

Travel Pattern Analysis

A travel pattern analysis was conducted for Redlands East Valley 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 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. 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 4.10.16 and 4.10.17). A thicker line means more people are estimated to travel using that mode from that TAZ. Line thickness can be compared within the same mode of travel, such as comparing two walking routes from two different TAZs. One can also get a general sense of how walking and driving compare by looking at both sets of lines from the same TAZ side by side. For example, a thicker line for auto, compared to active for a particular TAZ indicates more of an interest to drive compared to walking or biking. It should be noted the lines are scaled differently with regards to trips for each mode of travel (auto and active), 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.

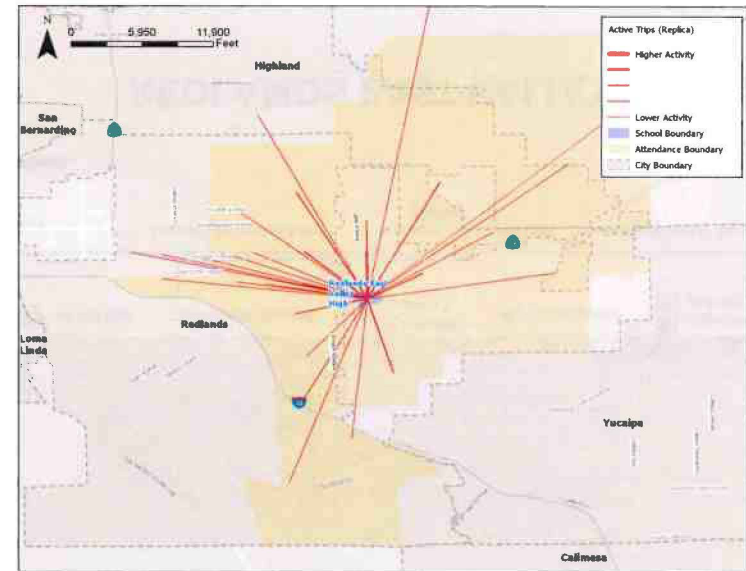


Figure 4.10.16 Active Travel Pattern

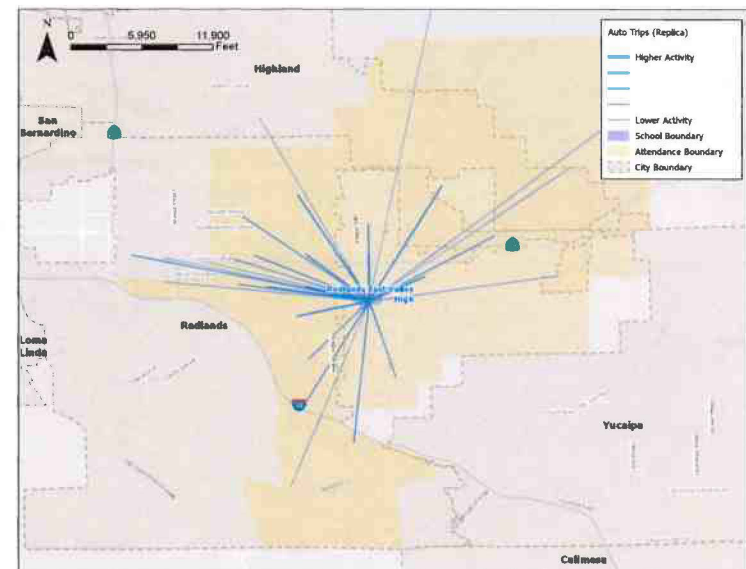


Figure 4.10.17 Auto Travel Pattern

SCHOOL RECOMMENDATIONS

The pedestrian and bicyclist environment around Redlands East Valley High School exhibits several opportunities for improvement. School staff expressed concerns of student safety along Colton Avenue. They noted there are quite a few students who bike in the Street on Colton and Opal Avenue, but there are currently no bike lanes along the roadway. Although there are currently centerline delineators at two of the school entrances, school staff noted that they have observed vehicles making illegal U-turns once they pass the delineators. As noted, the intersection at Colton Avenue and Opal Avenue has experienced some pedestrian-involved collisions, and school staff and parents noted that many students walk this direction to get to the neighborhood south on Opal Avenue.

To combat some of these challenges, a series of improvements are recommended around the school. To compliment the planned SBCTA bike lane on Opal Avenue, it is recommended to look at implementing a class IV separated bike lane on both sides of the street and narrow the travel lanes. A mid-block crosswalk with an RRFB is recommended across Opal Avenue at Independence Avenue. School staff noted that many students live in this community and have been seen crossing the street at this location. It is recommended to extend the existing centerline delineators to deter vehicles from making a U-turn along Colton Avenue. ADA curb ramps and high-visibility crosswalks are recommended to enhance the pedestrian experience at Colton Avenue and Opal Avenue, Colton Avenue and King Street, and the three school entrances along Colton Avenue.

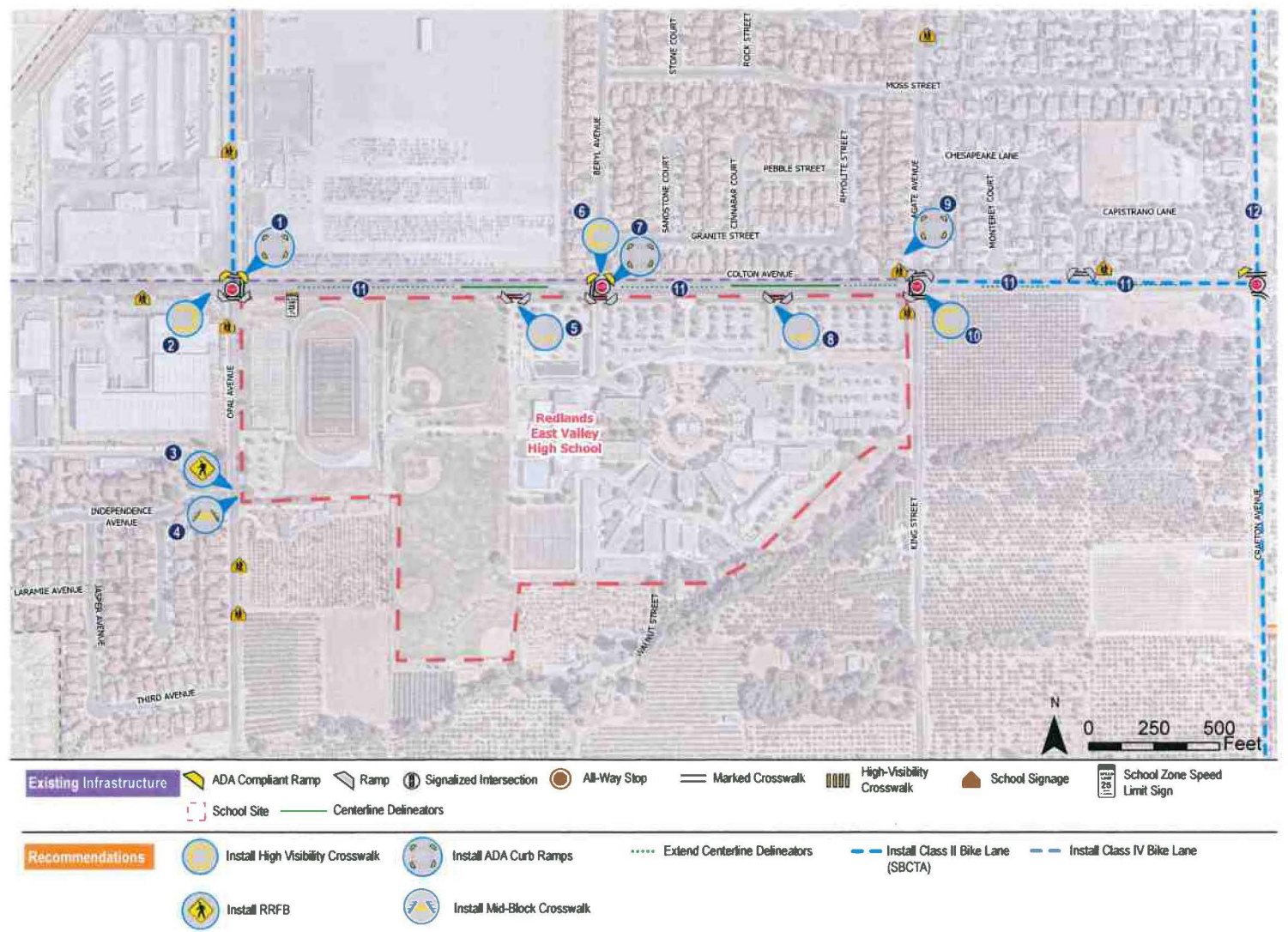


TABLE 4.10.1 REDLANDS EAST VALLEY HIGH SCHOOL RECOMMENDATIONS

ID	Improvement	Description	Location
1	ADA Compliant Curb Ramps	Install ADA curb ramps on the southeast and southwest corners of the intersection	Colton Avenue and Opal Avenue
2	High-Visibility Crosswalk	Install a high-visibility crosswalks on north, east, and south legs of the intersections	Colton Avenue and Opal Avenue
3	Rectangular Rapid Flashing Beacon (RRFB)	Install RRFB for the east-west crossing at the intersection	Opal Avenue and Independence Avenue
4	Mid-Block Crosswalk	Install a high-visibility raised crosswalk in the east-west direction across Opal Avenue	Opal Avenue and Independence Avenue
5	High-Visibility Crosswalk	Install a high-visibility crosswalk on southern leg	Colton Avenue and west school entrance
6	High-Visibility Crosswalk	Install a high-visibility crosswalks on the north, west, and south legs of the intersection	Colton Avenue and west school entrance
7	ADA Compliant Curb Ramps	Install ADA curb ramps on the southeast and southwest corners of the intersection	Colton Avenue and west school entrance
8	High-Visibility Crosswalk	Install a high-visibility crosswalk on southern leg	Colton Avenue and east school entrance
9	ADA Compliant Curb Ramps	Install ADA curb ramps on the northeast, northwest and southwest corners of the intersection	Colton Avenue and King Street
10	High-Visibility Crosswalk	Install a high-visibility crosswalk on the north, west, and south legs of the intersection	Colton Avenue and King Street
11	Centerline Delineators	Extend existing centerline delineators	Colton Avenue from King Street to Opal Avenue
12	Class II Bike lanes (SBCTA Planned)	Coordinate with SBCTA to construct Class II Bike Lanes per SBCTA planned bikeways	Opal Avenue from Colton Avenue to San Bernardino Avenue
13	Class IV Bike Path	Install a Class IV bike path to connect the Orange Blossom Trail entrance to the School	Colton Avenue from Wabash Avenue to Crafton Avenue

4.11 MENTONE ELEMENTARY SCHOOL

1320 Crafton Ave, Mentone, CA 92359
Redlands Unified School District

Mentone Elementary School is located in eastern San Bernardino County, California. The school is located within City of Redlands sphere of influence. Mentone Elementary School is located approximately 3.5 miles north-east from University of Redlands Metrolink Station and approximately 4.0 miles from Interstate 10 (I-10). The existing land use surrounding Mentone Elementary School is primarily residential and commercial. Figure 4.11.1 shows the school area and the overall context of the school site.



Figure 4.11.1 Context Map

SCHOOL PROFILE

Mentone Elementary is located within the City of Redlands and is a part of the Redlands Unified School District. In 2023-24, school enrollment was approximately 430 students in grades K-5 with a students per teacher ratio of 19:1. The demographic composition of the students is shown in Figure 4.11.2 shows the school has a higher Hispanic population according to the census estimates. Additionally, 81% of Mentone Elementary School students received free or reduced-price lunch during the 2023-2024 school year, which is significantly higher than the rest of the school district and county (Figure 4.11.3).

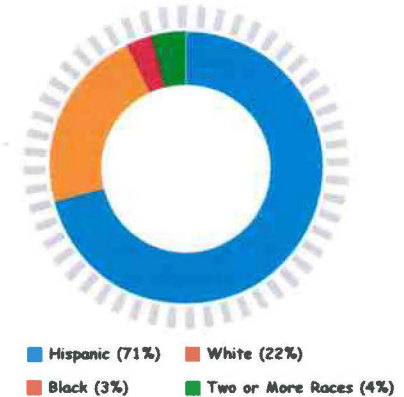


Figure 4.11.2 Demographic Composition

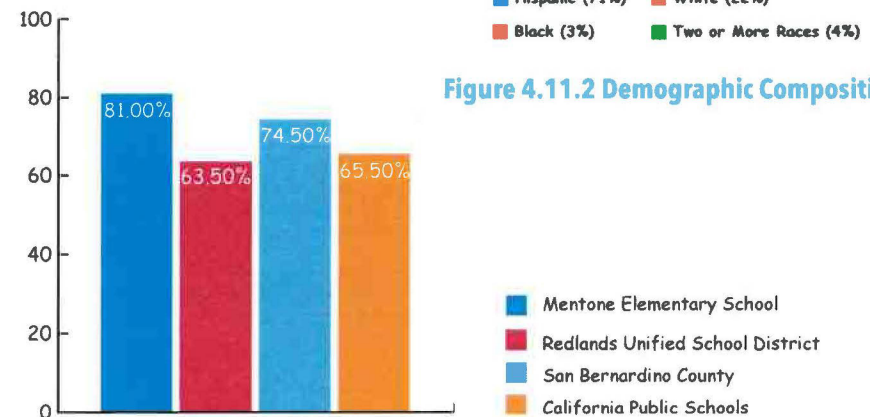


Figure 4.11.3 Free or Reduced Meals (Compare between district and county)

Student Tallies

The Safe Routes to School Student Arrival and Departure Tally Sheet was administered to Mentone Elementary School staff between February 10th to February 14th, 2025, to better understand what mode(s) students use to travel to and from the campus. As displayed in Figure 4.11.4, the vast majority of students arrived and departed in a family vehicle (88% average), followed by walking (6% average) and then carpool (2% average), respectively. Mentone Elementary School has multiple school buses that drop students off at the front entrance of the school.

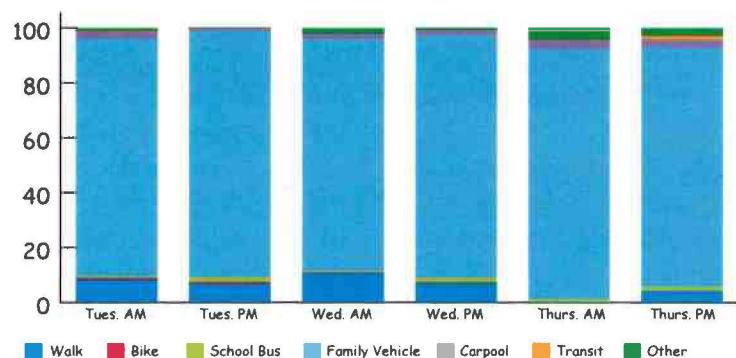


Figure 4.11.4 Mentone Elementary School Student Arrival and Departure Tallye

Mobility Assessment

A walk audit and on-site meeting for Mentone Elementary in unincorporated San Bernardino was conducted on February 11th, 2025. The purpose of the event was to identify issues related to student drop-off and pick-up that may make it unsafe or uncomfortable for students to walk, bike and/or roll to and from school. Included in this assessment were discussions of observed insufficiencies, such as substandard sidewalks, missing curb ramps and crosswalks, inadequate bicycle infrastructure and high traffic volumes and speeds around the school.

Those who attended the walk audit included the Mentone Elementary School Principal and staff, school parents and caregivers, San Bernardino County staff and Michael Baker International staff.

An online survey was administered to Mentone Elementary School parents via SurveyMonkey during the week of February 10th, 2025. 24 parents participated in the survey and 14 of those parents noted that their children live 0.25 mile, or less from the school. As shown in Figure 4.11.5 and 4.11.6, vehicles are the most

common mode of transportation used for arrival and departure from school despite living within a quarter mile of the school.

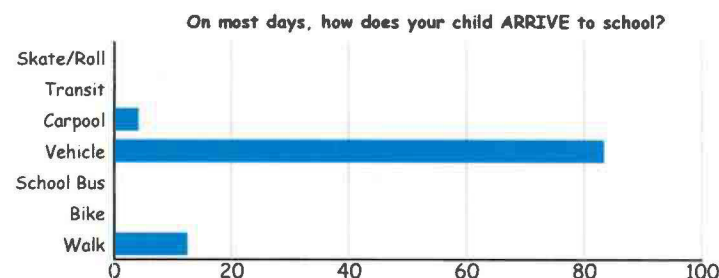


Figure 4.11.5 Mentone Elementary School Parent Survey Question (arrive to school)

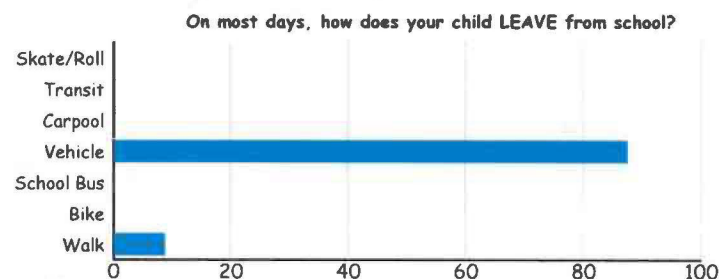


Figure 4.11.6 Mentone Elementary School Parent Survey Question (leave from school)

CalEnviroScreen 4.0

CalEnviroScreen (CES) is a tool developed by the California Office of Environmental Health Hazard Assessment (OEHHA) that identifies communities that are disproportionately burdened by pollutants. Indicators used to identify communities include exposures (traffic, pesticides, and drinking water), environmental effects (cleanup sites, solid waste), sensitive populations (Asthma, low birth weight) and socioeconomic factors (education, poverty, unemployment). Scores range from 0-100, with a higher score indicating a higher effect of pollutants for the area. Figure 4.11.7 illustrates the CES scores for the census tract where Mentone Elementary School is located, scoring in the 40-50 percentile range which indicates the area is somewhat burdened by pollutants. For this region, the highest exposures to pollutants are ozone, drinking water and pesticides, in that order.



Figure 4.11.7 CalEnviroScreen 4.0 Score - Mentone Elementary School

Heathy Place Index

The California Healthy Places Index (HPI), developed by the Public Health Alliance of Southern California, is a tool used to explore the community conditions that impact life expectancy. The HPI tool helps prioritize public and private investments, resources, and programs in neighborhoods where they are needed the most. The HPI tool combines 23 community characteristics such as access to healthcare, housing, education and more. The tool produces a score ranging from 0-100 with a higher score representing a healthier community. The tool's indicators reflect widely recognized thematic areas of the social determinants of health and are consistent with those described by the Centers for Disease Control (CDC). Figure 4.11.8 illustrates the HPI scores for the census tract Mentone Elementary is located within. The HPI score of 48.5 indicates more healthy conditions surrounding the school.



Figure 4.11.8 Healthy Place Index Score - Mentone Elementary High School

Walking

Figure 4.11.9 provides an overview of the existing pedestrian network and challenges observed and analyzed. There is an existing sidewalk on both sides of the street on Crafton Avenue. Although there is a sidewalk on the east side of Crafton Avenue, it is not ADA compliant and is not a complete sidewalk. On Mentone Boulevard, there is no sidewalk on both sides of the street, just east of the intersection. Parents noted that they have seen students walk in the street between the sidewalk gaps.

During the principal interview and walk audit, it was noted that speeding has been observed along Crafton Avenue. The existing Rectangular Rapid Flashing Beacon (RRFB) was used frequently by students and parents. Parents that dropped off students on the west side of Crafton Avenue, though, were seen walking across the middle of Crafton Avenue toward the school.

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 4.11.10 shows the results of the PES scoring. A sidewalk network with medium and high PES scores indicates low stress for walking, whereas a low or very low PES score can be considered a stressful walking environment.



Figure 4.11.9 Existing Pedestrian Conditions

Figure 4.11.11 shows the walkshed for Mentone Elementary School. The walkshed shows the area which a student can walk 0.5 mile from the school. The walkshed has been reviewed for sidewalk connectivity and accessibility.



Currently, there are no bicycle facilities surrounding Newmark Elementary School. There are plans to implement a Class II Bike Lane along Crafton Avenue and Mentone Boulevard through SBCTA (Figure 4.11.12).

Figure 4.11.14 shows the bikeshed for Mentone Elementary School. The bikeshed shows the area which a student can bike 1.0 mile from the school.



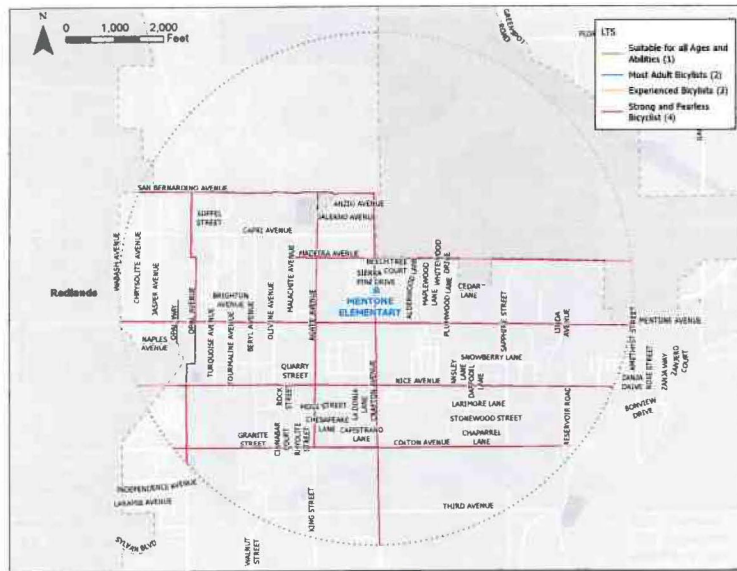


Figure 4.11.13 Bicycle Level of Traffic Stress

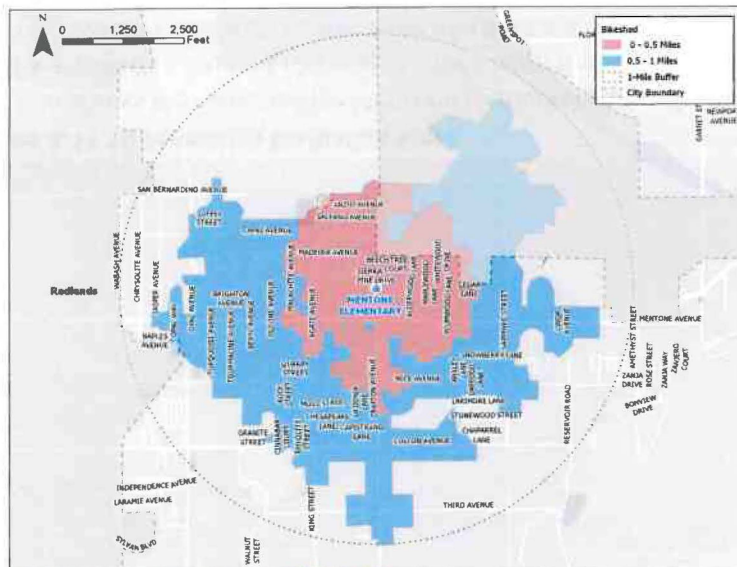


Figure 4.11.14 Existing Bikeshed

Pick-Up and Drop-Off

Mentone Elementary School is accessed via Crafton Avenue, a three-lane road. Figure 4.11.15 illustrates the existing conditions, and the behaviors observed during the mobility assessment.

Vehicles were seen parking on both sides of Crafton Avenue, creating a backup of vehicles along the road. Those who parked on the west side of Crafton Avenue were seen crossing the street into oncoming traffic. Parents were seen double-parking behind vehicles perpendicularly parked in the small lot in front of the school, vehicles were then seen driving past the on-street bollards to make U-turns.

One of the biggest concerns that was mentioned during the walk audit was vehicles making illegal U-turns and pedestrians crossing the street into oncoming traffic.

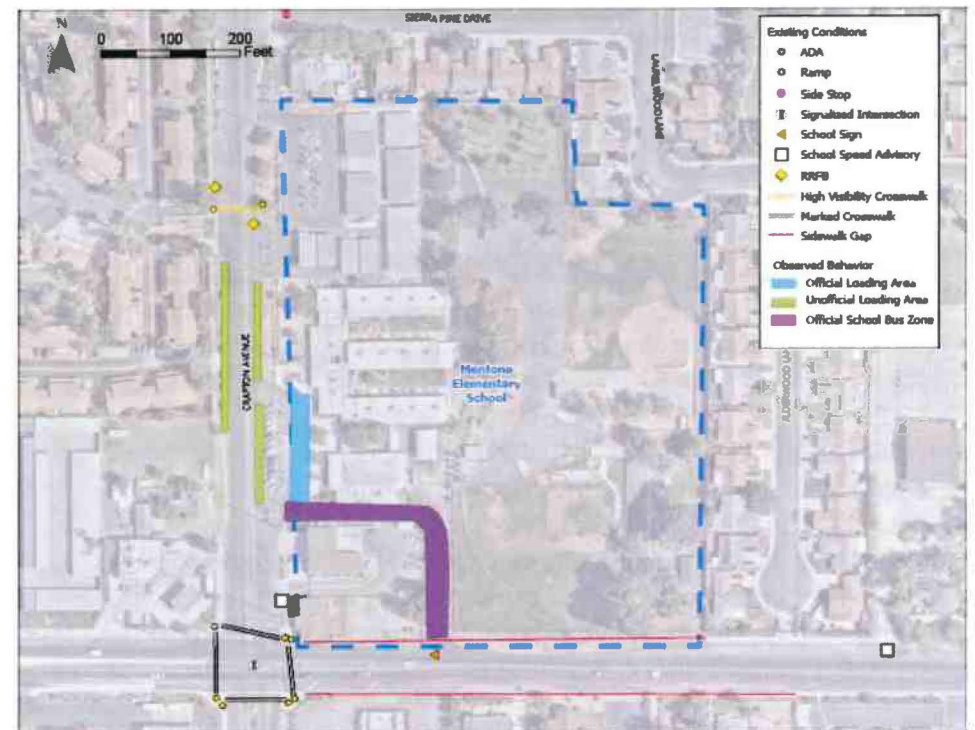


Figure 4.11.15 Existing Pick-Up and Drop-Off Vehicle Behavior

Safety Analysis

Between 2019 and 2023, there were three collisions within a 0.5 mile radius of Mentone Elementary School (Figure 4.11.16). Two of those collisions resulted in a severe injury involving a pedestrian, one collision resulted in a severe injury involving a bicyclist



Figure 4.11.16 Bicycle and Pedestrian Involved Collisions (2019-2023)

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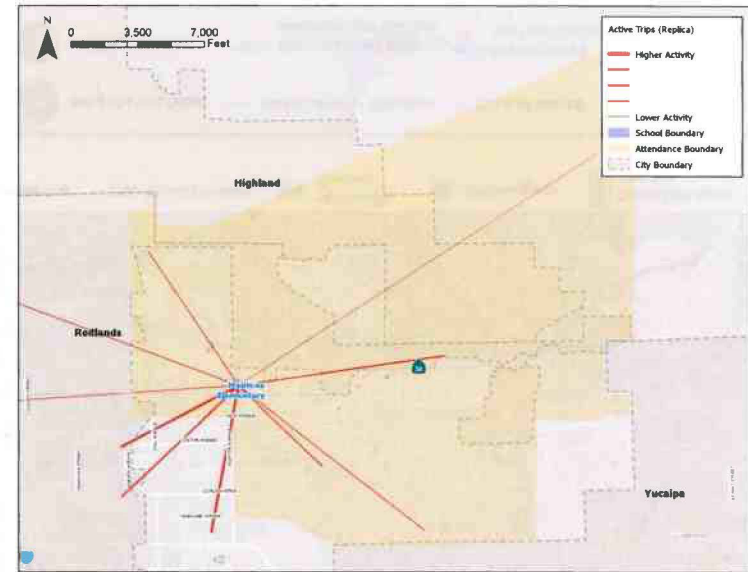


Figure 4.11.16 Active Travel Pattern

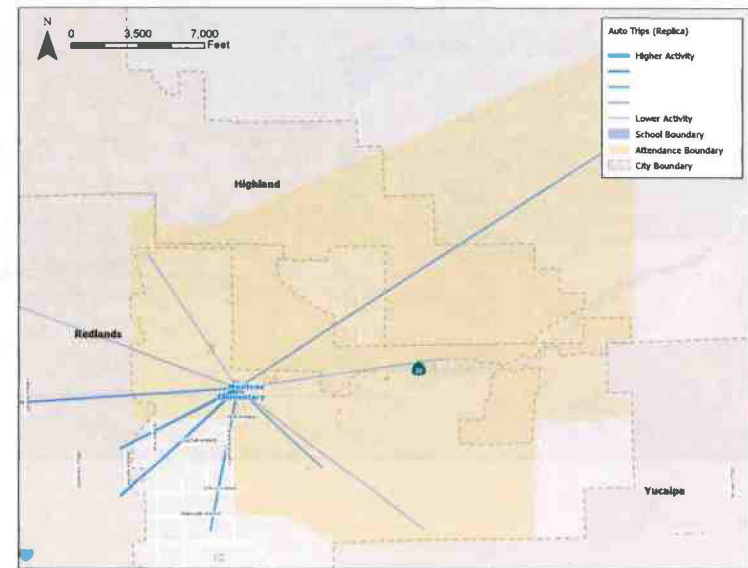


Figure 4.11.17 Auto Travel Pattern