

Walk Audit Report



SafeRoutes



Napa County

CANYON OAKS
ELEMENTARY SCHOOL

CANYON OAKS ELEMENTARY SCHOOL

475 SILVER OAK TRAIL
AMERICAN CANYON, CA

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	3	EXISTING PLANS
NAPA COUNTY SAFE ROUTES TO SCHOOL PROGRAM		NVUSD Facilities Master Plan (2016)
SCHOOL OFFICIALS		NVTA Napa Countywide Bicycle Plan (2019)
WALK AUDIT PARTICIPANTS		NVTA Napa Countywide Pedestrian Plan (2016)
CITY STAFF		Caltrans District 4 (2018)
REPORT DESIGN		NVTA SR 29 Corridor Improvement Plan (2014)
EXECUTIVE SUMMARY	4	NVTA Napa Valley Countywide Transportation Plan: Advancing Mobility 2045 (2021)
THE NAPA COUNTY SAFE ROUTES TO SCHOOL PROGRAM		American Canyon General Plan (2040)
WHY SAFE ROUTES TO SCHOOL? THE SIX E'S		Watson Ranch Specific Plan (2018)
REPORT PROCESS		
CANYON OAKS ELEMENTARY SCHOOL	7	WALK AUDIT
SCHOOL SUMMARY		METHODOLOGY
DATA		WALK AUDIT FINDINGS
NEIGHBORHOOD CONTEXT		
EXISTING CONDITIONS	10	RECOMMENDATIONS
SITE CIRCULATION		CONTEXT FOR RECOMMENDATIONS
SCHOOL PARKING LOT AND GROUNDS		MAP OF RECOMMENDATIONS
Silver Oak Trail		TABLE OF RECOMMENDATIONS
White Oak Drive		
BICYCLE AND PEDESTRIAN INFRASTRUCTURE		COLLISION MAP AND DATA
Map of Existing Bicycle Facilities		
Map of Existing Pedestrian Facilities		APPENDICES
POLICIES AND PROGRAMS		
Encouragement and Education		FIGURES & MAPS REFERENCE
Enforcement		
		FOOTNOTES

ACKNOWLEDGEMENTS

NAPA COUNTY SAFE ROUTES TO SCHOOL PROGRAM

Napa County Bicycle Coalition
Madeline Oliver, Program Coordinator
Carlotta Sainato, Program Coordinator
Patrick Band, Executive Director
Kara Vernor, Executive Director

Napa County Office of Education
Grant Dinsdale, Community Programs Site Coordinator, Safe Routes to School
Willow Williams, Community Programs Outreach Coordinator
Christine Wedding, Community Programs Manager
Sara Sitch, Community Programs Director

Napa Valley Transportation Authority
Diana Meehan, Senior Planner

SCHOOL OFFICIALS

Napa Valley Unified School District
Dr. Rosanna Muccetti, Superintendent
Stephanie Vasquez, Principal
Kay Vang, Principal

CITY STAFF

City of American Canyon Community Development Department
City of American Canyon Public Works Department
City of American Canyon Fire Protection District
City of American Canyon Police Department

WALK AUDIT PARTICIPANTS

Angelica Correa, Parent
Denisse Hunt, Parent
Vilma Martinez, Parent
Rosa Perez, Parent
Ana Laura Rojas de Marin, Parent
Lileta Santos, Parent
Margarita Torres, Parent
Kathleen Walker, Parent
Kay Vang, Principal
Leon Garcia, Mayor of American Canyon

REPORT DESIGN

Ana Rizzo, Graphic Design
Amber Manfree, GIS Mapping



EXECUTIVE SUMMARY

THE NAPA COUNTY SAFE ROUTES TO SCHOOL PROGRAM

The Napa County Safe Routes to School (SRTS) Program is a partnership between the Napa County Office of Education (NCOE), Napa County Bicycle Coalition (NCBC) and Napa Valley Transportation Authority (NVTA). Since 2008, the Program has provided high-quality bicycle and pedestrian safety education and encouragement programs and has worked closely with the public agency and school stakeholders to make walking and bicycling safer and more accessible for children throughout Napa County.

According to 2015 California Office of Traffic Safety (OTS) data, the data available when the SRTS program was applying for grant funding, Napa County ranked 1st in per capita number of collisions of bicyclists under the age 15, 2nd in total fatal and injury-causing collisions, and 3rd in overall pedestrian collisions. According to the most recent OTS data (2018), Napa County ranked 8th for bicyclist collisions statewide (58 counties), 7th for speed-related collisions, and 6th for total fatal and injury-causing collisions. A decades-long decline in the number of students walking and biking to school, as well as increased awareness of the significant traffic congestion, air pollution, and related issues associated with students being driven to school galvanized local agency partners to expand the existing program.

The goal of the Walk Audit Report is to **identify, evaluate, prioritize, and offer solutions** to infrastructure and non-infrastructure barriers to students safely walking and biking to school in Napa County.

In 2017, the Napa County SRTS program secured funding through the Caltrans Active Transportation Program (ATP) and One Bay Area Grant (OBAG) Cycle II programs to expand education programs and initiate a series of evaluations at each public school countywide. NCOE has been leading education and engagement programs under the current program, while NCBC has led evaluations of active transportation barriers at all 36 school sites.

WHY SAFE ROUTES TO SCHOOL?

Safe Routes to School is national initiative committed to increasing the number of students who walk or bike to school, and making it safe, convenient, and fun for kids to do so. In doing so, SRTS aims to improve kids' safety and increase health and physical activity. Concerned by the declining number of students walking and biking to school over recent decades and the related long-term health and traffic consequences, Congress made federal funding available for SRTS programs nationwide in 2005. Since then, SRTS programs have been implemented at more than 14,000 schools in all 50 states.

Studies have linked SRTS programs to increased walking and biking to school^{ab} and reduced pedestrian-motorist collisions^{cd}. This can lead to safer, healthier, and more focused students, while also benefitting local and school communities.

Regularly walking or biking increases children's daily levels of physical fitness and improves their cardiovascular health^e.

Student health has been linked to improved academic performance^g. When students walk or bike to school, the fresh air and exercise allow them to arrive refreshed, energized and ready to focus. Children have a greater sense of spatial awareness and knowledge when they are actively engaged in their transportation, allowing them to better recognize and navigate their neighborhoods independently^h. Families are also provided with a low-cost transportation option that can significantly reduce their annual expensesⁱ.

When a greater share of students walk or bike to school, local and school communities benefit too. Fewer cars being driven to school can improve the air quality of surrounding neighborhoods by decreasing air pollutant emissions and increase street safety through reduced traffic congestion and noise pollution. This can also improve campus safety and reduce circulation hazards around the school site. Walking or biking is a reliable form of transportation, which can reduce student absence and tardiness. By reducing the number of short-distance school bus trips, increased student walking and biking can also help school districts save funds by decreasing costly bus service.

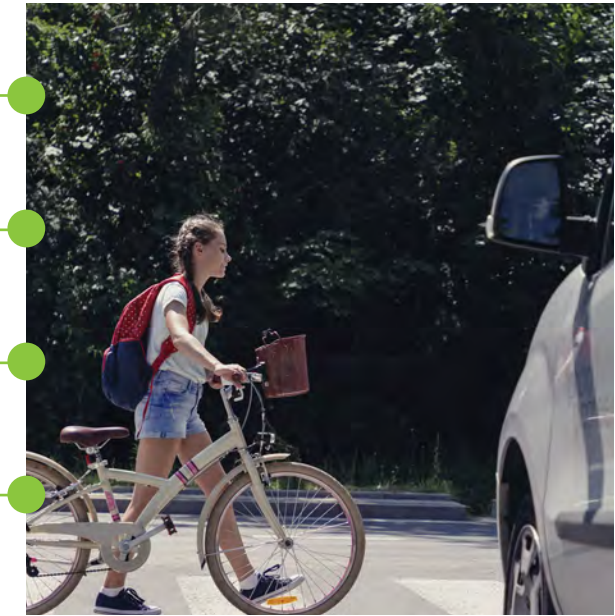
Schools and the community benefit immensely when students choose to walk or bike.

Student health has been linked to improved academic performance.

Walking or biking can provide a reliable form of transportation, leading to reduced student absence and tardiness.

Children arrive ready to learn and are less likely to experience discipline issues.

Fewer cars dropping off and picking up students improves campus safety and reduces circulation hazards.



THE SIX E'S

Safe Routes to School programs originally followed a comprehensive approach that addressed the "Five E's" – education, encouragement, enforcement, evaluation, and engineering. In 2017, when the Napa County SRTS program obtained funding to perform Walk Audit evaluations, the "Five E's" had recently been altered to add a sixth "E" – equity. In June 2020, after a significant portion of the Walk Audit evaluation work had been completed, the "Six E's" framework was again altered, dropping enforcement and adding engagement. These changes were led by the Safe Routes to School National Partnership.

The current "Six E's" framework is described below. Although enforcement is no longer one of the "Six E's", a brief definition of enforcement is included, as it was part of the approach used by the Napa County SRTS program during the majority of the Walk Audit evaluation process.



Engagement

Listen to community members and work with existing community organizations.



Equity

Recognize the unique barriers that different people face in living healthy, fulfilled lives, and craft policies, programs, and overall approaches with those various challenges and needs in mind.



Engineering

Design streets and schools for walkers and bikers to use safely and conveniently.



Encouragement

Promote walking and biking in the school community through events, programs and incentives.



Education

Ensure that everyone learns how to travel safely and why biking and walking are important.



Evaluation

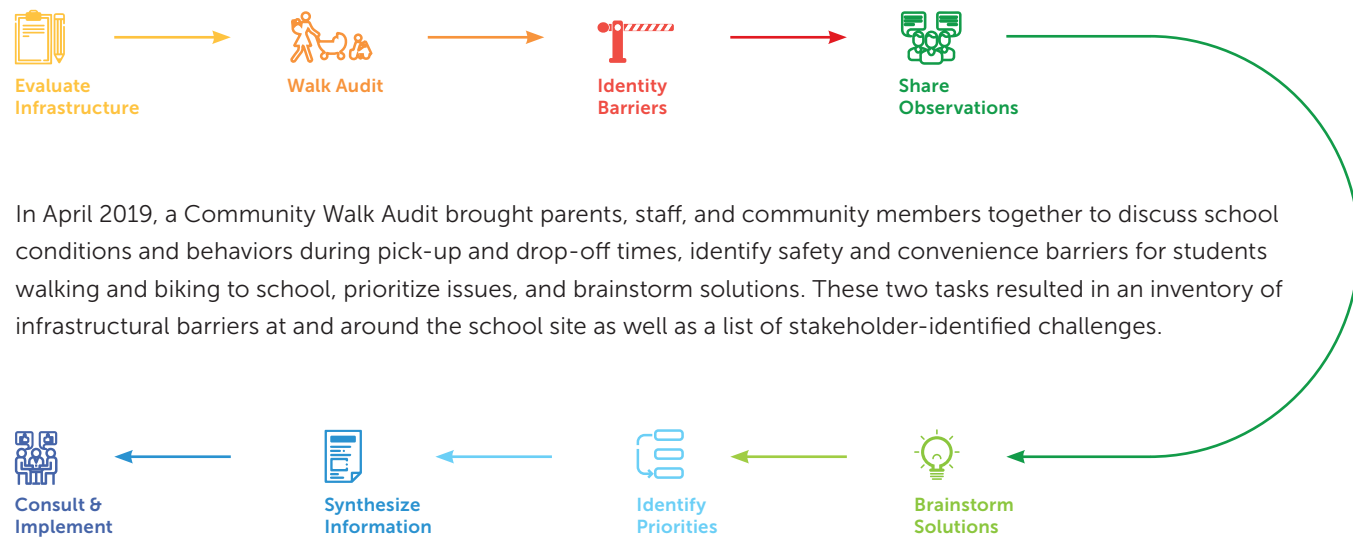
Track progress toward our shared safety goals, develop programs accordingly.

Enforcement (no longer an "E"):

Enforce traffic safety laws and school policies and target risky behaviors. No longer recommended as foundational to the start, maintenance, or growth of Safe Routes to School programs.

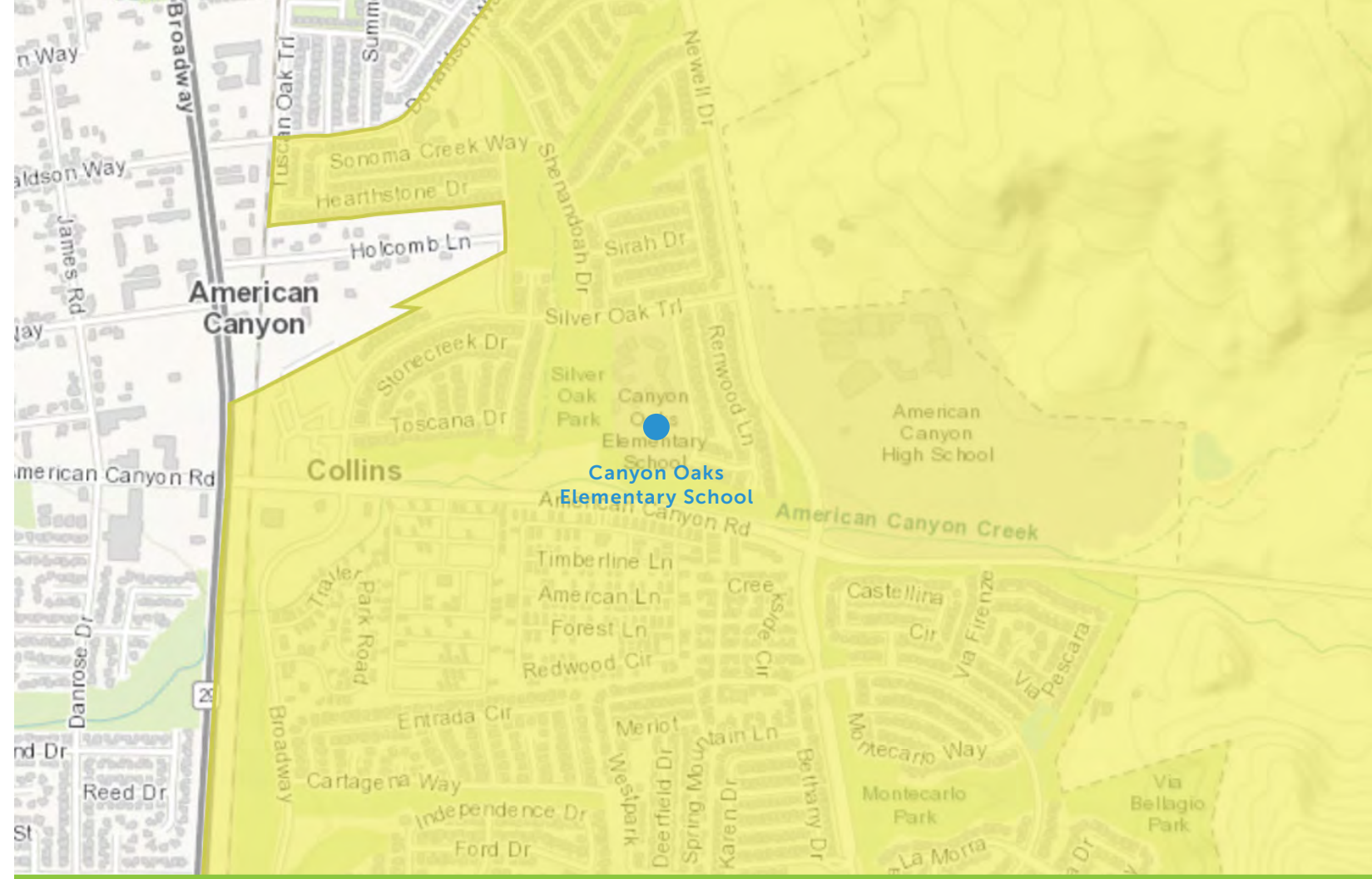
REPORT PROCESS

The SRTS team conducted a comprehensive evaluation of the barriers to students walking and biking to and from Canyon Oaks Elementary School over the course of 2 years, starting in the summer of 2018. Information on physical and behavioral challenges was collected in two phases. In August 2018, the SRTS team completed an initial infrastructure audit of the school site and the surrounding neighborhood within a half-mile of the school. SRTS team members walked and rode bicycles throughout the school neighborhood, taking photographs of barriers and logging them into Fulcrum, a GPS-enabled data collection smartphone app.



In April 2019, a Community Walk Audit brought parents, staff, and community members together to discuss school conditions and behaviors during pick-up and drop-off times, identify safety and convenience barriers for students walking and biking to school, prioritize issues, and brainstorm solutions. These two tasks resulted in an inventory of infrastructural barriers at and around the school site as well as a list of stakeholder-identified challenges.

A report draft was shared with the Napa Valley Transportation Authority, the Napa County Office of Education, law enforcement and public works representatives from the City of American Canyon, the local school district, and school stakeholders, and their feedback was incorporated into the final version. As part of the larger countywide project, the SRTS team engaged EMC Research, a national public opinion research firm, to conduct a comprehensive survey of parents' perceptions around walking and biking to school (see Appendix A). The Walk Audit report outlines the information gathered during this multi-year process and provides recommendations for improvements.



Map 1: Enrollment boundary of Canyon Oaks Elementary School (school location marked by blue circle)

While NVUSD has an open enrollment policy, Canyon Oaks' default enrollment area covers most of the City of American Canyon east of Highway 29 and a large area of southeast unincorporated Napa County.

Through the open enrollment policy, families may apply to NVUSD for their student to attend a school other than their school of residence. Out-of-district students may also apply through the open enrollment process. This often results in students living farther away from school, making them more likely to rely on driving for transportation. At schools where open enrollment students constitute a high proportion of their enrollment, this can cause higher vehicular traffic volumes around the school during pick-up and drop-off.

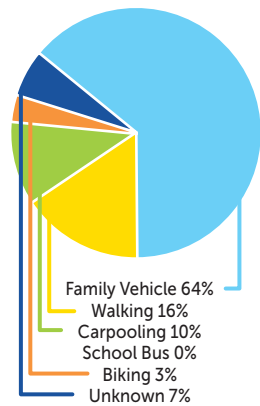
According to the most recent NVUSD data (2020-21 school year), 4.5% of students attending Canyon Oaks Elementary reside outside of the school's enrollment boundary.

CANYON OAKS ELEMENTARY SCHOOL SCHOOL SUMMARY

Principal	Kay Vang (at time of Walk Audit) Stephanie Vasquez (current)	Grades	K-5
First Bell	8:05 AM	Enrollment	682
Last Bell	2:20 PM	Street	475 Silver Oak Trail
District	Napa Valley Unified	City	American Canyon, CA 94503

Overall Facility Rating: **Fair**

DATA



A hand tally survey collected by the Napa County Office of Education in Spring 2019 (left) indicated that roughly one in six students at Canyon Oaks walk to or from school, while nearly two thirds (64%) arrive by family vehicle.

According to the results of the countywide EMC Research survey conducted in Spring 2021, 16% of respondents report that their K-8th grade children primarily walk to and/or from school and ~4% primarily bike. While nearly half (43%) say that their child has walked or biked to/from school at some point, 73% report using a single-family vehicle as the primary transportation method to and from school.

Figure 1: NCOE Hand Tally Data

Total Enrollment by Group (2018-19)

ETHNICITY	CANYON OAKS ELEMENTARY SCHOOL	DISTRICT
Black or African American	4.4%	2.1%
American Indian or Alaska Native	0.1%	0.2%
Asian	11.6%	2.4%
Filipino	33.4%	6.9%
Hispanic or Latino	32.0%	54.9%
White	11.4%	29.2%
Native Hawaiian or Pacific Islander	0.4%	0.2%
Two or More Races	6.6%	3.9%
Not Reported	0.1%	0.3%
EXPERIENCE		
Socioeconomically Disadvantaged	39.0%	50.7%
English Learners	20.5%	21.2%
Students with Disabilities	12.2%	11.5%
Foster Youth	0.1%	0.3%

Figure 3: Enrollment Data by Group

Countywide K-8 Primary Transportation to/from School (EMC Research)

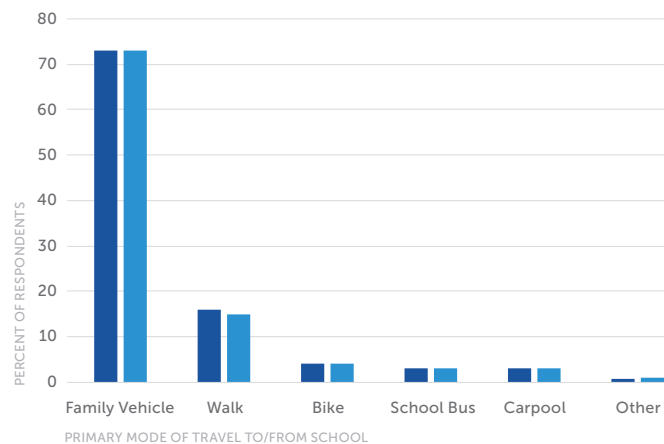


Figure 2: EMC Research Polling Results

Note: Data from EMC Research survey represents countywide behaviors, and school or city-level breakdowns are not available. See Appendix A for details on survey methods and respondent profiles.

Student Enrollment by Grade Level (2018-19)

	NUMBER OF STUDENTS
Kindergarten	86
Grade 1	128
Grade 2	86
Grade 3	124
Grade 4	118
Grade 5	140
Total	682

Figure 4: Enrollment Data by Grade

NEIGHBORHOOD CONTEXT

Canyon Oaks Elementary School is located in the southeast American Canyon. The school's lot is bordered by Silver Oak Trail to the north, Newell Drive to the east, and American Canyon Road to the south. Between the school and Newell Drive are single-family residences built in the mid-2000s, and across Newell Drive are private land and American Canyon High School.

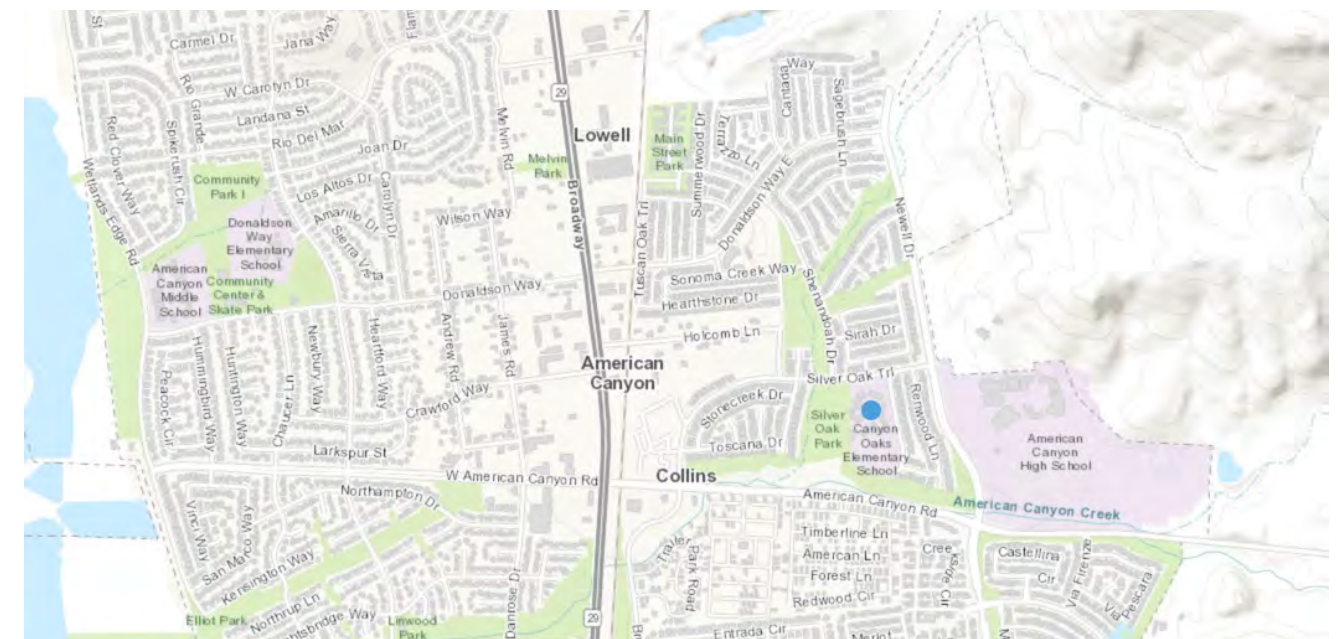
Across American Canyon Road, a busy arterial, is a medium-density residential neighborhood, including manufactured home parks built in the 1970s and early 2000s and single-family residences built in the 1980s. However, American Canyon Creek runs parallel to American Canyon Road between Silver Oak Trail and Newell Drive, consequently serving as a barrier to direct vehicle access to the school from American Canyon Road. A Class I shared-use path that connects to Silver Oak Trail and Newell Drive intersections at American Canyon Road provides pedestrian and bicyclist access to the campus from American Canyon Road. Southeast, west, and north of the school are more single-family residential neighborhoods built in the early to mid-2000s. The street patterns in these neighborhoods range from warped parallel to loops and lollipops. While the many cul-de-sacs, dead-ends, and loops help reduce traffic volume and speeds, they also reduce route choices and interconnectivity for pedestrians, providing a further disincentive to walking and biking.

Many of the roads in the school area have wide roadways with no yellow center line and parking lanes with no fog lines, which give the appearance of wider roads suitable for faster speeds. This road design may facilitate motorist speeding. The southern neighborhoods feature an extensive network of dirt and paved paths, providing pedestrians and bicyclists with short-cuts between residential streets and nearby collector and arterial streets.

Silver Oak Park, a public park, borders the western edge of the campus. The park has two playgrounds, a soccer field, a softball/baseball field, picnic tables, barbeque facilities, and a shared-use walking/biking path. The Napa Valley Vine Trail, a regional Class I facility, runs along the southern edge of Silver Oak Park and borders the school. The Vine Trail segment provides the only bicycle facility along American Canyon Road between the Silver Oak Trail and Newell Drive intersections.



Map 3: Canyon Oaks Elementary School is primarily surrounded by residential neighborhoods.



Map 2: School site location within the city of American Canyon.

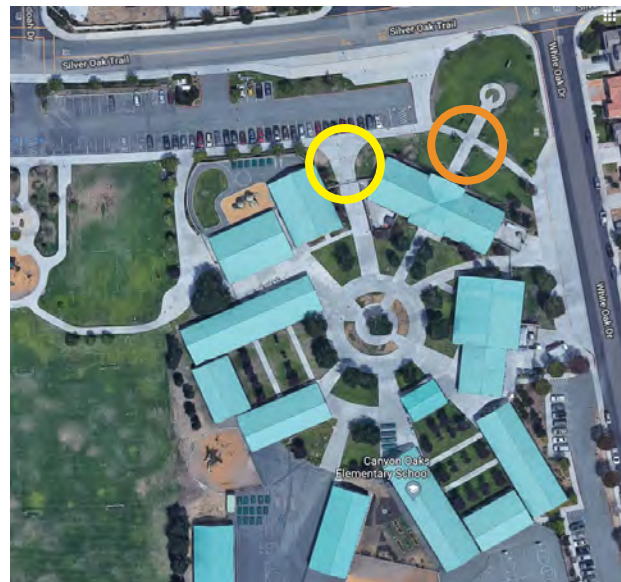
EXISTING CONDITIONS



The Safe Routes to School Team conducted an initial evaluation of the school site and the surrounding area prior to conducting the Community Walk Audit. The Fulcrum App software was used to map and record significant point and segment issues within a half-mile range of the school. The team also collected information on local and school transportation policies and programs from conversations with the school’s staff and administrators, as well as documents from the school and City websites. Prior to circulation of the draft report among partners, the team conducted an additional site visit to confirm conditions.

SITE CIRCULATION

Canyon Oaks Elementary School is built such that all of the classrooms and school facilities surround a central quad. The main office on Silver Oak Trail is the only building that can be accessed from the outside; all other buildings must be accessed from inside of the quad. This ensures that one must travel through the office to enter or exit the school during school hours. A large gate west of the office is opened and monitored by staff or parent volunteers during pick-up and drop-off hours so that students can enter or exit the school in a timely fashion.

Canyon Oaks Elementary School’s pick-up and drop-off policy (Figure 5) states that parents must only use the yellow curbs on Silver Oak Trail and White Oak Drive for pick-up and drop-off. The two yellow drop-off curbs pose some circulation issues. Drivers often need to turn left across traffic or make U-turns to access the White Oak Drive curb. Cars queue up for the Silver Oak Trail yellow curb, creating congestion west of the school. Traffic congestion on Silver Oak Trail increases during morning commute hours as Silver Oak Trail provides the surrounding residences with access to Newell Drive and American Canyon Road. Two volunteer crossing guards, trained through a police program, are stationed at the intersection of Silver Oak Trail and White Oak Drive; however, because they are volunteers, full coverage is not provided throughout the week. Paid crossing guards are stationed at the American Canyon Road and Newell Drive intersection before and after school.



-  Gate opened during pick-up and drop-off, closed during school hours
-  Main office is the only entrance during school hours



The school loading zone on Silver Oak Trail is delineated by flexiposts.



Bus service through NVUSD is not available for Canyon Oaks Elementary students. However, students who live beyond 1.25 miles walking distance from school and attend their school of residence may apply for transportation through NVUSD.

American Canyon is served by four routes of The Vine transit, operated by the Napa Valley Transportation Authority. Three of the routes, the 11: Napa-Vallejo Connector, 11X Napa-Vallejo Express, and 29: Napa-BART Express, are fixed-route only. The fourth route, American Canyon Transit, is an on-demand, door-to-door transit service within specific areas of the city and also operates a limited fixed-route service on weekdays. There are no stops for the fixed-route only lines on the east side of SR 29 in the City of American Canyon south of Eucalyptus Drive.

SCHOOL PARKING LOT AND GROUNDS

Two parking lots used by Canyon Oaks Elementary are located on Silver Oak Trail and White Oak Drive. The school urges parents not to use parking lots to drop off and pick up children to avoid potential pedestrian/vehicle conflicts. Both parking lots have sidewalks on the school and street side, allowing bicyclists and pedestrians coming from the west or south to access the school while avoiding parking lot traffic.

SILVER OAK TRAIL

The parking lot off of Silver Oak Trail serves both Canyon Oaks Elementary and Silver Oak Park. With roughly 70 perpendicular parking stalls, the lot serves as the primary staff parking lot during school hours, with 22 stalls reserved for staff parking only on the east side of the lot. Access points for the Silver Oak Trail lot are controlled through signage and cones during school hours; the west entrance is "enter only" and the east entrance is "exit only".

WHITE OAK DRIVE

One-way circulation through the White Oak Drive lot is indicated by painted arrows. 15 parking stalls are reserved for staff parking only along the north side of the lot.



Parking lots (orange) and yellow curbs (yellow) are present on both Silver Oak Trail and White Oak Drive adjacent to the school.

The school's parking policy (Figure 5) is outlined in a document provided on the school's website. The school provides its Parking Lot and School Area Safety Tips document to parents and sends as-needed reminders to review the document via ParentSquare.



Eastern entrance of Silver Oak Trail parking lot, used as "exit only" during school hours

Parking Lot and School Area Safety Tips

Dear Canyon Oaks Parent Drivers,

We need your help. Each of you has the responsibility of driving your child(ren) to school each morning. While our situation has vastly improved, there are still too many times when the safety of children has been in jeopardy. We are asking each of you to read the following parking lot safety tips and help us to ensure that the morning drop off and afternoon pickup times are safe and orderly. Please follow these vital safety rules. Thank you for your cooperation.

PARKING LOT ETIQUETTE

Drop off or pick up ONLY in the yellow loading zones. We want to stop drop-offs and pickups in the parking lots.

Don't get out of your car at drop-off.

Children should exit on the RIGHT SIDE OF THE CAR ONLY.

Follow the flow of traffic. Don't make illegal U-turns, turns or drive in an unsafe manner.

After your child has safely exited, please move your car.

Be courteous! Treat other drivers as you would like to be treated.

Try to arrive before 8:20 a.m.!

Do not park in staff parking spaces.

Do not park illegally, such as in a handicapped space without a permit, in the yellow loading zone, or in the middle of the parking lot.

EXPLANATION

Why? It's dangerous for the kids to have cars backing out of parking spots while some children are walking or running through the parking lots.

Why? Parents are getting out of their car to open door, help with backpacks holds up the line of cars. We have hundreds of cars needing to drop-off, so even small delays can add up to long delays.

Why? Children exiting into the flow of traffic is very dangerous. They could be hit in the street or as they go in front or back of the car.

Why? Illegal U-turns, turns, and unsafe driving are dangerous for children and other traffic. The police department will be enforcing illegal and unsafe driving.

Why? While we think it's great that you want to watch your child walk all the way to the entrance gate, remember that everyone behind you has a child they want to get to school on time also.

Why? At Canyon Oaks, we've had some drivers yell, honk, and threaten other drivers. None of us want to be yelled at. Our children deserve better example behavior, too.

Why? The gates open at 8:05 and there's much less traffic at that time. Children arriving after 8:20 will need to get a tardy slip at the office.

Why? Parents have generally been very good about this. But please remember to avoid parking even temporarily in spots marked "Reserved Staff". It's important for staff to have timely access to support our kids.

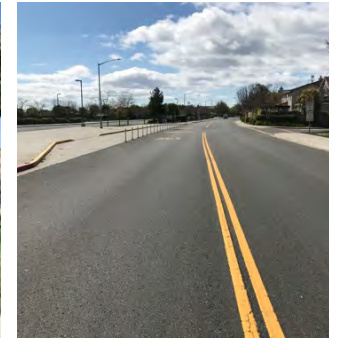
The police department will enforce illegal parking.

BICYCLE AND PEDESTRIAN INFRASTRUCTURE

The neighborhoods surrounding Canyon Oaks Elementary feature wide residential streets and wide sidewalks. While there are no bicycle lanes on the east side of American Canyon, there are several "jumbo sidewalks" designated as separated Class I facilities that are meant for use by both bicyclists and pedestrians. While these paths are separated from vehicular traffic, they can create confusion and conflict between pedestrians and bicyclists, as there are no designated markings or signage along the paths encouraging bicycle use. Consequently, these Class I facilities may be mistaken as pedestrian-only sidewalks.



A Class I "jumbo sidewalk" on Newell Drive.



Silver Oak Trail in front of the school.

Bicyclists often ride on sidewalks instead of the road because they have grown accustomed to riding on "jumbo sidewalks" and there are no bike lanes on the east side of the city. While bicycling in the road can be comfortable on most neighborhood streets in the area, key collector and arterial roads that connect to destinations such as schools are not viable options for bicyclists due to high traffic volumes, high speeds, and lack of bike facilities. For example, Silver Oak Trail and White Oak Drive, neither of which have bicycle facilities, feel unsafe for student bicyclists due to high traffic volumes during commute hours and high speeding potential caused by wide streets and lack of traffic-calming.



Map 3: Shared-Use Path (Vine Trail). The shared-use path provides a separated route to the school for walkers and bikers.

The two 4-lane arterial roads near the school, American Canyon Road (40-45 mph) and Flosden Road/Newell Drive (35-45 mph) require the highest degree of bicycle facility separation from vehicle traffic, given the high speeds and volumes of traffic on these roads. Each of these streets has a Class I "jumbo sidewalk" on one side of the street – north side of American Canyon Road, west side of Newell Drive, and east side of Flosden Drive. However, because facilities are only provided on one side of these multi-lane, high-speed roads, this Class I network does not provide full connectivity and access opportunities, especially for residents living south of American Canyon Road. On Newell Drive and American Canyon Road, this

Class I facility is part of the regional Vine Trail alignment. Silver Oak Park, which borders the west side of the school, has a shared-use path that connects to the Vine Trail alignment (highlighted below in yellow, Map 4), which can be used as a bicyclist and pedestrian route to the campus.

Bicycle facilities do not exist at major intersections such as American Canyon Road and Flosden Drive, which bicyclists may need to navigate to be able to reach the limited Class I network.

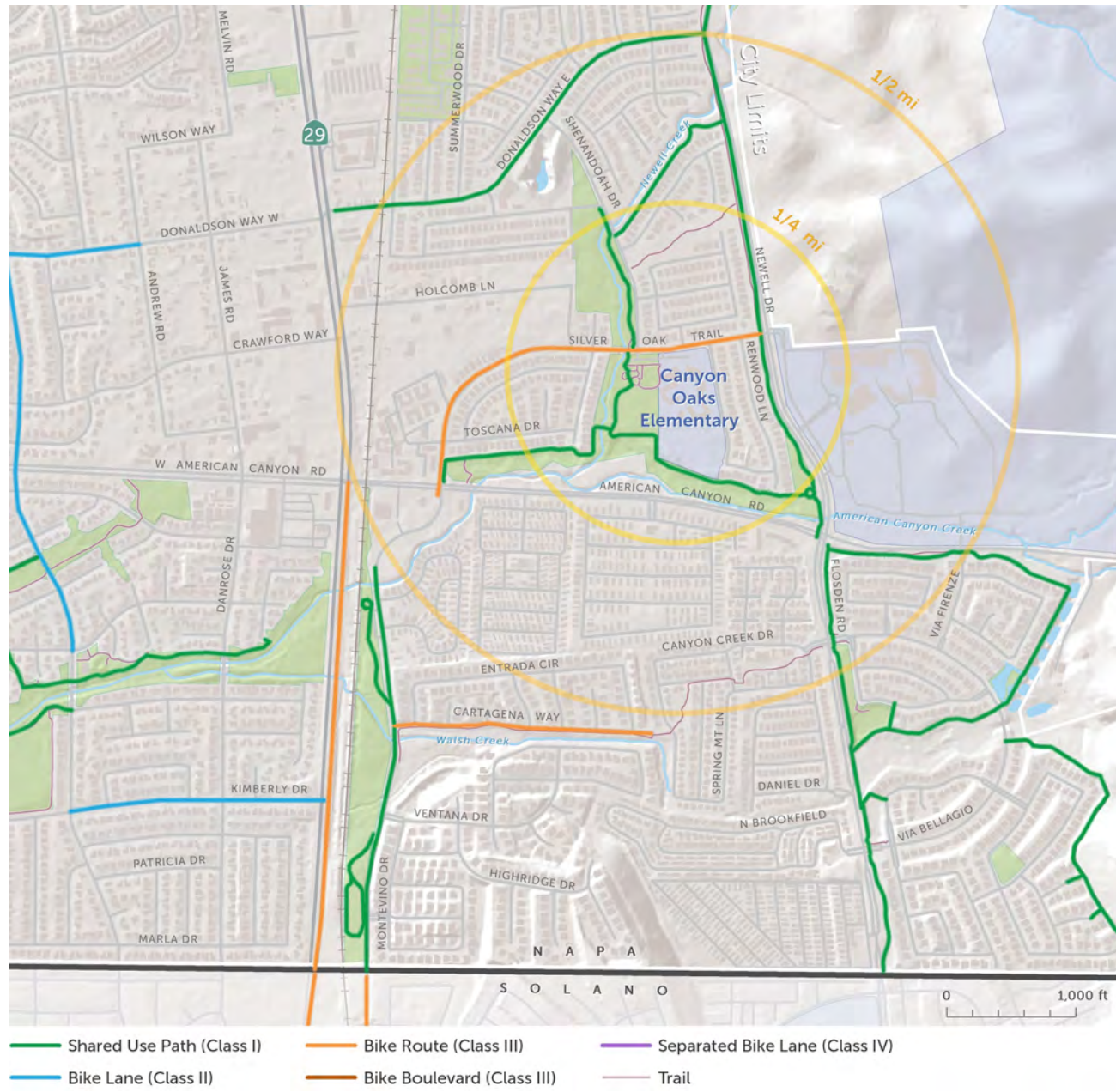
The school provides several bike parking racks. Although the racks do not appear to be secured to the ground, they are located inside the school's gated campus, which is monitored through a single point of entry through the main office during school hours. The racks are designed to accommodate bicycles to be parked from both sides, but are positioned in such a way that only half of the bicycle parking space is accessible.



Though the north side of American Canyon Road has a separated shared-use path (left), the south side only has a narrow sidewalk for bicyclists and pedestrians to share next to high-speed, high-volume traffic (right).

Bicycle parking on campus.

MAP OF EXISTING BICYCLE FACILITIES



Map 4: Existing Bicycle Facilities
(Map source: Napa Valley Transportation Authority Napa Countywide Bicycle Plan (2019)).

MAP OF EXISTING PEDESTRIAN FACILITIES



Map 5: Existing Pedestrian Facilities
(Map source: Napa Valley Transportation Authority Napa Countywide Pedestrian Plan (2016)).

POLICIES AND PROGRAMS

Encouragement and Education:

In recent years, Canyon Oaks Elementary School has participated in annual countywide events, such as Bike to School Day, an annual encouragement event facilitated by Napa County Safe Routes to School that celebrates students making the healthy choice to bike to school. The school's encouragement program is limited to this annual event. Nevertheless, according to the Napa County Office of Education Spring 2019 hand tally (Figure 1) roughly 19% of students bike and walk to school on an average day.

The school has also hosted occasional safety/education classes provided by the Napa County Office of Education, including bike/pedestrian safety classes and bike rodeos. Bicycle safety education classes focus on 4th and 5th grade levels and include between 5-10 hours of bicycle specific curriculum, spent both in the classroom and on-bike. Pedestrian safety education classes consist of an hour of class time discussing and practicing pedestrian safety, primarily targeted for Kindergarten through 3rd grade levels. Bike rodeos are mainly on-bike lessons where students learn the rules of the road by navigating a roadway-designed obstacle course. Bike rodeos typically provide roughly 45 minutes of instruction and riding.



Bike to School Day 2019 at Donaldson Way Elementary School.

YEAR	EVENT	STUDENT PARTICIPANTS
2015/16	Bike Safety Education	117
2015/16	Bike to School Day	146
2016/17	Bike Safety Education	141
2016/17	Bike Rodeo	145
2016/17	Bike to School Day	129
2018/19	Bike Rodeo	315
2018/19	Bike to School Day	27
2019/20	Bike Rodeo	338
2019/20	Pedestrian Safety Education	652*
2019/20	Bike Safety Education (2)	N/A - cancelled due to Covid-19

Figure 6: Encouragement and Education Data

*This event was held as an assembly-style safety presentation

Enforcement:

American Canyon Police Department provided enforcement data for 2014 to 2019 in areas around the school zone on violations for passing a school bus, speeding, failing to stop at stop signs, and failing to yield to pedestrians. Data on traffic stops where citations were not issued were not used, as the Police Department does not collect this data. For Canyon Oaks Elementary School, this included American Canyon Road, Flosden Road/Newell Drive, Silver Oak Trail, and White Oak Drive. Citations for passing a school bus represented 46% of all tickets issued, and were distributed fairly consistently throughout the years, with a notable peak in 2018. Stop sign violations and failure to yield to pedestrians represented just 3% of citations.

Speeding data stood out significantly from the provided enforcement data. Though Newell Drive/Flosden Road had high numbers of citations, these numbers decreased steadily over the years, going from over 150 citations in 2015 to 30 citations in 2019. Police Department staff reported that this was likely due to a change in driver behavior, as motorists drove more cautiously when law enforcement

was present, though this is difficult to substantiate without traffic survey data. American Canyon Road had very few citations compared to Newell/Flosden, ranging from 1 to 6 citations over the examined time period. Silver Oak Trail had even fewer citations than American Canyon Road, averaging about 1 citation annually.

CITATIONS IN SCHOOL AREA BY TYPE

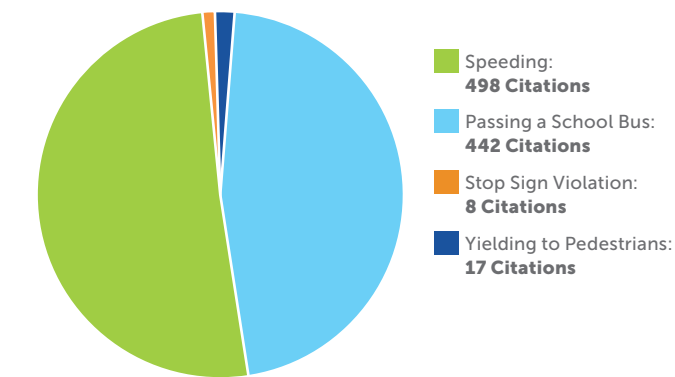


Figure 7: Citations by Type

SPEEDING CITATIONS

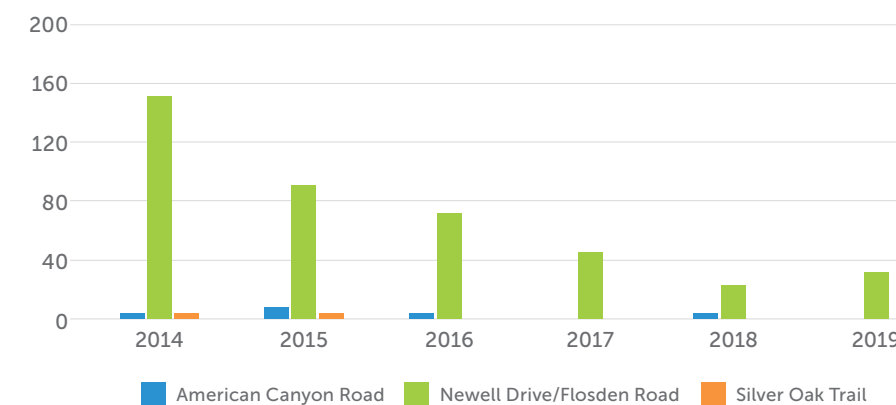
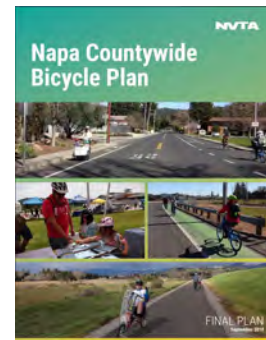


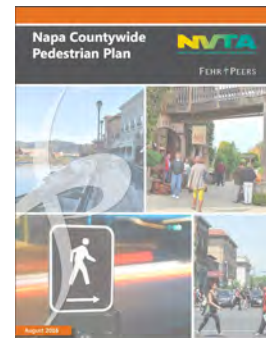
Figure 8: Speeding Citations

EXISTING PLANS



NVTA Napa Countywide Bicycle Plan (2019):
The Napa Countywide Bicycle Plan recommends improving bicycle facilities around the school site. The Bicycle Plan suggests installing a Class I shared-use path along both sides of SR 29 and Class II paths along American Canyon Road east of Newell Drive.

NVUSD Facilities Master Plan (2016):
NVUSD’s Facilities Master Plan lists several projects for Canyon Oaks. These projects include installation of fencing around the school perimeter, construction of a new multipurpose room, and site ADA (Americans with Disabilities Act) improvements. School perimeter fencing is planned to provide a single point of entry during school hours, though there may be more than one entry point during pick-up and drop-off, and wayfinding signage for each elementary school in NVUSD. As Canyon Oaks Elementary School already has this fencing structure, the school may not be greatly impacted by the fencing installation.

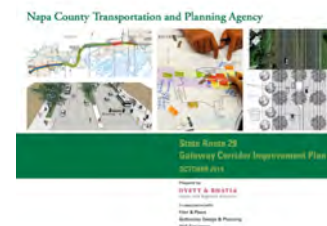


NVTA Napa Countywide Pedestrian Plan (2016):
The improvement nearest to the school suggested by the Napa Countywide Pedestrian Plan is a grade-separated pedestrian crossing at SR 29 at American Canyon Road, which is located just over a half-mile from the school.

Caltrans District 4 (2018):
The Caltrans District 4 Bike Plan lists two projects for American Canyon. The first is to provide Class I paths along both sides of SR 29 through American Canyon, from American Canyon Road to Jameson Canyon Road. The second is to implement Class II bike lanes on SR 29 near Rio Del Mar and implement signal/intersection improvements to support bicyclist left turns.



NVTA Napa Valley Countywide Transportation Plan: Advancing Mobility 2045 (2021):
The NVTA Countywide Transportation Plan is a long-range plan of countywide transportation priorities that provides a direction for the four- to five-year plan while considering a 25-year planning horizon. This plan is part of the regional planning process for the Regional Transportation Plan by the Metropolitan Transportation Commission. There are 12 projects by the City of American Canyon listed in the Plan – most focus on extending or widening roads, though there are also plans to construct three pedestrian crossings over SR 29. NVTA projects that impact the City of American Canyon include widening SR 29 to six lanes and installing multimodal improvements, such as Class I shared-use paths on both sides. None of the projects directly impact the area within a half-mile of the school.



NVTA SR 29 Corridor Improvement Plan (2014):
The NVTA SR 29 Corridor Improvement Plan aims to improve corridor safety, aesthetics, and mobility, along SR 29 between the cities of Vallejo and Napa, including through the City of American Canyon. This plan will take into account all modes of transportation, including bicycling and walking, to improve the corridor. In American Canyon, this plan seeks to provide greater multi-modal access through this corridor for residents and visitors, as SR 29 is the city’s main thoroughfare.

Between the south county line and American Canyon Road, the plan recommends four travel lanes with medians and a Class I shared-use path, though it also provides a second option for four lanes, a northbound-only frontage road with a Class II bicycle lane, and a southbound-only Class I shared-use path. Between American Canyon Road and Napa Junction Road, the plan recommends six lanes with a median and a Class I shared-use path and provides a second option for four lanes with a median plus frontage roads with Class II bicycle lanes. At the SR 29 and American Canyon Road intersection, the only improvements proposed are lane widening and potential signal synchronization.

American Canyon General Plan (2040):
The City of American Canyon began updating their 1992 General Plan in early 2020; however, the COVID-19 pandemic halted Committee work and in-person community outreach, delaying the update. According to the City’s General Plan update web page, the update will “ensure that the City’s General Plan reflects current community needs and priorities” and will address new issues (e.g., community health and climate change), changes in State law (e.g., greenhouse gas emission reductions) and new trends (e.g., shared mobility).



Watson Ranch Specific Plan (2018):
The Watson Ranch Specific Plan explains the details of the Watson Ranch project development. The Watson Ranch project will construct a new 309-acre town center that includes a 200,000 square foot commercial-use space, a 200-room hotel, a community plaza, parks and open space, a new elementary school, and over 1,200 units of medium-high density residences. This project will also include connections to regional trail systems, including the Napa Valley Vine Trail and the River to Ridge Trail. Newell Drive is planned to be extended from Donaldson Way East to the northern boundary of the project, and Rio Del Mar is planned to be extended from SR 29 to Newell Drive.

WALK AUDIT

Date: 4/10/2019

Meeting Time: 8:30 AM

Day of the Week: Wednesday

Weather: Overcast

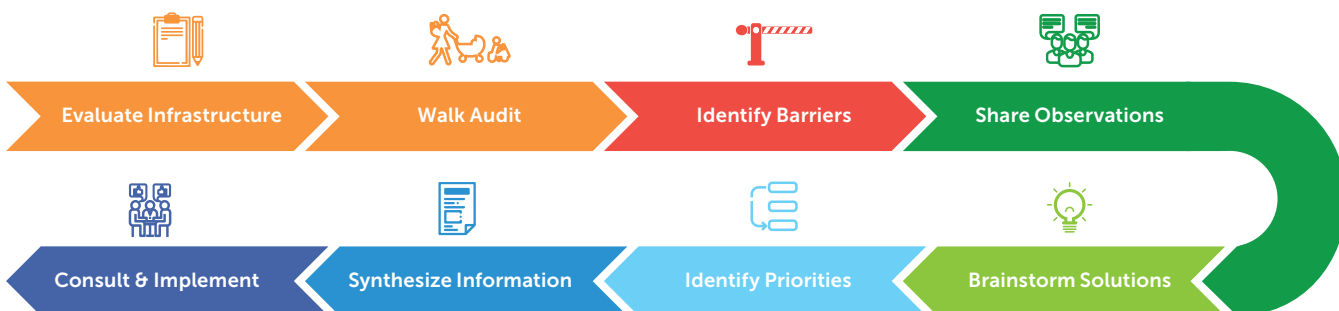
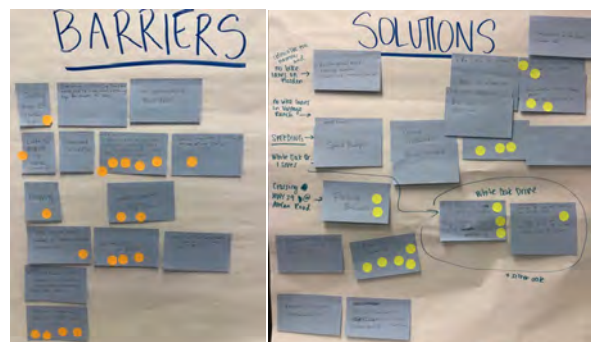
METHODOLOGY

The Community Walk Audit normally brings school stakeholders together to observe conditions during pick-up or drop-off time, identify barriers to safe walking or biking, and brainstorm solutions. The Walk Audit at Canyon Oaks Elementary School was modified to suit the needs and capacity of the school. For this audit, Principal Vang invited the Safe Routes to School Team to take over a regularly scheduled "Coffee with Principal" meeting with a group of actively-involved parents to discuss the major barriers to students walking and biking to school based on participants' experiences and to brainstorm solutions. The group consisted of eight parents, one staff member/translator, the school's principal, and the Mayor of American Canyon.

The group was asked to visualize their child's route to school, as well as the other routes that they are familiar with in the area. Several examples of potential barriers were provided to establish context for the participants. Participants then discussed their perceived barriers in small groups.

Participants wrote their ideas of major barriers to safe and increased walking and biking to school on sticky notes and placed them on a poster, grouping together similar barriers. The group then discussed the identified issues.

Next, the group entered a prioritization exercise. Participants were given four round stickers to place on issues that they felt were most important and needed to be solved most urgently. Participants could spread their stickers out or put multiple stickers on one issue. The group reviewed the major barriers identified and brainstormed potential solutions to each issue. The sticky note and prioritization exercise was then repeated with potential solutions.



WALK AUDIT FINDINGS

This section of the report lists the barriers and solutions identified by Walk Audit participants during the Walk Audit activity. The barriers and treatments listed in the following tables are the results of the Walk Audit prioritization activities – the content and language used reflect what Walk Audit participants wrote on their sticky notes.

The barrier identification and prioritization exercise resulted in a list of location-specific and geographically general barriers and solutions, organized by Vote Score in the tables below. Vote Score was determined during the prioritization exercise by the number of stickers and sticky notes addressing a particular issue, with a higher number correlating to a higher Vote Score, indicating a higher importance to Walk Audit participants.

Stakeholder-Identified Barriers:

DESCRIPTION	LOCATION	VOTE SCORE
Illegal U-turn & pedestrians crossing simultaneously	White Oak Drive	6
Overgrown vegetation	Regional	5
Lack of bike lanes	Flosden Road	4
Speeding	School region	3
Sidewalks too narrow	Flosden Road	3
Dangerous crossing	HWY 29 @ American Canyon Road	2
Traffic congestion during pick-up/drop-off	White Oak Drive	2
Lack of bike lanes	Vintage Ranch Community	2
No crosswalk	Daniel Drive	1
Dangerous crossing	Silver Oak Trail & White Oak Drive	1
Distracted driving	Regional	1
Unsafe route	Apartments at East American Canyon Road and Silver Oak Trail	1

Figure 9: Walk Audit Ratings - Dot Exercise (Barriers)

Stakeholder-Identified Treatments:

DESCRIPTION	BARRIER ADDRESSED	LOCATION	PRIORITY
Bike lanes	No bike lanes	Flosden Road	11
Rectangular Rapid Flashing Beacons	Poor motorist yielding behavior, low pedestrian visibility, high-volume intersections	Flosden Rd & Daniel Dr, AmCan Rd & Newell, Hwy 29 & AmCan Rd	8
Flashing "No U-Turn" and "No Crossing" signs	Illegal U-Turn & pedestrians crossing simultaneously	White Oak Drive and Silver Oak Trail	4
Painted conflict markings	Potential vehicle/bicycle conflict risk	Flosden and Daniel Drive	3
Raised crosswalk	Speeding, poor motorist yielding behavior, low pedestrian visibility	White Oak Drive and Silver Oak Trail	3
Speed humps	Speeding	White Oak Drive and Silver Oak Trail	2
Circulation signage for pick-up/drop-off	Illegal U-Turn, noncompliance with school policy	White Oak Drive and Silver Oak Trail	2

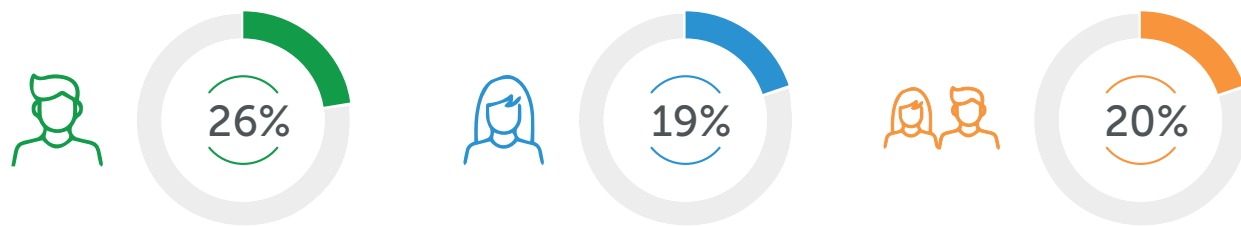
Figure 10: Walk Audit Ratings - Dot Exercise (Solutions)

CONTEXT FOR RECOMMENDATIONS

IMPACT OF BARRIERS/HAZARDS ON COMMUNITY

Barriers to safe walking and bicycling, both infrastructure and non-infrastructure, can greatly discourage communities from engaging in active transportation. The quality, accessibility, and connectivity of bicyclist and pedestrian travel networks strongly influence the rates of walking and bicycling as a mode of daily transport¹. Public policies and attitudes, such as traffic-calming measure enforcement and parking limitations, also contribute to the efficacy of pedestrian/bicycle networks. Thus, barriers to accessibility and connectivity must be addressed in order to encourage increased and safe walking and cycling.

Barriers that discourage walking and bicycling prevent communities from gaining the health benefits offered by active transportation. For children, physical activity can improve cognitive function, bone health, cardiorespiratory and muscular fitness, and mental wellness². Adults benefit from lower risk of cardiovascular disease, hypertension, dementia, anxiety, and falls for older adults, as well as improved quality of life, physical function, bone health, and sleep.



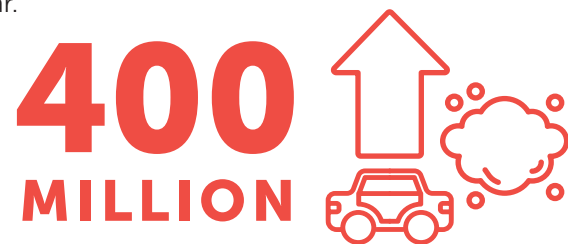
However, only about **26% of men**, **19% of women**, and **20% of adolescents** are meeting the aerobic and muscle-strengthening guidelines developed by the Department of Health. Increased walking and biking to school can help boost that percentage by incorporating physical activity into one's daily routine and encouraging further active transportation choices.

Lack of safe bicycle/pedestrian facilities can also negatively impact the environment, as more people will choose to drive rather than bike or walk. Passenger cars and light-duty trucks produced **over half of the transportation sector emissions in 2017³**.



29% The transportation sector produced the most greenhouse gas emission of any economic sector, releasing **up to 29% of total US greenhouse gas emissions** for the year.

Furthermore, **transportation emissions have increased around 400 million metric tons** since 1990 due to increased vehicle demand. Thus, decreasing vehicle use by creating bicycle/pedestrian networks that are safe from potential hazards and barriers can help mitigate these environmental effects.



In addition to the consequences already discussed, barriers to safe walking and bicycling can lead to increased collisions and conflicts between motorists, pedestrians, and bicyclists. Safety barriers can lead to more people choosing to drive, even if the destination is within walking or biking distance, increasing traffic congestion. Children have fewer opportunities to develop their sense of independence through walking and biking to school, and the community is hindered from enjoying the social and economic benefits of bicycling and walking. Safety barriers and hazards that discourage increased walking and bicycling can considerably impact many different parts of a community, which is why it is so crucial to address and resolve them.

¹ Kuzmyak, Richard J., Dill, Jennifer. "Walking and Bicycling in the United States: The Who, What, Where, and Why." TR News May-June 2012: 4-15. Web. ² U.S. Department of Health and Human Services. Physical Activity Guidelines for Americans, 2nd edition. Washington, DC: U.S. Department of Health and Human Services; 2018. ³ Sources of Greenhouse Gas Emissions, United States Environmental Protection Agency. Web.

RECOMMENDATIONS

Recommendations were determined by Napa County Safe Routes to School staff, taking into account the feedback and results from the Walk Audit activity, Fulcrum data, existing plans, and local stakeholder input. Priority levels for recommendations were calculated through consideration of vehicle, pedestrian, and bicyclist traffic volumes; vehicular traffic speed; collision history; presence of existing bicycle/pedestrian facilities; proximity to major identified routes to school; high-level potential cost/complexity of recommendation; and Walk Audit participant input.

This section outlines and explains high and medium priority recommendations specific to the school site. School site-specific recommendations of all priority levels can be found in the "Table of Recommendations" section. Universal recommendations that apply to all school sites are described in Appendix B. Recommendations that are focused on infrastructure treatments are denoted by "AC," and recommendations that suggest programmatic treatments are denoted by "ACP."



RECOMMENDATION #AC-008: TRAFFIC CALMING AT SILVER OAK TRAIL AND WHITE OAK DRIVE

Narrative – Walk Audit participants reported that the area around the Silver Oak Trail and White Oak Drive intersection feels chaotic and unsafe for student pedestrians and bicyclists during drop-off and pick-up hours. This area experiences high volumes of school traffic, as it is adjacent to the school's entrance and along the route to and from the school's two loading zones. Many student pedestrians travelling from neighborhoods to the north cross the street at this intersection to reach the school. Walk Audit participants primarily cited behavioral concerns, including illegal U-turns when motorists leave the loading zone, speeding, distracted/aggressive driving, and pedestrians crossing outside of a crosswalk. While these barriers are related to behavior, infrastructure treatments can be used to reduce potential conflicts, deter unsafe behaviors, and promote safe navigation of the school zone.



The intersection of Silver Oak Trail and White Oak Drive looking across Silver Oak Trail (above) and White Oak Drive (below).



IDENTIFIED BARRIERS

- **Illegal U-turns** – Parents identified that illegal U-turns into and out of the two on-street drop-off areas is a safety concern, particularly with children crossing the street mid-block without the benefit of a crosswalk.
- **Speeding** – Parents identified motorist speeding as a significant issue in the broader neighborhood, including on Silver Oak Trail.
- **Failure to yield** – Parents identified the failure of drivers to yield to pedestrians as a concern, both in marked crosswalks and when crossing mid-block without a marked crosswalk.

RECOMMENDATIONS

- **Curb extensions** – We propose installation of curb extensions at the intersection of Silver Oak Trail and White Oak Drive to slow vehicle speeds, shorten crossing distances, and improve yielding of motorists to pedestrians. Implementation of this proposal will minimally impact adjacent residents, with at most two on-street parking spaces being removed.
- **Center divider** – To reduce the ability for motorists to make U-turns out of the curbside drop-off area on Silver Oak Trail, we recommend installation of a median island with "No U-Turn" signage west of and up to the Silver Oak Trail and White Oak Drive intersection.
- **High-visibility crosswalk** – Upgrading the existing crosswalks at Silver Oak Trail and White Oak Drive to high-visibility crosswalks can supplement other proposed solutions in increasing driver yielding behavior. High visibility crosswalks should be deemed standard on all marked crosswalks within 250 feet of schools.



RECOMMENDATION #AC-012: TRAFFIC CALMING AT AMERICAN CANYON ROAD AND NEWELL DRIVE

Narrative – The intersection of American Canyon Road and Newell Drive/Flosden Road is a significant intersection for student pedestrians and bicyclists traveling to and from neighborhoods south of Canyon Oaks Elementary. Pedestrians and bicyclists must cross five or six lanes of traffic to get across any leg of this intersection. As American Canyon Road and Newell Drive/Flosden Road are the only 4-lane arterial roads in the City of American Canyon according to the 2018 Circulation Element, these roads carry high traffic volumes. While traffic is already moving fast through this intersection (35 mph and 45 mph on Newell Drive and American Canyon Road, respectively; though the speed limit drops to 25 mph when children are present), the wide, relatively straight nature of the roads can facilitate speeding, and wide corner radii allow vehicles to take right turns very quickly. Consequently, this intersection can feel uncomfortable and unsafe for bicyclists and pedestrians, especially children.

IDENTIFIED BARRIERS

- **Long crossing distances** – The long crossing distances of this intersection increase exposure time of vulnerable road users to vehicles in the roadway.
- **High traffic volumes** – High traffic volumes were identified as a barrier at this intersection, as busy intersections are especially challenging for children to navigate.
- **High speeds** – High vehicle speeds, enabled by high speed limits, wide curb radii, and wide, straight roads, make this intersection a barrier to student pedestrians and bicyclists. Motorists’ range of vision decreases and collision severity increases with increased speed.



The intersection of American Canyon Road and Newell Drive.



RECOMMENDATIONS

- **Curb extensions** – We propose installation of curb extensions at the intersection of American Canyon Road and Newell Drive to slow vehicle speeds, shorten crossing distances, and improve yielding of motorists to pedestrians.
- **Pedestrian refuge islands** – We recommend installing pedestrian refuge islands on the east and west legs of the intersection to calm east-west traffic and improve pedestrian sense of safety and comfort.
- **High-visibility crosswalks** – Upgrading the existing crosswalks at this intersection to high-visibility crosswalks can supplement other proposed solutions in increasing driver yielding behavior. High visibility crosswalks should be deemed standard within a school zone (see Appendix B).

While comments at the Walk Audit showed support for installing Rectangular Rapid Flashing Beacons at this intersection, Flashing Beacons would not be appropriate at this site because it is already traffic light-controlled. This indicates that Walk Audit participants were concerned about pedestrian and bicyclist visibility at this intersection, which would be improved by the recommended curb extensions and high-visibility crosswalks.



RECOMMENDATIONS #AC-004 AND AC-009: SILVER OAK TRAIL BICYCLE FACILITIES

Narrative – Silver Oak Trail is the primary access road to the school, along which the majority of students must travel to reach the campus. A collector road, Silver Oak Trail provides surrounding residences with direct connections to Newell Drive and American Canyon Road, the City’s two arterial streets, a nearby access point to SR 29, and a route to destinations such as American Canyon High School, Walgreens, and Safeway. Especially with the recent addition of the Village at Vintage Ranch community, a 159-unit apartment complex off of the southwest corner of Silver Oak Trail, this road is highly travelled, especially during pick-up and drop-off times. However, there are no bike facilities along this road, despite the fact that Silver Oak Trail also connects to Class I shared-use bike paths on Shenandoah Drive and Newell Drive.

IDENTIFIED BARRIERS

- **No bicycle facilities** – The SRTS team identified the lack of bicycle facilities on Silver Oak Trail as a barrier to students biking to school, as it is the main access road to campus and is highly-travelled.

RECOMMENDATIONS

- **AC-004 and AC-009 Class III Bicycle Boulevards and/or Class II Bike Lanes** – We recommend that the City installs Class II bike lanes where Right of Way allows along the entire corridor, as the roadway is significantly wide, there are high volumes of road users, and parking along almost the entire corridor is either prohibited or unused, as only 10 residences actually face Silver Oak Trail. At minimum, we recommend the installation of Class III bicycle boulevards with sharrows, signage, and traffic-calming for both segments of the corridor per the Countywide Bike Plan. These facilities will alert drivers to the presence of bicyclists and remind them to share the road.



Silver Oak Trail has no bicycle facilities along the entire corridor.



RECOMMENDATION #AC-007: SILVER OAK AND SEQUOIA GROVE INTERSECTION IMPROVEMENTS

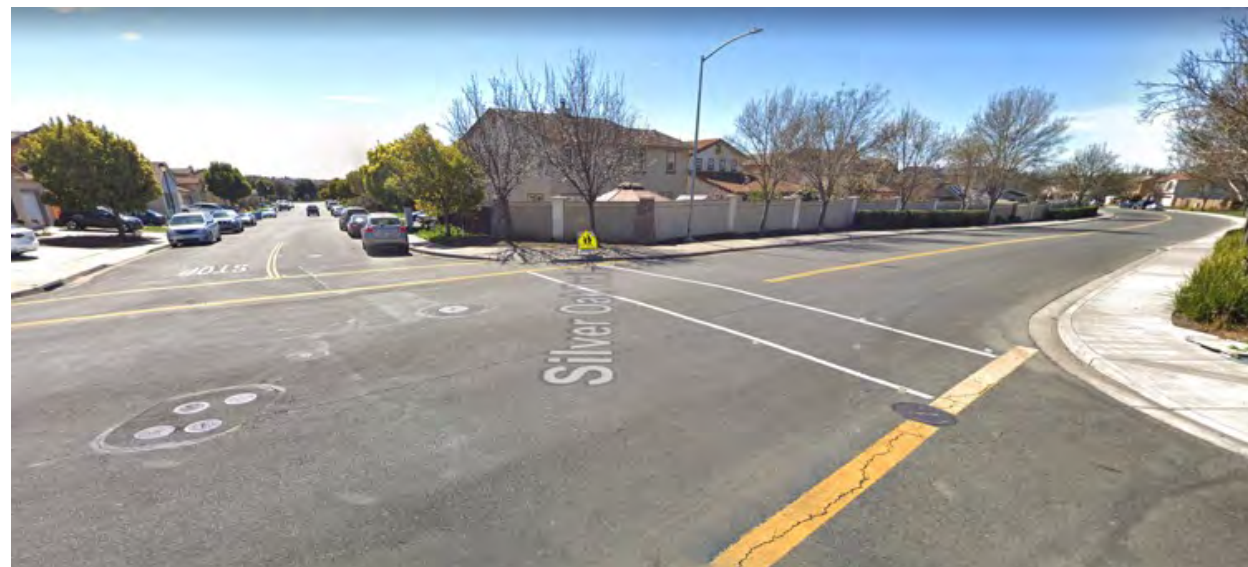
Narrative – As was discussed in the Narrative for Recommendations #AC-004 and AC-009, Silver Oak Trail is a highly-travelled collector road that the majority of students use to access the school’s campus, as it provides access to the school’s main entrance. Just west of the school, Silver Oak Trail intersects with Sequoia Grove Way, a residential street that provides access to a neighborhood of single-family homes. This intersection is only stop-controlled on Sequoia Grove Way and must be navigated by students travelling west of the school. The school has identified this intersection as a safety concern for student pedestrians, as they put out their own pedestrian crossing signage to increase awareness and visibility of pedestrians in the intersection. Despite the location of the intersection in the school zone and the high volume of traffic during pick-up and drop-off, the crosswalk across Silver Oak Trail is a white, standard striping pattern crosswalk. Additionally, all of the crosswalks have long crossing distances, due to wide curb radii on Sequoia Grove Way and wide roadways on Silver Oak Trail.

IDENTIFIED BARRIERS

- **Low-visibility crosswalk on west side** – The white, standard crosswalk across Silver Oak Trail on the west side of the intersection does not provide as much pedestrian visibility as other high-visibility patterns would. Improved pedestrian visibility is necessary given the intersection is within the school zone, the high volumes of traffic on Silver Oak Trail during school arrival and dismissal times, and the lack of traffic control.
- **Long crossing distances** – All of the crosswalks have long crossing distances, which increase exposure time of vulnerable road user to vehicles in the roadway.
- **Large curb radii** – The large curb radii on Sequoia Grove Way contribute to the long crossing distance and allow motorists to make fast turning movements.

RECOMMENDATIONS

- **High-visibility school zone crosswalk** – We recommend that the crosswalk across Silver Oak Trail be upgraded to a high-visibility yellow school zone crosswalk to improve visibility of student pedestrians.
- **Curb extensions** – We recommend the installation of curb extensions to the northwest, southwest, and southeast corners to reduce crossing distances, calm traffic, and improve visibility of pedestrians.



Canyon Oaks Elementary School staff put out a pedestrian crossing sign at Silver Oak Trail and Sequoia Grove Way.



RECOMMENDATION #AC-020: AMERICAN CANYON ROAD AND SILVER OAK TRAIL INTERSECTION IMPROVEMENTS

Narrative – The intersection of Silver Oak Trail/Broadway and American Canyon Road is a key intersection along a common route to Canyon Oaks Elementary School from neighborhoods south of the school. Broadway is a collector road and the only road that provides vehicle access out of the Entrada, Ventana, and Vine Terrace neighborhoods. This intersection also serves residents of the Olympia Mobile Lodge and American Canyon Mobile Home Park, two manufactured home medium-density neighborhoods located just south of the school off of American Canyon Road. This intersection also connects to the Class I shared-use path that runs parallel to American Canyon Road and provides a bicyclist and pedestrian route to the Canyon Oaks campus. However, the Silver Oak Trail/Broadway and American Canyon Road intersection is difficult for pedestrians and bicyclists to navigate, due to long crossing distances across 5-6 lanes of American Canyon Road traffic and low-visibility crosswalks, both of which reduce pedestrian visibility. In September 2020, a motorist struck a young bicyclist in this intersection while the bicyclist was crossing American Canyon Road.

IDENTIFIED BARRIERS

- **Long crossing distance** – Students must cross up to six lanes of traffic when crossing American Canyon Road at this intersection. Long crossing distances increase the exposure time of vulnerable road users to vehicles in the roadway.
- **Low-visibility crosswalks** – This intersection has standard pattern, white crosswalks, which provide low pedestrian visibility along this high-volume, high-speed intersection compared to other striping treatments.



American Canyon Road and Silver Oak Trail/Broadway.

RECOMMENDATIONS

- **Refuge islands** – The existing medians along American Canyon Road should be widened and extended through the crosswalk to create pedestrian refuge islands, which reduce crossing distances and create a greater sense of pedestrian safety. Road alterations necessary to create these refuge islands, such as lane narrowing, can also contribute to traffic-calming through the intersection.
- **Leading Pedestrian Interval** – The traffic signals should be reprogrammed to provide a Leading Pedestrian Interval across American Canyon Road. By providing pedestrians with a protected head-start across the intersection, Leading Pedestrian Intervals improve pedestrian visibility and driver yielding behavior.
- **High-visibility crosswalks** – Due to the high traffic speeds and volumes at this intersection, as well as its integral role along a common route to the school, the crosswalks should be upgraded to high-visibility patterns to improve pedestrian visibility and driver yielding behavior.



RECOMMENDATION #AP-002: ACTIVE TRANSPORTATION ENCOURAGEMENT PROGRAMMING

Narrative – Canyon Oaks Elementary School regularly participates in annual encouragement events, such as Bike to School Day, and has provided bicycle and pedestrian education to its students through the Napa County Safe Routes to School program. However, according to the hand tally survey performed by the Napa County Office of Education in 2019, roughly two thirds of the student population traveled to school by family vehicle on an average day, despite the relatively small enrollment boundary size and the active transportation-favorable terrain of this area of American Canyon. While annual programming can remind and excite students about the option of utilizing active transportation to get to school, the infrequency of these events makes them less effective at encouraging students to adopt active transportation as an everyday form of transportation. Increasing the frequency of encouragement events, in conjunction with infrastructure improvements, can help increase mode shift towards active transportation.

IDENTIFIED BARRIERS

- **Vehicle-oriented transportation culture** – Despite Canyon Oaks Elementary School’s consistent participation in annual countywide encouragement events, a high percentage of students still travel to and from school via family vehicle on an average school day.

RECOMMENDATIONS

- **Implement new active transportation encouragement programs** – We recommend that the school implement new active transportation encouragement programs that focus on increasing consistent mode shift towards walking and biking while highlighting the benefits of active transportation. Age-appropriate programs include, but are not limited to, Walk and Roll Wednesdays, bike trains, and walking school buses. Programs should begin on a monthly basis with the goal of increasing frequency over time.



An example of a bike train group led by parent volunteers at El Roble Elementary School in Gilroy. (Photo by Ihui Lopez, Silicon Valley Bicycle Coalition).



RECOMMENDATIONS #AC-014 AND AC-058: FLOSDEN ROAD BICYCLE/ PEDESTRIAN INFRASTRUCTURE

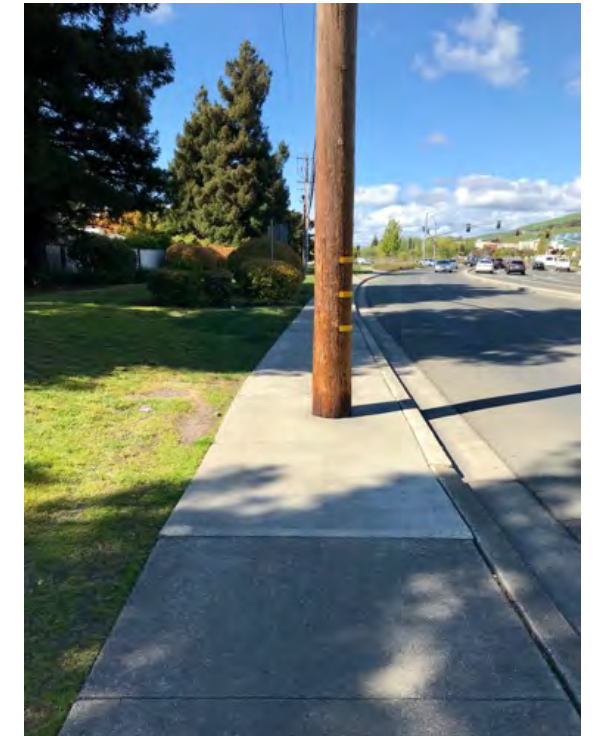
Narrative – Flosden Road, which turns into Newell Drive at American Canyon Road, is a 4-lane arterial with a speed limit of 45 mph that runs from American Canyon Road to the southern city limit. Flosden Road is a key corridor providing access to several neighborhoods south of Canyon Oaks Elementary School, including a manufactured home park adjacent to the southern city limit. However, this corridor was identified by Walk Audit participants as a barrier to students walking and biking to school. The sidewalk on the southbound side is narrow and obstructed by utility poles, and the sidewalk on the northbound side, which is supposed to be a shared-use path, narrows to substandard widths in locations. There are no other bike facilities along this corridor. Walk Audit participants identified narrow sidewalks and lack of bike facilities as barriers along Flosden Road. Both sides of the road must be addressed, as there are neighborhoods on both sides of the road and few opportunities to cross the high speeds and volumes of traffic in marked locations.

IDENTIFIED BARRIERS

- **Narrow, obstructed sidewalk** - The narrow, obstructed sidewalk on the southbound side discourages walking along the high-speed corridor and is a significant barrier for pedestrians walking in groups, with strollers, or in wheelchairs.
- **Limited bicycle facilities** – Bicycle access is limited for neighborhoods on the southbound side, as bicyclists must cross high speeds and volumes of vehicle traffic to reach the Class I shared-use path on the northbound side. Additionally, the Class I shared-use path narrows in some locations, which can make shared use uncomfortable at higher risk for user conflicts.

RECOMMENDATIONS

- **AC-014 Widen and realign southbound sidewalk** – We recommend that the existing sidewalk on southbound Flosden Road be widened to 6’ to improve access and reduce conflicts, and that the alignment be adjusted to avoid utility poles.
- **AC-058 Widen and designate northbound Class I** – We recommend that northbound path be widened to meet Class I standards (8’ minimum, 10’ preferred) and that signage and pavement markings be installed to indicate shared use.



Southbound Flosden Road is too narrow for shared use and is often obstructed by utility poles.



RECOMMENDATION #AC-013: AMERICAN CANYON ROAD BICYCLE/PEDESTRIAN INFRASTRUCTURE

Narrative – American Canyon Road is a 4-lane arterial road providing a significant east-west connection through downtown American Canyon. The section directly south of the school (from SR 29 to Newell Drive) has a speed limit of 40-45 mph, no on-street bicycle facilities, no sidewalk on the westbound side, and a sidewalk on the eastbound side. There is a shared-use path north of American Canyon Road running parallel to the corridor from Silver Oak Trail to Newell Drive; however, the eastbound sidewalk is more direct than the shared-use path, and the only two access points to the shared-use path are at Silver Oak Trail and Newell Drive. As a result, bicyclists and pedestrians wishing to use the shared-use path who are on the eastbound side, such as the residents of the manufactured home parks, must travel along the eastbound sidewalk to access the shared-use path at one of the two entrances. Many bicyclists on the eastbound side ride on the sidewalk, as the high speed and volume traffic and lack of bike facilities make the roadway hostile for bicyclists. Consequently, pedestrians and bicyclists travelling on the eastbound side of American Canyon Road are forced to share a roughly 5-6 foot sidewalk, which is too narrow for shared use and results in user conflicts.

IDENTIFIED BARRIERS

- **Disconnected bike network** – As the only bicycle facility is on the westbound side of the road and is only accessible at the two end points, bicyclists and pedestrians on the eastbound side must share a sidewalk too narrow for shared-use next to high speed and volume traffic, which can lead to conflicts between non-motorized users and makes the corridor feel unsafe and uncomfortable for active transportation users.



The eastbound sidewalk on American Canyon Road is too narrow for shared use.

RECOMMENDATIONS

- **Widen eastbound sidewalk** – We recommend that the eastbound sidewalk be widened to a minimum of 8 feet to accommodate both bicyclists and pedestrians. This will roughly mirror the shared-use path on the north side of American Canyon Road and improve access to the bicycle network for residents in the manufactured home parks. Additionally, driveways along this segment should be evaluated for redesign to improve visibility of bicyclists and pedestrians.
- **Complete westbound shared-use path** – We recommend that a shared-use path be installed on the westbound side from Silver Oak Trail to SR 29 to provide continuous and comfortable access to SR 29/ American Canyon Road intersection improvements (see AC-011) for bicyclists and pedestrians.



RECOMMENDATIONS #AC-005 AND AC-018: SHENANDOAH DRIVE AND GRANITE SPRINGS SHARED-USE PATHS

Narrative – North of the school, there are two east-west shared-use paths that cut through the block between Newell Drive and Shenandoah Drive: one north and one south of Granite Springs Way. These shared-use paths are part of a network of separated Class I facilities by connecting the Newell Drive Class I path and the Shenandoah Class I path and connecting to neighborhoods such as Marsala Place and Sadie Place. This network of Class I facilities provides a separated bicyclist and pedestrian route to Canyon Oaks for existing neighborhoods and future housing planned for north of the school, such as Watson Ranch and Canyon Estates. However, both shared-use paths end on the northbound side of Shenandoah Drive, a two-way collector providing direct access to Silver Oak Trail, while the Shenandoah Class I path is on the southbound side of the road. To access the Shenandoah Class I from the cut-through paths, pedestrians and bicyclists must cross Shenandoah Drive, a wide, relatively straight road with no on-road striping, all of which facilitates speeding. Furthermore, there are no crosswalks or signage indicating that bicyclists and pedestrians are crossing the road at these locations.

IDENTIFIED BARRIERS

- **No crosswalks** – Both shared-use paths are missing midblock crosswalks with curb ramps that would connect to the Shenandoah Class I path, forcing users to cross Shenandoah Drive unmarked locations.
- **Poor sight lines** – The shared-use path north of Granite Springs Way has poor sight lines at Shenandoah Drive for trail users travelling west, as fencing and shrubbery block visibility between motorists and pedestrians/bicyclists using the path.



Existing conditions at the north shared-use path and Shenandoah Drive.

RECOMMENDATIONS

- **AC-005 Midblock crosswalk** – For the south shared-used path, we recommend the installation of a midblock crosswalk and curb cuts on both faces, to allow path users to cross Shenandoah Drive in a marked and accessible location. We also propose that the City consider a Rectangular Rapid Flashing Beacon at this location to improve pedestrian and bicyclist visibility.
- **AC-018 Crosswalk visibility improvements** – We recommend that curb extensions be installed on both sides of Shenandoah Drive in consideration for a midblock crosswalk connecting the north shared-use path with the Shenandoah Class I path.



RECOMMENDATION #AC-002: DONALDSON WAY EAST CLASS I FACILITY IDENTIFICATION

Narrative – For many residents at the north end of the Canyon Oaks Elementary enrollment boundary, travelling along Donaldson Way East, a 2-way collector that intersects with Shenandoah Drive, between Tuscan Oak Trail and Newell Drive is part of the most direct route to school. Though signed at 30 mph, the wide nature of this road can facilitate speeding, which can make biking on-road uncomfortable and unwelcoming for younger riders. While this corridor is equipped with a Class I shared-use facility on the eastbound side, the facility resembles a large sidewalk and has no indication designating it for shared use. As a result, road users are not always aware that the path allow bicycle use, making the corridor appear to have no bicycle facilities.

IDENTIFIED BARRIERS

- **Unmarked bicycle facility** – The lack of indication that the Class I path on Donaldson Way East is a shared-use facility can both prevent bicyclists from using the facility, as they may not recognize it as a bicycle facility, and result in conflicts between non-motorized users when bicyclists do use it, as pedestrians may not be expecting to share the path with bicyclists.

RECOMMENDATIONS

- **Signage and stencils** – We recommend that signage and pavement markings identifying the sidewalk as a shared-use path be installed in regular intervals along the corridor.



Above: Without signage or stencils, the Donaldson Way East Class I facility appears to be a pedestrian-only sidewalk.

Below: Pavement stencils, as well as signage, clarify which road users can use the Class I facility (Source: SFMTA).



RECOMMENDATIONS #AC-006, AC-019, AND AC-059: NEWELL DRIVE IMPROVEMENTS

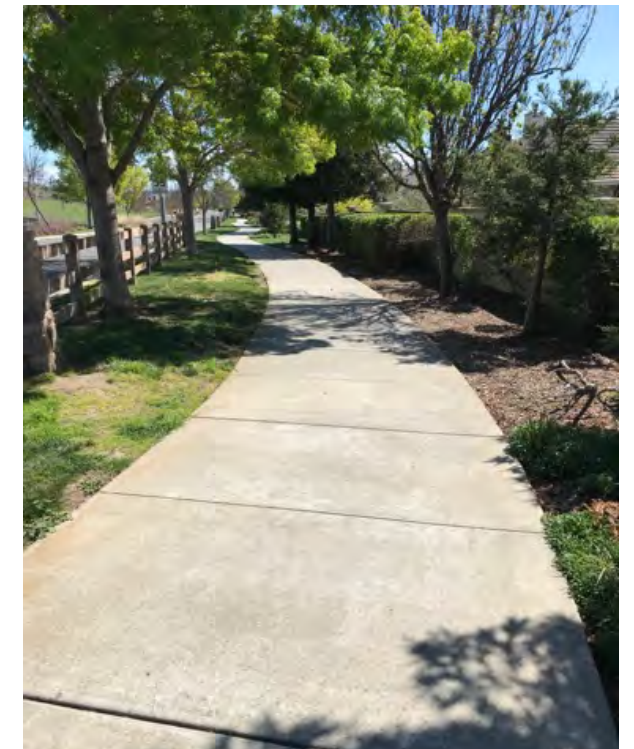
Narrative – Newell Drive is a 4-lane arterial with a speed limit of 35 mph that runs from American Canyon Road to Donaldson Way East, though there are plans to extend Newell Drive with the Watson Ranch development. A Class I shared-use path runs along the southbound side of the entire corridor, connecting to a Class I shared-use path network that leads to Shenandoah Drive, Silver Oak Trail, and the shared-use path that runs parallel to American Canyon Road. However, the Newell Class I resembles a large sidewalk and has no indication designating it for shared use. As a result, road users are not always aware that the path allows bicycle use, making the corridor appear to have no bicycle facilities since there are no on-street bicycle facilities. Additionally, as was apparent in the data provided by American Canyon Police Department, speeding is a common issue along Newell Drive.

IDENTIFIED BARRIERS

- **Unmarked shared-use path** – The Class I facility on the southbound side of Newell Drive resembles a wide sidewalk and has no indication that it is designated for shared use, leading to bicyclists either believing there are no bicycle facilities on Newell Drive, or experiencing conflicts with pedestrians who do not expect bicyclists on the path.
- **Conflicting speed limit sign** – Just north of American Canyon Road on the east side, a school zone 25-mph speed limit sign is immediately followed by a 35-mph speed limit sign, even though motorists have just entered the school zone.
- **Speeding** – Newell Drive is conducive to speeding due to its wide lanes, relatively straight nature, and limited traffic control.

RECOMMENDATIONS

- **AC-006 Signage and stencils** – We recommend that signage and pavement markings be added to the Class I facility to clearly indicate that it is a shared-use facility.
- **AC-019 Adjust signage** – We recommend that the order of the 35 mph and 25 mph speed limit signs be switched to clarify and emphasize school zone speed limit.
- **AC-059 CIP Projects** – We recommend that the City study Newell Drive further in consideration of new traffic-calming CIP Projects to reduce motorist speeds. This will be even more critical as Newell Drive is expanded for the Watson Ranch housing project.



The Class II bike lanes on Benton Way are adjacent to high vehicle speeds and volumes and are frequently crossed by cars pulling up to the curb in the school area.



RECOMMENDATION #ACP-001: DRIVER BEHAVIOR IN SCHOOL ZONE

Narrative – Walk Audit participants described poor driver behavior in the school zone as a barrier to students who walk and bike to school. Illegal U-turns into and out of the drop-off zones on White Oak Drive and Silver Oak Trail and near the intersection of these two streets, speeding, and distracted and aggressive driving were cited as hazardous driving behaviors for children who navigate Silver Oak Trail or White Oak Drive to reach the school.

IDENTIFIED BARRIERS

- **Illegal U-turns** – Parents identified illegal U-turns into and out of the two on-street drop-off areas as a safety concern, particularly with children crossing the street midblock.
- **Speeding** – Parents identified speeding as a significant issue in the broader neighborhood, including on Silver Oak Trail.
- **Failure to Yield** – Parents identified the failure of drivers to yield to pedestrians as a barrier, both in marked crosswalks and when crossing midblock.

RECOMMENDATIONS

- **Education and encouragement** – We recommend that the school increase education for parents and students on the school’s safety policy and the importance of compliance. If poor driver behavior continues, we recommend that the school initiate an incentive program that rewards children for their parents and their own safe behavior in the school zone. Incentive programs that reward children for their parent’s good behavior can be effective, as children will urge their parent or guardian to act appropriately.



Despite signage in the school zone, dangerous motorist behaviors such as illegal U-turns make the school zone feel unsafe for student pedestrians and bicyclists.



RECOMMENDATION #AC-060: FLOSDEN ROAD AND DANIEL DRIVE CROSSWALK

Narrative – Walk Audit participants identified the Flosden Road and Daniel Drive intersection as a barrier to students walking and biking to school. Participants noted that there is no crosswalk across Daniel Drive, which has long crossing distance due to the presence of both a wide entrance and exit lane, and suggested conflict markings and Rectangular Rapid Flashing Beacons at the location, indicating that pedestrian visibility when crossing Daniel Drive was their top concern. As Daniel Drive provides the sole access point to an entire neighborhood, and is along a direct route to residences further south, including a manufactured home park, this intersection is an important point on a common route to Canyon Oaks.

IDENTIFIED BARRIERS

- **Low pedestrian visibility** – The lack of a crosswalk and long crossing distance across Daniel Drive at Flosden Road reduces visibility of pedestrians, especially children.

RECOMMENDATIONS

- **Crosswalk** – We recommend that a crosswalk be painted across Daniel Drive to improve pedestrian visibility.



Daniel Drive and Flosden Road.



RECOMMENDATION #AC-017: SCHOOL BIKE PARKING

Narrative – The school provides several bike racks for its students. The bike racks are designed to provide parking on both sides; however, they are positioned in rows of two right next to each other, blocking access to half of the parking spaces. Maximizing safe and accessible bike parking ensures that students are not prevented from biking due to a lack of secure bike storage and would demonstrate the school’s prioritization and encouragement of bicycling as a form of transportation to and from school.

IDENTIFIED BARRIERS

- **Inaccessible positioning of bike racks** – The bike racks are positioned in such a way that half of the bike parking spaces are inaccessible, limiting the availability of secure bike parking.

RECOMMENDATIONS

- **Reposition bike racks** – We recommend that the school reposition the bike racks to allow full parking capacity on both sides of the racks.



The bike racks are currently pushed against each other, reducing parking capacity by half.

ADDITIONAL CONSIDERATIONS

Improvements listed in this section are those within a half-mile radius that are either considered significant to the school area but are not located along routes to the school based on the school's enrollment boundary or were ranked as a higher priority during the Walk Audit for another nearby school. These barriers are listed as high or medium priority due to their impact on routes to nearby schools in the neighboring areas and will be analyzed in more depth in the reports for the affected schools.

RECOMMENDATION #AC-011: AMERICAN CANYON ROAD AND BROADWAY (SR 29) INTERSECTION IMPROVEMENTS

IDENTIFIED BARRIERS

- Long crossing distances
- Large curb radii
- Missing crosswalk on north side of intersection
- High traffic speeds and volumes

RECOMMENDATIONS

- Protected intersection
 - Refuge islands
 - Reduction of curb radii
 - Addition of north and east crosswalk
 - Leading Pedestrian Interval

Relevant Reports:

- American Canyon High School Walk Audit Report
- American Canyon Middle School Walk Audit Report

RECOMMENDATION #AC-001: DONALDSON WAY EAST FROM SR 29 TO TUSCAN OAK TRAIL

IDENTIFIED BARRIERS

- Unmarked bicycle facility
- Missing westbound sidewalk

RECOMMENDATIONS

- Class I shared-use path signage and pavement markings on eastbound facility
- Class III bicycle boulevard
- Install westbound sidewalk

Relevant Reports:

- American Canyon High School Walk Audit Report

RECOMMENDATION #AC-003: DONALDSON WAY EAST AND NEWELL DRIVE INTERSECTION IMPROVEMENTS

IDENTIFIED BARRIERS

- Large curb radii
- Long crossing distance

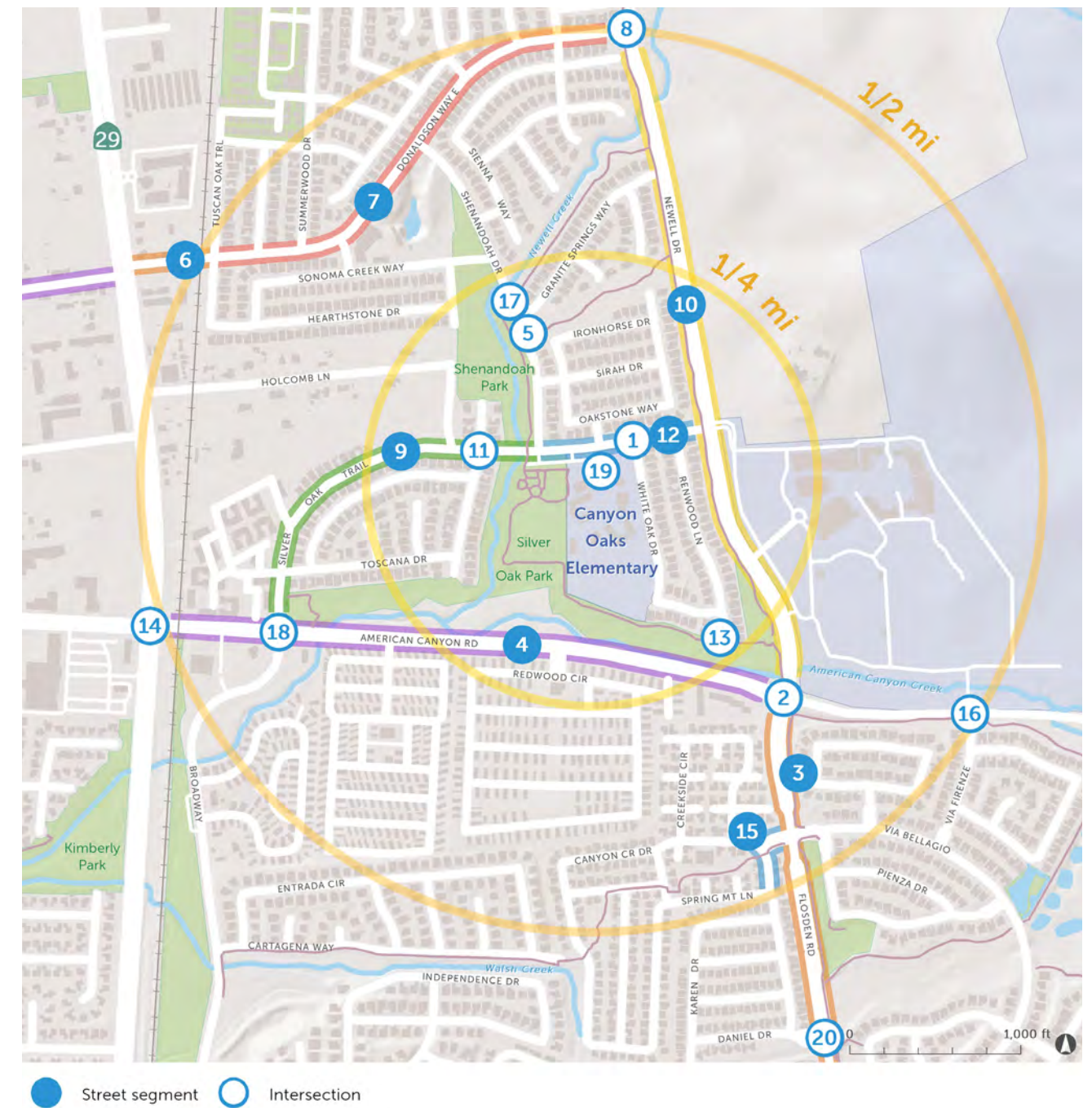
RECOMMENDATIONS

- Reduce curb radius
- Consider curb extensions

Relevant Reports:

- American Canyon High School Walk Audit Report

MAP OF RECOMMENDATIONS



Map 6: Recommendations

TABLE OF RECOMMENDATIONS

Infrastructure:

	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
1	Silver Oak Trail and White Oak Drive intersection	AC-008	Motorist speeding, failure to yield at crosswalk, high volumes, illegal U-turns	Add curb extensions, center divider with "No U-Turn" signage, and high-visibility crosswalk	\$\$	High
2	American Canyon Road and Newell Drive intersection	AC-012	Long crossing distances, high traffic volumes and speeds	Install curb extensions to shorten crossing distance. Enhance traffic calming for WB AmCan Rd. Install pedestrian refuge islands on west and east legs. Paint high-visibility crosswalks on all legs.	\$\$-\$\$\$	High
3	Flosden Road from American Canyon Road to southern city limit	AC-014	Narrow, obstructed southbound sidewalk. Limited bicycle access on southbound side, northbound Class I narrows to substandard widths in some locations	Widen existing sidewalks on west side of Flosden to 6' to improve safety and reduce conflicts. Update alignment to avoid utility poles.	\$\$-\$\$\$	Medium
		AC-058		Widen east path to meet Class I standards (8' minimum, 10' preferred) and install signage/pavement markings indicating shared use	\$\$-\$\$\$	Medium
4	American Canyon Road from SR29 to Flosden Road	AC-013	Disconnected bike network – bicycle facility only on westbound side, sidewalk too narrow for shared use on eastbound side	Widen sidewalk on south (eastbound) AmCan Rd to accommodate pedestrian and bike traffic and evaluate driveway re-designs. Install shared-use path on north (westbound) side from Silver Oak Trail to SR 29 provide safe and comfortable bicyclist and pedestrian access to intersection improvements (see #AC-011)	\$\$\$	Medium
5	Shenandoah Drive and Granite Springs Class I (south) intersection	AC-005	Missing curb ramps and midblock crosswalk to connect shared-use paths	Add midblock crosswalk and curb cuts on both faces. Consider Rectangular Rapid Flashing Beacons	\$-\$\$	Medium
6	Donaldson Way RR Crossing from SR 29 to Tuscan Oak Trail	AC-001	Unmarked bicycle facility, missing westbound sidewalk	Add Class III Sharrows EB/WB. Add signage and pavement markings to ID eastbound sidewalk as bike facility. Add Sidewalk WB along segment	\$\$	Medium
7	Donaldson Way East from Tuscan Oak Trail to Newell Drive	AC-002	Unmarked bicycle facility	Add signage and pavement markings to ID sidewalk as bike facility	\$	Medium
8	Donaldson Way East and Newell Drive intersection	AC-003	Large curb radii, long crossing distance	Reduce curb radius and consider adding curb extensions to reduce pedestrian crossing distance for southbound Newell Drive	\$	Medium
9	Silver Oak Trail West from American Canyon Road to Shenandoah Drive	AC-004	No bicycle facilities	Add Class III eastbound/westbound per Bike Plan*. Consider upgrading to Class II as Right of Way allows.	\$-\$\$	High

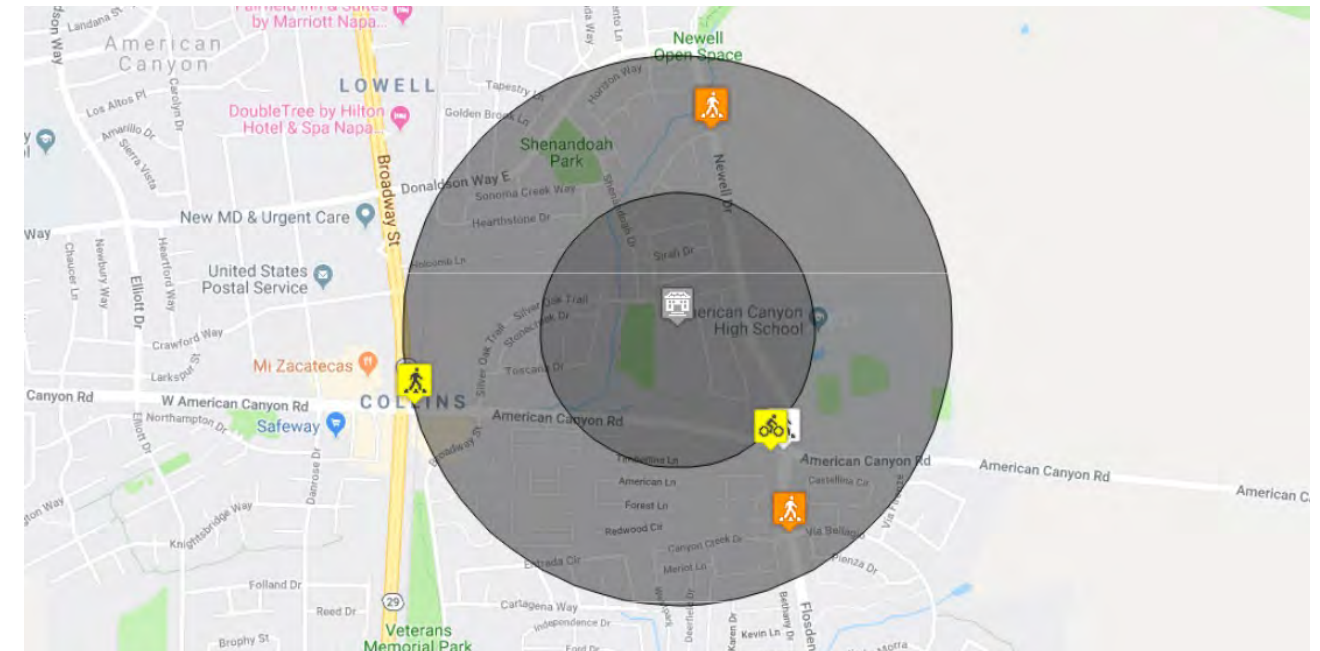
	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
10	Newell Drive from Donaldson Way East to American Canyon Road	AC-006	Unmarked shared-use path	Add signage and pavement markings clearly indicating bikes should ride on Class I shared-use path	\$	Medium
		AC-019	Conflicting speed limit signs on northbound side just north of American Canyon Road placed close together encourages speeding in the school zone	Switch order of 35 mph and 25 mph speed limit signs on northbound side of Newell Drive just north of American Canyon Road to clarify school zone speed limit	\$	Medium
		AC-059	Speeding	Consideration of new traffic-calming CIP Projects to reduce speeds.	\$-\$\$\$	Medium
11	Silver Oak Trail and Sequoia Grove Way intersection	AC-007	Low-visibility crosswalk on west side, long crossing distances and large curb radii	Upgrade west crosswalk to high-visibility yellow school zone pattern, and add curb extensions on northwest, southwest, and southeast corners	\$\$	High
12	Silver Oak Trail East from Shenandoah Drive to Newell Drive	AC-009	No bicycle facilities	Add Class III eastbound/westbound per Bike Plan*. Consider upgrading to Class II as Right of Way allows.	\$	High
13	2 Renwood Place and 7 Renwood Place intersection	AC-010	Parked cars block Class I pathway visibility	Add red curb within 20' of either side of access to Class I pathway	\$	Low
14	American Canyon Road and Broadway (SR 29) intersection*	AC-011	Long crossing distances, large curb radii, high traffic speeds and volumes, and missing crosswalk on north side of intersection	Add refuge islands to north/south legs (east/west if feasible), reduction of curb radii, and addition of north and east crosswalks. Upgrade signal to provide Leading Pedestrian Interval. Upgrade intersection to protected intersection.	\$\$\$	High
15	Canyon Creek Drive from Flosden Road to Spring Mountain Lane	AC-015	No sidewalk on westbound side	Add sidewalk on westbound side of Canyon Creek	\$	Low
16	Via Firenze and American Canyon Road intersection	AC-016	No vertical separation between Class I pathway and roadway where adjacent	Add curbs or other vertical separation to Class I pathway along American Canyon Road at Via Firenze intersection. Consider additional traffic calming pending new school.	\$	Low
17	Shenandoah Drive and Granite Springs Class I (north) intersection	AC-018	No crosswalk across Shenandoah Drive linking the two Class I pathways. Poor sight lines from east side due to fencing and shrubbery.	Install curb extensions on both sides of path in consideration for a midblock crosswalk connecting the two Class I paths.	\$-\$\$	Medium
18	American Canyon Road and Silver Oak Trail intersection	AC-020	Long crossing distances across American Canyon Road. Low-visibility crosswalks contribute to poor pedestrian visibility.	Add refuge islands. Upgrade signal to provide Leading Pedestrian Interval. Upgrade crosswalks to high-visibility pattern.	\$-\$\$	High
19	School grounds	AC-017	Inaccessible positioning of bike racks.	Reposition bike racks to allow full parking capacity.	\$	Medium
20	Flosden Road and Daniel Drive intersection	AC-060	Low pedestrian visibility at intersection – lack of crosswalk and long crossing distance	Paint crosswalk across Daniel Drive	\$	Medium

* = projects included in Napa Countywide Pedestrian Plan (2016) or Napa Countywide Bicycle Plan (2019)

Programmatic Improvements:

ISSUE	ID #	RECOMMENDATION	LOCATION	FREQUENCY	COST	PRIORITY
1 Poor driver behavior – illegal U-turns, speeding, failure to yield to pedestrians	ACP-001	Education and encouragement programming to improve road user behavior	School Zone	Monthly	\$	Medium
2 Vehicle-oriented transportation culture	ACP-002	Implement new active transportation encouragement programs (ex. Walk and Roll Wednesdays, bike trains, walking school buses)	Various	Monthly, with goal of increasing frequency over time	\$	High
3 High speeds	ACP-003	Law enforcement presence	School Zone	Monthly	\$	Low
4 High speeds	ACP-005	Increased enforcement activity by law enforcement.	Newell Drive/ Flosden Road	Monthly	\$	Low

COLLISION MAP AND DATA



Map 7: Collision Map (2012-2017) (Source: UC Berkeley Transportation Injury Mapping System: SRTS Collision Map Viewer)

Summary Statistics

RADIUS	FATAL	SEVERE INJURY	VISIBLE INJURY	COMPLAINT OF PAIN	PEDESTRIAN	BICYCLE	TOTAL
< .25 mi.	0	0	0	0	0	0	0
.25-.5 mi.	0	2	2	2	5	1	6
Total	0	2	2	2	5	1	6

Collision List

DATE	TIME	PRIMARY	SECONDARY	BIKE/PED
2013-02-17	09:42	American Canyon Rd	Flosden Rd	Yes/No
2018-10-11	07:07	Granite Springs Wy	Newell Dr	No/Yes
2018-06-21	21:15	American Canyon Rd	Flosden Rd	No/Yes
2018-05-20	08:47	American Canyon Rd	RT 29	No/Yes
2014-07-30	17:59	Flosden Rd	Canyon Creek	No/Yes
2014-07-04	19:06	Granite Springs Wy	Newell Dr	No/Yes

Figure 11: Collision Data (2012-2017) (Source: UC Berkeley Transportation Injury Mapping System: SRTS Collision Map Viewer)



APPENDICES

Appendix A: EMC Survey Toplines

Appendix B: Universal Recommendations

Appendix C: Quick-Build Options for Infrastructure Improvements

Appendix D: Bike Parking Guide

Appendix E: Recommendation Cost Range Matrix

Appendix F: Next Steps

FIGURES & MAPS

Figure 1 – NCOE Hand Tally Data (p. 8)

Figure 2 – EMC Research Polling Results (p. 8)

Figure 3 – Enrollment Data by Group (p. 8)

Figure 4 – Enrollment Data by Grade (p. 8)

Figure 5 – Parking Lot Safety Tips (p. 12)

Figure 6 – Encouragement and Education Data (p. 16)

Figure 7 – Citations by Type (p. 17)

Figure 8 – Speeding Citations (p. 17)

Figure 9 – Walk Audit Ratings – Dot Exercise (Barriers) (p. 21)

Figure 10 – Walk Audit Ratings – Dot Exercise (Solutions) (p. 22)

Figure 11 – Collision Data (p. 41)

Map 1 – Enrollment Boundary (p. 7)

Map 2 – School site location within the city of American Canyon (p. 9)

Map 3 – Shared-Use Path (p. 13)

Map 4 – Existing Bicycle Facilities (p. 14)

Map 5 – Existing Pedestrian Facilities (p. 15)

Map 6 – Recommendations (p. 37)

Map 7 – Collision Map (p. 41)

FOOTNOTES

^a Noreen McDonald, Ruth Steiner, Chanam Lee, Tori Rhoulac Smith, Xuemei Zhu and Yizhao Yang (2014). "Impact of the Safe Routes to School Program on Walking and Bicycling." Journal of the American Planning Association. Vol 80, Iss 2, p 153-167.

^b Orion Stewart, Anne Vernez Moudon, and Charlotte Claybrooke (2014) Multistate Evaluation of Safe Routes to School Programs. American Journal of Health Promotion: January/February 2014, Vol. 28, No. sp3, pp. S89-S96.

^c Peter A Muennig et al., 'The Cost-Effectiveness Of New York City's Safe Routes To School Program', American Journal Of Public Health, iss 0 (2014): 1-6.

^d David Ragland, S Pande, J Bigam and FJ Cooper. (2014, January). Ten years later: examining the long-term impact of the California Safe Routes to School program. Presented at the Transportation Research Board 93rd Annual Meeting, Washington DC. Available at <http://docs.trb.org/prp/14-4226.pdf>.

^e Davison K, Werder J and Lawson, C. "Children's Active Commuting to School: Current Knowledge and Future Directions." Preventing Chronic Disease, 5(3): A100, July 2008.

^f Hillman CH, Pontifex MB, Raine LB, Castelli DM, Hall EE, Kramer AF. The effect of acute treadmill walking on cognitive control and academic achievement in preadolescent children. Neuroscience. 2009;159(3):1044-1054. doi:10.1016/j.neuroscience.2009.01.057

^g Castelli, D.M., Glowacki, E., Barcelona, J.M., Calvert, H.G., & Hwang, J. (2015). Active Education: Growing Evidence on Physical Activity and Academic Performance. [Research brief.] Active Living Research. http://activelivingresearch.org/sites/default/files/ALR_Brief_ActiveEduc....

^h Appleyard, B. (2017). The meaning of livable streets to schoolchildren: An image mapping study of the effects of traffic on children's cognitive development of spatial knowledge. Journal of Transport & Health, 5.

ⁱ AAA. Cost of Owning and Operating Vehicle in U.S. Increased 1.9% According to AAA's 2012 Your Driving Costs Study. 2012. <http://newsroom.aaa.com/2012/04/costof-owning-and-operating-vehicle-in-u....>

^j Overall Facility Rating determined from 2019-20 School Accountability Report Card

APPENDIX A

EMC Survey Toplines

**Safe Routes to School Walk Audit Report
and Active Transportation Action Plan**

Evaluation: Research & Methodology



- ▶ **Purpose: Gain insight into parent practices, perceptions, and attitudes around children walking and riding bicycles to and from school; explore barriers to behavior change**
- ▶ **Quantitative survey of 459 parents of K-8 students in Napa County**
 - Conducted online and by telephone, offered in English and Spanish
 - Conducted March 11 – April 12, 2021
 - Participants recruited via communications from school districts and targeted online and telephone contacts
 - *Survey methods were designed to include as many participants as possible; not a random sample*
- ▶ **Qualitative follow-up research**
 - One online focus group with 7 participants in English; 4 in-depth telephone interviews in Spanish
 - Conducted May 20 – 28, 2021
 - Targeted parents who lived within two miles of their school site and would like their children to walk or bike to school



Survey of Parents/Guardians of at least one child in K-8th Grade
Napa County, California
Hybrid Email-to-Web/Text-to-Web/Live Telephone Survey
Conducted March 11-April 12, 2021
n=459
EMC Research #21-6420

**All numbers in this document represent percentage (%) values, unless otherwise noted.
Please note that due to rounding, percentages may not add up to exactly 100%.**

INTRO: Your opinions are important! Thank you for participating in this survey EMC Research is conducting on behalf of the Napa County Safe Routes to School program in partnership with local school districts. You may have been contacted previously to complete this survey via telephone and we ask each individual only complete the survey once.

Your responses will remain completely confidential. Please try to answer every question even if you're not sure. If you need to, you may skip a question.

1. Are you the parent or guardian of any children currently attending kindergarten through eighth grade in one or more of the school districts located in Napa County below? *Please select the District(s) that your K-8th grade student(s) is/are currently enrolled in, check all that apply. (MULTIPLE RESPONSES ACCEPTED)*

Calistoga Joint Unified School District	0
Howell Mountain Elementary School District	-
Napa Valley Unified School District	97
Pope Valley Union Elementary School District	0
Saint Helena Unified School District	2
Another District or school in Napa County (please specify)	1
None of the above → TERMINATE	-
(No response) → TERMINATE	-

2. Please indicate below what grade(s) your child/children are in. *Please select all that apply. (MULTIPLE RESPONSES ACCEPTED)*

Kindergarten	22
1 st grade	17
2 nd grade	15
3 rd grade	20
4 th grade	15
5 th grade	15
6 th grade	14
7 th grade	12
8 th grade	9
9 th through 12 th grade → TERMINATE IF ONLY RESPONSE SELECTED	14
(No response) → TERMINATE	-

(IF MORE THAN ONE K-8 STUDENT: “Although you have multiple children in K-8, we ask that you please think about your **oldest K-8** child when answering the next questions.”)

For these next few questions, please think back to when your (child was/children were) attending school **before** the COVID-19 pandemic.

3. On most days, what was the primary way your (K-8 child/oldest K-8 child) travelled **to** school?
- | | |
|--|----|
| Family vehicle (only children in your family) | 73 |
| Carpool (children from other families) | 3 |
| School bus | 3 |
| Other public transportation | 0 |
| Bike | 4 |
| Walk | 16 |
| Other (scooter, skateboard, inline skates, etc.) | 0 |
| (No response) | 0 |
4. And on most days, what was the primary way your (K-8 child/oldest K-8 child) travelled **from** school?
- | | |
|--|----|
| Family vehicle (only children in your family) | 73 |
| Carpool (children from other families) | 3 |
| School bus | 3 |
| Other public transportation | 1 |
| Bike | 4 |
| Walk | 15 |
| Other (scooter, skateboard, inline skates, etc.) | 0 |
| (No response) | 0 |
5. How long did it normally take your (K-8 child/oldest K-8 child) to get to/from school?
- | | |
|----------------------|----|
| Less than 5 minutes | 18 |
| 5-10 minutes | 42 |
| 11-15 minutes | 22 |
| 16-20 minutes | 8 |
| More than 20 minutes | 9 |
| (No response) | 0 |
6. Has your (K-8 child/oldest K-8 child) ever walked or biked to/from school?
- | | |
|---------------|----|
| Yes | 43 |
| No | 56 |
| (No response) | 0 |

7. **(ONLY ASKED IF Q6=1, 'Yes, has walked/biked to/from school')** In what grade did your child begin to walk or bike to/from school? (n=199)
- | | |
|------------------------|----|
| Pre-school | 7 |
| Kindergarten | 30 |
| 1st grade | 9 |
| 2nd grade | 6 |
| 3rd grade | 10 |
| 4th grade | 8 |
| 5th grade | 9 |
| 6th grade | 13 |
| 7th grade | 6 |
| 8th grade | 1 |
| 9th through 12th grade | 1 |
| (No response) | 2 |
8. Thinking generally, what grade would you feel comfortable with a child walking or biking to/from school?
- | | |
|---|----|
| Pre-school | 1 |
| Kindergarten | 5 |
| 1st grade | 2 |
| 2nd grade | 2 |
| 3rd grade | 5 |
| 4th grade | 14 |
| 5th grade | 12 |
| 6th grade | 16 |
| 7th grade | 10 |
| 8th grade | 7 |
| 9th through 12th grade | 13 |
| I would not feel comfortable at any grade | 14 |
| (No response) | 1 |

9INT. Continuing to think about times before the COVID-19 pandemic, please indicate how comfortable you were with your (K-8 child/oldest K-8 child) doing each of the following.

SCALE:	Very Comfortable	Somewhat Comfortable	Not too Comfortable	Not at all Comfortable	(No Response)	Total Comfort.	Total Not Comfort.	
(RANDOMIZE)								
9.	Taking a bus to school							
	32	33	17	15	3	65	32	
10.	Walking to school without an adult							
	8	18	19	54	1	26	73	
11.	Riding a bike to school without an adult							
	7	17	22	53	2	23	75	
12.	Walking to school with an adult							
	66	19	6	8	1	85	14	
13.	Riding a bike to school with an adult							
	45	29	11	13	2	74	24	

(END RANDOMIZE)

14. **(ONLY ASKED IF Q10=3 OR 4, 'not comfortable')** What would you say is the **main** reason you were not comfortable with your (K-8 child/oldest K-8 child) **walking** to school without an adult?

(VERBATIM RESPONSES CODED INTO BELOW CATEGORIES) (n=335)

Worry for child's safety/Crime	28
Not old enough	19
Live too far away	17
Traffic/Busy streets	11
Street crossing/Intersections	6
Not enough sidewalks	5
Crossing Highway 29	3
Other	8
Don't know	1

15. **(ONLY ASKED IF Q11=3 OR 4, 'not comfortable')** What would you say is the **main** reason you were not comfortable with your (K-8 child/oldest K-8 child) **riding a bike** to school without an adult?

(VERBATIM RESPONSES CODED INTO BELOW CATEGORIES) (n=324)

Worry for child's safety/Crime	29
Not old enough	18
Traffic/Busy streets	13
Live too far away	9
Street crossing/Intersections	5
Crossing Highway 29	4
Can't ride a bike	4
Not enough sidewalks	3
No bike lanes	3
Other	10
Don't know	1

For these next few questions, please think back to when your (child was/children were) attending school before the COVID-19 pandemic.

16INT. Please indicate whether you agree or disagree with each of the following statements.

SCALE:	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	(No Response)	Total Agree	Total Disagree
(RANDOMIZE)							
16.	I would generally like my K-8 (child/children) to be able to walk or bike to/from school.						
	43	32	12	12	0	76	24
17.	My K-8 (child enjoys/children enjoy) walking and/or biking places.						
	57	31	8	4	0	88	12
18.	I would never let my K-8 (child/children) walk or bike to/from school.						
	20	24	27	28	0	44	55
19.	It is safe for children to walk or bike in my area.						
	13	45	22	20	-	58	42
20.	There are enough bike paths and sidewalks for my K-8 (child/children) to walk or bike to/from school.						
	13	27	20	39	1	40	60
21.	I am concerned about speeding or distracted drivers if/when my (child/children) walk or bike to/from school.						
	81	15	2	2	0	96	4
22.	The school is too far away for my K-8 (child/children) to walk or bike there.						
	37	19	15	29	0	55	45
23.	My K-8 (child/children) cannot bike to and from school because of their before- or after-school commitments.						
	13	26	25	35	1	39	60
24.	Walking or biking to and from school is a good way for my K-8 (child/children) to get physical exercise.						
	69	25	3	3	1	93	6
25.	Walking or biking to and from school is a good way for me to spend quality time with my K-8 (child/children).						
	55	30	7	6	1	85	14
26.	I would only allow my K-8 (child/children) to walk or bike to and from school if I, or another adult, can accompany them.						
	54	25	12	8	0	79	21

(END RANDOMIZE)

27INT. Next, you will see some things that local schools and other organizations could do that may affect how you feel about your (K-8 child/oldest K-8 child) biking to school once the COVID-19 pandemic has ended. For each, please indicate if the item would make you feel more comfortable about allowing your (K-8 child/oldest K-8 child) to walk or bike to school once the COVID-19 pandemic has ended.

SCALE:	Much More Comfortable	Somewhat More Comfortable	A Little More Comfortable	(No Difference)	(Don't Know)
(RANDOMIZE)					
27.	Limit how much children have to carry in their backpacks				
	36	25	14	24	1
28.	Provide children and parents with information and maps on safe routes to and from school				
	37	24	16	22	1
29.	Offer free bicycle safety courses for children to learn how to ride safely on local streets				
	43	21	21	15	0
30.	Provide opportunities for children to practice biking in a car-free environment				
	42	23	14	20	-
31.	Offer free pedestrian safety classes for children				
	39	20	21	19	1
32.	Provide crossing guards at major intersections				
	62	22	10	6	-
33.	Organize groups of students to walk or bike to/from school together				
	42	26	17	14	1
34.	Provide a local parent or adult volunteer to walk or bike with children to/from school				
	36	27	15	20	1
35.	Add designated bike lanes to roads				
	46	24	15	14	-
36.	Improve the condition of existing bike lanes				
	47	23	14	16	1
37.	Add more bike paths that are separated from the road				
	62	17	11	9	0
38.	Add more sidewalks				
	53	21	13	12	1
39.	Fix missing or broken sidewalks				
	56	19	15	10	1
40.	Increase the visibility and safety of crosswalks				
	61	20	11	8	0
41.	Increase the police presence on routes that lead to schools				
	52	23	13	12	1
42.	Reduce the speed of traffic on streets that kids use to walk or bike to school				
	53	21	15	11	1

(END RANDOMIZE)

43. Is there something else that could be done that would make you feel more comfortable about allowing your (K-8 child/oldest K-8 child) to walk or bike to school once the COVID-19 pandemic has ended? (VERBATIM RESPONSES CODED INTO BELOW CATEGORIES)

Nothing/No additional comments	42
Add or improve bike paths/Sidewalks/Crosswalks	15
Increase crossing guards/Supervision/Police presence	11
School is too far away/Can't use active modes	9
Speeding concerns/Increased road law enforcement	5
Increase safety related to Highway 29	2
Already walks/bikes/etc.	2
Provide bikes/Equipment/Storage	2
Other	10
Don't know/Refused	2

44. About how far does your (K-8 child/oldest K-8 child) live from school? If you're not sure, give your best guess.

Less than ½ mile	14
½ mile up to 1 mile	19
1 mile up to 2 miles	21
2 miles up to 3 miles	14
3 miles up to 5 miles	15
5 miles or more	16
(No response)	1

45. Does your (K-8 child/oldest K-8 child) currently have their own working bicycle?

Yes	79
No	21
(No response)	-

46. Did you ride a bicycle when you were your K-8 (child's/children's) age?

Yes	78
No	21
(No response)	0

These last questions are for statistical purposes only. Your responses will remain completely confidential.

47. Do you identify as...

Male	14
Female	83
Non-binary	-
Another gender identity	-
Prefer not to respond	3

48.	What year were you born? (YEARS CODED INTO CATEGORIES)	
	18-29 (2003-1992)	5
	30-39 (1982-1991)	36
	40-49 (1972-1981)	45
	50-64 (1957-1971)	12
	65 or older (1956 or earlier)	1
	Prefer not to respond	1
49.	Do you consider yourself to be...	
	Hispanic or Latino	38
	White or Caucasian	41
	African American or Black	1
	Asian or Pacific Islander	7
	Something else	3
	Prefer not to respond	10
50.	Do you...	
	Own or are buying the home or apartment where you live	55
	Rent or lease	35
	Prefer not to respond	10

THANK YOU!

APPENDIX B

Universal Recommendations

**Safe Routes to School Walk Audit Report
and Active Transportation Action Plan**

Appendix B

Napa County SRTS Walk Audit Report

Universal Recommendations

The Napa County Safe Routes to School (SRTS) Walk Audit Report Universal Recommendations apply to all public schools in Napa County, which reflects the schools served under the SRTS program. Universal recommendations are meant to supplement site-specific recommendations and address common barriers in the bicycle/pedestrian network around schools in a concise and consistent manner.

Universal Recommendation 1: High-Visibility School Zone Crosswalks

Federal Highway Administration data¹ indicates that high-visibility crosswalk striping improves the visibility of crosswalks compared to standard parallel lines and can improve yielding behavior by drivers². Additionally, crosswalk visibility enhancements, which include but are not limited to high-visibility crosswalks, can reduce crashes by 23-48%¹.

- Recommendation: High-visibility (continental or ladder pattern) crosswalks should be implemented at the following locations:
 - Utilizing the California Vehicle Code (CVC) §21368 requirements for designating crosswalks as “school zone” crosswalks (painted yellow), all school zone crosswalks;
 - And, all marked crosswalks at an intersection with a designated collector or arterial roadway within 1320 feet (0.25 miles) of a school (following the same measuring method as CVC §21368)

This recommendation applies to existing and future crosswalks. It does not provide guidance for new crosswalk warrants; it is primarily focused on the improvement of crosswalks within the roughly ¼ mile radius examined through the Walk Audit process.

Universal Recommendation 2: Intersection Daylighting

Daylighting is the practice of removing visual barriers, including parked vehicles, within a certain distance of a crosswalk or intersection to greatly improve visibility for pedestrians, bicyclists, and motorists. The National Association of City Transportation Officials recommends removing parking within 20-25 feet of an intersection. Daylighting can be accomplished through permanent infrastructure, such as concrete curb extensions, or more cost-effective materials, such as paint and bollards.

¹ https://safety.fhwa.dot.gov/ped_bike/step/docs/TechSheet_VizEnhancemt_508compliant.pdf

² Pulugartha, S. S., V. Vasudevan, S. S. Nambisan, and M. R. Dangeti. Evaluating the Effectiveness on Infrastructure-Based Countermeasures on Pedestrian Safety. Presented at the 91st Annual Meeting of the Transportation Research Board, Washington, D.C., 2012.

- Recommendation: Daylighting strategies should be implemented at the following intersections:
 - Those that are in the school zone as defined by CVC §21368;
 - Those that are intersections with a designated collector or arterial roadway within 2640 feet (0.5 miles) of a school (following the same measuring method as CVC §21368).

Universal Recommendation 3: Sidewalk Width Adjacent to School Campus

A barrier frequently identified during Walk Audits throughout the county was that sidewalks immediately adjacent to the school were too narrow for the high volumes of pedestrians generated during school arrival and dismissal times. Most of these sidewalks were roughly 4 feet wide, including space for utility and signage poles. While these sidewalks may meet specific municipal standards, they do not accommodate high volumes of school-related pedestrians and can deter or prevent students from walking to school if they travel with their families, in groups, or use a mobility assistance device. This is especially so when sidewalks are obstructed by utility poles, signal boxes, and other objects.

- Recommendation: All sidewalks that lead to a school campus entrance should be a minimum of 6 feet wide within at least 250 feet of the school entrance; if a school has only one entrance, the sidewalk leading to that entrance should be a minimum of 8 feet wide within 250 feet of that entrance.

Universal Recommendation 4: Class III Bike Boulevard Traffic-Calming

Class III bicycle boulevards are on-street bicycle facilities that have traditionally been marked by signage and share-the-road stencils (“sharrows”) painted in the vehicle travel lane. Class III facilities do not provide any separation between bicyclists and motorists and instead indicate to road users that bicyclists and motorists must share the road. Such facilities are intended to be installed on low-speed (25 mph or less*) and low-volume (<3,000 vehicles/day*) roadways; however, the current practice of implementing only signage and sharrows for Class III routes frequently does not meet the comfort and safety perception needs of the “Interested but Concerned” user profile of bicyclists, which includes an estimate of 51%-56% of the population and is typically the profile assumed for most school-age children. To create a lower stress bicycle network, the Federal Highway Administration describes improving bicycle boulevards by “slowing motor vehicle speeds and implementing other speed management measures.”

- Recommendation: All Class III bicycle boulevards should be marked with sharrows and signage and must be treated with traffic-calming strategies to enforce the desired speed limit and prevent motorist speeding. Class III bicycle boulevards adjacent to school campuses or along roadways that facilitate

motorist speeding (long, straight, and/or minimal traffic control) should be prioritized for traffic-calming treatments.

* Metrics established by the Federal Highway Association in their 2019 Bikeway Selection Guide.

Universal Recommendation 5: Curb Ramps (Americans with Disabilities Act)

Some of the early Walk Audit reports specifically call out intersections or other pedestrian access points where curb ramps compliant with the Americans with Disabilities Act were missing, which creates a significant connectivity barrier for pedestrians who use mobility assistance devices. However, following these reports, the Napa County Safe Routes to School team recognized that many intersections and pedestrian access points were missing these curb ramps and that individually identifying each missing curb ramp would be redundant, particularly given data from the Napa Countywide Pedestrian Plan (2016). Consequently, though some early reports do mention lack of accessible curb ramps, a universal recommendation was created to address this important pedestrian barrier while avoiding redundancy in reports.

- Recommendation: In alignment with the Americans with Disabilities Act, when implementing recommendations made in Napa County Safe Routes to School reports that impact the curb at intersections, pedestrian crossings, or other pedestrian access points, curb ramps that are compliant with the Americans with Disabilities Act should be installed.

APPENDIX C

Quick Build Brochure

**Safe Routes to School Walk Audit Report
and Active Transportation Action Plan**

QUICK-BUILD BIKEWAY NETWORKS FOR SAFER STREETS

Delivering Safer Streets in Weeks or Months, Instead of Years

How to Meet Public Demand for Safe Bikeway Networks—Affordably, Quickly, and Inclusively



Photo credit: Alta Planning + Design

CASE STUDY

Adeline Street in Berkeley got protected bike lanes 20 years ahead of schedule, when Bike East Bay worked closely with the city to incorporate planned lanes into the repaving schedule, saving time and money by simply adding bike infrastructure to an existing project, one funded through a local infrastructure bond measure. The City of Berkeley garnered extensive public input on the Adeline Corridor, making this a great example of quick-build speeding up existing bike infrastructure planning, bringing bike lanes to Berkeley in 2019 instead of 2039.

WHY QUICK-BUILD? WHY NOW?

Biking is up in many communities in California, including those that started with low rates of bicycling, as people seek out healthy and safe transportation and recreation. Californians are discovering they can be healthier and happier simply by getting out on two wheels.

Meanwhile, agency budgets are down. Plans to spend millions on infrastructure may no longer be realistic. More than ever, the public demands that transportation projects are equitable and responsive to the needs of neglected communities.

Quick-build is a method of building bike and pedestrian safety improvements—protected bike lanes, pedestrian crossings, slow streets, parklets, and more—now, within your budget. In challenging times, quick-build projects are crucial to building trust in the government’s ability to deliver public benefit. And quick-build infrastructure can engage the public better than ever, and be more inclusive and equitable than traditional infrastructure.

“We as transportation experts need to be thinking strategically about whether or not we need to spend three years talking about doing something important, or three weeks to just try something.”

— Warren Logan

*Transportation Policy Director of
Mobility and Interagency Relations at
Oakland Mayor’s Office*

WHAT IS QUICK-BUILD?

The Basics

- Quick-build projects use materials that can be installed quickly and at low cost. Build projects from posts, planters, and stripes of paint, not new pavement or curb alignments.
- **Quick-build projects are installed on a trial basis.** Temporary installations allow for adjusting or removing elements in response to public feedback. Successful projects may become permanent, exactly as installed, or upgraded with more durable materials.
- **Quick-build should incorporate rigorous community engagement.** A project on the ground can serve much more effectively than a PowerPoint or rendering for trying something out and allowing community residents to respond. Gather feedback and input, and change designs accordingly.

Materials

From paint, traffic cones, and A-boards to concrete curb barriers, planters, and temporary raised crosswalks, a wide variety of materials work well for creating quick-build projects. The full Quick-Build Toolkit provides thorough, detailed descriptions of materials that can make for an effective and inexpensive project to meet your community's needs.

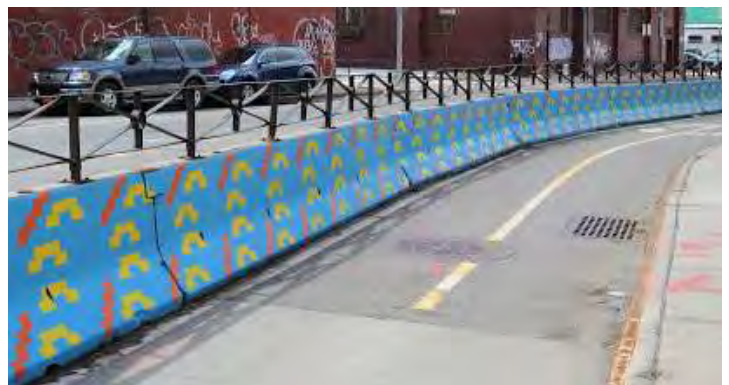


Photo credits, top to bottom: Alta Planning + Design; Real Hartford; Alta Planning + Design; Street Plans Collaborative



CASE STUDY

In August of 2020, the City of San Luis Obispo converted one of the three motor vehicle lanes of downtown Higuera Street into a buffered bike lane, as part of Open SLO, the city's pilot program to expand the use of public spaces (with parklets and bike/ped spaces) during the COVID-19 pandemic. The project was installed with paint, took less than a week to install, and cost a mere \$15K instead of the more than \$150K it would have taken to put in a traditional bike lane by sealing and restriping the whole street as the city would normally do.

Photo credit: Bike SLO County

WHO?

Your Quick-Build Project Team



Team leader. Quick-build projects need a “chief” (usually city staff) tasked with project facilitation, keeping the momentum going, establishing lines of communication, and accepting and evaluating feedback.



Community leaders. Because evaluation and adjustment are essential for successful quick builds, make sure community leaders are on board from the beginning. Look to businesses, residential associations, places of worship, and nearby schools. Bring in bike/ped advocacy organizations and other CBOs, including those based in disadvantaged communities and led by people of color.



Department liaisons. Your project may impact transit, street sweeping, parking enforcement, maintenance, waste management and recycling, and emergency response. Involve other agencies as necessary to ensure you don't forget a critical aspect.



Elected Officials. They have the power to marshal funding for quick-build projects. They will hear from constituents, so communication channels between the project team and electeds must be open for effective project evaluation.



Communications. Ideally, include a dedicated communications person on your team. Because this is a new method, and people are used to years of discussion, publicize quick-build's temporary nature. Talk about the project's intended benefits, and listen to feedback about the actual impacts.

Community Engagement

Community engagement is essential and also very effective, because it's easy to engage people in providing feedback on real-world solutions that they can see and use. Here are the keys:

- Start engaging with the community before you install the project so that residents' opinions are included from the get-go.
- Be inclusive in your outreach, including perspectives from disadvantaged communities and people of color.
- Emphasize the project's temporary nature, and the ability to change the project after it's installed.
- Implement effective feedback mechanisms during the project, making sure to plan and budget for project adjustments in response to input.

CASE STUDY

The El Cajon Boulevard Business Improvement Association ("The Boulevard") got city councilmembers and the mayor on board to fund a pilot bus and bike lane along a 3-mile stretch of San Diego's El Cajon Boulevard. The Boulevard staff brought in diverse stakeholders and built on longstanding relationships to push the city to dedicate a lane for El Cajon Boulevard's new bus rapid transit line, and got bikes included on this Vision Zero corridor. The entire three-mile project, which launched in January 2020, cost \$100K, funded by San Diego's general fund.

Photo credit: Holly Raines



WHERE?

Which Projects are Best for Quick-Build?

Some projects are better than others for the quick-build method.

- **Look to existing plans.** Your community's current active transportation plan already identifies key improvements and priorities. Most such plans will take decades to complete with traditional methods and funding. Quick-build can take those plans to reality much sooner.
- **Fill gaps in the bikeway network, especially now when more people are bicycling.** Look to improve intersections that are dangerous to navigate, short sections of crosstown routes that use busy streets, or long sections of streets that could become "slow streets" to connect neighborhoods.
- **Put disadvantaged communities first.** If your plan doesn't already incorporate an equity analysis to set priorities, this is your chance. Look at a model plan like Oakland's "Let's Bike Oakland" bicycle plan which incorporates a framework of equity and a focus on improving well-being for the city's most vulnerable groups.

If a project is funded and on schedule to be built within a year or two, turn your attention to projects that will take years without quick build. Projects that require expensive modifications—new traffic signals, bridges, reconfigured curbs—are not good quick-build candidates.



Photo credit: Alta Planning + Design

Funding for Quick-Build

POTENTIAL FUNDING SOURCES IN CALIFORNIA

Available funding for quick-build projects varies a lot from one municipality to the next. But here are a few ideas.

- Public works departments' essential repaving and repair projects are great opportunities to put in quick-build projects at low cost.
- Local and regional funds such as general fund, sales tax revenue, and Air Quality Management District funds can be used for quick-build projects.
- Tack on costs to another publicly-funded transportation project, or even a private project. For example, a development project that is required to repave and stripe new bike lanes might install a protected bike lane using quick-build materials instead.
- In 2020, the **Active Transportation Program** piloted a special quick-turnaround funding pot for quick-build projects, with an earlier (summer) deadline. Keep an eye on the ATP to see if they continue to offer this funding in future years. CalBike will be pushing them to do so.
- PeopleForBikes has a **small grant program** for infrastructure projects.
- AARP's **Community Challenge grant** could fund a quick-build project.

This resource was prepared in partnership with Alta Planning + Design. For more information see our complete **Quick-Build Guide**.



APPENDIX D

Bike Parking Guidance

**Safe Routes to School Walk Audit Report
and Active Transportation Action Plan**

ESSENTIALS OF

BIKE PARKING

Selecting and installing bicycle parking that works



apbp

Association of Pedestrian
and Bicycle Professionals
Expertise for Active
Transportation

Essentials of Bike Parking

Revision 1.0, September 2015

© 2015 by Association of Pedestrian and Bicycle Professionals (APBP).



This work is licensed under the Creative Commons Attribution-NonCommercial 4.0 International License. You may freely share, reproduce, excerpt, and build upon this work—provided that your work is not commercial and that you acknowledge the source.

Acknowledgments

Lead author - Nathan Broom

Contributors - Eric Anderson, Vince Caristo, Ryan Dodge, Jennifer Donlon-Wyant, Sarah Figliozzi, Elco Gauw, Dan Jatres, David Loutzenheiser, Heath Maddox, Brian Patterson, Cara Seiderman



Alta Planning + Design donated their expertise in the design and illustration of this guide. Cat Cheng, lead designer, Jillian Portelance, production designer.

Cover image: Sign D4-3 from Standard Highway Signs, 2004 Edition, http://mutcd.fhwa.dot.gov/ser-shs_millennium_eng.htm

Bicycle parking manufacturers and distributors shall not use APBP's logo or imply product endorsement by APBP without express written permission from APBP.

APBP is an association of professionals who plan, implement and advocate for walkable and bicycle-friendly places.

Association of Pedestrian and Bicycle Professionals

bikeparking@apbp.org
www.apbp.org



TABLE OF CONTENTS

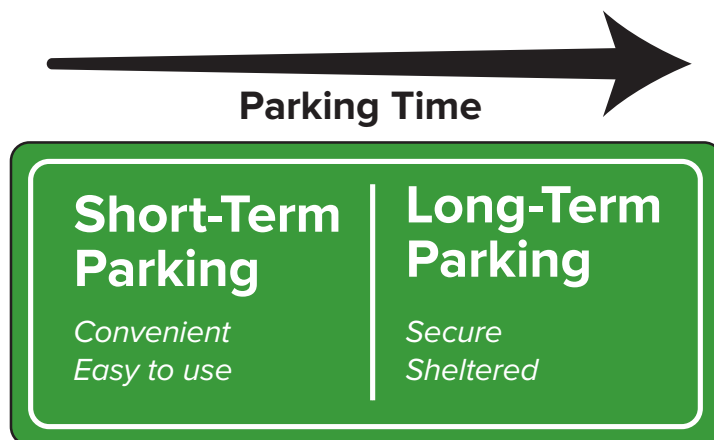
- 01 INTRODUCTION**
- 02 SHORT-TERM PARKING**
 - Site planning
 - Bike corrals
- 03 LONG-TERM PARKING**
 - Site planning
 - Special considerations for long-term parking
- 04 INSTALLATION**
 - Installation surface
 - Installation fasteners
 - Installation techniques
- 05 BICYCLE RACK SELECTION**
 - Performance criteria for bike parking racks
 - Rack styles
 - Rack materials and coatings
- 10 PLACEMENT**

INTRODUCTION

Among the necessary supports for bicycle transportation, bike parking stands out for being both vital and easy. Still, it requires some attention to get it right. Bike parking may go unused if it's not more appealing to users than the nearest sign post. A minor mistake in installation can make a quality rack unusable. The variety of bicycle sizes, shapes, and attachments continues to increase, and good bike parking should accommodate all types.

The Association of Pedestrian and Bicycle Professionals (APBP) prepared this guide for people planning to purchase or install bike parking fixtures on a limited scale. It is a brief overview of APBP's comprehensive *Bicycle Parking Guidelines* handbook, available at www.apbp.org.

This guide divides bike parking into short-term and long-term installations. These two kinds of parking serve different needs, and the starting point for most bike parking projects is recognizing whether the installation should serve short-term users, long-term users, or both. If users will typically be parking for two hours or longer, they are likely to value security and shelter above the convenience and ease that should characterize short-term parking.



SHORT-TERM PARKING

Effective bike parking for short-term users depends on two main factors: 1) proximity to the destination and 2) ease of use.

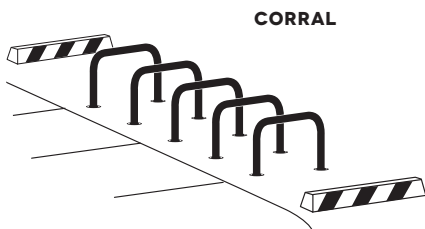
Short-term parking is designed to meet the needs of people visiting businesses and institutions, and others with similar needs—typically lasting up to two hours. Short-term users may be infrequent visitors to a location, so the parking installation needs to be readily visible and self-explanatory.



INVERTED U



POST & RING



CORRAL

SITE PLANNING

Location

Short-term bike parking should be visible from and close to the entrance it serves—50' or less is a good benchmark. Weather-protected parking makes bicycle transportation more viable for daily and year-round use, and it can reduce the motivation for users to bring wet bicycles into buildings. Area lighting is important for any location likely to see use outside of daylight hours.

Security

All racks must be sturdy and well-anchored, but location determines the security of short-term parking as much as any other factor. Users seek out parking that is visible to the public, and they particularly value racks that can be seen from within the destination. Areas with high incidence of bicycle theft may justify specific security features such as specialty racks, tamper-proof mounting techniques, or active surveillance.

Quantity

Many jurisdictions have ordinances governing bike parking quantity. APBP's full *Bicycle Parking Guidelines* offers complete recommendations for the amount and type of parking required in various contexts. In the absence of requirements, it's okay to start small—but bear in mind that perceived demand may be lower than the demand that develops once quality parking appears.

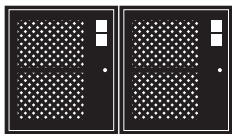
BIKE CORRALS

Some cities with limited sidewalk space and strong bicycle activity place bike parking in on-street "bike corrals" located in the street area adjacent to the curb. Bike corrals can sometimes make use of on-street areas that are unsuitable for auto parking. When replacing a single auto parking space, a corral can generally fit 8 to 12 bicycles. APBP's full *Bicycle Parking Guidelines* provides details about designing and siting bike corrals. [➔ apbp.org](https://apbp.org)

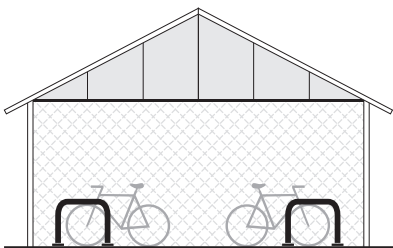
LONG-TERM PARKING

Users of long-term parking generally place high value on security and weather protection. Long-term parking is designed to meet the needs of employees, residents, public transit users, and others with similar needs. These users typically park either at home or at a routine destination such as a workplace. They often leave their bicycles unmonitored for a period of several hours or longer, so they require security and weather protection that let them park without unreasonable concern for loss or damage.

Long-term parking can take a variety of forms, including a room within a residential building or workplace, a secure enclosure within a parking garage, or a cluster of bike lockers at a transit center. Some long-term parking is open to the public—such as a staffed secure enclosure at a transit hub—and some of it is on private property with access limited to employees, residents, or other defined user groups.



BIKE LOCKERS



SHELTERED SECURE ENCLOSURE

SITE PLANNING

Location

Appropriate locations for long-term parking vary with context. Long-term parking users are typically willing to trade a degree of convenience for weather protection and increased security. Long-term installations emphasize physical security above public visibility. Signage may be needed for first-time users.

Security

Security is paramount for quality long-term parking. Access to parked bicycles can be limited individually (as with lockers) or in groups (as with locked bike rooms or other secure enclosures). Options for access control include user-supplied locks, keys, smart cards, and other technologies.

Quantity

Refer to local ordinances or the comprehensive APBP *Bicycle Parking Guidelines* to determine the amount and type of parking required for various contexts.

SPECIAL CONSIDERATIONS FOR LONG-TERM PARKING

In many ways, short-term and long-term parking function similarly and are served by the same guidelines. Some exceptions are noted below.

Density

The competition of uses for high-security and sheltered locations creates particular pressure on long-term parking to fit more bicycles in less space. When parking needs cannot be met with standard racks and spacing recommended in this guide, consider rack systems designed to increase parking density. See the high-density racks table on page 7. Note that increasing density without careful attention to user needs can create parking that excludes people because of age, ability, or bicycle type. This may result in people parking bicycles in other less desirable places or choosing not to bike at all.

Bicycle design variety

Long-term parking facilities should anticipate the presence of a variety of bicycles and accessories, including—depending on context—recumbents, trailers, children’s bikes, long-tails, and others. To accommodate trailers and long bikes, a portion of the racks should be on the ground and should have an additional 36” of in-line clearance.

Performance criteria

The bike rack criteria in the next section apply to racks used in any installation, regardless of its purpose. Long-term installations often use lockers and group enclosures not discussed in this guide. Such equipment raises additional considerations that are discussed in detail in APBP’s full *Bicycle Parking Guidelines*. [➔ apbp.org](https://www.apbp.org)

INSTALLATION

Selecting an appropriate installation surface and technique is key to creating bicycle parking that remains secure and attractive over time.

INSTALLATION SURFACE

A sturdy concrete pad is an ideal surface for installing bicycle parking. Other surfaces often encountered include asphalt, pavers, and soft surfaces such as earth or mulch. These surfaces can accommodate in-ground mounting or freestanding bike racks such as inverted-U racks mounted to rails. See APBP's *Bicycle Parking Guidelines* for details. [➔ apbp.org](https://apbp.org)

INSTALLATION FASTENERS

When installing racks on existing concrete, consider the location and select appropriate fasteners. Drill any holes at least three inches from concrete edges or joints. Some locations benefit from security fasteners such as concrete spikes or tamper-resistant nuts on wedge anchors. Asphalt is too soft to hold wedge and spike anchors designed for use in concrete. Installing bike parking on asphalt typically requires freestanding racks and anchor techniques specific to asphalt.

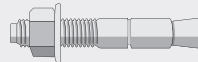
FASTENERS

CONCRETE SPIKE



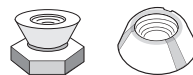
Installs quickly in concrete with a hammer. Tamper-resistant. Removal may damage concrete and/or rack.

CONCRETE WEDGE ANCHOR



Allows for rack removal as needed. Not tamper-resistant, but can accommodate security nuts (below).

SECURITY NUTS



Use with concrete wedge anchors. Security nuts prevent removal with common hand tools.

INSTALLATION TECHNIQUES

When installing racks on existing concrete, choose those with a surface-mount flange and install with a hammer drill according to the specifications of the mounting hardware selected. When pouring a new concrete pad, consider bike parking fixtures designed to be embedded in the concrete. Because replacing or modifying an embedded rack is complicated and costly, this installation technique requires particular attention to location, spacing, rack quantity, and material.



BICYCLE RACK SELECTION

PERFORMANCE CRITERIA FOR BIKE PARKING RACKS

These criteria apply to any rack for short- or long-term use.

CRITERIA	DETAILS
Supports bike upright without putting stress on wheels	The rack should provide two points of contact with the frame—at least 6” apart horizontally. Or, if a rack cradles a bicycle’s wheel, it must also support the frame securely at one point or more. The rack’s high point should be at least 32”.
Accommodates a variety of bicycles and attachments	The racks recommended on page 6 (“racks for all applications”) serve nearly all common bike styles and attachments—if installed with proper clearances (see placement section). Avoid designs and spacing that restrict the length, height, or width of bicycles, attachments, or wheels.
Allows locking of frame and at least one wheel with a U-lock	A closed loop of the rack should allow a single U-lock to capture one wheel and a closed section of the bike frame. Rack tubes with a cross section larger than 2” can complicate the use of smaller U-locks.
Provides security and longevity features appropriate for the intended location	Steel and stainless steel are common and appropriate materials for most general-use racks. Use tamper-resistant mounting hardware in vulnerable locations. Rack finish must be appropriate to the location (see materials and coatings section).
Rack use is intuitive	First-time users should recognize the rack as bicycle parking and should be able to use it as intended without the need for written instructions.

RACK STYLES

The majority of manufactured bike racks fall into one of the categories on pages 6-8. Within a given style, there is wide variation among specific racks, resulting in inconsistent usability and durability. APBP recommends testing a rack before committing broadly to it.

RACKS FOR ALL APPLICATIONS

When properly designed and installed, these rack styles typically meet all performance criteria and are appropriate for use in nearly any application.

INVERTED U

also called
staple, loop



Common style appropriate for many uses; two points of ground contact. Can be installed in series on rails to create a free-standing parking area in variable quantities. Available in many variations.

POST & RING



Common style appropriate for many uses; one point of ground contact. Compared to inverted-U racks, these are less prone to unintended perpendicular parking. Products exist for converting unused parking meter posts.

WHEELWELL-SECURE



Includes an element that cradles one wheel. Design and performance vary by manufacturer; typically contains bikes well, which is desirable for long-term parking and in large-scale installations (e.g. campus); accommodates fewer bicycle types and attachments than the two styles above.

This guide analyzes the most common styles of bike racks, but it is not exhaustive. Use the performance criteria on page 5 to evaluate rack styles not mentioned. Custom and artistic racks can contribute to site identity and appearance, but take care that such racks don't emphasize appearance over function or durability.

HIGH-DENSITY RACKS

These rack styles do not meet all performance criteria but may be appropriate in certain constrained situations.

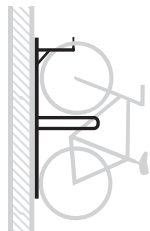
High-density rack systems can maximize the use of limited parking space, but they don't work for all users or bicycles. If installing these racks, reserve additional parking that accommodates bicycles with both wheels on the ground for users who are not able to lift a bicycle or operate a two-tier rack, or for bikes that are not compatible with two-tier or vertical racks.

STAGGERED WHEELWELL-SECURE



Variation of the wheelwell-secure rack designed to stagger handlebars vertically or horizontally to increase parking density. Reduces usability and limits kinds of bikes accommodated, but contains bikes well and aids in fitting more parking in constrained spaces.

VERTICAL



Typically used for high-density indoor parking. Not accessible to all users or all bikes, but can be used in combination with on-ground parking to increase overall parking density. Creates safety concerns not inherent to on-ground parking.

TWO-TIER



Typically used for high-density indoor parking. Performance varies widely. Models for public use include lift assist for upper-tier parking. Recommend testing before purchasing. Creates safety concerns not inherent to on-ground parking, and requires maintenance for moving parts.

RACKS TO AVOID

Because of performance concerns, APBP recommends selecting other racks instead of these.

WAVE

also called undulating or serpentine



Not intuitive or user-friendly; real-world use of this style often falls short of expectations; supports bike frame at only one location when used as intended.

SCHOOLYARD

also called comb, grid



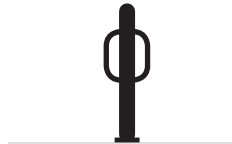
Does not allow locking of frame and can lead to wheel damage. Inappropriate for most public uses, but useful for temporary attended bike storage at events and in locations with no theft concerns. Sometimes preferred by recreational riders, who may travel without locks and tend to monitor their bikes while parked.

COATHANGER

This style has a top bar that limits the types of bikes it can accommodate.

WHEELWELL

Racks that cradle bicycles with only a wheelwell do not provide suitable security, pose a tripping hazard, and can lead to wheel damage.

BOLLARD

This style typically does not appropriately support a bike's frame at two separate locations.

SPIRAL

Despite possible aesthetic appeal, spiral racks have functional downsides related to access, real-world use, and the need to lift a wheel to park.

SWING ARM SECURED

These racks are intended to capture a bike's frame and both wheels with a pivoting arm. In practice, they accommodate only limited bike types and have moving parts that create unneeded complications.

RACK MATERIALS & COATINGS

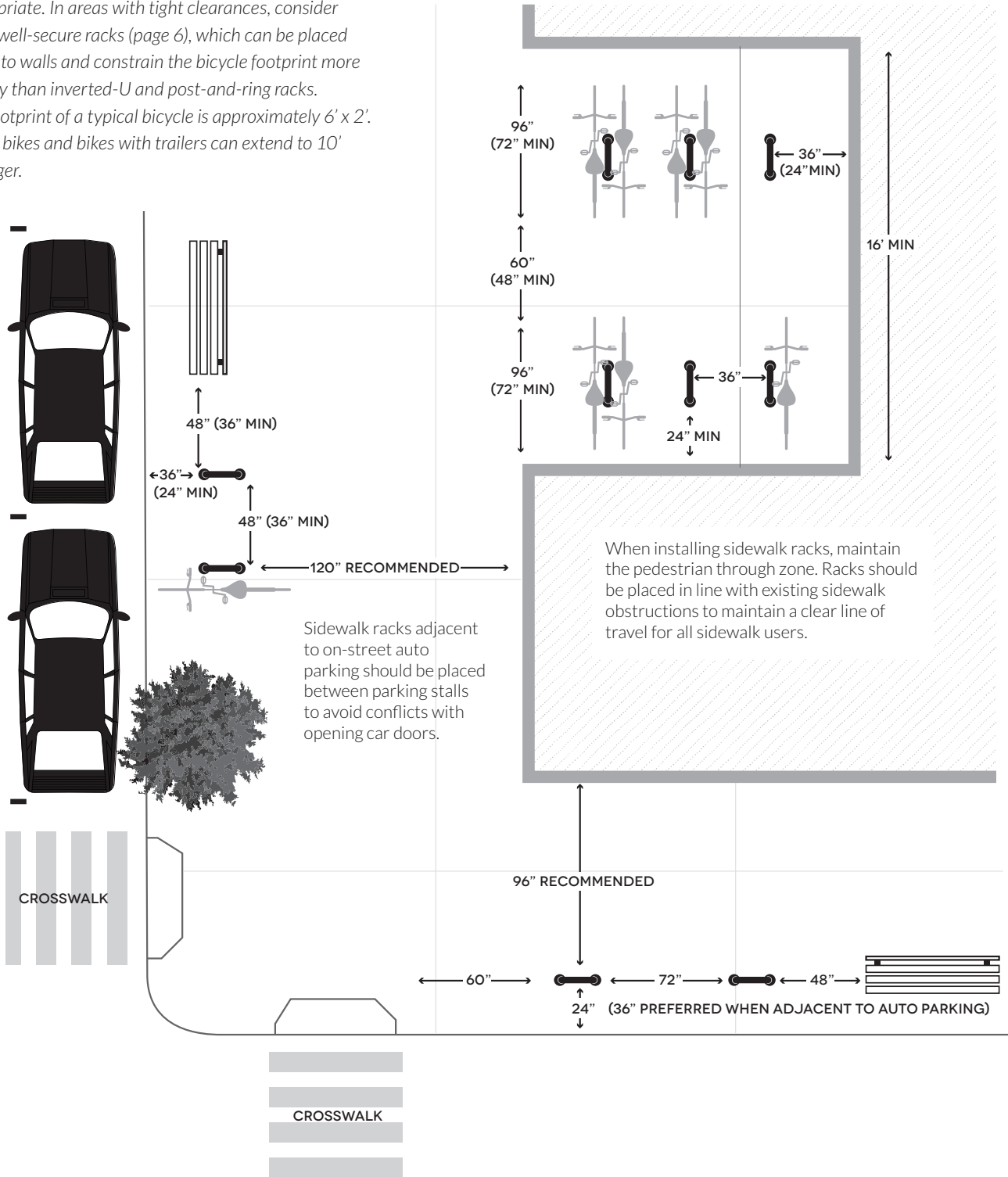
Most bicycle parking racks are made of carbon steel or stainless steel. Carbon steel requires a surface coating to resist rust while appropriate grades of stainless steel need no coating. Not all materials and coatings with the same name perform equally. Square tubing provides a security advantage as round tubing can be cut quietly with a hand-held pipe cutter. Before purchasing racks, talk to suppliers about your particular conditions and choose a material and coating that suit your needs. The following are common choices, depending on local considerations and preferences.

RACK MATERIAL - COATING	RELATIVE PURCHASE COST	DURABILITY	CAUTIONS
Carbon steel - galvanized	Usually lowest	Highly durable and low-maintenance; touch-up, if required, is easy and blends seamlessly	Utilitarian appearance; can be slightly rough to the touch
Carbon steel - powder coat* (TGIC or similar)	Generally marginally higher than galvanized	Poor durability	Requires ongoing maintenance; generally not durable enough for long service exposed to weather; not durable enough for large-scale public installations
Carbon steel - thermoplastic	Intermediate	Good durability	Appearance degrades over time with scratches and wear; not as durable as galvanized or stainless
Stainless steel - no coating needed, but may be machined for appearance	Highest	Low-maintenance and highest durability; most resistant to cutting	Can be a target for theft because of salvage value; maintaining appearance can be difficult in some locations

* When applied to carbon steel, TGIC powder coat should be applied over a zinc-rich primer or galvanization to prevent the spread of rust beneath the surface or at nicks in the finish.

PLACEMENT

The following minimum spacing requirements apply to some common installations of fixtures like inverted-U or post-and-ring racks that park one bicycle roughly centered on each side of the rack. Recommended clearances are given first, with minimums in parentheses where appropriate. In areas with tight clearances, consider wheelwell-secure racks (page 6), which can be placed closer to walls and constrain the bicycle footprint more reliably than inverted-U and post-and-ring racks. The footprint of a typical bicycle is approximately 6' x 2'. Cargo bikes and bikes with trailers can extend to 10' or longer.



APPENDIX E

Recommendation Cost Range Estimates

**Safe Routes to School Walk Audit Report
and Active Transportation Action Plan**

Appendix E: Recommendation Cost Range Estimates

Cost estimate was one of many factors considered when prioritizing recommendations for Napa County Safe Routes to School Walk Audit reports. Recommendations in which a high cost estimate would considerably delay implementation of the recommendation may have been given a lower priority level in order to prioritize recommendations that are lower cost and therefore more likely to be installed more quickly. Cost was considered on a high-level scale; real cost ranges of recommendations may differ from cost range estimates included in Walk Audit reports.

Cost range estimates for Safe Routes to School Walk Audit recommendations are as follows:

\$	< \$25,000
\$\$	Between \$25,000 and \$250,000
\$\$\$	\$250,000 to \$1 million
\$\$\$\$	> \$1 million

APPENDIX F

Next Steps

**Safe Routes to School Walk Audit Report
and Active Transportation Action Plan**

From Recommendations to Action: Next Steps

Napa County Bicycle Coalition (NCBC) has concluded the final task under the Napa County Safe Routes to School Program in coordination with the Napa County Office of Education, funded under the One Bay Area Grant and the Active Transportation Program.

Evaluation of active transportation barriers at school sites are complete and final reports of recommendations for each school in Napa County will be published in the spring of 2022. The NCBC team is already planning the next phase of Safe Routes to School that will help bring these recommendations into reality. Supported by a “Quick Strike” grant through the Metropolitan Transportation Commission (MTC), NCBC will continue its SRTS work over the course of this next year.

NCBC SRTS Quick Strike Program Elements (2022-2023):

- Engage parents in advocating for implementing the recommendations. Hold safety summits at various school sites that raise awareness of the recommendations and provide a forum for parents to discuss strategies and to plan next steps. Work with schools and other stakeholders to implement recommendations. Build a Safe Routes to School (SRTS) Advisory Committee, including “parent champions” from key school sites, to help guide the SRTS program into the next phase of growth and engagement and to help ensure the long-term viability of the program, providing a structure both for stakeholder feedback and input, as well as for increased local investment in future program activities.
 - Action Steps:
 - Hold up to seven safety summits at various school sites
 - Form SRTS advisory committee
- Provide education and encouragement programming at elementary and middle schools that includes bike rodeos throughout the year, Bike Month (and Bike to School Day) in the spring, and Walk and Roll to School Day in the fall. This programming aims to increase the number of students who walk or bike to school and to ensure that, as barriers are removed and facilities are improved, youth have the skills and confidence to take advantage of improvements.
 - Action Steps:
 - Hold up to 14 Bike Rodeos at elementary and middle schools
 - Provide outreach and support for Walk and Roll to School Day and Bike Month activities at up to seven school sites
 - Support local Agricultural & Hospitality Industry workers with bicycle safety education
- Conduct community-based safety education programming that reaches identified populations of concern. Through bilingual Family Biking Workshops, community rides in partnership with other local organizations, and safety education outreach to agricultural

and hospitality workers, NCBC will tailor our programming to help engage the full spectrum of our community.

- Action Steps:
 - Conduct up to nine bilingual Family Biking Workshops
 - Conduct up to six community events and rides
- Secure future funding for the Safe Routes to School Partnership (SRTS). We believe that every student should be able to safely walk or ride a bike to school. The SRTS program provides vital safety education, encouragement, and community engagement programs to thousands of students annually while advocating for facilities that make active transportation safe and accessible. SRTS will be a key force in helping to make the Walk Audit recommendations a reality. Napa County is one of the only counties in the region that lacks dedicated, long-term funding for these programs and efforts, and without that support implementing the recommendations will face more barriers.
 - Action Steps:
 - Apply for competitive and discretionary grant funding
 - Seek funding support from jurisdictions
 - Seek funding support from community health
 - Provide annual program reports to stakeholders