TABLE 4.15.1 SEQUOIA MIDDLE SCHOOL RECOMMENDATIONS

ID	Improvement	Description	Location
1a	High-Visibility Crosswalk	High visibility crossing on all four corners of the intersection	Live Oak Avenue and Randall Avenue
1b^	High-Visibility Crosswalk	High visibility crossing on all four corners of the intersection	Hemlock Avenue and Randall Avenue
1c^	High-Visibility Crosswalk	High visibility crossing on all four corners of the intersection	Beech Avenue and Randall Avenue
1d^^	High-Visibility Crosswalk	Install high-visibility crosswalk on the west and south legs of the intersection	Live Oak Avenue and Sequoia Avenue
1e	High-Visibility Crosswalk	High visibility crossing on the east corner of the intersection	Hemlock Avenue and Sequoia Avenue
2a	ADA Compliant Curb Ramps	Install ADA compliant curb ramps on the northeast corner of the intersection	Live Oak Avenue and Randall Avenue
2b^	ADA Compliant Curb Ramps	Install ADA compliant curb ramps on all four corners of the intersection	Hemlock Avenue and Randall Avenue
2c^	ADA Compliant Curb Ramps	Install ADA compliant curb ramps on the southeast and southwest corners of the intersection	Carob Street and Randall Avenue
2d^	ADA Compliant Curb Ramps	Install ADA compliant curb ramps on all four corners of the intersection	Beech Avenue and Randall Avenue
2e	ADA Compliant Curb Ramps	Install ADA compliant curb ramps on the northwest and southwest corners of the intersection	Hemlock Avenue and Fontlee Lane
2f	ADA Compliant Curb Ramps	Install ADA compliant curb ramps on the northwest and southwest corners of the intersection	Hemlock Avenue and Holly Drive
3^	Traffic Signal	Add traffic signal (*)	Beech Avenue and Randall Avenue
4	No Left Turn Sign	Install "No Left Turn" sign to restrict northbound left-turn movements at the School Exit Driveway	Hemlock Avenue and School Exit Driveway
5	Widen Sidewalk	Repave existing sidewalk	Hemlock Avenue (W) between North School Entrance Driveway and South School Exit Driveway
6	Speed Feedback Sign	Install Speed Feedback Sign	Hemlock Avenue between Holly Drive and Manzanita Drive
7a	High-Visibility Crosswalk	Install high-visibility crosswalk for the internal school crosswalk near the entrance-only school driveway	West of the intersection of Hemlock Avenue at North School Entrance Driveway
7b	High-Visibility Crosswalk	Install high-visibility crosswalk for the internal school crosswalk near the exit-only school driveway	West of the intersection of Hemlock Avenue at South School Exit Driveway
8a	ADA Compliant Curb Ramps	Construct ADA-compliant curb ramps for the internal school crosswalk near the exit-only school driveway	West of the intersection of Hemlock Avenue at South School Exit Driveway
8b	ADA Compliant Curb Ramps	Construct ADA-compliant curb ramps for the internal school crosswalk near the entrance-only school driveway	West of the intersection of Hemlock Avenue at North School Entrance Driveway
9a^	Sidewalk	Construct sidewalk	Randall Avenue (S) between Hemlock Avenue and Beech Avenue
9b	Sidewalk	Construct sidewalk	Hemlock Avenue (E) between Randall Avenue and Holly Drive
9c	Sidewalk	Construct sidewalk	Beech Avenue (W) between Randall Avenue and Holly Drive

ID	Improvement	Description	Location
9d	Sidewalk	Construct sidewalk	Beech Avenue (E) between Randall Avenue and Sequoia Avenue
9e	Sidewalk	Construct sidewalk	Sequoia Avenue (S) between Carob Street and Beech Avenue
9f	Sidewalk	Construct sidewalk	Ackerman Drive (N and S) east of Hemlock Avenue

(*) Note: Recommendation will need additional studies to determine warrants

(^) Note: Item is also located on the Beech Avenue Elementary School Recommendation Map

(^^) Note: Item is also located on the Live Oak Elementary School Recommendation Map

4.16 REDWOOD ELEMENTARY SCHOOL

8570 Redwood Avenue, Fontana CA 92335
Fontana Unified School District

Redwood Elementary School is located in unincorporated San Bernardino County, California, within the Fontana Sphere of Influence, west of the city boundary. Redwood Elementary School is located west of Redwood Avenue, between Arrow Route and Whittram Avenue. The school is located approximately 2.0 miles north of the Interstate 10 (I-10) freeway and approximately 0.5 miles northeast of Auto Club Speedway, a Nascar racing track. The land use surrounding Redwood Elementary School is primarily residential and industrial land uses. Figure 4.16.1 shows the school area and the overall context of the school site.

Figure 4.16.1 Context Map

SCHOOL PROFILE

Redwood Elementary School is located in unincorporated San Bernardino County within the Fontana Sphere of Influence and is a part of the Fontana Unified School District. It serves approximately 584 students in grades K through 6, with a student/teacher ratio of 19:1. The demographic composition of the students is shown in Figure 4.16.2, which shows that Redwood Elementary School has a majority Hispanic population according to the census estimates. Currently, approximately 79.5% of Redwood Elementary School students received free or reduced-price lunch during the 2023-2024 school year, which is higher than the state and county averages (Figure 4.16.3).

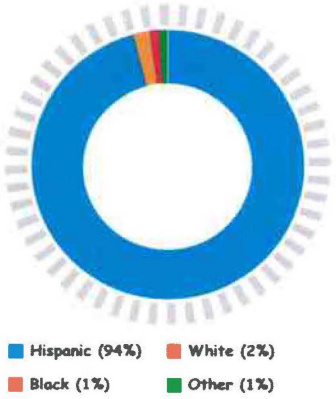

Figure 4.16.2 Demographic Composition

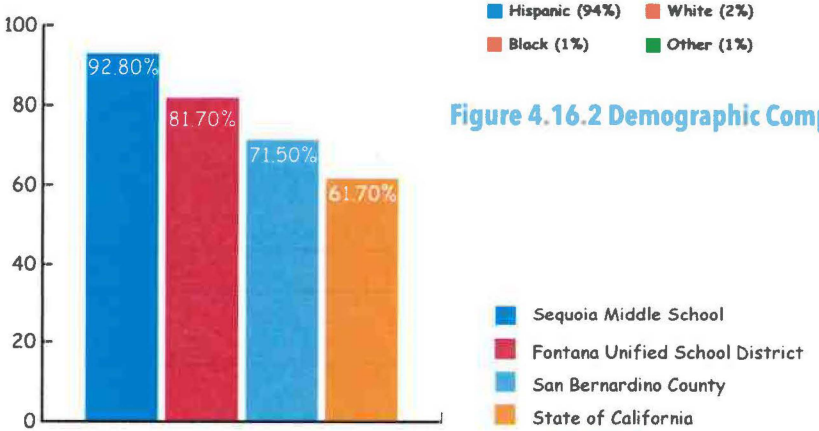

Figure 4.16.3 Free or Reduced Meals (Compare between district and county)

Student Tallies

The Safe Routes to School Student Arrival and Departure Tally Sheet was administered by Redwood Elementary School staff from February 3rd to February 7th, 2025, to better understand what mode(s) students use to travel to and from the campus. Although an online tally was administered as part of the school mobility assessment for Redwood Elementary School, unfortunately, no teachers participated in the student tally.

Mobility Assessment

A walk audit and on-site meeting for Redwood Elementary School in unincorporated San Bernardino County was conducted on February 6, 2025. The purpose of the event was to identify any issues related to student drop-off or pick-up operations that may make it unsafe or uncomfortable for students to walk, bike and roll to/from school. Included in this assessment are discussions of observed deficiencies, such as substandard sidewalks, missing curb ramps and crosswalks, inadequate bicycle infrastructure and high traffic volumes/speeds around the school.

Those who attended the mobility assessment included Redwood Elementary School Principal, Assistant Principal, Secretary of the Principal, PTA President, Fontana Unified School District staff and CR Associates staff.

Although an online survey was administered as part of the school mobility assessment for Redwood Elementary School, unfortunately, no parents/ caregivers participated.

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 a particular area. Figure 4.16.4 illustrates the CES scores for Redwood Elementary School and its surrounding area scoring in the 80th to 90th percentile, which indicates the area is significantly burdened by pollutants.

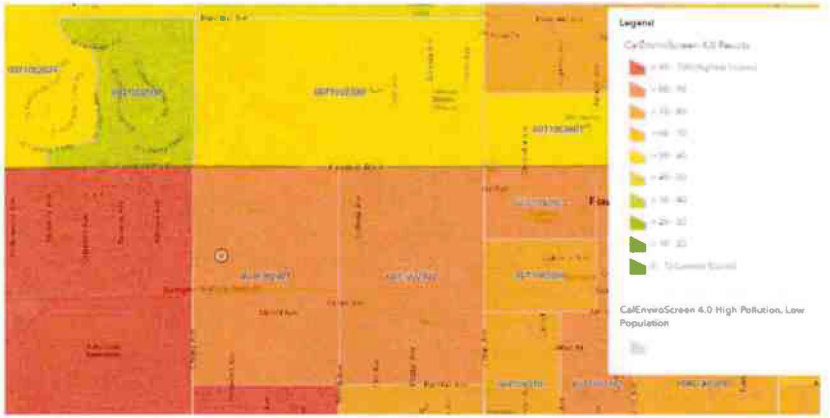

Figure 4.16.4 CalEnviroScreen 4.0 Score - Redwood Elementary School

Healthy 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 4.16.5 illustrates the area surrounding Redwood Elementary School, which shows an HPI score of 13.8, indicating less healthy conditions surrounding the school.

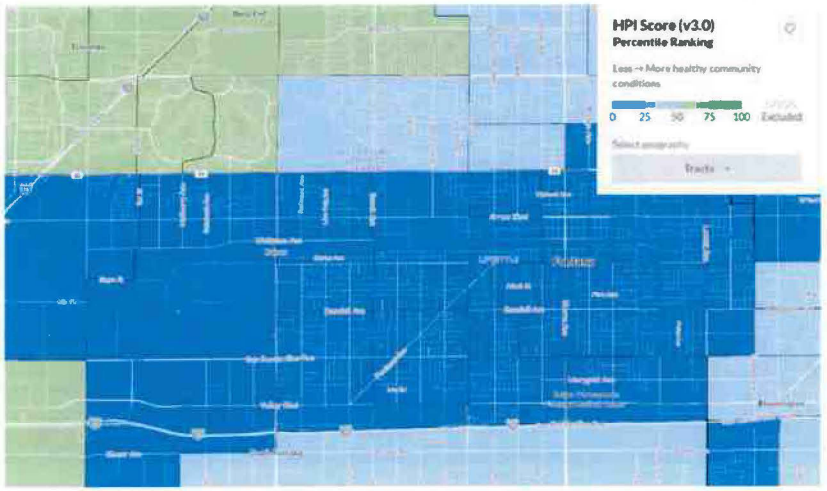

Figure 4.16.5 Healthy Place Index Score - Redwood Elementary School

Walking

Figure 4.16.6 provides an overview of the existing pedestrian network and challenges observed and analyzed. The sidewalk network surrounding Redwood Elementary School is largely incomplete. During the site visit, it was observed that there were missing sidewalks on the north and south sides of Valencia Avenue and frequent missing sidewalks on the east and west sides of Redwood Avenue, the north and south sides of Whittram Avenue, and the south side of Arrow Route. Some of the sidewalks on the streets surrounding the school do not have appropriate paving, with a large portion of sidewalks on the southern half of Redwood Avenue being gravel and grass. To avoid flooded roads when it rains, people are known to jaywalk across Arrow Route to avoid bigger puddles, especially near the intersection of Arrow Route and Redwood Avenue. Additionally, there are flooding issues along Redwood Avenue and Whittram Avenue.

Additionally, there are missing curb cuts at the intersection of Redwood Avenue and Valencia Avenue, as well as the intersection of Redwood Avenue and Whittram Avenue. Students are known to walk across Redwood Avenue to get in a car that is double-parked. At the time of pick up, there were multiple cars exiting the south parking lot on Redwood Avenue. In waiting to turn left, multiple cars blocked the sidewalk. Due to the lack of visibility from the double-parked cars, turning left can take a long time. Cars turning right onto Country Lane from Redwood Avenue and turning right from Redwood Avenue onto Country Lane often encroach on the crosswalk.

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 4.16.7 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 Redwood Elementary School show very low PES scores on all surrounding streets adjacent to the school. This indicates a stressful walking environment near the school along these roadways and may create an access barrier to walking.

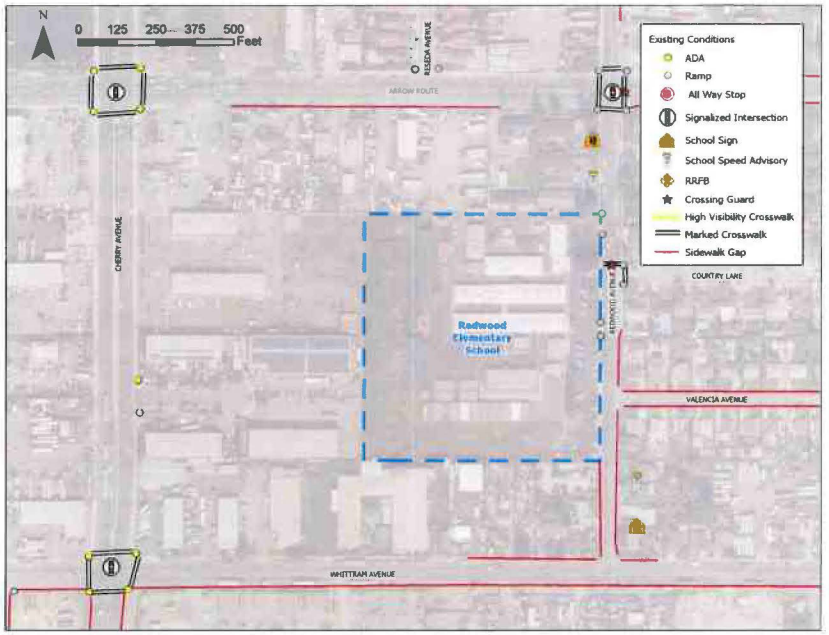

Figure 4.16.6 Existing Pedestrian Conditions

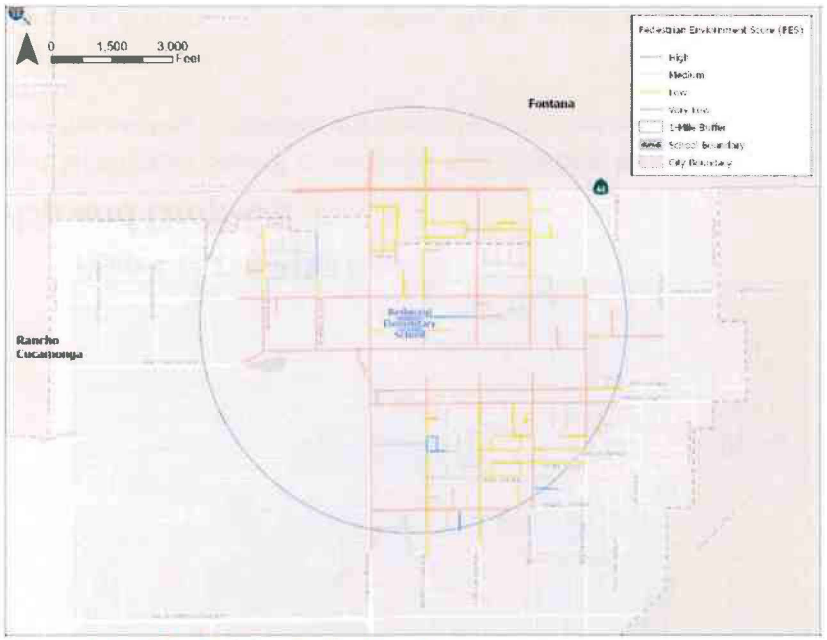

Figure 4.16.7 Pedestrian Evaluation Score

Figure 4.16.8 shows the walkshed for Redwood Elementary School. The walkshed shows the area where a student can walk one-half mile from the school. The walkshed has been reviewed for sidewalk connectivity and accessibility.

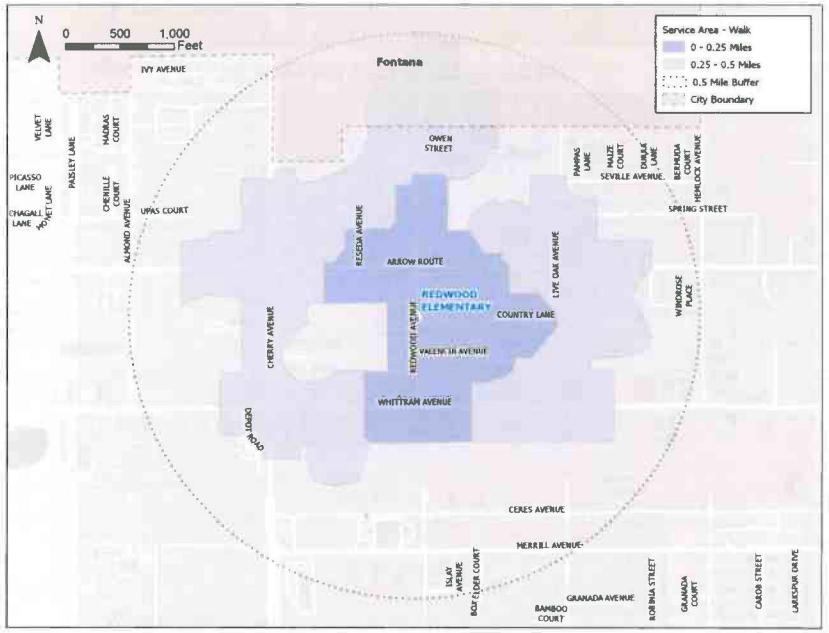

Figure 4.16.8 Existing Pedestrian Walkshed

Riding and Rolling

Currently, there are no bicycle facilities surrounding Redwood Elementary School. There are San Bernardino County Transportation Authority (SBCTA) plans to implement a Class II Bike Lane along Arrow Route and Cherry Avenue (Figure 4.16.9).

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 Redwood Elementary School have LTS 4 scores, indicating high stress levels for cyclists (Figure 4.16.10).

Figure 4.16.11 shows the bikeshed for Redwood Elementary School. The bikeshed shows the area which a student can bike one mile from the school.

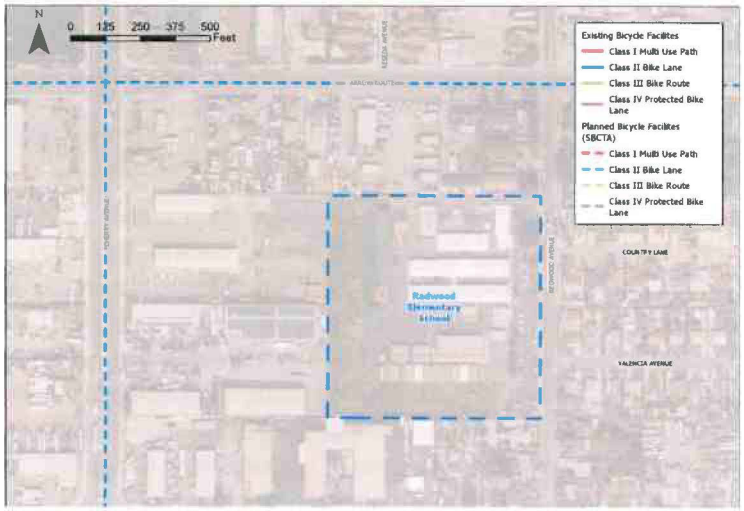

Figure 4.16.9 Existing and Planned Bicycle Condition

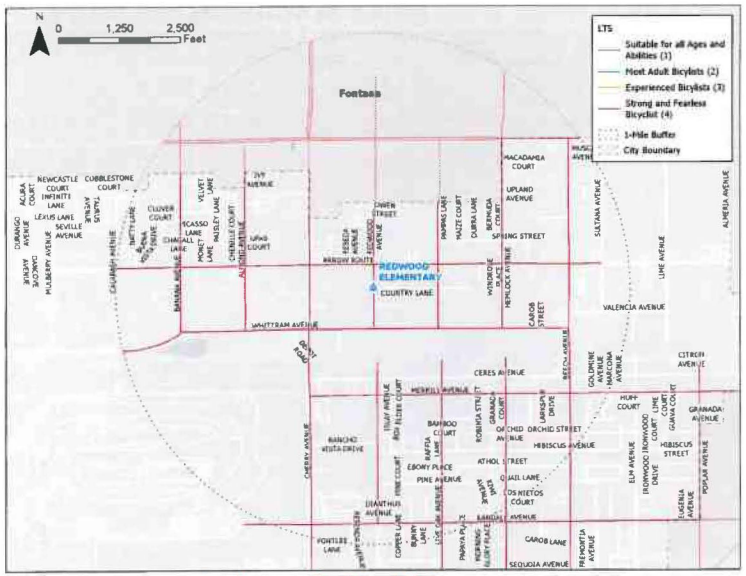

Figure 4.16.10 Bicycle Level of Traffic Stress

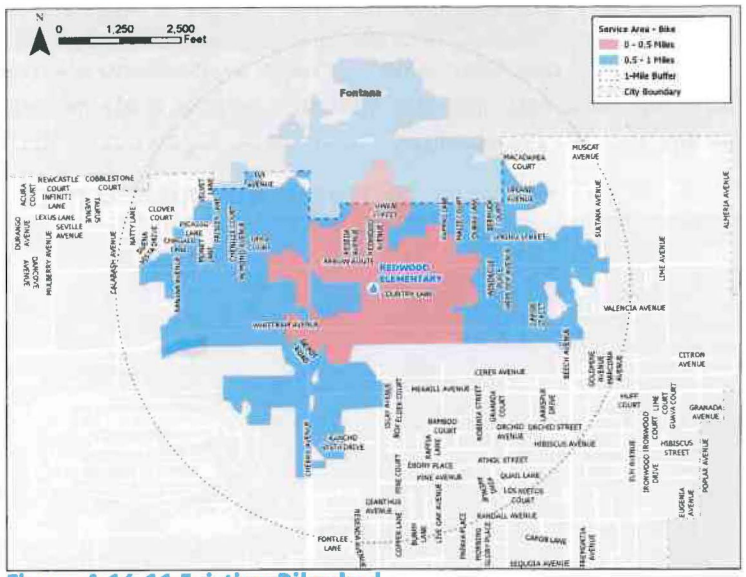

Figure 4.16.11 Existing Bikeshed

Pick-Up and Drop-Off

Redwood Elementary School is accessed via Redwood Avenue. Figure 4.16.12 illustrates the existing conditions and the behaviors observed during the mobility assessment.

There are currently two crossing guards. There is one crossing guard at the intersection of Redwood Avenue and Arrow Route. This intersection is a controlled crossing with standard marked crosswalks. The second crossing guard is located at the intersection of Redwood Avenue and Country Lane. This intersection is an uncontrolled crossing with standard marked crosswalks. The following signs are present along the east and west sides of Redwood Avenue:

- "No Vehicles Over 5 Tons"
- "School Advance Warning"
- "School Zone Speed Limit"

Drop-off and pick-up currently occurs primarily in the school parking lot on Redwood Avenue. During the site visit, students were observed arriving nearly 30 minutes prior to the first bell for breakfast. Many parents were seen dropping off students at the official unloading area near the front entrance of the school, while other parents were seen dropping off students on the south side of the parking lot and having students walk north through the parking lot. Staff members were seen blocking off the entrance of the bus loop with cones to prevent vehicles from parking or deterring access to school transport. School staff also block off the southernmost entrance to the staff parking lot on Redwood Avenue to restrict parking in reserved spaces. School staff recognize that vehicles use unofficial spots to drop off students such as the active lane on both directions of Redwood Avenue and along Country Lane.

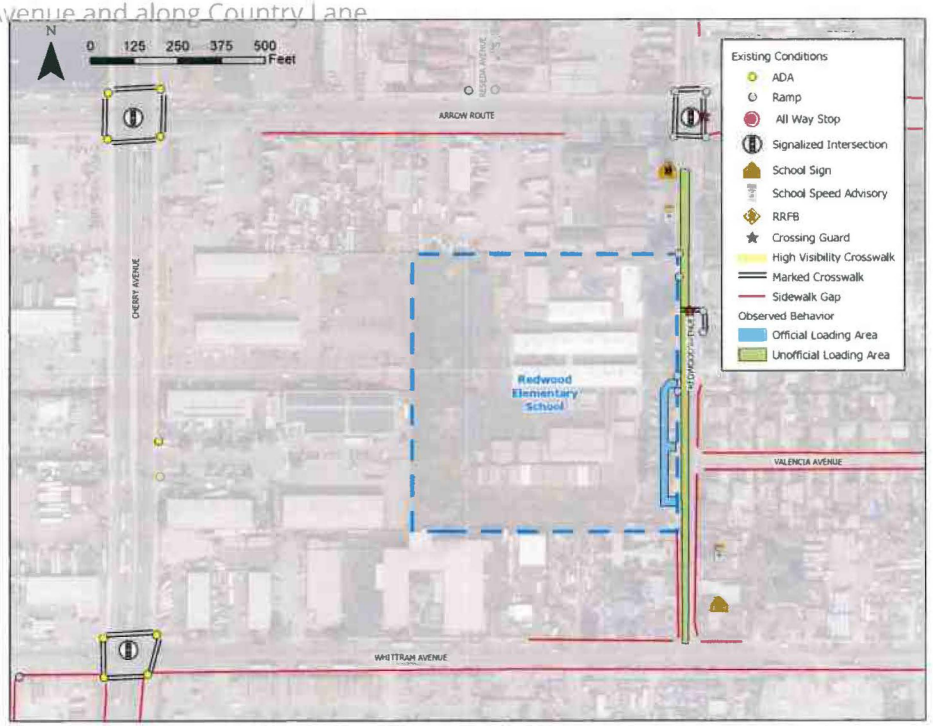

Figure 4.16.12 Existing Pick-Up and Drop-Off Vehicle Behavior

Safety Analysis

Between 2019 and 2023, there were two bicycle and pedestrian collisions within a one-half mile radius of Redwood Elementary School (see Figure 4.16.13). Of the two collisions, there were no collisions involving a pedestrian who sustained severe injuries.

Figure 4.16.13 Bicycle and Pedestrian Involved Collisions (2019-2023)

Travel Pattern Analysis

A travel pattern analysis was conducted for Redwood Elementary 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 (see Figure 4.16.14 and Figure 4.16.15 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 Redwood Elementary School, auto and active modes have relatively similar magnitudes for each respective mode from each TAZ.

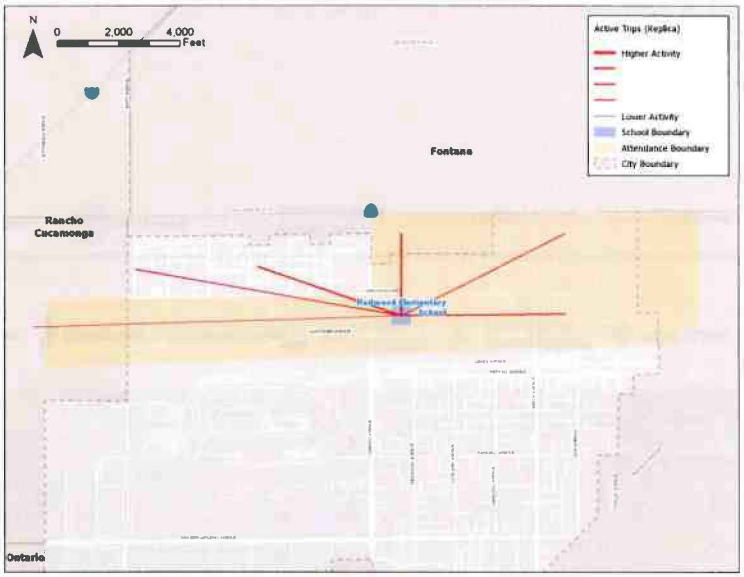

Figure 4.16.14 Active Travel Pattern

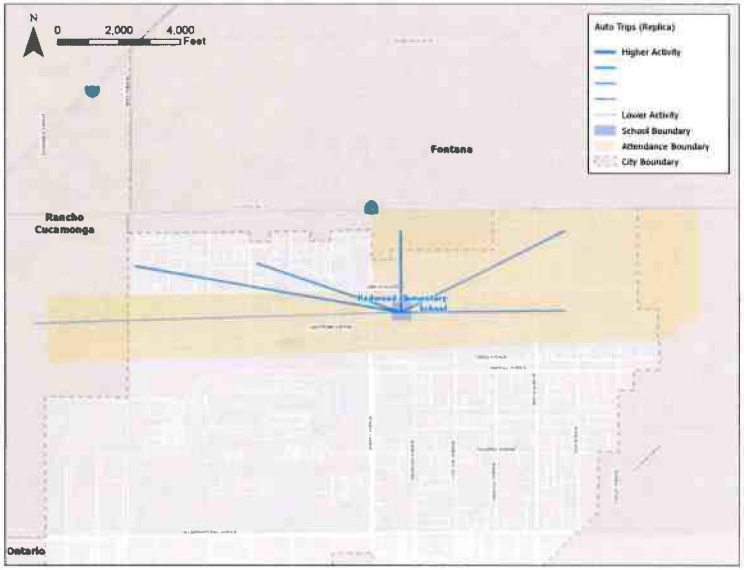

Figure 4.16.15 Auto Travel Pattern

SCHOOL RECOMMENDATIONS

Several improvement opportunities were identified in the mobility assessment conducted for Redwood Elementary School. Walk audit participants expressed that students have been observed walking across Redwood Avenue where there is **not a crosswalk to get in a car that is double-parked.** Multiple sidewalks on the streets surrounding the school do not have appropriate paving, with a large portion of sidewalks on the southern half of Redwood Avenue being gravel and grass. The sidewalks are almost completely missing along Arrow Route and along Whittram Avenue, which are wide two-lane roads with parking on either side and a center left turn lane. To avoid flooded roads when it rains, people are known to cross Arrow Route somewhere at the midblock to avoid bigger puddles, especially near the intersection of Arrow Route and Redwood Avenue. Additionally, there are flooding issues along Redwood Avenue and Whittram Avenue. There are also missing curb ramps at the intersection of Redwood Avenue and Valencia Avenue as well as at the intersection of Redwood Avenue and Whittram Avenue.

During the mobility assessment, cars were observed blocking the bus lane exit, unloading in active lanes, and parking in the two red zones near the shared parking lot/bus loop exit, which decreases visibility for drivers turning onto Redwood Avenue for the school exit driveway. There is no signage that prohibits parents from conducting left turns when exiting the parking lot loop. There is limited visibility due to the cars that are double-parked on Redwood Avenue, and a double yellow center line on Redwood Avenue.

There are no bike lanes on any adjacent streets near Redwood Elementary School. Walk audit participants noted that a potential reason more students do not bike to and from school is a lack of access to bikes, helmets, or locks, as well as the missing sidewalk infrastructure in the school vicinity.

Several recommendations are provided to improve the traveling experience to and from Redwood Elementary School To improve visibility and accessibility, high visibility crosswalks, ADA-compliant curb ramps and sidewalks are recommended along Redwood Avenue, Cherry Avenue, Whittram Avenue, and Arrow Route. To increase and improve east-west crossing opportunities, an RRFB is recommended to be added at the intersection of Country Lane and Redwood Avenue. To reduce improper pickups and drop offs along Redwood Avenue, red curb is recommended to be extended along the west side of the school frontage. These **recommendations are highlighted in Figure 16. A summary list of all recommendations is provided in Table 4.16.1.**

REDWOOD ELEMENTARY SCHOOL