Walk Audit Report

SafeRoutes
Napa County

IRENE M. SNOW
ELEMENTARY SCHOOL

IRENE M. SNOW ELEMENTARY SCHOOL

1130 FOSTER ROAD
NAPA, CA

—

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

NAPA COUNTY SAFE ROUTES TO SCHOOL PROGRAM

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

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

Napa Valley Transportation Authority
Diana Meehan, Senior Planner

SCHOOL OFFICIALS

Napa Valley Unified School District
Dr. Rosanna Muccetti, Superintendent
Olivia McCormick, Principal

CITY STAFF

City of Napa Public Works Department
City of Napa Community Development Department
City of Napa Fire Department
City of Napa Police Department

WALK AUDIT PARTICIPANTS

Patrick Band, Napa County Safe Routes to School Program
Carlotta Sainato, Napa County Safe Routes to School Program

REPORT DESIGN

Ana Rizzo, Graphic Design
Amber Manfree, GIS Mapping

EXECUTIVE **SUMMARY**

THE NAPA COUNTY SAFE ROUTES TO SCHOOL PROGRAM

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

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

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

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

WHY SAFE ROUTES TO SCHOOL?

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

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

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

Student health has been linked to improved academic performance[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.

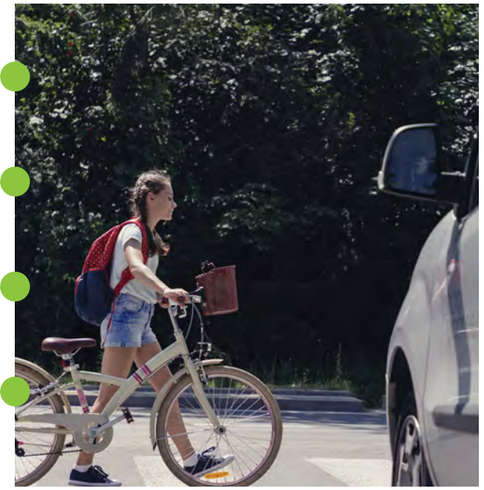
Schools and the community benefit immensely when students choose to walk or bike.

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 Snow 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 November 2020, SRTS team members performed a modified Walk Audit at Snow 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.

BROWNS VALLEY ELEMENTARY SCHOOL
SCHOOL SUMMARY

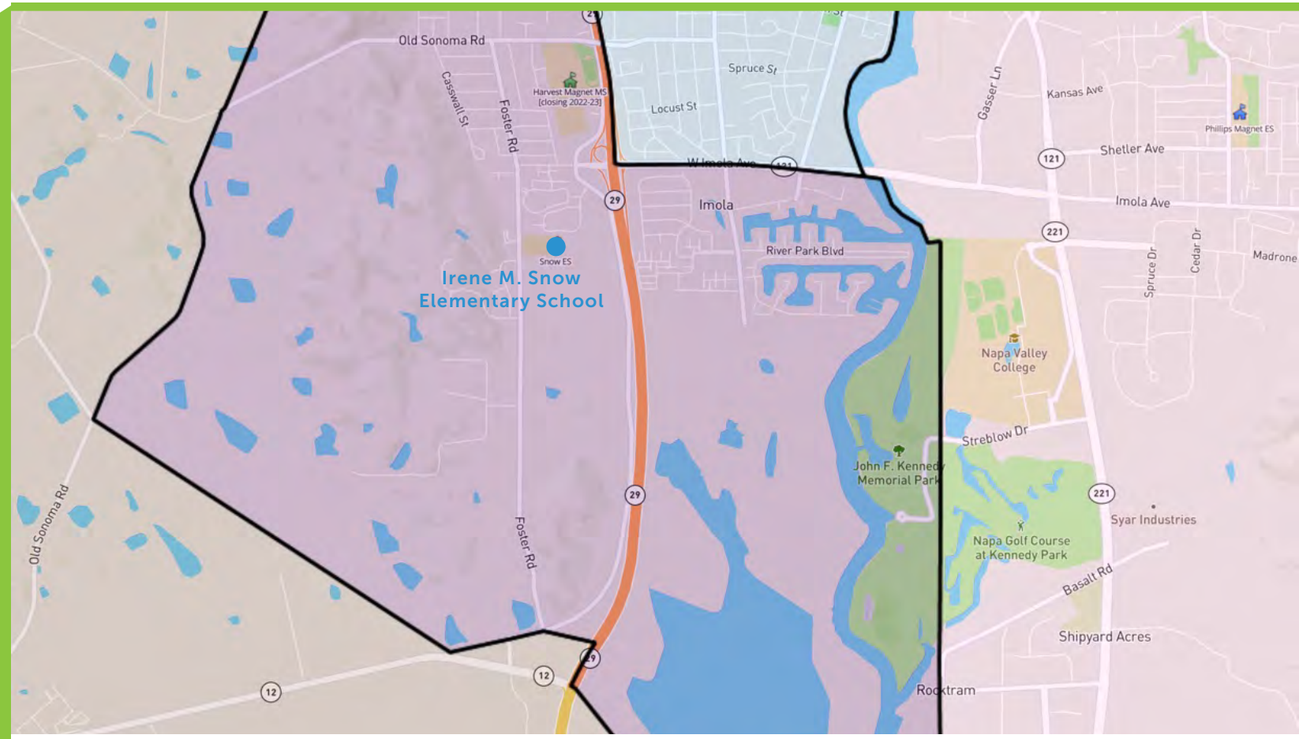
Principal	Olivia McCormick	Grades	K-5
First Bell	7:53 AM	Enrollment	383
Last Bell	2:20 PM (12:25 PM on Wed.)	Street	1130 Foster Road
District	Napa Valley Unified	City	Napa, CA 94558

Overall Facility Rating[j]: Good

While NVUSD has an open enrollment policy, Snow Elementary's default enrollment area covers southwest and southcentral Napa. Its north edge runs along Laurel Ave. west of Highway 29, down Highway 29 to Imola Avenue, and then west on Imola Avenue to the Napa River. Its west edge crosses through Kennedy Park to intersection of Highway 12 and the Napa River, and its southwest edge juts to the intersection of highways 12 and 29 and cuts to Old Sonoma Road, encapsulating farms and vineyards east of Foster Road.

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), 27.1% of students attending Snow Elementary reside outside of the school's enrollment boundary.



Map 1: Enrollment boundary for Snow Elementary School shaded in purple.

DATA

A hand tally survey collected by the Napa County Office of Education in Spring 2019 indicated that slightly under 2/3 of students travel to school by family vehicle, while less than 10% walk or bike. Additional work is needed to establish a baseline of regular 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.

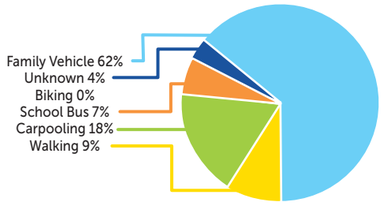


Figure 1: NCOE Hand Tally Data

Total Enrollment by Group (2019-20)

ETHNICITY	IRENE M. SNOW ELEMENTARY SCHOOL	DISTRICT
Black or African American	0.8%	2.1%
Asian	1.3%	2.4%
Filipino	0.5%	6.9%
Hispanic or Latino	88%	55.6%
White	8.9%	28.4%
Two or More Races	0.3%	4.0%
EXPERIENCE		
Socioeconomically Disadvantaged	83.6%	51.2%
English Learners	60.3%	20.5%
Students with Disabilities	12%	12.5%
Foster Youth	0.5%	0.4%
Homeless	3.9%	1.1%

Figure 3: Enrollment Data by Group

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

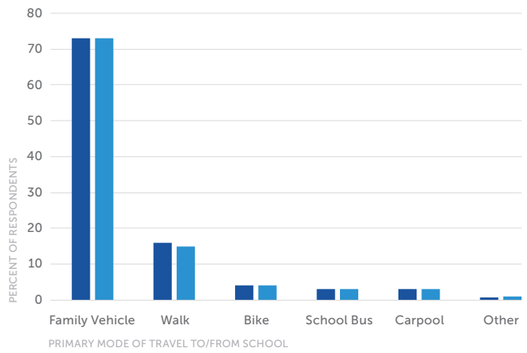


Figure 2: EMC Research Polling Results

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

Student Enrollment by Grade Level (2019-2020)

	NUMBER OF STUDENTS
Kindergarten	73
Grade 1	46
Grade 2	70
Grade 3	62
Grade 4	67
Grade 5	65
Total	**383**

Figure 4: Enrollment Data by Grade

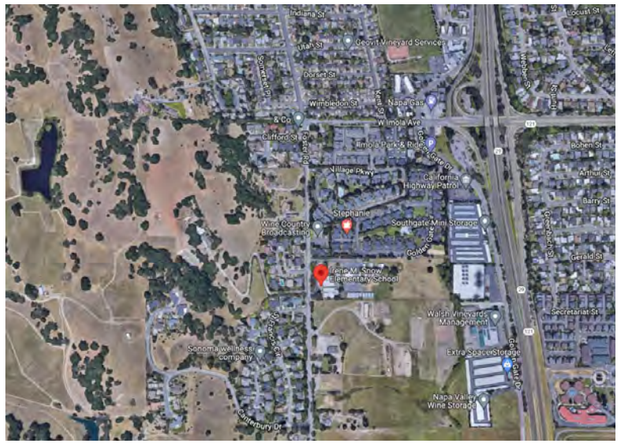
NEIGHBORHOOD CONTEXT

Snow Elementary School is located along the southern edge of the city of Napa. It is located on Foster Road and almost exclusively accessed from Foster Road, with the exception of a path from Golden Gate Drive. Along the southern boundary of the school is the Napa Valley Horseman's Association, which has some buildings and much open space. There is also open space along the eastern side of the campus. To the north are high density residential communities and some commercial space. To the west across Foster Road are low density residential areas.

The neighborhood north of the school is an attached unit residential area with curvilinear and looped streets. There are tract subdivisions on the north side of the attached unit area. To the west are estate residential and tract subdivisions with looped streets. The only direct access is from Foster Road. The looped roads do slow traffic, but they also reduce pedestrian route choice and interconnectivity. Traffic is concentrated onto Foster Road. There are few homes to the south and east of the campus.

The main road near the school is Foster Road, a significant collector that provides an alternate route to Highway 121 and Highway 29. A little over a quarter mile north of the school, Foster Road intersects with Imola Avenue, which is a main east-west connector that leads to Highway 29 and to many commercial districts east of Highway 29. Imola Avenue becomes Highway 121 east of Highway 29 and connects to housing, the Napa Valley College and Soscol Avenue, a main north-south arterial on the east side of Napa.

Map 2: School site location in city.



Land use around Snow Elementary is largely residential, with some rural and commercial spaces.

Foster Road (facing north) near the school campus.

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

The front entrance to the campus is on Foster Road. The school's parking lot and two-lane loading zone is located between the campus and Foster Road, so students who are not being dropped off in the loading zone in front of the school must walk down steps or a sloped path from Foster Road to the parking lot and cross the parking lot and loading zone to reach the gated entrance to campus. There are no sidewalks bypassing the parking lot.

Pick-up and drop-off occur in the loading zone between the school's main entrance and the front parking lot. Motorists using the parking lot or loading zone enter from Foster Road at the south driveway, move through the parking lot or loading zone in a one-way fashion northbound, and exit through the north driveway, which has two exit lanes. Parking is prohibited on northbound Foster Road at all times in front of the school, so motorists may only park on southbound Foster Road to pick-up and drop-off students. This requires students to cross Foster Road at the only nearby crosswalk, just south of the parking lot exit.

Bicyclists and pedestrians can also access the campus through a path on the northeast corner that connects Golden Gate Circle to the school's side parking lot. As many students must travel north on Foster Road as part of their route home, those who are on foot or bike tend to stay on the northbound Foster Road sidewalk, due to sidewalk gaps on the southbound side and congestion in the school zone around the crosswalk across Foster Road.

Students must cross the parking lot and loading zone to reach campus.

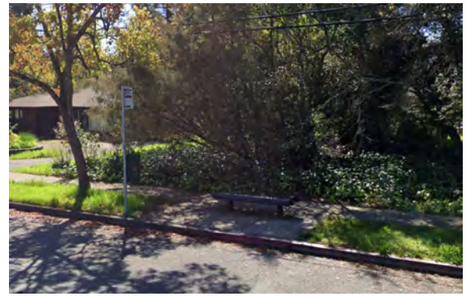
The loading zone in front of the campus has two lanes.

The northbound sidewalk on Foster Road.

There is no formal circulation plan or policy, but the school's facilities and surrounding area—with one entrance, one exit, and essentially no side streets—heavily dictate circulation. However, a segment in the "School Rules" document on the school's website includes the following on parking lot behaviors:

> **Parking Lot Behaviors**
> Please remain calm during pick-up and drop off. Our goal is to have all students remain safe and you can help us by not rushing and honking. Also, our volunteer crossing guards need to be respected. We appreciate your help with this.

Bus service through NVUSD is available for Snow Elementary School students; this bus service travels east of SR 29 and has four stops, including one at Napa Valley Language Academy, a Boys and Girls Club location. The bus loading zone is located on the north side of campus, near the side parking lot. Additionally, students who live beyond 1.25 miles walking distance from school and attend their school of residence may apply for transportation through NVUSD. The nearest Vine transit bus stop, operated by the Napa Valley Transportation Authority, is for the S line at the intersection of Foster Road and Imola Avenue, 0.3 miles north of the school. The S line travels to Old Sonoma Road, east along Imola Avenue, and north on Soscol Avenue.



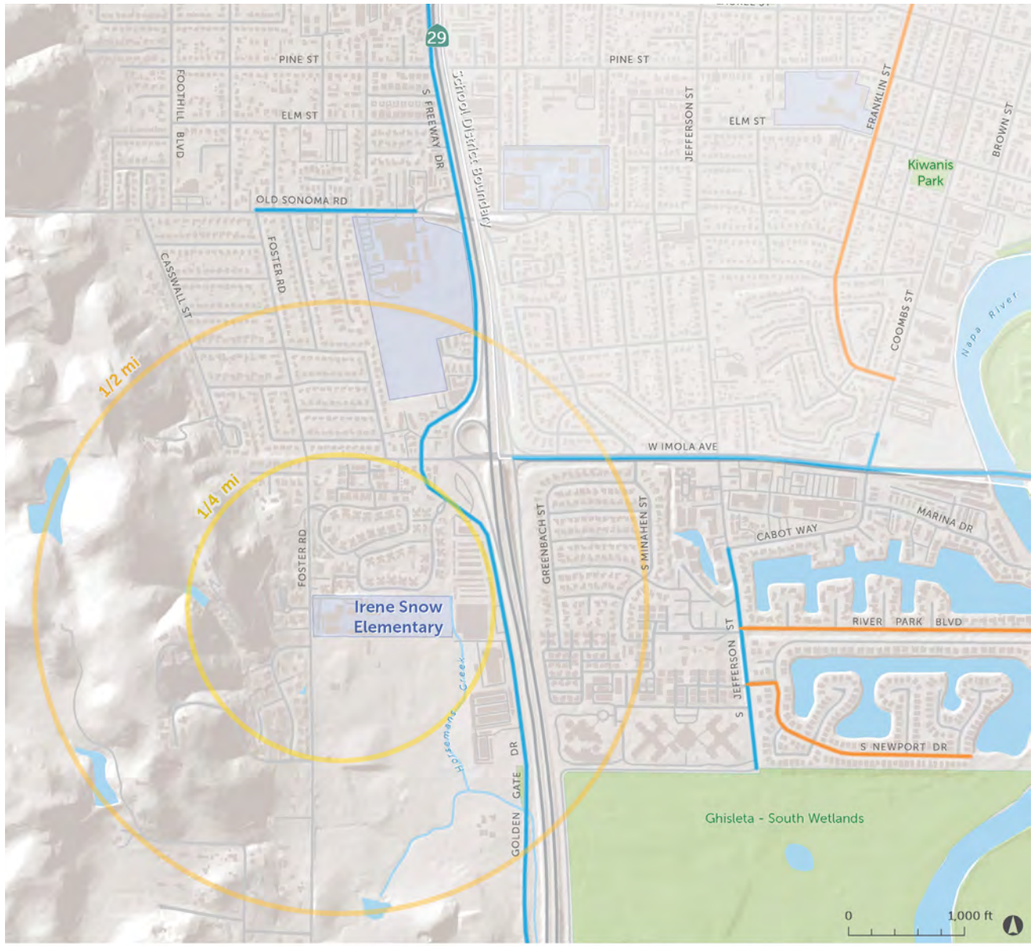
The Vine transit bus stop on West Imola Avenue.

BICYCLE AND PEDESTRIAN INFRASTRUCTURE

The school provides four wave-style bike racks (16 spaces) for bike parking on the north side of campus, next to the gated playground.

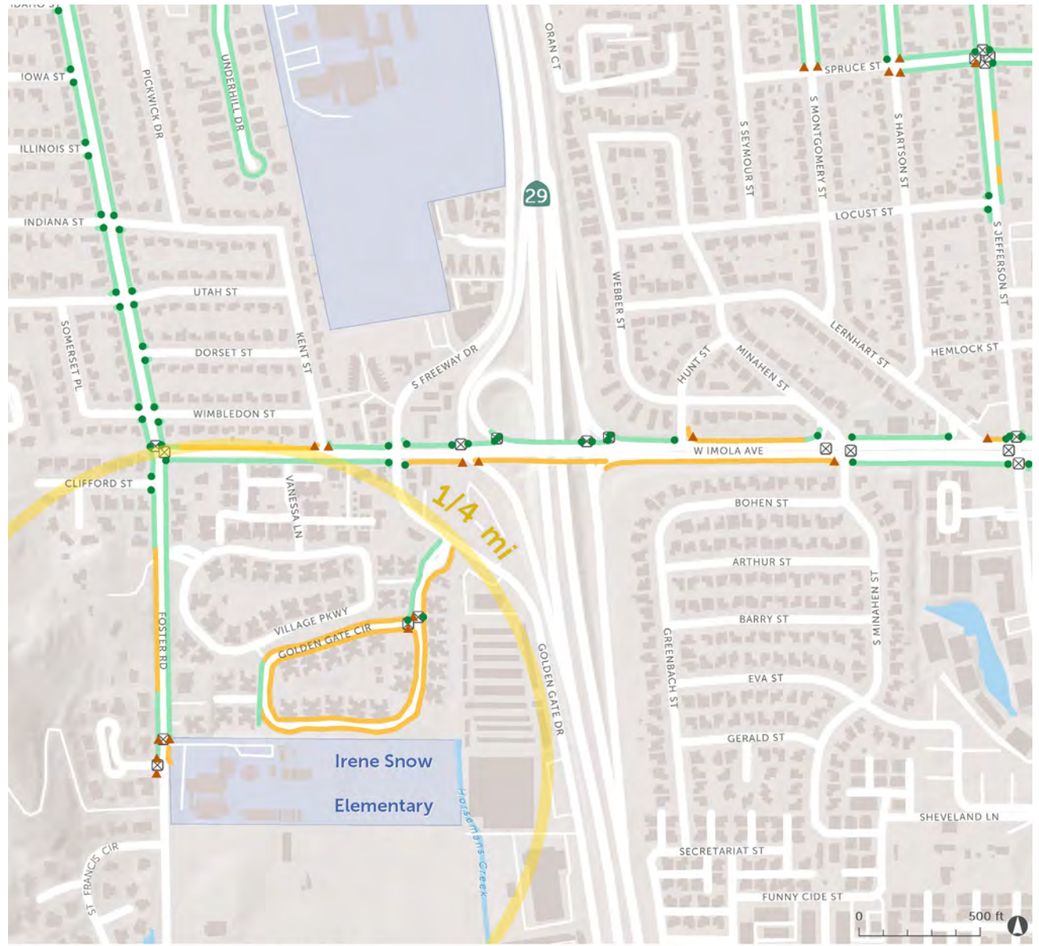
Snow Elementary School bike parking.

MAP OF EXISTING BICYCLE FACILITIES



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

MAP OF EXISTING PEDESTRIAN FACILITIES



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

ENCOURAGEMENT AND EDUCATION PROGRAMS

Snow Elementary has sometimes participated in annual countywide encouragement events such as Bike to School Day and Walk and Roll to School Day. Bike to School Day and Walk and Roll to School Day are annual encouragement events facilitated by Napa County Safe Routes to School in the spring and fall, respectively, that celebrate students making the healthy choice to walk or bike to school.

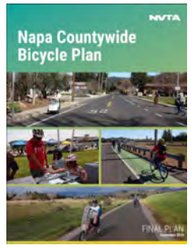
The school has also hosted one bicycle safety education class, provided by the Napa County Office of Education, to 18 students in 2016-17. Bicycle safety education focuses on 4th and 5th grade levels and includes between 5-10 hours of bicycle specific curriculum, spent both in the classroom and on-bike.

Walk and Roll to School Day encourages students to actively travel to school (photographed above at Northwood Elementary School).

YEAR	EVENT	STUDENT PARTICIPANTS
2016/17	Bike Safety Education	18
2016/17	Bike to School Day	22
2017/18	Bike to School Day	37
2018/19	Walk and Roll to School Day	22
2018/19	Bike to School Day	1

Figure 5: Encouragement and Education Data

EXISTING PLANS



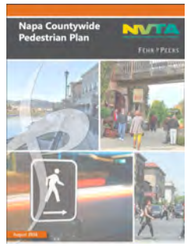
NVTA Napa Countywide Bicycle Plan (2019):

The Napa Countywide Bicycle Plan recommends improving bicycle facilities around the school site. The Bicycle Plan suggests implementing a Class II bike lane on Foster Avenue south of West Imola Avenue, where the school's entrance sits, and a Class III urban bikeway north of West Imola Avenue. The plan also recommends installing Class II bike lanes along West Imola Avenue east of Foster Road to connect to existing Class II bike lanes at Golden Gate Drive. The entire Imola Avenue corridor is also designated as a study corridor.

NVUSD Facilities Master Plan (2016):

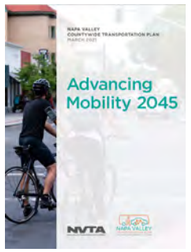
NVUSD's Facilities Master Plan lists several projects for Snow Elementary School, which have been implemented. These projects include installation of fencing around the school perimeter and the addition of a new parking lot. School perimeter fencing was planned to provide a single point of entry and wayfinding signage for each elementary school in NVUSD.

MEASURE H
BUILDING ON OUR VISION
NVUSD



NVTA Napa Countywide Pedestrian Plan (2016):

The Napa Countywide Pedestrian Plan lists two recommended improvements near the school site. The Foster Road Sidewalks project, which would build sidewalks adjacent to the school on Foster Road, and the Imola Corridor Bicycle and Pedestrian Improvements project, which would add pedestrian and bike facilities along Imola Avenue, from Foster Road to the city's eastern limits.



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 – only one project, the Imola Complete Streets Corridor, is near 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."

Imola Corridor Complete Streets Improvement Plan (2020):

The Imola Complete Streets Improvement Plan, finalized in September 2020 by the Napa Valley Transportation Authority, outlines a vision of transportation improvements for the corridor, documents existing conditions and challenges, and presents an implementation plan to improve multimodal travel along Imola Avenue from Foster Road to 4th Avenue. The corridor is split into three segments; the west segment, from Foster Road to Jefferson Street, is the one that would impact school travel the most. This segment has the highest benefit-cost ratio of all three segments, and offers improvements such as curb extensions, improved crosswalks, sidewalks, and bike lanes.

WALK **AUDIT**

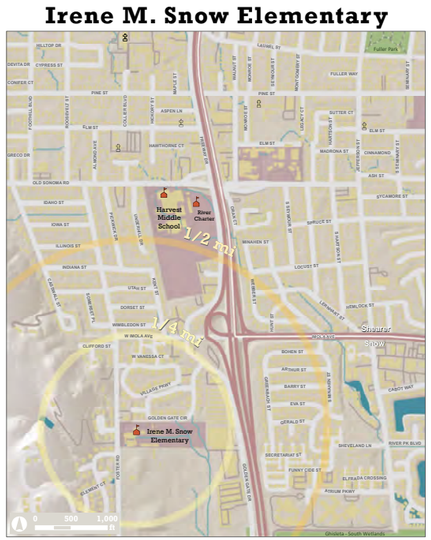
Date: 11/05/20
Day of the Week: Thursday

Meeting Time: 10:00 AM
Weather: Sunny and clear

METHODOLOGY

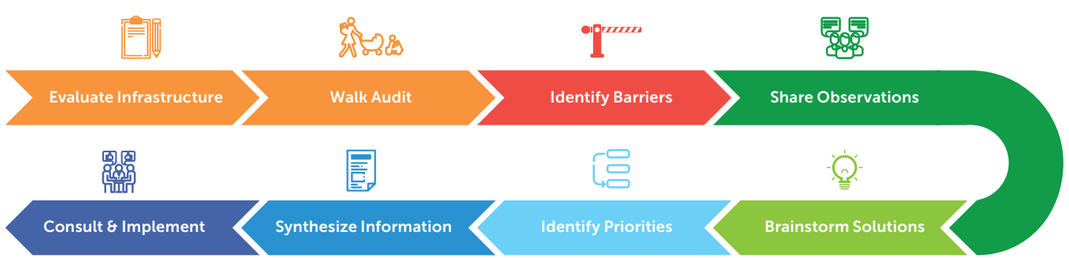
Normally, the Community Walk Audit process would bring together school stakeholders, including parents, school staff, and community members, with the SRTS team to observe existing conditions during pick-up or drop-off time, identify barriers to safe walking or biking, and brainstorm solutions. During 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.

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



SRTS team members used a map with quarter- and half-mile radii labeled during the modified Walk Audit.

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 Snow Elementary School. In November 2020, 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 Foster Road from St Francis Circle to Old Sonoma Road and West Imola Avenue from Foster Road to South Freeway Drive.

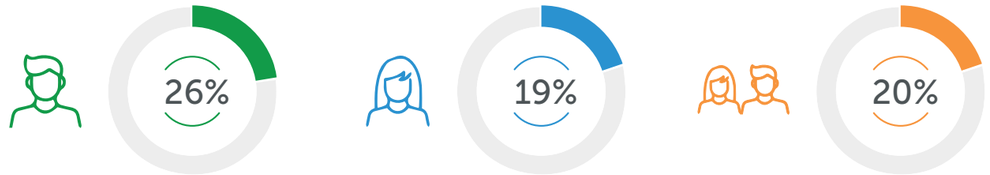


CONTEXT FOR **RECOMMENDATIONS**

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.

RECOMMENDATIONS #NAI-249 AND NAI-251: FOSTER ROAD BIKE FACILITIES

Narrative – As the school's primary entrance is on Foster Road, most students travel along Foster Road for some part of their route to school. Foster Road between Old Sonoma Road and West Imola Avenue connects to several residential streets in the school's enrollment boundaries that are within walking or biking distance of the school; south of West Imola Avenue, there are very few other side streets connecting to Foster Road, making this south segment highly-travelled during arrival and dismissal times. Foster Road is also an important collector that provides an alternate route to Highway 121 and Highway 29 and is a key part of a route to Highway 12; consequently, this corridor experiences high volumes and speeds of traffic.

There are no bicycle facilities on Foster Road.

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.

- ***Motorist speeding –*** Foster Road is a long and straight collector corridor serving several neighborhood streets and larger collectors such as Old Sonoma Road and Imola Avenue, with no traffic-calming and little traffic control, which facilitates frequent motorist speeding. This is particularly the case south of West Imola Avenue as land use becomes more rural.

RECOMMENDATIONS

- ***NAI-249 Class III bike boulevards –*** From Old Sonoma Road to West Imola Avenue, install Class III bike boulevards with sharrows, signage, and significant traffic-calming.

- ***NAI-251 South bike facilities –*** From West Imola Avenue to St. Francis Circle At minimum, install Class II bike lanes with traffic-calming. Analyze the potential to install Class IV separated bike lanes/bikeway (2-way) (separated facilities preferred).

RECOMMENDATION #NAI-254: WEST IMOLA AVENUE BICYCLE/PEDESTRIAN CONNECTIVITY

Narrative – West Imola Avenue is a crucial east-west connection in Napa's transportation network. The corridor is a significant east-west collector that becomes part of SR 121 and connects to SR 29, SR 221, and Soscol Avenue and provides access to several residential neighborhoods and commercial destinations such as pharmacies, shopping centers, and grocery stores. A large portion of Snow Elementary School's default enrollment boundary is on the east side of SR 29, requiring students to travel along Imola Avenue; however, the current design of Imola Avenue is extremely auto-oriented and hostile to bicyclists and pedestrians.

IDENTIFIED BARRIERS

Imola Avenue has significant gaps in bicycle and pedestrian infrastructure.

- ***No bicycle facilities –*** The lack of bicycle facilities from Foster Road to the northbound SR 29 on/off ramps fails to provide a dedicated space for bicyclists and indicate to motorists where to expect bicyclists, making the corridor unwelcoming to bicyclists, especially given the high volumes and speeds of vehicles.

- ***High-stress existing bike lanes –*** The existing unprotected bicycle facilities east of northbound SR 29 are stressful for bicyclists on the high volume and speed corridor.

- ***Sidewalk gaps/broken sidewalks –*** Significant sidewalk gaps force pedestrians to walk in the road or cross the street in an unmarked location to reach the other existing sidewalk (if present). Large sections of missing sidewalks can prevent students from walking to school altogether. Broken sidewalks present trip hazards and issues for pedestrians using mobility assistance devices.

- ***Missing crosswalks –*** Missing crosswalks at many intersections along the corridor fail to alert motorists to presence of pedestrians and reduce motorist yielding behavior.

- ***Long crossing distances –*** Long crossing distances at intersections along the corridor require pedestrians to be in the roadway for a longer time than necessary, increasing the risk of collisions, and push pedestrians further out of the range of vision of motorists. This is particularly problematic at uncontrolled crosswalks, where high-speed traffic has a narrower range of vision.

- ***Uncovered bus stop –*** The uncovered bus stop at Foster and Imola leaves transit users exposed to unfavorable weather such as rain or strong winds and can deter transit use.

RECOMMENDATIONS

- ***Imola Corridor Plan –*** Secure funding for and implement the Imola Corridor Complete Streets Improvement Plan.

- ***Interim quick-build –*** Evaluate potential for quick-build treatments to calm traffic and create a continuous, separated path for bicyclists and pedestrians along corridor in the interim.

RECOMMENDATION #NAP-036: GROUP ENCOURAGEMENT PROGRAMS

Narrative – Vehicle congestion in the school zone is 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.

RECOMMENDATIONS

- ***Walking bus/bike train/carpool program –*** Develop a 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 for to reduce the number of cars in the school zone and may be more feasible for students who live outside of the school's enrollment boundaries or in neighborhoods that are separated by a significant infrastructure barrier, like SR 29.

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 #NAP-038: BICYCLE AND 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

- ***Infrequent safety education –*** Infrequently provided bicycle/pedestrian safety education 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, like the one photographed above at Browns Valley Elementary, are one form of bike safety education that teach kids rules of the road and safe biking practices.

RECOMMENDATION #NAI-247: PARKING LOT CROSSWALKS

Narrative – The current configuration of the school requires students arriving on Foster Road to cross both the parking lot and the loading zone to reach the main entrance to campus. The first crosswalk across the parking lot is marginally raised and constructed out of the same concrete material as the sidewalk. The second crosswalk across the loading zone is an at-grade, high-visibility painted crosswalk. There are no sidewalks or separated paths around the parking lot or loading zone that allow pedestrians and bicyclists to bypass the crosswalks.

IDENTIFIED BARRIERS

- ***High conflict-risk crosswalks –*** The existing crosswalks across the parking lot and loading zone create a high risk of conflict between pedestrians, bicyclists, and motorists, particularly when parked cars block visibility of small children, despite this being the primary entrance to the school.

RECOMMENDATIONS

- ***Raised crosswalks –*** Upgrade the existing crosswalks across the parking lot and loading zone to raised crosswalks to improve pedestrian visibility and slow vehicle speeds.
- ***Parking stall removal –*** Remove the adjacent parking stalls on both sides of the crosswalks (4 stalls total) to improve pedestrian visibility – this will require relocating the stalls that are compliant with the Americans with Disabilities Act.

All students arriving on Foster Road must cross through the parking lot and loading zone to reach campus.

RECOMMENDATION #NAI-253: FOSTER ROAD AND WEST IMOLA AVENUE CURB EXTENSIONS

Narrative – As Foster Road and West Imola Avenue are both key collectors along direct routes from nearby neighborhoods to the school campus, these highly-travelled roads both experience even higher volumes during peak commute hours, causing some congestion at their intersection. The Foster and West Imola intersection is also an unavoidable part of the route to school for most students in the school's default enrollment boundaries, given the limited connections to Foster Road south of West Imola Avenue.

IDENTIFIED BARRIERS

- ***Faded low-visibility crosswalks –*** The existing crosswalks in the intersection are extremely faded and painted with a standard, parallel line pattern, despite being located in a highly-travelled school zone.
- ***Long crossing distance –*** The long crossing distance across West Imola Avenue requires pedestrians to be in the roadway for a longer time than necessary, increasing the risk of collisions, and pushes pedestrians further out of the range of vision of motorists.
- ***Wide curb radii –*** Wide curb radii on the northeast and southeast corners facilitate fast motorist turning motions through the intersection, which is particularly hazardous with the right-turn pocket from northbound Foster onto West Imola Avenue.
- ***Lack of red zones –*** The lack of "no parking" red zones around the intersection allows motorists to park adjacent to the crosswalks and obstruct pedestrian visibility.

The crosswalks at Foster and Imola are extremely faded.

RECOMMENDATIONS

- ***High-visibility school zone pattern –*** Paint crosswalks with high-visibility school zone pattern
- ***Curb extensions –*** Install curb extensions on all crosswalk curbs to improve pedestrian visibility and motorist yielding behavior and reduce crossing distances and curb radii.

RECOMMENDATION #NAI-256: FOSTER ROAD AND INDIANA STREET CURB EXTENSIONS

Narrative – Foster Road between Old Sonoma Road and West Imola Avenue has no traffic-calming and is used by motorists as a detour to avoid more congested routes, which can result in motorists speeding along the long, straight corridor. School traffic of all transportation modes travelling from these northern neighborhoods concentrate on Foster Road, creating a risk of conflict between road users.

IDENTIFIED BARRIERS

- ***No crosswalks –*** The lack of crosswalks at the intersection fail to alert motorists to presence of pedestrians and reduce motorist yielding behavior.
- ***Uncontrolled traffic –*** The lack of traffic control for Foster Road traffic at the intersection allows motorists to drive through the crosswalk without slowing down and reduces motorist yielding behavior.
- ***Wide curb radii –*** Wide curb radii on the east corners facilitate fast motorist turning movements through the intersection; the southeast curb is pushed back enough to extend the crossing distance.

Wide curb radii at Foster and Indiana intersection allow motorists to make fast turns.

RECOMMENDATIONS

- ***Curb extensions –*** Install curb extensions on all corners of intersection, using the southeast extension to square up intersection, to increase motorist yielding behavior, reduce pedestrian crossing distance, and provide a traffic-calming effect.
- ***High-visibility crosswalks –*** Paint high-visibility crosswalks across all legs of intersection to increase pedestrian visibility and motorist yielding behavior.

RECOMMENDATION #NAI-258: WEST IMOLA AVENUE AND KENT STREET CURB EXTENSIONS

Narrative – The westbound West Imola Avenue sidewalk ends at Kent Street with no crosswalk to the continuous eastbound Imola Avenue sidewalk. While this is one of many sidewalk gaps along the Imola Avenue corridor, this particular sidewalk gap is along the route to school for students travelling from multifamily housing in the enrollment boundary on South Freeway Drive, creating a significant barrier for student pedestrians.

IDENTIFIED BARRIERS

- ***Sidewalk gap –*** Sidewalk gaps create barriers in the pedestrian network that force pedestrians to either walk in the road or cross the street in an unmarked location to reach the other existing sidewalk (if present). Large sections of missing sidewalks can prevent students from walking to school.

RECOMMENDATIONS

- ***New crosswalk –*** Paint a new high-visibility crosswalk with curb extensions on both curbs across West Imola Avenue on the east side of intersection to connect the westbound sidewalk to the eastbound sidewalk. Utilize quick-build materials to provide pedestrian connection pending construction of Imola Corridor Plan.

There is no crosswalk across West Imola Avenue at Kent Street.

RECOMMENDATION #NAP-037: ANNUAL ENCOURAGEMENT EVENTS

Narrative – Snow Elementary School has participated sometimes in the annual encouragement events facilitated by Napa County Safe Routes to School: Bike to School Day and Walk and Roll to School Day. Encouragement programs can help raise awareness of the benefits of walking and biking to school and generate enthusiasm towards developing healthy and active lifestyle habits. These annual events provide students who may be considering walking or biking with an opportunity to try it out in a positive, community-celebrated setting. In conjunction with infrastructure improvements, encouragement programming can help increase mode shift towards active transportation.

IDENTIFIED BARRIERS

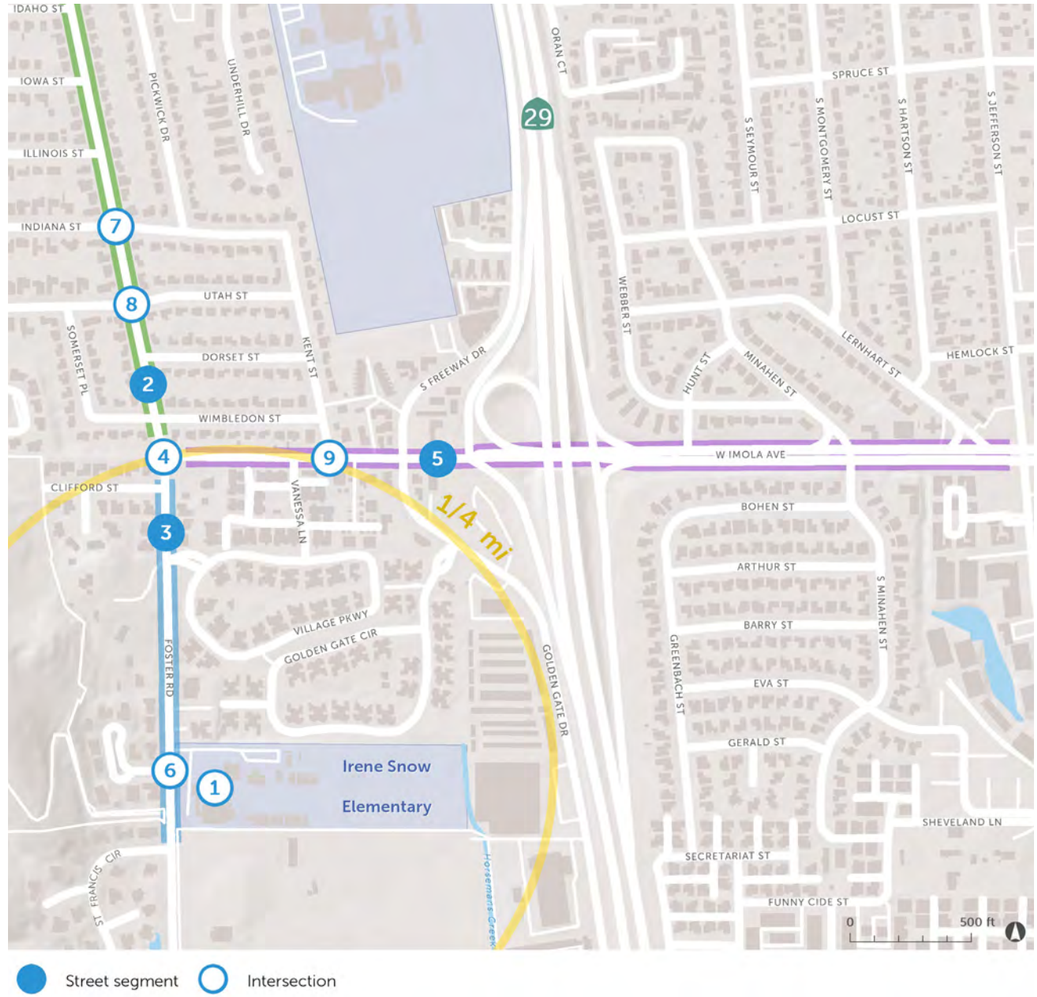
- ***Infrequent encouragement event participation –*** Infrequent participation in annual countywide encouragement events reduces the impact of these events on potential mode shift to active transportation.

RECOMMENDATIONS

- ***Annual encouragement events –*** Participate annually in Bike to School Day and Walk and Roll to School Day with the goal of increasing participation over time. These annual events are excellent primers for schools begin implementing their own, more frequent encouragement events, such as monthly Walk and Roll Wednesdays.

Walk and Roll to School Day, as photographed above at Pueblo Vista Elementary School in 2018, is a fun countywide encouragement event.

MAP OF RECOMMENDATIONS



Map 5: Recommendations

TABLE OF RECOMMENDATIONS

Infrastructure:

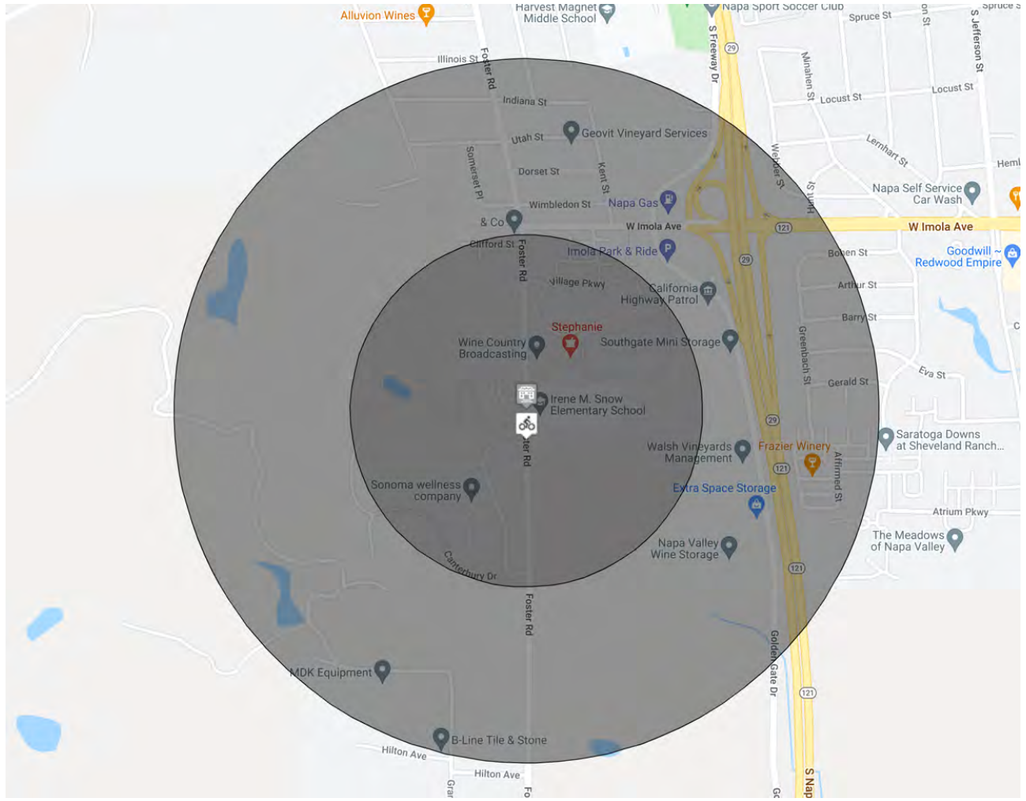
	LOCATION	ID #	BARRIER	RECOMMENDATION	COST	PRIORITY
1	School grounds	NAI-246	Bike racks far from campus entrance gates and bicyclist entrance route	Install bike racks inside campus gates near main entrance	$	**Low**
		NAI-247	Students must cross parking lot and loading zone to reach campus	Upgrade existing crosswalks across parking lot to raised crosswalks. Remove the adjacent parking stalls on both sides of the crosswalk (4 stalls total) to improve pedestrian visibility – requires relocating ADA-accessible stalls.	$-$$	**Medium**
		NAI-248		Assess and implement more direct path to existing bike racks for bicyclists arriving from north of campus	$	**Low**
2	Foster Road from Old Sonoma Road to West Imola Avenue	NAI-249	Long straight collector corridor with no traffic-calming or traffic control facilitates motorist speeding; no bicycle facilities	Install Class III bike boulevard* with sharrows, signage, and significant traffic-calming	$$	**High**
		NAI-250	No crosswalks at intersections along corridor	Paint crosswalks parallel to Foster Road at all intersections and paint necessary red zones to maintain pedestrian visibility (see recommendations for specific intersections for additional treatments)	$	**Low**
3	Foster Road from West Imola Avenue to St. Francis Circle (north)	NAI-251	Long straight collector corridor with no traffic-calming or traffic control facilitates motorist speeding; no bicycle facilities	At minimum, install Class II bike lanes* with traffic-calming. Analyze potential to install Class IV separated bike lanes/bikeway (2-way) (separated facilities preferred)	$$	**High**
		NAI-252	Southbound sidewalk gap between Clifford Street and Jacqueline Court	Fill sidewalk gap*	$$	**Low**
4	Foster Road and West Imola Avenue intersection	NAI-253	Faded low-visibility crosswalk patterns in school zone; long crossing distance across W Imola Ave; wide curb radii on northeast and southeast corners facilitate fast motorist turning movements (esp with right turn pocket on NB Foster); lack of red curbs allows motorists to park adjacent to crosswalks	Paint crosswalks with high-visibility school zone pattern. Install curb extensions on all curbs in crosswalks to improve pedestrian visibility and motorist yielding behavior and reduce crossing distances and curb radii	$$	**Medium**
5	West Imola Avenue from Foster Road to South Jefferson Street	NAI-254	No bicycle facilities from Foster Road to NB 29 on/off ramps; existing unprotected bicycle facilities east of NB 29 are high-stress on the high volume and speed corridor; significant sidewalk gaps and broken sidewalks on both sides of corridor; missing crosswalks and long crossing distances across uncontrolled traffic at intersections; uncovered bus stop near Foster Road (S Line)	Implement Imola Corridor Plan*.	$$-$$$	**Medium**
6	Foster Road and Jacqueline Court intersection	NAI-255	Faded low-visibility crosswalk pattern in school zone; poor motorist yielding behavior for crosswalk across Foster Road; wide curb radii on west curbs facilitate fast motorist turning movement	Paint crosswalk with high-visibility school zone pattern; install curb extensions for crosswalk across Foster Road	$-$$	**Low**
7	Foster Road and Indiana Street intersection	NAI-256	No crosswalks, Foster Road traffic is uncontrolled, wide curb radii on east corners facilitate fast motorist turning movements, southeast curb is pushed back and extends crossing distance	Install curb extensions on all corners of intersection, using southeast extension to square up intersection, and paint high-visibility crosswalks across all legs of intersection	$$	**Medium**
8	Foster Road and Utah Street intersection	NAI-257	No crosswalks	Install curb extensions on all corners of the intersection and paint crosswalks across all legs of intersection	$$	**Low**
9	West Imola Avenue and Kent Street intersection	NAI-258	Westbound Imola sidewalk ends at Kent Street with no crosswalk to continuous eastbound Imola sidewalk	Paint high-visibility crosswalk with curb extensions across W Imola Ave on east side of intersection to connect westbound sidewalk to eastbound sidewalk. Utilize quick-build materials to provide pedestrian connection pending construction of Imola Corridor Plan.	$	**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	Congestion in school zone	NAP-036	Develop a carpool program to reduce the number of cars in the school zone adjacent to a walking school bus/bike train program to encourage active transportation, build sense of community, and improve sense of safety	Various	Monthly, with goal of increasing frequency	$	**High**
2	Infrequent participation in encouragement events	NAP-037	Continue growing participation in countywide encouragement events	School site	Annual	$	**Medium**
3	Infrequently - provided education	NAP-038	Provide bicycle and pedestrian safety education to all students	School site	Annual	$	**High**

COLLISION MAP AND DATA



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

Summary Statistics

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

Collision List

DATE	TIME	PRIMARY	SECONDARY	BIKE/PED
2017-05-26	08:22	Foster Rd	St Francis Cir	Yes/No

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

APPENDICES

FIGURES & MAPS

FOOTNOTES

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

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

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

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

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

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

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

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

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

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

APPENDIX A

EMC Survey Toplines

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

Evaluation: Research & Methodology

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Yes	43
No	56
(No response)	0

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Yes	79
No	21
(No response)	-

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

Yes	78
No	21
(No response)	0

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

47. Do you identify as…

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

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

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

49. Do you consider yourself to be…

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

50. Do you…

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

THANK YOU!

APPENDIX B

Universal Recommendations

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

Appendix B
Napa County SRTS Walk Audit Report
Universal Recommendations

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

Universal Recommendation 1: High-Visibility School Zone Crosswalks

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

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

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

Universal Recommendation 2: Intersection Daylighting

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

---

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

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

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

Universal Recommendation 3: Sidewalk Width Adjacent to School Campus

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

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

Universal Recommendation 4: Class III Bike Boulevard Traffic-Calming

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

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

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

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

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

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

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

APPENDIX C

Quick Build Brochure

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

QUICK-BUILD BIKEWAY NETWORKS FOR SAFER STREETS

Delivering Safer Streets in Weeks or Months, Instead of Years

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

Photo credit: Alta Planning + Design

CASE STUDY

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

WHY QUICK-BUILD? WHY NOW?

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

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

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

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

WHAT IS QUICK-BUILD?

The Basics

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

Materials

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

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

CASE STUDY

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

Photo credit: Bike SLO County

WHO?

Your Quick-Build Project Team

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

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

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

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

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

Community Engagement

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

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

CASE STUDY

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

Photo credit: Holly Raines

WHERE?

Which Projects are Best for Quick-Build?

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

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

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

Photo credit: Alta Planning + Design

Funding for Quick-Build

POTENTIAL FUNDING SOURCES IN CALIFORNIA

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

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

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

CALIFORNIA BICYCLE COALITION

APPENDIX D

Bike Parking Guidance

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

ESSENTIALS OF

BIKE PARKING

Selecting and installing bicycle parking that works

apbp

Association of Pedestrian and Bicycle Professionals

Expertise for Active Transportation

Essentials of Bike Parking
Revision 1.0, September 2015

Acknowledgments

Lead author - Nathan Broom

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

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

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

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

Association of Pedestrian and Bicycle Professionals

bikeparking@apbp.org
www.apbp.org

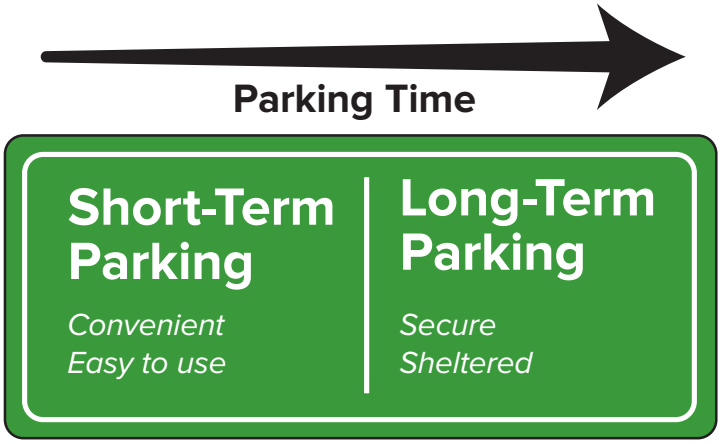
TABLE OF CONTENTS

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

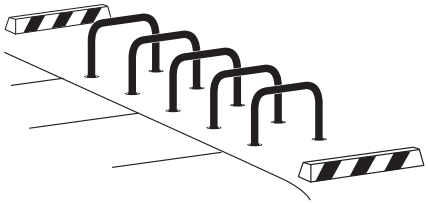
Effective bike parking for short-term users depends on two main factors: 1) proximity to the destination and 2) ease of use.

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.

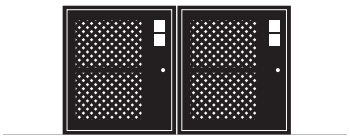
BIKE CORRALS

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**

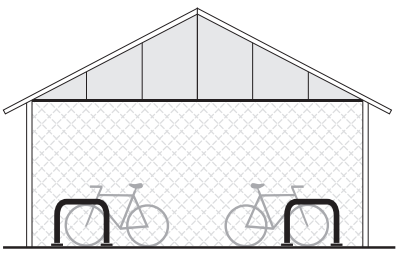
LONG-TERM PARKING

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

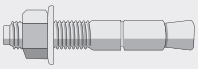
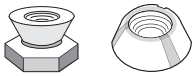
Selecting an appropriate installation surface and technique is key to creating bicycle parking that remains secure and attractive over time.

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

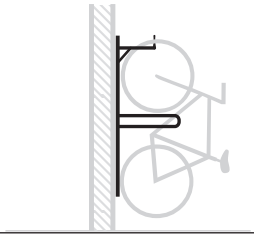
These rack styles do not meet all performance criteria but may be appropriate in certain constrained situations.

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

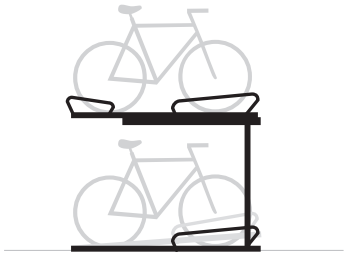
Variation of the wheelwell-secure rack designed to stagger handlebars vertically or horizontally to increase parking density. Reduces usability and limits kinds of bikes accommodated, but contains bikes well and aids in fitting more parking in constrained spaces.

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.

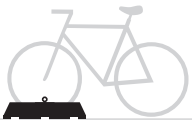
SCHOOLYARD
also called comb, grid

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

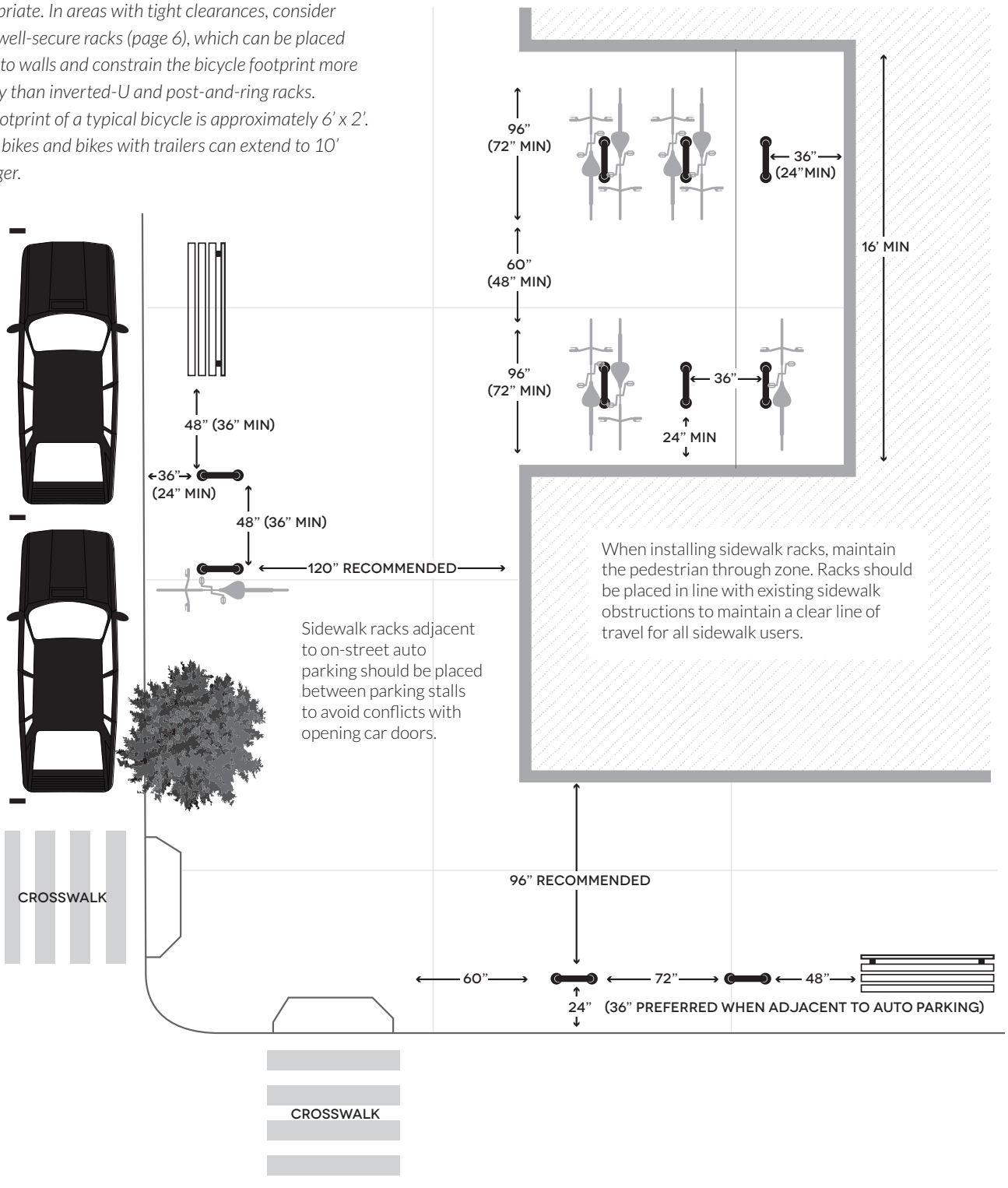
Most bicycle parking racks are made of carbon steel or stainless steel. Carbon steel requires a surface coating to resist rust while appropriate grades of stainless steel need no coating. Not all materials and coatings with the same name perform equally. Square tubing provides a security advantage as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