# Walk Audit Report


SafeRoutes
Napa County

CALISTOGA JUNIOR / SENIOR HIGH SCHOOL

# CALISTOGA JUNIOR/SENIOR HIGH SCHOOL

## 1608 LAKE STREET
## CALISTOGA, CA

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# EXECUTIVE **SUMMARY**

## THE NAPA COUNTY SAFE ROUTES TO SCHOOL PROGRAM

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

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

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

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

## WHY SAFE ROUTES TO SCHOOL?

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

Studies have linked SRTS programs to increased walking and biking to school[*†] and reduced pedestrian-motorist collisions[‡§]. 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[**].

Student health has been linked to improved academic performance[††‡‡]. 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[§§]. Families are also provided with a low-cost transportation option that can significantly reduce their annual expenses[***].

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



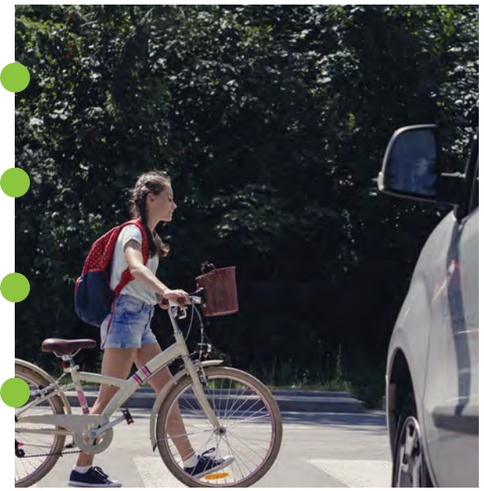
Schools and the community benefit immensely when students choose to walk or bike.

Student health has been linked to improved academic performance.

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

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

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



## THE SIX E'S

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

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

### Engagement
Listen to community members and work with existing community organizations.

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

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

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

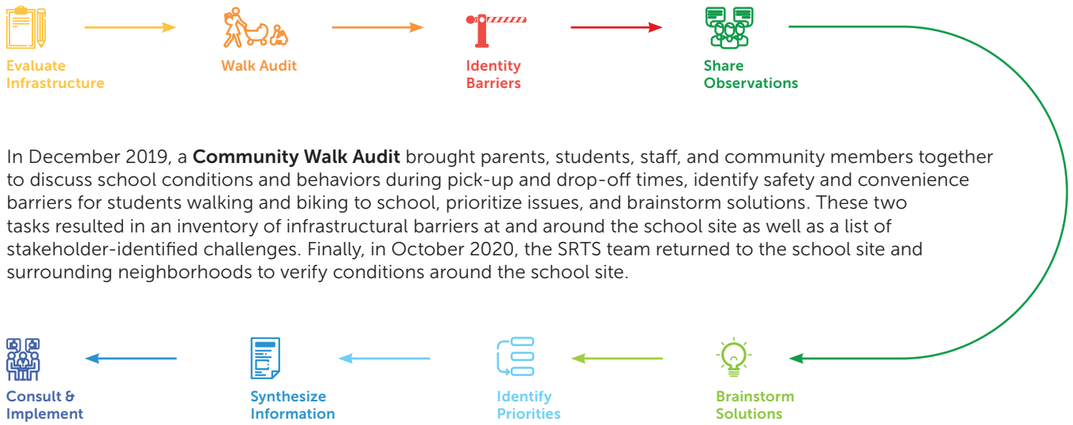
### Education
Ensure that everyone learns how to travel safely and why biking and walking are important.

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

**Enforcement (no longer an "E'):**
Enforce traffic safety laws and school policies and target risky behaviors. No longer recommended as foundational to the start, maintenance, or growth of Safe Routes to School programs.

## REPORT PROCESS

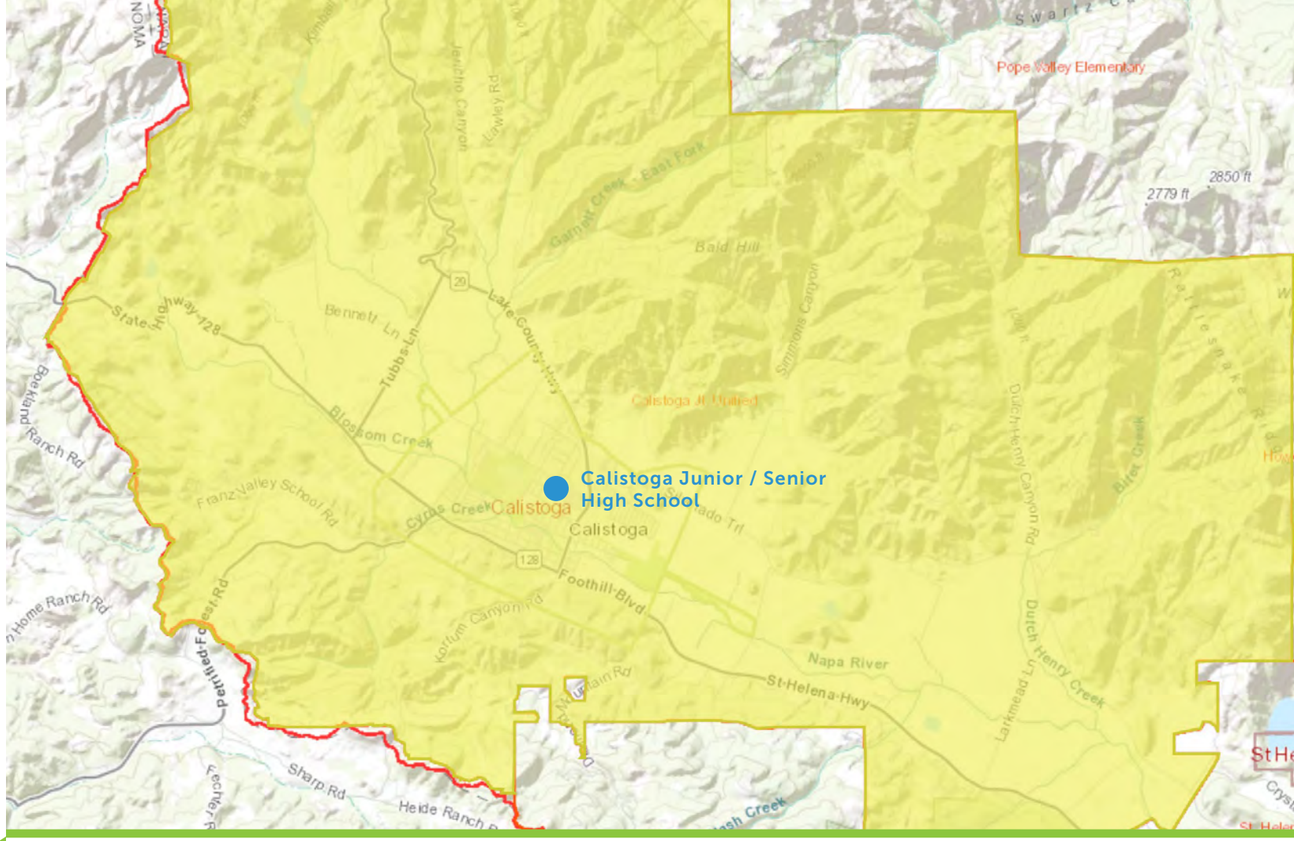
The SRTS team conducted a comprehensive evaluation of the barriers to students walking and biking to and from Calistoga Junior/Senior High School over the course of 2 years, starting in the summer of 2018. Information on physical and behavioral challenges was collected in multiple phases. In August 2018,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




In December 2019, a **Community Walk Audit** brought parents, students, staff, and community members together to discuss school conditions and behaviors during pick-up and drop-off times, identify safety and convenience barriers for students walking and biking to school, prioritize issues, and brainstorm solutions. These two tasks resulted in an inventory of infrastructural barriers at and around the school site as well as a list of stakeholder-identified challenges. Finally, in October 2020, the SRTS team returned to the school site and surrounding neighborhoods to verify conditions around the school site.

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






*Map 1: Enrollment Boundary of Calistoga Junior / Senior High School*

Enrollment boundary shown above. As Calistoga Junior/Senior High School is the primary public junior/senior high school in Calistoga, its enrollment boundary covers the entire Calistoga Joint Unified School District boundary, which includes the city of Calistoga and the surrounding area. According to the school's principal, very few students (roughly 2%) transfer into Calistoga Junior/Senior High School from outside the school's enrollment boundary.

## CALISTOGA JUNIOR / SENIOR HIGH **SCHOOL SUMMARY**

| | | | |
|---|---|---|---|
| Principal | Raul Guerrero | Grades | 7-12 |
| District | Calistoga Joint Unified | Enrollment | 392 |
| First Bell | 8:00 AM (M); 8:20 AM (T-F) | Street | 1608 Lake Street |
| Last Bell | 3:30 PM | City | Calistoga, CA 94515 |

**Overall Facility Rating**[****]**: Good**

## DATA

No school-specific data is currently available regarding the number of students who walk and bike to school regularly. Events such as Walk and Roll to School Day (see "Encouragement and Education" section) have received limited engagement and are not a reliable source of baseline data. The school's principal reported that most students walk, bike, or roll to school, and not many drive. Additional work is needed to establish a baseline of active transportation use for this school.

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

### Total Enrollment by Group (2019-20)

| ETHNICITY | CALISTOGA JUNIOR/ SENIOR HIGH | DISTRICT |
|---|---|---|
| Black or African American | 0.0% | 0.1% |
| American Indian or Alaska Native | 0.5% | 0.2% |
| Asian | 0.3% | 0.2% |
| Filipino | 2.6% | 1.3% |
| Hispanic or Latino | 86.2% | 85.2% |
| Native Hawaiian or Pacific Islander | 0.3% | 0.1% |
| White | 9.9% | 10.9% |
| Not Reported | 0.2% | 1.9% |
| **EXPERIENCE** | | |
| Socioeconomically Disadvantaged | 79.6% | 78.8% |
| English Learners | 24.2% | 44.1% |
| Students with Disabilities | 10.2% | 14.2% |
| Foster Youth | 0.0% | 0.1% |

*Figure 2: Enrollment Data by Group*

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

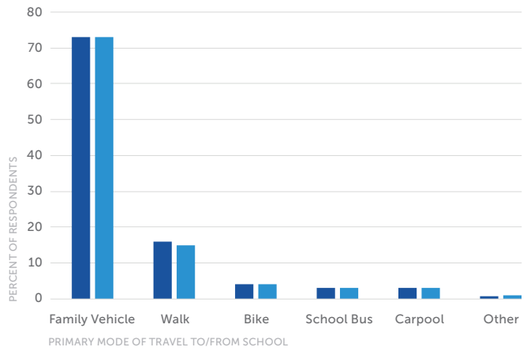



*Figure 1: EMC Research Polling Results*

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

### Total Enrollment by Grade Level

| | NUMBER OF STUDENTS |
|---|---|
| Grade 7 | 66 |
| Grade 8 | 72 |
| Grade 9 | 85 |
| Grade 10 | 56 |
| Grade 11 | 61 |
| Grade 12 | 52 |
| **Total** | **392** |

*Figure 3: Enrollment Data by Grade*



## NEIGHBORHOOD CONTEXT

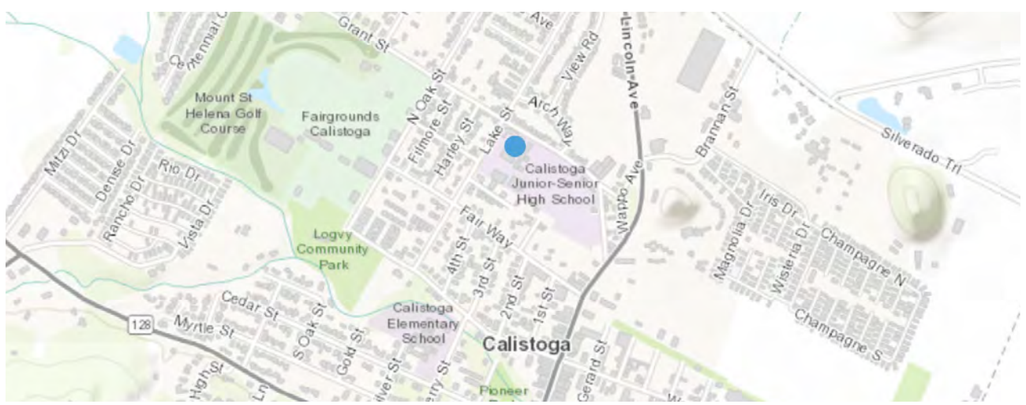
Calistoga Junior/Senior High School is located on the southwest corner of Lake Street and Grant Street in the middle of the city of Calistoga. Lake Street borders the school to the north, Grant Street to the east, Fair Way to the west, and Stevenson Avenue and Lincoln Avenue to the south. Lake Street, Grant Street, and Lincoln Avenue are significant arterials, and Fair Way is a collector. Lincoln Avenue, a segment of SR 29, provides the primary east-west connection through Calistoga, and is one of the few roads with a bridge crossing the Napa River. Lincoln Avenue also intersects with Highway 128 and the Silverado Trail on the north end of the City. Lincoln Avenue is Calistoga's "Main Street" in the heart of the City's downtown commercial area. Grant Street and Fair Way provide a direct route between north Calistoga and Lincoln Avenue.

The school is surrounded by mostly single-family residential neighborhoods to the east, north, and west, with some tourism-related and multi-family residential buildings scattered throughout these neighborhoods. These neighborhoods are a mix of single-family homes and moderate-density 2-story apartments. West of the school, on Fair Way, is a mobile home park. The residences to the north range in age, with some being built as early as the 1910s and some as late as the mid-1980s, though most were built in the 1950s to 1970s. The east neighborhoods were primarily built in the 1950s and 1960s, and the west neighborhoods were built in the 1910s and mid-20th century. Physical infrastructure varies due to the range and period of construction in these neighborhoods.South of the school are park/public recreation and tourism-related spaces, as well as a mobile home park.

The nearby street patterns are a mix of gridiron and fragmented parallel, with a few warped parallel streets. Gridiron street patterns are ideal for walkability, as they provide the most pedestrian route choice and interconnectivity, though this is reduced somewhat in fragmented and warped parallel streets.

Destinations of interest within walking distance of the junior/senior high school include Calistoga Elementary School to the west, where students may have siblings; Cal Mart, a local grocery store, to the southwest; and further southwest, the commercial downtown area.

*Fair Way (left), Grant Street (middle), Lake Street (right)*




*Map 2: School site location within the city of Calistoga.*

# EXISTING **CONDITIONS**

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

## SITE CIRCULATION

Calistoga Junior/Senior High School is located on the northeast corner of its block and is primarily accessed from Lake Street and Grant Street. A designated loading zone is provided along the Lake Street curb running adjacent to the school parking lot. However, motorists also drop off students along the curbs on Lake Street and Grant Street near the school, in the parking lot loop on Lake Street, and in the small parking lot off of Grant Street. Students often park along Fisher Street, which is across the street from the Lake Street parking lot, and walk onto campus. There are no sidewalks along Fisher Street, nor are there crosswalks at Fisher Street across Lake Street to access the school.

There are three primary pedestrian access points on Grant Street, including through the parking lot, several along and through the parking lot on Lake Street, and one back entrance at the end of Park Street. Only a few of the Lake Street entrance points have pedestrian infrastructure, such as crosswalks or sidewalks. The Park Street entrance is narrowed by fencing that makes it inconvenient to navigate with a bicycle.

*Fisher Street*

The school has one loading zone through the Lake Street parking lot. Motorists enter from the west driveway and exit through the east driveway, moving one-way through the parking lot. There is no signage or painted arrows indicating this circulation. The school does not provide a circulation policy for students and parents.

*Lake Street Loading Zone*

The Calistoga Joint Unified School District provides one bus route for both its Calistoga Junior/Senior High School students and Calistoga Elementary School students. This route provides for several stops along Highway 128 and throughout Calistoga. The school bus registration form provides includes safety tips on walking to and from school bus stops (Figure 4). As of the 2021-22 school year, the school district has temporarily eliminated bus service due to the driver shortage.

The Napa Valley Transportation Authority provides the Vine Transit Calistoga Shuttle, an on-demand transit service within Calistoga city limits for the general public that can be requested via phone, mobile app, or web page. Calistoga is also served through the Transportation Authority by the Vine Transit Route 10 Up Valley Connector, which runs from Napa Valley College in south Napa to Brannan Street in Calistoga. There are four stops in the City of Calistoga, three of which are within walking distance of Calistoga Junior/Senior High School. The closest stop to the school is on Lincoln Avenue (SR 29) at Fair Way.


*Park Street entrance*

### Primary Access Points to CJSHS Campus

Other access points exist to the south across the sports fields. The school has one circulation zone through its Lake Street parking lot. Motorists enter from the west driveway and exit through the east driveway, moving one-way through the parking lot. There is no signage or painted arrows indicating this circulation. The school does not provide a circulation policy for students and parents.

Loading Zone

Pedestrian Access

Vehicle Access


*Map 3: Primary access points to CJSHS campus. Other access points exist to the south across the sports fields.*

**Walking To and From School Bus Stops**

**It is the responsibility of parents/guardians to insure their students arrive safely at the assigned bus stop and are ready to load the bus 5 minutes prior to the scheduled pick-up time of the route.**

**It is recommended that parents/guardians make arrangements to receive students when they are returned to their bus stop at the end of the day.**

**Parents/guardians and students are encouraged to develop a plan to ensure their student/s arrives safely home at the end of the day.**

**The safe loading and unloading of students is our main concern. Therefore, students should be cautious with the walking route chosen to get to the school bus stop. Pupils should stay on sidewalks and walking paths while approaching and leaving school bus stops. Students shall wear safe clothing that is visible in hours of darkness.**

| |
|---|
| Go directly to and from the bus stop. Never run to the bus, always walk. |
| Plan the safest route with the fewest streets to cross. |
| If possible cross streets at corners, using crosswalks if available. Look in all directions before crossing, and when safe, walk across the street. Always obey traffic signals. |
| Do not run out in the street from between parked cars or shrubbery. |
| Walk to and from school bus stops, out of the roadway facing traffic. |
| Never accept a ride from a stranger. |
| Leave home early enough so you do not have to run to catch your bus. |

*Figure 4: Walking To/From School Bus Stops Tips*

## SCHOOL PARKING LOT AND GROUNDS

Calistoga Junior/Senior High School has two small parking lots – one on Lake Street and one on Grant Street – that are both staff parking only. The school does not provide a parking policy for students and parents.


### LAKE STREET

The main parking lot on Lake Street has 34 perpendicular parking spaces, including two spaces compliant with the Americans with Disabilities Act (ADA). Some cars also park next to the unpainted curb along the parking lot exit. Motorists enter from the west driveway and exit through the east driveway, moving in a one-way direction through the lot. One speed bump exists near the exit. There is one sidewalk along the east end of the parking lot and a crosswalk through the parking lot near the exit.

### GRANT STREET

The Grant Street parking lot has six spaces, including one ADA-accessible spot. This parking lot has one driveway as its entrance and exit to and from Grant Street. There are no sidewalks around this parking lot connecting Grant Street to the campus.



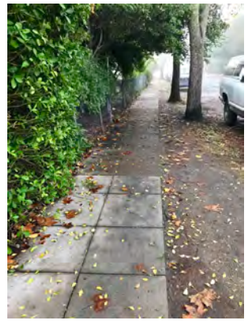

## BICYCLE AND PEDESTRIAN INFRASTRUCTURE

There is very little bicycle infrastructure around Calistoga Junior/Senior High School. Class II bike lanes exist on Lake Street from Grant Street to Fisher Street. The westbound bike lane ends abruptly at Fisher Street, with no signage or share-the-road markings following the end of the bike lane. North Oak Street has a Class III bike route marked by signage only from Grant Street to Washington Street. This Class III bike route continues south along Washington Street until the Calistoga Little League Tedeschi Field, where the roadway ends and the currently mile-long segment of the regional Vine Trail Class I shared-use path begins.

*Bike parking on school campus.*

The school provides bike racks; however, they are positioned closely together, limiting capacity by making the center aisle difficult to access. There are no lighting installments around the bike racks. The bike rack on the sidewalk is bolted down, but the rack in the dirt is not, and this location may get muddy in the winter.

*Bike lane ends at Lake Street*

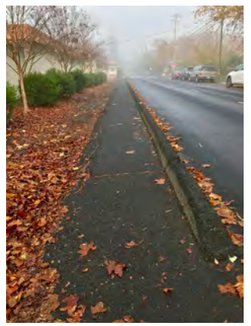


*Lake Street sidewalk*

Although the Calistoga Municipal Code defines official widths of City street roadways, including presence and widths of sidewalks, CMC 12.04.120 declares that these definitions "shall not apply to any street upon which the width of roadway or sidewalk has been or shall be established by action of the Council."

Most of the streets around the school have narrow 4'-wide sidewalks, although significant gaps exist and roads with sidewalks on only one side of the street are common. The disconnected sidewalk network forces students and other pedestrians to often walk in the street and maneuver around parked cars. There are no high-visibility crosswalks at any of the intersections around the school.

*Fair Way sidewalk*



*Grant Street sidewalk along the school*

Lake Street from Grant Street to Washington Street is missing a sidewalk on the north (westbound) side and has a narrow sidewalk on its south side that widens slightly in front of the school. The eastbound sidewalk disappears east of Grant Street.

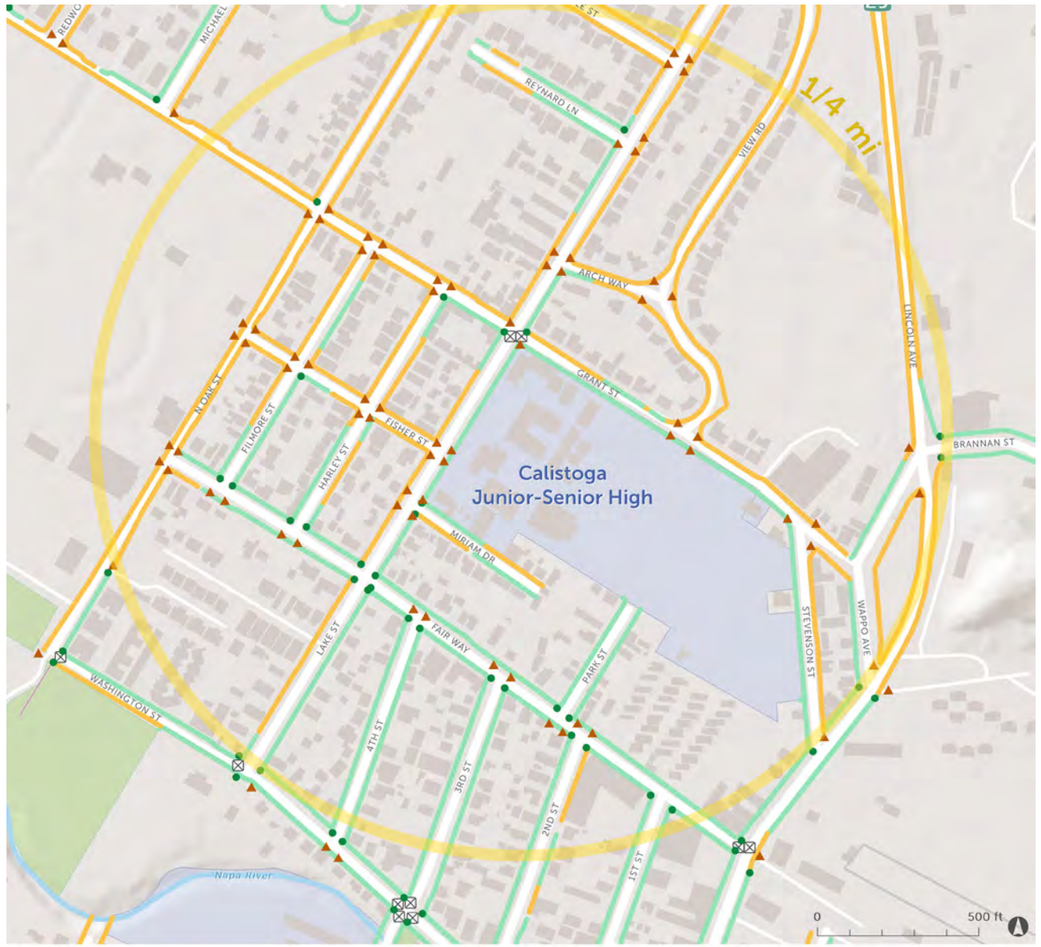
Grant Street south of Lake Street does not have a sidewalk on its east (northbound) side, and has a narrow, asphalt path at street level separated by raised asphalt curbs on its west side, though there are some gaps in these curbs. The asphalt curbs are the same color as the roadway and the pedestrian path, making the curbs difficult to see at times This path raises to curb level at the school's baseball field and turns into a paved sidewalk at Palisades High School further south. North of Lake Street, Grant Street's west sidewalk disappears at Harley Street, and there are no sidewalks on either side of the street north of Harley.

Fair Way has narrow sidewalks along both sides of the street. Though it intersects with several streets, the only crosswalks on Fair Way exist at its intersection with Lincoln Avenue.

## MAP OF EXISTING BICYCLE FACILITIES


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

## MAP OF EXISTING PEDESTRIAN FACILITIES




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

## POLICIES AND PROGRAMS

### Encouragement and Education:

*Bike to Work and School Day at Calistoga Junior/Senior High School in 2018.*

Calistoga Junior/Senior High School has regularly participated in annual countywide encouragement events, namely Bike to School Day, and has held its own encouragement events in the form of Walk and Roll Wednesdays. Walk and Roll Wednesdays encourage students to walk, bike, skateboard, or otherwise roll to school by holding a welcome table that recognizes students who use active transportation and often hands out incentives. The school's encouragement program is mostly limited to these annual events. The City of Calistoga also hosts an annual Community Safety Day at Logvy Park, which includes a bicycle rodeo and helmet giveaways, although this event is primarily focused on younger children.

The school does not provide regular on-campus bicycle or pedestrian safety education to students.

| YEAR | EVENT | STUDENT PARTICIPANTS |
|---|---|---|
| 2015/16 | Bike to School Day | 49 |
| 2016/17 | Bike to School Day | 29 |
| 2017/18 | Bike to School Day | 36 |
| 2018/19 | Walk and Roll Wednesday | 9 |
| 2018/19 | Bike to School Day | 88 |
| 2019/20 | Walk and Roll to School Day | 24 |
| 03/2020 | Walk and Roll Wednesday | 16 |

*Figure 5: Encouragement and Education Data*



### Enforcement:

Calistoga Police Department provided citywide enforcement data for 2014 to 2019 on violations for passing a school bus, speeding, failing to stop at a stop sign, and failing to yield to pedestrians. Data on roads around the school and along significant pedestrian and bicyclist travel routes to the school were selected for analysis. For Calistoga Junior/Senior High School, this included but was not limited to Fair Way from Lake Street to Lincoln Avenue, Lake Street, Grant Street from North Oak Street to Wappo Avenue, and Stevenson Street.

For the examined time period, there were no citations for failure to yield to pedestrians or passing a school bus. There were 37 citations for speeding and 91 citations for failure to stop at a stop sign. Of the speeding citations, only three citations were in the Calistoga Junior/Senior High School area – two were at Grant Street and North Oak Street and one was at Wappo Avenue and Lincoln Avenue. Of the speeding citations, only three citations were in the Calistoga Junior/Senior High School area – two were at Grant Street and North Oak Street and one was at Wappo Avenue and Lincoln Avenue. Of the stop sign citations, 25 were located within the school area, 20 of which were administered at Grant Street and North Oak Avenue.

**STOP SIGN CITATIONS WITHIN THE CJSHS SCHOOL AREA:**

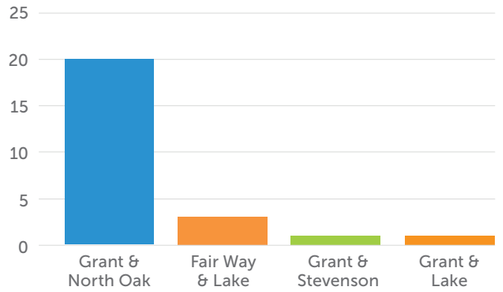



*Figure 6: Stop Sign Citations*

**TRAFFIC STOPS WITH WARNINGS IN CJSHS SCHOOL AREA:**

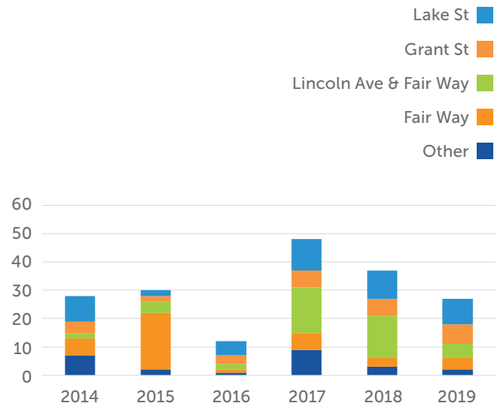
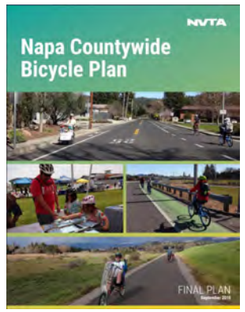



*Figure 7: Traffic Stops with Warnings*

For the examined time period, there were no citations for failure to yield to pedestrians or passing a school bus. This reflects some discrepancy between enforcement and Walk Audit participant perceptions, as participants did report motorists failing to yield to pedestrians in the Washington Street/Third Street/Berry Street intersection. There were 37 citations for speeding and 91 citations for failure to stop at a stop sign. Of the speeding citations, none were given in the Calistoga Elementary School area. This is consistent with Walk Audit feedback, as speeding was not a large concern for Walk Audit participants. Of the stop sign citations, 40 were given in the school area, nearly half of which were given at Berry Street and Cedar Street, and a significant amount at Berry Street and Myrtle Street. This is notable, as the two intersections with the highest citations are adjacent to each other and are two of the primary intersections in the school zone.

Data for traffic stops with warnings was also collected and analyzed to supplement citation data. Most notable from this data was the high proportion along Fair Way – in the most recent years, a large percentage of warnings were given along Fair Way. Some of the "other" reported warnings were given at intersections with Fair Way on streets such as First and Fourth, near the school. Walk Audit participants did not identify motorist behavior as a barrier on Fair Way, possibly due to the consistent enforcement on the street.

## EXISTING PLANS

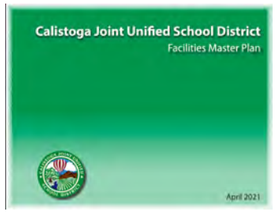


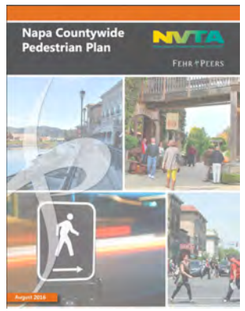

### NVTA Napa Countywide Bicycle Plan (2019):

The Napa Countywide Bicycle Plan recommends improving bicycle facilities around the school site. The Bicycle Plan mostly recommends a series of Class II and III facilities, including on Lake Street, Fair Way, and several residential streets that connect with important arterials and collectors. Fair Way's Class III is recommended to turn into a Class I shared-use path south of Lincoln Avenue that connects to the existing Vine Trail Class I on Washington Street. For Lincoln Avenue, a Class I shared-use path is recommended from the Silverado Trail to Fair Way and Class II bike lanes from Fair Way to Highway 128. Along the Napa River within city limits, the plan recommends installing a Class I shared-use path.

### CJUSD Facilities Master Plan (2021):

The CJUSD Facilities Master Plan, updated in April 2021 from its 2015 version, lists several proposed improvements for Calistoga Junior/Senior High School. Issues identified by stakeholders that affect circulation include the lack of formal drop-off area and the general disrepair and several access points of the existing perimeter fencing. Projects listed in the plan that may impact circulation include two expanded parking areas and new perimeter fencing. Access points in future fencing were not identified.




### NVTA Napa Countywide Pedestrian Plan (2016):

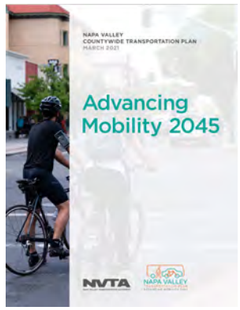
Several improvements around the school site are proposed in the Napa Countywide Pedestrian Plan. Lake Street, from Washington Street to Lake County Highway, is designated for a traffic-calming study and sidewalk gap closure project. Grant Street is listed for several projects, including traffic-calming and safety enhancements, crosswalk enhancements, and sidewalk installation. The plan proposes Complete Streets enhancements on Washington Street from Lincoln Avenue to North Oak Street, and crosswalk enhancements at Gerard Street and Lincoln Avenue. Lincoln Avenue has several proposed projects, including crosswalk enhancements at several intersections, traffic-calming, a feasibility study for a roundabout or Rectangular Rapid Flashing Beacons at Brannan Street, and traffic-calming at Stevenson Street.

### Caltrans District 4 (2018):

Caltrans recently replaced the Napa River Bridge along SR 29/Lincoln Avenue just north of Cedar Street. The Caltrans District 4 Bike Plan recommends installing Class II bike lanes along the length of Lincoln Avenue, constructing an extension of the Vine Trail Class I path from Calistoga to the Sonoma County line, and improving the intersection of SR 29 and Larkmead Lane, possibly using Rectangular Rapid Flashing Beacons.

### 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 17 projects by the City of Calistoga listed in the Plan – those most relevant to the school include Lake Street reconstruction and complete street enhancements, signalization of the intersection at SR 29 and Fair Way, and construction of a curb extension and flashing beacon at SR 29 and Brannan Street. There are no major NVTA projects that impact the school zone.

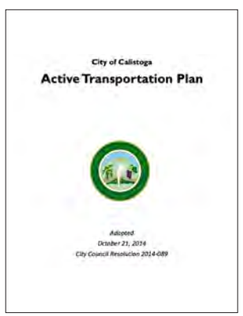



### Calistoga General Plan (2003):

The Calistoga General Plan was last comprehensively updated in 2003, though several elements have been individually updated in more recent years. Its Vision Statement includes the goal that "Calistoga will remain a walkable, small town, made up of a vibrant, eclectic main street set within pedestrian-oriented neighborhoods." The Circulation Element, last updated in 2014, states the City's commitment to "Complete Streets" and includes sections on the vehicular circulation system, transit, the bicycle network, and pedestrian facilities. One of the several modifications to the Street Network that is listed is pedestrian and cyclist improvements for Grant Street.

### Calistoga Active Transportation Plan (2014):

The Calistoga Active Transportation Plan is "intended to guide and influence transportation improvements for both bicyclists and pedestrians" through needs assessments, physical and programmatic improvements, funding eligibility, and cooperation between entities for planning purposes. The plan is consistent with the City of Calistoga General Plan and the City of Calistoga 2012 Bicycle Transportation Plan; however, the Plan's maps of proposed bicycle and pedestrian networks does not match those in the Countywide Pedestrian and Bicycle Plans (see above). The Plan's "Next Steps" section recommends the City work with the County, NCTPA, Caltrans, and other local stakeholder groups to implement projects identified in the Plan.



# WALK **AUDIT**

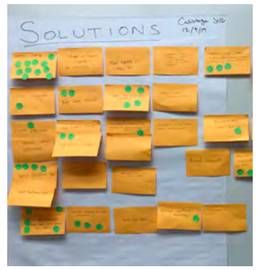
**Date:** 12/9/2019
**Day of the Week:** Monday

**Meeting Time:** 7:30am
**Weather:** Foggy

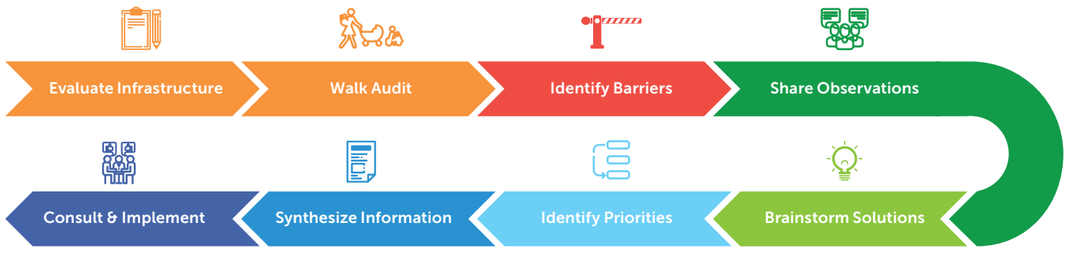
## METHODOLOGY

The Community Walk Audit brought school stakeholders together to observe existing conditions during drop-off time, identify barriers to safe walking or biking, and explore solutions. The Walk Audit team consisted of two parents, one student, three Calistoga city staff members, a member of the Upvalley Family Center, an NCOE representative, the school's counselor, and the principal.

The group met and discussed the SRTS program and the process and purpose of the Walk Audit. The team then split up into two groups. Both groups walked to the front of the school on Lake Street. One group walked west on Lake Street, south on Fair Way, east on Park Street, and across the school field. The second group walked east on Lake Street, south on Grant Street to Stevenson Street, then returned to the school via Grant Street and Lake Street. Throughout the walk, the groups identified major safety issues and shared their experiences traveling to and from the school. The groups returned to the school to discuss their observations, map issue areas, and record and prioritize the major barriers identified during the exercise.


Participants wrote their ideas of major barriers to safe and increased walking and biking to school on sticky notes and placed them on a poster, grouping together similar barriers. The group then discussed the identified issues. Then, participants placed three round stickers on issues that they felt were most important and needed to be solved most urgently. Participants could spread their stickers out or put multiple stickers on one issue. The group then reviewed the major barriers and explored potential solutions to each issue. Participants repeated the prioritization process with potential solutions to the barriers identified.




## WALK AUDIT FINDINGS

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

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

### Stakeholder-Identified Barriers:

| DESCRIPTION | LOCATION | VOTE SCORE |
|---|---|---|
| Inadequate lighting | Streets surrounding school (Grant St., Lake St., Fair Way) | 18 |
| No crosswalks | Fair Way and Lake Street | 9 |
| No crosswalks/incomplete crosswalks | School site area | 7 |
| Cars parking in bike lane | Lake Street | 7 |
| Narrow, uneven sidewalks | School site area | 5 |
| Missing sidewalks | Lake Street | 4 |
| No sidewalk | Grant Street parking lot | 4 |
| Inadequate bike lanes | Lake Street | 4 |
| Discontinuous bike lanes | Lake Street | 4 |
| Lack of pedestrian access (walk path) | Football field | 2 |
| Inadequate access point | Park Street | 2 |
| No crosswalks | Grant Street and Stevenson Street | 2 |
| Lack of ADA accessibility | Lake Street and Grant Street | 2 |
| No crosswalks | Lake Street and Grant Street | 1 |
| Slip hazard (leaves during rainy season) | School site area | 1 |
| Unsafe parking lot | Grant Street parking lot | 1 |
| Speeding | Lake Street | 1 |
| Lack of visible bike lanes | School site area | 1 |
| Lack of designated drop off location | School site | 1 |

*Figure 8: Walk Audit Ratings - Dot Exercise (Barriers)*

## Stakeholder-Identified Treatments:

| DESCRIPTION | BARRIER ADDRESSED | LOCATION | PRIORITY |
|---|---|---|---|
| Improve lighting | Not enough lighting | School site area | 23 |
| Widen sidewalks | Narrow sidewalks | School site area | 9 |
| High visibility crosswalks | Low pedestrian visibility in crosswalks | School site area | 7 |
| Improve intersection (cross-walks, bulb outs and/or Rectangular Rapid Flashing Beacons) | No crosswalks, low pedestrian visibility/motorist yielding | Fair Way and Lake Street | 6 |
| Speed feedback signs | Speeding | School site area | 6 |
| Improve bike facility transitions | Bike facility ends | School site area | 6 |
| Improve sidewalk quality | Uneven sidewalks | School site area | 5 |
| Conflict markings | Cars parking in bike lane | Lake Street | 4 |
| Improve crosswalks | Low pedestrian visibility/ motorist yielding | School site area | 3 |
| Improve sidewalks | Narrow/uneven sidewalks | School site area | 2 |
| Rectangular Rapid Flashing Beacons | Low pedestrian visibility/ motorist yielding | School site area | 2 |
| Painted conflict markings | Vehicle/bicycle conflicts in bike lane | School site area | 2 |
| Speed feedback sign | Speeding | Lake Street | 1 |
| Raised crosswalks | Speeding, low pedestrian visibility | School site area | 1 |
| Rumble strips | Roadway departure | School site area | 1 |
| Multi-use paths | Lack of bike facilities | School site area | 1 |
| Continue bike lanes | Bike facility suddenly ends | Lake Street | 1 |
| Curb extensions | Fast motorist turns, low pedestrian visibility/ motorist yielding | School site area | 1 |

*Figure 9: Walk Audit Ratings - Dot Exercise (Solutions)*

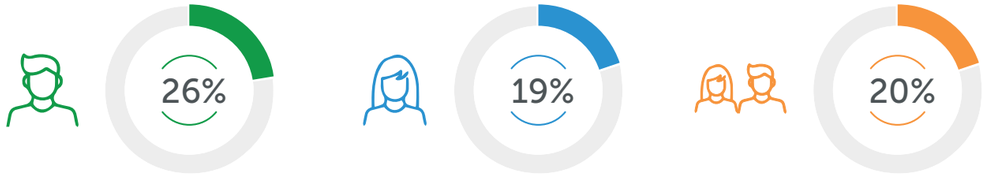


# CONTEXT FOR **RECOMMENDATIONS**

## IMPACT OF BARRIERS/HAZARDS ON COMMUNITY

Barriers to safe walking and bicycling, both infrastructure and non-infrastructure, can greatly discourage communities from engaging in active transportation. The quality, accessibility, and connectivity of bicyclist and pedestrian travel networks strongly influence the rates of walking and bicycling as a mode of daily transport[1]. Public policies and attitudes, such as traffic-calming measure enforcement and parking limitations, also contribute to the efficacy of pedestrian/bicycle networks. Thus, barriers to accessibility and connectivity must be addressed in order to encourage increased and safe walking and cycling.

Barriers that discourage walking and bicycling prevent communities from gaining the health benefits offered by active transportation. For children, physical activity can improve cognitive function, bone health, cardiorespiratory and muscular fitness, and mental wellness[2]. Adults benefit from lower risk of cardiovascular disease, hypertension, dementia, anxiety, and falls for older adults, as well as improved quality of life, physical function, bone health, and sleep.



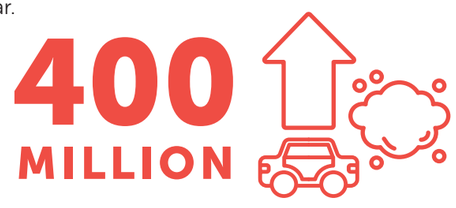

However, only about **26% of men**, **19% of women**, and **20% of adolescents** are meeting the aerobic and muscle-strengthening guidelines developed by the Department of Health. Increased walking and biking to school can help boost that percentage by incorporating physical activity into one's daily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

Lack of safe bicycle/pedestrian facilities can also negatively impact the environment, as more people will choose to drive rather than bike or walk. Passenger cars and light-duty trucks produced **over half of the transportation sector emissions in 2017**[3].



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

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




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

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

# RECOMMENDATIONS

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

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

## RECOMMENDATIONS #CI-035-CI-037, CI-038-CI-041: LAKE STREET IMPROVEMENTS

***Narrative –*** Several barriers were identified on Lake Street, impacting many students as Lake Street provides access to the school's main entrance. The westbound Lake Street sidewalk is missing, and the eastbound sidewalk is narrow and disappears east of Arch Way. The westbound bike lane on Lake Street ends at Fisher Street, causing bicyclists to suddenly merge with traffic, and the eastbound bike lane begins between Fisher Street and Miriam Drive. Both bike lanes do not continue east of Grant Street, resulting in fragmented, disconnected bicycle facilities. Walk Audit participants discussed a need for additional lighting along Lake Street, particularly during the winter, as the street becomes too dark for comfortable and safe-feeling walking and biking. Walk Audit participants also identified speeding along Lake Street and motorists parking in the bike lane as common hazardous driving behaviors that occur during pick-up and drop-off.

*The westbound bike lane ends at Fisher St. (left). The eastbound sidewalk is narrow near the school (right). Lake St. has no sidewalk on the westbound side east of Grant St. (below).*

### IDENTIFIED BARRIERS

- ***Missing/narrow sidewalks –*** Walk Audit participants identified missing and/or narrow sidewalks on Lake Street as a safety barrier to student pedestrians, as missing/narrow sidewalks do not accommodate high volumes of pedestrians around the school site and can result in pedestrians walking in the street.
- ***Disconnected bicycle facilities –*** Fragmented bicycle infrastructure creates confusion amongst motorists and bicyclists and increases the possibility of conflicts, and the lack of connectivity discourages bicyclist use. Bicycle facilities only exist along roughly a block of the Lake Street corridor, with the westbound bike lane ending abruptly.
- ***Not enough lighting –*** Parents identified a need for more lighting to be a barrier to students walking and biking, especially during the winter season, due to decreased pedestrian and bicyclist visibility and sense of safety.
- ***Unsafe driving behavior –*** Walk Audit participants identified unsafe driving behaviors, namely speeding and parking in the bike lane in the school zone, as safety barriers for student pedestrians and bicyclists.

### RECOMMENDATIONS

- ***CI-035-CI-037 Sidewalks –*** We recommend that sidewalk gaps be addressed along westbound Lake Street from 1609 Lake Street to 1432 Lake Street, that the eastbound sidewalk be widened from Grant Street to Fair Way, and that the eastbound gap east of Arch Way be filled.
- ***CI-038 Continuous bicycle facilities –*** We propose that Class II bike lanes be installed east of Grant Street and Class III bike boulevards be added where the existing bike lanes end with conflict markings, sharrows and signage to clearly delineate the transition for all road users.
- ***CI-040 Pedestrian scale lighting –*** We recommend that pedestrian scale lighting be installed along Lake Street from Grant Street to Washington Street.
- ***CI-041 Speed feedback sign –*** We recommend that a speed feedback sign be installed in the westbound direction of Lake Street near the intersection with Fisher Street.
- ***CI-039 Green conflict markings –*** We recommend that green conflict markings and increased bike lane signage be installed along the Class II bike lane in front of the school.



## RECOMMENDATIONS #CI-042 AND CI-043: GRANT STREET AND LAKE STREET INTERSECTION TRAFFIC-CALMING

***Narrative –*** Calistoga Junior/Senior High School is located on the southwest corner of the intersection of Grant Street and Lake Street, two arterials. This intersection experiences high use by all road users given its vicinity to the school and routes to residential neighborhoods, particularly during drop-off and pick-up times. However, only two legs of the intersection have crosswalks, both of which are low-visibility patterns. Pedestrian visibility is further reduced by vehicles parking close to the intersection. Additionally, the existing curb ramps are not ADA-accessible.

### IDENTIFIED BARRIERS

- ***Missing crosswalks –*** The two missing crosswalks across Lake Street and Grant Street were identified by Walk Audit participants as a barrier to student pedestrians and bicyclists, as this reduces pedestrian visibility and driver yielding behavior.
- ***Vehicles parking close to intersection –*** In addition to missing crosswalks, motorists frequently park next to the intersection and reduce pedestrian visibility, largely facilitated by the lack of red curbs.
- ***Curb ramps not ADA-accessible –*** Walk Audit participants identified the lack of ADA-accessible curb ramps at this intersection as a barrier to student pedestrians.

*Existing crosswalks (left) are low visibility, while half of the intersection is missing crosswalks (right).*

### RECOMMENDATIONS

- ***CI-042 High-visibility crosswalks –*** Painting high-visibility crosswalks across all legs of the intersection can supplement other proposed solutions in increasing driver yielding behavior
- ***CI-043 Curb extensions -*** We propose installation of curb extensions at the Grant Street and Lake Street intersection, at least on the southwest, northwest, and northeast corners, to slow vehicle speeds, shorten crossing distances, and improve yielding of motorists to pedestrians. Construction of curb extensions would also include upgrading the curb ramps to be ADA-accessible.

## RECOMMENDATIONS #CI-045-CI-050, CI-061: GRANT STREET IMPROVEMENTS

***Narrative –*** Grant Street, which provides multiple access points to the school, also has several barriers to students walking and bicycling to school. The northbound sidewalk is missing, and the southbound sidewalk is narrow and ends on the north side at Harley Street and on the south side at Stevenson Street. Furthermore, the southbound sidewalk in front of the school is at street level and is separated only by an asphalt curb, in which there are significant gaps that allow motorists to pull onto the sidewalk to drop students off, blocking the sidewalk. There are no bicycle facilities along the corridor, despite it being a significant north-south arterial through the town. There are some street lights along Grant Street, though Walk Audit participants explained that the corridor can be too dark for pedestrians and bicyclists to feel safe and comfortable. Motorist speeding was also identified as a barrier on Grant Street, which exacerbates challenges created by the missing pedestrian and bicycle infrastructure.

### IDENTIFIED BARRIERS

- ***Missing/narrow sidewalks –*** Missing and narrow sidewalks can result in pedestrians walking in the road and discourages pedestrian travel along this corridor.
- ***Dangerous motorist behavior –*** Speeding and motorists pulling onto the asphalt sidewalk where the curbs disappear in front of the school site are hazards to students walking and biking.
- ***No bicycle facilities –*** The lack of bicycle facilities was identified as a barrier, as it makes Grant Street feel unwelcoming to bicyclists and fails to indicate to drivers that they should be prepared to share the road.
- ***Not enough lighting –*** Walk Audit participants identified a need for more lighting to be a barrier to students walking and biking, especially during the winter season, due to decreased visibility and sense of safety.

### RECOMMENDATIONS

- ***CI-045 and CI-046 Sidewalk improvements –*** We recommend that the southbound sidewalk gap be filled between the Stevenson intersection and Wappo Avenue and between Harley Street and North Oak Street, and the northbound sidewalk gap be filled between Lake Street and Wappo Avenue. We also recommend that existing sidewalks be widened along Grant Street.
- ***CI-047 Fill curb gaps –*** We recommend that the curb gaps along Grant Street in front of the school be filled where possible. Where not possible, removable barriers should be placed to prevent motorists from parking on the sidewalk. Curbs should also be painted to be more visible to all road users.
- ***CI-048 Class III bike boulevards –*** Class III bike boulevards should be installed on Grant Street from North Oak Street to Wappo Avenue with sharrow, signage, and traffic-calming.

*Gaps in the curb allow motorists to pull up onto the side-walk and block it from pedestrians (above). Lack of bicycle facilities on Grant Street in front of the school (below).*

- ***CI-049 Pedestrian scale lighting –*** We recommend that pedestrian scale lighting be installed along Grant Street from Lake Street to Wappo Avenue.
- ***CI-050 Speed feedback signs –*** We recommend that speed feedback signs be installed on Grant Street near its intersection with Arch Way.
- ***CI-061 Striping –*** We recommend that the northbound parking lane from Lake Street to Stevenson Street be striped and include horizontal stall markings to make the roadway appear narrower. City staff should evaluate appropriate lane narrowing strategies for the travel lanes to further reduce speeding along the corridor.



## RECOMMENDATIONS #CI-056 AND CI-057: LAKE STREET AND FAIR WAY INTERSECTION TRAFFIC-CALMING

***Narrative –*** The intersection of Lake Street and Fair Way is a 4-way stop and a primary route to the school for students travelling from west of the school. However, the intersection has no crosswalks, which reduces pedestrian visibility and motorist yielding behavior, as there is no marked space designated for pedestrians. Combined with long crossing distances and poor pedestrian visibility due to offset/setback geometry, this lack of crosswalks contributes to bicyclists and pedestrians feeling unwelcome and uncomfortable in the intersection. Cars have also been reported to park close to the intersection and even in front of the curb ramps, greatly reducing pedestrian visibility and impeding accessibility.

### IDENTIFIED BARRIERS

- ***No crosswalks –*** Walk Audit participants identified the lack of crosswalks at the intersection of Fair Way and Lake Street as a safety barrier to students walking and biking to school, as it reduces pedestrian visibility and driver yielding behavior.
- ***Long crossing distance, unsafe motorist behavior –*** The long crossing distance at this intersection increases risk for vehicle-pedestrian collisions, which is further augmented by motorists parking close to or in front of the curb ramps, reducing pedestrian visibility.

### RECOMMENDATIONS

- ***CI-056 High-visibility crosswalks –*** Painting high-visibility crosswalks across all legs of the Fair Way and Lake Street intersection can supplement other proposed solutions in increasing driver yielding behavior and pedestrian visibility.
- ***CI-057 Curb extensions -*** We propose installation of curb extensions at the intersection of Fair Way and Lake Street to slow vehicle speeds, shorten crossing distances, and improve yielding of motorists to pedestrians. Curb extensions will also increase pedestrian visibility by placing the pedestrian and the sidewalk further out into the intersection and preventing vehicles from parking in front of or very close to the curb ramp.

*Fair Way and Lake Street intersection has no crosswalks and long crossing distances (top). A parked car blocks the curb ramp crossing Lake Street (photo credit: Michelle Hickman) (bottom).*

## RECOMMENDATION #CP-006: STUDENT-LED ENCOURAGEMENT AND EDUCATION

***Narrative –*** Despite being centrally located in a flat, relatively small town, existing bike mode share appeared low at Calistoga Junior/Senior High School during the Walk Audit. In addition to infrastructure barriers, many students drive or are driven to school because it is the "cool" or "normal" thing to do, or because they have recently earned their drivers license, a source of excitement and sense of independence. It is also likely that many students are unaware of the impacts their everyday transportation choices have on their health, environment, and community. An increase in education outreach and encouragement programming can help raise awareness of and enthusiasm towards active transportation and complement infrastructure improvements. Developing a long-term mode shift towards active transportation can also ease congestion in the school zone during pick-up and drop-off times.

### IDENTIFIED BARRIERS

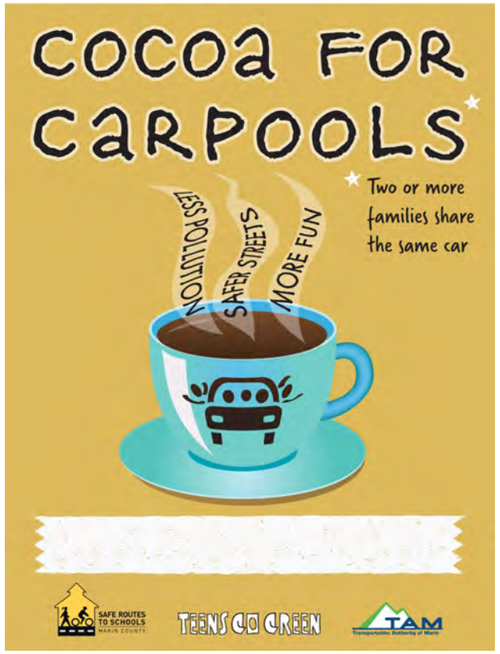
- ***Vehicle-oriented transportation culture –*** Being surrounded by a car-centric culture significantly contributes to students developing the habit of driving or being driven to school.

### RECOMMENDATIONS

- ***Student-led encouragement and education –*** We recommend that the school guide student clubs, classes, and organizations like Student Council in developing and hosting regular active transportation encouragement events and education campaigns. We emphasize that students should lead encouragement and education events, as peer-to-peer messaging is more effective and engaging.

- Encouragement events, such as Walk and Roll Wednesdays, VMT reduction competitions, and Cycle for Cider, can introduce students to the joys of walking and biking to school and help bring about long-term mode shift. Marin County Safe Routes to School successfully runs similar programs through their Safe Routes to School Teen Program and may be a helpful resource.

- Education outreach initiatives can help increase awareness amongst students of the various benefits of active transportation. For example, an Environmental Club can emphasize how walking and biking reduces greenhouse gases, and a Leadership Club can highlight the positive physical and mental health effects of active transportation.




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

## RECOMMENDATION #CI-051: GRANT STREET PARKING LOT SIDEWALK

***Narrative –*** The Grant Street parking lot is the first access point to campus that students travelling north along Grant Street encounter, making it a natural entrance for student pedestrians and bicyclists. However, the parking lot has no sidewalks, so students entering the school through this entrance must interact with parking lot traffic to reach campus. Though the parking lot is small, it is a highly-used drop-off point, creating potential conflict between pedestrians/bicyclists and vehicles.

### IDENTIFIED BARRIERS

- ***No sidewalks –*** Walk Audit participants identified the lack of sidewalks separating bicyclists and pedestrians from vehicles in the Grant Street parking lot as a safety barrier.

### RECOMMENDATIONS

- ***Sidewalk installment –*** We recommend that a sidewalk be installed along the south side of the parking lot to connect the campus to the Grant Street sidewalk and reduce interactions between pedestrians/bicyclists and vehicles.

*The Grant Street parking lot has no sidewalks around it.*

## RECOMMENDATION #CI-054: FISHER STREET PEDESTRIAN IMPROVEMENTS

***Narrative –*** Fisher Street is a common student parking area, from which students walk to campus. It also provides a direct route to the school for residences along North Oak Street, Filmore Street, and Harley Street. However, there are no crosswalks at the Fisher Street intersection with Lake Street, despite it being located close to campus entrances. This forces student pedestrians to cross Lake Street in an unmarked location to reach campus during pick-up and drop-off times, when traffic volumes are relatively high.

### IDENTIFIED BARRIERS

- ***No crosswalks –*** Walk Audit participants identified the lack of crosswalks at Fisher Street and Lake Street to be a safety barrier for student pedestrians.

### RECOMMENDATIONS

- ***High-visibility crosswalk –*** Installing a high-visibility crosswalk at Fisher Street and Lake Street on the east side across Lake Street can supplement other proposed solutions in increasing driver yielding behavior.

- ***Curb extensions –*** We propose installation of curb extensions at the recommended crosswalk for the Fisher Street and Lake Street intersection to slow vehicle speeds, shorten crossing distances, and improve motorists yielding to pedestrians.

*The intersection of Lake Street and Fisher Street has no crosswalks.*

## RECOMMENDATION #CI-055: MIRIAM AVENUE AND LAKE STREET INTERSECTION CROSSWALK

***Narrative –*** Just west of the school campus on Lake Street is the intersection with Miriam Avenue. As there is only one sidewalk on Lake Street, all students walking to school from west of the school must cross Miriam Avenue to reach the campus, making this a highly-utilized intersection by students. However, there is no crosswalk at this intersection.

### IDENTIFIED BARRIERS

- ***No crosswalk –*** The lack of a crosswalk across Miriam Avenue at Lake Street was identified as a safety hazard for student pedestrians.

### RECOMMENDATIONS

- ***High-visibility crosswalks –*** Installing a high-visibility crosswalk across Miriam Avenue at Lake Street can increase pedestrian visibility and improve driver yielding behavior.

*There is no crosswalk at Miriam Avenue and Lake Street.*

## RECOMMENDATIONS #CI-016-CI-019: FAIR WAY IMPROVEMENTS

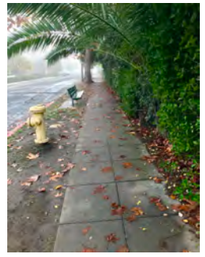
***Narrative –*** Fair Way is a significant north-south collector and provides a direct route between the junior/senior high school and downtown and residential areas. However, multiple barriers make this corridor unwelcoming to student pedestrians and bicyclists. Sidewalks on both sides of Fair Way are narrow and do not accommodate high volumes of pedestrians. Additionally, the southbound sidewalk between 4th and Lake Street is broken, posing a trip hazard. There are also no bicycle facilities and only some street lighting along the corridor.

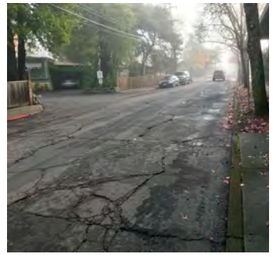
### IDENTIFIED BARRIERS

- ***Narrow sidewalks –*** Narrow sidewalks were identified as a deterrent to students walking to school.
- ***Not enough lighting –*** Walk Audit participants identified a need for more lighting to be a barrier to students walking and biking, especially during the winter season, due to decreased visibility and sense of safety.
- ***No bicycle facilities –*** The lack of bicycle facilities was identified as a safety barrier, as it makes Fair Way feel unwelcoming to bicyclists and fails to indicate to drivers that they should be prepared to share the road.
- ***Hazardous sidewalk quality –*** A section of broken sidewalk on the southbound side of Fair Way between 4th Street and Lake Street was identified by Walk Audit participants as a safety hazard.

### RECOMMENDATIONS

- ***CI-016 Widen sidewalks –*** We recommend that existing sidewalks be widened along Fair Way between Lake Street and Lincoln Avenue.





*Narrow sidewalks on Fair Way (left). Fair Way also lacks on-street bicycle facilities (right).*

- ***CI-017 Pedestrian-scale lighting –*** We recommend that pedestrian-scale lighting be installed along Fair Way from Lake Street to Lincoln Avenue.
- ***CI-018 Class III bike boulevards –*** We recommend that Class III bike boulevards be installed from Lake Street to Lincoln Avenue with sharrows, signage, and traffic-calming.
- ***CI-019 Sidewalk reconstruction –*** We recommend that the southbound sidewalk between 4th Street and Lake Street be reconstructed to repair damaged areas.



## RECOMMENDATION #CI-059: BRANNAN STREET/WAPPO AVENUE AND LINCOLN AVENUE INTERSECTION

***Narrative –*** The intersection of Brannan Street/Wappo Avenue and Lincoln Avenue is a major intersection along the most direct walking and biking route to CJSHS from Chateau Calistoga Mobile Home and Calistoga Springs two mobile home parks on the south side of Lincoln Avenue. Despite high volumes and speeds of vehicles on Lincoln Avenue, which is a section of SR 29, there are no crosswalks across this large intersection. As the nearest crosswalk across Lincoln Avenue is at Fair Way, requiring a significant detour, students travelling to the school from the mobile home parks are more likely to cross Lincoln Avenue at Brannan Street/Wappo Avenue in an unmarked location.

### IDENTIFIED BARRIERS

- ***No crosswalk, long crossing distance, high speeds/volumes of traffic –*** The SRTS team identified this intersection as a safety barrier to students walking and biking to CJSHS, as there is no crosswalk across Lincoln Avenue at Brannan Street/Wappo Avenue, the crossing distance is long, and vehicle speeds and volumes are high.

### RECOMMENDATIONS

- ***High-visibility crosswalk –*** Installing a high-visibility crosswalk at Lincoln Avenue and Brannan Street/Wappo Avenue across Lincoln can supplement other proposed solutions in increasing driver yielding behavior.
- ***Rectangular Rapid Flashing Beacons –*** Installing Rectangular Rapid Flashing Beacons at this location would help increase driver yielding behavior by improving pedestrian visibility through pedestrian-activated rapid flashing lights. This allows for a safer crossing experience for pedestrians while avoiding concerns regarding traffic congestion that might be created at a signalized crossing.
- ***Curb extensions –*** We recommend that curb extensions be considered for this intersection. Curb extensions help slow vehicle speeds, shorten crossing distances, and improve yielding of motorists to pedestrians.

*The Lincoln Avenue and Brannan Street/Wappo Avenue intersection.*

## RECOMMENDATION #CP-004: BICYCLE EDUCATION

***Narrative –*** Unpredictable bicyclist behavior was identified during the Walk Audit as a potential hazard for students bicycling to school. Behaviors such as riding against traffic, riding on the sidewalk, and riding while wearing headphones can be dangerous for student bicyclists and may increase the risk for collisions. While many of these behaviors can be addressed by improved infrastructure, such as clearly marked bicycle facilities, implementing regular bicycle safety education on within the school system can help raise awareness of rules of the road and encourage safe biking practices.

### IDENTIFIED BARRIERS

- ***Unpredictable bicyclist behavior –*** Walk Audit participants found that unpredictable bicyclist behavior was a barrier to students biking to school.

### RECOMMENDATIONS

- ***Increased bicycle education programming –*** We recommend that bicycle safety education programming be provided to all students to teach and reinforce best bicyclist practices.

*Encouragement events such as Bike to Work and School Day, photographed above at CJSHS, can also be good opportunities to educate young riders on safe bicycling practices.*

## RECOMMENDATION #CP-005: CIRCULATION POLICY

***Narrative –*** Conflicts between bicyclists/pedestrians and motorists in the school zone were identified by Walk Audit participants as hazards to students walking and biking to school. This was reported to especially occur on Grant Street where the raised curb disappears and in the Grant Street parking lot. These interactions can decrease students' and parents' sense of safety for pedestrians and bicyclists around the school zone and discourage walking and biking.

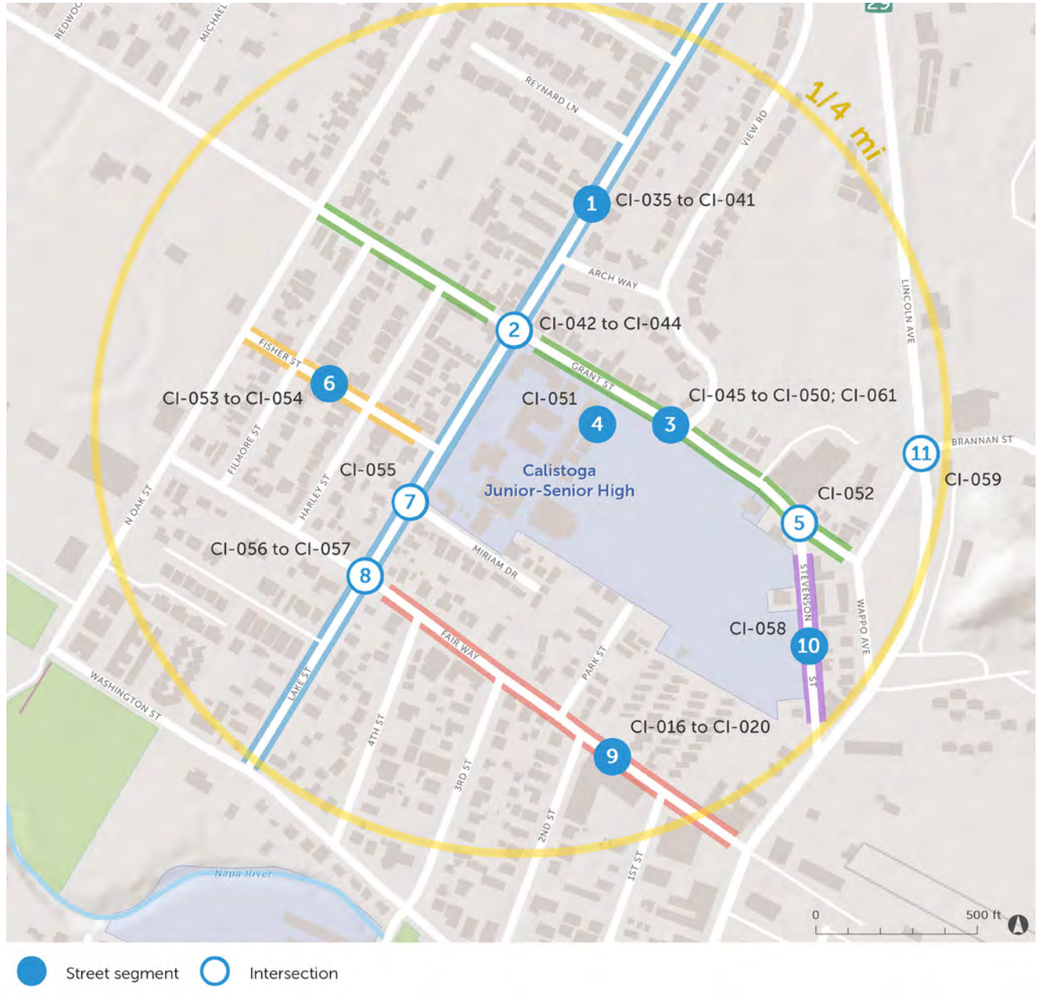
### IDENTIFIED BARRIERS

- ***Pedestrian/motorist conflicts in school zones –*** Walk Audit participants identified conflicts between pedestrians and motorists in the school zone as a barrier to students walking and biking to school.

### RECOMMENDATIONS

- ***Circulation policy development –*** We recommend that the school develop a comprehensive circulation policy that considers all modes of transportation and distribute the policy to parents and students regularly to reduce risk of bicyclist/pedestrian and motorist conflicts in the school zone.

### MAP OF RECOMMENDATIONS




*Map 5: Map of Recommendations*

## TABLE OF RECOMMENDATIONS

### Infrastructure:

| | LOCATION | ID # | BARRIER | RECOMMENDATION | COST | PRIORITY |
|---|---|---|---|---|---|---|
| 1 | Lake Street | CI-035 | Missing sidewalk on west-bound side from 1609 Lake Street to 1432 Lake Street; narrow eastbound sidewalk that disappears east of Arch Way | Fill eastbound sidewalk gap* | $$$ | High |
| | | CI-036 | | Fill westbound sidewalk gap* | $$ | Medium |
| | | CI-037 | | Widen narrow eastbound sidewalk | $$-$$$ | High |
| | | CI-038 | Bike lanes that suddenly end and long stretches of no bike facilities* | Install complete Class II bike lanes east of Grant Street*; add Class III bike boulevards where Class II lanes west of Grant Street end with conflict markings, sharrows, and signage indicating transition* | $$ | High |
| | | CI-039 | Motorists parking in the bike lane in front of the school | Green conflict markings in front of school | $ | Medium |
| | | CI-040 | Not enough lighting | Install pedestrian-scale lighting from Grant Street to Washington Street | $$ | High |
| | | CI-041 | Speeding* | Install a speed feedback sign on the westbound side near the intersection with Fisher Street | $ | Medium |
| 2 | Grant Street and Lake Street intersection | CI-042 | Missing crosswalks, motorists park next to existing crosswalks, curb ramps not ADA-compliant | Add high-visibility crosswalks to all legs of the intersection | $ | High |
| | | CI-043 | | Install curb extensions (at least at southwest, northwest, and northeast corners) | $$ | High |
| | | CI-044 | | Upgrade to ADA compliant curbs | $ | Medium |
| 3 | Grant Street | CI-045 | Missing sidewalk on east (northbound) side; west (southbound) sidewalk narrow and ends at Harley St and Stevenson St | Install missing northbound sidewalk from Lake Street to Wappo Avenue* | $$-$$$ | Medium |
| | | CI-046 | | Fill southbound sidewalk gap between Stevenson intersection and Wappo Ave and between Harley Street and North Oak Street*; widen existing sidewalk* | $$-$$$ | High |
| | | CI-047 | Motorists pulling onto southbound asphalt sidewalk where curbs disappear | Fill curb gaps where possible; place removable barriers where gaps are necessary. Paint curbs to improve visibility | $ | High |
| | | CI-048 | No bicycle facilities | Install Class III bike boulevards with sharrows, signage, and traffic-calming between North Oak Street and Wappo Avenue | $$ | High |
| | | CI-049 | Not enough lighting | Install pedestrian-scale lighting from Lake Street to Wappo Avenue | $$ | High |
| | | CI-050 | Speeding* | Add speed feedback signs on both sides of the road near intersection with Arch Way | $ | High |
| | | CI-061 | | Stripe northbound parking lane, include horizontal parking stall markings to clearly identify lane as parking. Evaluate and implement appropriate lane narrowing to reduce speeding. | $ | High |
| 4 | Grant Street parking lot | CI-051 | No sidewalks through the parking lot | Install sidewalk along south side of parking lot connecting Grant Street to campus sidewalk | $ | Medium |
| 5 | Grant Street and Stevenson Street intersection | CI-052 | Long crossing distances and poor sight lines | Square up intersection to reduce pedestrian crossing distances and improve sight lines* | $$ | Low |
| 6 | Fisher Street | CI-053 | No sidewalks from North Oak Street to Lake Street | Install sidewalk on the east side of the street | $$ | Low |
| | | CI-054 | No crosswalks at Lake Street | Add high-visibility crosswalk across Fisher Street and Lake Street on east side. Install curb extensions for crosswalk across Lake Street. | $-$$ | Low |
| 7 | Miriam Avenue and Lake Street intersection | CI-055 | No crosswalk | Add high-visibility crosswalk across Miriam Avenue | $ | Medium |
| 8 | Lake Street and Fair Way intersection | CI-056 | No crosswalks | Add high-visibility crosswalks across all legs of the intersection | $ | High |
| | | CI-057 | Long crossing distance, cars parking close to/in front of curb ramps reduce pedestrian visibility | Install curb extensions at all corners | $$ | High |
| 9 | Fair Way from Lake Street to Lincoln Avenue | CI-016 | Narrow sidewalks along corridor | Widen sidewalks | $$ | Medium |
| | | CI-017 | Not enough lighting | Install pedestrian-scale lighting | $$ | Medium |
| | | CI-018 | No bicycle facilities | Install Class III bike boulevards with sharrows, signage, and traffic-calming* | $$ | Medium |
| | | CI-019 | Broken southbound sidewalk between Lake Street and 4th Street | Reconstruct southbound sidewalk between Lake Street and 4th Street* | $ | Medium |
| | | CI-020 | Missing crosswalks at 4th Street, 3rd Street, 2nd Street, and 1st Street | Paint crosswalks across 4th Street, 3rd Street, 2nd Street, and 1st Street | $ | Low |
| 10 | Stevenson Street | CI-058 | No sidewalk on south (eastbound) side | Add sidewalk | $$ | Low |
| 11 | Brannan Street/ Wappo Avenue and Lincoln Avenue intersection | CI-059 | No crosswalk, long crossing distance, high speeds/volumes of traffic | Install a high-visibility crosswalk with an Rectangular Rapid Flashing Beacons across Lincoln Avenue. Consider curb extension treatments | $$ | Medium |

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

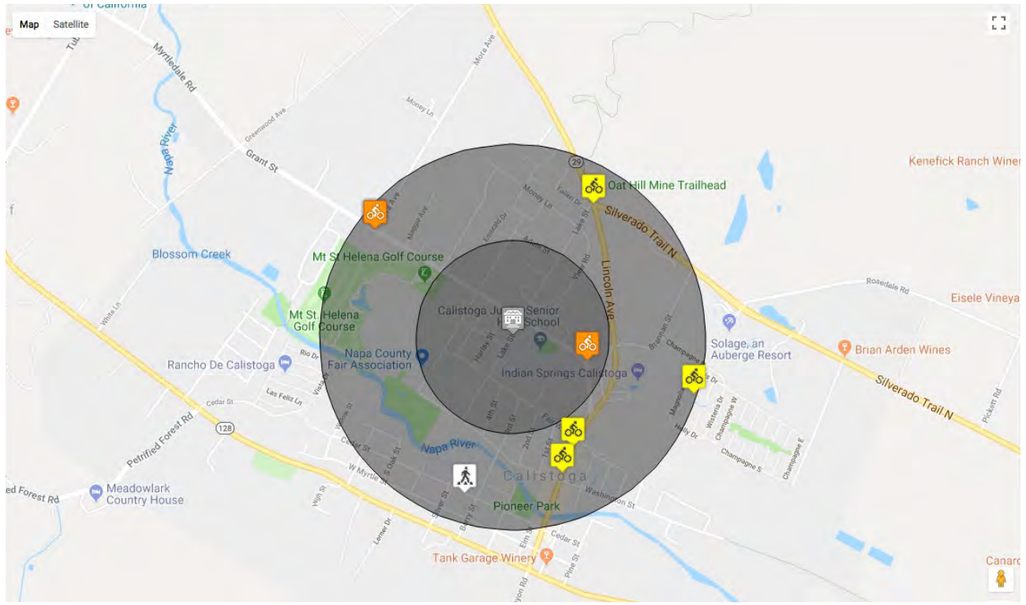
## TABLE OF RECOMMENDATIONS (CONTINUED)

### Programmatic Improvements:

| | ISSUE | ID # | RECOMMENDATION | LOCATION | FREQUENCY | COST | PRIORITY |
|---|---|---|---|---|---|---|---|
| 1 | Speeding | CP-003 | Increased enforcement | Lake Street | Weekly | $-$$ | **Low** |
| 2 | Unsafe bicyclist behavior | CP-004 | Increased bicycle education programming | School site | Annually | $ | **Medium** |
| 3 | Pedestrian/motorist conflicts in school zone | CP-005 | Develop a circulation policy identifying locations for student drop-off and distribute to parents regularly | School site | Develop once and update as needed; Distribute biannually or quarterly | $ | **Medium** |
| 4 | Vehicle-oriented transportation culture | CP-006 | Engage student body through student organization-led encouragement programming and education campaigns. | School site | Monthly, with the goal to increase frequency | $ | **High** |



## COLLISION MAP AND DATA




*Map 6: Collision Map (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 | 1 | 0 | 0 | 0 | 1 | 1 |
| .25-.5 mi. | 0 | 1 | 5 | 1 | 1 | 6 | 7 |
| Total | 0 | 2 | 5 | 1 | 1 | 7 | 8 |

### Summary Statistics

| DATE | TIME | PRIMARY | SECONDARY | BIKE/PED |
|---|---|---|---|---|
| 03/20/12 | 13:16 | Fairway | Rt 29 | Yes |
| 06/07/13 | 09:48 | Cedar St | Berry St | Yes |
| 04/20/16 | 12:20 | Silverado Trail | SR 29 | Yes |
| 10/04/17 | 20:17 | Stevenson St | Grant St | |
| 06/20/17 | 17:00 | Grant St | Mora Ave | Yes |
| 11/29/16 | 08:35 | Washington St | Lincoln Ave | Yes |
| 08/30/15 | 19:00 | Primrose Ln | Iris Dr | Yes |
| 04/03/15 | 15:40 | Grant St | Mora Ave | Yes |

*Figure 10: Collision Data (Source: UC Berkeley Transportation Injury Mapping System: SRTS Collision Map Viewer)*

# APPENDICES



# FIGURES & MAPS





# FOOTNOTES

*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.

†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.

‡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.

§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.

**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.

††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

‡‡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....

§§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.

***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....

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

# APPENDIX A

# EMC Survey Toplines

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

# Evaluation: Research & Methodology

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

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

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

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

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

---

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

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

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

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

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

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

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

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

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

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

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

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

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

| | |
|---|---|
| Yes | 43 |
| No | 56 |
| (No response) | 0 |

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

| | |
|---|---|
| Yes | 79 |
| No | 21 |
| (No response) | - |

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

| | |
|---|---|
| Yes | 78 |
| No | 21 |
| (No response) | 0 |

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

47. Do you identify as…

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

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

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

49. Do you consider yourself to be…

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

50. Do you…

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

**THANK YOU!**

# APPENDIX B

# Universal Recommendations

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

# Appendix B
# Napa County SRTS Walk Audit Report
# Universal Recommendations

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

## Universal Recommendation 1: High-Visibility School Zone Crosswalks

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

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

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

## Universal Recommendation 2: Intersection Daylighting

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

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

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

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

**Universal Recommendation 3: Sidewalk Width Adjacent to School Campus**

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

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

**Universal Recommendation 4: Class III Bike Boulevard Traffic-Calming**

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

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

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

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

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

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

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

# APPENDIX C

# Quick Build Brochure

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

# QUICK-BUILD BIKEWAY NETWORKS FOR SAFER STREETS

## Delivering Safer Streets in Weeks or Months, Instead of Years

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

*Photo credit: Alta Planning + Design*

**CASE STUDY**

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

**WHY QUICK-BUILD? WHY NOW?**

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

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

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

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

# WHAT IS QUICK-BUILD?

## The Basics

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

## Materials

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

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

### CASE STUDY

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

*Photo credit: Bike SLO County*

# WHO?

## Your Quick-Build Project Team

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

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

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

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

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

## Community Engagement

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

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

### CASE STUDY

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

*Photo credit: Holly Raines*

# WHERE?

## Which Projects are Best for Quick-Build?

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

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

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

*Photo credit: Alta Planning + Design*

## Funding for Quick-Build

### POTENTIAL FUNDING SOURCES IN CALIFORNIA

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

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

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

CALIFORNIA BICYCLE COALITION

# APPENDIX D

# Bike Parking Guidance

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

## ESSENTIALS OF

# BIKE PARKING

Selecting and installing bicycle parking that works


apbp

Association of Pedestrian and Bicycle Professionals

*Expertise for Active Transportation*

**Essentials of Bike Parking**
*Revision 1.0, September 2015*



**Acknowledgments**

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

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

**Association of Pedestrian and Bicycle Professionals**

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## TABLE OF CONTENTS

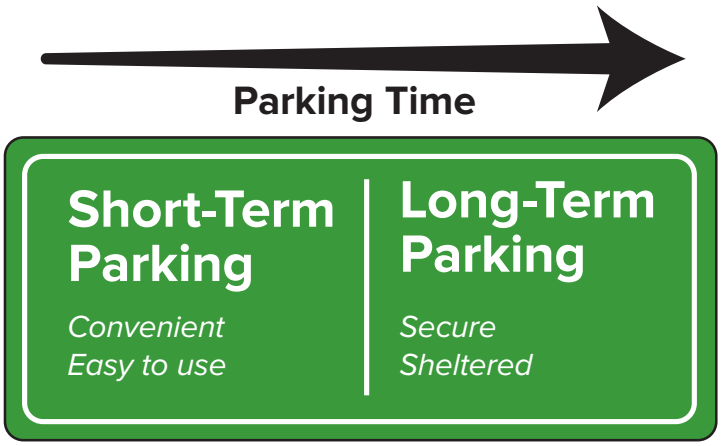


## INTRODUCTION

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

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

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



# SHORT-TERM PARKING

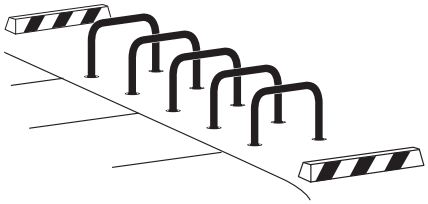
*Effective bike parking for short-term users depends on two main factors: 1) proximity to the destination and 2) ease of use.*

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

**INVERTED U**

**POST & RING**

**CORRAL**



## SITE PLANNING

### Location

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

### Security

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

### Quantity

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

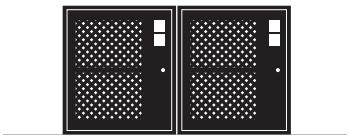
## BIKE CORRALS

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

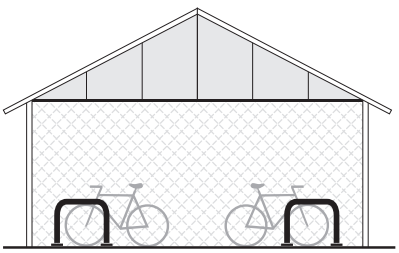
# LONG-TERM PARKING

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

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



**BIKE LOCKERS**



**SHELTERED SECURE ENCLOSURE**

## SITE PLANNING

### Location

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

### Security

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

### Quantity

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

## SPECIAL CONSIDERATIONS FOR LONG-TERM PARKING

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

### Density

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

### Bicycle design variety

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

### Performance criteria

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

# INSTALLATION

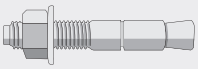
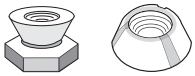
*Selecting an appropriate installation surface and technique is key to creating bicycle parking that remains secure and attractive over time.*

## INSTALLATION SURFACE

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

## INSTALLATION FASTENERS

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

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

## INSTALLATION TECHNIQUES

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

# BICYCLE RACK SELECTION

## PERFORMANCE CRITERIA FOR BIKE PARKING RACKS

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

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

# RACK STYLES

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

## RACKS FOR ALL APPLICATIONS

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

### INVERTED U
also called staple, loop

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

### POST & RING

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

### WHEELWELL-SECURE

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

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

## HIGH-DENSITY RACKS

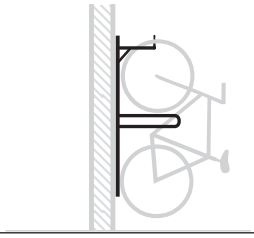
These rack styles do not meet all performance criteria but may be appropriate in certain constrained situations.

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

### STAGGERED WHEELWELL-SECURE

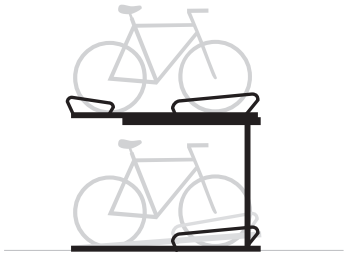
Variation of the wheelwell-secure rack designed to stagger handlebars vertically or horizontally to increase parking density. Reduces usability and limits kinds of bikes accommodated, but contains bikes well and aids in fitting more parking in constrained spaces.

### VERTICAL



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

### TWO-TIER



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

## RACKS TO AVOID

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

**WAVE**
also called undulating or serpentine

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

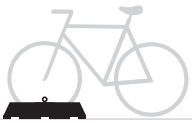
**SCHOOLYARD**
also called comb, grid

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

**COATHANGER**

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

**WHEELWELL**



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

**BOLLARD**

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

**SPIRAL**

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

**SWING ARM SECURED**

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

# RACK MATERIALS & COATINGS

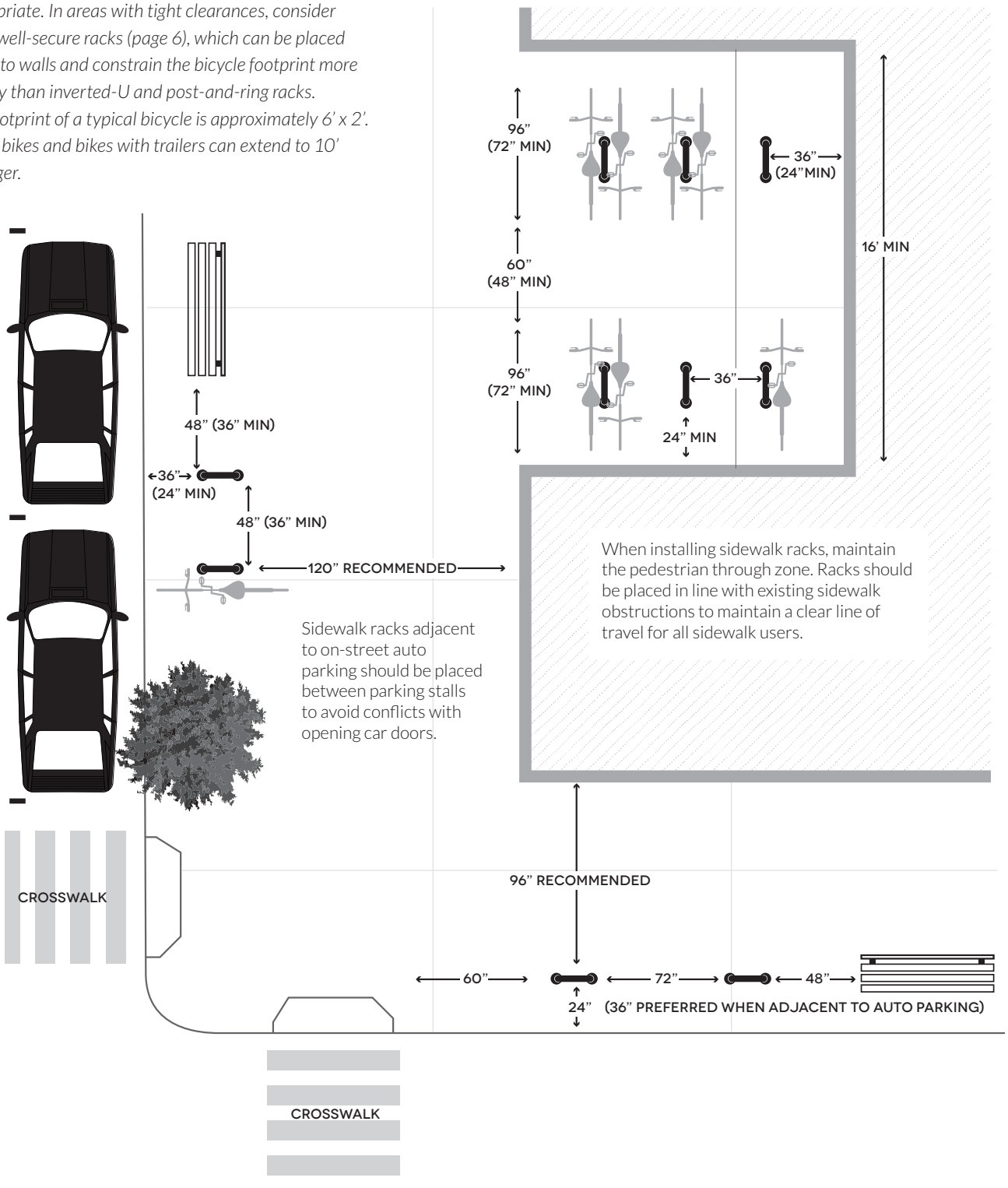
*Most bicycle parking racks are made of carbon steel or stainless steel. Carbon steel requires a surface coating to resist rust while appropriate grades of stainless steel need no coating. Not all materials and coatings with the same name perform equally. Square tubing provides a security advantage as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

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

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

# PLACEMENT

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



# APPENDIX E

# Recommendation
# Cost Range Estimates

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

## Appendix E: Recommendation Cost Range Estimates

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

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

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

# APPENDIX F

# Next Steps

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

**From Recommendations to Action: Next Steps**

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

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

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

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

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

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

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