Figure 4.21.6 Healthy Place Index Score - Chaparral High School

Walking

Figure 4.21.7 provides an overview of the existing pedestrian network and challenges observed and analyzed. The sidewalk network surrounding Chaparral High School is largely incomplete. During the site visit, it was observed that there was no sidewalk on either side of Nielson Road and Malpaso Road. Sidewalks obstructions were observed along the existing sidewalks on the west side of Malpaso Road, including an uneven surface where the asphalt and concrete connect at the pick-up/drop-off loop exit driveway. There were also utility poles that narrow the existing sidewalk on the west side of Malpaso Road.

Challenges to walking were evaluated using the Pedestrian Evaluation Score (PES) developed by CR Associates. Based on the physical environment, surrounding land uses, and the street environment, a PES score was developed for nearby roadways. Figure 4.21.8 shows the results of the PES scoring. A sidewalk network with medium and high PES scores indicates relatively low stress for walking, whereas a low or very low PES score can be considered a stressful walking environment. The roadways near Chaparral High School show primarily very low PES scores, with very low scores on Nielson Road, Malpaso Road, Chawacho Road and Stadium Way. This indicates a stressful walking environment near the school along these roadways and may create a barrier to walking.

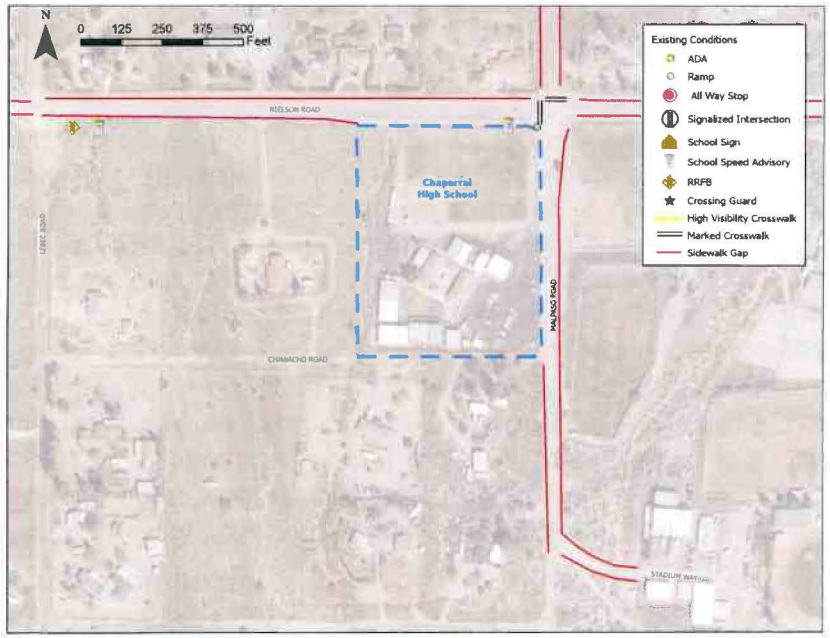


Figure 4.21.7 Existing Pedestrian Conditions

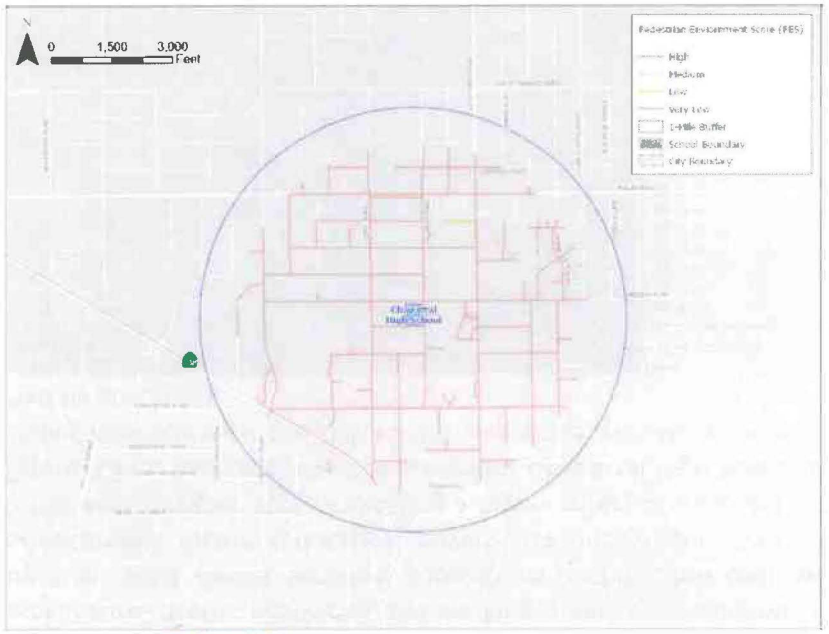


Figure 4.21.8 Pedestrian Evaluation Score

Figure 4.21.9 shows the walkshed for Chaparral High School. The walkshed shows the area where a student can walk a0.5 mile from the school. The walkshed has been reviewed for sidewalk connectivity and accessibility.

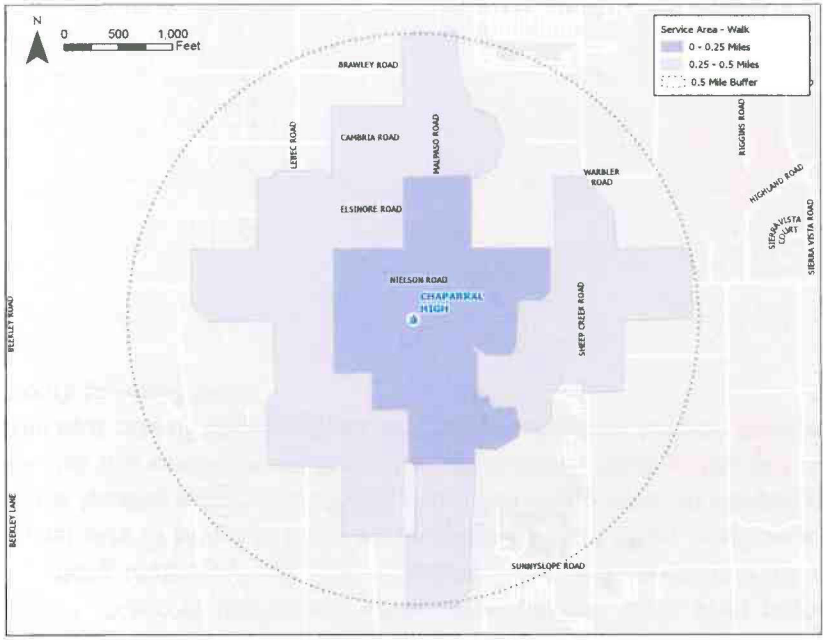


Figure 4.21.9 Existing Pedestrian Walkshed

Riding and Rolling

Currently, there are no bicycle facilities surrounding Chaparral High School. There are no plans to implement bicycle facilities within the school vicinity.

The bicycle environment was assessed using the bicycle Level of Traffic Stress (LTS) methodology for characterizing cycling environments, as developed by Mekuria et al. (2012) of the Mineta Transportation Institute. LTS classifies the street network into categories according to the level of stress it causes cyclists, taking into account a number of factors. The LTS assessment conducted by MBI concluded that the roads immediately surrounding Chaparral High School have a LTS score of 4, indicating high stress levels for cyclists (Figure 4.21.10).

Figure 4.21.11 shows the bikeshed for Chaparral High School. The bikeshed shows the area where a student can bike one mile from the school.

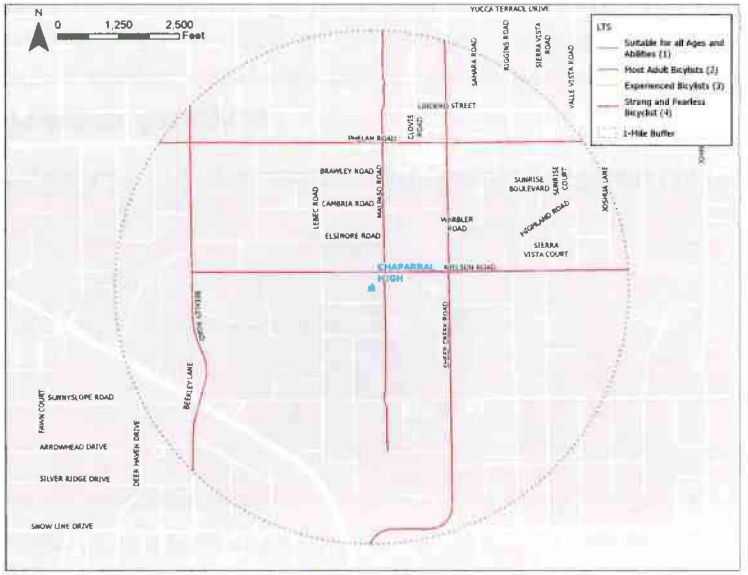


Figure 4.19.11 Bicycle Level of Traffic Stress

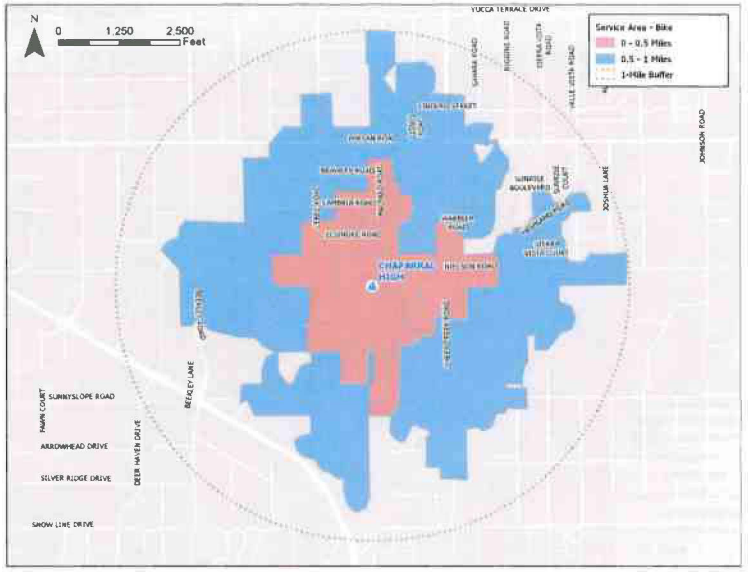


Figure 4.19.12 Existing Bikeshed

Pick-Up and Drop-Off

Chaparral High School is accessed via Nielson Road and Malpaso Road. Figure 4.21.12 illustrates the existing conditions, and the behaviors observed during the mobility assessment.

There are currently no crossing guards. The Principal supervises drop-off and pick-up within the school loop on Malpaso Road. The adjacent intersection of Malpaso Road at Nielson Road is two-way stop controlled with a standard marked crosswalks and signage. The following signs are present along the north and south sides of Nielson Road:

- "Cross Traffic Does Not Stop"
- "School Zone Speed Limit 25"
- "School Crossing Ahead"
- "Road Narrows".

Some students walking to and from school were observed walking along Malpaso Road and crossing the street on Nielson Road.

Pick-up currently occurs primarily in the pick-up/drop-off loop on Malpaso Road. During the site visit, parents were observed arriving nearly 15 minutes before the first bell. Many parents were seen picking up students at the official unloading area right in front of the school, while other parents were seen picking up students along Malpaso Road. Some students drive themselves and often park on the east side of Malpaso Road in the dirt area used as an overflow lot. The bus loop is located within the school drop-off/pick-up loop on Malpaso Road. Vehicles also use unofficial areas to drop off students, such as the dirt parking lot on the east side of Malpaso Road, and the south side of Nielson Road in front the school's baseball field.

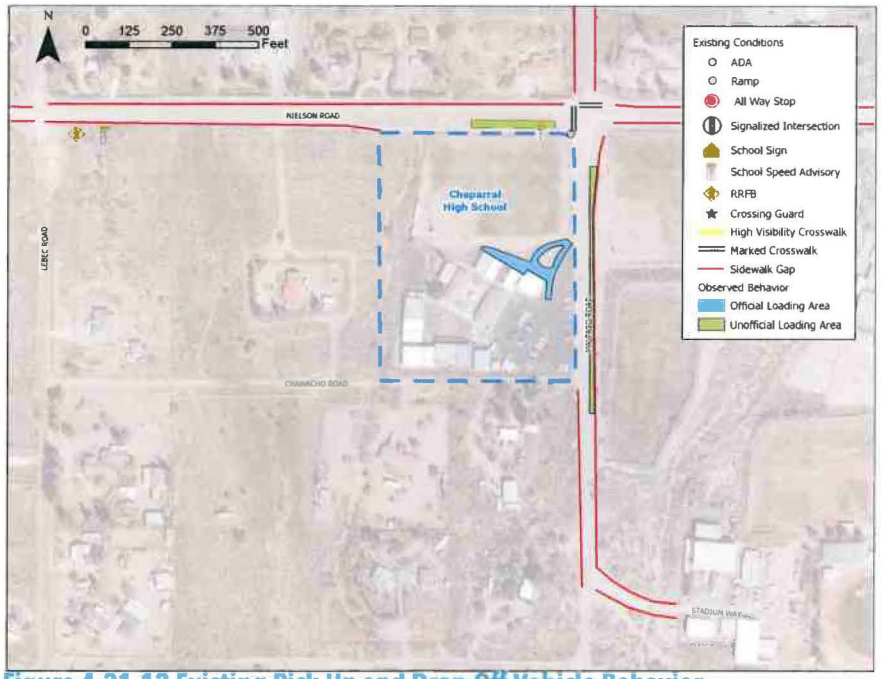


Figure 4.21.12 Existing Pick-Up and Drop-Off Vehicle Behavior

Safety Analysis

Between 2019 and 2023, there were zero collisions within a 0.5 mile radius of Chaparral High School (Figure 4.21.13).

Figure 4.21.13 Bicycle and Pedestrian Involved Collisions (2019-2023)

Travel Pattern Analysis

A travel pattern analysis was conducted for Chaparral High School to understand how students may be traveling to the campus. Origin-Destination data was downloaded from the Replica Big Data platform, and ArcGIS and Python were the tools used to process the data. Featuring the school site as the destination, the analysis provides insights into the magnitude of trips made to and from the

surrounding neighborhoods. The neighborhoods are defined by Traffic Analysis Zones (TAZs) that fall within the school's attendance boundary. The analysis is performed by travel mode for both active travel, which includes walking and biking, and auto travel, which refers to travel by car. The resulting maps display the number of trips by these two modes between the neighborhood TAZs and the TAZ where the school is located.

For each neighborhood, the number of trips made by each travel type was shown using lines on a map (Figure 14 and Figure 15 for active trip and auto trip maps, respectively). A thicker line means more people are estimated to travel using that mode of transportation from that neighborhood. Line thickness can be compared within the same type of travel, such as comparing two walking routes. One can also get a general sense of how walking and driving compare by looking at both sets of lines side by side. However, the lines are scaled differently for each mode of travel, so they should not be compared directly. This data helps reveal how people tend to travel based on several factors, such as the existing walking or biking environment, land uses, physical barriers, population densities and the layout of the roadway network.

For Chaparral High School, there is generally higher activity for auto travel modes compared to active modes, especially in TAZs that are farther away from the school. The overall lack of activity for active trips to the school is likely due to poor active transportation connectivity throughout the area, active infrastructure barriers, low density in the area and more car-dominant lifestyles.

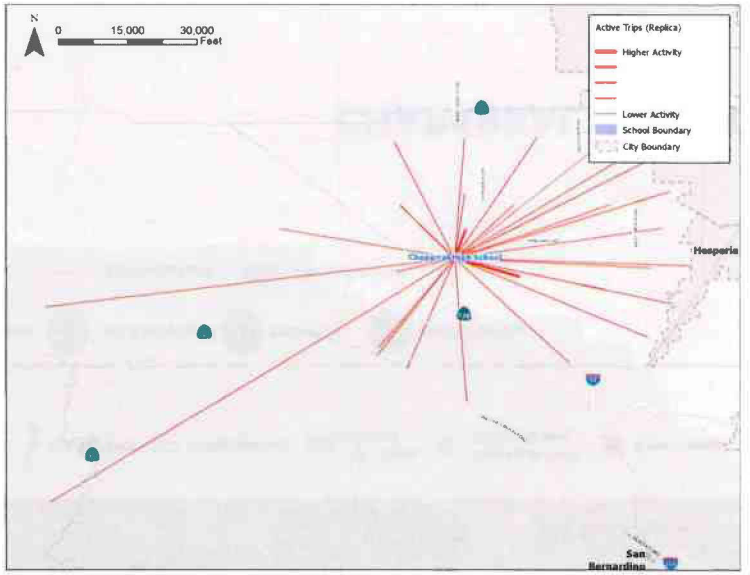


Figure 4.21.14 Active Travel Pattern

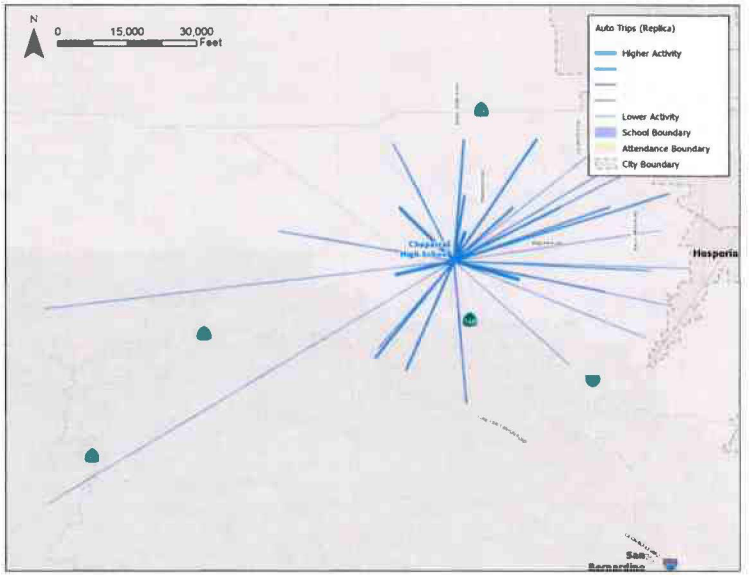


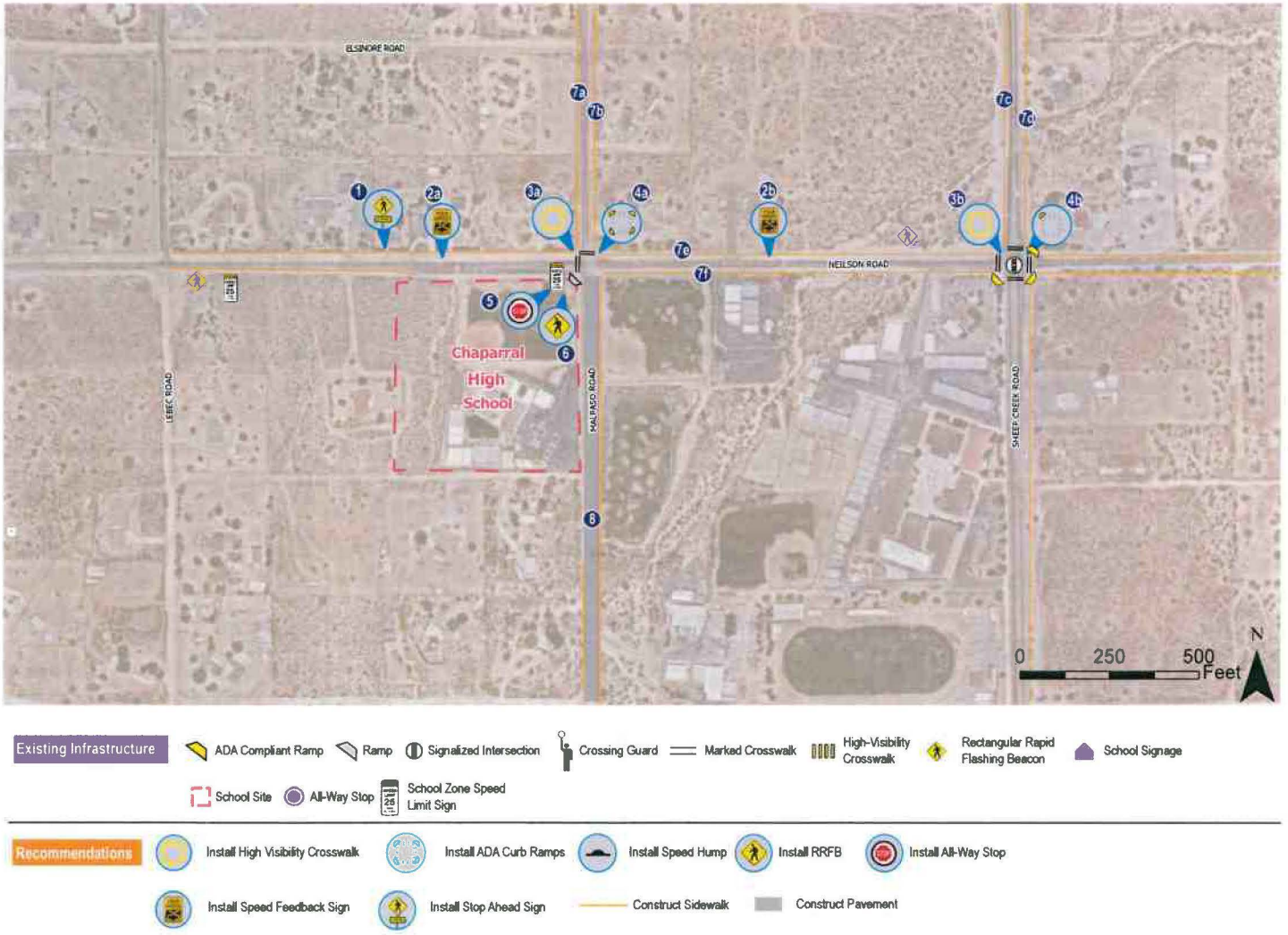
Figure 4.21.15 Auto Travel Pattern

SCHOOL RECOMMENDATIONS

Several improvement opportunities were identified in the mobility assessment conducted for Chaparral High School. Through the student tallies, it was found that the primary mode of travel for most students commuting to and from Chaparral High School was the use of the school bus and a family vehicle, respectively. Parents during the walk audit explained this was due to the pedestrian environment, as they felt it was unsafe with the lack of sidewalks and controlled crossings.

There is one controlled crossing near the school. There is a two-way stop controlled intersection at Nielson Road and Malpaso Road. Some vehicles were seen during the walk audit speeding on Nielson Road, and the Principal reported speeding is a frequent occurrence.

A speed feedback sign and speed advisory sign are recommended along Nielson Road to discourage speeding. To improve visibility and accessibility, high visibility crosswalks, ADA-compliant curb ramps, and sidewalks are recommended at the school frontage and surrounding intersection. To improve crossing safety, a Rectangular Rapid Flashing Beacon (RRFB), all-way stop, and stop ahead sign are recommend at the intersection of Malpaso Road at Nielson Road. To improve pedestrian safety, sidewalks and roadway pavement installations on Malpaso Road are recommended. All recommendations are highlighted in Figure 4.21.16. A summary list of recommendations is provided Table 4.21.1.



CHAPARRAL HIGH SCHOOL

TABLE 4.21.1 CHAPARRAL HIGH SCHOOL RECOMMENDATIONS

ID	Improvement	Description	Location
1	Stop ahead sign	Install stop ahead signage	Neilson Road between Lebec Road and Malpaso Road
2a	Speed Feedback Sign	Install speed feedback sign	Neilson Road between Lebec Road and Malpaso Road
2b	Speed Feedback Sign	Install speed feedback sign	Neilson Road between Malpaso Road and Sheep Creek Road
3a	High visibility crosswalks	Install high-visibility crosswalk on all four legs of the intersection	Neilson Road and Malpaso Road
3b	High visibility crosswalks	Install high-visibility crosswalk on all four legs of the intersection	Neilson Road and Sheep Creek Road
4a	ADA curb ramps	Install ADA compliant curb ramps on all four corners of the intersection	Neilson Road and Malpaso Road
4b	ADA curb ramps	Install ADA compliant curb ramps on the northwest corner of the intersection	Neilson Road and Sheep Creek Road
5	All-way stop	Install all-way stop	Neilson Road and Malpaso Road
6	Rectangular Rapid Flashing Beacon (RRFB)	Install RRFB crossing Nielson Road	West leg of Neilson Road and Malpaso Road intersection
7a	Sidewalk	Construct sidewalk	Malpaso Road (W) between Phelan Road and Sunnyslope Road
7b	Sidewalk	Construct sidewalk	Malpaso Road (E) between Phelan Road and Sunnyslope Road
7c	Sidewalk	Construct sidewalk	Sheep Creek Road (W) between Brawley Road and Nielson Road
7d	Sidewalk	Construct sidewalk	Sheep Creek Road (E) between Phelan Road and Sunnyslope Road
7e	Sidewalk	Construct sidewalk	Neilson Road (N) between Lebec Road and Sierra Vista Road
7f	Sidewalk	Construct sidewalk	Neilson Road (S) between Lebec Road and Sierra Vista Drive
8	Pavement	Construct pavement	Malpaso Road between Neilson Road and Sunnyslope Road

CHAPTER 5
IMPLEMENTING SRTS

SAN BERNARDINO COUNTY · SBCTA

SAFE ROUTES to SCHOOLS

IMPLEMENTING SRTS IN SAN BERNARDINO COUNTY

Funding for SRTS projects can come from a variety of sources including matching grants, sales tax or other taxes, bond measures, or public/private partnerships. Funding streams are increasingly becoming more competitive, requiring justifications that focus on equity, feasibility, and greenhouse gas emission reduction goals.

Determining the most cost-effective use of limited infrastructure funds is challenging. It is especially difficult considering the number of schools that are located in unincorporated San Bernardino County that may be eligible for grant funding. To help position San Bernardino County well for future funding opportunities, the project team created a methodology that prioritizes the project schools based on equity-based data sources. As funding becomes available, this prioritization methodology can be used to determine a funding schedule for the implementation of recommendations.

It is important to remember that as funding becomes available, projects recommended in the Safety Action Plan may require additional analysis or design considerations. This could include traffic control warrant analysis per the California Manual on Uniform Traffic Control Devices (CA MUTCD) to determine the justification of intersection control modifications (traffic signal installation or all-way stop control) based on traffic volumes, collision history, vehicular speeds, and traffic volumes. Other considerations such as truck turn templates, storm water drainage, and ADA ramp construction, would need to be further evaluate during the engineering design phase. A warrant analysis will determine the justification of signal installation. This analysis will look at traffic volumes, collisions, speed limit, and pedestrian volumes. Traffic control recommendations listed in this Safety Action Plan will need to go through the warrant analysis before implementation.

5.1 COST ESTIMATE AND PROJECT RANGE

San Bernardino County acknowledges that there are limited financial resources to fund all projects for all 21 schools. The projects identified in this Plan have been provided a cost estimate and phased based on the complexities of the type of project. Appendix A identifies all of the school recommendations, their cost estimate, and their implementation range.

Each recommended improvement is assigned a potential timeframe based on consideration of various factors. While a project may align with community interests and priorities, engineering complexity, funding considerations, and cross jurisdictional coordination also contribute to the actual implementation of a project. The timing of delivering various components of this Plan is intended to be flexible, to maximize implementation opportunities and resources as they become available.

Short Range - Could be implemented within the next 2 to 5 years
Medium Range - Could be implemented in the next 5 to 10 years
Long Range - Could be implemented in the next 10 to 20 years

5.2 SCHOOL PRIORITIZATION METHODOLOGY

The SRTS prioritization process takes into account several data sources that relate to equity. The prioritization methodology was used to inform the final SRTS prioritization and how schools are prioritized based on equity. The following is the school specific data that was taken into consideration:

- Free and reduced lunch program
- Collisions within the school attendance boundary
- Zero vehicle households within a census block group around each school
- CalEnviroScreen 4.0 within a census block group around each school
- Higher than average marriage rates within a census tract
- Higher than average birth rates within a census tract

Justification and criteria for the prioritization of each school can be found in Table 5.1.

TABLE 5.1 SCORING CRITERIA FOR SCHOOL RANKING

Dataset	Primary Criteria	Notes	Points Awarded
Free and Reduced Lunch Program Eligibility (FRPM) 2023-2024	Schools having a FRPM eligibility of 85% or over will be scored.	Quantified both as a binary (Y/N if 85% or over), and quantified for the exact FRPM score (ex: 0.89, 0.73) to establish a more specific order of prioritization	Potential Points: 20*
Collisions from the Transportation Injury Mapping System (TIMS) (All)	Collisions weighted by severity within a school attendance boundary area (Jan 2019 - Dec 2023) by any age of victim (active transportation modes **only**).	Does not include fatalities that occurred on a freeway or highway as the primary road. Scores will be assigned as following; Fatality=4, Severe injury=3, Injury=2,Complaint of Pain=1	Potential Points: 10*
Collisions from TIMS (Minors)	Collisions weighted by severity occurring within ¾ mile of a school (Jan 2019 - Dec 2023) of victim (active transportation modes **only**).	Does not include fatalities that occurred on a freeway or highway as the primary road. Scores will be assigned as following; Fatality=4, Severe injury=3, Injury=2,Complaint of Pain=1	Potential Points: 10*
Zero Vehicle Households	School attendance boundary within a census block group(s) with 5% or more zero-vehicle households	Points are awarded as either yes (20) or no (0)	Potential Points: 20
CalEnviroScreen (Combined Score)	School attendance boundary within a census block group(s) with a CalEnviroscreen score of 75% or over	Points are awarded as either yes, over 75% (20) or no, under 75% (0)	Potential Points: 20
Higher than Average Marriage Rates	School attendance boundary within a census tract(s) with Higher than Average Marriage Rates	Points are awarded as either yes (10) or no (0)	Potential Points: 10
Higher than Average Birth Rates	School attendance boundary within a census tract(s) with Higher than Average Birth Rates	Points are awarded as either yes (10) or no (0)	Potential Points: 10
***All scores based on a percentage of maximum points ranked against the other Census Block Groups in the analysis.**		Total Possible Points	100

Each of the 21 schools included in this plan were awarded points based on the prioritization scoring criteria shown in Table 5.1 Most points were awarded on a "yes" or "no" basis except collisions and free and reduced lunch program eligibility, which were awarded using percentile ranking. All scores under a certain threshold would receive 0 points, and the highest score in each category was given the highest number of points. The school prioritization list highlighted in Table 5.2 shows the scoring of each of the 21 schools included in this plan. The highest scoring schools indicate the greatest need and should be considered when allocating future funding.

The rankings are based on potential application requirements and should not be considered as a requirement to complete projects in a specific order. These potential future projects may or may not be implemented as described pending feasibility, engineering complexity, funding (including meeting specific grant requirements) and other factors that must be considered in the selection of projects for application submissions. This document encourages flexibility based on project-specific conditions and existing and future roadway performance and will serve as a foundational reference to guide future coordination, funding requests, and infrastructure planning efforts.

TABLE 5.2 SCHOOL PRIORITIZATION LIST

Rank	Total Score	School Name	Enrollment k12	Free Reduced Lunch Program	Crash_all	Crash_ minor	Zero Vehicle Score	CA Enviro Screen	Marriage Score	Birth Rate Score
1	92	Pacific High School	1222	19	10	3	20	20	10	10
2	84	Sequoia Middle	809	13	8	3	20	20	10	10
3	78	Bloomington High School	1864	2	8	8	20	20	10	10
4	77	Redlands East Valley High School	1866	0	9	8	20	20	10	10
5	71	Dickson Elementary	559	4	7	0	20	20	10	10
6	70	Live Oak Elementary	441	15	2	3	20	20	0	10
7	69	Redwood Elementary	643	0	7	2	20	20	10	10
7	69	Lyle S Briggs Fundamental School	655	0	9	0	20	20	10	10
7	69	Walter Zimmerman Elementary	526	17	3	9	0	20	10	10
10	68	Ruth O. Harris Middle	595	0	5	3	20	20	10	10
11	66	Crestmore Elementary	611	8	6	2	20	20	0	10
12	65	Newmark Elementary	398	11	4	0	20	20	0	10
13	62	Mission Elementary	560	6	3	3	20	20	0	10
14	58	Paakuma' K-8	984	0	5	3	20	20	10	0
15	54	West Randall Elementary	295	0	1	3	20	20	0	10
16	52	Beech Avenue Elementary	630	10	2	10	0	20	0	10
17	37	Mentone Elementary	429	0	4	3	20	0	10	0
18	33	Wrightwood Elementary	338	0	0	3	20	0	10	0
19	31	Kimbark Elementary	333	0	1	0	20	0	10	0

Note: Chaparral High School and Slover High School were not included in the analysis, as both schools do not have definitive school attendance boundaries and pull from geographic areas larger than the other schools in this study.