Walk Audit Report

SafeRoutes
Napa County

BEL AIRE PARK
MAGNET SCHOOL

BEL AIRE PARK MAGNET SCHOOL

3580 BECKWORTH STREET NAPA, CA

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

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.

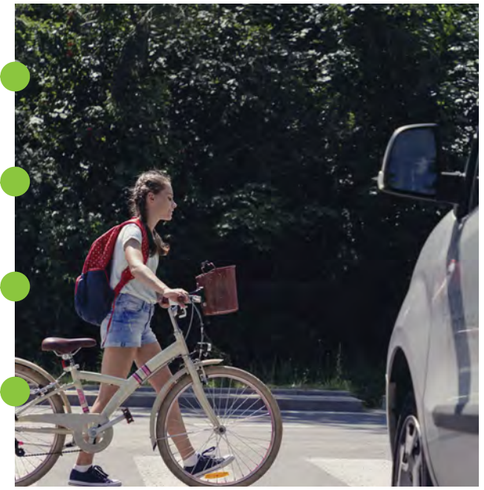
Schools and the community benefit immensely when students choose to walk or bike.

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.

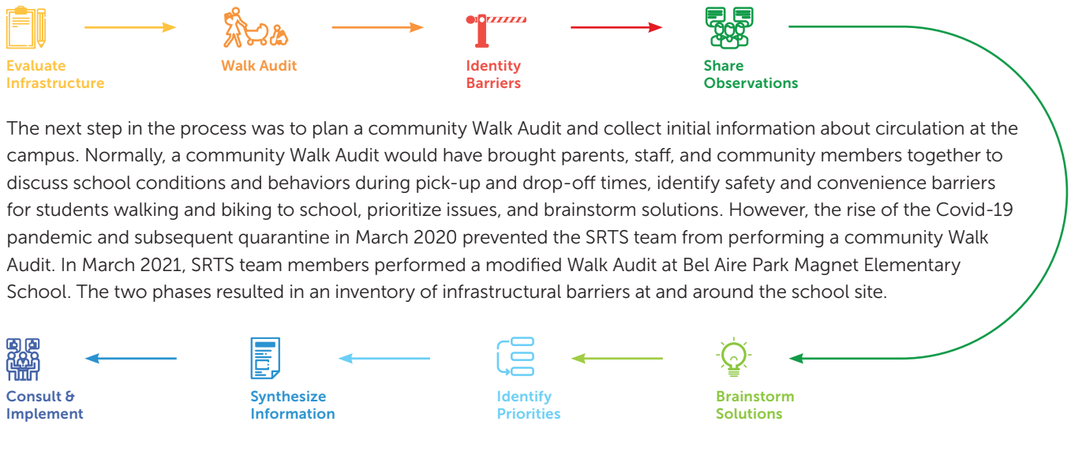
Education
Ensure that everyone learns how to travel safely and why biking and walking are important.

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 Bel Aire Park Magnet Elementary School, starting in the summer of 2018. Information on physical and behavioral challenges was collected in two phases. In August 2018, the SRTS team completed an initial infrastructure audit of the school site and the surrounding neighborhood within a half-mile of the school. SRTS team members walked and rode bicycles throughout the school neighborhood, taking photographs of barriers and logging them into Fulcrum, a GPS-enabled data collection smartphone app.



The next step in the process was to plan a community Walk Audit and collect initial information about circulation at the campus. Normally, a community Walk Audit would have brought parents, staff, and community members together to discuss school conditions and behaviors during pick-up and drop-off times, identify safety and convenience barriers for students walking and biking to school, prioritize issues, and brainstorm solutions. However, the rise of the Covid-19 pandemic and subsequent quarantine in March 2020 prevented the SRTS team from performing a community Walk Audit. In March 2021, SRTS team members performed a modified Walk Audit at Bel Aire Park Magnet Elementary School. The two phases resulted in an inventory of infrastructural barriers at and around the school site.

A report draft was shared with the Napa Valley Transportation Authority, the Napa County Office of Education, public works and planning representatives from the City of Napa, the local school district, law enforcement, 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.

BELL AIRE PARK MAGNET SCHOOL
SCHOOL SUMMARY

Principal	Janine Burt
First Bell	8:00 AM
Last Bell	2:25 PM (12:30 PM on Wed.)
District	Napa Valley Unified

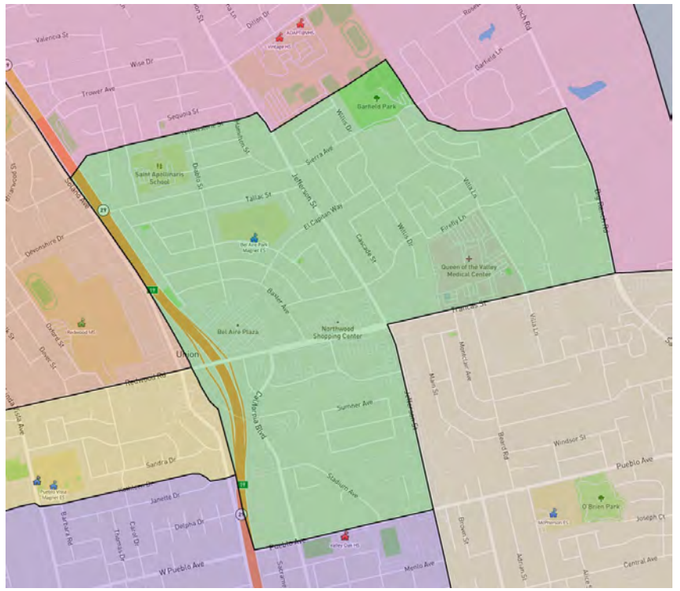
Grades	K-5
Enrollment	412
Street	3580 Beckworth Street
City	Napa, CA 94558

Overall Facility Rating[j]: Good

While NVUSD has an open enrollment policy, Bel Aire's default enrollment area covers a residential and commercial area in northcentral and northeast Napa, east of Solano Avenue. The area covers both north and south of Trancas Street, between Pueblo Avenue to the south and Yellowstone Street to the north. South of Trancas Street the area's east border is Jefferson Street. East of Jefferson, the area is penned by Trancas Street, Big Ranch Road, and Vintage High School.

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

According to the most recent data (2020-21 school year), 47.5% of students attending Bel Aire Elementary reside outside of the school's enrollment boundary.



Map 1: Enrollment boundary for Bel Aire Park Magnet Elementary School shaded in green.

DATA

No data is currently available regarding the number of students who walk and bike to school at Bel Aire Elementary. Additional work is needed to establish a baseline of active transportation use for this school.

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

Total Enrollment by Group (2019-20)

ETHNICITY	BEL AIRE PARK MAGNET SCHOOL	DISTRICT
Asian	1.0%	2.4%
Filipino	0.2%	6.9%
Hispanic or Latino	67%	55.6%
White	30.1%	28.4%
Two or More Races	1.7%	4.0%
EXPERIENCE		
Socioeconomically Disadvantaged	964.1%	51.2%
English Learners	37.4%	20.5%
Students with Disabilities	9.2%	12.5%
Foster Youth	0.5%	0.4%
Homeless	0.7%	1.1%

Figure 2: Enrollment Data by Group

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

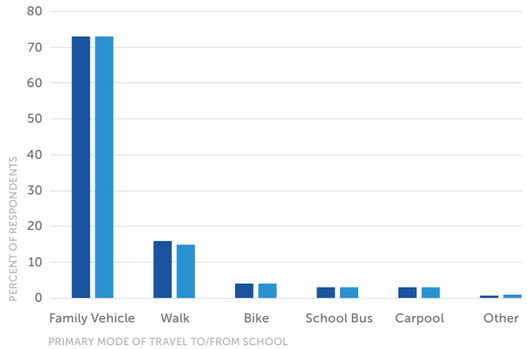


Figure 1: EMC Research Polling Results

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

Student Enrollment by Grade Level (2019-2020)

	NUMBER OF STUDENTS
Kindergarten	94
Grade 1	72
Grade 2	69
Grade 3	52
Grade 4	64
Grade 5	61
Total	**412**

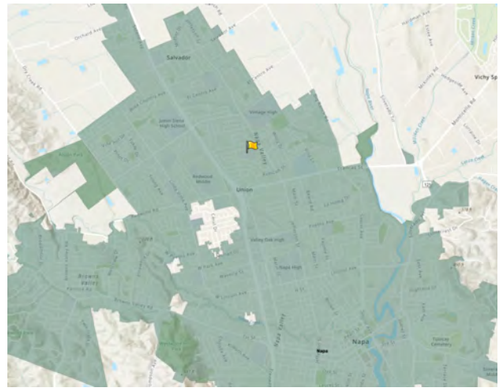
Figure 3: Enrollment Data by Grade

NEIGHBORHOOD CONTEXT

Bel Aire Park Elementary is located in a single-family residential neighborhood in northeast Napa on Beckworth Drive. Northwest of the school is St. Apollinaris Catholic Church and School, and northeast of the school is Vintage High School. Three blocks to the south are the Bel Aire Plaza, a commercial development with many retail stores and restaurants.

The school is bordered by Beckworth Drive to the south, Tallac Street to the north, Diablo Street to the west, and El Capitan Way to the southeast. The neighborhood surrounding the school is a single-family tract subdivision built in the 1950s and 1960s. The street pattern is mostly fragmented and warped parallel patterns, with some loops and lollipops. Fragmented and warped parallel patterns provide through access, but can reduce pedestrian interconnectivity and route choice by creating longer block sizes. Two blocks north of the school, some streets lack sidewalks, which places pedestrians on the streets with cars.

Most of the roads around the school are residential streets. Jefferson Street, which borders the school block on the east side, is a critical arterial that runs north-south through almost the entire City on the east side of Highway 29. Trancas Street south of the school is a key east-west arterial providing access to Highway 29, other collectors and arterials, and several commercial destinations. To the north, the Sierra Avenue collector runs east-west and connects with Highway 29 and Jefferson Street.



Map 2: Bel Aire Park Elementary School (marked by a yellow flag) is located in northeast Napa.

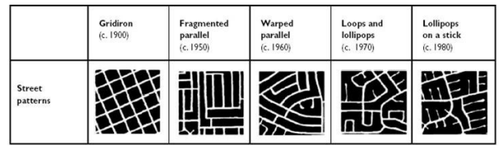
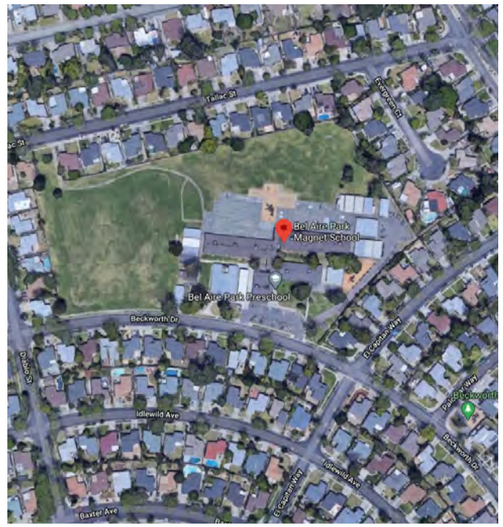


Figure 4: Street Patterns (Source: Southworth, 1997)



Bel Aire Park Elementary School is located in a residential neighborhood.

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

Bel Aire Park Magnet Elementary School is accessible primarily from Beckworth Drive, where there are multiple pedestrian access points to campus, with one additional access point on Tallac Street that leads to campus via an informal path across the school field.

Bel Aire Park Elementary School's official loading zone is in front of the school on Beckworth Drive. The loading zone is a yellow curb on the westbound sidewalk that runs along the outside of the staff parking lot, and is marked by "3-minute passenger loading" signage. Motorists may also use unpainted curb space west of the loading zone. The other side of the street is residential and the on-street parking there is interspersed between driveways. Just west of the student loading zone is the bus loading zone, which is also marked by yellow curbs and signage.

There is a small pull-through parking lot between the loading zone and the school's main office, but parents are discouraged from using it as a loading zone given its size and the minimal parking available for staff. Both it and another lot that is accessible from the same entrance are reserved for staff. Signage is posted at the front of the parking lot entrance to inform parents not to enter the parking lot.

There is also a pedestrian/bicyclist access point on Tallac Street on the northwest edge of campus that leads to the side of the school's back blacktop area. This entrance provides access to a footpath that runs along the back of the school's field. As this entrance is located in a residential area, there is no formal circulation zone or rules for it.

One of the Beckworth Drive entrances.

The loading zone is marked by paint and signage.

The Tallac Street footpath (left) and entrance (right).

The school provides on its website the following instruction about circulation:

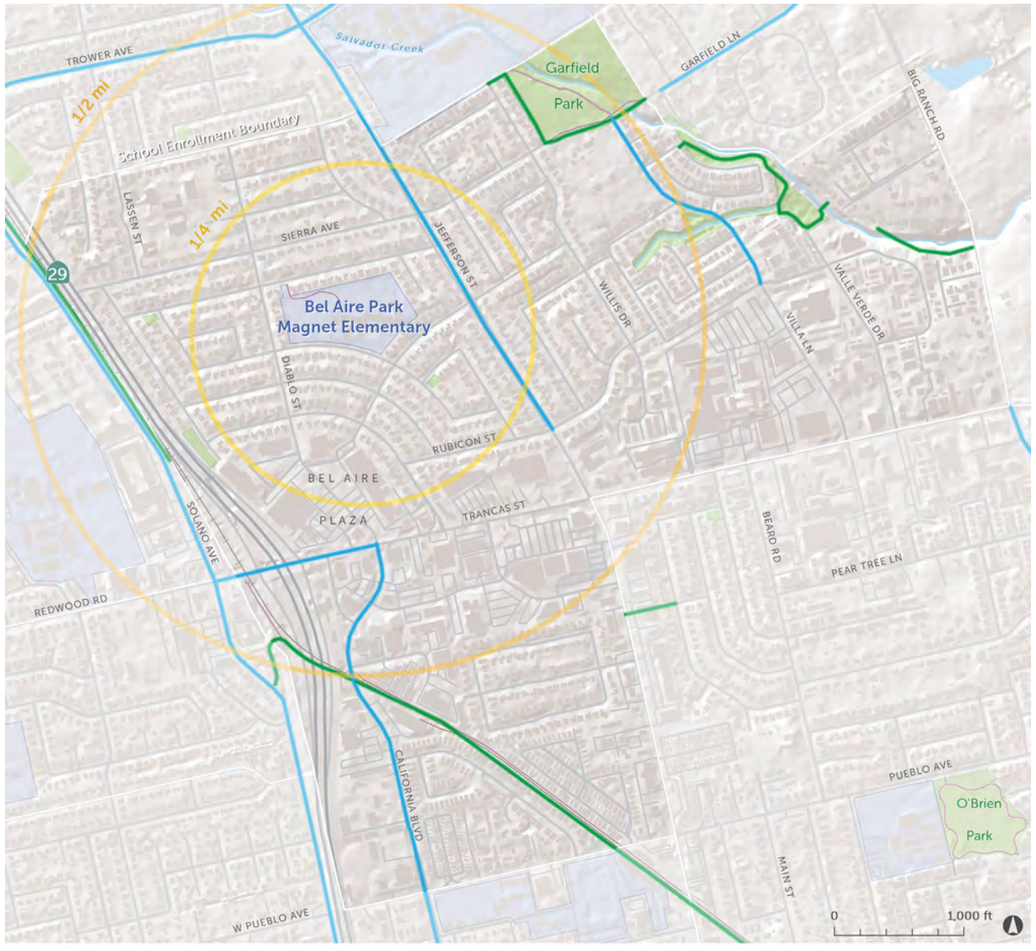
> "We have very limited parking space so the parking lots are for staff only. When dropping off in the morning, cars should proceed east to west on Beckworth Dr. and drop students at the white curb in front of the staff parking area. Important Safety Reminder: Please do not pull through the parking lot to drop off students. Please never leave your car un-attended at the white curb or in the bus loading zone.
>
> If you choose to walk your child to the classroom please find parking on the street beyond the loading zones.
>
> The procedure is the same for pick up. A teacher supervises the students at the front curb. As a school we are working on being Caring and Principled. Please remember to set a good example for your children by following safety rules and treating others with respect and courtesy."

Limited bus service is available through NVUSD for Bel Aire Elementary students to the Boys and Girls Club. Students who live beyond 1.25 miles walking distance and attend their school of residence may apply for transportation through NVUSD. The Vine transit N line, operated by the Napa Valley Transportation Authority, provides service in north/central Napa, mostly along Trancas Street and its stop at Claremont Way is the closest stop to the school

BICYCLE AND PEDESTRIAN INFRASTRUCTURE

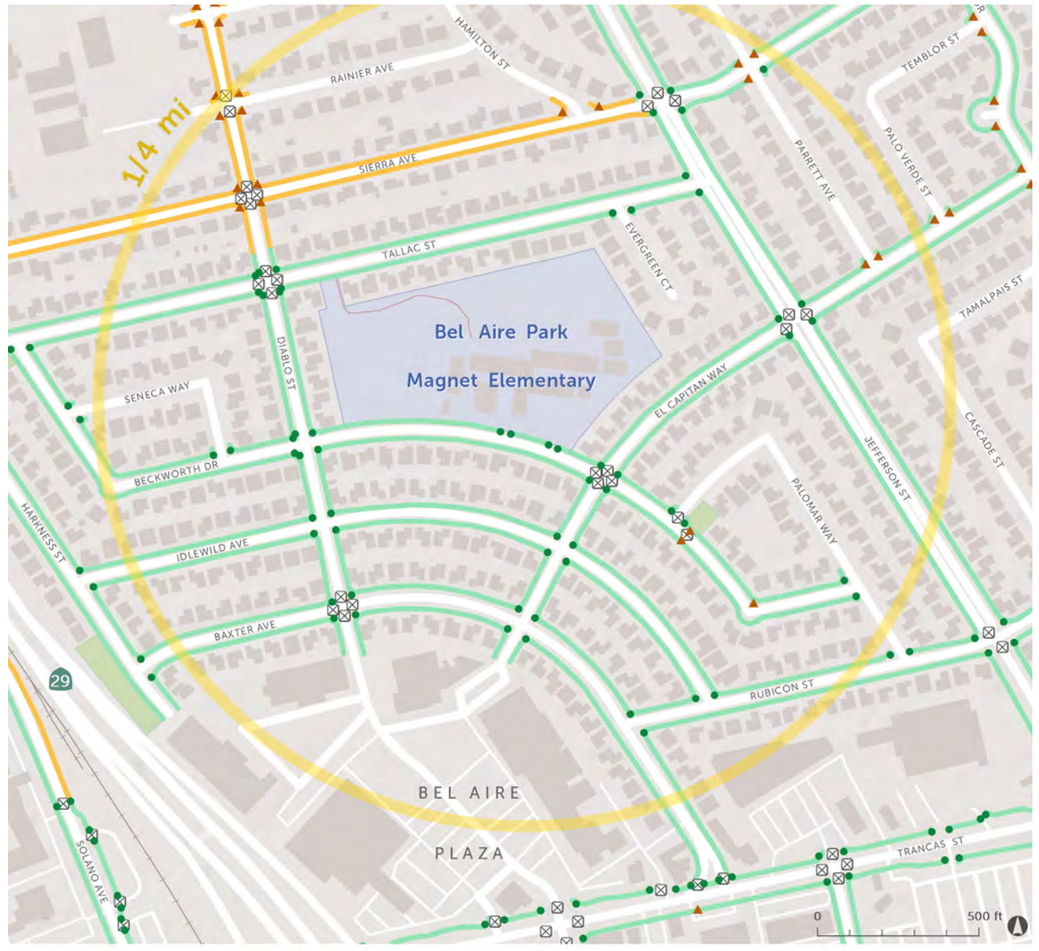
Bel Aire Park Magnet Elementary School provides one grid-style bike rack with roughly 14 spaces for on-campus bike parking. The bike rack is located near a pedestrian path between two buildings on campus, and is not close to school entrances.

MAP OF EXISTING BICYCLE FACILITIES



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

MAP OF EXISTING PEDESTRIAN FACILITIES



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

ENCOURAGEMENT AND EDUCATION PROGRAMS

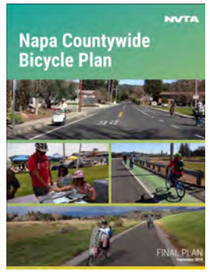
Since 2018, Bel Aire Park has participated in Walk and Roll to School Day, a countywide encouragement event. Walk and Roll to School Day is an annual event facilitated by Napa County Safe Routes to School in the fall that celebrate students making the healthy choice to walk or bike to school. The school has not expanded its encouragement program beyond these annual events and does not provide pedestrian or bicyclist education to its students.

Walk and Roll to School Day 2019 at nearby Willow Elementary School.

YEAR	EVENT	STUDENT PARTICIPANTS
2018/19	Walk and Roll to School Day	36
2019/20	Walk and Roll to School Day	95

Figure 5: Encouragement and Education Data

EXISTING PLANS



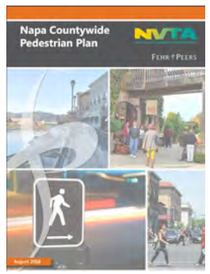
NVTA Napa Countywide Bicycle Plan (2019):

The Napa Countywide Bicycle Plan recommends improving bicycle facilities around the school site. The Bicycle Plan suggests installing a Class III Urban Bikeway along Sierra Street north of the school, down Diablo Street to the west of the school, and along Baxter Avenue and Rubicon Street to the south of the school. Jefferson Street to the east is designated as a study corridor.

NVUSD Facilities Master Plan (2016):

NVUSD's Facilities Master Plan lists several projects for Bel Aire Park Elementary. These projects include installation of fencing around the school perimeter, site ADA (Americans with Disabilities Act) improvements, and demolishing and constructing a new parking lot.

MEASURE H
BUILDING ON OUR VISION
NVUSD



NVTA Napa Countywide Pedestrian Plan (2016):

The Napa Countywide Pedestrian Plan cites two proposed improvements around the school site. The plan proposes a grade-separated overpass at Trower Avenue at SR 29 and sidewalks along Sierra Avenue from SR 29 to Jefferson Street.

NVTA Napa Valley Countywide Transportation Plan: Advancing Mobility 2045 (2021):

The NVTA Countywide Transportation Plan is a long-range plan of countywide transportation priorities that provides a direction for the four- to five-year plan while considering a 25-year planning horizon. This plan is part of the regional planning process for the Regional Transportation Plan by the Metropolitan Transportation Commission. There are 28 projects by the City of Napa listed in the Plan; two listed projects – SR 29 over Trower Avenue and Sierra Avenue Sidewalks – impact the school area.

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: 3/31/21
Day of the Week: Wednesday

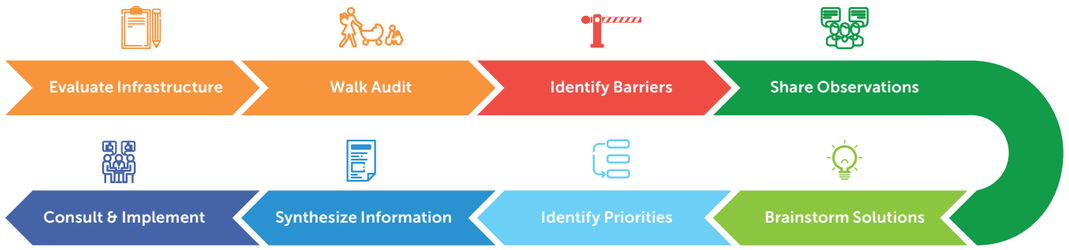
Meeting Time: 11:30 AM
Weather: Sunny and clear

METHODOLOGY

Normally, the Community Walk Audit process would bring together school stakeholders, including parents, school staff, and community members, with the SRTS team to observe existing conditions during pick-up or drop-off time, identify barriers to safe walking or biking, and brainstorm solutions. During the observation period, participants would discuss the physical infrastructure around the school as well as the behavior of motorists, pedestrians, and bicyclists in the area, while also sharing their own experiences traveling to and from school on foot, bike, and by car. Following observation, the team would discuss their observations, map issue areas, and record and prioritize the major barriers identified during the exercise.

Due to the spread of Covid-19 in early 2020 and subsequent Shelter-in-Place mandates and social distancing guidelines, the SRTS team was unable to hold a Community Walk Audit for Bel Aire Elementary. In March 2021, members of the SRTS team performed a modified Walk Audit that mirrored the initial infrastructure audit. SRTS team members walked and rode bikes in the area immediately around the school and along significant route corridors while taking notes and photographs of infrastructure and behavioral barriers to student pedestrians and bicyclists. Streets examined included Beckworth Drive, Jefferson Street from Rubicon Street to Sierra Avenue, and Diablo Street.

A photo from the Walk Audit at Napa Valley Language Academy in early 2020.

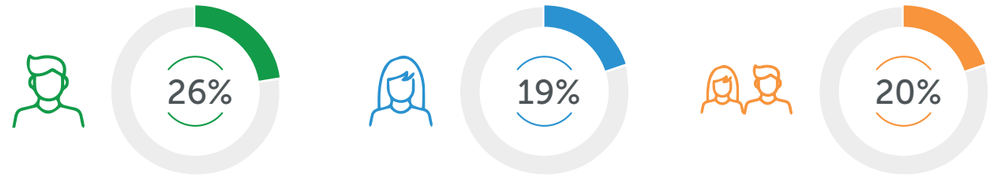


CONTEXT FOR **RECOMMENDATIONS**

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].

50%

29%

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

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

400 MILLION

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-380: BEL AIRE PARK ON-CAMPUS BICYCLE PARKING

Narrative – Bel Aire Park provides one bike parking rack on campus that is located between two buildings on the west side of campus. The bike parking is not located near or visible from school entrances. This bike parking rack is located near a pedestrian path and a couple of bollards, which may limit the number of usable bicycle parking spaces. The bike rack is also located on a dirt/woodchip surface, which may become muddy during the wet season.

IDENTIFIED BARRIERS

- ***Insufficient bicycle parking –*** Limited on-campus bike parking is provided at only one location and is not located near any school entrances. A perceived lack of secure bike parking in visible, convenient locations near school entrances can deter students from biking to school.

RECOMMENDATIONS

- ***Bike parking –*** Install bike parking racks near main entrances on Beckworth Drive and Tallac Street. Ensure that all bike parking spaces are accessible and racks are in high-visibility locations and on concrete or other permanent surfaces.

Bike parking on campus is located far from school entrances.

RECOMMENDATION #NAI-185: JEFFERSON STREET MULTIMODAL ACCESS (TROWER/RUBICON)

Narrative – Jefferson Street borders the school block on the east side, is along routes to school entrances on Tallac Street and Beckworth Drive, and must be navigated by students travelling from east of Jefferson Street. Jefferson Street is an integral high-volume north-south arterial corridor that runs from Salvador Avenue to Atrium Parkway, spanning nearly the entire City limits on the east side of SR 29. Jefferson Street is a key part of direct routes to several residential neighborhoods, commercial destinations such as shopping centers, pharmacies, and health services, schools, and downtown throughout the east side of Napa; consequently, Jefferson plays a crucial role in the multimodal transportation network for the City of Napa. The segment from Tower Avenue to Rubicon Street is along direct routes for students travelling to neighborhoods east and south of the school, and also serves students travelling to Vintage High School to the north.

IDENTIFIED BARRIERS

- ***Auto-oriented corridor –*** Jefferson Street's current design, featuring wide lanes on a relatively straight corridor with no traffic-calming and little traffic control, prioritizes vehicle speed, volumes, and convenience and facilitates frequent motorist speeding.

- ***High speeds and volumes of traffic –*** Jefferson Street carries extremely high volumes of high-speed traffic, which many bicyclists and pedestrians do not feel comfortable or safe navigating.

- ***High-stress bicycle facilities –*** The existing Class II bicycle facilities create high stress for riders due to the lack of separation between high speeds and volumes of vehicle traffic and high conflict-risk intersections. This high stress is exacerbated in areas where bicycle facilities narrow to substandard widths (less than five feet) and where bicyclists are riding between parked vehicles and moving traffic.

- ***High-stress crosswalks –*** Infrequent and high-stress/conflict-risk crosswalks across Jefferson Street along the corridor makes travelling along the corridor challenging and inconvenient for pedestrians and creates a higher risk of road user conflict.

- ***Minimal shade –*** Minimal shade along the corridor, in addition to being adjacent to high volumes of vehicle traffic, creates an increased heat effect that deters walking along the corridor.

Unprotected bicycle lanes on Jefferson Street create high stress, deterring most interested bicyclists from riding.

RECOMMENDATIONS

- ***Road diet –*** Implement a road diet and redesign of corridor to improve and prioritize safe, accessible, and comfortable multi-modal transportation through a Complete Streets framework as part of adopted Bike Plan corridor study designation. Integrate specific recommendations from SRTS reports into road redesign.

- ***Short term: Extend bike facilities to/through all intersections. Install quick-build traffic-calming features.*** Upgrade bike lanes between Sierra Avenue and Trower Avenue to buffered bike lanes by narrowing widths of travel lanes and center turn lane to create enough space. Paint conflict markings at major intersections.

RECOMMENDATION #NAI-197: JEFFERSON STREET AND SIERRA AVENUE INTERSECTION

Narrative – The Jefferson Street and Sierra Avenue intersection is a highly-travelled intersection due to Jefferson being a critical north-south arterial and Sierra Avenue acting as an east-west collector. For students travelling north of the school, this intersection is the closest crosswalk across Jefferson Street, and the only Jefferson crosswalk until Trower Avenue. Sierra Avenue also provides access to the Austin Miller memorial path, which may be a preferred route to some residences east of the school. Sierra Avenue is also planned to be extended along the Austin Miller memorial path alignment to Villa Lane.

IDENTIFIED BARRIERS

- ***Uncontrolled Jefferson traffic –*** High-speed and high-volume traffic on Jefferson Street is uncontrolled at this intersection, facilitating motorists driving through the intersection without slowing down and reducing motorist yielding behavior.
- ***Long crossing distances –*** Long crossing distances in the intersection push pedestrians 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.
- ***Wide curb radii –*** Wide curb radii on the corners of the intersection facilitate fast motorist turning movements.

Jefferson and Sierra facing south.

- ***Unaligned curb ramp –*** The northwest curb ramp is not aligned with crosswalk, increasing crossing distance for pedestrians.
- ***Missing crosswalk –*** There is no crosswalk on the south side of the intersection.

RECOMMENDATIONS

- ***Curb extensions –*** Install curb extensions on all corners of the intersection to reduce curb radii, improve pedestrian visibility and motorist yielding behavior, reduce crossing distance, and slow motorists through the intersection.
- ***High-visibility crosswalks –*** Upgrade all crosswalks to be a high-visibility school zone pattern and add a high-visibility school-zone crosswalk across the south leg to increase pedestrian visibility and motorist yielding behavior.
- ***Traffic control –*** With expansion of Sierra Avenue, consider further improvements for motorist yielding behavior and pedestrian comfort crossing Jefferson Street with implementation of updated traffic control device (ex: full signalization, High-Intensity Activated crosswalk beacon, etc).

RECOMMENDATION #NAI-196: JEFFERSON STREET AND EL CAPITAN WAY INTERSECTION

Narrative – The Jefferson Street and El Capitan Way intersection is the nearest crossing across Jefferson Street to the school, and is along direct routes to residences east of the school. El Capitan Way provides a direct route between Jefferson Street and the Bel Aire Plaza, a highly-travelled commercial plaza; consequently, this intersection may experience high volumes of vehicle traffic due to this connectivity.

IDENTIFIED BARRIERS

- ***Uncontrolled Jefferson traffic –*** High-speed and high-volume traffic on Jefferson Street is uncontrolled at this intersection, facilitating motorists driving through the intersection without slowing down and reducing motorist yielding behavior.
- ***Long crossing distances –*** Long crossing distances in the intersection push pedestrians further out of the range of vision of motorists a nd requires them to be in the roadway for a longer time than necessary, increasing the risk of collisions.
- ***Wide curb radii –*** Wide curb radii on the corners of the intersection facilitate fast motorist turning movements.

Jefferson and El Capitan Way, facing north.

- ***Missing crosswalk –*** There is no crosswalk on the south side of the intersection.
- ***Missing red zones –*** Missing red zones around the intersection allow motorists to park adjacent to crosswalks, obstructing pedestrian visibility.
- ***ADA-access –*** There are no ADA-accessible curb ramps on the north median, which spans the entire crosswalk, forcing users who require curb ramps to navigate around the median. Pedestrian crossing signage at the median may block visibility of wheelchair users going around the median.

RECOMMENDATIONS

- ***Curb extensions –*** Install curb extensions on all corners of the intersection to reduce curb radii, improve pedestrian visibility and motorist yielding behavior, reduce crossing distance, and slow motorists through the intersection.
- ***High-visibility crosswalks –*** Upgrade all crosswalks to be a high-visibility school zone pattern and add a high-visibility school-zone crosswalk across the south leg to increase pedestrian visibility and motorist yielding behavior.
- ***Rectangular Rapid Flashing Beacons –*** Install Rectangular Rapid Flashing Beacons for the Jefferson Street crosswalk to improve pedestrian visibility and motorist yielding behavior.
- ***Curb ramps –*** Install ADA-compliant curb ramps on the north median (and south median upon installation of south crosswalk).

RECOMMENDATION #NAI-384: BECKWORTH DRIVE BICYCLE FACILITIES

Narrative – Beckworth Drive provides access to almost all of the entrances to Bel Aire Park campus, with the exception of the Tallac Street entrance. Beckworth Drive entrances may be perceived as more bicycle-friendly due to the existing conditions of the Tallac Street path and entrance, which has a chain and bollards across it that make bike access challenging. As the front and primary entrance to school, it is crucial that Beckworth Drive provide facilities for all modes of transportation, especially considering bicyclist/pedestrian needs during times of high congestion, such as school arrival and dismissal.

IDENTIFIED BARRIERS

- ***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

- ***Class III bike boulevard –*** Install Class III bike boulevards with sharrows and signage and traffic-calming measures from Tallac Street to Palomar Way.

Beckworth Drive does not have bicycle facilities.

RECOMMENDATION #NAI-390: DIABLO STREET AND BECKWORTH DRIVE INTERSECTION

Narrative – The Diablo Street and Beckworth Drive intersection is located at the southwest corner of the school block, and is along direct routes to school for students living in the neighborhoods west and north of the school. As Beckworth provides primary access to the school, this intersection is highly travelled by all modes of transportation during school arrival and dismissal times. Diablo Street also provides a direct access point to the Bel Aire Plaza south of the school, which likely increases vehicle volumes along this corridor.

IDENTIFIED BARRIERS

- ***Uncontrolled Diablo traffic –*** Diablo Street traffic is uncontrolled at this intersection, facilitating motorists approaching the intersection without slowing down and decreasing motorist yielding behavior. This is particularly a barrier with high volumes of traffic during school hours and the potential of motorists to speed on Diablo Street.
- ***Missing red zones –*** Missing red zones around the intersection allow motorists to park adjacent to crosswalks and obstruct pedestrian visibility.
- ***Low-visibility crosswalks –*** The existing crosswalks are faded and painted with a standard, parallel line pattern, despite being located in a highly-travelled school zone intersection.

There is an existing speed feedback sign approaching the Diablo/Beckworth intersection.

RECOMMENDATIONS

- ***High-visibility crosswalks –*** Upgrade the existing crosswalks to a high-visibility school-zone pattern to improve pedestrian visibility and motorist yielding behavior.
- ***Traffic control or calming –*** Install All Way Stop Control (four-way stop) and red curbs adjacent to all four crosswalks or install curb extensions on all four corners and maintain the existing two-way stop to improve motorist yielding behavior and reduce motorist speeding through the intersection.

RECOMMENDATION #NAP-060: BICYCLE/PEDESTRIAN SAFETY EDUCATION

Narrative – Bicycle and pedestrian safety education is a crucial component of increasing biking and walking mode share at a school site, as it teaches students rules of the road and safe biking and pedestrian behaviors, such as scanning and signaling before turns for bicyclists. This understanding not only improves bicyclist and pedestrian safety, but also increases confidence and comfort for young bicyclists and pedestrians. 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 and pedestrian safety within the school system raises awareness of rules of the road and encourages safe behavior.

IDENTIFIED BARRIERS

- ***No bicycle/pedestrian safety education –*** The school does not provide bicycle or pedestrian safety education to students, which can result in unintentional unsafe student bicyclist/pedestrian behavior and a sense of discomfort riding a bike.

RECOMMENDATIONS

- ***Bicycle and pedestrian safety education –*** Provide annual in-school bicycle and pedestrian safety education for all students to ensure that all students are familiar with rules of the road and best safety practices.

Bike rodeos, photographed above at Willow Elementary School in Napa in 2018, are one form of bicycle safety education.

RECOMMENDATION #NAP-062: GROUP ENCOURAGEMENT PROGRAMS

Narrative – Vehicle congestion in the school zone can be a significant barrier to students walking and biking to school, especially when paired with bicycle and pedestrian infrastructure gaps. While infrastructure recommendations are underway, establishing group encouragement programs, such as walking school buses, bike trains, or carpool networks, can help reduce the number of vehicles in the school zone while improving road user comfort by establishing a greater bicyclist/pedestrian road presence through numbers and providing adult supervision that can be a shared responsibility amongst families.

IDENTIFIED BARRIERS

- ***Congestion in school zone –*** High volumes of vehicle traffic in the school zone during pick-up and drop-off can make the school zone feel chaotic and unwelcoming to bicyclists and pedestrians. This barrier was identified specifically on El Centro Avenue due to back-up in the school parking lot.

RECOMMENDATIONS

- ***Walking bus/bike train program –*** Develop a regularly-occurring walking school bus/bike train program to increase the number of students who walk and bike to school while improving sense of safety by forming an adult-supervised group. A carpool program can also be developed to reduce the number of cars in the school zone and may be more feasible for students who live farther away or must cross considerable infrastructure barriers, such as Trancas Street.

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

RECOMMENDATION #NAI-382: JEFFERSON STREET AND RUBICON STREET INTERSECTION

IDENTIFIED BARRIERS

Jefferson and Rubicon intersection, facing north.

- ***Uncontrolled Jefferson traffic –*** High-speed and high-volume traffic on Jefferson Street is uncontrolled at this intersection, facilitating motorists driving through the intersection without slowing down and reducing motorist yielding behavior. This also can result in motorists turning left onto Rubicon making fast turns before checking for pedestrians in order to meet a gap in traffic.
- ***Long crossing distances –*** Long crossing distances in the intersection push pedestrians 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.
- ***Wide curb radii –*** Wide curb radii on the corners of the intersection facilitate fast motorist turning movements.
- ***Unaligned curb ramps –*** The northwest and northeast curb ramps are not aligned with crosswalk, increasing crossing distance for pedestrians.
- ***Missing crosswalks –*** There are no crosswalks across Rubicon, reducing pedestrian visibility and motorist yielding behavior.

RECOMMENDATIONS

- ***Crosswalks –*** Paint crosswalks across Rubicon Street and upgrade crosswalks across Jefferson Street to high-visibility pattern to improve pedestrian visibility and motorist yielding behavior.
- ***Curb extensions –*** Install curb extensions on all corners of the intersection to reduce curb radii, improve pedestrian visibility and motorist yielding behavior, reduce crossing distance, and slow motorists through the intersection. Curb extensions can be constructed with quick-build materials, but if done with concrete, then should include aligning all curb ramps with crosswalks.
- ***Conflict markings –*** Paint green conflict markings on the southbound Jefferson bike lane approaching the intersection to improve bicyclist visibility.

RECOMMENDATION #NAI-201: JEFFERSON STREET AND TALLAC STREET INTERSECTION

IDENTIFIED BARRIERS

Jefferson and Tallac intersection, facing south.

- ***Uncontrolled Jefferson traffic –*** High-speed and high-volume traffic on Jefferson Street is uncontrolled at this intersection, facilitating motorists driving through the intersection without slowing down and making fast turns.
- ***Long crossing distances –*** Long crossing distance across Tallac Street pushes pedestrians 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.
- ***Wide curb radii –*** Wide curb radii on the corners of the intersection facilitate fast motorist turning movements.
- ***Unaligned curb ramps –*** The curb ramps on the west side are not aligned with crosswalk, increasing crossing distance for pedestrians.
- ***Missing crosswalk –*** There is no crosswalk across Tallac Street, decreasing pedestrian visibility and motorist yielding behavior.

RECOMMENDATIONS

- ***High-visibility crosswalk –*** Paint a high-visibility crosswalk across Tallac Street to increase pedestrian visibility and motorist yielding behavior.
- ***Curb extensions –*** Install curb extensions on new crosswalk curbs to reduce curb radii, improve pedestrian visibility and motorist yielding behavior, reduce crossing distance, and slow motorists through the intersection. Can use quick-build materials or floating curb extension design to avoid storm grate relocation.

RECOMMENDATION #NAI-385: BECKWORTH DRIVE AND EL CAPITAN WAY INTERSECTION

IDENTIFIED BARRIERS

- ***Low-visibility crosswalks –*** The crosswalks are faded and painted with a standard, parallel line pattern, despite being a highly-travelled intersection in the school zone.
- ***Motorists obstruct visibility –*** Missing red zones allow motorists to park adjacent to crosswalks and obstruct pedestrian visibility.
- ***Wide curb radii –*** Wide curb radii and pushed-back curbs in the intersection facilitate fast motorist turning movements through the intersection and reduce pedestrian visibility.

Beckworth and El Capitan intersection, facing east.

RECOMMENDATIONS

- ***High-visibility crosswalks –*** Upgrade the existing crosswalks to a high-visibility school-zone pattern to improve pedestrian visibility and motorist yielding behavior.
- ***Curb extensions –*** Install curb extensions on the northeast and southwest curbs to improve motorist yielding behavior and slow motorists through the intersection.
- ***Red zones –*** Paint red curbs around the northwest and southeast curbs to prevent motorists from parking adjacent to crosswalks.

RECOMMENDATION #NAI-386: EL CAPITAN WAY BICYCLE FACILITIES

IDENTIFIED BARRIERS

- ***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

- ***Class III bike boulevard –*** Install Class III bike boulevards with sharrows and signage and traffic-calming measures from Tallac Street to Palomar Way.

There are no bicycle facilities on El Capitan Way.

RECOMMENDATION #NAI-388: DIABLO STREET AND TALLAC STREET INTERSECTION

IDENTIFIED BARRIERS

- ***Motorists obstruct visibility –*** Missing red zones allow motorists to park adjacent to crosswalks and obstruct pedestrian visibility.
- ***Low-visibility crosswalks –*** The crosswalks are painted with a standard, parallel line pattern, despite being a highly-travelled intersection in the school zone.
- ***Uncontrolled Diablo traffic –*** Diablo Street traffic is uncontrolled at this intersection, facilitating motorists approaching the intersection without slowing down and decreasing motorist yielding behavior. This is particularly a barrier with high volumes of traffic during school hours and the potential of motorists to speed on Diablo Street.

Tallac and Diablo intersection, facing north.

RECOMMENDATIONS

- ***High-visibility crosswalks –*** Upgrade the existing crosswalks to a high-visibility school-zone pattern to improve pedestrian visibility and motorist yielding behavior.
- ***Curb extensions –*** Install curb extensions on all four corners of the intersection to prevent motorists from parking adjacent to crosswalks, slow Diablo motorists, and improve pedestrian visibility.

RECOMMENDATIONS #NAI-204 AND NAI-389: DIABLO STREET SIDEWALKS AND BICYCLE FACILITIES

IDENTIFIED BARRIERS

- ***No sidewalks –*** There are no sidewalks from Sierra Avenue to Yellowstone Street, creating a significant gap in the pedestrian network, which can deter students from walking to school.
- ***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.
- ***Motorist speeding –*** Diablo Street is a long, straight, wide corridor with no traffic-calming and little traffic control, which facilitates motorist speeding.

Diablo Street, facing north.

RECOMMENDATIONS

- ***Sidewalks –*** Install sidewalks on both sides of the road to fill the gap in the pedestrian network.
- ***Class II bike lanes –*** Install Class II bike lanes from Baxter Avenue to Beckworth Drive. This increased separation level is due to the potential for increased vehicle volumes along this segment from the Bel Aire Plaza entrance/exit. Install appropriate traffic-calming along this segment.
- ***Class III bicycle boulevard –*** From Beckworth Drive to Yellowstone Street, install Class III bike boulevards with sharrows, signage, and traffic-calming.

RECOMMENDATIONS #NAI-393 AND NAI-395: TRANCAS STREET INTERSECTIONS

IDENTIFIED BARRIERS

- ***Trancas and Jefferson***
  - ***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.
  - ***Fast motorist turns –*** Free right turn lanes and wide curb radii facilitate fast motorist turning through the intersection and reduce yielding behavior.
  - ***High-stress bike facilities –*** Where bicycle facilities meet the intersection, these connections are extremely high-stress due to vicinity to/mixing with high speeds and volumes of traffic.
- ***Trancas and California***
  - ***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.
  - ***Fast motorist turns –*** Wide curb radii facilitate fast motorist turning through the intersection and reduce yielding behavior.
  - ***High-stress bike facilities –*** Where bicycle facilities meet the intersection, these connections are extremely high-stress due to vicinity to/mixing with high speeds and volumes of traffic.
  - ***Low-visibility crosswalk patterns –*** Crosswalks are painted with low-visibility standard parallel line patterns, which do not offer the same visibility benefits that higher-visibility patterns do.

Trancas and Jefferson, facing east.

RECOMMENDATIONS

- ***NAI-393 – Trancas Street and Jefferson Street***
  - Add intersection redesign to priority roadway improvements in General Plan to improve bike and pedestrian safety. Include elements including but not limited to: remove slip lanes, provide refuge islands, high-visibility crosswalks, bicycle facilities through the intersection, and other elements that emphasize safety and separation of active transportation road users, slow motorists, and improve yielding behavior.
- ***NAI-395 – Trancas Street and California Boulevard***
  - Add intersection redesign to priority roadway improvements in General Plan to improve bike and pedestrian safety. Include elements including but not limited to: curb extensions (should not block bike lanes), refuge islands, high-visibility crosswalks, bicycle facilities through the intersection, and other elements that emphasize safety and separation of active transportation road users, slow motorists, and reduce crossing distances.

RECOMMENDATION #NAP-061: ENCOURAGEMENT EVENTS

IDENTIFIED BARRIERS

- ***Infrequent encouragement programs –*** While annual countywide encouragement events are a great place to start, infrequent encouragement events are not effective enough in normalizing active transportation as an everyday mode of transportation.

RECOMMENDATIONS

- ***Encouragement programs –*** Continue to grow participation in annual encouragement events and organize additional encouragement events throughout the year (ex: Walk and Roll Wednesdays) with the goal of increasing frequency of events over time.

Walk and Roll Wednesdays, such as the one photographed above at Shearer Elementary School in Napa, are an example of fun and easy encouragement events that schools can hold independently.

RECOMMENDATION #NAP-063: SCHOOL STREET PILOT PROGRAM

IDENTIFIED BARRIERS

- ***Congestion in school zone –*** Congestion in the school zone during school arrival and dismissal times can increase conflict risk and make the school zone feel unpredictable and unsafe to bicyclists and pedestrians, especially in conjunction with infrastructure barriers.

RECOMMENDATIONS

- ***School Street –*** Implement a School Street pilot program on Beckworth Drive from Diablo Street to El Capitan Way based on existing pilot programs that originated in the United Kingdom and Canada, which involve collaborating with City officials and residents to close the street to through traffic during arrival and dismissal times to allow students to safely walk and bike to school.

A School Street program in action. Photo credit: City of Vancouver.

ADDITIONAL CONSIDERATIONS

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

RECOMMENDATION #NAI-193: TROWER AVENUE AND JEFFERSON STREET INTERSECTION

IDENTIFIED BARRIERS

- ***Large, busy intersection***
- ***Motorist speeding and failure to yield***
- ***Low-visibility crosswalks***

RECOMMENDATIONS

- ***Leading Pedestrian Interval***
- ***No right-turn on red***
- ***Bicycle facilities***
- ***High-visibility crosswalks***
- ***Consider protected intersection***

Relevant Reports:

- *Vintage High School Walk Audit Report*

MAP OF RECOMMENDATIONS

Map 5: Recommendations

TABLE OF RECOMMENDATIONS

Infrastructure:

	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
1	School grounds	NAI-380	Insufficient bicycle parking, limited access to bike parking.	Install bike parking racks near main entrances on Beckworth and Tallac. Ensure that all bike parking spaces are accessible and racks are in high-visibility locations and on concrete or other permanent surfaces.	$	**High**
		NAI-381	Tallac entrance: Bollards and chain block access for pedestrians with strollers or bicyclists, paved portion of path is crumbling. Path through field onto campus is narrow and deteriorated	Repave paved portion of path connecting to Tallac sidewalk, remove chain and prevent unwanted vehicle access with one removable bollard in the middle of the path to support ADA compliance. Formalize path on campus with asphalt or concrete and widen to accommodate 6' to accommodate bicycle and pedestrian users.	$$	**Low**
2	Jefferson Street from Trower Avenue to Rubicon Street	NAI-185	Wide, straight, auto-oriented corridor designed to prioritize vehicle speed. Road design facilitates frequent motorist speeding. Infrequent and high-stress crosswalks across the corridor, and minimal shade make this challenging and unwelcoming for pedestrians. High-stress bike facilities are not comfortable for most riders, especially between moving traffic and parked cars.	Long term: Road diet and redesign of corridor through a Complete Streets framework as part of adopted Bike Plan corridor study designation*, integrating SRTS recommendations into road redesign. Short-term: Extend bike facilities to/through all intersections. Install quick-build traffic-calming features. Upgrade bike lanes between Sierra Avenue and Trower Avenue to buffered bike lanes by narrowing widths of travel lanes and center turn lane to create enough space. Paint conflict markings at major intersections.	$$-$$$$	**High**
		NAI-187	Few crosswalks south of Trower Avenue	Install crosswalk at Jefferson/ Yellowstone intersection across Jefferson with high-visibility pattern, curb extensions, and Rectangular Rapid Flashing Beacons.	$$	**Low**

	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
3	Jefferson Street and Sierra Avenue intersection	NAI-197	High-speed and high-volume uncontrolled traffic on Jefferson Street makes crossing difficult and uncomfortable for pedestrians. Poor motorist yielding behavior. Long crossing distances, wide curb radii. Northwest curb ramp is not aligned with crosswalk. No crosswalk on south side (the more direct route to Bel Aire Park school).	Install curb extensions on all corners. Upgrade all crosswalks to be a high-visibility school zone pattern and add a high-visibility school-zone crosswalk across the south leg. With expansion of Sierra Avenue, consider further improvements for motorist yielding behavior and pedestrian comfort crossing Jefferson Street with implementation of updated traffic control device (ex: full signalization, High-Intensity Activated crosswalk beacon, etc).	$$-$$$	**High**
4	Jefferson Street and El Capitan Way intersection	NAI-196	Missing red zones around crosswalks. Wide curb radii. No crosswalk on south side. High-speed traffic and long crossing distances reduce visibility of pedestrians trying to cross. No ramp at north median and pedestrian crossing sign at median blocks visibility for wheelchair/stroller users who have to go around the median.	Install curb extensions on all corners, upgrade existing crosswalks to high-visibility pattern. Install new high-visibility crosswalk across south leg. Install Rectangular Rapid Flashing Beacons for crosswalk across Jefferson. Install ADA-compliant ramps on medians.	$$	**High**
5	Jefferson Street and Rubicon Street intersection	NAI-382	Long crossing distances across Jefferson St. High speeds and volumes of uncontrolled Jefferson traffic – reduce motorist yielding behaviors. Wide curb radii. No crosswalks across Rubicon. Northwest and northeast curb ramps not aligned with crosswalks. Traffic turning off of Jefferson onto Rubicon (especially turning left) are looking at oncoming traffic and not for pedestrians.	Paint crosswalks across Rubicon Street and upgrade crosswalks across Jefferson to high-visibility pattern. Install curb extensions on all four corners (can be quick-build, but if done with concrete then upgrade all curb ramps to be aligned with crosswalks). Paint green conflict markings on southbound bike lane approaching intersection.	$$-$$$	**Medium**
6	Jefferson Street and Tallac Street intersection	NAI-201	No crosswalk across Tallac Street. Wide curb radii. Misaligned non-ADA compliant curb ramps. Long crossing distance across Tallac. High-speed/-volume Jefferson traffic uncontrolled.	Paint high-visibility crosswalk across Tallac Street and install curb extensions for this crosswalk (use quick-build materials like bollards or floating curb extension design to avoid storm grate relocation).	$-$$	**Medium**

	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
7	Beckworth Drive from Tallac Street to Palomar Way	NAI-383	Narrow westbound sidewalk (side school is on) in high pedestrian density area.	Widen westbound sidewalk from Diablo Street to El Capitan Way to a minimum of 6' width to accommodate pedestrian volumes at arrival/departure times.	$$	**Low**
		NAI-384	No bicycle facilities.	Install Class III bike boulevard with sharrows, signage, and traffic-calming from Tallac Street to Palomar Way.	$$	**High**
8	Beckworth Drive and El Capitan Way intersection	NAI-385	Faded low-visibility pattern crosswalks, missing red zones allow vehicles to park next to crosswalks and obstruct ped visibility, wide curb radii and pushed back curbs facilitate fast motorist turning movement and reduce pedestrian visibility.	Repaint crosswalks with high-visibility school zone pattern. Install curb extensions on northeast and southwest curbs and red curbs around northwest and southeast curbs.	$$	**Medium**
9	El Capitan Way from Willis Drive to Baxter Avenue	NAI-386	No bicycle facilities.	Install Class III bike boulevard with sharrows, signage, and traffic-calming.	$$	**Medium**
10	Tallac Street from Harkness Street to Jefferson Street	NAI-387	No bicycle facilities; wide, straight corridor with no traffic-calming and little traffic control facilitates motorist speeding.	Install Class III bike boulevard with sharrows, signage, and traffic-calming.	$$	**Low**
11	Diablo Street and Tallac Street intersection	NAI-388	No red zones allow motorists to park next to crosswalks and obstruct visibility; low-visibility crosswalk patterns in school zone; uncontrolled Diablo St traffic (high volumes and speeding potential).	Upgrade crosswalks to high-visibility school zone pattern. Install curb extensions on all four corners to prevent parked vehicles next to crosswalks, slow Diablo motorists, and improve pedestrian visibility.	$$-$$$	**Medium**
12	Diablo Street from Yellowstone Street to Baxter Avenue	NAI-204	No sidewalks from Sierra Avenue to Yellowstone Street.	Install sidewalks on both sides of the road.*	$$-$$$	**Medium**
		NAI-389	No bicycle facilities; long, straight, wide corridor with no traffic-calming and little traffic control facilitates motorist speeding.	Baxter to Beckworth – install Class II bike lanes (updated separation level due to Bel Aire Plaza entrance/exit increasing potential vehicle volumes) on segment. Install appropriate traffic-calming.	$$-$$$	**Medium**
13	Diablo Street and Beckworth Drive intersection	NAI-390	No red zones allow motorists to park next to crosswalks and obstruct visibility; faded low-visibility crosswalks in school zone, uncontrolled Diablo St traffic (high volumes during school hours and speeding potential).	Upgrade crosswalks to high-visibility school zone pattern. Install All Way Stop Control (four-way stop) and red curbs adjacent to all four crosswalks OR install curb extensions on all four corners with existing two-way stop.	$-$$	**High**

	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
14	Sierra Avenue from Jefferson Street to Lassen Street	NAI-203	No sidewalks from Jefferson Street to Lassen Street.	Install sidewalks on both sides of the road.* Address long crossing distance and wide curb radius at Hamilton St intersection.	$$$	**Low**
15	Hamilton Street from Sierra Avenue to Sequoia Street	NAI-391	No sidewalks.	Install sidewalks on both sides of the road.*	$$-$$$	**Low**
16	Shasta Avenue from Hamilton Street to Diablo Street	NAI-392	No sidewalks.	Install sidewalks on both sides of the road.*	$$	**Low**
17	Trower Avenue and Jefferson Street intersection	NAI-193	Large, busy intersection, congestion leading to impatient driving, motorists speeding through intersection and not looking for pedestrians, faded low-visibility crosswalks.	Install Leading Pedestrian Interval and prohibit right turns on red lights. Continue bike facilities through intersection. Repaint crosswalks with high-visibility pattern. Explore options for protected intersection.	$-$$$	**High**
18	Trancas Street and Jefferson Street intersection	NAI-393	Large, busy intersection between two high-speed/volume arterials. Long crossing distances. Free right turns and wide curb radii facilitate fast motorist turning and reduce yielding. No bike facility connections/high-stress bike facility connections.	Add intersection redesign to priority roadway improvements in General Plan to improve bike and pedestrian safety. Include elements including but not limited to: remove slip lanes, provide refuge islands, high-visibility crosswalks, bicycle facilities through the intersection, and other elements that emphasize safety and separation of active transportation road users, slow motorists, and improve yielding behavior.	$-$$$$	**Medium**
19	Trancas Street between California Boulevard and Jefferson Street	NAI-394	No crosswalk across driveway entrance or exit to Northwood shopping center	Road diet and redesign of corridor to improve and prioritize safe, accessible, and comfortable multi-modal transportation through a Complete Streets framework as part of study under General Plan "Focus Area" designation.	$$-$$$$	**Low**
20	Trancas Street and California Boulevard intersection	NAI-395	Large, busy intersection between two high-speed/volume arterials. Long crossing distances, exacerbated by offset geometry of intersection. Wide curb radii facilitate fast motorist turning and reduce yielding. High-stress bike facility connections. Low-visibility crosswalk patterns.	Add intersection redesign to priority roadway improvements in General Plan to improve bike and pedestrian safety. Include elements including but not limited to: curb extensions (should not block bike lanes), refuge islands, high-visibility crosswalks, bicycle facilities through the intersection, and other elements that emphasize safety and separation of active transportation road users, slow motorists, reduce crossing distances, and improve yielding behavior.	$-$$$$	**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 bicycle/ pedestrian safety education program	NAP-060	Provide regular bicycle and pedestrian safety education to all students	School site	Annual	$	**High**
2	Infrequency of encouragement events	NAP-061	Continue growing participation in annual countywide encouragement events. Host independent encouragement events in between annual events.	School site	Annual for countywide events. Twice a year for independent events, with goal of increasing frequency	$	**Medium**
3	Congestion in school zone	NAP-062	Develop regular walking school bus and bike train program	School site	Monthly with goal of increasing frequency	$	**High**
4	Congestion in school zone	NAP-063	Implement School Street pilot program	Beckworth Drive from Diablo Street to El Capitan Way	TBD by program stakeholders	$	**Medium**

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	0	2	2	0	2
.25-.5 mi.	1	2	17	14	15	19	34
Total	1	2	17	16	17	19	36

Collision List

Case ID	Date	Time	Primary	Secondary	Distance	Direction	Bike	Ped
7197215	2016-02-15	02:00	CALIFORNIA BL	TRANCAS ST	0.00	-	Yes	No
8045058	2016-05-03	11:20	REDWOOD RD	SOLANO AV	0.00	-	No	Yes
8049111	2016-05-20	22:29	TRANCAS ST	CLAREMONT WY	500.00	E	No	Yes
8067041	2016-06-03	12:47	REDWOOD RD	SOLANO AV	0.00	-	No	Yes
8104664	2016-08-09	19:16	REDWOOD RD	SOLANO AV	0.00	-	No	Yes
8310281	2017-02-08	10:55	JEFFERSON ST	RUBICON ST	0.00	-	No	Yes
8357611	2017-04-21	13:36	REDWOOD RD	SOLANO AV	0.00	-	Yes	No
8700742	2018-09-08	21:14	TRANCAS ST	JEFFERSON ST	500.00	E	Yes	No
8756223	2018-12-04	13:00	JEFFERSON ST	TRANCAS ST	306.00	S	No	Yes
8813854	2019-02-01	18:45	RT 29	TRANCAS ST	0.00	-	No	Yes
8820777	2019-03-03	20:17	JEFFERSON ST	TRANCAS ST	0.00	-	Yes	No
8837160	2019-04-15	16:56	BEL AIRE PLZ	TRANCAS ST	140.00	N	No	Yes
8876769	2019-06-03	11:02	REDWOOD RD	SOLANO AV	55.00	E	Yes	No
8938475	2019-08-30	18:30	TRANCAS ST	JEFFERSON ST	15.00	-	No	Yes
9054500	2020-02-18	12:30	JEFFERSON ST	RUBICON ST	177.00	S	Yes	No
9113977	2020-06-02	11:41	REDWOOD RD	TRANCAS ST	0.00	-	Yes	No
9159117	2020-09-29	15:08	BEL AIRE PLZ	TRANCAS ST	0.00	-	Yes	No
7188129	2016-02-10	18:48	JEFFERSON ST	EL CAPITAN WY	0.00	-	No	Yes
8059866	2016-06-03	21:15	TRANCAS ST	BAXTER AV	0.00	-	No	Yes
8094244	2016-07-13	07:20	CALIFORNIA BL	INDUSTRIAL WY	145.00	S	No	Yes
8094277	2016-07-11	15:54	JEFFERSON ST	TRANCAS ST	100.00	S	Yes	No
8157421	2016-10-14	15:34	JEFFERSON ST	SIERRA AV	0.00	-	No	Yes
8181382	2016-11-18	08:03	REDWOOD RD	SOLANO AV	0.00	-	No	Yes
8369831	2017-05-22	14:45	CALIFORNIA BL	TRANCAS ST	0.00	-	Yes	No
8404547	2017-06-29	21:22	REDWOOD RD	SOLANO AV	225.00	W	No	Yes
8472276	2017-08-30	09:56	TRANCAS ST	CLAREMONT DR	153.00	W	Yes	No
8494583	2017-10-30	07:15	SOLANO AV	REDWOOD RD	0.00	-	Yes	No
8496271	2017-11-03	18:53	TRANCAS ST	BEL AIRE PLZ	0.00	-	Yes	No
8544986	2018-01-19	12:43	CALIFORNIA BL	INDUSTRIAL WY	0.00	-	Yes	No
8545090	2018-01-19	08:03	JEFFERSON ST	RUBICON ST	0.00	-	No	Yes
8713393	2018-10-15	17:25	REDWOOD RD	SOLANO AV	0.00	-	Yes	No
8783687	2019-01-15	08:29	REDWOOD RD	SOLANO AV	0.00	-	Yes	No
8802795	2019-02-04	13:29	REDWOOD RD	SOLANO	0.00	-	Yes	No
8829132	2019-04-01	21:07	JEFFERSON ST	TRANCAS AV	0.00	-	Yes	No
9025164	2020-01-13	16:05	TRANCAS ST	CLAREMONT ST	220.00	W	Yes	No
9167892	2020-09-02	11:26	JEFFERSON ST	RUBICON ST	5.00	S	No	Yes

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

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

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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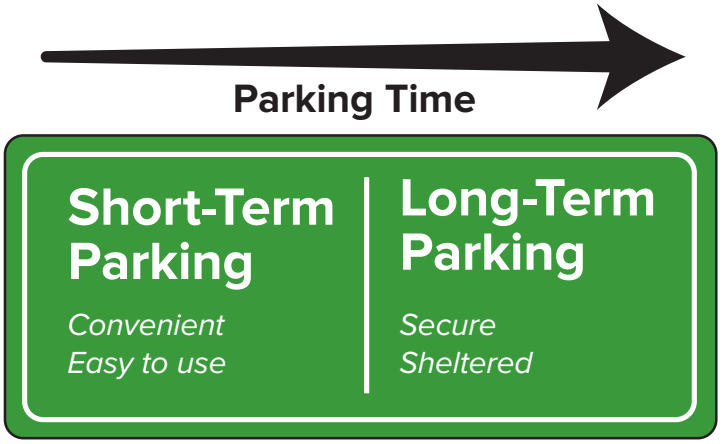
TABLE OF CONTENTS

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

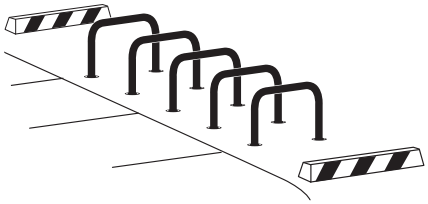
Effective bike parking for short-term users depends on two main factors: 1) proximity to the destination and 2) ease of use.

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.

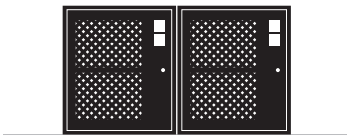
BIKE CORRALS

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**

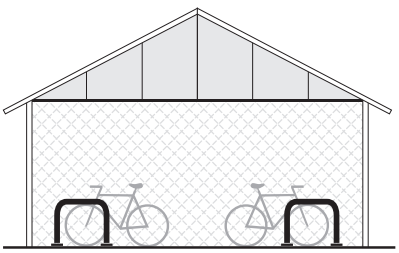
LONG-TERM PARKING

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

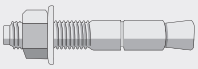
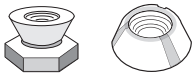
Selecting an appropriate installation surface and technique is key to creating bicycle parking that remains secure and attractive over time.

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

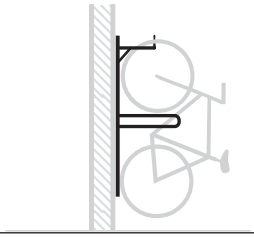
These rack styles do not meet all performance criteria but may be appropriate in certain constrained situations.

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

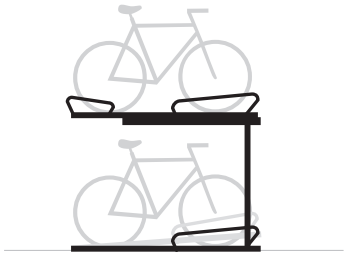
Variation of the wheelwell-secure rack designed to stagger handlebars vertically or horizontally to increase parking density. Reduces usability and limits kinds of bikes accommodated, but contains bikes well and aids in fitting more parking in constrained spaces.

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.

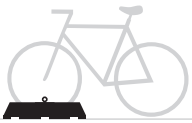
SCHOOLYARD
also called comb, grid

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

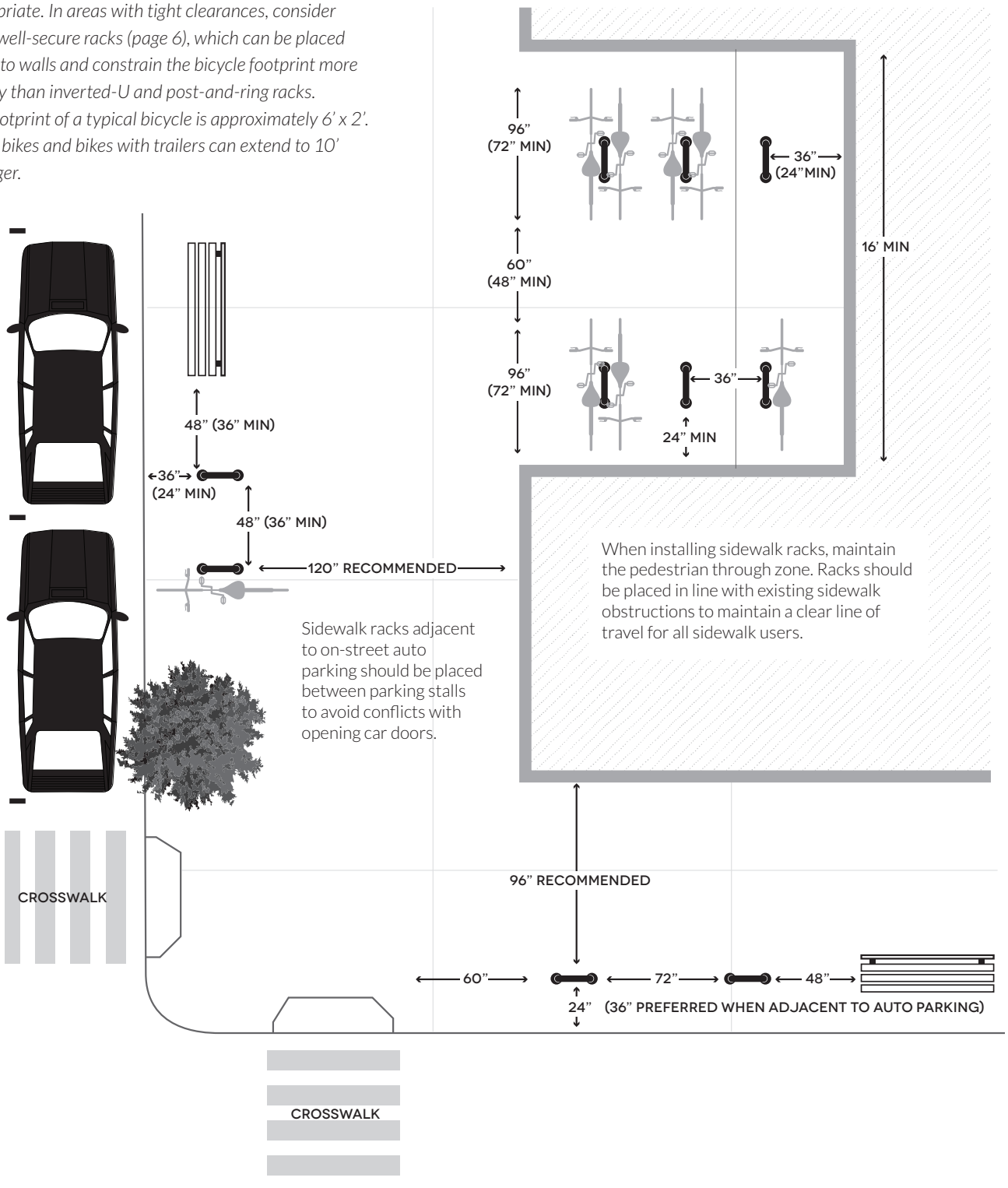
Most bicycle parking racks are made of carbon steel or stainless steel. Carbon steel requires a surface coating to resist rust while appropriate grades of stainless steel need no coating. Not all materials and coatings with the same name perform equally. Square tubing provides a security advantage as 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