety barrier to the motorists. Adding reflectors to the existing guardrail system to improve roadway alignment guidance

Paseo Real

- It is recommended to improve the chevron spacing near the 90-degree bend on Paseo Real install additional chevron alignment signs (W1-8). Additionally, it is recommended to install yellow retroreflective strips on the existing posts and install additional Object Markers Type 4 (OM4-2) to enhance delineation of the end of roadway. It is recommended to install solar powered LED flasher to enhance the curve visibility. Figure 59 showcases recommended sign sequence as per MUTCD guidance. Figure 60 and Figure 61 demonstrates the approximate spacing criteria for chevron alignment signs and delineators, respectively.
- It is recommended to install yellow retroreflective strips on the existing posts of chevron alignment signs on the curve segment near its intersection with Paseo Del Canon to enhance the delineation.

Entrada La Cienega

- It is recommended to install chevron alignment signs (W1-8) with appropriate spacing at the curve along the Entrada La Cienega, approximately 550 feet and 1350 feet north of its intersection with I-25 Frontage Road.
- It is recommended to install retroreflective strips on existing advanced curve warning signposts throughout the study area.
- It is recommended to install Object Markers Type 3 OM-3R as shown in Figure 62 to aid motorists regarding an existing obstruction along the Entrada La Cienega northbound, approximately 100 feet and 950 feet south of its intersection with Pso C De Baca.

Additionally, it is recommended to install the Enhanced Linear Delineation (ELD) system as shown in Figure 64 below on all existing guardrails along Paseo Real, Los Pinos Road, and Entrada La Cienega, and to install red retroreflective strips on all existing warning and regulatory signposts in the study area as per SFC’s discretion. FHWA example of appropriate and adequate delineation along horizontal curves in Figure 63. Figure 66 shows FHWA example of yellow retroreflective tapes/strips on warning signposts.



Figure 58 MUTCD Horizontal Alignment signs and plaques

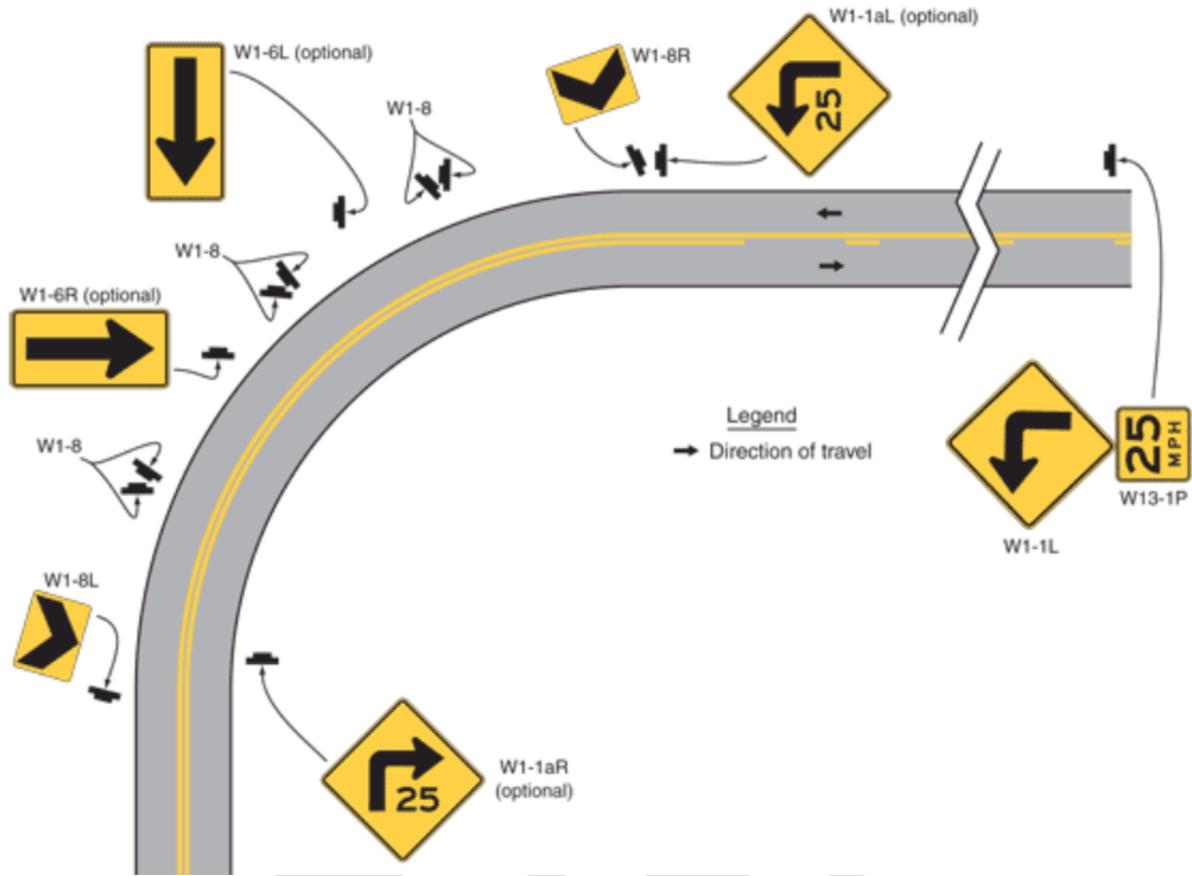


Figure 59 MUTCD Turn Warning signage sequence - Paseo Real 90-degree bend

Advisory Speed	Curve Radius	Sign Spacing
15 mph or less	Less than 200 feet	40 feet
20 to 30 mph	200 to 400 feet	80 feet
35 to 45 mph	401 to 700 feet	120 feet
50 to 60 mph	701 to 1,250 feet	160 feet
More than 60 mph	More than 1,250 feet	200 feet

Figure 60 MUTCD Table 2C-5. Typical Spacing of Chevron Alignment Signs on Horizontal Curves

Radius (R) of Curve	Approximate Spacing (S) on Curve
50 feet	20 feet
115 feet	25 feet
180 feet	35 feet
250 feet	40 feet
300 feet	50 feet
400 feet	55 feet
500 feet	65 feet
600 feet	70 feet
700 feet	75 feet
800 feet	80 feet
900 feet	85 feet
1,000 feet	90 feet

Figure 61 MUTCD Table 3G-1. Approximate pacing for Delineators on Horizontal Curves

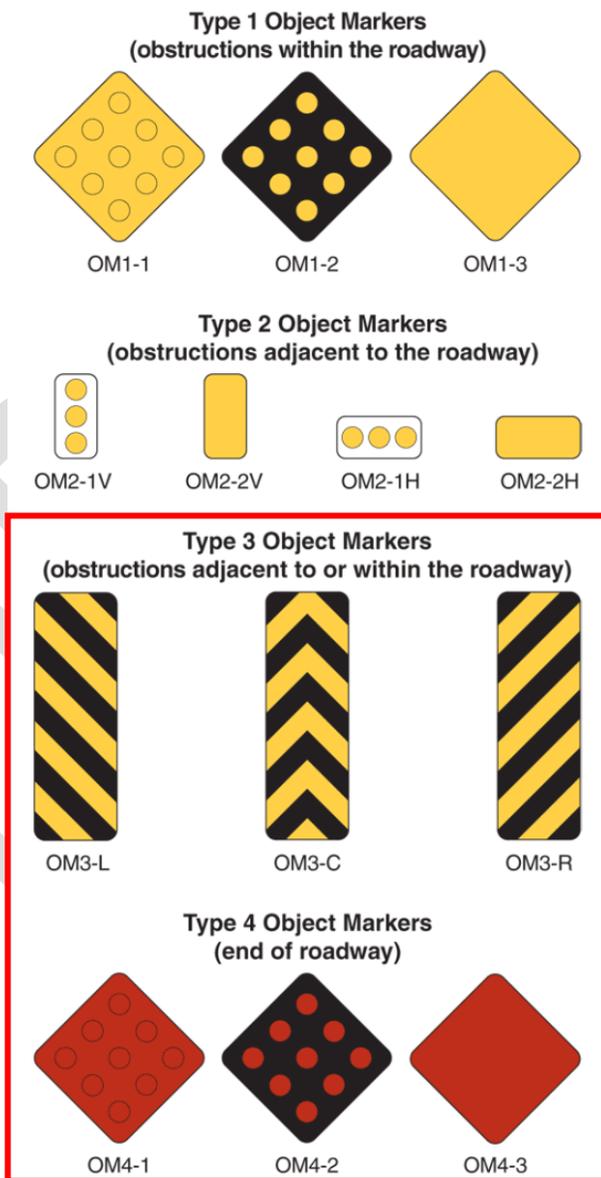


Figure 62 MUTCD Object Markers



Figure 63: Image of delineators and chevrons on Horizontal Curve (Source: FHWA)



Figure 64: Example of ELD strips on guardrail (Source: Pexco)



Figure 65 Example of Butterfly Guardrail Reflector



Figure 66 FHWA example of yellow retroreflective tapes/strips on warning signposts

SIGNAGE ENHANCEMENTS

Roadside signs convey information to motorists about the road, ensuring safe and efficient operations. Several signage improvement opportunities were observed along various roadways within the study area. The following photos, shown in Figure 67 to Figure 68, depict opportunities to install, relocate, and/or improve communication with the users within the study area. Figure 71 to Figure 73 shows the warning signs (highlighted in red block) that are recommended. Figure 74 shows the example of red retroreflective tapes/stripes for regulatory signposts.

Intersection Signage Improvements

- It is recommended to install 'All-Way' (R1-3P) plaques on all approaches of the intersection between Entrada La Cienega and Pso C De Baca, as well as on the approaches of the intersection of Entrada La Cienega and Los Pinos Road/Cam Capilla Vieja, to enhance the stop compliance and better communicate the function of Stop-Control.
- It is recommended to install a Directional Arrow (M6-1) auxiliary plaque on the existing route signpost near the intersection of Entrada La Cienega and Los Pinos Rd/ Cam Capilla Vieja to aid the motorists in the direction the route follows.
- During the field review, the RSA team observed several locations within the study area where the visibility of regulatory and warning signs is obstructed due to vegetation outgrowth. It is recommended to clear all the signs of the obstruction and improve the visibility of the signs.
- It is recommended to install a Two-Directional Large Arrow (W1-7) sign on the far side of the T-intersection of Las Estrellas and I-25 Frontage Road to provide the motorist with adequate time to react to the intersection configuration.
- During the meeting series, concerns were raised regarding the potential for wrong-way movements from the Entrada La Cienega onto the off-ramp of I-25 interstate highway; hence, it is recommended to install No Right-turn (R3-1) sign to prohibit illegal movement and mitigate the safety challenge of entering wrong way onto the off-ramp. Additionally, it is recommended to re-orient existing Do Not Enter (R5-1) signs and to install supplementary Do Not Enter (R5-1) and Wrong Way (R5-1a) signs on both sides of the off-ramp to enhance the compliance of regulatory sign. Supplemental One way (R6-1) sign on the northwest corner of the intersection is also recommended to reinforce the intersection configuration. Subsequently, it is recommended to install Supplemental One way (R6-1) sign on the northwest corner of the intersection of Entrada La Cienega and I-25 On-Ramp.
- It is recommended to install a Stop-Ahead (W3-1) sign with distance plaque '500 Feet' (W16-2aP) on the south leg of the intersection of Entrada La Cienega and Pso C De Baca. The signs can be enhanced with traffic-responsive flashers to ensure better communication during the night-time and/or adverse weather conditions.
- It is recommended to install a new stop sign on Farmers Pond Road at its approach to the intersection with Los Pinos Road. Vegetation should also be cleared to ensure sign visibility.
- It has been articulated by community residents that Entrada La Cienega, Los Pinos Road, and Paseo Real are being used by heavy trucks as passthrough traffic. It is recommended that SFC consider employing truck restrictions on the narrow sections on Los Pinos Road and can install No Heavy Trucks (R5-2) signs to enforce the restriction.
- It is recommended to relocate the existing pedestrian crossing sign and move it north, closer to the intersection of Entrada La Cienega and Camino San Jose to provide a safe crossing for pedestrians near the public library.
- It is recommended to install distance plaque '500 Feet' (W16-2aP) under the existing intersection warning (W2-2) sign on the Paseo Real westbound before its intersection with Los Pinos Road to warn road users of the approaching intersection. Additionally, it is recommended

to install advance below the existing intersection warning (W2-2) sign and street name (W16-8P) plaque on Los Pinos Road Eastbound.

- It is recommended to install Curve Warning (W1-3) sign and Advisory Speed Limit- 25 MPH (W13-1P) plaque along Los Pinos Road eastbound and relocate the existing Posted Speed Limit sign on Los Pinos Road eastbound near its intersection with Paseo Real to be approximately 400 feet east from the entrance gate of Las Golondrinas. Furthermore, it is recommended to install Curve Warning (W1-3) sign and Advisory Speed Limit- 25 MPH (W13-1P) plaque on Los Pinos Road approximately 200 feet west of its intersection with CR 54A.
- It is recommended to install Road Narrows (W5-1) sign along the Los Pinos Road westbound approximately 300 feet west of its intersection with Paseo Real. Additionally, this sign can be installed on Los Pinos Road in advance of existing No Centerline Stripe warning sign approximately 1800 feet east of its intersection with CR-54B This will warn the motorists of the upcoming narrow lane width upstream of the winding curves, further to the west.
- It is recommended to install a Two-Directional Large Arrow (W1-7) sign on the far side of the T-intersection of Los Pinos Road and Sunrise Road to provide the motorist with adequate time to react to the intersection configuration.
- It is recommended to install the intersection warning (W2-3) sign and distance plaque '500 Feet' (W16-2aP) approximately 500 feet on both sides of Paseo Real from its intersection with Calle Debra to warn road users of the approaching intersection.
- It is recommended to install a wayfinding sign on Los Pinos Road and Entrada La Cienega near their intersections with I-25 Frontage Road to guide and make motorists aware that they are entering residential communities. Additionally, 'La Cienega' and 'La Cieneguilla' signs need to be refurbished to improve visibility.

Segment Signage Improvements

- It is recommended to install a Curve warning (W1-2) sign on Los Pinos Road approximately 1200 feet east of its intersection with CR 54B to warn users of a change in the alignment, improve driver awareness, and reduce the likelihood of roadway departures, especially at night or during adverse weather.
- It is recommended to clear the Hill Blocks View (W7-6) sign of obstruction due to vegetation on Los Pinos near the Ojo Resort to highlight the change in vertical alignment of the roadway.
- It is recommended to install a No Passing Zone (W14-3) sign along the I-25 Frontage Road between its intersections with Los Pinos Road and Las Estrellas to prohibit crossing for the through traffic.
- It is recommended to install the Speed Hump (W17-1) sign and Advisory Speed Limit - 25 MPH (W13-1P) plaque in advance of the proposed speed cushions locations discussed earlier in Traffic Calming section along the Paseo Real and Los Pinos Road to warn road users of vertical deflection and the advisory speed for the roadway in that condition.
- It is recommended to install a Turn (W1-1) sign and Advisory Speed Limit - 25 MPH (W13-1P) plaque on the Paseo Real westbound to alert the motorists of approaching sharp turn. Additionally, flashers are recommended on the proposed sign assembly and on the existing signpost on the Paseo Real northbound direction for enhanced sign speed compliance and communication.
- It is recommended to install flashers on existing curve warning (W1-3) signposts before the curve section on Paseo Real near its intersection with Paseo De Canon to reduce the likelihood of roadway departures.
- It is recommended to install Road Narrows (W5-1) sign approximately 750 feet west on Los Pinos Road from its intersection with Paseo De Angel.

- It is recommended to install a Turn (W1-1) sign and Advisory Speed Limit Sign (W13-1P) plaque on Entrada La Cienega approximately 450 feet north of its intersection with I-25 Frontage Road. Additionally, the Hill Blocks View sign (W7-6) can also be installed to supplement the change in horizontal and vertical alignments.
- It is recommended to install the Turn (W1-1) sign with Advisory Speed Limit - MPH (W13-1P) plaque in both directions of Cam Capilla Vieja upstream of the curve segment.
- It is recommended to install a Pavement Ends (W8-3) sign on the Cam Capilla Vieja where the paved surface transitions to dirt road.
- It is recommended to install Rough Road (W8-8) signs on Camino Montoya near its intersection with Cll Lisa and with Calle Debra to warn road users of uneven surface along the entire road.
- It is recommended to install No Centerline (W8-11) sign and to install Advisory Speed Limit (W13-1P) plaques on all existing turn warning signs on Camino Torsido Loop.
- It is recommended to install the Hill Blocks View (W7-6) sign on N Paseo De Angel to alert the road users of significant vertical deflection.
- Additionally, weather warning signs like Road May Flood (W8-18) and Slippery When Wet (W8-5) sign with supplemental plaque (W8-5P) can be installed on Entrada La Cienega, Pso C De Baca, Paseo Real, Los Pinos Road, and Cam Capilla Vieja in the close vicinity of the locations that are prone to flooding and experience frequent flash flooding events. Additionally, Bridge Ices Before Road (W8-13) sign is recommended on Entrada La Cienega near its bridge over the Cienega Creek.

Additionally, it is recommended to install retroreflective strips on all existing and proposed signposts of the regulatory, warning, and guide signs. It can improve sign visibility significantly during low-light conditions and enable clear sign communication in addition to positive sign compliance.



Figure 67 Vegetation outgrowth obstructs sign visibility



Figure 68 Missing Directional Arrow plaque



Figure 69 Missing All-Way plaque



Figure 70 Disoriented traffic sign and missing No Right-Turn Sign

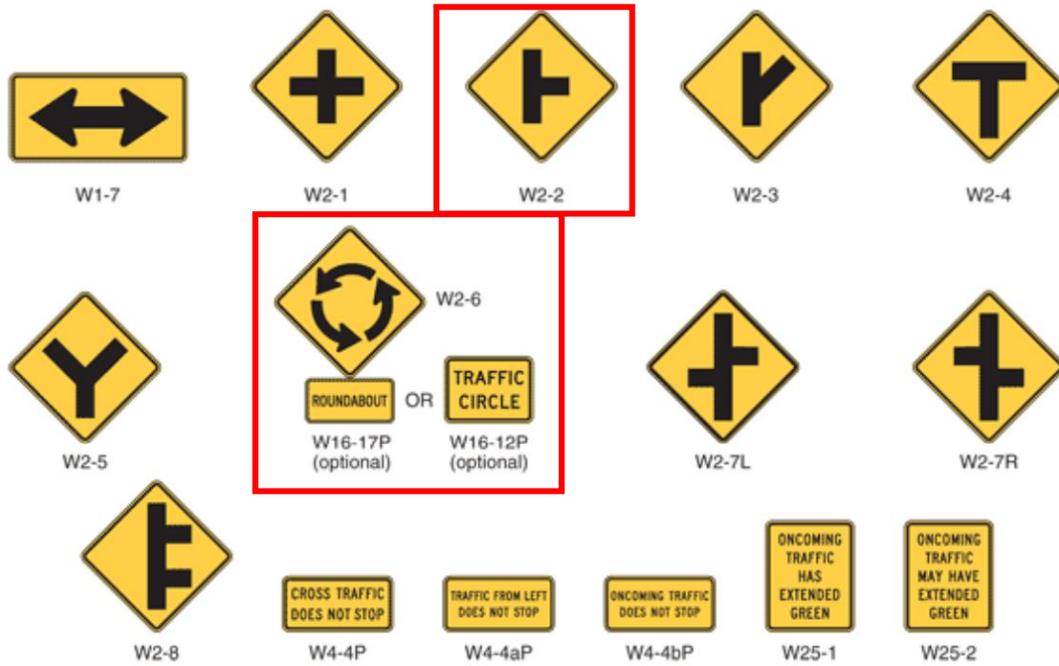
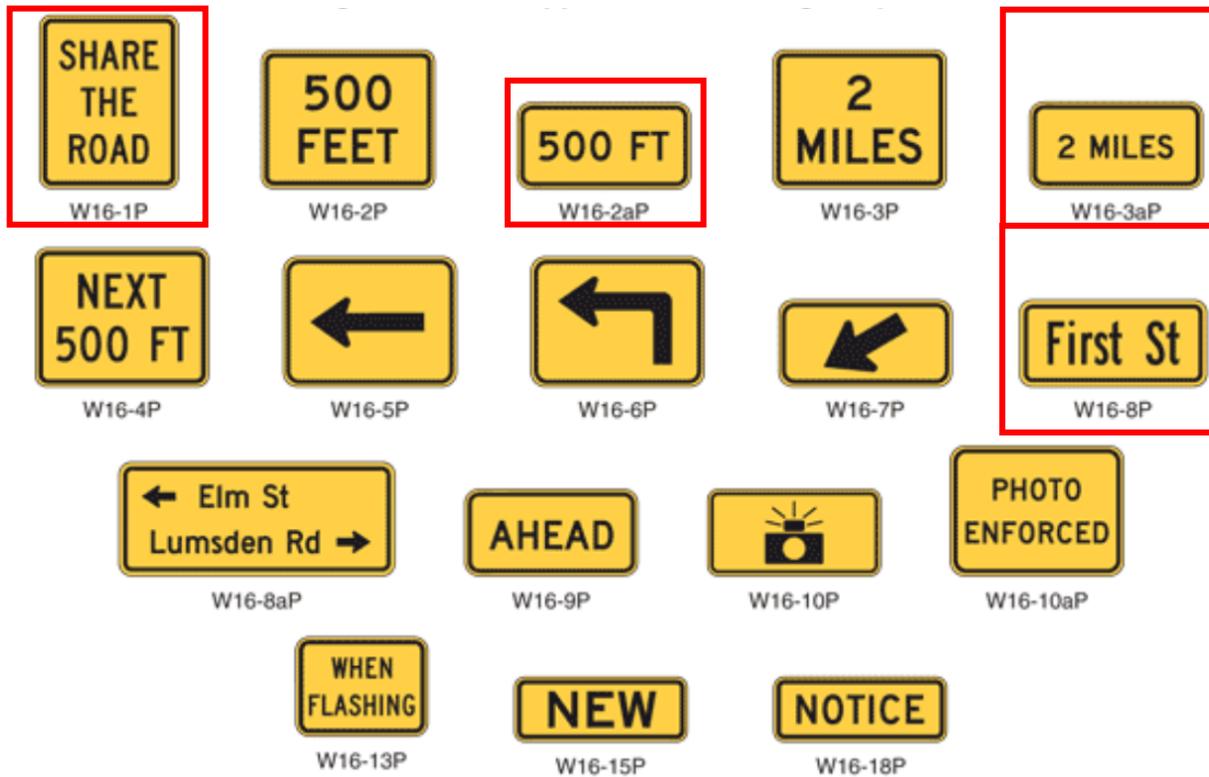


Figure 71 MUTCD Intersection Warning signs



Note: The background color (yellow or fluorescent yellow-green) shall match the color of the warning sign that it supplements.

Figure 72 MUTCD Supplemental Warning plaques



Figure 73 Miscellaneous Warning signs



Source: Lee Engineering, LLC

Figure 74 Example of retroreflective strips on signposts

STRIPING, PAVING, AND PAVEMENT MARKING IMPROVEMENTS

During the field visit, the RSA team observed majority of striping, pavement and pavement marking are intact on most of the locations with little wear and tear within the study area. However, several issues related to faded or missing pavement markings. Deficiency in pavement markings reduces clarity for road users and limits visibility, especially during night or low-light conditions. Additionally, the broad and undefined geometry of the intersections in addition to the skew contributes to driver uncertainty and unsafe turning maneuvers. Figure 75 to Figure 77 depict issues related to striping, paving, and pavement markings within the study area. Figure 78 shows FHWA example of on-pavement speed marking.



Figure 75: Worn-out centerline striping



Figure 76: Faded pavement marking and pot holes on Los Pinos Road



Figure 77 Worn-out centerline striping on Los Pinos Road

Recommended Countermeasure: Pavement Marking and Curbing Improvements

Intersection Improvements

- Pavement markings are essential in guiding road users and reinforcing regulatory controls. Stop lines define proper stopping locations and enhance intersection safety. It is recommended to re-stripe the stop line with 24-inch stop bars and relocating its location as shown in conceptual exhibits, as such it is relatively perpendicular and closure to edge of major road in accordance with MUTCD guidance at the intersections of Los Pinos & I-25 Frontage Road, Las Estrellas & I-25 Frontage Road, Paseo Real and Calle Debra, Paseo Real and Los Pinos Road, Los Pinos Road and Sunrise Road, Entrada La Cienega and Pso C De Baca, and Entrada La Cienega and Los Pinos Road/Cam Capilla Vieja. This will improve driver compliance and reduce the likelihood of vehicles stopping on the major roadway. Additionally, pulling the stop lines closer to travelled way of the major road will significantly help mitigate the sight distance issues at these intersections.
- It is recommended to install a new 24-inch stop bar at the intersection of Entrada La Cienega and Camino San Jose.
- It is recommended to refresh the stop bar and make it 24-inch at the intersection of Los Pinos Road and Paseo De Angel.
- To clarify the layout of the intersection of Los Pinos & I-25 Frontage Road, Las Estrellas & I-25 Frontage Road, Paseo Real and Calle Debra, Paseo Real and Los Pinos Road, Los Pinos Road and Sunrise Road, Entrada La Cienega and Pso C De Baca, and Entrada La Cienega and Los Pinos Road/Cam Capilla Vieja, we recommend refreshing center lines and edges as shown in conceptual layouts.
- Additionally, a desire to enhance VRU accommodation in the communities has been articulated by the community members, therefore, it recommended to plan for paved shoulders as a long-term measure along the entire corridor of Los Pinos Road, Paseo Real, and Entrada La Cienega where sufficient right-of-way is available.

- Stop Ahead pavement marking is recommended on the northbound Entrada La Cienega towards its intersection with Pso C De Baca and on northbound Entrada La Cienega at its intersection with Cam Capilla Vieja/ Los Pinos Road to reinforce the existing Stop Ahead sign.
- It is recommended to fix the potholes on the Los Pinos Road near its intersection with I-25 Frontage Road to improve the ride quality and reduce the vehicle damage as it creates safety hazards leading to crashes.
- It is recommended to fix the potholes near the pavement edges as well as on the roadway on Calle Debra to prevent any potential roadway departure crashes and head-on collisions especially during the nighttime. This will help enhance the control on vehicles while driving on this roadway.
- Additionally, it is recommended to update the damaged cattle guard on Paseo Real near its intersection with Calle Debra.

Segment Improvements

- Speed markings painted directly on the pavement are recommended on the Paseo Real between the sharp bend and its intersection with Calle Debra, approximately 1000 feet before the sharp turn along both directions of Paseo Real, and approximately 750 feet upstream of existing Curve Ahead pavement markings near the sharp curve in proximity to its intersection with Paseo Del Canon. Pavement speed markings reinforce the need to slow down and provide early visual cues to reduce speed. This is particularly effective in rural or semi-rural settings where posted signs may be overlooked or geometric constraints limit line of sight. Additionally, it is recommended to refresh existing on-pavement markings for Curve Ahead, Slow Ahead, and speed markings on all the roadways in the study area.
- It is recommended to strip the entire segment of I-25 Frontage Road with double solid yellow to prohibit passing or overtaking between Los Pinos Road and Las Estrellas to complement the proposed No Passing Zone sign.
- It is recommended to restripe the centerline marking on Los Pinos Road from its intersection with Paseo Real to its intersection with Entrada La Cienega, except the no centerline stripe section to reinforce the curve protection signages and guardrail delineators on the winding section. Additionally, it is recommended to install edge line striping in the same section on Los Pinos Road.
- It is recommended to refresh the existing Curve Ahead with high retroreflective pavement marking near the sharp bend on Paseo Real to enhance visibility.
- It is recommended to refresh the white striping on the existing speed hump on the Pso C De Baca to improve the visibility of the hump.
- It is recommended to restripe the existing centerline and the edge lines with 6-inch striping along the Los Pinos Road, Entrada La Cienega, and Paseo Real especially on the curve and narrow sections to reduce the likelihood of head on collisions and roadway departure crashes.
- It is recommended to improve the damaged pavement edges on the Los Pinos Road, Entrada La Cienega, and Paseo Real which makes it unsafe for road users to lose control of vehicles and be susceptible to roadway departure crashes.
- Additionally, there is a need to provide an effective storm drainage system, especially on Entrada La Cienega, Pso C De Baca, and Cam Capilla Vieja, to prevent damage to the properties of community members. It can subsequently help prevent pavement washouts and mitigate the risk of reduced pavement friction.



Figure 78: FHWA - Example of Speed Marking on Pavement

DRAFT

VULNERABLE ROAD USERS (VRU) AND MULTIMODAL ACCOMMODATIONS

LEE utilized TMC and online database platform (Replica) that provides volume information of both motorized and non-motorized travel modes and to derive further insights regarding pedestrian and biking activities. Pedestrian and biking activity within study area is observed to be low and limited to certain spots, i.e., along Los Pinos Road between Tierra Hermosa Ct and its intersection with I-25 Frontage Road. In both communities, the RSA team observed minimal pedestrian and/or biking facilities during the field review. However, the need for pedestrian and biking facilities was articulated at two public meetings due to large biking events and pedestrian activity near the tourist attractions. Another issue observed during the field review was that the transit and school bus stop signs exist, but no designated bus stop locations or facilities were present. Figure 79 shows signs for pedestrian and non-motorized vehicles, as well as LED flashers that can enhance visibility and compliance.

- The school bus stop signs located within the communities could imply that the bus stop is located at this point. In contrast, the bus stops are located throughout the community. It is recommended that a distance plaque (W16-3aP) be provided to better communicate the upcoming locations of bus stops (e.g., “Next 2 miles”).
- It is recommended to partner with the transit authority and school administrator to identify three to four designated locations that serve as bus stops with ADA-compliant landing pads for the transit users with disabilities. These bus stop locations can be supplemented with a school bus stop (S3-1) sign with distance plaques.
- It is recommended to relocate the pedestrian crossing sign on Los Pinos Road near its intersection with CR54B which services the SFC transfer station, from its current placement near the curve section to approximately 200 feet east from its current location.
- It is also recommended to install crosswalk markings and pertinent regulatory signs (R1-5) or warning signs (W11-2 or W11-15 with optional plaque W11-15P) to alert the drivers of approaching crossing and to discourage mid-block crossing and jaywalking. It can pose severe safety hazards to residents, especially in low-light conditions. The team identified a few locations where pedestrian crossings could particularly benefit the community. Additionally, flashers can be mounted for improved signage communication.
 - Near Library/Community center at the intersection of Entrada La Cienega and Camino San Jose.
 - Near Las Golondrinas overflow parking on Los Pinos Road.
 - Near the Ojo Resort entrance on Los Pinos Road
 - On Paseo Real near its intersection with Camino Torcido Loop where the Blue Bus on-demand transit stops.
- A desire to make a multi-use path along Los Pinos Road was also shared by community members in public meetings; however, it is challenging to implement due to very limited county right-of-way available. Therefore, it is suggested that SFC and the community work closely to plan a multi-use path along Los Pinos Road, consistent with the Community Plan, especially between Tierra Hermosa Ct and its intersection with I-25 Frontage Road, where pedestrian activity is anticipated due to proximity to the Downs area.
- LED flashers can also be installed on existing pedestrian crossing signs within the study area to improve visibility of signs during low-light and adverse weather conditions.
- Bicycle warning and Share the Road (W11-1 and W16-1) signs may be installed near La Golodrinas and near Ojo Resort on Los Pinos Road to alert motorists of potential bicyclists in the area. This will be particularly helpful during the biking events.

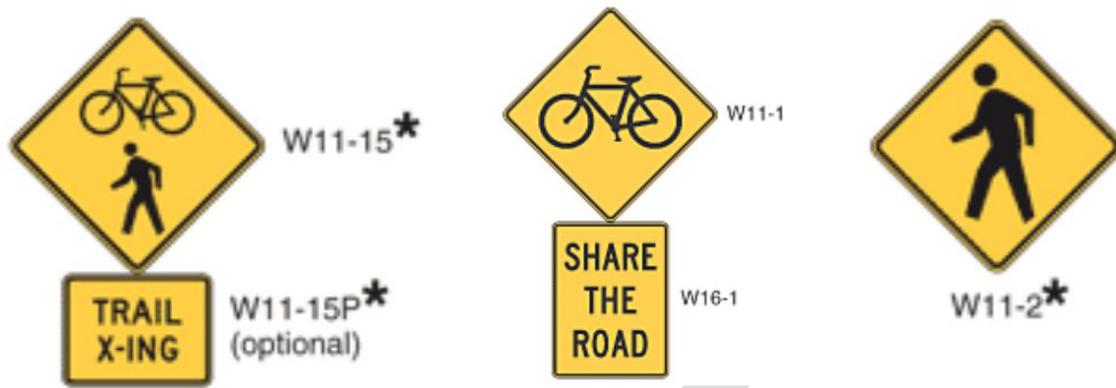


Figure 79 Non-vehicular traffic warning signs

EDUCATION AND POLICIES

Impaired Driving/DWI

As discussed earlier in crash data analysis and during public meetings, DWI is a known challenge within the study area. During crash analysis, it was observed that over 10% of crashes within the study involved alcohol involvement, which is almost double the state average and significantly higher than the SFC county average. Figure 80 and Figure 81 shows the existing littering issue and the regulatory sign to enforce compliance. Figure 82 is an example of a No ATV (R9-16) regulatory sign.

Recommended Countermeasure: Education and Regulatory Signs

- To responsibly curtail this, a strong community-wide initiative and educational campaign is encouraged in close partnership with SFC to implement behavioral changes. Billboards can be installed on major roads and near tourist attractions such as Las Golondrinas, Ojo Resort, and The Downs, with education and enforcement messages to discourage drinking and driving.
- Additionally, regulatory traffic signs with 'Don't Drive and Drive' message can be installed at strategic locations.

ATV Education

During the crash analysis, LEE identified two crashes, both involving underage ATV drivers. In other communities, ATVs are observed using the shoulders when traveling along the roadway. In the absence of shoulders, as is the case in this area, drivers utilize the travelled lanes to ride the ATV. This not only poses a threat to ATV drivers but also to motorists.

Recommended Countermeasure: Education and Policy Review

- The community and the SFC may partner for an ATV public information campaign focused on both vehicle regulations and driver requirements. With such educational efforts, issues and concerns related to proper ATV use, safety, and legal requirements can be addressed.
- Additionally, it's important to clarify where ATVs are allowed, under agreements made with the Transportation Commission. Clear policies and continued outreach can help improve safety and compliance in the region.

Littering and Vandalism

As seen often in rural communities, littering is a challenge that deteriorates the community's aesthetics. Additionally, concerns regarding vandalism and open-range shooting of traffic signs were also raised by community members

Recommended Countermeasure: Regulatory Signs

- Repetitive messaging with Littering Prohibition signs can be planned to consistently convey the message of potential fines in the event of violation, with stricter adherence.
- Enforcement and surveillance are suggested to be supplemented with custom regulatory signs. In addition, community members are encouraged to be vigilant of such events and conduct their due diligence.



Figure 80 Littering observed during Field Review



Figure 81 Littering Prohibition sign on Paseo Real



R9-16

Figure 82 No ATV regulatory sign

DRAFT

SUMMARY

Table 7 provides a comprehensive list of the safety challenges and countermeasures identified by the RSA team. The costs are obtained from the NMDOT BidX -Average Unit Bid Price List and are for informational purposes only, as actual costs may vary. All the estimated costs are for installation only and do not include any maintenance costs.

Table 7: Summary of Observed Safety Challenges and Recommended Countermeasures

Challenge	Countermeasure	Locations	Timeline	Probable Cost
Intersection Awareness	Intersection Lighting	Los Pinos Rd & IH-25 Frontage Rd, Las Estrellas & IH-25 Frontage Rd, Entrada La Cienega & IH-25 Frontage Rd, Los Pinos Rd & Paseo Real	M	\$10,000/luminaire
Intersection Awareness	Revamp the safety barrier, signage, and object marks	Los Pinos Rd & IH-25 Frontage Rd, Las Estrellas & IH-25 Frontage Rd, Los Pinos Rd & Sunrise Rd	N	\$5000/intersection
Intersection Awareness	Install Two-Way Sign on far-side of intersection	Las Estrellas & IH-25 Frontage Rd	N	\$1500/sign
Intersection Awareness	Install rolled curb to support off-tracking	Los Pinos Rd & IH-25 Frontage Rd, Las Estrellas & IH-25 Frontage Rd, Paseo Real & Calle Debra	N	\$20,000/corner
Intersection Awareness	Install mini roundbaout	Los Pinos Rd/Cam Capilla Vieja & Entrada La Cienega	L	\$2M/roundabout
Striping & Pavement Markings	Refresh centerlines and edge lines	Los Pinos Rd, Sunrise Rd, Pase De Angel, Las Estrella, Entrada La Cienega, Camino San Jose, Calle Debra, Camino Capilla Vieja, Farmer Pond Rd, Kellog Ln,	N	\$700/approach
Striping & Pavement Markings	24" stop bars	Los Pinos Rd, Sunrise Rd, Pase De Angel, Las Estrella, Entrada La Cienega, Camino San Jose, Calle Debra, Camino Capilla Vieja, Farmer Pond Rd, Pso C De Baca, Camino San Jose	N	\$700/approach
Striping & Pavement Markings	Yellow chevron striping to enforce tight right turn radii	Los Pinos Rd & IH-25 Frontage, Paseo Real & Calle Debra	N	\$3,000/approach
Striping & Pavement Markings	Additional offset right turn lane buffer	Las Estrellas & IH-25 Frontage Rd, Los Pinos Rd & IH-25 Frontage R	M	\$5,000/approach
Pavement Markings	Stop Ahead Pavement Marking	Entrada La Cienega & Pso C de Baca, Entrada La Cienega & Los Pinos Rd/ Cam Capilla Vieja	L	\$100/word
Speed Limit compliance	Install Speed Cushions with Speed Hump (W17-1) sign	Paseo Real – Calle Debra to bend, Los Pinos Rd near Las Golandirnas	N	\$10,000/location
	Install Chicanes	Paseo Real between its intersection with Calle Debra and 90-degree bend	L	\$500,000/chicane
Paving Improvements	Install midblock splitter island median and warning sign	Los Pinos Rd & Paseo de Angel	M	\$100,000/island
Speed Limit compliance	Install vehicle speed feedback sign	Los Pinos Rd near Las Golandirnas Curve, between Paseo Del Angle and Sunrise Rd, Entrada La Cienega & Paseo Real between Calle Debra to Bend	M	\$10000/sign
Speed Limit Compliance	Speed pavement markings (painted on roadway)	Paseo Real (90-degree bend, west of intersection with Calle Debra, northwest of Intersection with Paseo del Canon near curve, near intersection with Los Pinos Rd), Los Pinos Rd (Near Las Golandirnas, west of Paseo de Angel, near intersection of Entrada La Cienega & IH25 Frontage)	N	\$500/installation
Signage Compliance	Relocate or reposition stop sign	Entrada La Cienega & Camino Capilla Vieja, Los Pinos Rd & IH-25 Frontage, Los Pinos Rd & Sunrise Rd	N	\$400/sign
Signage Compliance	Relocate Pedestrian Crossing Sign	Entrada La Cienega & Los Pinos Rd/ Cam Capilla Vieja	N	\$400/sign
Signage Compliance	Relocate or reposition regulatory & warning signs and markers	Supplemental Wrong Way Sign on IH-25 Frontage Rd near Entrada La Cienega	N	\$400/sign
Signage Compliance	Install Interstate Guide & Directional sign	Entrada La Cienega & Los Pinos Rd/ Cam Capilla Vieja	N	\$600/sign
Intersection Regulatory Sign	Install One Way sign	Entrada La Cienega & IH-25 Frontage Rd	N	\$1200/sign
Uncontrolled Intersection	Install Stop sign	Los Pinos Rd & Farmers Pond Rd, Entrada La Cienega & Camino San Jose , Paseo Real & Polo Dr	N	\$1200/sign
Intersection Regulatory Sign	Install No-Right Turn sign	Entrada La Cienega NB & IH-25 Frontage Rd	N	\$1200/sign
Intersection Regulatory Sign	Install No-Left Turn sign	Entrada La Cienega SB & IH-25 Frontage Rd	N	\$1200/sign
Reduced Speed Zone	Install Advisory Speed Limit Sign 25-MPH	Los Pinos Rd near intersection with Paseo Real and near Las Golandirnas	N	\$600/sign
School Zone Awareness	Add W7-3aP "Next XX miles" plaque to existing school bus sign	Study area wide	N	\$300/plaque
Signing — Warning Plaques	Add W16-2aP "500 FT" plaque to intersection warning sign,	Paseo Real & Los Pinos Rd,Entrada La Cienega & Pso C de Baca	N	\$300/plaque
Signing — Regulatory Plaques	Install 'All Way' Plaque on Stop Signs	Entrada La Cienega & Pso C De Baca, Entrada La Cienega & Camino Capilla Vieja/Los Pinos Rd	N	\$600/sign
Signing — Regulatory Plaques	Install Stop Ahead Sign	Entrada La Cienega & Pso C de Baca	N	\$1500/sign
Signing — Warning Signs	Add advanced intersection warning sign	Paseo Real & Calle Debra, Entrada La Cienega & Pso C de Baca	N	\$1200/sign
Signing — Warning Signs	Add Intersection Ahead warning sign	Los Pinos Rd & Paseo Real	N	\$1200/sign
Signing — Warning Signs	Add Hill Block View Sign	Entrada La Cienega after intersection with Frontage Rd	N	\$1200/sign
Signing — Warning Signs	Add Road Narrows Sign	On Los Pinos Rd & Paseo Real near Las Golandirnas and between Paseo De Angel and Sunrise Rd	N	\$1200/sign
Signing — Warning Signs	Curve Warning Sign	Paseo Real to Los Pinos, Los Pinos near Ojo Resort, Los Pinos near SFC Waste Traeatment Plan intersection	N	\$1200/sign
Signing — Warning Signs	Curve Ahead Sign	Entrada La Cienega & Los Pinos Rd/ Cam Capilla Vieja,	N	\$1200/sign
Signing — Warning Signs	Solar Powered Flashers on Warning & Regulatory Sign	Entrada IA Cienega & IH-25 Frontage Rd, Paseo Real near 90-degree Bend, Los Pinos near Las Golandirnas,Entrada La Cienega & Pso C de Baca	M	\$2500/sign

Note: Table continues on to next page

Challenge	Countermeasure	Locations	Timeline	Probable Cost
Weather Warning Signs	Install W8-18, W8-5 and W8-13 signs	Entrada La Cienega, Pso C De Baca, Paseo Real, Los Pinos Road, and Cam Capilla Vieja	M	\$1200/sign
Horizontal Alignment Awareness	Chevron Extension	Near Los Pinos Rd & CR-54B intersection, Los Pinos Road on winding curve	N	\$1500/sign
Horizontal Alignment Awareness	Install additional W1-8 chevron alignment sign	Paseo Real near intersection with Los Pinos Rd, Entrada La Cienega near first curve & Los Pinos Rd near switch back, near golandrin	N	\$500/sign
Speed Limit compliance	Refurnish existing speed feedback sign and install Posted Speed Limit Sign	Los Pinos Rd & Paseo Real	M	\$10000/sign
Multi Modal Accomodation	ADA Compliant Landing Pad & Bus Stop Sign	Entrada La Cienega & Camino San Jose, Paseo Real & Camino Torcido Loop, Los Pinos road near La Golodrin, Ojo Resort and near Downs	L	\$50,000/landing pad
Guardrails & End Treatments	Install Guardrail & End Treatment	Entrada La Cienega & Pso C De Baca	M	\$6,000/end treatment
Guardrails & End Treatments	Repair/replace damaged guardrail sections (minor repairs)	Los Pinos Rd west of its intersection with Paseo De Angel	M	\$150/feet length
Guardrails & End Treatments	Replace/upgrade non-compliant end treatments & inconsistent heights	Priority sections along corridor	L	\$6000/end treatment
Reflective Sign Markers	Install Sign Markers for Gauradrail & Fixed Objects	Pso C de Baca & Entrada La Cienega, on Los Pinos Rd near Paseo Real, Corridor Wide as deemed appropriate	M	\$50/10 ft
Intersection Awareness	Install advanced intersection signs	Pso C de Baca & Entrada La Cienega, Corridor Wide as deemed appropriate	L	\$600/sign
Curve Nighttime Visibility	Install reflectors on guardrail	Study area wide	N	\$10/10 ft
Nighttime Visibility	Install reflectors on existing sign posts	Study area wide	N	\$10/10 ft
Enhance Sign Visibility	Trim vegetation outgrowth and trees	Study area wide	N	\$10/10 ft
Enhance Sign Visibility	Yellow retroreflective tapes on existing warnig sign posts	Study area wide	N	\$100/post
Enhance Sign Visibility	Red retroreflective tapes on existing regulatory sign posts	Study area wide	N	\$100/post
Wayfinding Entrance Sign	Install wayfinding and community sign at the entrance to the community	Los Pinos Rd & IH-25 Frontage Rd, Entrada la Cienega & IH-25 Frontage Rd	L	\$10,000/sign
Paving Improvements	Fix potholes, pavement edges, paving improvments at the intersection	Los Pinos Rd & IH-25 Frontage Rd, Los Pinos Rd near Sunrise Rd	M	\$1,000,000/mile
Paving Improvements	Refresh striping and pavement markings	Study Area Wide	N	\$300/approach
Paving Improvements	Resolve intersection skew and regularize it	Los Pinos Rd approach to IH-25 Frontage Rd, Calle Debra appraoch to paseo Real, Las Estrella approach to IH-25 Frontage Rd	M	\$200,000/approach
Access Management	Double Solid Yellow centerline pavement marking with No Passing Zone Signs	IH-25 Frontage Rd between Los Pinos Rd & Las Estrellas	L	\$50,000/mile
Livestock Improvements	Replace cattle guard	Near Paseo Real & Calle Debra intersection	M	\$100/foot
Rumble Strips	Install longitudinal rumble strips	On Los Pinos Rd near Las Golandrin	M	\$7,000 /mile
Storm Water Drainage Imporvements	Storm Drain Inlet	Pso C De Baca, Cam Capilla Vieja, Entrada La Cienega, Los Pinos Rd and Paseo Real	L	\$3,000/foot
ATV Education & Regulatory (R9-16) sign	Billboards, outreach campaigns, signage	Study area wide, signage on Camino Torcido Loop, Paseo De Angel	L	Varies
Littering & Vandalism	Billboards, outreach campaigns, signage	Study area wide	L	Varies
VRU Accomodation	Install Crosswalk markings with R1-5 or W11-2 signs	Near Library/Community center at the intersection of Entrada La Cienega and Camino San Jose, near Las Golondrin on Los Pinos Road, near the Ojo Resort entrance on Los Pinos Road, on Paseo Real near its intersection with Camino Torcido Loop where the Blue Bus on-demand transit stops. It can also benefit the girls school students	L	\$3500/crossing

