

# Walk Audit Report



SafeRoutes



Napa County

AMERICAN CANYON  
HIGH SCHOOL

# AMERICAN CANYON HIGH SCHOOL

3000 NEWELL DRIVE  
AMERICAN CANYON, CA

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## ACKNOWLEDGEMENTS

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# 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<sup>ab</sup> and reduced pedestrian-motorist collisions<sup>cd</sup>. 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<sup>e</sup>.

Student health has been linked to improved academic performance<sup>g</sup>. 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<sup>h</sup>. Families are also provided with a low-cost transportation option that can significantly reduce their annual expenses<sup>i</sup>.

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.

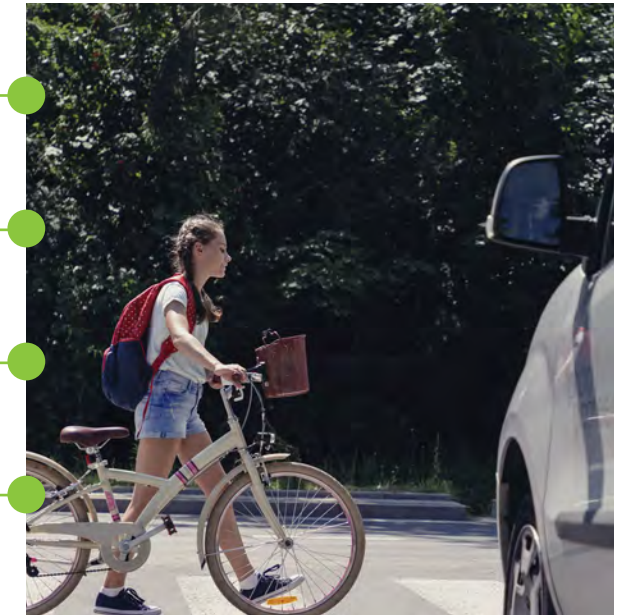
Schools and the community benefit immensely when students choose to walk or bike.

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

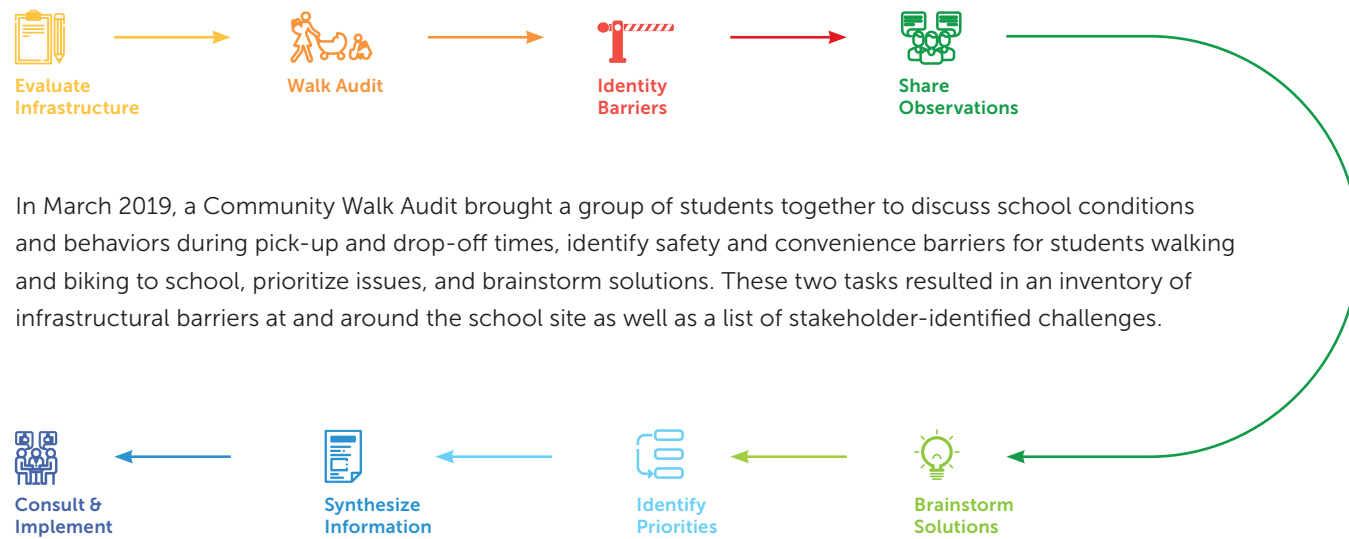
Track progress toward our shared safety goals, develop programs accordingly.

#### 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.

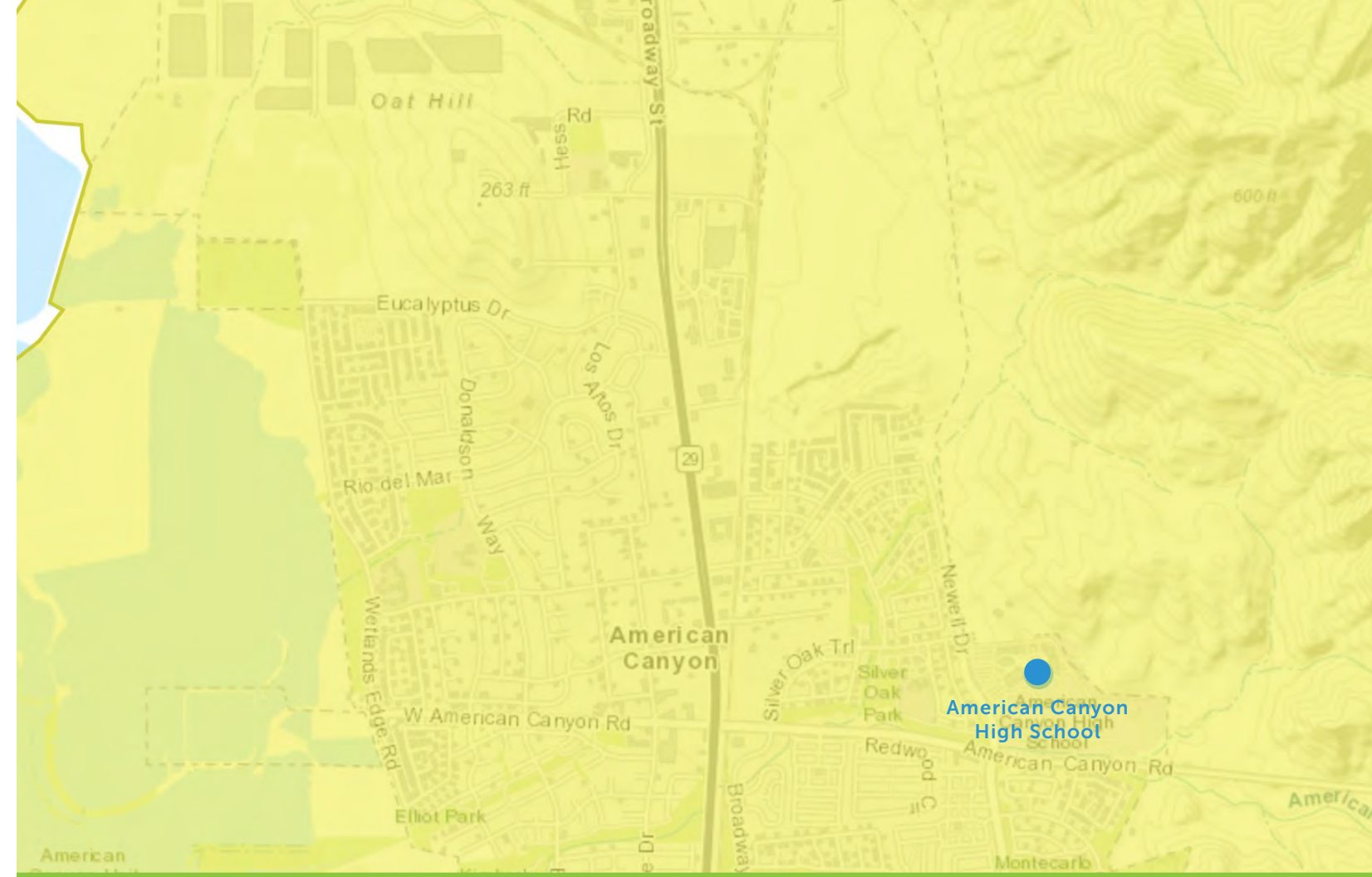
## REPORT PROCESS

The SRTS team conducted a comprehensive evaluation of the barriers to students walking and biking to and from American Canyon High 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 March 2019, a Community Walk Audit brought a group of students 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 American Canyon High School

While NVUSD has an open enrollment policy, ACHS's default enrollment area covers the city of American Canyon and part of Napa's southern unincorporated area.

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), 14% of students attending ACHS reside outside of the school's enrollment boundary.

## AMERICAN CANYON HIGH SCHOOL (ACHS) SCHOOL SUMMARY

Principal	Crystal Lopez	Grades	9-12
First Bell	8:30 AM	Enrollment	1,617
Last Bell	3:30 PM (2:40 PM on Wed.)	Street	3000 Newell Drive
District	Napa Valley Unified	City	American Canyon, CA 94503

**Overall Facility Rating:** Good



## DATA

No data is currently available regarding the number of students who walk and bike to the school. Events such as Walk and Roll to School Day (see “Encouragement and Education” section) have received limited engagement and are not a reliable source of baseline data. Additional work is needed to establish a baseline of active transportation use for this school.

Data collected from the countywide EMC Research survey (Appendix A) conducted in Spring 2021 reflects parent perspectives on walking and biking to school for K-8 students only, and therefore cannot be directly applied to American Canyon High School.

### Total Enrollment by Group (2018-19)

ETHNICITY	AMERICAN CANYON HIGH SCHOOL	DISTRICT
Black or African American	9.3%	2.1%
American Indian or Alaska Native	0.2%	0.2%
Asian	6.7%	2.4%
Filipino	28.9%	6.9%
Hispanic or Latino	36.5%	54.9%
White	11.4%	29.2%
Native Hawaiian or Pacific Islander	0.5%	0.2%
Two or More Races	5.8%	3.9%
Not Reported	0.7%	0.3%

EXPERIENCE	AMERICAN CANYON HIGH SCHOOL	DISTRICT
Socioeconomically Disadvantaged	36.2%	50.7%
English Learners	5.8%	21.2%
Students with Disabilities	7.1%	11.5%
Foster Youth	0.1%	0.3%

Figure 1: Enrollment Data by Group

### Student Enrollment by Grade Level (2018-19)

	NUMBER OF STUDENTS
Grade 9	428
Grade 10	392
Grade 11	385
Grade 12	412
<b>Total</b>	<b>1,617</b>

Figure 2: Enrollment Data by Grade

## NEIGHBORHOOD CONTEXT

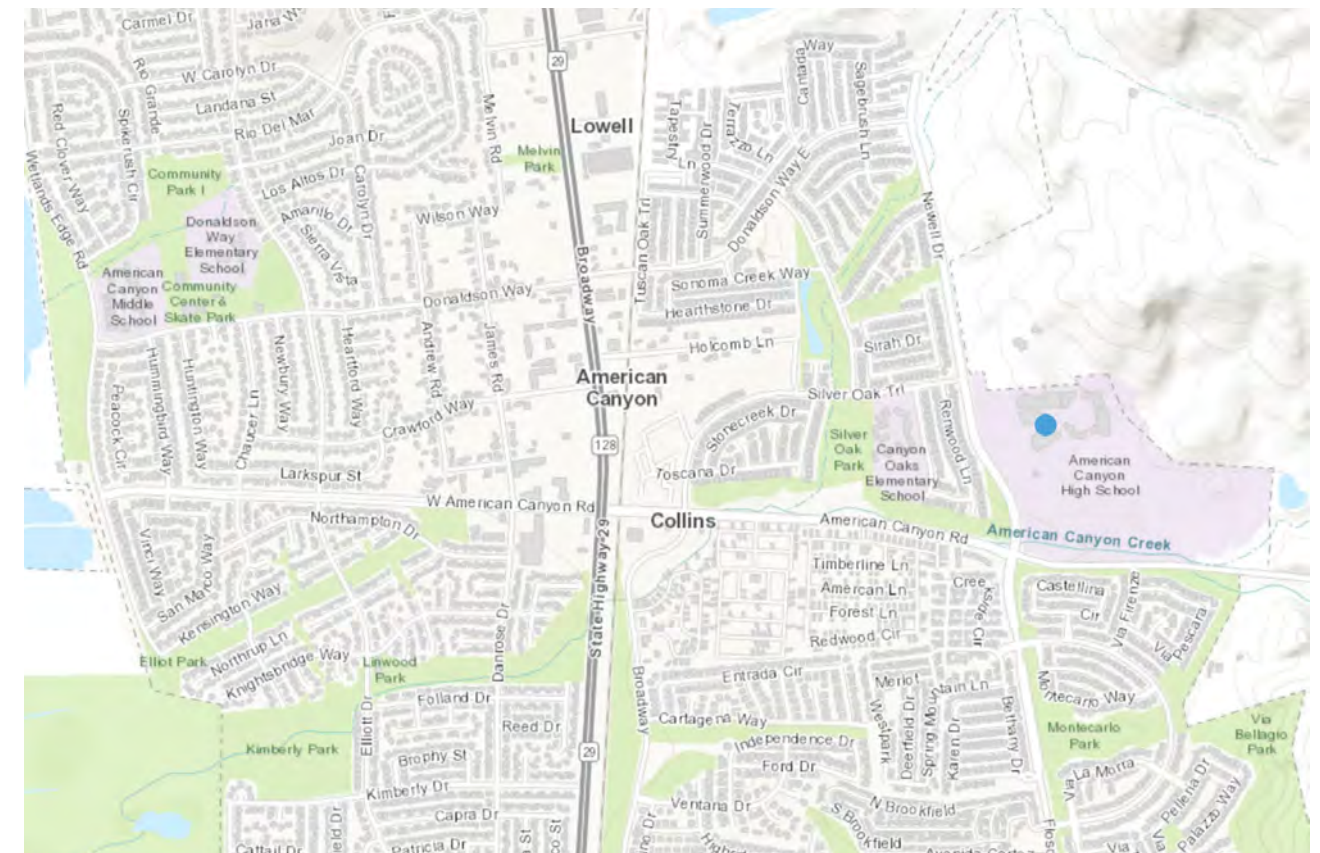
ACHS is located on the far east edge of the City of American Canyon, on the northeast corner of the Newell Drive and American Canyon Road intersection near a mix of single-family residential and manufactured home neighborhoods. The campus’s main entrance is on Newell Drive, but the school can also be accessed from a driveway off of American Canyon Road. The school site has large parking lots on the western edge of the school along Newell Drive, and several sports fields and a stadium to the south. To the east of the school are unincorporated hillsides used largely for cattle grazing.



Map 3: ACHS neighbors residential neighborhoods to the west and south and hills to the east.

The school is bordered by American Canyon Road to the south and Newell Drive to the west, both of which are 4-lane arterial roads. West of Newell Drive is a neighborhood of single-family residential homes built in the mid-2000s, public parks, and Canyon Oaks Elementary School. South of American Canyon Road is another single-family residential neighborhood built in the early 2000s, and southwest of the school are two large manufactured home parks built in the 1970s and early 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. The neighborhoods to the south also feature a network of dirt and paved paths, providing pedestrians and bicyclists with short-cuts between residential streets and nearby collector and arterial streets. However, these paths do not provide access to major destinations, such as the nearby schools or local shopping centers.



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

ACHS has four vehicle access points, with one entrance off of American Canyon Road and three off of Newell Drive, a four-lane high-speed arterial. The American Canyon Road entrance and the north and south access points on Newell Drive lead to parking lots, while the middle access point on Newell Drive leads directly to a roundabout in front of the main office and entrance to the school. The school’s classrooms may only be accessed through two gated pathways on either side of the main office building; fencing encloses the rest of the school’s classroom buildings.

ACHS’s configuration prioritizes vehicles as the primary form of transportation due to its placement of three large parking lots in front of the main entrance to campus, requiring pedestrians and bicyclists to navigate through or around these lots. There are three pedestrian/bicyclist access points on Newell Drive and one on American Canyon Road. All of the Newell Drive pedestrian/bicyclist access points require pedestrians and bicyclists to cross the parking lot. Two of the Newell Drive access points have pedestrian paths that run through the middle of one of the lots. The entrance on American Canyon Road is separate from vehicles; however, it is far from the school’s central campus and pedestrians have to walk around the school’s many sports fields to reach the classrooms.



The middle access point to campus on Newell Drive.

Pedestrians and bicyclists approaching the school from the west must cross Newell Drive either at American Canyon Road or Silver Oak Trail, as there is no midblock crosswalk across Newell Drive. However, students cross Newell Drive midblock at unmarked locations, indicating that the existing crosswalks do not meet pedestrian need. Additionally, the crosswalk along Newell Drive in front of the main entrance to the school feels unwelcoming for pedestrians and bicyclists to use, due to its long crossing distances and the placement of the school sign, which reduces visibility of pedestrians in the crosswalk. Pedestrian and vehicle access points to ACHS campus. Bus service through NVUSD is not available for ACHS students. However, students who live beyond 4.25 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. ACHS is included as a stop in the American Canyon Transit weekday fixed-route service, and picks-up and drops-off at a sheltered bus stop on Newell Drive in front of the school.



- Primary vehicle access points
- Pedestrian/bicycle access points

Pedestrian and vehicle access points to ACHS campus.



The Vine American Canyon Transit bus stop on Newell Drive.



A right turn lane appears on Newell Drive leading up to the school’s main entrance.



## SCHOOL PARKING LOT AND GROUNDS

Three parking lots are located off of Newell Drive, divided by a pedestrian path leading to the front entrance of the school and the road leading to the roundabout. Students park in the southernmost parking lot if they have a permit, staff park in the northern parking lot, and visitors park in the middle lot. Staff parking also extends behind the school campus. No signage exists indicating the intended users for each lot, potentially leading to confusion around parking policies.

The school's parking policy is outlined in the school handbook (see Figure 3 below). The school has a formal policy that student drivers must apply for a parking permit in order to park in the student parking lot, but there is no fee to secure a permit. Students may not park in the northern parking lots as they are reserved for staff and visitors. Traffic cones are placed in the drop off area to promote proper circulation. Students who drive unsafely or do not comply with the parking policy may be ticketed, towed, or lose their parking privileges, although level of enforcement is unknown.



ACHS's three parking lots are divided by a pedestrian path and the road leading to the roundabout. Marked in red is the staff parking lot, orange is the visitor parking lot, and green is the student parking lot.

### RELEVANT SCHOOL POLICIES (FROM SCHOOL WEBSITE):

#### Student Parking on Campus

Parking on school campus will be permit parking only. Permits will be awarded on a yearly basis. All students applying for permits must have a valid driver's license. Automobiles without a permit may be ticketed. Vehicles without parking permits hanging from the rear view mirror, parked in red zones, occupying more than one space, or otherwise parked illegally will be ticketed and/or towed. In addition, repeat offenders will lose their privilege to use ACHS parking facilities. All students are expected to drive safely and to follow parking rules at all times. Students driving unsafely will have parking privileges revoked and unsafe driving incidents will be referred to the police. Additionally, students may face disciplinary action. ACHS Parking Permits are only valid on campus.

#### Closed Campus

ACHS is a closed campus for ALL grades. Any students found off campus, or to have left campus without Permission to Leave Campus slip will be referred to administration for detention and/or social probation.

Figure 3: School Policies

## BICYCLE AND PEDESTRIAN INFRASTRUCTURE

The neighborhoods to the west and south of ACHS 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.

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.

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. The Vine Trail on Newell Drive is on the opposite side of the street from the school, with the nearest crosswalks being located at Silver Oak Trail and American Canyon Road. Pedestrians and bicyclists using the Vine Trail must cross to and travel along the narrow sidewalk on the east side of Newell Drive to access the school.

Bicyclists must share the northbound sidewalk on Newell Drive in front of the high school with pedestrians to travel to the nearest crosswalks to the Class I shared-use path on the other side of the street. The sidewalk is too narrow for shared pedestrian and bicyclist use.

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

ACHS provides bike parking in the front and on the side of the campus. In the front of the school, there are three locations that each have two or three 7-loop wave style bike racks. The two locations closest to the school entrance are highly utilized and are often overcrowded. The third location is far from the school entrance and difficult to find. On the side of the school, there are nine 7-loop wave style bike racks located on a fire access road; however, they are largely unused because they are far from the school's entrance and are not visible from major bicyclist entry points.



A Class I "jumbo sidewalk" on Newell Drive.



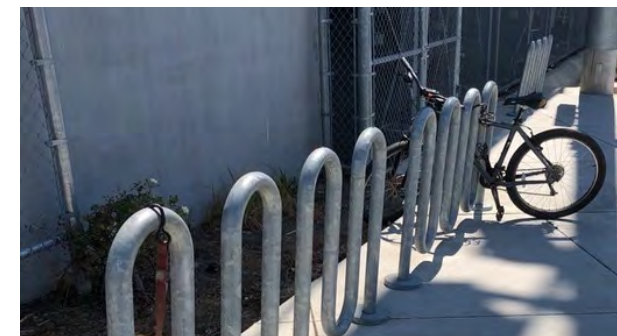
Bicyclists must share the northbound sidewalk on Newell Drive in front of the high school with pedestrians to travel to the nearest crosswalks to the Class I shared-use path on the other side of the street. The sidewalk is too narrow for shared pedestrian and bicyclist use.



Bike parking in front of office



Bike parking near the front of the school



Bike parking in front of the school but far from the school entrance



Side bike parking



MAP OF EXISTING BICYCLE FACILITIES



Map 3: Existing Bicycle Facilities  
(Map source: Napa Valley Transportation Authority Napa Countywide Bicycle Plan (2019)).

MAP OF EXISTING PEDESTRIAN FACILITIES



Map 4: Existing Pedestrian Facilities  
(Map source: Napa Valley Transportation Authority Napa Countywide Pedestrian Plan (2016)).



## POLICIES AND PROGRAMS

### Encouragement and Education:

ACHS has participated in annual countywide events, including Bike to School Day and Walk and Roll to School Day, in recent years. Bike to School Day and Walk and Roll to School Day are annual encouragement events facilitated by Napa County Safe Routes to School in the spring and fall, respectively, that celebrate students making the healthy choice to walk or bike to school. The school does not provide any on-campus bicycle or pedestrian safety education to students or conduct regular encouragement events to shift students from driving to walking or biking.



An ACHS student signs in at the welcome table during Walk and Roll to School Day 2019.

YEAR	EVENT	STUDENT PARTICIPANTS
2018/19	Bike to School Day	26
2019/20	Walk and Roll to School Day	85

Figure 4: Encouragement and Education Data

### 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 American Canyon High School, the roads analyzed included American Canyon Road and Flosden Road/Newell 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. Newell Drive/Flosden Road and American Canyon Road have posted speed limits of 35 miles per hour and 45 miles per hour, respectively, though both corridors have reduced speed limits of 25 miles per hour in the school zone when children are present. 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.

### CITATIONS IN SCHOOL AREA BY TYPE

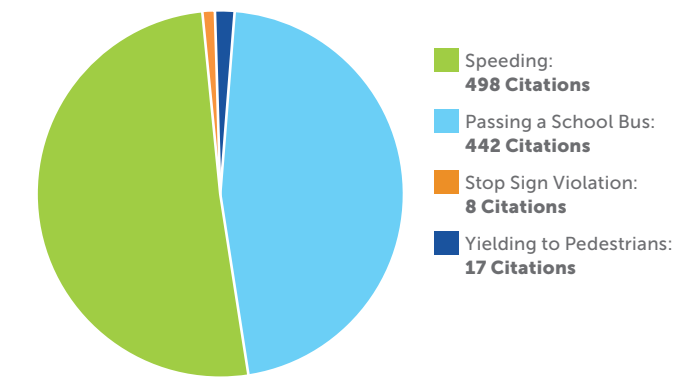


Figure 5: Citations by Type

### SPEEDING CITATIONS

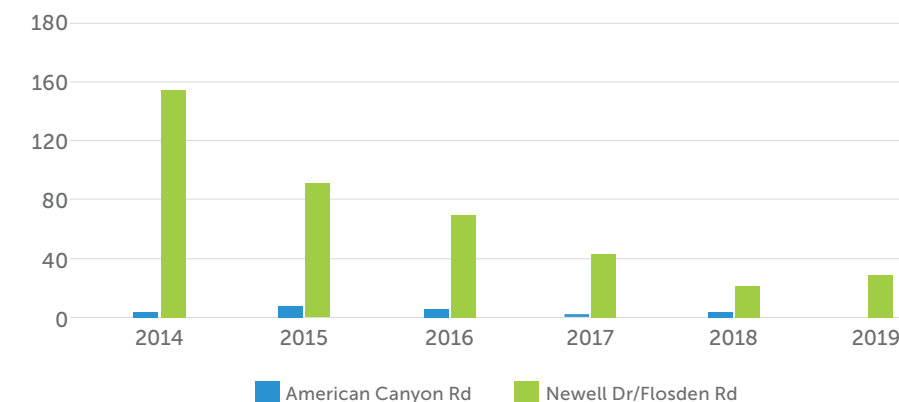
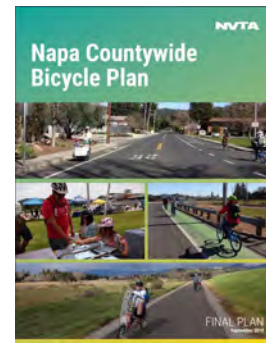


Figure 6: Speeding Citations

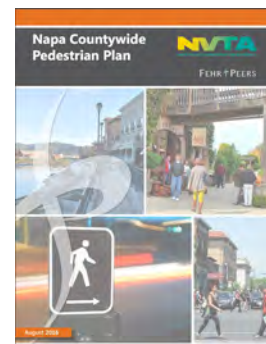


**EXISTING PLANS**



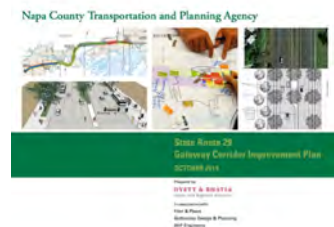
**NVTA Napa Countywide Bicycle Plan (2019):**  
 The Napa Countywide Bicycle Plan recommends improving bicycle facilities around the school site. The Bicycle Plan suggests installing a Class I shared-use path along both sides of SR 29 and Class II bike lanes along American Canyon Road east of Newell Drive. It also recommends installing a Class I connector path between Via Bellagio, across Flosden Drive, to Entrada Circle, which could provide a safer route to some of the neighborhoods southwest of the school. No bicycle facilities are planned for the east side of Newell Drive, the side the school is on.

**NVUSD Facilities Master Plan (2016):**  
 NVUSD's Facilities Master Plan lists only a couple of projects for ACHS, including installing/upgrading fencing around the school perimeter. 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. As ACHS has similar existing fencing structure, circulation around 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 install Class II bike lanes on SR 29 near Rio Del Mar and implement signal/intersection improvements to support bicyclist left turns.



**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.



**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.



**City of American Canyon Broadway Specific Plan (2019):**  
 The American Canyon Broadway Specific Plan seeks to move the SR 29 Broadway District away from its existing auto-centric conditions toward a more accessible, multi-modal setting. The circulation section of this plan aims to achieve this goal through various proposals, such as several intersection improvements, including Donaldson Way and American Canyon Road, creating separate pedestrian connections/paseo routes, and reducing the posted speed limit from 55 mph to 35 mph. Pedestrian improvements include increasing and improving visibility of crosswalks, and bicycle network improvements include several Class I facilities in addition to some Class II and III facilities.

**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:** 3/14/2019

**Meeting Time:** 2:10pm

**Day of the Week:** Thursday

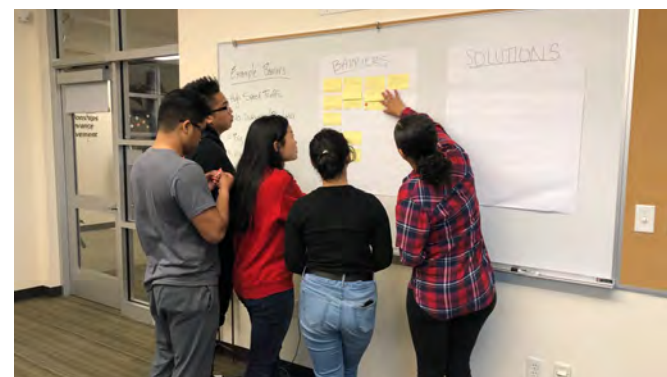
**Weather:** Raining

## METHODOLOGY

The Community Walk Audit brought together five ACHS leadership students with the SRTS team to observe existing conditions during pick-up time, identify barriers to safe walking or biking, and brainstorm solutions. The group met 30 minutes prior to the school bell for a brief presentation on the SRTS program and the process and purpose of Walk Audits. The team then walked around the front of the school, through the parking lot, and along Newell Drive to the intersection with American Canyon Road.

During this walk, participants observed and discussed the physical infrastructure around the school as well as the behavior of motorists, pedestrians, and bicyclists in the area. They also shared their own experiences traveling to and from school on foot, bike, and by car. Fifteen minutes after the bell, the team returned to the classroom to discuss their observations, map issue areas, and record and prioritize the major barriers identified during the exercise.

During the prioritization exercise, participants wrote down several barriers that were of high priority to them on sticky notes, placed them on a poster on the wall, and organized them into sections based on similar topics. Then, 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 then reviewed the major barriers and brainstormed potential solutions to each issue. Participants repeated the prioritization process with potential solutions to the barriers identified.



## WALK AUDIT FINDINGS

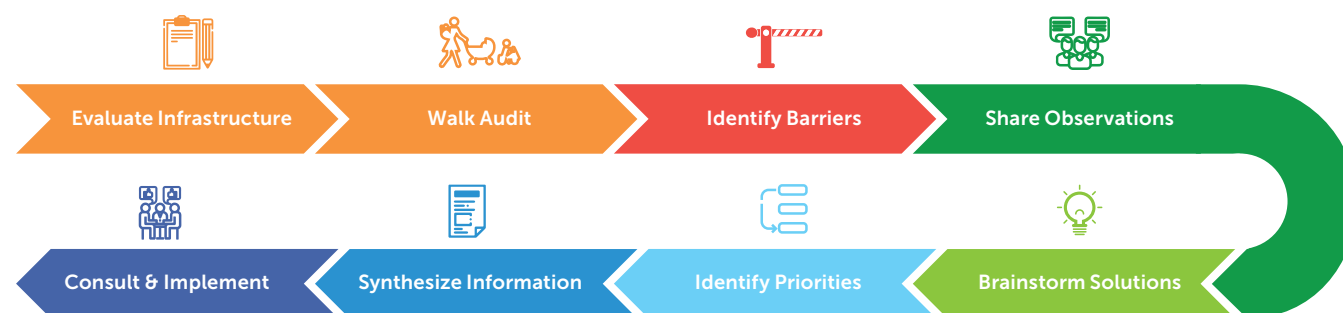
This section of the report lists the barriers and solutions identified by Walk Audit participants during the Walk Audit activity. The barriers and treatments listed in the following tables are the results of the Walk Audit prioritization activities – the content and language used reflect what Walk Audit 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
Lack of shared-use paths	Around all schools in American Canyon	9
Lack of sidewalk westbound, narrow sidewalk eastbound	American Canyon Road	6
Dangerous intersection	Newell Drive and American Canyon Road	6
Students wanting to drive, not bike	General	4
Speeding	American Canyon Road and Newell Drive	3
Speeding	Citywide	2
Lack of convenient ped path	ACHS parking lot	1
Narrow or missing sidewalks and blind spots	Canyon Creek	1
Parents parking in drop-off area	ACHS round-about	1
Contradicting speed limit signs	Northbound Newell Drive	1

Figure 7: Walk Audit Ratings - Dot Exercise (Barriers)





## Stakeholder-Identified Treatments:

DESCRIPTION	BARRIER ADDRESSED	LOCATION	PRIORITY
Rectangular Rapid Flashing Beacons & raised crosswalk	No midblock crosswalk on Newell; low pedestrian visibility	In front of school on Newell Drive where emergency ramp is currently	11
More shared-use paths	Not enough shared-use paths	Canyon Oaks Elementary area	6
Bike Box	Low bicyclist visibility at intersection	Hwy 29 and American Canyon Road	4
Rectangular Rapid Flashing Beacons or raised crosswalk	Poor motorist yielding behavior; low pedestrian visibility	Elliot Drive	3
Flashing, large school zone signs	Lack of school zone signage; motorist speeding in school zone	Flosden Road	3
Painted conflict markings	Potential risk of motorist/bicyclist conflicts	General	3
Improved signage (no right on red at back exit of school)	Hazardous driver behavior	School area	2
Bike lanes	Lack of bike facilities	American Canyon Road	2
Crossing guards that stay until 8:30am	High-volume intersection; poor motorist yielding behavior	Intersection of American Canyon Road and Newell Drive	1
Curb extension	Poor motorist yielding behavior; low pedestrian visibility; wide curb radius	Hwy 29 and American Canyon Road	1

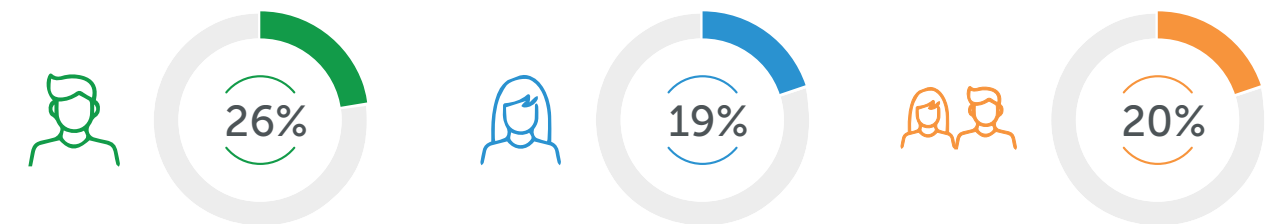
Figure 8: Walk Audit Ratings - Dot Exercise (Solutions)

## 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 transport<sup>1</sup>. 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 wellness<sup>2</sup>. 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.



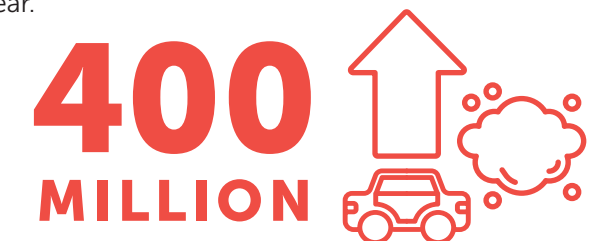
However, only about **26% of men**, **19% of women**, and **20% of adolescents** are meeting the aerobic and muscle-strengthening guidelines developed by the Department of Health. Increased walking and biking to school can help boost that percentage by incorporating physical activity into one's daily 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 2017**<sup>3</sup>.



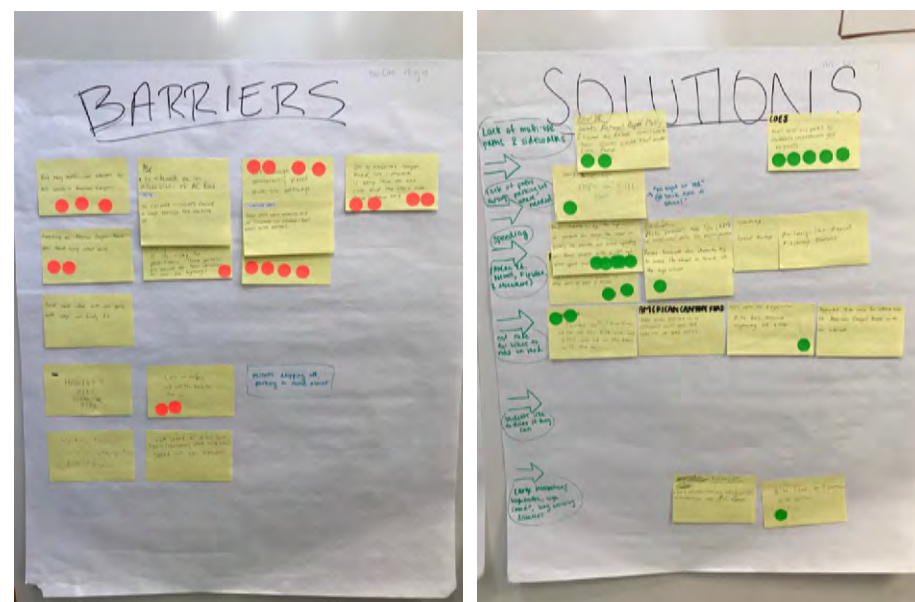
The transportation sector produced the most greenhouse gas emission of any economic sector, releasing **up to 29% of total US greenhouse gas emissions** for the year.

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.

<sup>1</sup> 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. <sup>2</sup> 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. <sup>3</sup> 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-023: SCHOOL BIKE PARKING

**Narrative** – As is described in the "Bicycle and Pedestrian Infrastructure" section of the report, ACHS provides bike parking in multiple locations. The two locations nearest the school's gates have 2-3 bike racks each and are in high demand, often exceeding capacity. The other two locations, one with three racks at the front side of the school but far from the entrance and one with nine racks at the side of the school, see very little use. This pattern reflects that demand for bicycle parking exists at convenient locations close to destination entrances and exits. The racks near the school's gates also likely feel safer from potential theft because they are close to the main office, where there is greater visibility by school staff and visitors.



### IDENTIFIED BARRIERS

- **Overcrowded bike parking** – The lack of sufficient bike parking in visible, convenient locations, such as near the main office, may deter students and staff from biking to school, as the overcrowded existing parking suggests there is not a secure place to store one's bike.

### RECOMMENDATIONS

- **Expand and improve bicycle parking** – We recommend that the school expand and improve their bicycle parking by relocating and adding additional racks based on demand. We also suggest that the school include options for covered and secure long-term bicycle parking for staff and students.



*Demand for bicycle parking is much higher near the school's entrance (left) than locations further from the entrance, such as the side of the school (right).*



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

**Narrative** – One of the top barriers identified by Walk Audit participants was the intersection at American Canyon Road and Newell Drive. For students traveling to ACHS from south of American Canyon Road, the most direct route to the school includes navigating this intersection. 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.

### 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 can increase conflict risk between motorists and pedestrians and bicyclists.
- **High speeds** – Walk Audit participants identified speeding at this intersection as a safety barrier. High vehicle speeds are enabled at this location by high speed limits, wide curb radii, and wide, straight roads. Motorists' range of vision decreases and collision severity increases with increased vehicle speed.



*The intersection of American Canyon Road and Newell Drive looking west (above) and south (below).*

### 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 there was a suggestion from the Walk Audit to station a crossing guard at this intersection that stays until the high school start time (the existing crossing guard only stays until the nearby elementary school start time), we are not making that recommendation at this time. Infrastructure improvements that build safety into the intersection by slowing down vehicles and improving pedestrian visibility will make this intersection more comfortable and navigable for all pedestrians and bicyclists at any given time.



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



**Narrative** – For many students travelling to ACHS from west of SR 29, the most direct route to the school includes navigating the intersection of American Canyon Road and SR 29 (Broadway). The American Canyon Road and SR 29 intersection, located in the center of downtown American Canyon, is the largest intersection in the city. Pedestrians and bicyclists must cross up to seven lanes of high-volume, high-speed traffic, and there are only two standard crosswalks in the intersection on the west and south sides. At this intersection, the SR 29 speed limit is 50 mph and the American Canyon Road speed limit is 40 mph eastbound and 45 mph westbound. In addition to being a crucial nexus between the school and housing in West American Canyon, this intersection also connects students to after-school locations, such as Starbucks.

**IDENTIFIED BARRIERS**

- **Long crossing distances** – Long crossing distances across all legs of the intersection increase the amount of time bicyclists and pedestrians spend in the roadway exposed to vehicle traffic.
- **Large curb radii** – The wide curb radii on all corners of the intersection allow vehicles to make fast right turns, which can be especially hazardous when vehicles are entering or exiting high-speed traffic on the highway.
- **High traffic volumes/speeds** – SR 29 carries extremely high volumes of high-speed traffic, which many pedestrians and bicyclists do not feel comfortable navigating.
- **Missing crosswalk** – There are no crosswalks across the north and east legs of the intersection.



The SR 29 and American Canyon Road intersection requires crossing up to seven lanes of high-speed, high-volume traffic.



**RECOMMENDATIONS**

- **Protected intersection** – We recommend that the intersection be upgraded to a protected intersection to reduce crossing distances, calm traffic, and make the intersection more accessible to pedestrians and bicyclists, especially in consideration of proposed Class I shared-use paths along SR 29. There are many elements that go into the design and construction of a protected intersection, and some of these improvements could be made as short-term safety enhancements, including:
  - **Refuge islands** – We recommend the installation of pedestrian refuge islands on the north and south legs of the intersection (east and west too, if feasible), to improve pedestrian sense of safety and comfort and calm traffic.
  - **Reduction of curb radii** – We recommend that the City work with Caltrans to explore options for reduction of curb radii on all corners of the intersection to slow vehicle turning movements.
  - **Crosswalk addition** – We recommend that crosswalks be installed across the north and east legs of the intersection, which, in conjunction with additional infrastructure improvements (see #AC-013 and proposed SR 29 Class I shared-use paths in Napa Countywide Bicycle Plan), will provide complete pedestrian accessibility through the intersection.
  - **Leading Pedestrian Interval** – We recommend that the traffic signal be upgraded to provide a Leading Pedestrian Interval, which gives pedestrians a protected head-start through the intersection, improving pedestrian comfort and driver awareness of pedestrians.

Although Walk Audit participants suggested a sidewalk along South Crane Avenue, we are not making that recommendation at this time. Given the need for both bicyclist and pedestrian facilities to meet existing uses of the corridor, the limited right of way along the northern half of the corridor, the rural nature of the southern half of the corridor, and the high potential for family use for the Primary School and Crane Park, we believe that a Class I path is more appropriate for this corridor than a sidewalk.

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



**Narrative** – Silver Oak Trail, a collector, intersects with Newell Drive at the north edge of the campus, and is part of a key route to residences west and northwest of the school. Along with being the primary access road for Canyon Oaks Elementary School, 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 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 mornings and late afternoons, when students may be walking or biking. However, there are no bike facilities along this road, even though 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 a key corridor leading to ACHS and 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-025: BROADWAY (SR 29) AND DONALDSON WAY INTERSECTION IMPROVEMENTS**

**Narrative** – Students travelling to ACHS from west of SR 29 who do not cross SR 29 at American Canyon Road must cross at Donaldson Way. The SR 29 and Donaldson Way intersection is a major intersection along the most direct route to school for students living in the northwest area of American Canyon. Pedestrians crossing SR 29 must cross six lanes of high-speed and high-volume traffic, and crossing Donaldson Way requires interacting with traffic trying to enter and exit the highway. In addition to housing, this intersection is along one of the most direct routes from ACHS to Donaldson Way Elementary School, American Canyon Boys and Girls Club, and American Canyon Middle School (the only middle school in the city), where students may have siblings with whom they walk or bike home.

**IDENTIFIED BARRIERS**

- **Long crossing distances** – Long crossing distances across SR 29 increase the amount of time bicyclists and pedestrians spend in the roadway exposed to vehicle traffic.
- **Large curb radii** – The wide curb radii on all corners of the intersection allow vehicles to make fast right turns, which can be especially hazardous when vehicles are entering or exiting high-speed traffic on the highway.
- **High traffic volumes/speeds** – SR 29 carries extremely high volumes of high-speed traffic, which many parents/guardians do not feel comfortable allowing their child to navigate.



The Donaldson Way and Broadway (SR 29) intersection looking north (left) and east (right).



**RECOMMENDATIONS**

- **Protected intersection** – We recommend that the intersection be upgraded to a protected intersection to reduce crossing distances, calm traffic, and make the intersection more accessible to pedestrians and bicyclists, especially in consideration of proposed Class I shared-use paths along SR 29.
- There are many elements that go into the design and construction of a protected intersection, and some of these improvements could be made as short-term safety enhancements, including:
  - **Refuge islands** – We recommend that the existing median on the south leg of the intersection be widened and extended to create a pedestrian refuge island to increase pedestrian comfort and sense of safety.
  - **Reduce curb radii** – We recommend that the City work with Caltrans to explore options for reduction of curb radii on all corners of the intersection to calm slow vehicle turning movements.
  - **Crosswalk addition** – We recommend that a crosswalk be added across the north leg of the intersection to provide direct, convenient pedestrian routes throughout the corridor when combined with other infrastructure improvements (see #AC-001 and #AC-040).
  - **Leading Pedestrian Interval** – We recommend that the traffic signal be upgraded to provide a Leading Pedestrian Interval, which gives pedestrians a protected head-start through the intersection, improving pedestrian comfort and driver awareness of pedestrians.

**RECOMMENDATION #ACP-004: STUDENT-LED ENCOURAGEMENT AND EDUCATION PROGRAMMING**

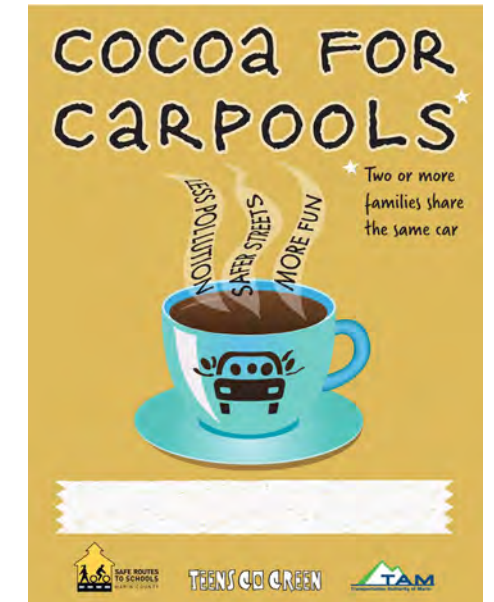
**Narrative** – One of the high-ranking barriers identified by Walk Audit participants was the desire of students to drive, rather than walk or bike. In addition to infrastructure barriers, many students drive or are driven to school because it is the “cool” or “normal” thing to do, or because they have recently earned their drivers license, a source of excitement and sense of independence. It is also likely that many students are unaware of the impacts their everyday transportation choices have on their health, environment, and community. An increase in education outreach and encouragement programming can help raise awareness of and enthusiasm towards active transportation and complement infrastructure improvements. Developing a long-term mode shift towards active transportation can also ease congestion in the school zone during pick-up and drop-off times.

**IDENTIFIED BARRIERS**

- **Vehicle-oriented transportation culture** – Being surrounded by a vehicle-oriented transportation culture significantly contributes to students developing the habit of driving or being driven to school.

**RECOMMENDATIONS**

- **Student-led encouragement and education** - We recommend that the school guide student clubs, classes, and organizations like Student Council in developing and hosting regular active transportation encouragement events and education campaigns. We emphasize that students should lead encouragement and education events, as peer-to-peer messaging is more effective and engaging.
  - Encouragement events, such as Walk and Roll Wednesdays, VMT reduction competitions, and Cycle for Cider, can introduce students to the joys of walking and biking to school and help bring about long-term mode shift. Marin County Safe Routes to School successfully runs similar programs through their Safe Routes to School Teen Program and may be a helpful resource.
  - Education outreach initiatives can help increase awareness amongst students of the various benefits of active transportation. For example, an Environmental Club can emphasize how walking and biking reduces greenhouse gases, and a Leadership Club can highlight the positive physical and mental health effects of active transportation.



Student-led encouragement programs, such as Marin County Safe Routes to School's Cocoa for Carpools, can help lead to mode-shift away from single-occupancy vehicles. Image credit: Marin County Safe Routes to School.





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

**Narrative** – Newell Drive is the main roadway providing access to the school. 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 further north with the Watson Ranch development (see “Existing Future Plans”). A Class I shared-use path resembling a wide sidewalk 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. The northbound side has a sidewalk from American Canyon Road to Silver Oak Trail. 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 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. Walk Audit participants identified lack of shared-use paths around the school as their top barrier, indicating that the existing shared-use facilities are not recognized.
- **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.



Without signage or stencils, the Newell Drive Class I facility appears to be a pedestrian-only sidewalk.



## RECOMMENDATION #AC-024: NEWELL DRIVE MIDBLOCK CROSSWALK

**Narrative** – The top solution suggested by Walk Audit participants was to create a formal midblock crosswalk across Newell Drive that connects to the main entrance to the school, as students currently cross Newell Drive in front of the school’s entrance where there is no crosswalk. Students travelling along the shared-use path on American Canyon Road must take a detour to cross at the American Canyon Road and Newell Drive intersection to reach the side of Newell Drive that the school is on, when the more direct route would be to continue north on the Newell Class I shared-use path and cross in front of the school. Additionally, bicyclists who cross Newell Drive at Silver Oak Trail or American Canyon Road must leave the Class I facility on the west side of Newell Drive and navigate the narrow sidewalk along the east side with pedestrians.

### IDENTIFIED BARRIERS

- **No midblock crosswalk** – The lack of a midblock crosswalk at Newell Drive in front of the main entrance to the school was identified as both an access and safety barrier for student pedestrians and bicyclists during the Walk Audit.

### RECOMMENDATIONS

- **Midblock crosswalk** – We recommend that the City evaluate the potential for a midblock crosswalk across Newell Drive in front of the school utilizing Rectangular Rapid Flashing Beacons or a High-Intensity Activated crosswalk signal to prioritize student pedestrian and bicyclist safety and access to the school.



Students cross Newell Drive midblock at the vegetation break in the median in front of the school, indicating a desire for a midblock crosswalk at this location.

While Walk Audit participants suggested a raised crosswalk at this location, we are not making that recommendation at this time. Raised crosswalks can improve the visibility of crossing pedestrians by placing them slightly above the level of the road. These features also act as a speed control, requiring vehicles to approach a crosswalk slowly. However, raised crosswalks can slow emergency vehicle response time, and therefore may not be the most appropriate treatment on key first-response routes such as Newell Drive.





## 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 and is a key corridor in the most direct route to ACHS for the majority of students living south of American Canyon Road. The section directly southwest 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 narrow 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 ride on the sidewalk, as the high-speed and high-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 narrow eastbound sidewalk on American Canyon Road.

### 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 Class I shared-use path on the north side of American Canyon Road and will 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 and enable safe westbound travel from the Vine Trail.

Though Walk Audit participants suggested implementing bike lanes on this segment of American Canyon Road, the high speeds and volumes of traffic on this road warrant a higher degree of separation between road users to create safe and accessible bicycle facilities for all users.



## RECOMMENDATIONS #AC-001 AND AC-002: DONALDSON WAY EAST BIKE/PED IMPROVEMENTS

**Narrative** – Donaldson Way East, a 2-lane collector, is part of the most direct route to ACHS for many students living north of the Donaldson Way corridor and west of SR 29. Though signed at 30 mph, the wide nature of Donaldson Way East can facilitate speeding, especially for traffic entering from SR 29, which can make biking on road feel unsafe and uncomfortable. 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 allows bicycle use, making the corridor appear to have no bicycle facilities since there are no on-street bicycle facilities.

### IDENTIFIED BARRIERS

- **Unclear bicycle facilities** – 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. Walk Audit participants identified lack of shared-use paths around the school as their top barrier, indicating that the existing shared-use facilities are unapparent.
- **Missing westbound sidewalk** – There is no sidewalk on the westbound side from SR 29 to Tuscan Oak Trail, forcing pedestrians to either walk in the road or cross uncontrolled Donaldson Way traffic at Tuscan Oak Trail.



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-001 SR 29 to Tuscan Oak Trail**
  - **Add Class III sharrows EB/WB** – We recommend the installation of Class III sharrows on both sides of the road to reinforce to motorists and bicyclists that it is permissible to ride in the roadway.
  - **Sidewalk** – We recommend that a sidewalk be installed along the westbound side, which will provide a continuous and direct pedestrian route along the corridor when considered with other infrastructure recommendations (see #AC-025 and #AC-040).
- **AC-002 Entire corridor (SR 29 to Newell Drive)**
  - **Class I 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.







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

**Narrative** – The intersection of Donaldson Way East, a 2-lane collector, and Newell Drive, a 4-lane arterial, is a significant intersection near ACHS. Currently, students navigate this intersection when travelling to neighborhoods east of Shenandoah Drive and north of Granite Springs Way or to Newell Open Space Preserve. With the construction of the Watson Ranch project (see "Future Existing Plans"), both student travel and vehicle traffic volumes through this intersection are highly likely to increase, resulting in a greater risk of conflict. As there are no plans to alter traffic control at this intersection, students crossing Donaldson Way East must cross a long crossing distance created by large curb radii on the north and south curbs while anticipating uncontrolled traffic from Newell Drive.

### IDENTIFIED BARRIERS

- **Large curb radii** – Large curb radii on the north and south corners of the intersection allow vehicles to take fast right turns, especially when exiting Newell Drive onto Donaldson Way East, and create a long crossing distance across Donaldson Way East.

### RECOMMENDATIONS

- **Reduce curb radii** – We recommend that the City explore options for reducing the curb radii at this intersection, with special consideration for curb extensions, which will also reduce crossing distance.

Should any signalization project be developed at this intersection as the Watson Ranch housing project moves forward, the project should, at a minimum, include bicycle detection on all legs and evaluate options to reduce right-hook conflicts on southbound and eastbound through-phases. This should be done in addition to recommendations detailed above.



The Donaldson Way East and Newell Drive intersection, looking north.



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

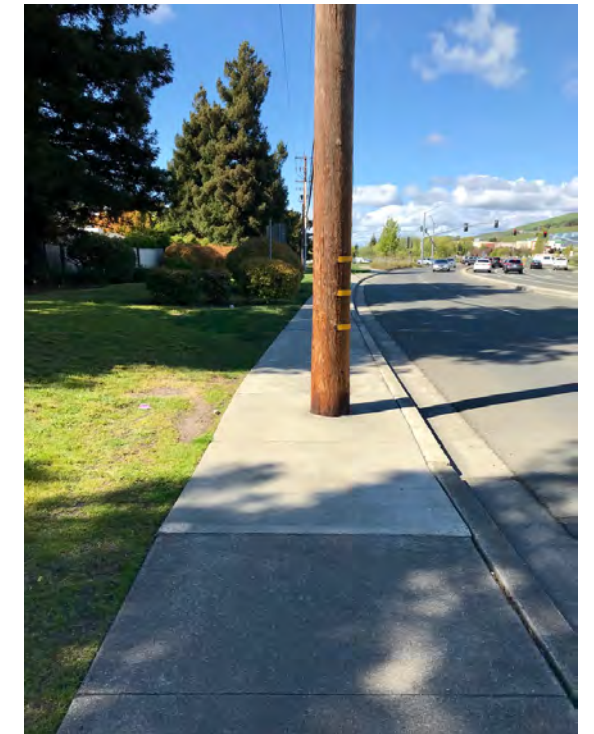
**Narrative** – Flosden Road, which turns into Newell Drive at American Canyon Road, is a 4-lane arterial with a speed limit of 45 mph that runs from American Canyon Road to the southern city limit. Flosden Road is a key corridor providing access to several neighborhoods south of ACHS, including a manufactured home park adjacent to the southern city limit. However, 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 multiple locations. There are no other bike facilities along this corridor. 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 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 the west side of 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 the 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 utility poles obstruct access for vulnerable users.





## RECOMMENDATION #ACP-006: CIRCULATION POLICY

**Narrative** – Congestion and conflict between different road users due to motorist and pedestrian behavior in the school zone during pick-up and drop-off was identified as a safety barrier to students walking and biking to school. Motorists turn into the parking lot at high speeds, parents park in the loading zone, and student pedestrians cut through the parking lot rather than using separated pedestrian paths. As the school’s parking lot separates the front gates of the school from the sidewalk and roadway on Newell Drive, all students arriving from Newell Drive must navigate the parking lot. However, the school does not provide a circulation policy or map to help guide the various modes of traffic through the parking lot.

### IDENTIFIED BARRIERS

- **Unsafe driver behavior** – Motorists turning quickly into the school parking lot and parents parking in the drop-off lane were observed during the Walk Audit.
- **Unpredictable pedestrian behavior** – Students were observed cutting through the parking lot rather than utilizing the separated pedestrian paths.

### RECOMMENDATIONS

- **Circulation policy** – We recommend that the school develop and regularly distribute a circulation policy that clearly outlines expectations of all road users and emphasizes the separation of modes. This programmatic approach, in conjunction with increased education and encouragement programming (see #ACP-004) will help reduce conflict and congestion in the school zone.

## 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-007: SILVER OAK TRAIL AND SEQUOIA GROVE WAY INTERSECTION

### IDENTIFIED BARRIERS

- **Low-visibility crosswalk on west side**
- **Long crossing distances**
- **Large curb radii**

### RECOMMENDATIONS

- **Upgrade west crosswalk to high-visibility yellow school zone pattern**
- **Curb extensions**

Relevant Reports:

- *Canyon Oaks Elementary School Walk Audit Report*

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

### IDENTIFIED BARRIERS

- **Illegal U-turns**
- **Speeding**
- **Failure to yield**

### RECOMMENDATIONS –

- **Curb extensions**
- **Center divider with “No U-Turn” signage**
- **High-visibility crosswalks**

Relevant Reports:

- *Canyon Oaks Elementary School Walk Audit Report*

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

### IDENTIFIED BARRIERS

- **Long crossing distances across American Canyon Road**
- **Low-visibility crosswalks**

### RECOMMENDATIONS

- **Refuge islands**
- **Leading Pedestrian Interval**
- **High-visibility crosswalks**

Relevant Reports:

- *Canyon Oaks Elementary School Walk Audit Report*

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

### IDENTIFIED BARRIERS

- **Lack of midblock crosswalks**
- **Poor sight lines**

### RECOMMENDATIONS

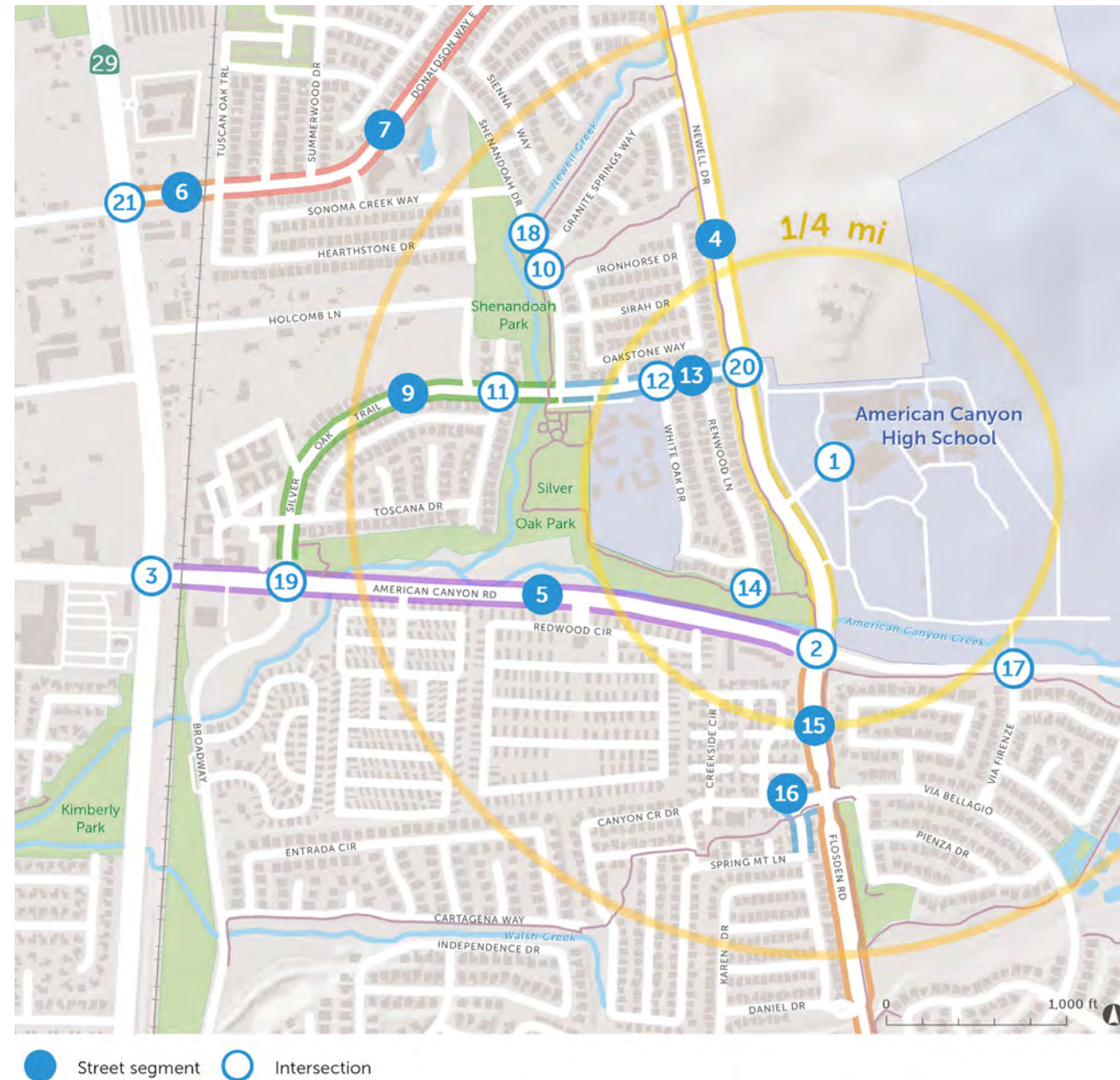
- **Midblock crosswalks**
- **Rectangular Rapid Flashing Beacons consideration (south path)**
- **Curb extensions (north path)**

Relevant Reports:

- *Canyon Oaks Elementary School Walk Audit Report*



MAP OF RECOMMENDATIONS



Map 5: Recommendations

TABLE OF RECOMMENDATIONS

Infrastructure:

	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
1	School grounds	AC-022	Congestion and conflict in school zone during pick-up/drop-off	Identify additional drop-off locations in parking lot to reduce traffic congestion and idle times. Update loading zone signage and curb markings.	\$	Low
		AC-023	Bicycle parking facility supplies do not match demand	Expand and improve bicycle parking by adding additional racks based on demand, including options for covered and secure bicycle parking.	\$	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	Broadway (SR 29) and American Canyon Road intersection*	AC-011	Long crossing distances, large curb radii, high traffic speeds and volumes, and missing crosswalk on north side of intersection	Upgrade intersection to protected 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.	\$\$\$	High
4	Newell Drive from Donaldson Way East to American Canyon Road	AC-024	Lack of midblock crosswalk in front of school's main entrance	Evaluate potential for midblock bike/ped crossing, utilizing Rectangular Rapid Flashing Beacons or High-Intensity Activated crosswalk signal to prioritize student bicyclists and pedestrians	\$\$	Medium
		AC-059	Speeding	Consideration of new traffic-calming CIP Projects to reduce speeds.	\$\$-\$\$\$	Medium
		AC-006	Unmarked shared-use path	Add signage and pavement markings clearly indicating bikes should ride on Class I sidewalk	\$	Medium
5	American Canyon Road from Broadway (SR 29) to Flosden Road	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-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 at least 8 feet 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 to provide safe and comfortable bicyclist and pedestrian access to intersection improvements (see #AC-011)	\$\$\$	Medium



	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
6	Donaldson Way East from SR 29 to Tuscan Oak Trail	AC-001	Unmarked bicycle facility, missing westbound sidewalk	Add signage and pavement markings to ID eastbound sidewalk as Class I shared-use path. Add Class III sharrow eastbound/westbound. Add sidewalk westbound along segment and gas station frontage.	\$\$	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	\$	Medium
9	Silver Oak Trail West from American Canyon Road to Shenandoah Drive	AC-004	No bicycle facilities	Install Class II bike lanes where Right of Way allows. At minimum, add Class III eastbound/westbound per Bike Plan*.	\$-\$\$	High
10	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
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 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
13	Silver Oak Trail East from Shenandoah Drive to Newell Drive	AC-009	No bicycle facilities	Install Class II bike lanes where Right of Way allows. At minimum, add Class III eastbound/westbound per Bike Plan*.	\$	High
14	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
15	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
16	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

	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
17	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
18	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
19	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
20	ACHS Driveway North and Newell Drive intersection	AC-021	Lack of bike access to/from school driveway.	Add bike sensors to intersection and Class III sharrow to driveway bidirectionally, or widen SB sidewalk to Class I width.	\$-\$\$	Low
21	Broadway (SR 29) and Donaldson Way intersection	AC-025	Long crossing distances, large curb radii	Upgrade intersection to protected intersection. Add refuge island to the south leg, reduce curb radii for free right turns. Add crosswalk across north leg. Upgrade signal to provide Leading Pedestrian Interval across SR29.	\$\$\$	High

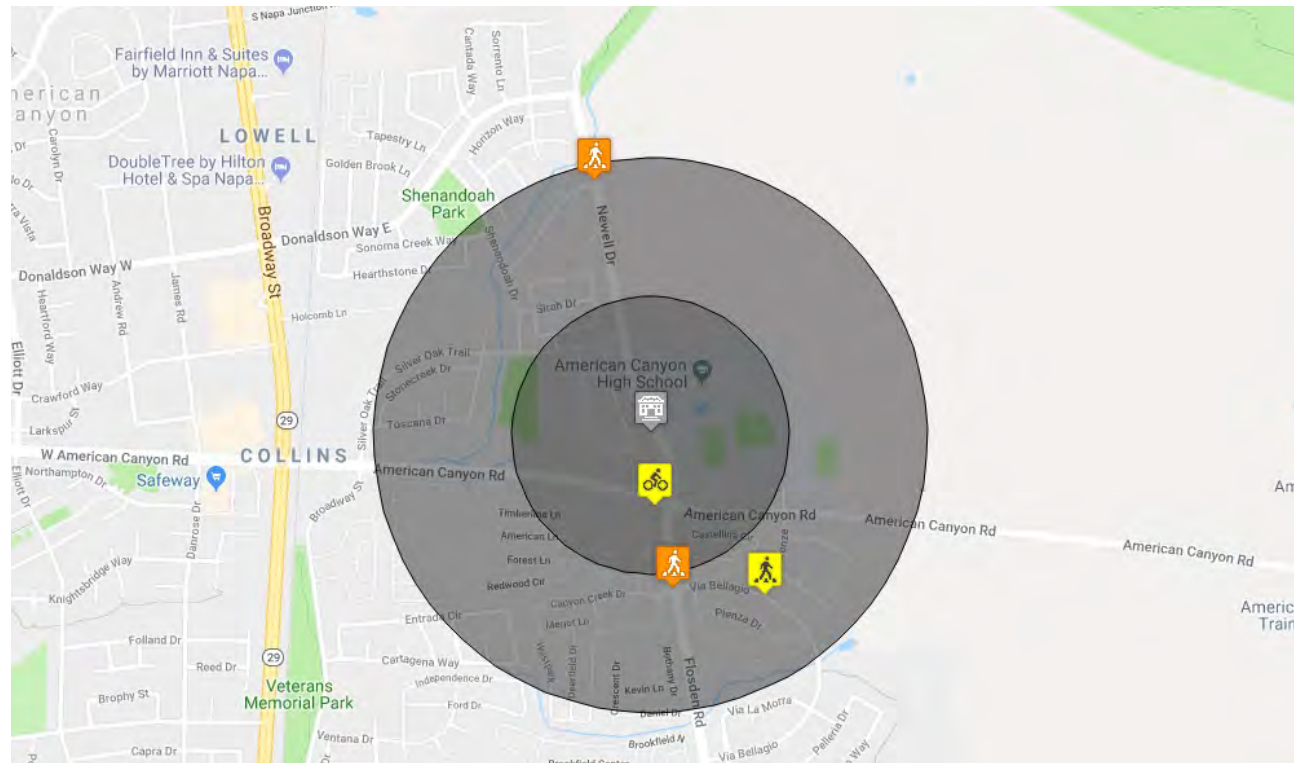
**Programmatic Improvements:**

	ISSUE	ID #	RECOMMENDATION	LOCATION	FREQUENCY	COST	PRIORITY
1	Vehicle-oriented transportation culture	ACP-004	Engage student body through student organization-led encouragement programming and education campaigns	School grounds	Monthly	\$	High
2	High speeds	ACP-005	Increased enforcement activity by law enforcement.	Newell Drive/Flosden Road	Monthly	\$	Low
3	Congestion and conflict in school zone during pick-up/drop-off	ACP-006	Develop and distribute circulation policy	School grounds	Annually	\$	Medium

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



## 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	1	0	0	1	1
.25-.5 mi.	0	2	1	0	3	0	3
Total	0	2	2	0	3	1	4

### Collision List

DATE	TIME	PRIMARY	SECONDARY	BIKE/PED
2013-02-17	09:42	American Canyon Rd	Flosden Rd	Yes/No
2017-02-28	06:15	Via Bellagio	Via Firenze	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 9: Collision Data (2012-2017) (Source: UC Berkeley Transportation Injury Mapping System: SRTS Collision Map Viewer)

## APPENDICES

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[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](#)

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[Figure 3 – School Policies \(p. 12\)](#)

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[Map 4 – Existing Pedestrian Facilities \(p. 15\)](#)

[Map 5 – Recommendations \(p. 38\)](#)

[Map 6 – Collision Map \(p. 42\)](#)



## FOOTNOTES

<sup>a</sup> 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.

<sup>b</sup> 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.

<sup>c</sup> 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.

<sup>d</sup> David Ragland, S Pande, J Bigham 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>.

<sup>e</sup> 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.

<sup>f</sup> 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

<sup>g</sup> 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....](http://activelivingresearch.org/sites/default/files/ALR_Brief_ActiveEduc....)

<sup>h</sup> 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.

<sup>i</sup> 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...>

<sup>j</sup> 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

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- ▶ **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-8<sup>th</sup> 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-8<sup>th</sup> 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 → <b>TERMINATE</b>	-
(No response) → <b>TERMINATE</b>	-

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

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

**(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 <b>to</b> 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 <b>from</b> 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.	
<b>(RANDOMIZE)</b>								
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
<b>(RANDOMIZE)</b>							
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)
<b>(RANDOMIZE)</b>					
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 data<sup>1</sup> indicates that high-visibility crosswalk striping improves the visibility of crosswalks compared to standard parallel lines and can improve yielding behavior by drivers<sup>2</sup>. Additionally, crosswalk visibility enhancements, which include but are not limited to high-visibility crosswalks, can reduce crashes by 23-48%<sup>1</sup>.

- 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.

---

<sup>1</sup> [https://safety.fhwa.dot.gov/ped\\_bike/step/docs/TechSheet\\_VizEnhancemt\\_508compliant.pdf](https://safety.fhwa.dot.gov/ped_bike/step/docs/TechSheet_VizEnhancemt_508compliant.pdf)

<sup>2</sup> 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.

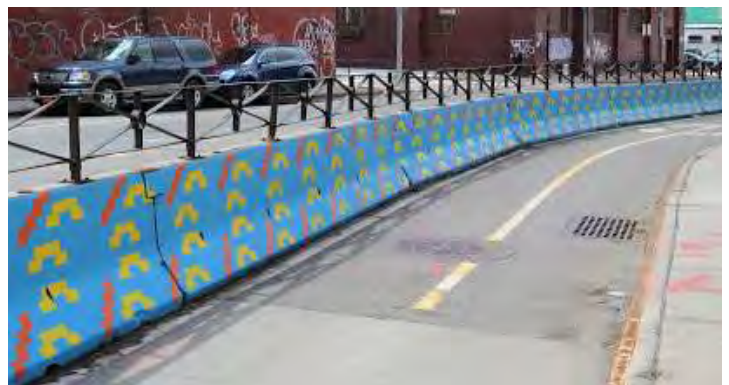


Photo credits, top to bottom: Alta Planning + Design; Real Hartford; Alta Planning + Design; Street Plans Collaborative



## 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

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**Cover image:** Sign D4-3 from *Standard Highway Signs, 2004 Edition*, [http://mutcd.fhwa.dot.gov/ser-shs\\_millennium\\_eng.htm](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

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www.apbp.org



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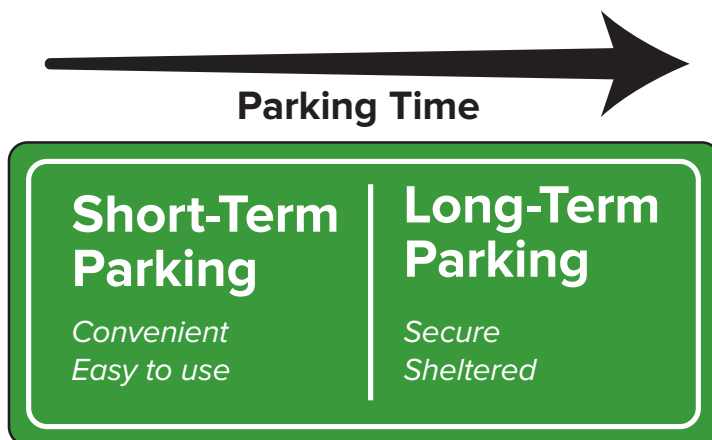
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## INTRODUCTION

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](http://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.

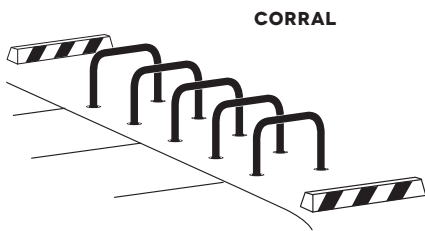
Short-term parking is designed to meet the needs of people visiting businesses and institutions, and others with similar needs—typically lasting up to two hours. Short-term users may be infrequent visitors to a location, so the parking installation needs to be readily visible and self-explanatory.



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.

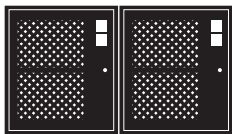
## BIKE CORRALS

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)

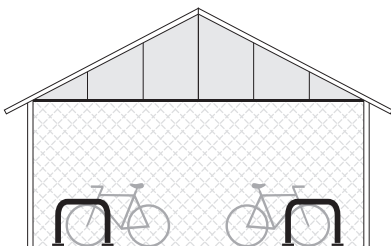
# LONG-TERM PARKING

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](http://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.

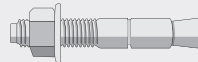
### FASTENERS

#### CONCRETE SPIKE



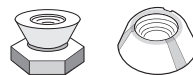
Installs quickly in concrete with a hammer. Tamper-resistant. Removal may damage concrete and/or rack.

#### 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
<b>Supports bike upright without putting stress on wheels</b>	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”.
<b>Accommodates a variety of bicycles and attachments</b>	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.
<b>Allows locking of frame and at least one wheel with a U-lock</b>	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.
<b>Provides security and longevity features appropriate for the intended location</b>	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).
<b>Rack use is intuitive</b>	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.

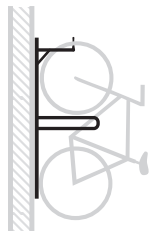
High-density rack systems can maximize the use of limited parking space, but they don't work for all users or bicycles. If installing these racks, reserve additional parking that accommodates bicycles with both wheels on the ground for users who are not able to lift a bicycle or operate a two-tier rack,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

### STAGGERED WHEELWELL-SECURE



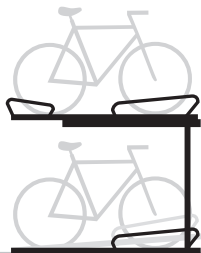
Variation of the wheelwell-secure rack designed to stagger handlebars vertically or horizontally to increase parking density. Reduces usability and limits kinds of bikes accommodated, but contains bikes well and aids in fitting more parking in constrained spaces.

### 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

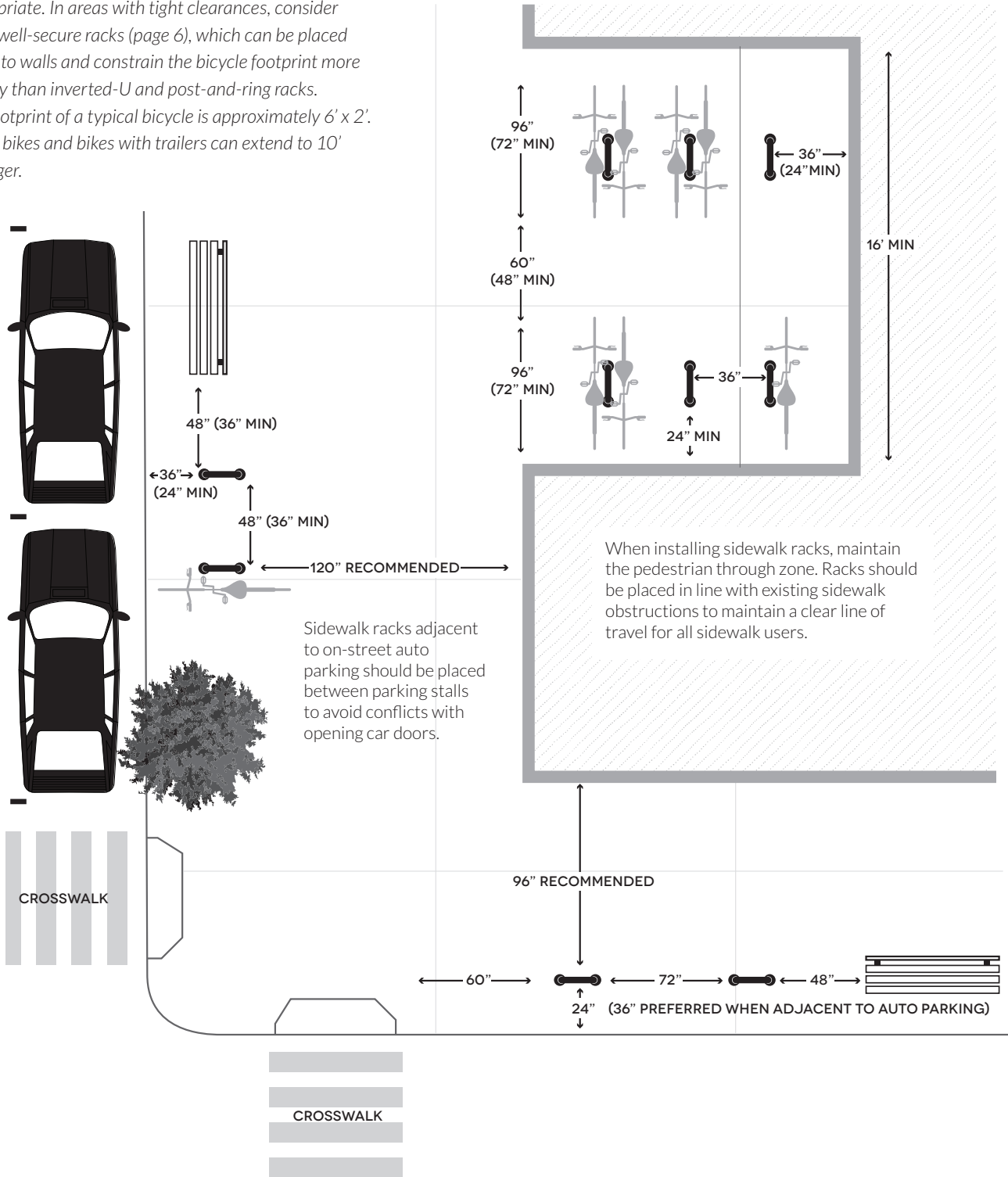
Most bicycle parking racks are made of carbon steel or stainless steel. Carbon steel requires a surface coating to resist rust while appropriate grades of stainless steel need no coating. Not all materials and coatings with the same name perform equally. Square tubing provides a security advantage as 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
<b>Carbon steel - galvanized</b>	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
<b>Carbon steel - powder coat* (TGIC or similar)</b>	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
<b>Carbon steel - thermoplastic</b>	Intermediate	Good durability	Appearance degrades over time with scratches and wear; not as durable as galvanized or stainless
<b>Stainless steel - no coating needed, but may be machined for appearance</b>	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