Walk Audit Report

SafeRoutes
Napa County

VALLEY OAK
HIGH SCHOOL

VALLEY OAK HIGH SCHOOL

1600 MYRTLE AVENUE NAPA, CA

—

TABLE OF CONTENTS

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NAPA COUNTY SAFE ROUTES TO SCHOOL PROGRAM

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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[ab] and reduced pedestrian-motorist collisions[cd]. This can lead to safer, healthier, and more focused students, while also benefitting local and school communities.

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

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

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.

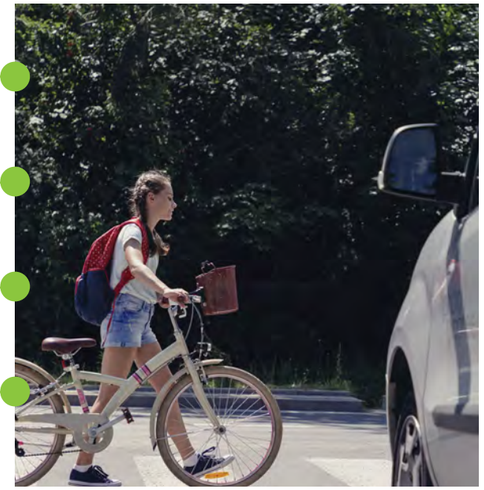
Schools and the community benefit immensely when students choose to walk or bike.

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. Enforcement statistics are not emphasized in this report, as this element needs more study and review.

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.

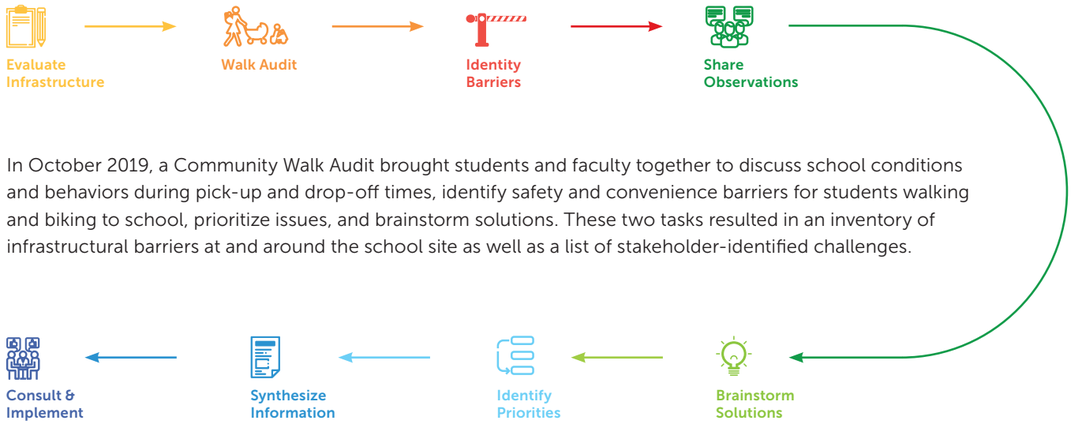
Education
Ensure that everyone learns how to travel safely and why biking and walking are important.

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 Valley Oak High School, starting in the summer of 2018. Information on physical and behavioral challenges was collected in two phases. In September 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 October 2019, a Community Walk Audit brought students and faculty 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, public works and planning representatives from the City of Napa, 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.

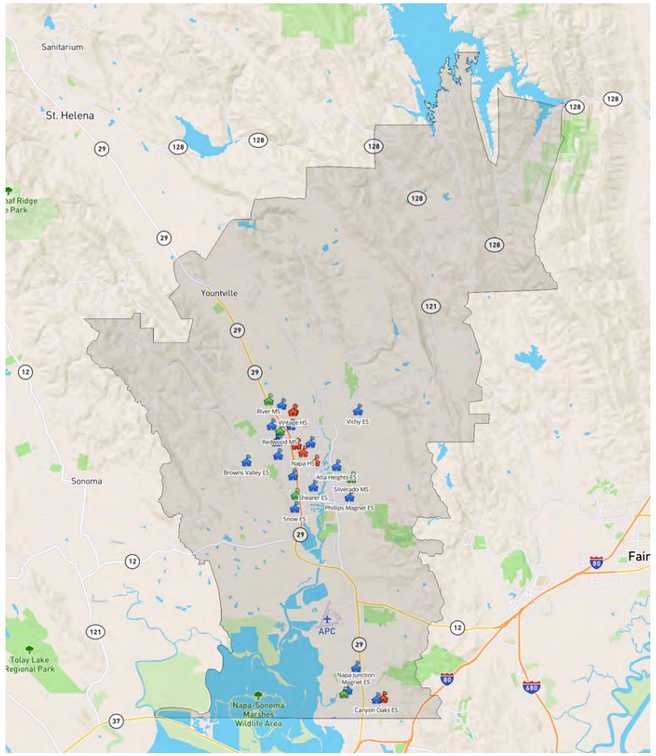
VALLEY OAK HIGH SCHOOL
SCHOOL SUMMARY

Principal	Maria Cisneros	Grades	10-12
First Bell	8:15 AM	Enrollment	173
Last Bell	1:30 PM	Street	1600 Myrtle Avenue
District	Napa Valley Unified	City	Napa, CA 94558

Overall Facility Rating[j]: Good

As Valley Oak is a continuation high school, its enrollment boundary includes high school students from anywhere in Napa Valley Unified School District. As the enrollment boundary covers the entire district, this may result in students living far from school, making them more likely to rely on driving for transportation.

According to the most recent data (2020-21 school year), most Valley Oak students live in the enrollment boundaries for Napa High School and Vintage High School (84%), and few come from the American Canyon High School enrollment boundary (14%) or other school districts (2%).



Map 1: The Napa Valley Unified School District boundaries, shaded above, define Valley Oak's enrollment boundaries.

DATA

No data is currently available regarding the number of students who walk and bike to the school. The school's principal reported that the majority of Valley Oak High School students walk to school. Additional work is needed to establish a baseline of this school's active transportation use.

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 Valley Oak.

Total Enrollment by Group (2019-20)

ETHNICITY	VALLEY OAK HIGH SCHOOL	DISTRICT
Black or African American	1.7%	2.1%
Filipino	1.1%	6.9%
Hispanic or Latino	69.9%	55.6%
White	22.2%	28.4%
Native Hawaiian or Pacific Islander	0.6%	0.2%
Two or More Races	3.4%	4.0%
EXPERIENCE		
Socioeconomically Disadvantaged	68.8%	51.2%
English Learners	13.6%	20.5%
Students with Disabilities	8.5%	12.5%
Foster Youth	0.6%	0.4%
Homeless	4.0%	1.1%

Figure 1: Enrollment Data by Group

Student Enrollment by Grade Level (2019-2020)

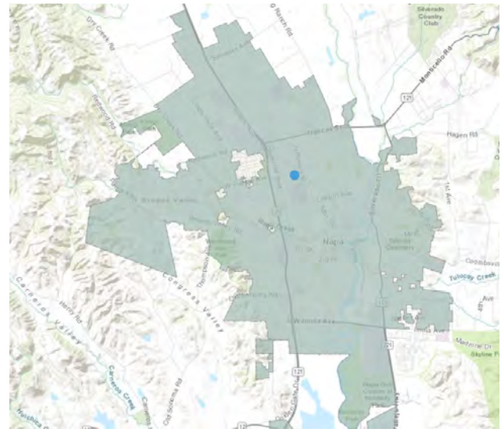
	NUMBER OF STUDENTS
Grade 10	3
Grade 11	51
Grade 12	119
Total	**173**

Figure 2: Enrollment Data by Grade

NEIGHBORHOOD CONTEXT

Valley Oak High School is located within the City of Napa's Beard Planning Area in northeast Napa, a multi-use area containing commercial strips, multi-family and single-family housing, and a light industrial area. The school is bordered by Pueblo Avenue to the north, California Boulevard to the west, Myrtle Avenue, which connects to Marin Street, to the south, and Jefferson Street to the east. However, a football stadium and several businesses exist between the school site and Jefferson Street, so the school cannot be accessed from Jefferson Street. Many of these roads are significant travel routes, as California Boulevard and Jefferson Street are both significant north-south arterials and Pueblo Avenue is an east-west collector.

Valley Oak High School is surrounded primarily by single-family and multi-family housing. This housing was primarily built in the 1940s-1960s, though some residences range in age from the 1930s to 2000s, which can cause variations in physical infrastructure. There are some commercial offices and local and community commercial areas nearby as well as a light industrial area just northwest of the school. Most of the multi-family housing is located north of the school and includes mobile home parks and townhomes. The street patterns in these neighborhoods are mainly fragmented parallel, with some grid and warped parallel areas. Grid patterns optimize walkability by providing pedestrian route choice, while fragmented and warped parallel patterns reduce this route choice and interconnectivity.



Map 2: Valley Oak High (blue dot) is located in northeast Napa (city limits shaded).

Valley Oak High is surrounded primarily by single- and multi-family housing

Azteca Market is just east of the school on Pueblo Avenue.

The school is immediately adjacent to and shares a parking lot with the Menlo Head Start Center and the Napa Infant Program, two preschool programs on Myrtle Avenue. The Boys and Girls Club Napa Clubhouse and Memorial Field are also adjacent to the school to the east. There are several destinations of interest near the school, including a commercial restaurant strip northeast of the school, Azteca Market, Kwikee Mart, and Dutch Bros Coffee east of the school, and some bakeries, a market, and a Starbucks southeast of the school. South of the school are the Napa High School campus, the Napa Valley Unified School District building, and Napa Fire Station Number 2.

EXISTING **CONDITIONS**

The Safe Routes to School Team conducted an initial evaluation of the school site and 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.

SITE CIRCULATION

Valley Oak High School can be accessed from either Myrtle Avenue near its connection to Marin Street, the parking lot just east of Myrtle Avenue, or Pueblo Avenue. Fencing surrounds most of the school; the entrances on Myrtle Avenue and through the parking lot are not fenced, while the few entrances on Pueblo Avenue are gated. According to the school's principal, many students who walk to school travel via Pueblo Avenue or from the east, through the parking lot.

There is no marked student loading zone for Valley Oak High School. The school does not provide a circulation plan or policy to parents and students.

Valley Oak High School has three parking lots on Myrtle Avenue: two small lots and one larger, shared parking lot that connects to a larger lot on Menlo Avenue. The westmost small lot is marked as staff only and the larger lot is shared between the school and Menlo Head Start Center and the Napa Infant Program.

As there is no parking along California Boulevard, students who travel via car either park or are dropped off on Pueblo Avenue or Myrtle Avenue/Marin Street. There is no parking or student loading on the entire north side of Myrtle Avenue, the side that the school is on. The curb immediately in front of the school is red, and the rest of the curb along the north side of Myrtle Avenue is either red or reserved for bus loading in the morning and afternoon. Most of Marin Street and the south side of Myrtle Avenue allow on-street parking. Pueblo Avenue has on-street parking for student loading/parking, though it is a much busier street than Myrtle Avenue, particularly during morning commute hours.

The main entrance to the school is located on Myrtle Ave.

Bus loading zone on Myrtle Avenue in front of the school.

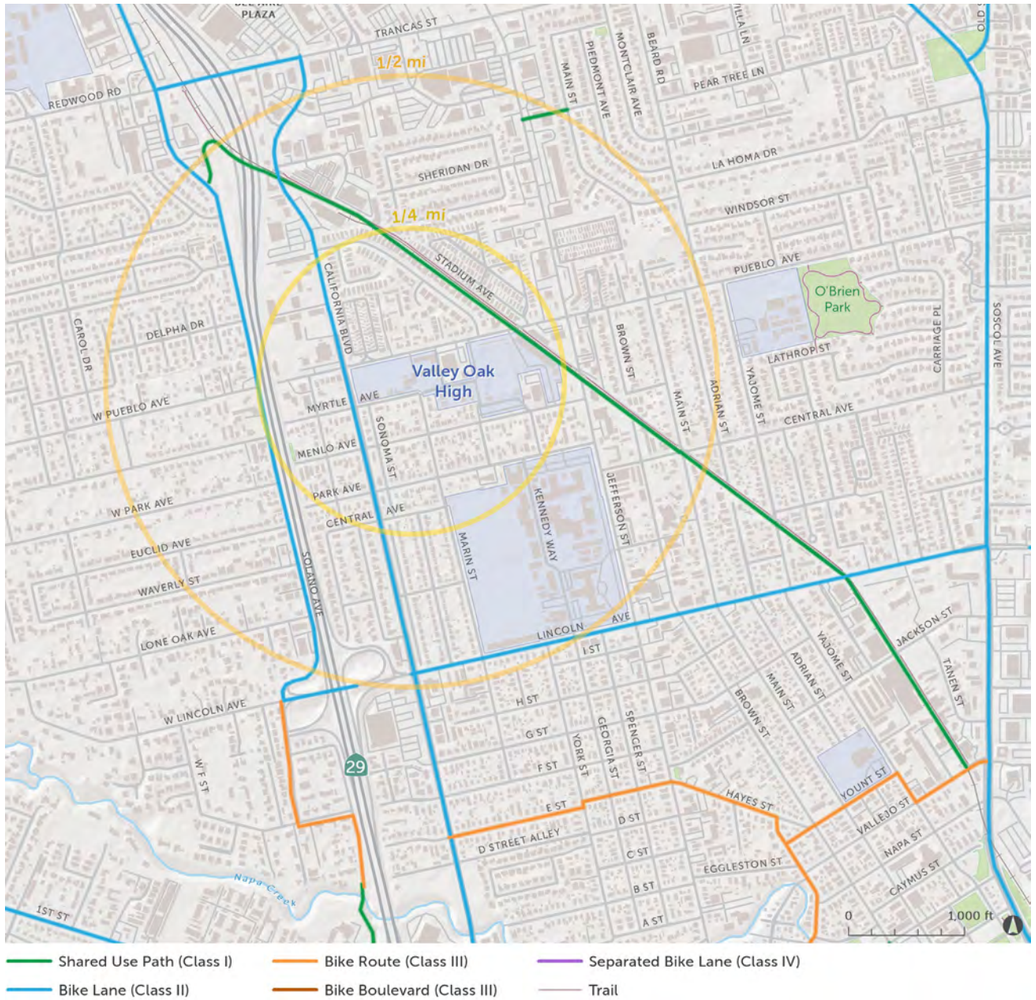
The Vine transit southbound stop at Jefferson and Pueblo.

Bus service through NVUSD is not available for Valley Oak High School students. Students who live beyond 4.25 miles walk distance and attend their school of residence may apply for transportation. The Vine transit N line, operated by the Napa Valley Transportation Authority, provides service in north/central Napa, mostly along Trancas Street and Jefferson Street, and has stops at the Jefferson Street and Pueblo Avenue intersection near the school. American Canyon students who use transit must first take either the 29 Napa-BART Express route or the 11/11X Napa-Vallejo routes to the Soscol Gateway Transit Center and then switch to the N line.

BICYCLE AND PEDESTRIAN INFRASTRUCTURE

The school provides one grid-style bike rack with 9 parking spaces near the Pueblo Avenue entrances.

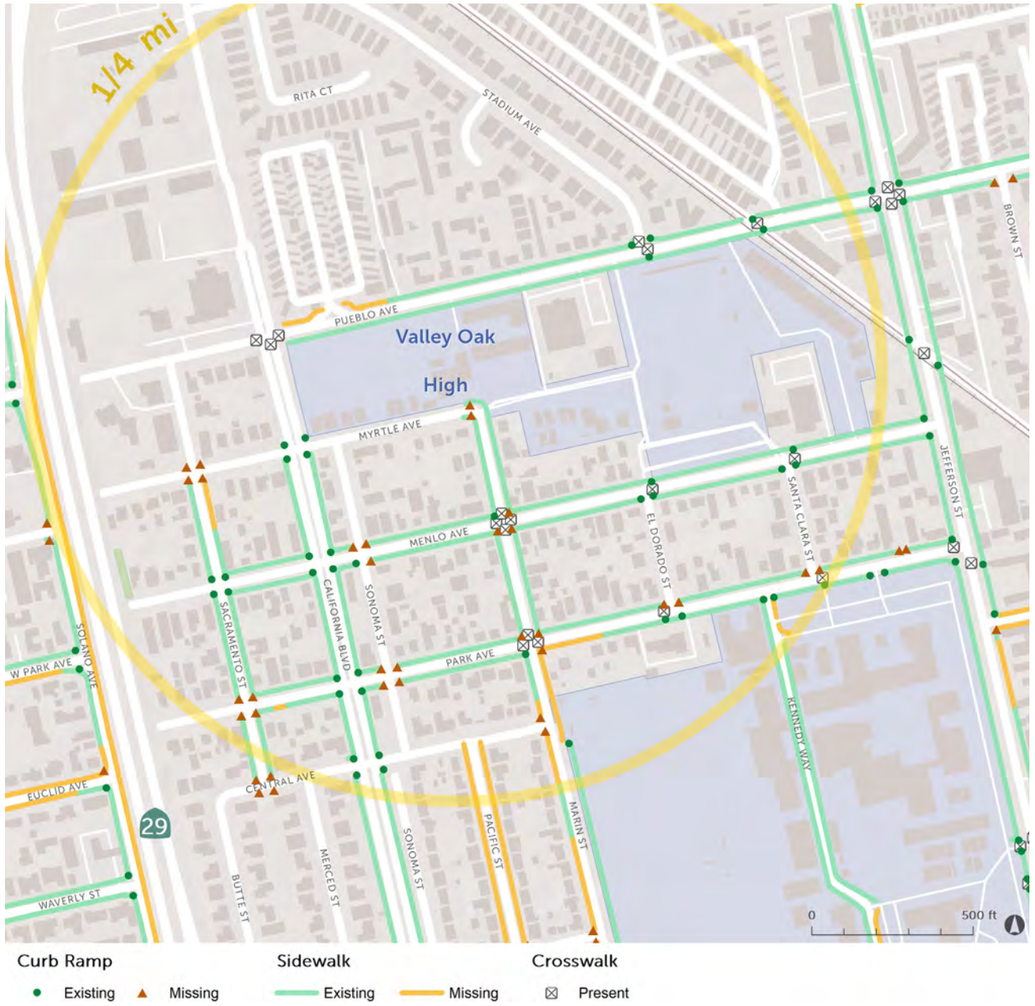
MAP OF EXISTING BICYCLE FACILITIES



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

The Vine transit southbound stop at Jefferson and Pueblo.

MAP OF EXISTING PEDESTRIAN FACILITIES



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

ENCOURAGEMENT AND EDUCATION PROGRAMS

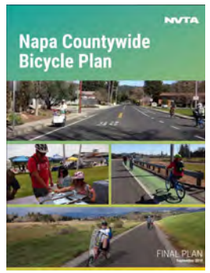
Valley Oak High School has participated a couple of times in one of the two annual countywide encouragement events, Walk and Roll to School Day. Bike to School Day and Walk and Roll to School Day are annual encouragement events facilitated by Napa County Safe Routes to School in the spring and fall, respectively, that celebrate students making the healthy choice to walk or bike to school. The school has not expanded its encouragement program beyond these annual events.

Walk and Roll to School Day 2019 at Valley Oak High School.

YEAR	EVENT	STUDENT PARTICIPANTS
2015/16	Bike to School Day	31
2016/17	Bike to School Day	15

Figure 3: Encouragement and Education Data

EXISTING PLANS



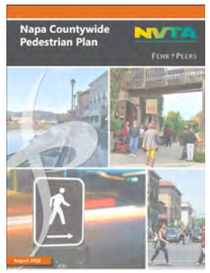
NVTA Napa Countywide Bicycle Plan (2019):

The Napa Countywide Bicycle Plan recommends improvements for bicycle facilities around the school site. Class II bike lanes are proposed for the entire Pueblo Avenue corridor, Class III bike boulevards are recommended for Park Avenue, and the Jefferson Street corridor is a designated study corridor.

NVUSD Facilities Master Plan (2016):

NVUSD's Facilities Master Plan includes several plans for Valley Oak High School, including installing/upgrading fencing around the school perimeter, improving site ADA accessibility, and replacing portable classrooms near one of the small parking lots with new construction. These projects could impact future circulation around the school site.

MEASURE H
BUILDING ON OUR VISION
NVUSD



NVTA Napa Countywide Pedestrian Plan (2016):

The Napa Countywide Pedestrian Plan has one listed project near the school site, an overpass connecting West Pueblo Avenue to Pueblo Avenue, providing a crossing over SR 29.

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. The project closest to the school area is located at the Lincoln Avenue and California Boulevard intersection, and recommends modifying that intersection and reconfiguring the northbound SR 29 off-ramp at Lincoln Avenue.

CITY OF NAPA

City of Napa General Plan 2020 (1998) / 2040 (Not Yet Adopted):

The current General Plan for the City of Napa was adopted in 1998; a General Plan update began in 2018 and at the time of this report, is still ongoing. The General Plan update strives to build a more livable, sustainable, and inclusive future for the City of Napa by outlining the City's plan for land use, housing, transportation, climate change, and more. One of the draft guiding principles for the General Plan update is to "increase travel options through enhanced walking, bicycling, and public transportation systems, and promote mobility through increased connectivity and intelligent transportation management."

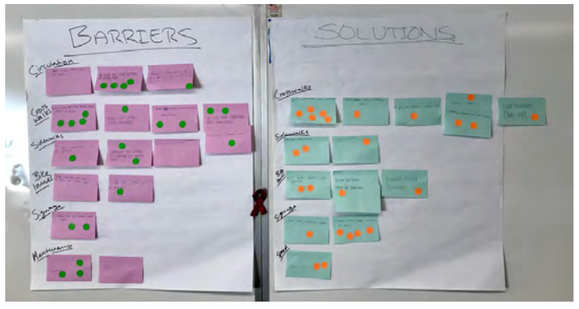
WALK **AUDIT**

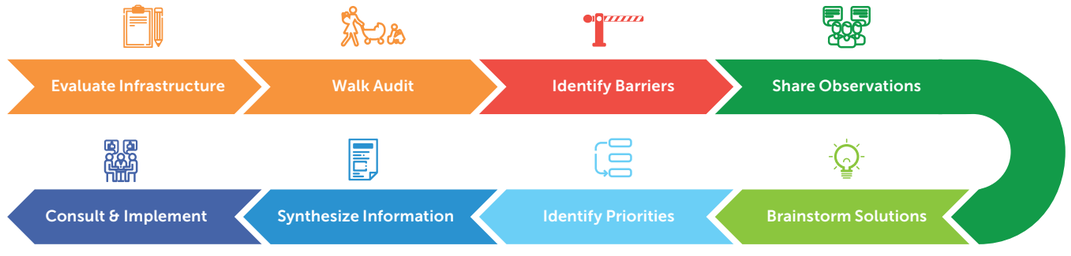
Date: 10/03/19
Day of the Week: Thursday
Meeting Time: 7:45 AM
Weather: Sunny and cool

METHODOLOGY

The Community Walk Audit brought school stakeholders together to observe existing conditions during drop-off time, identify barriers to safe walking or biking, and brainstorm solutions. The Walk Audit team consisted of five Valley Oak High School students and two teachers. 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 perimeter of the school, starting on Myrtle Avenue, down California Boulevard, and returning along Pueblo Avenue. 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 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, and organized them into sections based on similar topics. Then, participants were given five 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 explored 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 identified by Walk Audit participants during the Walk Audit activity. The barriers listed in the following table 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 organized by Vote Score in the table 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
No crosswalk	Myrtle St & California Blvd	10
No student drop-off zone	School site	8
Faded crosswalks	Pueblo Ave & California Blvd	5
Discontinuous sidewalk	Pueblo Ave	5
Lack of maintenance on sidewalks (broken glass, trash, etc.)	School region	5
No school zone signage	School region	4
Sidewalks too narrow	Pueblo Ave	3
Lack of bike lanes	Pueblo Ave	2
Poor sidewalk quality (cracks)	Pueblo Ave	1
Small bike lanes	California Blvd	1

Figure 4: Walk Audit Stakeholder-Identified Barriers

Stakeholder-Identified Treatments:

DESCRIPTION	BARRIER ADDRESSED	LOCATION	PRIORITY
Rectangular Rapid Flashing Beacons	Faded crosswalks; poor motorist yielding behavior	School region	7
Add crosswalks	No crosswalk	Myrtle St & California Blvd	6
School zone signage	Speeding	School region	5
Re-paint faded crosswalks	Faded crosswalks	School region	4
Raised sidewalks	Uncomfortable pedestrian facilities near high-speed/volume vehicle traffic	School region	3
Bike lanes	No bike facilities	Pueblo Ave	3
Speed hump	Speeding	School region	3
Multi-use path	No bike facilities	School region	3
Painted conflict markings	High motorist/bicyclist conflict risk	School region	2
Curb extensions	Long crossing distances, poor motorist yielding, speeding	School region	2
Stop signs	Speeding, poor motorist yielding behavior	School region	2

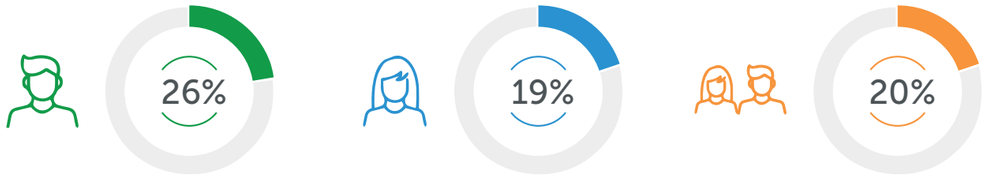
Figure 5: Walk Audit Stakeholder-Identified Treatments

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[1]. 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[2]. 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.

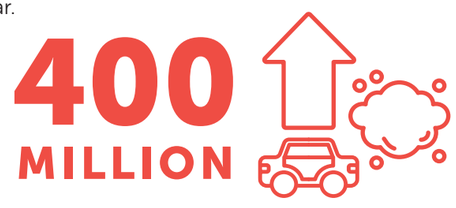


However, only about **26% of men**, **19% of women**, and **20% of adolescents** are meeting the aerobic and muscle-strengthening guidelines developed by the Department of Health. Increased walking and biking to school can help boost that percentage by incorporating physical activity into one's daily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

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

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



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

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

RECOMMENDATIONS

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

This section outlines and explains high and medium priority recommendations specific to the school site. School site-specific recommendations of all priority levels can be found in the "Table of Recommendations" section. Universal recommendations that apply to all school sites are described in Appendix B. Recommendations that are focused on infrastructure treatments are denoted by "NAI," and recommendations that suggest programmatic treatments are denoted by "NAP." Please note that implementing these recommendations will often require further evaluation and study, as well as design, right-of-way acquisition, compliance checks with existing laws, and coordination with utility, public safety, and other local government departments.

RECOMMENDATION #NAI-082: MYRTLE AVE AND MARIN ST INTERSECTION IMPROVEMENTS

Narrative – The front entrance to the school is located on Myrtle Avenue in front of where Myrtle Avenue meets Marin Street. For students traveling from neighborhoods south of the school, this entrance is the closest access point to campus. There is a crosswalk across Myrtle Avenue right next to the curve in the road where Myrtle meets Marin that is highly used by students entering campus, as it leads directly to the Myrtle Avenue school entrance. During the Walk Audit, motorists were observed frequently stopping in the middle of the crosswalk to drop off students.

IDENTIFIED BARRIERS

- ***Motorists block crosswalk –*** During arrival and dismissal times, motorists park immediately adjacent to and in the crosswalk, obstructing pedestrian visibility and accessibility.
- ***Uncontrolled crosswalk –*** The crosswalk across Myrtle Avenue at Marin Street is uncontrolled, reducing motorist yielding behavior.
- ***High conflict area –*** The location of the Myrtle Ave crosswalk near two parking lots increases vehicle volumes around a highly-used crosswalk, increasing risk of conflict between road users.
- ***Low-visibility crosswalk in school zone –*** The crosswalk is painted with a standard, parallel line pattern, despite being located in a highly-travelled school zone.

There are no bicycle facilities on Main Street.

- ***Poor sight lines –*** Motorists turning onto Myrtle Avenue from Marin Street have poor sight lines due to the curve in the road, which may reduce motorist reaction time to yield to pedestrians.

RECOMMENDATIONS

- ***Curb extensions –*** Install curb extensions on both corners to improve pedestrian visibility, slow motorists through the crosswalk, and prevent motorists from parking in or adjacent to the crosswalk.
- ***Rectangular Rapid Flashing Beacons –*** Install Rectangular Rapid Flashing Beacons to improve pedestrian visibility and motorist yielding behavior at the crosswalk.
- ***High-visibility crosswalk –*** Upgrade existing crosswalk to a high-visibility school zone pattern to increase pedestrian visibility and motorist yielding behavior.

RECOMMENDATION #NAI-083: MYRTLE AVE AND CALIFORNIA BLVD INTERSECTION IMPROVEMENTS

Narrative – As California Boulevard is the north-south arterial that provides access to Myrtle Avenue, the intersection between these two streets experiences high volumes of school-related traffic during arrival and dismissal times. In addition to serving several residential neighborhoods south of the school, California Boulevard is also a key part of routes to the Lucky shopping center, the Lincoln Avenue highway overpass (the closest overpass south of the school), and an informal bike path under SR 29 that connects to 1st Street on the west side of the highway. As a result, many students navigate this intersection when travelling to and from school.

The Vine Trail crossing at Jackson Street.

IDENTIFIED BARRIERS

- ***No crosswalks –*** The lack of crosswalks at the Myrtle Ave and California Blvd intersection reduces pedestrian visibility at an intersection that experiences high school-related use.
- ***High volumes/speeds of traffic –*** High volumes and speeds of traffic on California Boulevard reduce pedestrian comfort at the intersection and can reduce motorist yielding behavior.

RECOMMENDATIONS

- ***High-visibility crosswalks –*** Paint high-visibility crosswalks on east and north or south legs of intersection to create pedestrian access at the intersection and improve pedestrian visibility and motorist yielding behavior.
- ***Rectangular Rapid Flashing Beacons –*** Install Rectangular Rapid Flashing Beacons across California to improve pedestrian visibility and motorist yielding behavior at the crosswalk.

RECOMMENDATION #NAI-087: PUEBLO AVE AND CALIFORNIA BLVD INTERSECTION IMPROVEMENTS

Narrative – As an intersection between two significant streets in the local roadway network, an arterial and a collector, the Pueblo Avenue and California Boulevard intersection experiences high volumes of traffic throughout the day. High volumes of multimodal school-related traffic occur during school arrival and dismissal times at this intersection, given its location adjacent to the school site. For students travelling to and from school, this intersection is a key part of direct routes to several commercial destinations north of the school, including the Bel Aire Plaza shopping center, residential neighborhoods in the City's Vintage planning area, and the California Boulevard entrance to the Vine Trail shared-use path. School staff reported that multiple students had experienced near-miss or actual collisions in this intersection.

California Boulevard and Pueblo Avenue intersection facing north.

IDENTIFIED BARRIERS

- ***High volume intersection–*** This intersection of an arterial and a collector is a key intersection in the school zone, as it is highly travelled by all modes of transportation, both school-related and non-school related, and can feel chaotic and challenging during school arrival and dismissal times.
- ***Low-visibility crosswalks in school zone –*** The crosswalks are painted with a standard, parallel line pattern, despite being located in a highly-travelled school zone.
- ***Long crossing distance –*** Long crossing distances in the intersection require pedestrians to be in the roadway for a longer time than necessary, increasing the risk of collisions, and push pedestrians further out of the range of vision of motorists.
- ***Bike lane obstruction –*** Motorists use the existing Class II bike lanes on California Boulevard as an informal right turn pocket, increasing risk of collisions.

RECOMMENDATIONS

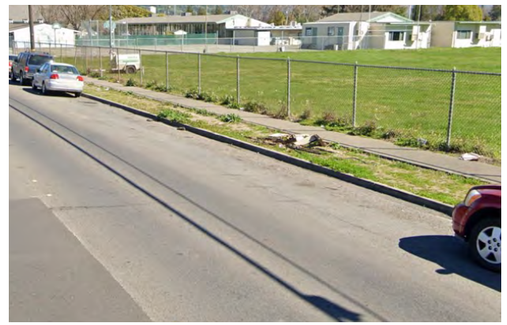
- ***Raised/protected intersection –*** Install a raised or protected intersection to improve motorist yielding behavior, improve visibility of bicyclists and pedestrians, and implement physical elements that require motorists to proceed with increased caution.
- ***High-visibility crosswalks –*** Upgrade crosswalks to be high-visibility school-zone patterns to increase pedestrian visibility and motorist yielding behavior.
- ***Bicycle facilities –*** Complete existing bike lanes to the intersection and add conflict markings approaching intersection to increase visibility of bicyclists.

RECOMMENDATIONS #NAI-207 AND NAI-089: PUEBLO AVE TRAFFIC-CALMING AND BIKE FACILITIES

Narrative – Pueblo Avenue (from California Boulevard to Jefferson Street), the collector that borders the school to the north, also provides access to a mobile home neighborhood, a multi-family residential neighborhood, the Vine Trail shared-use path, the Napa Valley Boys and Girls Club, and commercial destinations and residences to the east. These destinations and the school, in addition to the direct connectivity to other key collectors and arterials provided by the street, drive significant multimodal traffic to Pueblo Avenue. School staff reported that most students who arrive from north of the school enter campus through Pueblo Avenue; students using the Vine Trail shared-use path to travel to school must travel along Pueblo Avenue to reach these school entrances.

IDENTIFIED BARRIERS

- ***High speed/volume traffic –*** Pueblo Avenue (from California Boulevard to Jefferson Street) is a high-volume collector corridor and is long, straight, and has no traffic-calming and little traffic control, which facilitates frequent motorist speeding.
- ***Motorist speeding –*** Motorist speeding, which can be facilitated by wide, straight roads with little traffic-calming or traffic control, reduces motorists' range of vision and increases both risk of collisions and potential severity of collisions.
- ***Vehicles obstructing visibility -*** The lack of "no parking" red zones around the intersection allows motorists to park adjacent to the crosswalks and obstruct pedestrian visibility.



Pueblo Avenue has narrow sidewalks and no bicycle facilities.

- ***No bicycle facilities –*** The lack of bicycle facilities on the corridor fails to provide a dedicated space for bicyclists and indicate to motorists where to expect bicyclists, making the corridor appear unwelcoming to bicyclists.

RECOMMENDATIONS

- ***Traffic-calming and daylighting -*** Implement traffic-calming measures and daylighting strategies along corridor
- ***Class II bike lanes –*** Install Class II bike facilities per the adopted 2019 Bicycle Plan to provide a dedicated space for bicyclists.

RECOMMENDATION #NAI-091: CALIFORNIA BLVD PROTECTED BIKE LANES

Narrative – California Boulevard, a significant arterial that runs north-south from Trancas Street to Laurel Street, connects to several residential neighborhoods, commercial destinations, and other collector and arterial streets, some of which provide access to and from SR 29 near their intersections with California Boulevard. California Boulevard borders Valley Oak High School on the campus's west side and is a key route for students travelling to and from school, as it connects with both Myrtle Avenue and Pueblo Avenue, the streets the campus entrances are on. Students may also travel north on California Boulevard to reach the Vine Trail shared-use path. California Boulevard between Trancas Street and Lincoln Avenue, the section most relevant to the school site, is long, relatively straight, and wide, with no traffic-calming and little traffic control, all of which results in frequent motorist speeding.

IDENTIFIED BARRIERS

- ***High-stress bike facilities –*** The existing Class II bike lanes are stressful for students and/or beginner riders, due to the high speeds and volumes of vehicle traffic on California Boulevard and the lack of road user separation.

RECOMMENDATIONS

- ***Class IV protected bike lanes –*** Upgrade the existing Class II bike lanes from Trancas Street to Lincoln Avenue (reflecting school area, consider for corridor until 1st Street roundabout) to Class IV protected bike lanes, with parking-protected lanes between Pueblo Avenue and Industrial Way, to increase separation between road users.

North of Pueblo Avenue, bicyclists on California Boulevard must bike between parked cars and high-speed, high-volume traffic, in unprotected bike lanes.

RECOMMENDATION #NAI-103: PUEBLO AVENUE AND VINE TRAIL INTERSECTION

Narrative – The Vine Trail shared-use path entrance on Pueblo Avenue is the closest Vine Trail access point to the school campus. The Vine Trail, a Class I bicycle and pedestrian path that follows the Wine Train railroad tracks through the City of Napa, is considered the backbone of the active transportation network in Napa and provides the only separated bicycle route through the City. As the school's enrollment boundaries cover the entire City of Napa, there is high potential for students to travel to school on bike; as a result, safe access to the Vine Trail via Pueblo Avenue is a crucial part of current and future student bicyclists' route to school.

IDENTIFIED BARRIERS

- ***Faded low-visibility crosswalk –*** The existing crosswalk across Pueblo Avenue is faded and painted with a standard, parallel line pattern, despite being located in a highly-travelled school zone.

- ***Uncontrolled crosswalk –*** High-speed and high-volume traffic on Pueblo Avenue is uncontrolled, allowing motorists to drive through the crosswalk without slowing down and reducing motorist yielding behavior.

- ***Long crossing distance –*** The diagonal crosswalk increases crossing distance which pushes pedestrians and bicyclists further out of the range of vision of motorists and requires them to be in the roadway for a longer time than necessary, increasing the risk of collisions.

The Vine Trail approaching Pueblo Avenue.

RECOMMENDATIONS

- ***High-visibility crosswalk –*** Upgrade crosswalk to be high-visibility school-zone pattern to increase pedestrian visibility and motorist yielding behavior.

- ***Curb extensions –*** Install curb extensions on both corners to improve pedestrian visibility, slow motorists through the crosswalk, and prevent motorists from parking in or adjacent to the crosswalk. Will likely require creative design due to railroad tracks.

- ***Rectangular Rapid Flashing Beacons –*** Install Rectangular Rapid Flashing Beacons to improve pedestrian visibility and motorist yielding behavior at the crosswalk.

- ***Vine Trail alignment –*** Realign north side of Vine Trail to curve so crosswalk is perpendicular across Pueblo Avenue.

RECOMMENDATION #NAP-011 – BIKE SAFETY EDUCATION

Narrative – Bicycle safety education is a crucial component of increasing biking mode share and safety at a school site, as it teaches students rules of the road and safe biking behaviors, reminding students that bicyclists have the same rights and responsibilities as motorists. This understanding not only improves bicyclist safety, but also increases confidence and comfort for students. Common unsafe behaviors that are done unknowingly due to lack of education, such as riding against traffic or failing to stop at stop signs on a bike, are hazardous to students, as this behavior is unpredictable to motorists and can increase risk of collisions. While many of these behaviors can be addressed by improved infrastructure, such as clearly marked bicycle facilities, implementing annual education on bicyclist safety within the school system raises awareness of rules of the road and encourages safe behavior.

IDENTIFIED BARRIERS

- ***No bike safety education –*** The lack of regular bicycle safety education can result in unintentional unsafe student bicyclist behavior and a sense of discomfort riding a bike.

Teens Go Green, a program of Marin County SRTS, includes education for middle and high school students. Image credit: Marin County Safe Routes to School.

RECOMMENDATIONS

- ***Bike safety education –*** Provide annual bike safety education to all students to ensure that all students are familiar with rules of the road and best safety practices. This bike safety education can be integrated into existing Health or PE class curriculums.

RECOMMENDATION #NAP-013 – ENCOURAGEMENT EVENTS

Narrative – 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 encouragement programming can help raise awareness of and enthusiasm towards active transportation and complement infrastructure improvements.

IDENTIFIED BARRIERS

- ***Infrequent encouragement event participation –*** Infrequent participation in annual countywide encouragement events reduces the impact of these events on potential mode shift to active transportation.

- ***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.

Leadership students at American Canyon High School host a welcome table during Walk and Roll to School Day 2021.

RECOMMENDATIONS

- ***Annual countywide events –*** Participate regularly in annual countywide encouragement events, Bike to School Day and Walk and Roll to School Day, with the goal of increasing participation. These annual events provide students who may be considering walking or biking with an opportunity to try it out in a positive schoolwide setting.

- ***Student-led events –*** Engage student leadership groups to hold independent encouragement events quarterly, with goal of increasing frequency over time.

RECOMMENDATION #NAI-085: MYRTLE AVE BIKE BOULEVARD

IDENTIFIED BARRIERS

- ***No bicycle facilities –*** The lack of bicycle facilities on Myrtle Avenue, a key bike route to the school, fails to provide a dedicated space for bicyclists and indicate to motorists where to expect bicyclists.

RECOMMENDATIONS

- ***Class III bike boulevard –*** Install Class III bike boulevard with sharrows, signage, and traffic-calming measures.

Myrtle Avenue does not have bicycle facilities.

RECOMMENDATION #NAI-088: PUEBLO AVENUE SIDEWALKS

IDENTIFIED BARRIERS

- ***Narrow sidewalks –*** Narrow sidewalks on Pueblo Avenue from California Boulevard to Jefferson Street do not accommodate high volumes or groups of pedestrians around the school site, which discourages walking and can result in pedestrians walking in the street.

- ***Westbound sidewalk gap –*** There is a gap in the westbound Pueblo Avenue sidewalk from California Boulevard to 1667 Pueblo Avenue, forcing pedestrians to either walk in the road or cross the street in an unmarked location to reach the other existing sidewalk.

Narrow sidewalks on Pueblo Ave do not accommodate groups of pedestrians.

RECOMMENDATIONS

- ***Widen sidewalk –*** Widen the eastbound sidewalk to at least 6 feet to better accommodate high volumes or groups of pedestrians and prevent students from walking in the road.

- ***Fill sidewalk gap –*** Fill the westbound sidewalk gap to provide a cohesive pedestrian network.

RECOMMENDATION #NAI-092: CALIFORNIA BLVD EXISTING BIKE LANES

IDENTIFIED BARRIERS

- ***Bike lane narrows –*** The northbound bike lane near Lincoln Avenue narrows to substandard widths and dips near the storm drain, forcing bicyclists to ride near high-speed and -volume traffic and decreasing bicyclist comfort.

- ***Divot –*** A long divot in the southbound bike lane approaching Lincoln Avenue poses a tire-catching hazard next to high speeds and volumes of traffic.

RECOMMENDATIONS

- ***Northbound bike lane –*** Widen the northbound bike lane where widths are substandard and repave or otherwise address the dip in the pavement.

- ***Southbound bike lane –*** Repair southbound bike lane approaching Lincoln Avenue where divot in roadway poses tire-catching hazard.

The divot in the southbound bike lane is a fall hazard for bicyclists.

RECOMMENDATION #NAI-096: CAMPUS BIKE PARKING

IDENTIFIED BARRIERS

- ***Insufficient bike parking –*** Existing on-campus bike parking provides few bike parking spaces and is only located near one entrance; a perceived lack of secure bike parking in visible, convenient locations near school entrances may deter students from biking to school.

RECOMMENDATIONS

- ***Reposition existing rack –*** Reposition the existing bike rack to allow bike parking on both sides of the rack, as only one side is currently available.

- ***Expand bicycle parking –*** Provide bicycle parking at the Myrtle Avenue entrance to address needs of bicyclists arriving on Myrtle Avenue. Ensure all bike racks are securely installed.

Existing school bike parking is positioned so only half of the spaces are accessible.

RECOMMENDATION #NAI-097: CALIFORNIA BLVD AND PARK AVE INTERSECTION

IDENTIFIED BARRIERS

- ***Uncontrolled crosswalk –*** High-speed and high-volume traffic on California Boulevard is uncontrolled, allowing motorists to drive through the crosswalk without slowing down and reducing motorist yielding behavior and range of vision.

- ***Low-visibility crosswalk –*** The low-visibility pattern crosswalk across California Boulevard does not provide pedestrian visibility and motorist yielding behavior benefits that high-visibility patterns provide.

Motorist yielding behavior is poor at the California and Park intersection.

- ***Long crossing distance –*** Long crossing distance across California Boulevard requires pedestrians to be in the roadway for a longer time than necessary, increasing the risk of collisions, and pushes pedestrians further out of the range of vision of motorists.

RECOMMENDATIONS

- ***High-visibility crosswalks –*** Upgrade the California Boulevard crosswalk to be a high-visibility pattern to increase pedestrian visibility and motorist yielding behavior.

- ***Rectangular Rapid Flashing Beacons –*** Install Rectangular Rapid Flashing Beacons for the crosswalk across California Boulevard to increase pedestrian visibility and improve motorist yielding behavior.

- ***Pedestrian refuge island –*** Evaluate extending the median through the crosswalk to provide a pedestrian refuge island, allowing pedestrians to cross one direction of traffic at a time.

RECOMMENDATION #NAI-098: LINCOLN AVE AND CALIFORNIA BLVD INTERSECTION

The Lincoln Avenue and California Boulevard intersection facing north.

IDENTIFIED BARRIERS

- ***Busy intersection –*** This intersection of two arterials is highly travelled by all modes of transportation, both school-related and non-school related and provides connectivity to housing, key destinations like grocery stores, and SR 29, resulting in high risk of road user conflict.

- ***Long crossing distance –*** Long crossing distances across several lanes of traffic push pedestrians and bicyclists further out of the range of vision of motorists and require them to be in the roadway for a longer time than necessary, increasing the risk of collisions.

- ***Right-hook conflicts –*** This intersection of two arterials creates a high risk of right-hook conflicts between motorists and bicyclists, especially between southbound bicyclists and southbound motorists turning right to travel to the highway on-ramps.

RECOMMENDATIONS

- ***Leading Pedestrian Intervals –*** Install Leading Pedestrian Intervals for all crosswalks to provide pedestrians with a protected head-start through the intersection, improving driver awareness of pedestrians and reducing risk of turning conflicts.

- ***Limit lines –*** Install advanced limit lines on the east and west legs of the intersection to indicate to motorists to stop with some distance from the crosswalk, improving pedestrian visibility.

- ***Bicycle facilities –*** Complete existing bike lanes to the intersection and add conflict markings approaching intersection to increase visibility of bicyclists.

- ***High-visibility crosswalks –*** Upgrade crosswalks to be high-visibility patterns to increase pedestrian visibility and motorist yielding behavior.

- ***Additional study –*** Evaluate near-term improvements to the intersection that will prioritize bicyclist and pedestrian safety over vehicle convenience/speed pending Lincoln Avenue road diet recommendation.

RECOMMENDATION #NAI-101: MARIN STREET SIDEWALK GAPS

IDENTIFIED BARRIERS

- ***Sidewalk gaps –*** Sidewalk gaps along Marin Street (southbound: Lincoln Avenue to 2601 Marin Street; northbound: baseball field parking lot to Park Avenue) create gaps in the pedestrian network that force pedestrians to either walk in the road or cross the street in an unmarked location to reach the other existing sidewalk (if present). Large sections of missing sidewalks can prevent students from walking to school altogether.

Sidewalk gaps on Marin Street.

RECOMMENDATIONS

- ***Fill sidewalk gaps –*** Fill sidewalk gaps to provide a continuous pedestrian network and reduce unnecessary pedestrian road crossings.

RECOMMENDATION #NAI-102: PUEBLO AVE AND STADIUM AVE CURB EXTENSIONS

Uncontrolled traffic on Pueblo Avenue makes crossing difficult for pedestrians.

IDENTIFIED BARRIERS

- ***Lack of red zones –*** The lack of "no parking" red zones around the intersection allows motorists to park adjacent to the crosswalks and obstruct pedestrian visibility.
- ***Uncontrolled crosswalk –*** High-speed and high-volume traffic on Pueblo Avenue is uncontrolled, allowing motorists to drive through the crosswalk without slowing down and reducing motorist yielding behavior.
- ***Low-visibility crosswalk –*** The existing crosswalks are painted with a standard, parallel line pattern, despite being located in a highly-travelled school zone.
- ***Wide curb radii –*** Wide curb radii facilitate fast motorist turning motions through the intersection.

RECOMMENDATIONS

- ***High-visibility crosswalks –*** Upgrade crosswalks to be high-visibility school-zone patterns to increase pedestrian visibility and motorist yielding behavior.
- ***Curb extensions –*** Install curb extensions on all crosswalk curbs to prevent motorists form parking adjacent to the crosswalks, slow motorist traffic through the intersection, and improve motorist yielding behavior.

RECOMMENDATION #NAI-104: PUEBLO AVE AND JEFFERSON ST INTERSECTION

IDENTIFIED BARRIERS

- ***High volume intersection –*** This intersection of an arterial and a collector is a key intersection in the school area, as it is highly travelled by all modes of transportation, both school-related and non-school related, and can feel chaotic and challenging during school arrival and dismissal times.
- ***Low-visibility crosswalks –*** Faded, low-visibility pattern crosswalks do not provide pedestrian visibility and motorist yielding behavior benefits that high-visibility patterns provide.

The crosswalks at the Pueblo Ave and Jefferson St intersection are extremely faded.

- ***Long crossing distance –*** Long crossing distances in the intersection require pedestrians to be in the roadway for a longer time than necessary, increasing the risk of collisions, and push pedestrians further out of the range of vision of motorists.

RECOMMENDATIONS

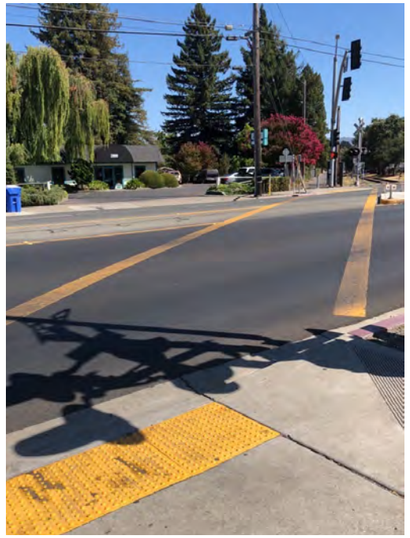
- ***High-visibility crosswalks –*** Upgrade the existing crosswalks to be a high-visibility pattern to increase pedestrian visibility and motorist yielding behavior.
- ***Leading Pedestrian Intervals –*** Install Leading Pedestrian Intervals for all crosswalks to provide pedestrians with a protected head-start through the intersection, improving driver awareness of pedestrians and reducing risk of turning conflicts.
- ***Curb extensions –*** Based on results of corridor study and potential for a road diet on Jefferson Street, consider installation of curb extensions at all four corners of intersection to reduce pedestrian crossing distance and improve motorist yielding behavior.

RECOMMENDATION #NAI-105: JEFFERSON ST AND VINE TRAIL INTERSECTION

IDENTIFIED BARRIERS

- ***Long signal adaptation time –*** The traffic signal at the Vine Trail crossing is currently coupled to the Jefferson and Pueblo signal, which prioritizes vehicle movement and creates an extremely long signal adaptation time for bicyclists and pedestrians.

- ***Long crossing distance –*** The long crossing distance across Jefferson Street requires pedestrians and bicyclists to be in the roadway for a longer time than necessary, increasing the risk of collisions, and pushes pedestrians further out of the range of vision of motorists.



The Vine Trail crosswalk across Jefferson Street has a long crossing distance.

RECOMMENDATIONS

- ***Decouple traffic signal –*** Decouple the Vine Trail traffic signal from the Jefferson Street and Pueblo Avenue signal to prioritize Vine Trail users and reduce waiting times.

- ***Shorten crossing distance –*** Shorten the crossing distance across Jefferson Street with the corridor study* and potential road diet on the Jefferson corridor.Consider Rectangular Rapid Flashing Beacons at G Street. Implement additional traffic-calming along the corridor to slow motorist speeding.

RECOMMENDATION #NAI-105: CALIFORNIA BLVD AND INDUSTRIAL WAY/VINE TRAIL INTERSECTION

IDENTIFIED BARRIERS

- ***Uncontrolled crosswalk –*** High-speed and high-volume traffic on California Boulevard is uncontrolled, allowing motorists to drive through the intersection without slowing down and reducing motorist yielding behavior and range of vision.

- ***Low-visibility crosswalk –*** The low-visibility pattern crosswalk across California Boulevard does not provide pedestrian visibility and motorist yielding behavior benefits that high-visibility patterns provide.

Long crossing distances and uncontrolled traffic on California Boulevard make the intersection challenging for bicyclists and pedestrians.

- ***Long crossing distance –*** Long crossing distances across California Boulevard and Industrial Way push pedestrians and bicyclists further out of the range of vision of motorists and require them to be in the roadway for a longer time than necessary, increasing the risk of collisions.

- ***Wide curb radii –*** Wide curb radii at Industrial Way facilitate fast motorist turning movements.

RECOMMENDATIONS

- ***Curb extensions –*** Install significant curb extensions for the Industrial Way crosswalk to reduce crossing distances, reduce curb radii, and improve pedestrian visibility.

- ***Crossing signal –*** Install Rectangular Rapid Flashing Beacons or a High-Intensity Activated crosswalk beacon for the California Boulevard crosswalk to improve pedestrian and bicyclist visibility and motorist yielding behavior.

- ***High-visibility crosswalk –*** Upgrade the existing California Boulevard crosswalk to be a high-visibility pattern to increase pedestrian visibility and motorist yielding behavior.

RECOMMENDATION #NAP-012: CIRCULATION POLICY

IDENTIFIED BARRIERS

- ***No formal circulation policy –*** The lack of a formal, written circulation policy can result in increased unpredictable road user behavior in the school zone during drop-off and pick-up.

RECOMMENDATIONS

- ***Circulation policy –*** Create a comprehensive circulation policy and prioritize outreach and education of this plan to families and students. A circulation policy specifies how motorists, pedestrians, and bicyclists should circulate through the school zone and can include policies for safe motorist behavior.

STUDENT PARKING/PARKING LOT BEHAVIOR:

Student Parking

There are 108 total parking spaces in the student lot on Park Avenue.

- ➔ 4 spaces are reserved for our Booster Club Fundraisers (Athletics, Band, Choir, Spirit Leaders)
- ➔ 2 spaces are reserved for Electric Vehicles
- ➔ 5 spaces are reserved for Handicapped parking

Students can park on the surrounding streets or in any space that is not marked green around the district office.

Parking in our campus parking lot is a privilege and comes with expectations for high levels of safety and appropriate use of the space. Students are permitted to park in the North lot with two entrances on Park Ave. The East parking lot is for staff and faculty only. Students who park cars in the staff and faculty lot may be ticketed.

Students may access their cars during the school day during the morning milk break and/or at lunch time IF they have an approved off-grounds pass, which is only available to 10th-12th grade students.

Loitering or playing loud music is not permitted in our parking lots. A student may lose the privilege of using our parking lot if these guidelines are not followed.

Staff & Visitor Parking

There are 133 total parking spaces in the staff lot on Jefferson Street.

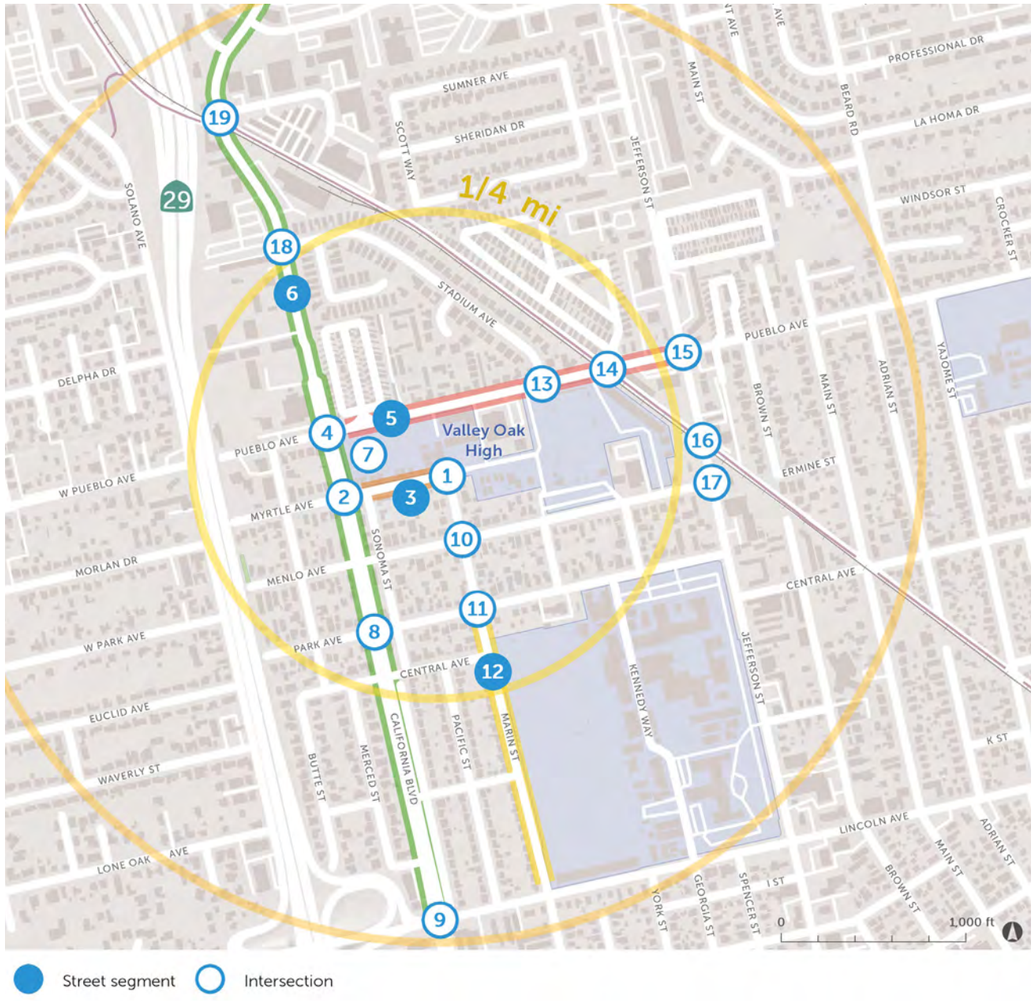
- ➔ 8 spaces are reserved for Handicapped parking
- ➔ 1 space is reserved for our school nurse
- ➔ 1 space is reserved for our school resource office
- ➔ Staff vehicles should have a staff placard or sticker
- ➔ Visitors can pick up a visitor parking pass in the main office.

Students who park in staff parking will receive a ticket and staff who park in the student lot will receive a ticket.

Student Drop Off & Pick Up: We ask that families follow the arrows in the parking lot and obey the signs for student drop off and pick up. If families want to pick up their student in the front lot, please do not block the flow of traffic.

The Napa High School parking and drop-off/pick-up policies outline behavioral expectations; Valley Oak's policy can be developed to focus on all modes of transportation.

MAP OF RECOMMENDATIONS



Map 5: Recommendations

TABLE OF RECOMMENDATIONS

Infrastructure:

	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
1	Myrtle Avenue and Marin Street intersection	NAI-082	Motorists park/drop-off students immediately adjacent to and in the crosswalk and obstruct visibility/access. Uncontrolled crosswalk reduces motorist yielding behavior. Location of crosswalk near parking lots increases vehicle volumes around crosswalk. Low-visibility crosswalk pattern in school zone. Poor sight lines for Marin traffic due to curve in road.	Install curb extensions on both corners, install Rectangular Rapid Flashing Beacons, upgrade crosswalk to high-visibility pattern, install ADA-compliant curb ramps.	$$	**High**
2	Myrtle Avenue and California Boulevard intersection	NAI-083	No crosswalks, high volumes/ speeds of traffic on California Blvd.	Install high-visibility crosswalks on east and north or south legs of intersection; install Rectangular Rapid Flashing Beacons across California.	$-$$	**High**
3	Myrtle Avenue from California Boulevard to Marin Street	NAI-084	Narrow sidewalks.	Widen westbound sidewalk.	$$	**Low**
		NAI-085	No bike facilities.	Install Class III bike boulevard with sharrows, signage, and traffic-calming measures.	$	**Medium**
		NAI-086	Lack of school zone signage, high traffic speeds.	Install school zone signage.	$	**Low**
		NAI-095	No student loading zone contributes to unpredictable/ unsafe motorist behavior in school zone during arrival/ dismissal times	Repurpose some of the bus loading zone on the westbound side near the school for a designated student loading zone if there is excess bus loading zone space.	$	**Low**
4	Pueblo Avenue and California Boulevard intersection	NAI-087	High volume intersection, low-visibility pattern crosswalks in school zone, long crossing distances, motorists use bike lane as right turn pocket. See collision history.	Install raised intersection or protected intersection with high-visibility crosswalks on all legs of the intersection, bring bicycle facilities all the way up to the intersection and paint green conflict markings.	$$-$$$	**High**
5	Pueblo Avenue from California Boulevard to Jefferson Street	NAI-207	High speeds and volumes of traffic, speeding, vehicles park close to intersections and obstruct visibility of pedestrians and oncoming traffic. See collision history.	Implement traffic-calming measures and daylighting strategies along corridor.	$$	**High**
		NAI-088	Narrow sidewalks from California Boulevard to Jefferson Street and sidewalk gap on north side (California Boulevard to 1667 Pueblo Avenue).	Widen eastbound sidewalk to 6' and fill sidewalk gap* on westbound side (California Blvd to 1667 Pueblo Ave).	$$	**Medium**
		NAI-089	No bike facilities.	Install Class II bike facilities from California Boulevard to Jefferson Street – reflects school boundaries, consider for whole corridor (California Boulevard to Soscol Avenue).*	$	**High**
		NAI-090	Lack of school zone signage in school zone (from California Boulevard to Stadium Avenue).	Install school zone signage.	$	**Low**
6	California Boulevard from Lincoln Avenue to Trancas Street	NAI-091	High-stress bicycle facilities – unprotected facilities adjacent to high volumes of traffic on roadway that facilitates speeding.	Upgrade existing Class II bike lanes to Class IV protected bike lanes, with parking-protected lanes between Pueblo Avenue and Industrial Way.	$$	**High**
		NAI-092	Northbound bike lane narrows and dips near Lincoln Ave; long divot in southbound bike lane approaching Lincoln Ave poses tire-catching hazard next to high speeds and volumes of traffic.	Widen the northbound bike lane where widths are substandard and repave or otherwise address the dip in the pavement. Repair southbound bike lane approaching Lincoln Avenue where divot in roadway poses tire-catching hazard.	$	**Medium**
		NAI-093	Narrow sidewalks between Pueblo Avenue and Lincoln Avenue.	Widen sidewalks on both sides between Pueblo Avenue and Lincoln Avenue.	$$	**Low**
		NAI-094	Lack of school zone signage between Pueblo Avenue and Menlo Avenue.	Install school zone signage between Pueblo Avenue and Menlo Avenue.	$	**Low**
7	School campus	NAI-096	Existing bike parking provides few spaces, only located near one entrance.	Reposition existing bicycle parking to increase parking capacity; Expand bicycle parking to Myrtle Avenue entrance; secure all bike racks to surfaces.	$	**Medium**
8	California Boulevard and Park Avenue intersection	NAI-097	Poor motorist yielding behavior, low-visibility crosswalk, long crossing distance, uncontrolled traffic at high speeds reduces motorist field of vision.	Upgrade existing crosswalk to high-visibility pattern, install Rectangular Rapid Flashing Beacons, evaluate extending median through crosswalk to provide pedestrian refuge island.	$-$$	**Medium**

	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
9	Lincoln Avenue and California Boulevard intersection	NAI-098	High traffic volume/speed intersection right next to highway entrance; long crossing distances require crossing several lanes of traffic.	Upgrade crosswalk to high-visibility school zone pattern. Install curb extensions on both sides of existing crosswalk across Yount St to reduce crossing distance, improve pedestrian visibility (would likely address vegetation in visibility triangle at southwest corner), calm Yajome traffic, and prevent vehicles from parking close to crosswalk. Evaluate potential for Yajome crosswalk on north side of intersection.	$$	**Medium**
10	Marin Street and Menlo Avenue intersection	NAI-099	Faded crosswalks; northeast, southeast, and southwest corners do not have curb ramps.	Repaint crosswalks; install ADA-compliant curb ramps on non-compliant corners.	$	**Low**
11	Marin Street and Park Avenue intersection	NAI-100	Faded crosswalks across Park Avenue and Marin Street on north side, missing crosswalk across Marin Street on south side; no ADA-compliant curb ramps.	Repaint faded crosswalks, paint missing crosswalk across Marin Street; install ADA-compliant curb ramps.	$	**Low**
12	Marin Street from Lincoln Avenue to Park Avenue	NAI-101	Sidewalk gaps	Upgrade bike facilities to full Class III bike boulevard treatment with traffic-calming. Consider additional red curbs around intersections and major driveways given high volume of on-street parking and auto movement associated with auto repair businesses.	$	**Medium**
13	Pueblo Avenue and Stadium Avenue intersection	NAI-102	Motorists park adjacent to crosswalks and obstruct pedestrian visibility, high-speed/high-volume Pueblo traffic is uncontrolled reducing motorist yielding behavior, low-visibility crosswalk in school zone, wide curb radii facilitate fast motorist turning movements.	Upgrade crosswalks to high-visibility pattern, install curb extensions on northeast and northwest corners and south side of Pueblo Avenue.	$$	**Medium**
14	Pueblo Avenue and Vine Trail entrance intersection	NAI-103	Faded low-visibility pattern crosswalk in school zone, high-speed/high-volume Pueblo traffic is uncontrolled reducing motorist yielding behavior at high pedestrian/ bicyclist volume crosswalk, diagonal crosswalk increases crossing distance.	Realign north side of Vine Trail to curve so crosswalk is perpendicular across Pueblo. Paint high-visibility crosswalk pattern. Install curb extensions and Rectangular Rapid Flashing Beacons.	$$-$$$	**High**

	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
15	Pueblo Avenue and Jefferson Street intersection	NAI-104	High volume intersection of collector and arterial roads, faded low-visibility pattern crosswalks, long crossing distances. See collision history.	Repaint crosswalks with high-visibility pattern; install Leading Pedestrian Intervals for all crosswalks to reduce turning conflicts. Based on results of corridor study* and potential for road diet (Jefferson), consider installation of curb extensions at all four corners of intersection.	$-$$	**Medium**
16	Vine Trail crossing at Jefferson Street	NAI-105	Long signal adaptation time at Vine Trail crossing, long crossing distance.	Decouple traffic signal from Jefferson Street and Pueblo Avenue signal to prioritize Vine Trail crossing; shorten crossing distance with corridor study* and potential road diet on Jefferson corridor.	$-$$	**Medium**
17	Jefferson Street and Menlo Avenue intersection	NAI-106	No crosswalk across Menlo Avenue.	Paint crosswalk across Menlo Avenue.	$	**Low**
18	California Boulevard and Stadium Avenue intersection	NAI-107	No crosswalk across Stadium Avenue; long crossing distance, wide curb radii facilitate fast motorist turning movements, motorists park close to intersection and obstruct pedestrian visibility.	Paint crosswalk across Stadium Avenue; install curb extensions on both corners.	$$	**Low**
19	California Boulevard and Industrial Way/ Vine Trail entrance intersection	NAI-108	High speed and volume intersection, California Blvd traffic is uncontrolled which reduces yielding behavior, low-visibility crosswalks, wide curb radii facilitate fast motorist turning movements, long crossing distances (especially across Industrial Way) place pedestrians and bicyclists out of motorists' range of vision.	Install significant curb extensions for Industrial Way crosswalk; install Rectangular Rapid Flashing Beacons or potentially High-Intensity Activated crosswalk beacon and paint high-visibility crosswalk for California Boulevard crosswalk.	$$	**Medium**

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

Programmatic Improvements:

	ISSUE	ID #	RECOMMENDATION	LOCATION	FREQUENCY	COST	PRIORITY
1	No bike safety education provided to students	NAP-011	Provide bike safety education in Health/PE curriculums.	School site	Annually	$	**High**
2	No designated student loading zone/circulation plan causing disorderly drop-off pick-up periods	NAP-012	Develop a circulation plan/ policy and distribute to parents and students.	School site	Annually or as-needed	$	**Medium**
3	Infrequent participation in annual countywide encouragement events; vehicle-oriented transportation culture in high schools	NAP-013	Grow participation in annual countywide encouragement events. Engage student leadership groups to hold quarterly encouragement events, with goal of increasing frequency over time.	School site	Annually for countywide events; quarterly for school-specific events	$	**High**

COLLISION MAP AND DATA

Map 6: Collision Map (2016-2020) (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	2	2	2	2	4
.25-.5 mi.	0	1	5	9	6	9	15
Total	0	1	7	11	8	11	19

Collision List

Case ID	Date	Time	Primary	Secondary	Distance	Direction	Bike	Ped
8049107	2016-05-12	12:35	LINCOLN AV	CALIFORNIA BL	150.00	W	Yes	No
8094244	2016-07-13	07:20	CALIFORNIA BL	INDUSTRIAL WY	145.00	S	No	Yes
8121024	2016-08-31	08:54	LINCOLN AV	RT 29	0.00	-	No	Yes
8121132	2016-09-08	19:29	PUEBLO AV	PUEBLO AV 1700	0.00	-	Yes	No
7181855	2016-01-14	15:06	CALIFORNIA BL	PUEBLO AV	0.00	-	No	Yes
8030876	2016-04-24	16:02	JEFFERSON ST	PUEBLO AV	0.00	-	No	Yes
8103868	2016-08-30	16:15	CALIFORNIA BL	MENLO AV	0.00	-	Yes	No
8185858	2016-11-07	16:16	JEFFERSON ST	PUEBLO AV	0.00	-	Yes	No
8172163	2016-11-04	17:29	LINCOLN AV	MARIN ST	0.00	-	No	Yes
8544986	2018-01-19	12:43	CALIFORNIA BL	INDUSTRIAL WY	0.00	-	Yes	No
8654654	2018-06-19	10:06	KENNEDY WY	LINCOLN AV	0.00	-	Yes	No

Collision List (continued)

8675344	2018-08-01	15:19	JEFFERSON ST	GEORGE ST	0.00	-	Yes	No
8689526	2018-08-19	12:57	CALIFORNIA BL	LINCOLN AV	0.00	-	Yes	No
8712401	2018-09-19	07:44	CENTRAL AV	JEFFERSON ST	0.00	-	No	Yes
8490099	2017-08-31	18:44	PUEBLO AV	JEFFERSON ST	10.00	W	Yes	No
8537145	2018-01-05	15:08	PUEBLO AV	JEFFERSON ST	300.00	W	Yes	No
8622318	2018-04-05	16:35	PUEBLO AV	CALIFORNIA BL	0.00	E	No	Yes
8680107	2018-07-24	13:11	COOPER CT	PUEBLO AV	164.00	N	No	Yes
8703316	2018-08-20	15:24	JEFFERSON ST	PUEBLO AV	120.00	N	Yes	No

Figure 6: Collision Data (2016-2020) (Source: UC Berkeley Transportation Injury Mapping System: SRTS Collision Map Viewer)

APPENDICES

FIGURES & MAPS

FOOTNOTES

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

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

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

[d] David Ragland, S Pande, J 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.

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

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

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

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

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

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

APPENDIX A

EMC Survey Toplines

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

Evaluation: Research & Methodology

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

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

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

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

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

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

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

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

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

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

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

3. On most days, what was the primary way your **(**K-8 child**/**oldest K-8 child**)** travelled **to** school?

Family vehicle (only children in your family)	73
Carpool (children from other families)	3
School bus	3
Other public transportation	0
Bike	4
Walk	16
Other (scooter, skateboard, inline skates, etc.)	0
(No response)	0

4. And on most days, what was the primary way your **(**K-8 child**/**oldest K-8 child**)** travelled **from** school?

Family vehicle (only children in your family)	73
Carpool (children from other families)	3
School bus	3
Other public transportation	1
Bike	4
Walk	15
Other (scooter, skateboard, inline skates, etc.)	0
(No response)	0

5. How long did it normally take your **(**K-8 child**/**oldest K-8 child**)** to get to/from school?

Less than 5 minutes	18
5-10 minutes	42
11-15 minutes	22
16-20 minutes	8
More than 20 minutes	9
(No response)	0

6. Has your **(**K-8 child**/**oldest K-8 child**)** ever walked or biked to/from school?

Yes	43
No	56
(No response)	0

7. **(ONLY ASKED IF Q6=1, 'Yes, has walked/biked to/from school')** In what grade did your child begin to walk or bike to/from school? **(n=199)**

Pre-school	7
Kindergarten	30
1st grade	9
2nd grade	6
3rd grade	10
4th grade	8
5th grade	9
6th grade	13
7th grade	6
8th grade	1
9th through 12th grade	1
(No response)	2

8. Thinking generally, what grade would you feel comfortable with a child walking or biking to/from school?

Pre-school	1
Kindergarten	5
1st grade	2
2nd grade	2
3rd grade	5
4th grade	14
5th grade	12
6th grade	16
7th grade	10
8th grade	7
9th through 12th grade	13
I would not feel comfortable at any grade	14
(No response)	1

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

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

14. **(ONLY ASKED IF Q10=3 OR 4, 'not comfortable')** What would you say is the **main** reason you were not comfortable with your **(**K-8 child**/**oldest K-8 child**)** **walking** to school without an adult?
(VERBATIM RESPONSES CODED INTO BELOW CATEGORIES) (n=335)

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

15. **(ONLY ASKED IF Q11=3 OR 4, 'not comfortable')** What would you say is the **main** reason you were not comfortable with your **(**K-8 child**/**oldest K-8 child**)** **riding a bike** to school without an adult?
(VERBATIM RESPONSES CODED INTO BELOW CATEGORIES) (n=324)

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

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

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

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

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

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

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

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

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

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

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

Yes	79
No	21
(No response)	-

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

Yes	78
No	21
(No response)	0

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

47. Do you identify as…

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

48. What year were you born? **(YEARS CODED INTO CATEGORIES)**

18-29 (2003-1992)	5
30-39 (1982-1991)	36
40-49 (1972-1981)	45
50-64 (1957-1971)	12
65 or older (1956 or earlier)	1
Prefer not to respond	1

49. Do you consider yourself to be…

Hispanic or Latino	38
White or Caucasian	41
African American or Black	1
Asian or Pacific Islander	7
Something else	3
Prefer not to respond	10

50. Do you…

Own or are buying the home or apartment where you live	55
Rent or lease	35
Prefer not to respond	10

THANK YOU!

APPENDIX B

Universal Recommendations

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

Appendix B
Napa County SRTS Walk Audit Report
Universal Recommendations

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

Universal Recommendation 1: High-Visibility School Zone Crosswalks

Federal Highway Administration data[1] indicates that high-visibility crosswalk striping improves the visibility of crosswalks compared to standard parallel lines and can improve yielding behavior by drivers[2]. Additionally, crosswalk visibility enhancements, which include but are not limited to high-visibility crosswalks, can reduce crashes by 23-48%[1].

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

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

Universal Recommendation 2: Intersection Daylighting

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

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

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

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

Universal Recommendation 3: Sidewalk Width Adjacent to School Campus

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

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

Universal Recommendation 4: Class III Bike Boulevard Traffic-Calming

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

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

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

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

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

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

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

APPENDIX C

Quick Build Brochure

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

QUICK-BUILD BIKEWAY NETWORKS FOR SAFER STREETS

Delivering Safer Streets in Weeks or Months, Instead of Years

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

Photo credit: Alta Planning + Design

CASE STUDY

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

WHY QUICK-BUILD? WHY NOW?

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

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

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

> *"We as transportation experts need to be thinking strategically about whether or not we need to spend three years talking about doing something important, or three weeks to just try something."*
>
> — Warren Logan
>
> *Transportation Policy Director of Mobility and Interagency Relations at Oakland Mayor's Office*

WHAT IS QUICK-BUILD?

The Basics

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

Materials

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

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

CASE STUDY

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

Photo credit: Bike SLO County

WHO?

Your Quick-Build Project Team

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

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

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

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

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

Community Engagement

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

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

CASE STUDY

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

Photo credit: Holly Raines

WHERE?

Which Projects are Best for Quick-Build?

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

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

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

Photo credit: Alta Planning + Design

Funding for Quick-Build

POTENTIAL FUNDING SOURCES IN CALIFORNIA

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

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

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

CALIFORNIA BICYCLE COALITION

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

Acknowledgments

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

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

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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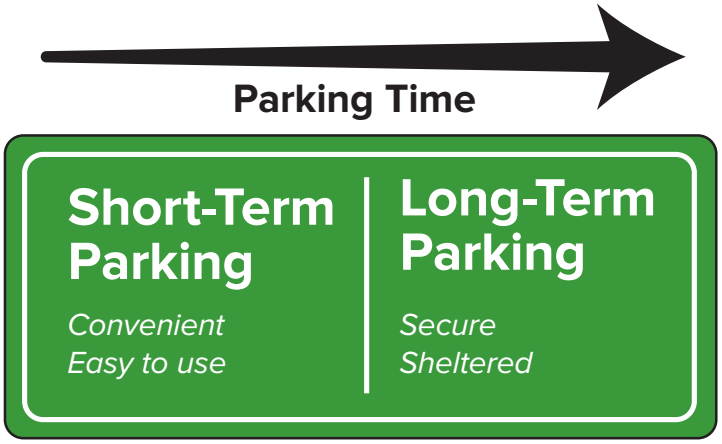
TABLE OF CONTENTS

INTRODUCTION

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

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

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



SHORT-TERM PARKING

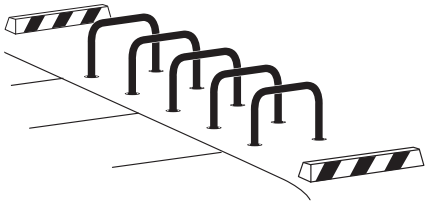
Effective bike parking for short-term users depends on two main factors: 1) proximity to the destination and 2) ease of use.

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

INVERTED U

POST & RING

CORRAL



SITE PLANNING

Location

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

Security

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

Quantity

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

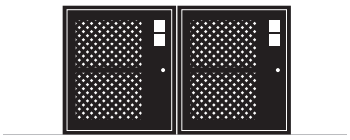
BIKE CORRALS

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

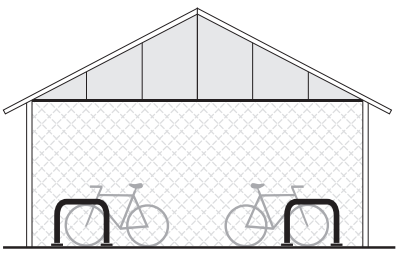
LONG-TERM PARKING

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**

INSTALLATION

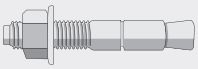
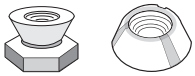
Selecting an appropriate installation surface and technique is key to creating bicycle parking that remains secure and attractive over time.

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**

INSTALLATION FASTENERS

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

FASTENERS		
CONCRETE SPIKE		Installs quickly in concrete with a hammer. Tamper-resistant. Removal may damage concrete and/or rack.
CONCRETE WEDGE ANCHOR		Allows for rack removal as needed. Not tamper-resistant, but can accommodate security nuts (below).
SECURITY NUTS		Use with concrete wedge anchors. Security nuts prevent removal with common hand tools.

INSTALLATION TECHNIQUES

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

BICYCLE RACK SELECTION

PERFORMANCE CRITERIA FOR BIKE PARKING RACKS

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

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

RACK STYLES

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

RACKS FOR ALL APPLICATIONS

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

INVERTED U
also called staple, loop

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

POST & RING

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

WHEELWELL-SECURE

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

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

HIGH-DENSITY RACKS

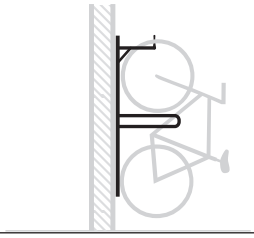
These rack styles do not meet all performance criteria but may be appropriate in certain constrained situations.

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

STAGGERED WHEELWELL-SECURE

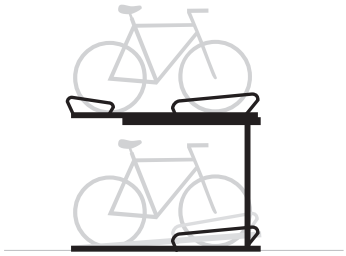
Variation of the wheelwell-secure rack designed to stagger handlebars vertically or horizontally to increase parking density. Reduces usability and limits kinds of bikes accommodated, but contains bikes well and aids in fitting more parking in constrained spaces.

VERTICAL



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

TWO-TIER



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

RACKS TO AVOID

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

WAVE
also called undulating or serpentine

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

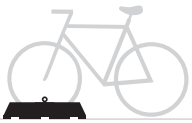
SCHOOLYARD
also called comb, grid

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

COATHANGER

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

WHEELWELL



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

BOLLARD

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

SPIRAL

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

SWING ARM SECURED

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

RACK MATERIALS & COATINGS

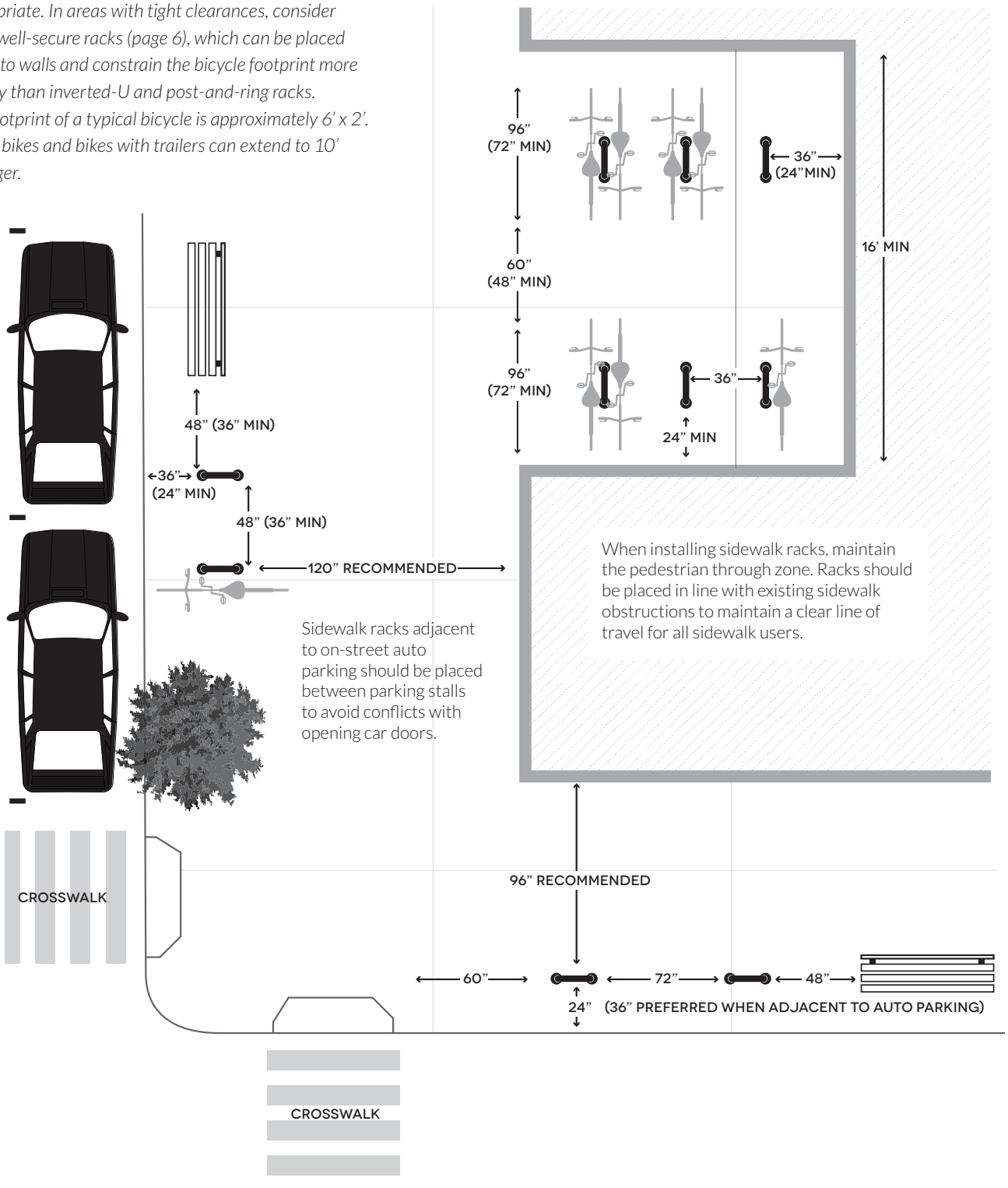
Most bicycle parking racks are made of carbon steel or stainless steel. Carbon steel requires a surface coating to resist rust while appropriate grades of stainless steel need no coating. Not all materials and coatings with the same name perform equally. Square tubing provides a security advantage as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

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

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

PLACEMENT

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



APPENDIX E

Recommendation
Cost Range Estimates

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

Appendix E: Recommendation Cost Range Estimates

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

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

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

APPENDIX F

Next Steps

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

From Recommendations to Action: Next Steps

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

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

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

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

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

    - Action Steps:
        - Conduct up to nine bilingual Family Biking Workshops
        - Conduct up to six community events and rides

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